Global Innovation Index 2025

Innovation at a Crossroads



WIPO

Global Innovation Index 2025

Innovation at a Crossroads

18th Edition

WIPO
WORLD INTELLECTUAL PROPERTY ORGANIZATION

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Foreword



Photo: WIPO / Emmanuel Berrod

Welcome to the 18th edition of WIPO's flagship *Global Innovation Index* (GII), which takes the pulse of innovation across 139 countries and the world's top 100 innovation clusters.

The GII 2025 arrives at a pivotal moment: after a decade of rapid expansion in R&D spending and venture capital investment, we are witnessing a shift. R&D growth has declined to its slowest pace since the global financial crisis and global venture capital deals have not recovered from the severe downturn in 2023.

However, even if innovation investment is in a lull, innovation itself is not. Green supercomputers are setting new efficiency records. Battery prices and genome sequencing costs continue to fall. Adoption of electric vehicles, 5G and robotics are gaining ground, albeit unevenly across regions. And while the full impact of artificial intelligence remains uncertain, its transformative potential is undeniable.

What is particularly encouraging in this year's findings is how innovation momentum is diversifying across regions. The GII 2025 shows strong performances across middle-income economies. China, India, Türkiye and Viet Nam continue to climb in the ranking. Others, including Senegal, Tunisia, Uzbekistan and Rwanda, are emerging as dynamic innovation overperformers. Regions such as Central and Southern Asia and the Middle East are steadily advancing, contributing to a more diverse innovation landscape.

New features of GII 2025 include expanded global coverage, with six more countries: the Republic of the Congo, Guinea, Lesotho, Malawi, Seychelles and Venezuela.

This edition also further improves the GII Innovation Ecosystems & Data Explorer, which aims to empower decision makers by offering in-depth views of their economies' innovation systems, from persistent strengths to areas of untapped potential.

Another new element is the integration of venture capital activity into the innovation cluster ranking for the first time. The result is a sharper picture of the ecosystems turning scientific discovery into entrepreneurial success — ranging from cities such as Bangalore, Cairo, Mexico City and Paris to multi-city hubs like Silicon Valley and southern China's Greater Bay Area.

We hope that this GII 2025 serves as a useful resource for governments, industry, researchers and anyone committed to nurturing innovation ecosystems around the world. In a time of economic uncertainty and technological transformation, understanding the dynamics of innovation has never been more important.

Daren Tang
Director General
World Intellectual Property Organization (WIPO)

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The *Global Innovation Index 2025* was prepared under the general direction of Daren Tang, Director General, in WIPO's IP and Innovation Ecosystems Sector led by Marco Alemán, Assistant Director General, and in the Department of Economics and Data Analytics led by Carsten Fink, Chief Economist.

The report and rankings are produced by a core team managed by Sacha Wunsch-Vincent, Head of Section, comprising Vanessa Behrens, Mario Canales (both Project Managers), Lorena Rivera León, Senior Economist, and Jeff Slee, Data Scientist, from the WIPO Composite Indicator Research Section responsible for the GII, as well as Davide Bonaglia, Oriol Gisbert-Martí (GII Fellows), Bhanuka Kirinde, Consultant, and Claire Rousseau, Intern.

Soumitra Dutta (Portulans Institute), Bruno Lanvin (Descartes Institute for the Future), Lorena Rivera León (WIPO) and Sacha Wunsch-Vincent (WIPO) serve as co-editors of the GII.

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Since 2011, the Advisory Committee has been providing strategic direction of the Global Innovation Index (GII). The Committee's mandate is to emphasize innovation's pivotal role in driving economic and social advancement and to extend the reach of GII insights across all economies and regions globally. The Advisory Committee comprises accomplished international policymakers, thought leaders and corporate strategists selected from diverse geographical and institutional backgrounds who have been brought together to share their invaluable expertise in an individual capacity. We would like to express our profound appreciation to all Advisory Committee members for their collaborative spirit and continued commitment to the advancement of global innovation.

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The Global Innovation Index Industry Association Network (GIIIAN) unites distinguished organizations representing a vibrant ecosystem of firms and private sector entities, all focused on propelling innovation forward. The network's companies stand at the forefront of innovation and competitiveness throughout diverse sectors, economies and geographical regions, delivering essential perspectives on innovation measurement methodologies and growth catalysts. They engage with WIPO in orchestrating high-impact GII events and amplifying the GII's core mission to strengthen innovation metrics and accelerate development worldwide.

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Confederation of Indian Industry (CII)
Chandrajit Banerjee, Director General

International Chamber of Commerce (ICC)
Philippe Varin, Chair

Türkiye Exporters Assembly (TİM)
Mustafa Gültepe, President

Academic Network

Founded in 2011, the GII Academic Network (AN) brings together 12 top-tier universities and research institutions from around the world to support and advance innovation-related research. Hosted by the Portulans Institute, the Network fosters collaboration among students, faculty, and researchers to strengthen the visibility, relevance, and impact of the Global Innovation Index (GII). We deeply appreciate the ongoing support and valuable contributions of all GII Academic Network members, whose engagement plays a vital role in driving innovation research, enriching the GII, and shaping global understanding of innovation performance.

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Viet Nam: VinUniversity, Phan Thi Thuc Anh, Associate Vice Provost

The GII Partners

Preface

Innovation fuels progress, but cannot be captured by numbers alone. The Global Innovation Index (GII) charts breakthroughs in technology, business models, social initiatives, and systemic shifts, so as to reveal how fresh ideas are transforming economies and societies.

Titled *"Innovation at a Crossroads"* , the 2025 edition of the GII shows a world in transition. Innovation systems are at a turning point, as they adapt to geopolitical shifts, rapid technological advances, and novel forms of collaboration. Technological breakthroughs are converging at an unprecedented pace. Advances in artificial intelligence, from foundational models to autonomous systems, promise to reshape industries, labor markets and social frameworks. Progress in quantum computing and clean energy continues, but governance, inclusivity, and ethical stewardship remain critical questions.

In such a period of global transition, key indicators of innovation present a complex and evolving landscape. Although research and development (R&D) investment continues to rise, its slower growth mirrors the more tempered pace seen in past economic recoveries. Venture capital activity has also moderated, with a small number of large deals in major innovation hubs accounting for most of global investment, underscoring ongoing caution in early-stage funding. Patenting activity, meanwhile, has shown only modest gains, reflecting a broader sense of hesitation rather than renewed momentum. Taken together, these trends highlight a moment of recalibration for the global innovation ecosystem.

Collaboration is evolving, as ecosystems become more networked and distributed. New forms of partnerships, open-science platforms and multi-stakeholder coalitions accelerate knowledge exchange. These collaborative models are helping address shared challenges, such as climate resilience, public health and sustainable development, while balancing national priorities with collective goals.

This 18th edition of the GII provides the rigorous data and analysis required to illustrate how innovation adapts at this crossroads. We explore shifting investment patterns, evolving policy landscapes, and the interplay between established and emerging innovation actors. In terms of rankings, continuity dominates. Familiar leaders remain at the top, while several emerging economies continue their gradual upward trajectory. The landscape shows progress that is steady and incremental rather than dramatic.

By assessing the ecosystems that nurture innovation, the GII guides strategic efforts by looking beyond anecdotal evidence and short-term fixes. Understanding resilience and adaptability is more vital than ever, as countries and organizations navigate growing complexity.

Published annually by the World Intellectual Property Organization (WIPO), the GII remains the benchmark study of global innovation. With the support of Daren Tang, Director General of WIPO, and the GII team, the 2025 Global Innovation Index continues to serve as a key reference at this pivotal moment, offering clarity on steering innovation toward sustainable, inclusive and collaborative futures.

We would like to thank our Academic Network partners and Members of the GII Industry Association Network as well as the GII Advisory Committee for their expertise and WIPO leadership for their support. As co-editors, we uphold the analytical rigor and transparency necessary to keep the GII an authoritative global resource.

Soumitra Dutta
Founder and co-editor of the *Global Innovation Index*
Co-founder of the Portulans Institute

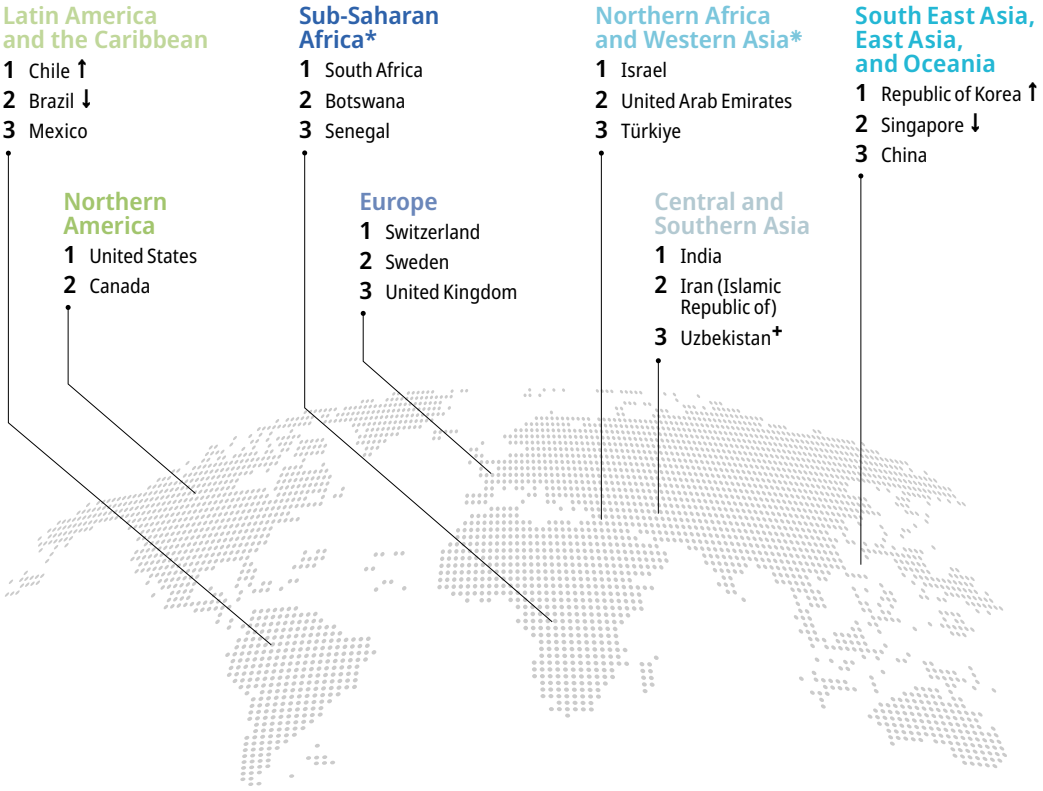
Bruno Lanvin
Co-editor of the *Global Innovation Index*
Co-founder of the Portulans Institute

GII 2025 at a glance

The Global Innovation Index 2025 provides comprehensive analysis of innovation ecosystems across 139 economies, tracking global innovation trends through investment patterns, technological progress, adoption rates, and socioeconomic impacts.

Global leaders in innovation, 2025

Top three innovation economies by region



Top three innovation economies by income group

High-income	Upper middle-income	Lower middle-income	Low-income ^
1 Switzerland	1 China	1 India	1 Rwanda
2 Sweden	2 Malaysia	2 Viet Nam	2 Togo
3 United States	3 Türkiye	3 Philippines	3 Uganda

\+ Indicates a new entrant into the top three in 2025.
↑↓ Indicates movement in rank (up or down) within the top three, relative to 2024.
* Top three in Sub-Saharan Africa (SSA) – excluding island economies. The top five in the region, including all economies, comprise Mauritius (1st), South Africa (2nd), Seychelles (3rd), Botswana (4th) and Senegal (5th).
❋ Top three in Northern Africa and Western Asia (NAWA) – excluding island economies. The top four in the region, including all economies, are as follows: Israel (1st), Cyprus (2nd), United Arab Emirates (3rd) and Türkiye (4th).
^ Top three in the low-income group – excluding island economies. The top four in the low-income group, including all economies are as follows: Rwanda (1st), Togo (2nd), Madagascar (3rd), and Uganda (4th).

Source: Global Innovation Index Database, WIPO, 2025.

Global Innovation Index 2025 rankings

GII rank	Economy	Score	Income group rank	Region rank
1	Switzerland	66.0	1	1
2	Sweden	62.6	2	2
3	United States	61.7	3	1
4	Republic of Korea	60.0	4	1
5	Singapore	59.9	5	2
6	United Kingdom	59.1	6	3
7	Finland	57.7	7	4
8	Netherlands (Kingdom of the)	57.0	8	5
9	Denmark	56.9	9	6
10	China	56.6	1	3
11	Germany	55.5	10	7
12	Japan	53.6	11	4
13	France	53.4	12	8
14	Israel	52.3	13	1
15	Hong Kong, China	51.5	14	5
16	Estonia	51.1	15	9
17	Canada	51.1	16	2
18	Ireland	50.4	17	10
19	Austria	50.1	18	11
20	Norway	49.2	19	12
21	Belgium	48.5	20	13
22	Australia	48.0	21	6
23	Luxembourg	47.3	22	14
24	Iceland	47.0	23	15
25	Cyprus	45.5	24	2
26	New Zealand	45.5	25	7
27	Malta	45.4	26	16
28	Italy	44.9	27	17
29	Spain	44.6	28	18
30	United Arab Emirates	44.2	29	3
31	Portugal	43.9	30	19
32	Czech Republic	42.0	31	20
33	Lithuania	40.8	32	21
34	Malaysia	40.6	2	8
35	Slovenia	40.1	33	22
36	Hungary	40.0	34	23
37	Bulgaria	39.1	35	24
38	India	38.2	1	1
39	Poland	37.7	36	25
40	Croatia	37.7	37	26
41	Latvia	37.5	38	27
42	Greece	37.4	39	28
43	Türkiye	37.2	3	4
44	Viet Nam	37.1	2	9
45	Thailand	36.7	4	10
46	Saudi Arabia	36.0	40	5
47	Slovakia	35.5	41	29
48	Qatar	34.6	42	6
49	Romania	34.3	43	30
50	Philippines	33.6	3	11
51	Chile	33.1	44	1
52	Brazil	32.9	5	2
53	Mauritius	32.5	6	1
54	Serbia	31.7	7	31
55	Indonesia	31.3	8	12
56	Georgia	31.2	9	7
57	Morocco	31.1	4	8
58	Mexico	30.5	10	3
59	Armenia	30.5	11	9
60	Russian Federation	30.3	45	32
61	South Africa	30.1	12	2
62	Bahrain	30.0	46	10
63	North Macedonia	29.8	13	33
64	Montenegro	29.8	14	34
65	Jordan	29.7	5	11
66	Ukraine	29.7	15	35
67	Albania	29.6	16	36
68	Uruguay	28.8	47	4
69	Oman	28.7	48	12
70	Iran (Islamic Republic of)	28.5	17	2
71	Colombia	28.5	18	5
72	Costa Rica	28.4	19	6
73	Kuwait	28.2	49	13
74	Republic of Moldova	27.4	20	37
75	Seychelles	27.2	50	3
76	Tunisia	27.0	6	14
77	Argentina	26.8	21	7
78	Mongolia	26.7	22	13
79	Uzbekistan	26.5	7	3
80	Peru	26.5	23	8
81	Kazakhstan	26.3	24	4
82	Panama	25.9	51	9
83	Jamaica	25.2	25	10
84	Barbados	25.1	52	11
85	Belarus	25.1	26	38
86	Egypt	24.7	8	15
87	Botswana	24.6	27	4
88	Brunei Darussalam	24.5	53	14
89	Senegal	23.8	9	5
90	Lebanon	23.6	10	16
91	Namibia	23.5	28	6
92	Bosnia and Herzegovina	23.4	29	39
93	Sri Lanka	22.9	11	5
94	Azerbaijan	22.9	30	17
95	Cabo Verde	22.6	12	7
96	Kyrgyzstan	22.6	13	6
97	Dominican Republic	22.6	31	12
98	El Salvador	22.2	32	13
99	Pakistan	22.1	14	7
100	Cambodia	22.0	15	15
101	Ghana	21.9	16	8
102	Kenya	21.4	17	9
103	Paraguay	21.4	33	14
104	Rwanda	21.1	1	10
105	Nigeria	21.1	18	11
106	Bangladesh	21.0	19	8
107	Nepal	20.2	20	9
108	Tajikistan	20.2	21	10
109	Lao People's Democratic Republic	20.1	22	16
110	Côte d'Ivoire	19.7	23	12
111	Bolivia (Plurinational State of)	19.6	24	15
112	Zambia	19.6	25	13
113	Ecuador	19.5	34	16
114	Trinidad and Tobago	19.3	54	17
115	Algeria	18.9	35	18
116	Cameroon	18.2	26	14
117	Togo	18.1	2	15
118	Benin	17.8	27	16
119	Honduras	17.7	28	18
120	Madagascar	17.6	3	17
121	United Republic of Tanzania	17.5	29	18
122	Myanmar	17.3	30	17
123	Guatemala	17.1	36	19
124	Uganda	17.1	4	19
125	Malawi	16.0	5	20
126	Burkina Faso	15.9	6	21
127	Burundi	15.8	7	22
128	Mozambique	15.4	8	23
129	Zimbabwe	15.4	31	24
130	Nicaragua	15.4	32	20
131	Mauritania	15.4	33	25
132	Lesotho	14.9	34	26
133	Guinea	14.9	35	27
134	Ethiopia	14.4	9	28
135	Mali	14.0	10	29
136	Venezuela (Bolivarian Republic of)	13.7		21
137	Congo	13.6	36	30
138	Angola	13.0	37	31
139	Niger	11.9	11	32

Low-income
Lower middle-income
Upper middle-income
High-Income

Sub-Saharan Africa
Central and Southern Asia
South East Asia, East Asia, and Oceania
Nothern Africa and Western Asia

Latin America and the Caribbean
Northern America
Europe

Note: The World Bank classified Venezuela (Bolivarian Republic of) as an upper-middle income economy until 2021 and has been unclassified since then due to the unavailability of data.

Source: Global Innovation Index Database, WIPO, 2025.

Innovation performance at different income levels, 2025

High-income group	Upper middle-income group	Lower middle-income group	Low-income group
Performance above expectation for level of development			
Switzerland	China	India	Rwanda
Sweden	Thailand	Viet Nam	Madagascar
United States	Brazil	Philippines	Malawi
Republic of Korea	Indonesia	Morocco	Burundi
United Kingdom	South Africa	Jordan	
Finland	Ukraine	Tunisia	
Netherlands (Kingdom of the)		Uzbekistan	
Denmark		Senegal	
Germany			
Japan			
France			
Israel			
Estonia			
Canada			
Performance in line with level of development			
Singapore	Malaysia	Egypt	Togo
Hong Kong, China	Türkiye	Lebanon	Uganda
Ireland	Mauritius	Sri Lanka	Burkina Faso
Austria	Serbia	Cabo Verde	Mozambique
Norway	Georgia	Kyrgyzstan	
Belgium	Mexico	Pakistan	
Australia	Armenia	Cambodia	
Iceland	North Macedonia	Ghana	
Cyprus	Montenegro	Kenya	
New Zealand	Albania	Nigeria	
Malta	Iran (Islamic Republic of)	Bangladesh	
Italy	Colombia	Nepal	
Spain	Republic of Moldova	Tajikistan	
United Arab Emirates	Mongolia	Lao People's Democratic Republic	
Portugal	Peru	Côte d'Ivoire	
Czech Republic	Jamaica	Zambia	
Lithuania	Botswana	Cameroon	
Slovenia	Namibia	Benin	
Hungary	El Salvador	United Republic of Tanzania	
Bulgaria			
Poland			
Croatia			
Latvia			
Greece			
Chile			
Barbados			
All other economies			
Luxembourg	Costa Rica	Bolivia (Plurinational State of)	Ethiopia
Saudi Arabia	Argentina	Honduras	Mali
Slovakia	Kazakhstan	Myanmar	Niger
Qatar	Belarus	Zimbabwe	
Romania	Bosnia and Herzegovina	Nicaragua	
Russian Federation	Azerbaijan	Mauritania	
Bahrain	Dominican Republic	Lesotho	
Uruguay	Paraguay	Guinea	
Oman	Ecuador	Congo	
Kuwait	Algeria	Angola	
Seychelles	Guatemala		
Panama			
Brunei Darussalam			
Trinidad and Tobago			

Note: The World Bank classified Venezuela (Bolivarian Republic of) as an upper-middle income economy until 2021 and has been unclassified since then due to the unavailability of data.

Source: Global Innovation Index Database, WIPO, 2025.

Key takeaways

1. In 2024, innovation investments largely positive – except for venture capital. Yet, innovation investment growth is at an historically low level

In 2024, innovation investments are largely positive – except for venture capital. Yet, innovation investment growth is at an historically low level. After the downturn of 2023, innovation investment showed signs of recovery in 2024 – but the recovery remains fragile; most innovation investments are below the long-term growth trend.

Global Innovation Tracker Dashboard

Science and innovation investment

	Scientific publications	R&D investments		Venture capital		International patent filings
		Global total	Top corporate R&D spenders	Deal numbers	Deal values	
Short term	5.6% 2023→2024	2.9%* 2023→2024	3.2%* 2023→2024	↓ –4.4% 2023→2024	7.7% 2023→2024	0.5% 2023→2024

Technological progress

	Computing power		Costs of renewable energy		Electric battery price	Cost of genome sequencing	Drug approvals
	Moore's Law	Green supercomputers	Solar photovoltaic	Wind			
Short term	36.9% 2022→2024	65.7% 2023→2024	–12.4% 2022→2023	–3.4% 2022→2023	–20.1% 2023→2024	–11.1%* 2022→2024	↓ –18.8% 2023→2024

Technology adoption

	Safe sanitation	Connectivity		Robots	Electric cars	High-speed rail network	Cancer radiotherapy
		Fixed broadband	5G				
Short term	1.2% 2023→2024	6.3% 2023→2024	15.1% 2023→2024	9.7% 2022→2023	45% 2023→2024	5.1% 2022→2023	1.3% 2023→2024

Socioeconomic impact

	Labor productivity	Poverty	Life expectancy	Global warming
Short term	2.5% 2023→2024	–0.6% 2023→2024	0.7% 2022→2023	↓ +1.29°C 2024

Notes: See the Data notes at the end of this section for a definition of the indicators and their data sources. Historic data may have been updated and might differ from last year's Global Innovation Tracker. Figures are rounded. Estimates or incomplete data are indicated by an asterisk (*). Short-term rates for Moore's Law and the cost of genome sequencing refer to the CAGR between 2022 and 2024.

Source: Global Innovation Index Database, WIPO, 2025.

Below we note historical trends (2013-2024) highlighted in the Global Innovation Tracker as follows: ↑ Recent growth above the 10-year trend; ↗ Growth is continuing but below the historical trend; ↘ Declining levels.

↑ **Overall picture more positive in 2024:** Compared to previous GII editions, where results were more mixed, this year the picture appears more uniformly positive. Overall, only three indicators – venture capital (VC) deal counts, drug launches and global warming – overall are in decline in 2024.

↑ **Scientific publications surge:** Research output hit a record-breaking 2 million articles in 2024, driven by China's remarkable 14 percent growth and India's solid 7.6 percent increase. The global science engine is running strong.

↗ **R&D grows – but at the slowest pace since 2010:** Global R&D spending is projected to rise by 2.9 percent in 2024 – a slowdown from the 4.4 percent increase recorded in 2023 and the lowest rate since 2010. Public R&D showed a modest recovery, while business R&D outside of the United States and China grew only 1.4 percent, reflecting weak momentum in many high-income and middle-income economies.

↗ **Corporate R&D at a record high, yet slowing sharply:** Corporate R&D spending reached a record USD 1.3 trillion in 2024. However, growth in nominal terms slowed to 3.2 percent – or 1 percent in real terms – far below the 8 percent average for the past decade. The contrast is sectoral: ICT-related firms (particularly within AI-intensive sectors), and software and pharmaceutical firms expanded R&D budgets, whereas traditional manufacturing firms, such as the automotive sector and consumer goods, cut R&D spending, often in response to harshly reduced company revenues.

↘ **Venture capital: still in a downturn – outside of AI and the United States**: VC investment showed a deceptive rebound. Deal values rose 7.7 percent in 2024, largely driven by US-based megadeals and surging investment in generative AI. However, excluding these, VC activity would have contracted. Most tellingly, the number of VC deals fell 4.4 percent globally – a third consecutive year of decline – signaling persistent investor caution outside a narrow set of sectors and geographies. VC, which had been gradually expanding into a wider set of non-ICT sectors and emerging markets, now appears to be retreating back its traditional core – namely, the United States and AI- and ICT-related investments. This marks a missed opportunity to sustain the earlier momentum toward broader sectoral and geographical diversification.

↗ **International patent filings stabilize – but growth is low:** Following a rare decline in 2023, patent filings increased slightly by 0.5 percent in 2024. Growth remains fragile, with wide disparities across countries and regions, and filing growth soft.

In sum, only scientific publications are truly thriving. Most innovation investments show positive but below-trend growth, while VC deal numbers are in decline.

2. Technology has advanced rapidly, while adoption slowed

Technology advanced on almost every front in 2024, with only novel drug development moving backward. Supercomputing efficiency and battery prices led the charge with impressive gains, though progress in wind power and genome sequencing could not match the dramatic improvements of the past decade.

↑ **Supercomputing leaps forward**: Green supercomputer efficiency soared over 60 percent, showcasing the relentless march of computational power and energy efficiency.

↑ **Battery revolution accelerates**: Battery prices plummeted 20 percent, accelerating the clean energy transition and making electric vehicles more accessible.

↑ **Moore's Law defies doubters**: Transistor counts grew 37 percent, staying remarkably close to the decade-long trend that many predicted would falter.

↗ **Solar power dominance**: Solar power costs have dropped 90 percent since 2010, making it now 56 percent cheaper than fossil fuels, with renewable energy costs continuing on a downward trajectory.

↗ **Genomics advances**: Genome sequencing costs continue to fall, opening new possibilities for personalized medicine and biological research.

↘ **Drug development challenges**: Drug approvals declined 19 percent, reflecting the innate complexity of pharmaceutical innovation, despite technological advances.

In sum, technological progress remains robust across all fields, with the exception of drug approvals, and is particularly strong in computing and energy technology.

While technology adoption expanded across all indicators in 2024, every single metric fell short of its long-term growth trend – a clear signal that adoption momentum is decelerating, despite continued technological progress.

↗ **Electric vehicle expansion**: Global Electric Vehicle (EV) stock grew by 18 million units (+45 percent), but growth is notably decelerating in key markets, with China and emerging economies increasingly driving adoption.

↗ **5G reaches half the world**: 5G now covers half the world's population, yet expansion has slowed and access remains starkly unequal between regions.

↗ **Industrial progress**: Robots have gained important ground in the last few years, while high-speed rail has gained ground, but only modestly, led largely by China; and – both – at rates below historical trends from 2023 to 2024.

↗ **Health and infrastructure**: Progress continues in safe sanitation and cancer therapy technologies, but faces persistent infrastructure gaps in lower-income economies.

In sum, technology adoption is broad-based, but showing clear signs of slowing momentum. High costs, regional disparities, and market maturation are creating headwinds even as the underlying technologies continue to improve rapidly. At the same time, for relatively new technologies, it is only natural that growth diminishes over time and after initial rapid expansion: as the base grows, percentage increases fall (thus explaining the growth below the historical trend). But this is not necessarily the full story: take the example of electric vehicles; the slowdown comes way before even medium levels of penetration are attained; other inhibitors – such as the removal of subsidies, a change in attitudes, etc. – are at stake.

3. Socioeconomic impact of innovation is once again largely positive

Innovation is delivering tangible improvements in human welfare and economic performance, with the recovery from COVID-19 disruption firmly on track. The overall impact story is positive despite some environmental concerns.

↑ **Productivity surge**: Labor productivity rose 2.5 percent in 2024, exceeding its 10-year trend.

↑ **Life expectancy increases**: Global life expectancy continues its upward trajectory to reach 73 years, with solid recovery from the COVID-19 shock demonstrating the resilience of health systems and medical innovation.

↗ **Poverty reduction continues**: Extreme poverty fell to 817 million people in 2024, less than half the total in 2004, representing sustained progress in one of humanity's greatest challenges.

↘ **Global heating continues**: Global temperatures set a new record in 2024 and are on track to break that record once again in 2025, though CO_2 emissions are starting to decline among major emitters like the United States and the European Union.

The socioeconomic impact of innovation remains largely positive, with strong gains in productivity, health outcomes, and poverty reduction. While climate challenges persist, the overall trajectory shows innovation delivering meaningful benefits to human welfare.

In conclusion, we are seeing record-breaking research output and technological breakthroughs, yet investment patterns suggest increasing caution and selectivity. The path forward requires navigating this new reality – maintaining the momentum of scientific discovery while addressing the uneven distribution of benefits and the urgent environmental challenges that innovation must help solve.

4. Switzerland, Sweden, the United States of America, the Republic of Korea, and Singapore are the top-ranked economies; China joins the top 10

- Switzerland (1st), Sweden (2nd) and the United States (3rd) remain the top innovation economies in 2025. The Republic of Korea (4th) reaches its highest rank ever. Singapore (5th) rounds out the top five, leading globally in 10 innovation indicators. These top performers share common strengths: high R&D intensity, world-class institutions, a strong educational system and a strongly innovative private sector.
- China enters the top 10 for the first time (ranking 10th). It overtakes Switzerland in Knowledge and technology outputs, ranks 2nd in R&D expenditure, and leads in patent filings. Independently, it also hosts some of the top innovation clusters globally.
- Among other high performers that have improved their innovation ranking are Japan (12th) – its best result since 2011 – along with Israel (14th), and Hong Kong, China (15th).

5. A wave of middle-income economies – led by India, Türkiye, Viet Nam, the Philippines, Indonesia, Morocco, Albania, and the Islamic Republic of Iran – continue their climb since 2013, Saudi Arabia, Qatar, Brazil, Mauritius, Bahrain and Jordan show gains since 2019

- China (10th), India (38th), Türkiye (43rd), Viet Nam (44th), the Philippines (50th), Indonesia (55th), Morocco (57th), Albania (67th) and the Islamic Republic of Iran (70th) are the middle-income economies within the GII top 70 which have climbed fastest in the ranking since 2013.
    - The Philippines climbs to 50th, and into the top 50; it ranks 1st in high-tech exports.
    - Morocco (57th) posts its best result ever, rising nine places, thanks to strong industrial designs, education investment, and intangible asset development.
- Since 2019, Saudi Arabia (46th), Qatar (48th), Brazil (52nd), Mauritius (53rd), Bahrain (62nd) and Jordan (65th) have been the fastest innovation climbers.
- A growing number of other middle- and low-income economies are steadily improving, thanks to focused investments into education, digital infrastructure, and business sophistication. Among them:
    - Tunisia (76th) and Uzbekistan (79th) continue on an upward trend, with the latter recognized as an overperformer for a fourth year in a row.
    - Senegal (89th), Rwanda (104th) and newcomer Malawi (125th) show growing innovation capacity, especially in business sophistication, and knowledge absorption.

6. Singapore, the United States, Israel and Hong Kong, China, lead the world in specific innovation fields

- Singapore leads globally in the number of GII indicators ranked 1st – 10 out of 78 – including High-tech manufacturing, Unicorn valuation, and GitHub commits.
- The United States ranks 1st on nine indicators, notably in Late-stage VC deals, Software spending, and Intangible asset intensity.
- Israel and Hong Kong, China, both rank 1st globally in seven indicators, Israel tops in VC received, while Hong Kong, China, leads in FDI inflows.
- Among upper and lower middle-income economies, Namibia (91st) tops Education expenditure, Nigeria (105th) ranks 1st in Unicorn valuation, and Malaysia leads in Graduates in science and engineering.
- Cambodia (100th) and Nepal (107th) remain leaders in Loans from microfinance penetration, while the Philippines and Viet Nam (44th) continue to excel in High-tech exports.

7. Regional leaders are Switzerland, the United States, Chile, India, the Republic of Korea, Israel and Mauritius; Switzerland, China, India and Rwanda lead their respective income groups

- In Europe, Switzerland, Sweden and the United Kingdom top the rankings.
- In Eastern Europe and the Baltics, Estonia (16th), Lithuania (33th) and Latvia (41st) showcase the power of digital readiness, education and having a vibrant startup ecosystem.
- In Northern America, the United States (3rd) leads, followed by Canada (17th).
- South East Asia, East Asia, and Oceania is led by the Republic of Korea (4th), Singapore (5th) and China (10th), with Japan (12th), Hong Kong, China (15th), and Australia (22nd) close behind.
- India (38th) leads Central and Southern Asia, ahead of the Islamic Republic of Iran (70th) and Uzbekistan (79th). For the first time, this region surpasses Latin America and the Caribbean in the regional rankings, driven by strong innovation outputs from India, Uzbekistan and Kazakhstan (81st).
- In Northern Africa and Western Asia, Israel (14th) leads, followed by Cyprus (25th), the United Arab Emirates (30th), Türkiye (43rd) and Saudi Arabia (46th). Morocco (57th) achieves its highest-ever rank.
- Innovation is advancing across the Middle East, with Bahrain (62nd), Jordan (65th) and Oman (69th) among this year's fastest climbers, benefitting from better infrastructure, growing R&D and improving linkages between business and academia.
- Chile (51st) leads Latin America and the Caribbean, followed by Brazil (52nd) and Mexico (58th).

- Mauritius (53rd) leads Sub-Saharan Africa, ahead of South Africa (61st), Seychelles (75th), Botswana (87th) and Senegal (89th).
- By income group, China (10th) leads upper middle-income economies, India (38th) the lower middle-income group and Rwanda (104th) the low-income group.

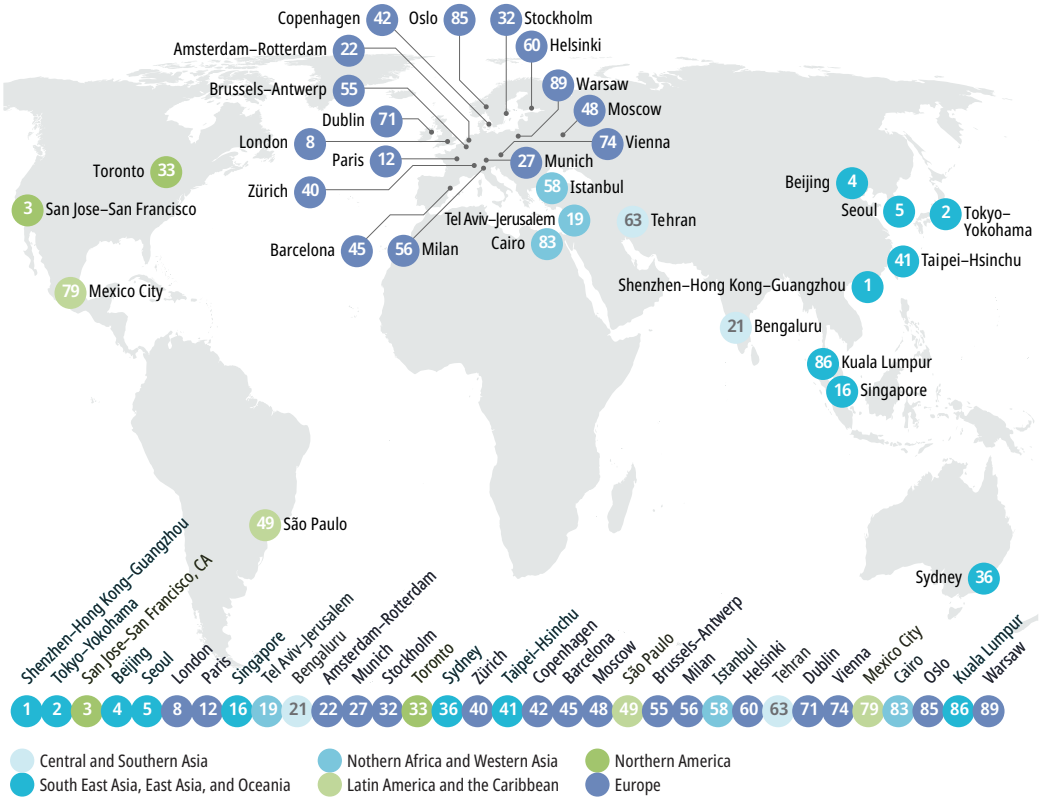
8. Seventeen middle- and low-income economies are innovation overperformers

- India and Viet Nam remain the longest-standing overperformers, performing above expectation for their level of development for the 15th year, with Rwanda and Ukraine close behind.
- Brazil, Indonesia, Morocco, South Africa, Uzbekistan and Senegal maintain their overperformer status, joined in 2025 by Tunisia and Malawi.
- Overperformers are found in all regions, with the highest number in Sub-Saharan Africa, followed by South East Asia, East Asia and Oceania and Northern Africa and Western Asia.
- In contrast, 38 economies underperform in 2025 relative to their level of development, with most located in Latin America and the Caribbean.

9. The world's top innovation clusters span six out of seven continents, with Shenzhen–Hong Kong–Guangzhou leading globally

- This year's top GII 100 innovation cluster ranking methodology incorporates venture capital (VC) deal data as a third metric alongside patent filings and scientific publications, better capturing entrepreneurial activity and innovation finance.
- Following this new approach, Shenzhen–Hong Kong–Guangzhou (China and Hong Kong, China) tops the global rankings, followed by Tokyo–Yokohama (Japan), San Jose–San Francisco (United States), Beijing (China) and Seoul (Republic of Korea). New York City, London and Los Angeles now join the top 10, propelled by the inclusion of VC as a new variable and their performance in this metric.

Top innovation cluster by economy or cross-border region ranked among the top 100, 2025



Note: Circles with numbers show cluster rankings.
Source: Global Innovation Index Database, WIPO, 2025.

- China, for a third consecutive year, leads with the most clusters (24) within the top 100. The United States follows closely with 22 clusters, then Germany with seven, and India and the United Kingdom with four each.
- São Paulo (Brazil); Cairo (Egypt), the sole top 100 innovation cluster within Africa; Bengaluru, Delhi, Mumbai and Chennai (India); Tehran (Islamic Republic of Iran); Kuala Lumpur (Malaysia) and its cross-border cluster shared with Singapore; Istanbul (Türkiye); and newcomer Mexico City (Mexico) are the middle-income economy clusters outside of China that are within the top 100. Three of India's four clusters achieved remarkable advances relative to last year's cluster ranking also benefiting from the inclusion of VC activity into the mix: Bengaluru rose to 21st, Delhi to 26th, and Mumbai to 46th position.
- The top 100 innovation clusters demonstrate strong concentration, collectively accounting for roughly 70 percent of global PCT filings and VC deal activity, and about half of all scientific publications. The leading 10 clusters alone generate around 40 percent of PCT filings and 35 percent of VC deal activity.
- Ten clusters entered the top 100 for the first time, including three in the United States (Miami; Phoenix; Salt Lake City), two in China (Ningbo; Ningde); three economies are represented in the top 100 for the first time owing to the inclusion of the following innovation clusters: Dublin (Ireland), Mexico City (Mexico) and Oslo (Norway).

10. San Jose–San Francisco is the most innovation-intensive cluster worldwide

- San Jose-San Francisco (United States) and Cambridge (United Kingdom) are the two most innovation-intensive clusters relative to population density. Boston-Cambridge (United States), Ningde (China) and Oxford (United Kingdom) follow.
- Ningde's remarkable rise to fourth place globally is driven by Contemporary Amperex Technology Co., Limited (CATL), a global leader in energy technologies.
- Helsinki (Finland) ranks ninth as the highest-ranking European Union cluster by intensity.

Global Innovation Tracker

The Global Innovation Index 2025 Tracker takes the pulse of innovation against a backdrop of global realignments, sluggish economic conditions, as well as ongoing technological breakthroughs and evolving regulatory frameworks that shape how ideas emerge, spread, and scale globally.

Global Innovation Tracker Dashboard

Science and innovation investment

	Scientific publications	R&D investments		Venture capital		International patent filings
		Global total	Top corporate R&D spenders	Deal numbers	Deal values	
Short term	5.6% 2023→2024	2.9%* 2023→2024	3.2%* 2023→2024	↓ –4.4%* 2023→2024	7.7% 2023→2024	0.5% 2023→2024
Long term (Annual growth)	4.2% 2014→2024	4.8%* 2014→2024	8.1%* 2018→2024	5.7%* 2014→2024	11.9% 2014→2024	2.5% 2014→2024

Technological progress

	Computing power		Costs of renewable energy		Electric battery price	Cost of genome sequencing	Drug approvals
	Moore's Law	Green super-computers	Solar photovoltaic	Wind			
Short term	36.9% 2022→2024	65.7% 2023→2024	–12.4% 2022→2023	–3.4% 2022→2023	–20.1% 2023→2024	–11.1%* 2022→2024	↓ –18.8% 2023→2024
Long term (Annual growth)	42.6% 2014→2024	35.1% 2014→2024	–13.9% 2013→2023	–9.6% 2013→2023	–16.7% 2014→2024	–21.5%* 2014→2024	1.9% 2014→2024

Technology adoption

	Safe sanitation	Connectivity		Robots	Electric cars	High-speed rail network	Cancer radiotherapy
		Fixed broadband	5G				
Short term	1.2% 2023→2024	6.3% 2023→2024	15.1% 2023→2024	9.7% 2022→2023	45% 2023→2024	5.1% 2022→2023	1.3% 2023→2024
Long term (Annual growth)	2.2% 2014→2024	8.2% 2014→2024	53.6% 2020→2024	12.4% 2013→2023	55.3% 2014→2024	9% 2013→2023	1.8% 2014→2024
Penetration							
	58 per 100 inhabitants in 2024 (47 in 2014)	**19** per 100 inhabitants in 2024 (10 in 2014)	**51%** of global population in 2024 (9% in 2020)	n.a.	**4.5** of 100 cars in 2024 (0.07 in 2014)	**5.6** per 100km in 2023 (2.5 in 2013)	**25** of 100 countries in 2024

Socioeconomic impact

	Labor productivity	Poverty	Life expectancy	Global warming
Short term	2.5% 2023→2024	–0.6%* 2023→2024	0.7% 2022→2023	↓ +1.29°C 2024
Long term (Annual growth)	2.2% 2014→2024	–2.6%* 2014→2024	0.3% 2013→2023	+0.75˚C 2014
Level	54,715 USD in 2024 (45,954 in 2014)	817 million in 2024 (1062 in 2014)	73 years in 2023 (71 in 2013)	n.a.

Note: See the Data notes at the end of this section for a definition of the indicators and their data sources. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. Historic data may have been updated and can differ from last year's Global Innovation Tracker. Figures are rounded. Figures of global warming refer to the increase in global mean surface air temperature relative to the average temperature during the period 1951–1980. Values marked with an asterisk (*) represent estimates or nowcasts. n.a. indicates not available. Down arrows denote worsening indicators.

The Global Innovation Index (GII) 2025 Tracker takes the pulse of innovation against a backdrop of mixed economic conditions, ongoing technological breakthroughs and evolving regulatory frameworks shaping how ideas emerge, spread and scale globally. The GII Tracker does this by analyzing four areas in particular: science and innovation investment, technological progress, technology adoption, and the socioeconomic impact of innovation.

All four areas analyzed by the GII 2025 Tracker – exceptions aside – generally show uneven but across-the-board growth covering investment, technological progress, adoption and socioeconomic impact. Compared to previous GII editions, where results were more mixed, with some pillars in decline, this year the picture appears more uniformly positive. Only three

indicators were in decline in GII 2025: venture capital (VC) deal counts, drug launches and global warming. This is an encouragingly positive development. In contrast, previously in the GII 2024, five indicators had declined and in the GII 2023, seven.

That said, deeper analysis reveals a persistent slowdown over time: innovation investments have significantly decelerated, R&D growth has declined to its lowest point since 2009 (a historic moment in which R&D actually went into decline), VC is continuing to contract, and the rebound in patenting is tepid. Overall, five out of 24 indicators have grown above the long-term (decade) trend, while 19 have fallen below.

A summary of the findings of the Global Innovation Tracker 2025, by the four key stages of the innovation cycle, is as follows.

1. Science and innovation investment
Following a sharp downturn in 2023, science and innovation investment showed only a partial and uneven recovery in 2024. Only one indicator – scientific publications – is above trend; the rest, including R&D, VC, and patents, are below.

Following a sharp downturn in 2023, science and innovation investment showed only a partial and uneven recovery in 2024. Only one indicator – scientific publications – is above trend; the rest, including R&D, VC, and patents, are below.

Global R&D growth continued to slow – down to 2.9 percent in 2024 and projected to fall further to 2.3 percent in 2025 – marking the weakest expansion in over a decade. R&D spending among top global firms also rose only by 3 percent in nominal terms, well below the decade average of 8 percent. Whereas sectors such as ICT hardware and services, software, and pharmaceuticals have experienced robust R&D growth of around 10 percent, other key industries, such as automotive and consumer goods, have seen declining revenues constrain R&D budgets.

Venture capital, once expected to rebound in 2024 after a 2023 collapse, remains stuck in a prolonged slowdown. While VC deal values increased by 7.7 percent – driven largely by a handful of US-based megadeals, particularly related to artificial intelligence (AI) – the total number of deals declined by 4 percent. Similarly, after a period of internationalization during the post-COVID years 2021 and 2022, including to new markets (Africa and Latin America) and to a broader set of sectors, the VC landscape is becoming more concentrated on the United States of America (US) and information technology (IT) and AI-related sectors.

This marks a reversal of the broader and more sectorally diverse VC distribution seen in 2021 and 2022.

2. Technological progress
Indicators of technological progress remained largely positive in 2024. Supercomputer efficiency and electric battery prices outperformed the long-run trend, whereas the rest fell short. Computing power advanced in line with Moore's Law, while the energy efficiency of top green supercomputers improved markedly. The cost of renewable energy technologies – solar and wind – and lithium-ion batteries continued to decline, sustaining the green transition.

In health innovation, however, trends were mixed: the cost of genome sequencing decreased, but at a slower rate than in the past, and the number of new drug launches fell, marking a reversal from previous highs. Overall, progress remained sectorally uneven – buoyant in digital and green technologies, but fragile in health innovation compared to 2021 and 2022, which saw COVID-induced health innovation peaks.

3. Technology adoption
The uptake of key technologies continued across most indicators in 2024, though growth rates slowed relative to the decade average. Overall, all indicators fell below the long-term trend, with electric vehicles (EVs) showing a 10 percentage point gap below trend.

Electric car adoption decelerated significantly in major Western markets, with annual growth rates falling by around 30 percentage points. By contrast, China and other emerging economies,

such as India, Viet Nam and Brazil, sustained strong EV growth. Connectivity continued to improve, with 5G coverage reaching half the global population, yet disparities remain stark.

Industrial robotics and high-speed rail infrastructure, in turn, saw gains below the decade average, with China almost single-handedly driving high-speed network progress globally. Furthermore, the availability of cancer therapy equipment improved marginally, while safe sanitation coverage continued to expand. In sum, technology adoption persisted, but slowed, particularly in high-cost or infrastructure-intensive areas.

4. Socioeconomic impact
In 2024, socioeconomic outcomes showed continued post-pandemic recovery. Two indicators – labor productivity and life expectancy – are above trend, whereas poverty and global temperatures are below (worsening). Labor productivity rose 2.5 percent – a notable increase from last year. Life expectancy reached a record high, and extreme poverty continued to decline, though progress remained sluggish.

Yet, a major source of concern remains: global temperatures reached their highest recorded level in 2024, approximately 1.3°C above the 1951–1980 baseline, underscoring the growing climate challenge and possibly insufficient use of innovation to combat climate change. Carbon dioxide emissions from fossil fuels grew by an estimated 0.8 percent from 2023 to 2024, reaching a new high after a temporary 6 percent drop in 2020. However, the growth rate is below the 1.7 percent annual average since 1994, and emissions are declining in most major emitting countries.

Science and innovation investment

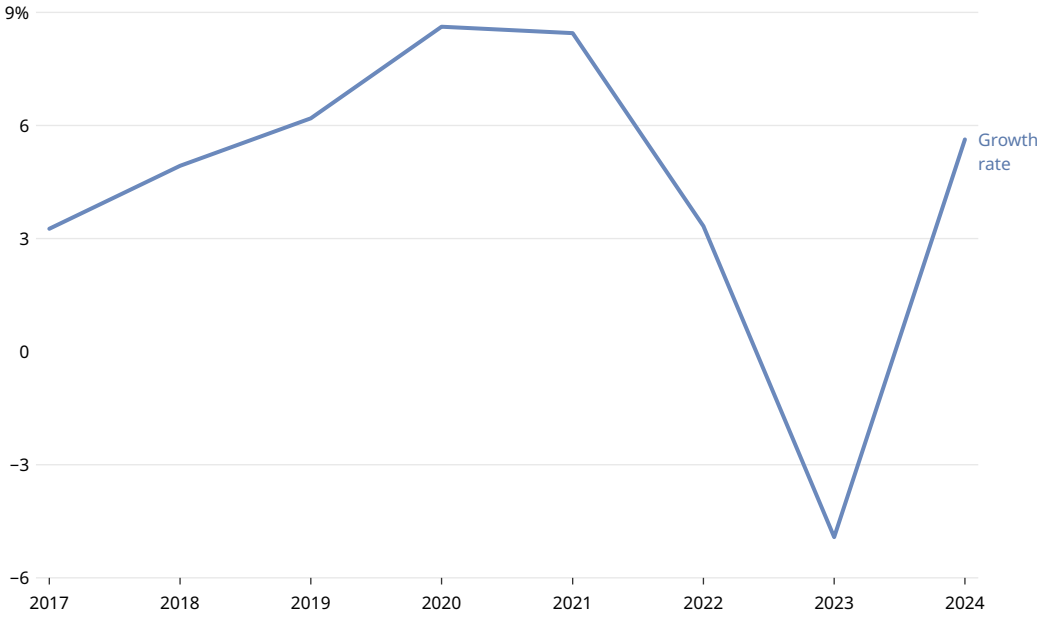
Innovation investment weathered the immediate COVID-19 disruption with remarkable dynamism, achieving historic peaks in VC funding by 2021. However, this resilience proved temporary, as multiple headwinds converged in 2022, triggering a prolonged contraction that deepened significantly throughout 2023. The year 2024 signaled a tentative and uneven recovery amid persistent underlying weaknesses across key innovation metrics. As a result, most GII 2025 indicators relating to innovation investment stayed well below pre-pandemic performance levels, with projections for 2025 suggesting continued weakness and the lowest growth rates on record since 2010.

Scientific publications

The growth of scientific publications tumbled after the COVID-19-induced publication peak in 2021 of 1.95 million. Publication growth fell from 8.5 percent in 2021 to 3.3 percent in 2022, and declined by 5 percent in 2023 (see Figure 1). In a turn-around, in 2024, the number of articles published rose by 5.6 percent, marking a new yearly record of close to 2 million scientific publications. Among the countries driving this recovery, China stood out with a 14 percent increase in publications, accounting in 2024 for 26 percent of the global total. India followed with a 7.7 percent growth rate and a 4 percent global share.

Growth was more moderate among other major economies. The United States recorded a 1.3 percent increase, maintaining a 12 percent share of global publications. The United Kingdom grew by 3 percent, holding a 4 percent share, while the Republic of Korea registered 4 percent growth, contributing 2.4 percent of the total.

Figure 1 Science and technology articles growth, 2017–2024



Source: WIPO, based on data from Clarivate, Web of Science.

Research and development (R&D)

Economy-wide R&D expenditure

The most recently available data show that – after a steep fall in R&D expenditure in 2020 followed by a reboot in 2021 and 2022, global R&D growth slowed to 4.4 percent (in real terms) in 2023 (Figure 2). This is down from 4.7 percent in 2022, and below the pre-pandemic growth rate of 6.3 percent in 2019.[1] The growth of business R&D expenditure – representing over 70 percent of total global R&D – also slowed to 4.2 percent in 2023 (compared to 8.5 percent growth in 2021) – lower than the pre-pandemic rate of 6.7 percent in 2019, but slightly higher than the pandemic levels of 4 per cent in 2020.[2]

Estimates for 2024 and 2025, based on projected GDP growth, present a scenario that is worse still, with global R&D growth expected to slow further to less than 3 percent in 2024 (2.9 percent) and only 2 percent in 2025 (2.3 percent). Similarly, business R&D is projected to slow down, growing at a similar rate to total R&D – that is, at 2.9 percent in 2024 and 2.3 percent in 2025, and only at 1.4 percent in both 2024 and 2025, when excluding the China and the Unieted States from projections.[3]

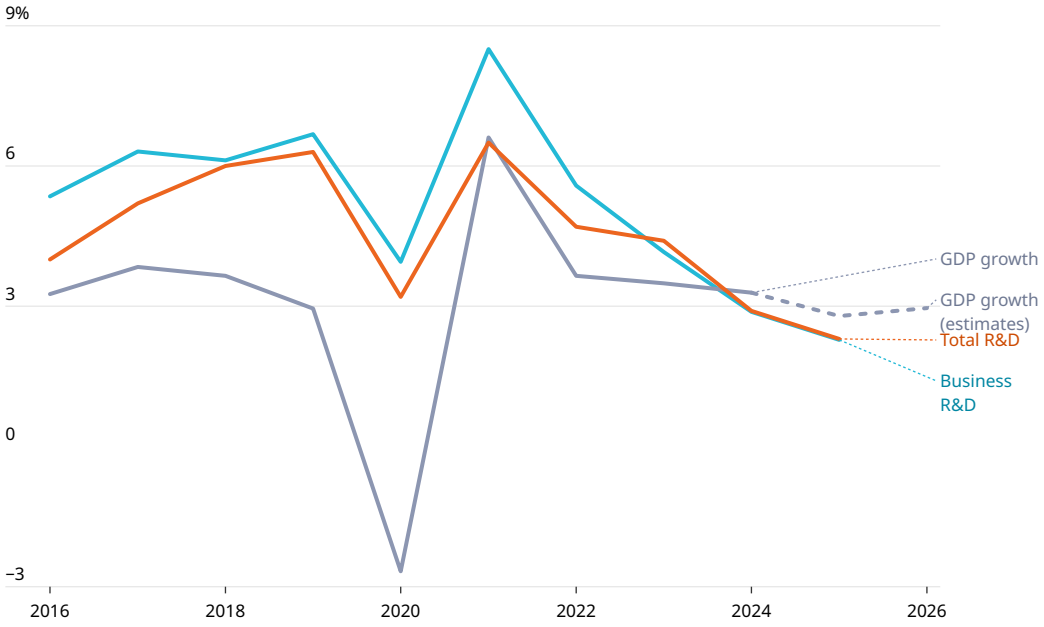
If these estimates prove correct, they would be the lowest growth rates on record since 2010 – the year after the financial crisis and the ensuing Great Recession. Business R&D growth would also be at the same level as the growth rate for total R&D expenditure; a situation that has not been observed since the early 2000s (see Figure 2). R&D expenditure growth would also stay well below GDP growth, a situation that last occurred in 2010.

1 Estimates of growth in 2022 were slightly revised down to 4.7 percent, compared to 5 percent reported in the GII 2024, as several economies subsequently reported more complete and up-to-data estimates. Subsequently, also the GII 2024 estimates for 2023 growth were modest at 2.9 percent (and 3 percent in our December 2024 update) compared to an observed 4.4 percent for the same year. See also: www.wipo.int/web/global-innovation-index/w/blogs/2024/end-of-year-edition

2 Every top 5 economy in terms of R&D spending saw growth in 2023, though this was slower than in 2022 for all, except China. Total R&D growth in the United States equaled 1.7 percent (down from 3.1 percent), China 9 percent (up from 8.1 percent), Japan 3 percent (down from 4.9 percent), Germany 0.8 percent (down from 1.1 percent) and the Republic of Korea 3.6 percent (down from 8.9 percent).

3 Although with limited available data up to March 2025, the OECD also projects a slowdown scenario for 2024 for the OECD area (OECD, 2025).

Figure 2 GDP growth and total and business R&D growth rates, 2016–2026



Source: WIPO estimates, based on the UNESCO Institute for Statistics database, Organisation for Economic Co-operation and Development (OECD) Main Science and Technology Indicators (March 2025); Eurostat; Ibero-American and Inter-American Network of Science and Technology Indicators (RICYT); and the International Monetary Fund World Economic Outlook Update, April 2025.

Top corporate R&D spenders

On the corporate side, 2024 R&D data is available for 1,510 of the top 2,000 corporate R&D spenders globally (Nindl *et al.*, 2024).[4]

In 2024, corporate R&D expenditure stood at almost USD 1.3 trillion – a historic high – up by around 3 percent in nominal terms, but only about 1 percent in real terms due to persistently high inflation (see Table 1).[5]

Despite representing a historic peak in absolute terms, this marks the slowest annual nominal growth in corporate R&D spending since 2010. [6] The 2024 figure also represents a decline from the 4.6 percent real growth recorded in 2023, making the compound annual real growth rate for the 2018–2024 period to 5 percent.

The subdued growth in R&D investment occurred alongside a decline in the aggregate revenues of large, R&D-intensive multinational firms. In 2024, the combined revenue of these firms dropped by nearly 1 percent in nominal terms and 2.7 percent in real terms. This marks a second consecutive year of negative revenue growth, reversing the strong post-pandemic earnings rebound observed in 2021 and 2022.

Because revenue growth declined more than did R&D spending growth, R&D intensity rose from 5.3 percent in 2023 to 5.5 percent in 2024 – its highest level since 2018, when it stood at 4.5 percent.

4 It is important to acknowledge that the data presented focuses on top R&D performers, often referred to as *R&D superfirms*. A comprehensive evaluation of corporate R&D performance for 2024 would require additional data, including information from small and medium-sized enterprises that may have found obtaining innovation finance challenging in an environment in which R&D is becoming both costlier and riskier.

5 Real R&D growth rates are calculated by first converting local-currency R&D figures to USD using market exchange rates at the end of the period and then deflating them using country-level GDP deflators. Growth rates are computed as weighted averages of firm-level growth, where weights are based on the firm's share in total nominal and real R&D spending in each year, respectively.

6 The 2011 EU Industrial R&D Investment Scoreboard reported a nominal growth of 4 percent for 2010 (Hernandez *et al.*, 2011)

Table 1 R&D and revenue growth rates of the top global corporate R&D spenders, 2018–2024

Year	R&D			Revenue			R&D intensity
	Nominal (billion USD)	Nominal growth	Real growth	Nominal (billion USD)	Nominal growth	Real growth	
2018	804			18,130			4.5%
2019	874	8.7%	7.1%	18,430	1.7%	0.3%	4.8%
2020	961	9.9%	8.3%	18,205	-1.2%	-2.6%	5.3%
2021	1,066	11%	7.3%	21,536	18.3%	14.1%	5%
2022	1,152	8.1%	2.9%	23,572	9.5%	4.3%	4.9%
2023	1,244	8%	4.6%	23,194	-1.6%	-3.6%	5.3%
2024	1,284	3.2%	0.9%	22,991	-0.9%	-2.7%	5.5%

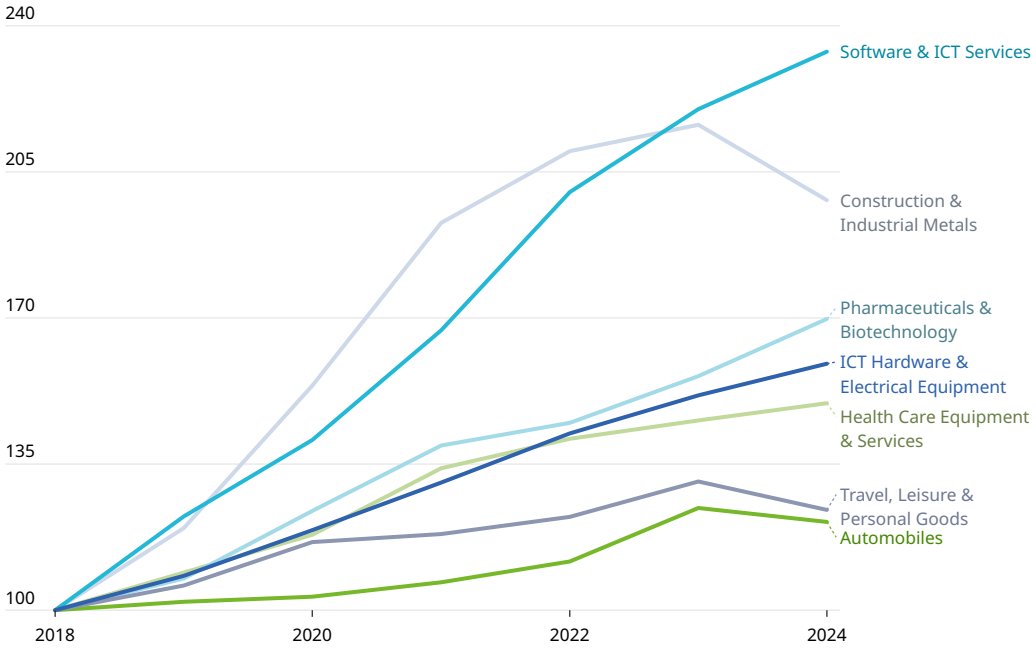
Notes: R&D and revenue data from 2018–2024, with columns for Year, R&D (nominal billion USD, nominal growth %, real growth %), Revenue (nominal billion USD, nominal growth %, real growth %), and R&D intensity (%).
Source: WIPO, based on Moody's Orbis database and the 2024 EU Industrial R&D Investment Scoreboard.

However, aggregate R&D spending growth across the top 1,500 firms masks important sectoral and firm-level differences. Some IT and pharmaceutical firms continued to grow their R&D investments, while others in the same sectors registered a steep decline. Significant variation was also observed across industries – for instance, the automotive sector experienced a substantial reduction in R&D investment.

Figure 3 illustrates divergent R&D investment trajectories across key industries since 2018. On average, Software and ICT services stands out with robust growth, more than doubling its 2018 R&D by 2024 and recording strong revenue growth of 10 percent in 2024. Construction and industrial metals followed, with solid gains through 2023 before declining in 2024. Pharmaceuticals and biotechnology and ICT hardware and electrical equipment also posted consistent, though more moderate, R&D growth over the period. In contrast, Automobiles and travel, Leisure and personal goods lagged significantly in terms of growth over the period and underwent a decline in 2024.

The fall in R&D spending in Automobiles, Construction and industrial metals, and Travel, leisure and personal goods in 2024 was accompanied by a contaction in revenue of approximately 3.5 percent, 6 percent, and 2.5 percent, respectively. Additionally, the Oil and Gas sector – which accounts for a substantial share of total revenue among top R&D spenders – recorded a notable 5 percent drop in revenue.

Figure 3 R&D investment trends by industry, 2018–2024



Source: WIPO, based on Moody's Orbis database and the 2024 EU Industrial R&D Investment Scoreboard.

In terms of R&D investment share by industry, the overall composition remained relatively stable over 2018–2024. Software and ICT services modestly increased its share of total R&D spending from 14 percent in 2018 to more than 20 percent in 2024. Automobiles, on the other hand, saw a steady decline over the same period, from more than 18 percent to roughly 14 percent. Shares across all other sectors remained broadly stable.

R&D intensity also shows marked differences across industries. Pharmaceuticals and biotechnology consistently recorded the highest intensity, increasing from nearly 16 percent in 2018 to 19 percent in 2024. Software and ICT services followed at 14 percent. ICT hardware and electrical equipment reached 8 percent, and the Automobile industry stood at 5 percent. Other industries reported R&D intensities ranging between 2 and 4 percent.

In geographical terms, the United States accounted for nearly half of total spending (47 percent), with 556 firms in the sample. Asia follows with a 30 percent share, driven primarily by firms in China (about 18 percent), Japan (about 7 percent) and the Republic of Korea (about 3 percent). Europe contributed 22 percent to global R&D expenditure, with Germany leading the region at 8 percent.

Figure 4 shows the nominal percentage change in R&D expenditure for 2024 among the top 15 in each of the top eight industries. While most firms continued to increase investment, sustaining the positive trend of recent years, 30 companies cut R&D spending. Average growth was negative in Automobiles (–2.7 percent), Construction and industrial metals (–8.4 percent), and Travel, leisure and personal goods (–5.2 percent). In Software and ICT services, three of the top 15 R&D spenders reduced investment, whereas only one firm in Pharmaceuticals and biotechnology did so. In the Automobile sector, six out of the 15 leading firms decreased R&D expenditure.

Some highlights:

- In ICT hardware and electrical equipment, the Broadcom company recorded the largest growth (+77.2 percent), followed by NVIDIA, Samsung Electronics, and SK Hynix.
- Meta still leads in Software and ICT services, with a growth rate of 14 percent.
- In Pharmaceuticals and biotechnology, AbbVie posted a 67 percent increase, well above other companies in the sector, such as Bristol-Myers Squibb (20 percent) and AstraZeneca (19 percent).

– R&D spending declined for several major automobile firms, including Stellantis (–8.4 percent), General Motors (–7.1 percent), Volkswagen (–3.6 percent) and Mercedes-Benz (–2.8 percent). By contrast, Tata Motors, BYD, BMW, Honda, and Tesla registered the most growth within the industry.

Figure 4 Top R&D spenders by industry, growth rate 2023–2024

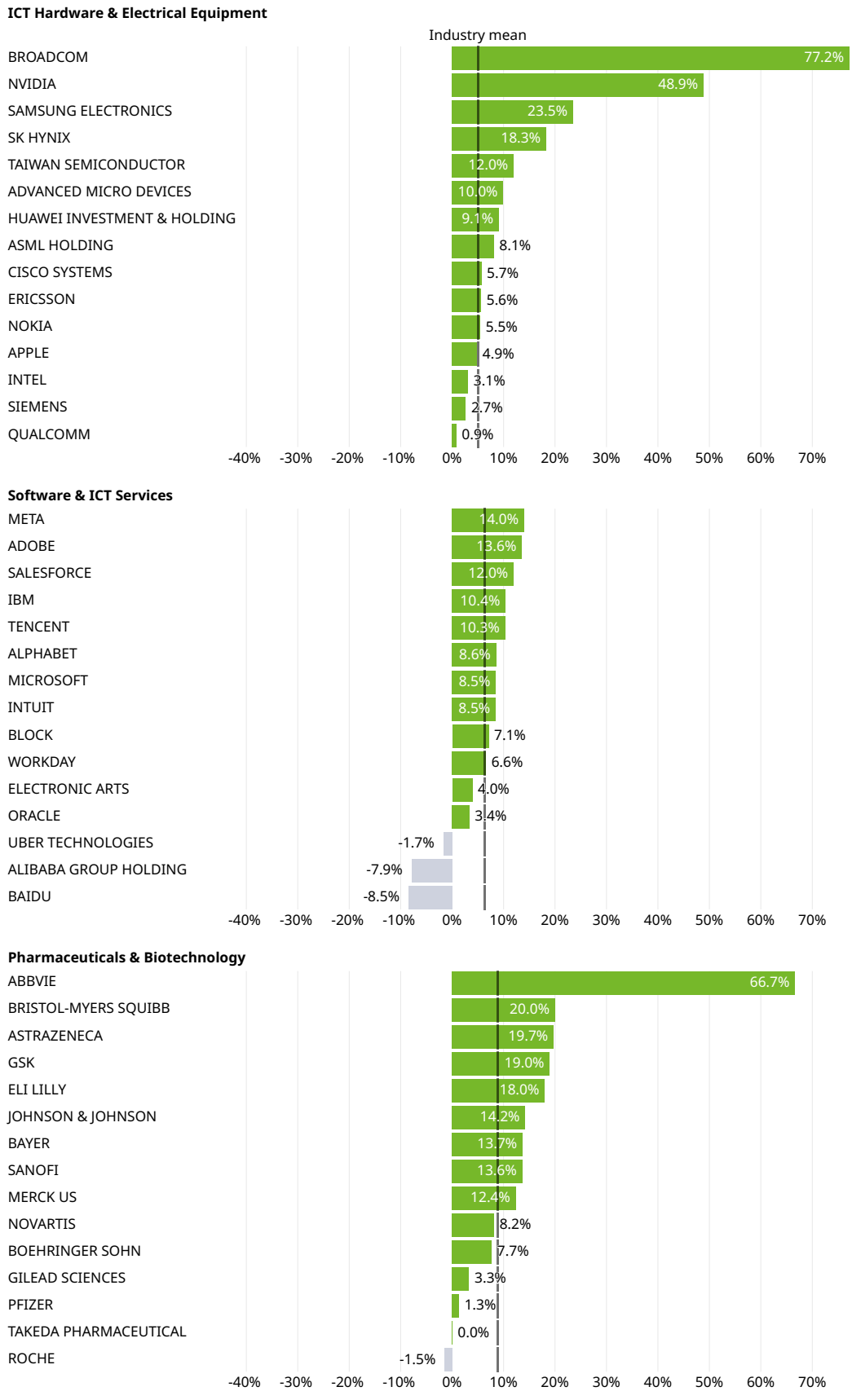


Figure 4 (continued)

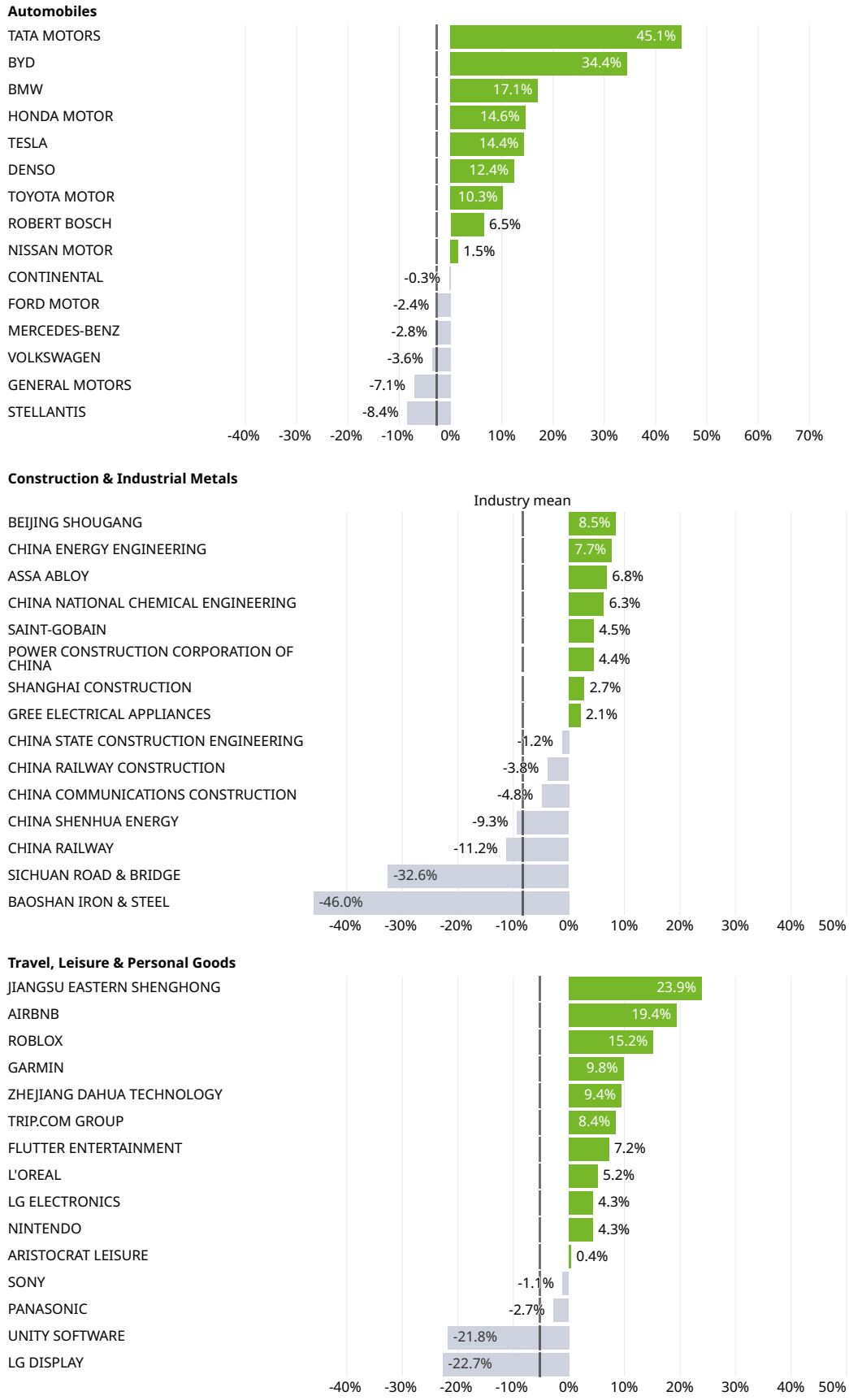
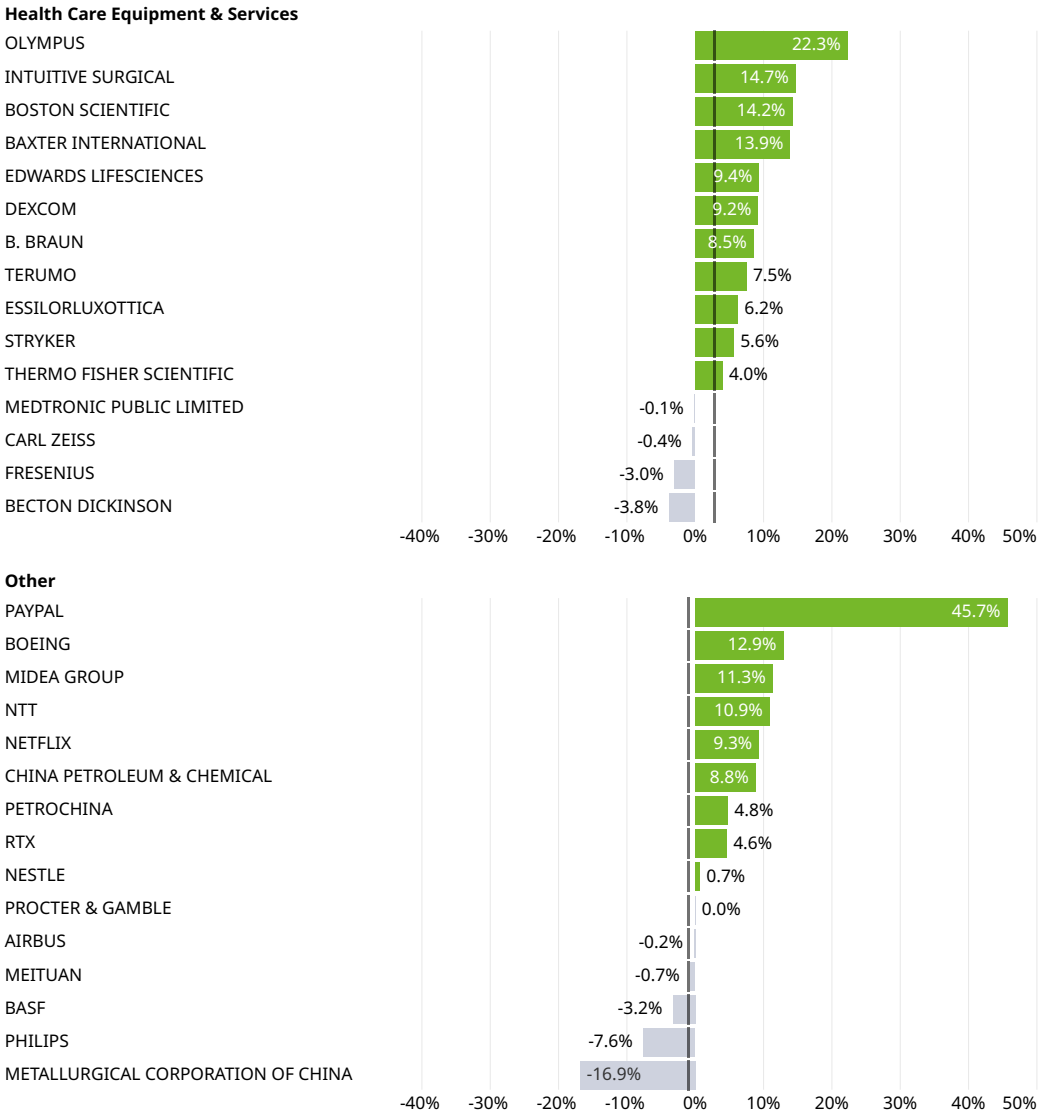


Figure 4 (continued)



Note: Vertical lines represent the sample average R&D growth for a specific industry.
Source: WIPO, based on data from Bureau van Dijk (BvD) Orbis database.

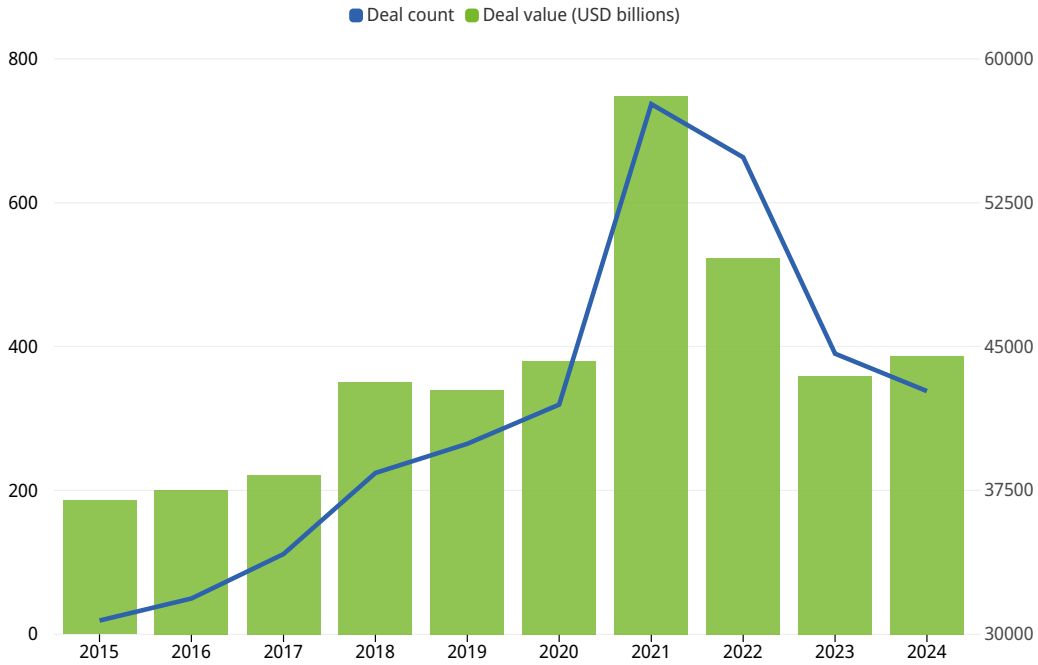
Venture capital

In 2024, VC deal values rose by 7.7 percent, following upon a significant market correction in 2022 and 2023, when deal values declined by 30 percent each year. These declines marked a sharp reversal from the historic boom of 2021, during which VC deal values almost doubled to reach a peak of USD 750 billion. Despite the modest recovery, total deal values in 2024 reached USD 384 billion – still well below the 2021 level (Figure 5).

In contrast to the rebound in deal values, the number of VC deals continued to decline in 2024, falling by 4.4 percent to around 43,000 deals – down from a high of approximately 58,000 in 2021. This marks a third consecutive year of declining deal volume.

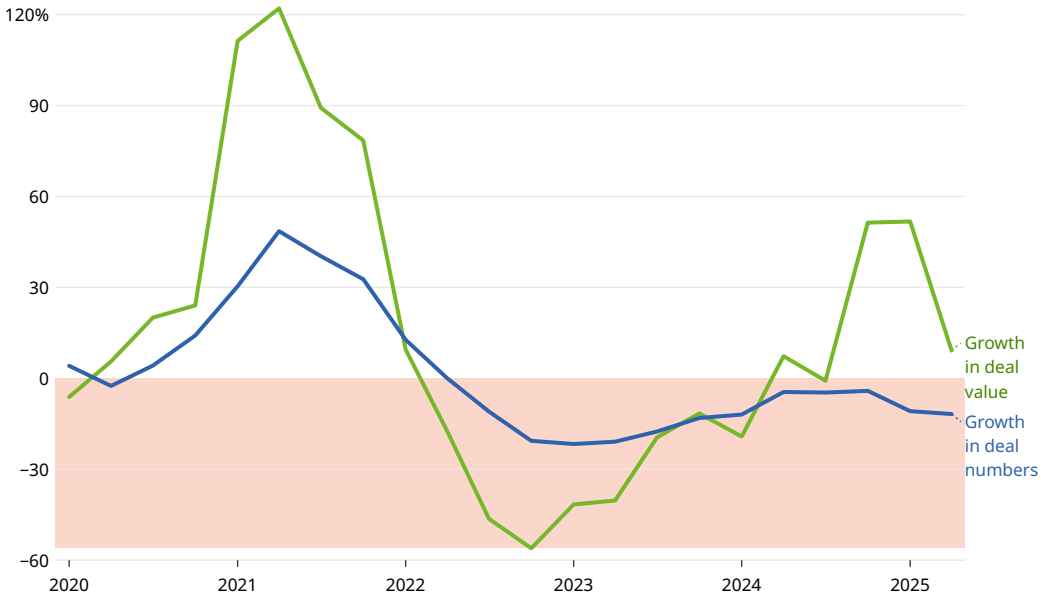
Quarterly data confirms these trends. In Figure 6, we compare each quarter to the same quarter in the previous year. Deal values have been declining since Q2 2022, falling consistently from Q3 2022 onward. However, this negative trend was reversed in 2024, when values increased by 7 percent in Q2, followed by a 50 percent rise in both Q4 2024 and Q1 2025, and a further 9 percent increase in Q2 2025. In contrast, the number of VC deals has continued to decline steadily since Q2 2022, recording an 11 percent year-on-year drop in Q2 2025.

Figure 5 Global venture capital deal value and count, 2015–2024



Notes: The 2024 deal count includes an estimate of 1,915 additional deals. Data as of June 30, 2025.
Source: WIPO, based on data from PitchBook.

Figure 6 Annual growth rate of VC deal value and count, Q1 2020–Q1 2025



Notes: Deal counts for 2023 Q3 to 2025 Q4 include estimated values of 275, 627, 1,013, and 1,777 deals, respectively. Data as of June 30, 2025.
Source: WIPO, based on data from PitchBook.

Figures 7 and 8 provide a detailed view of sectoral and geographical trends in VC investment, shedding light on the structural shifts that have occurred over the past three decades, and on the recent surge in deal values. They display the share of total VC by sector and by region for the years 2000, 2015 and then from 2023 until 2025.

From 2000 to 2023, VC investments became increasingly diversified across sectors. During this period, IT hardware saw a notable decline in its share of total VC deal value, while sectors such as energy and health care gained a larger portion of investment. Software, meanwhile, maintained a stable share at around 30 percent. However, a trend toward reconcentration

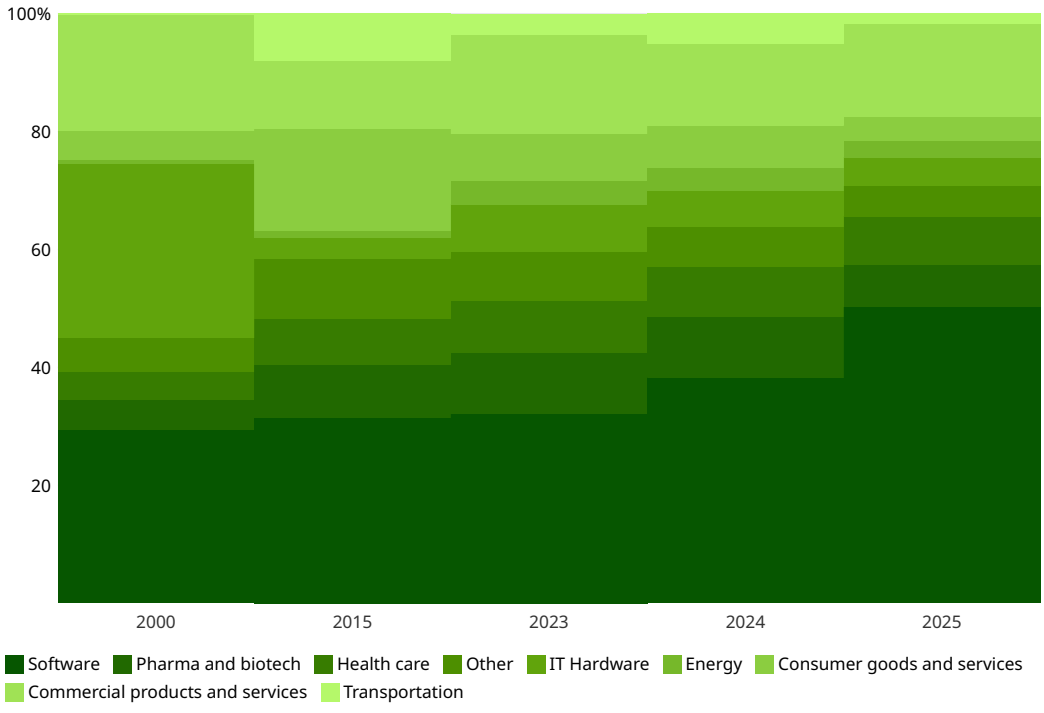
emerged after 2023, culminating in 2025, when the software sector accounted for half of all VC funding – a historic peak.

A similar pattern emerged geographically. In 2000, Northern America accounted for nearly 90 percent of global VC investment. Over the following two decades, regional distribution became more diverse, reaching a peak in 2023, when Northern America's share declined to 48 percent, Asia's rose to 29 percent, Europe's reached 19 percent, and the other regions held 1 percent each. However, by 2025, Northern America had regained its lead, with a 72 percent share.

The sectoral and geographical reconcentration of VC within the United States, along with a recent surge in deal values throughout 2024 and into the first half of 2025, is largely driven by substantial investments in AI. This sector has experienced remarkable growth over recent years, with its share of total deal value rising from around 20 percent in Q4 2022 (when ChatGPT was launched) to 56 percent in Q1 2025 and 49 percent in Q2 2025.

In 2024, deals involving major AI-related companies – Databricks, OpenAI, xAI, Anthropic, and Waymo – totaled around USD 40 billion, accounting for approximately 10 percent of the year's total deal value. This trend accelerated in the first quarter of 2025, when three of the largest VC rounds – OpenAI (USD 37 billion), Anthropic (USD 3.3 billion), and Infinite Reality (USD 2.8 billion) – represented more than 30 percent of all VC raised that quarter. Without these megadeals, VC investment in 2024 would have fallen by more than 3 percent year on year, and the first quarter of 2025 would have been just one percentage point above the figure from a year earlier, instead of 51 percent (see Figure 6).

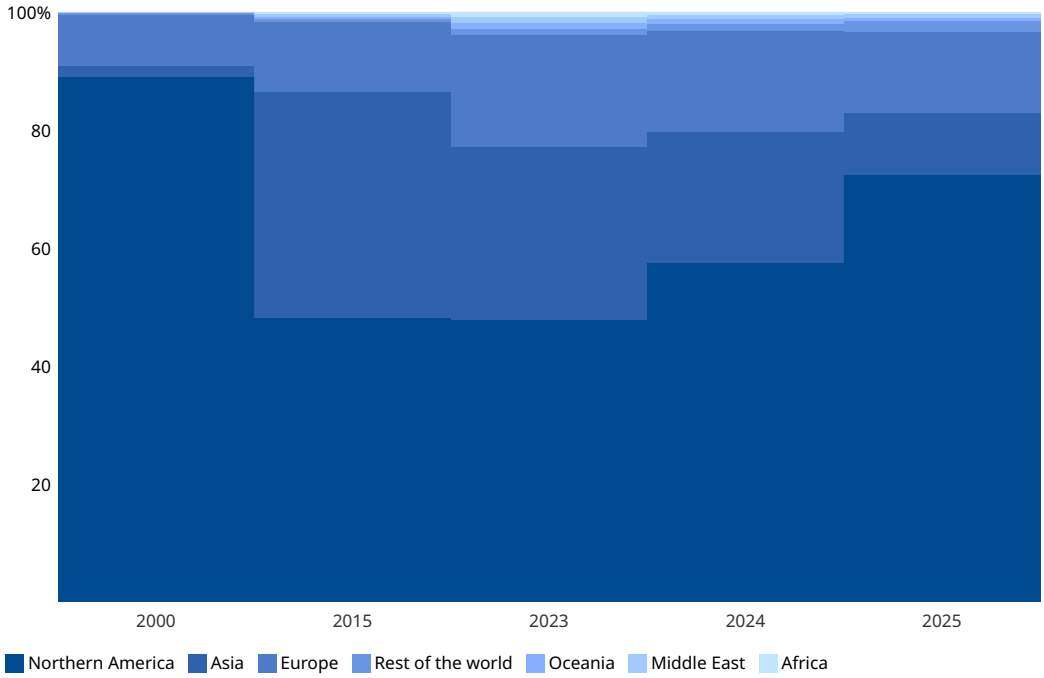
Figure 7 Sectoral share of VC deals in 2000, 2015 and 2023–2025



Note: values as of June 30, 2025. Health care includes services, systems, devices, and supplies. Other includes media-related categories.

Source: WIPO, based on data from PitchBook.

Figure 8 Geographical distribution of VC deals in 2000, 2015 and 2023–2025



Note: 2025 values as of June 30, 2025.
Source: WIPO, based on data by PitchBook.

International patent filings

International patent filings saw a cautious return to growth in 2024, with global applications reaching 273,900 under the Patent Cooperation Treaty – a modest 0.5 percent increase on the previous year, according to WIPO's latest data.[7] While this growth rate remains well below the 2.5 percent annual average recorded over the past decade, it signals a welcome recovery from the 1.9 percent decline experienced in 2023.

The filing landscape revealed notable regional variations among leading applicants. China maintained its position as the top filer, with a close to 1 percent increase, contributing one-quarter of global applications in 2024. The Republic of Korea demonstrated exceptional momentum, with a 7.1 percent growth rate , too, extending its impressive 27-year streak of continuous expansion. Conversely, three major patent jurisdictions – the United States, Japan and Germany – collectively representing over 40 percent of total applications – experienced declines of 2.7 percent, 1.2 percent, and 1.3 percent, respectively.[8]

Technological progress

Technological advancement indicators in 2024 demonstrated strong momentum across multiple critical sectors, reflecting continued innovation investment and well-established technological trajectories. In sum, all underlying technological progress indicators – aside from some exceptions in the field of health – reflect robust technological progress driven by sustained innovation, competitive dynamics and an expanding global capacity across the computing, energy and biotechnology domains.

7 See WIPO (2025), Use of WIPO's global IP registries for patents, trademarks and designs grew in 2024, PR/2025/934. Geneva, March 25, available at: www.wipo.int/pressroom/en/articles/2025/article_0003.html.
8 See WIPO (2024), *World Intellectual Property Indicators 2024*. Geneva, available at: www.wipo.int/publications/en/details.jsp?id=4759.

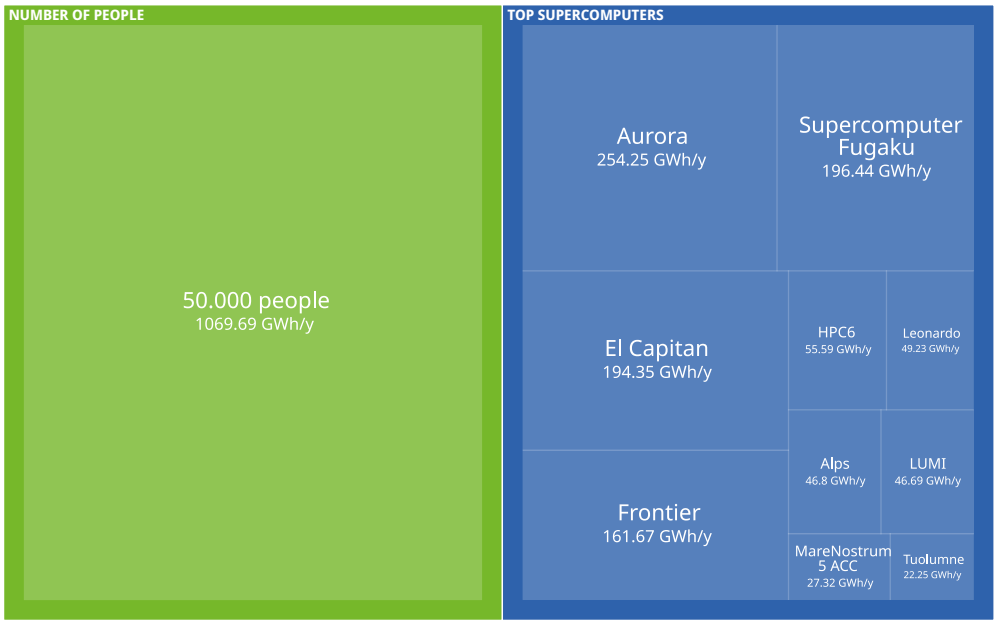
Computing power

Green supercomputers

The GII 2025 Tracker evaluates supercomputer performance based on the number of Gigaflops achieved per Watt of energy consumed. Between 2023 and 2024, the average efficiency of the top 50 "greenest" supercomputers increased by more than 65 percent, far exceeding the decade's compound annual growth rate of 35 percent. On average, supercomputers are becoming greener by this standard.

However, it is important to note that such efficiency gains are largely driven by an increase in computing power rather than a reduction in energy usage. Supercomputers remain exceptionally energy intensive.[9] Figure 9 shows that powering the top 10 fastest supercomputers for a single year requires as much electricity as the average total energy – covering electricity, heating, transportation fuel, and more – consumed annually by 50,000 individuals globally.

Figure 9 Annual energy usage by the top 10 supercomputers in 2024 compared to 50,000 people



Notes: Supercomputers are assumed to operate year-round (8,760 hours) at 75 percent of the value recorded during the LINPACK benchmark. Data for Eagle (ranked 4th) is unavailable. Human energy usage is based on 2023 global per capita primary energy consumption.

Source: WIPO, based on data from TOP500 and Our World in Data (https://ourworldindata.org/grapher/per-capita-energy-use).

At the same time, supercomputer performance – measured by actual maths-processing speed – has shown signs of slowing down.[10] From 2003 to 2013, the combined peak performance of the top 500 supercomputers grew at an impressive 85 percent per year. However, between 2013 and 2024, that growth rate dropped to 37 percent annually. At the lower end of the list (rank 500), the slowdown is even more pronounced, with growth falling from 74 percent to 32 percent per year across the same time period. This deceleration is likely due to economic and infrastructural constraints.

9 See IMF (2025), Commodity special feature: Market developments and the impact of AI on energy demand. International Monetary Fund, April, available at: www.imf.org/-/media/Files/Publications/WEO/2025/April/English/commodityspecialfeature.ashx.

10 See https://top500.org/statistics/perfdevel.

Moore's Law

Between 2023 and 2024, the transistor-count in microchips increased by approximately 37 percent, slightly below the 42 percent annual growth rate implied by Moore's Law. This, however, is not particularly surprising, given that a two-year interval between major hardware advancements is quite typical, and 2023 had already seen the release of numerous high-end hardware innovations. Moreover, the 10-year growth rate remains precisely at 42 percent, aligning perfectly with Moore's Law.

Cost of renewable energy

Between 2022 and 2023, the global weighted-average levelized cost of electricity (LCOE) from newly commissioned solar photovoltaic (PV) – that is, the average lifetime cost of producing one unit of electricity – decreased by 12.4 percent. During the same period, the LCOE for both onshore and offshore wind also declined, but by a smaller margin of 3.4 percent.[11]

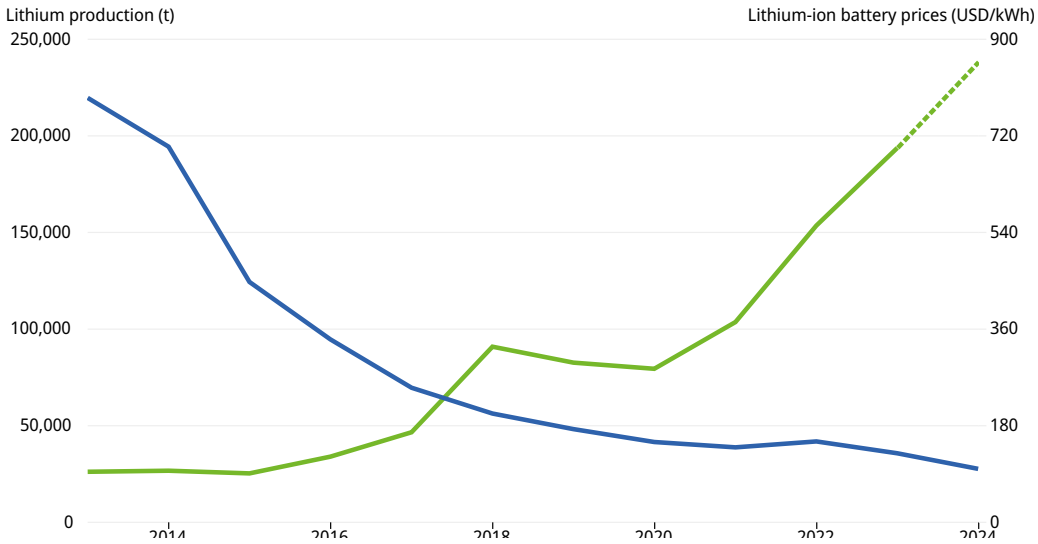
In 2010, the cost of generating one unit of electricity from solar PV was 410 percent higher than the cheapest fossil fuel option. Since then, solar PV costs have plunged by 90 percent, making solar-generated power today 56 percent cheaper than fossil fuels. For onshore wind, costs were nearly 23 percent higher in 2010, but are now 67 percent lower, marking a total LCOE decrease of 70 percent. Offshore wind has also made significant progress in closing the gap with fossil fuels, with costs dropping from 126 percent higher than oil in 2010 to 25 percent lower today, representing a 60 percent decrease.

Electric battery price

Lithium-ion battery pack prices dropped 20 percent from 2023 to a record low of real USD 115 per kilowatt-hour in 2024. Factors driving this decline include cell manufacturing overcapacity, economies of scale, lower metal and component prices, the adoption of lower-cost lithium-iron-phosphate batteries, and a slowdown in EV sales. This represents a global average, with prices varying widely across countries and application areas.

The lithium-ion battery value chain is highly dynamic, with lithium extraction booming and battery costs plunging. As Figure 10 shows, prices have dropped by 85 percent since 2013, while at the same time lithium production has increased by more than 550 percent.

Figure 10 Lithium production and battery price, 2013–2024



Note: The value of lithium production in 2024 was estimated using a third-degree polynomial.
Source: WIPO, based on data from BloombergNEF and Energy Institute – Statistical Review of World Energy (2024).

11 This refers to the growth rate of onshore and offshore LOCE weighted by total capacity.

Cost of genome sequencing

Between 2022 and 2024, the cost of genome sequencing declined at an annualized rate of 11.1 percent – a slower pace compared to the long-term rate of –21.5 percent. Over the past two decades, the cost of sequencing a whole human genome has dropped dramatically, from approximately USD 100 million in 2001 to just over USD 500 in 2023 (based on US estimates). Some companies report even lower costs ranging from USD 200[12] to USD 80[13] per genome.

Industry experts also note that Chinese firms have rapidly expanded their sequencing capacity, with projections that the cost of sequencing could drop to as low as USD 10 per genome within the next three years – driven by advances in automation, AI-powered analysis, and innovations in sequencing chemistry.[14]

However, these figures typically only reflect the cost of consumable materials and exclude major expenses such as equipment, maintenance and labor. They represent internal research or laboratory costs – not the final price paid by health care providers and researchers.

Significant disparities exist across the regions. In Africa, sequencing costs are estimated to be 2–3 times higher than in the United States, primarily due to import tariffs, limited reagent availability, and high logistical costs. Transporting biological samples across African countries remains particularly challenging, with shipping costs reportedly reaching up to USD 4,500 per shipment – posing a serious barrier to large-scale genomic research.

Despite these obstacles, the data indicate an intense global race to lower genome sequencing costs, driven by rapid technological advances and heightened industry competition. Dramatic cost reductions have significantly broadened access to sequencing technologies, enabling more accurate disease diagnosis, improving crop development, and accelerating the creation of precision therapies.

Drug approvals

In 2024, 65 novel active substances (NASs) were launched globally, representing a close to 19 percent decrease from the previous year's total of 80, and the record high of 93 recorded in 2021.[15] Despite this short-term drop, NAS launches have shown steady long-term growth, increasing at an annualized rate of 2 percent.

Oncology remained the leading therapeutic area in 2024, accounting for 25 of the year's NAS launches. Neurology followed with nine, while hematology and endocrinology each saw the introduction of seven new drugs. Notably, this year's launches included several breakthrough treatments, such as the first schizophrenia drug in over 30 years, the first approved therapy for MASH (a serious liver disease linked to metabolic dysfunction), four medicines for rare neurological conditions, and seven non-cancer blood disorder treatments, including two gene therapies. The data also show the long and complex journey toward drug development. In 2024, over three-quarters of newly launched drugs took more than 10 years to reach the market, with a median development timeline of 14 years.

Technology adoption

In 2024, technology adoption continued to grow across all indicators, though at a slower pace than for the past decade. Growth remained evident in robotics and connectivity; high-speed rail networks, a new indicator, expanded. In turn, robot and EV adoption experienced a marked

12 https://www.illumina.com/systems/sequencing-platforms/novaseq-x-plus/applications/broad-sequencing.html.
13 https://www.prnewswire.com/news-releases/ultima-genomics-offers-3-trillion-free-sequencing-reads-to-support-the-scientific-community-302416273.html.
14 https://www.wipo.int/en/web/global-innovation-index/w/news/2025/third-wipo-gii-ilens-innovation-data-lab-workshop-explores-measuring-the-deep-science-wave.
15 See IQVIA (2025), Global Trends in R&D 2025. IQVIA Institute, March 26, available at: www.iqvia.com/insights/the-iqvia-institute/reports-and-publications/reports/global-trends-in-r-and-d-2025.

slowdown. Also, the technology diffusion challenges in the field of safe sanitation and providing sufficient cancer therapy equipment identified in 2023 persisted in 2024.

Safe sanitation

In 2024, 58 percent of the world's population used safely managed sanitation services, up from 47 percent in 2014. This progress means that over one billion people have gained access to these essential services in the past decade.

India and China, which together account for more than one-third of the global population, have made notable strides – each recording an increase of around 23 percentage points since 2014. Usage rates for safe sanitation now stand at 69 percent in China and 63 percent in India. The rate in Romania has increased by 21 points, nearing universal usage, and Egypt recorded a 26 percentage point jump.

Despite these advances, current trends suggest that by 2034, around 30 percent of the global population will still not have access to safely managed sanitation.

Connectivity

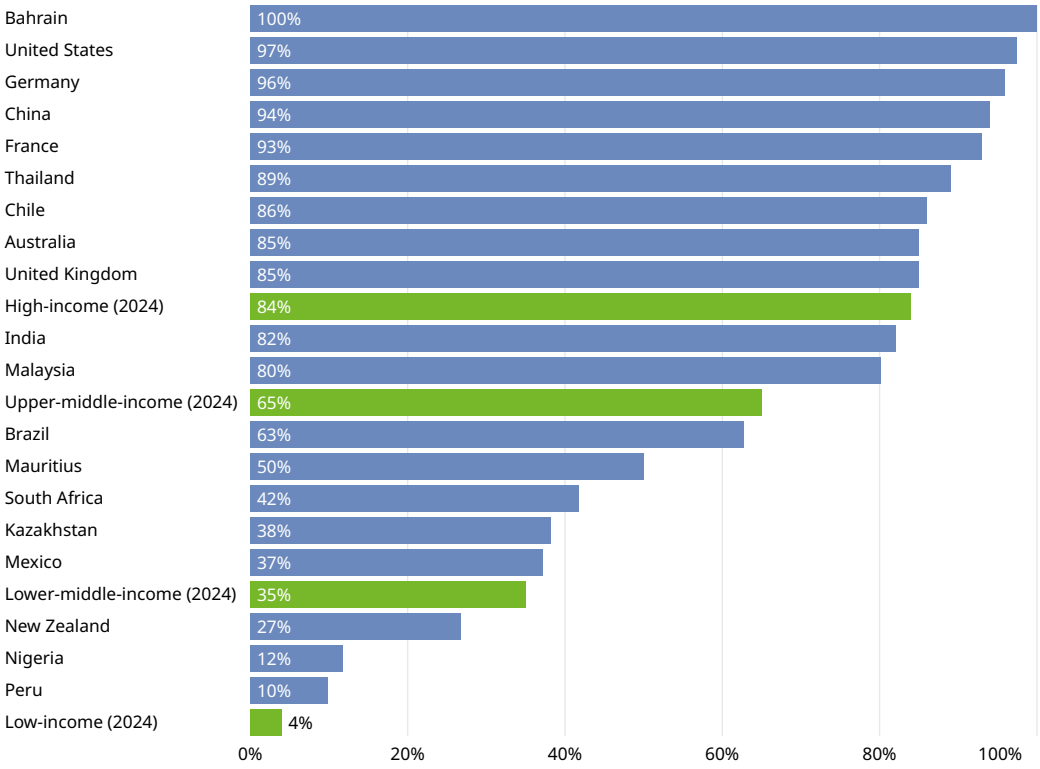
Fixed broadband subscriptions grew by over 6 percent in 2024, with penetration rates reaching nearly 20 subscriptions per 100 inhabitants.[16] However, access to fixed broadband remains highly unequal compared to mobile connectivity. High-income countries report an average of 38 fixed broadband subscriptions per 100 inhabitants. Upper middle-income economies average 32 per 100, lower middle-income economies five per 100, and low-income countries just one per 100 inhabitants. The gap in fixed broadband is largely due to a lack of infrastructure investment, regulatory challenges, and the high cost of expanding networks to underserved areas.

By contrast, mobile broadband access is far more widespread, with high-income economies reporting 153 subscriptions per 100 inhabitants, followed by 112 in upper middle-income economies, 66 in lower middle-income economies, and 40 in low-income economies.

Since the start of commercial deployment in 2019, 5G coverage has expanded rapidly. By 2024, it reached approximately half of the global population, representing an annual growth rate of more than 50 percent since 2020. Despite this progress, significant disparities remain in the quality of access. In 2024, 84 percent of the population in high-income economies had access to 5G, compared to just 4 percent in low-income economies (see Figure 11). Additionally, nearly 20 percent of people in low-income economies still lack any form of mobile connectivity, and another 28 percent rely solely on 3G, which significantly limits their online capabilities.

16 This figure may understate actual household access, since fixed-line connections are typically shared by multiple members of the same household.

Figure 11 5G population coverage by income group (2024) and selected countries (2023)



Source: WIPO, based on data from the International Telecommunication Union (ITU).

Robot adoption

The global stock of industrial robots grew by just under 10 percent in 2023 – over five percentage points lower than the growth rates observed in 2021, 2018 and 2017. Despite this slowdown, projections point to a steady compound annual growth rate of 4 percent in new robot installations, reaching more than 600,000 units by 2027. Meanwhile, major economies have collectively committed more than USD 60 billion to public R&D programs in robotics, signaling continued long-term investment in the field.[17]

Although the growth of the global industrial robot stock slowed in 2023, the overall pace of adoption has accelerated markedly since 2010. Between 2000 and 2010, the global stock of robots expanded in line with the world economy, growing at an average annual rate of approximately 3.5 percent. However, since 2010, this relationship has shifted: while global economic output has continued to grow at a modest rate of about 3 percent per year, the number of robots per worker has increased at a much faster pace – surpassing a compound annual growth rate of 10 percent.

In 2023, the countries with the largest operational stock of robots were China (41 percent of the global total), Japan (10.2 percent), the United States (8.9 percent), the Republic of Korea (8.9 percent) and Germany (6.3 percent). Meanwhile, rapid advancements in AI-powered behavior cloning, whereby robots learn tasks by observing repeated human demonstration, are expected to broaden the range of robotic applications and further accelerate adoption.

Electric cars

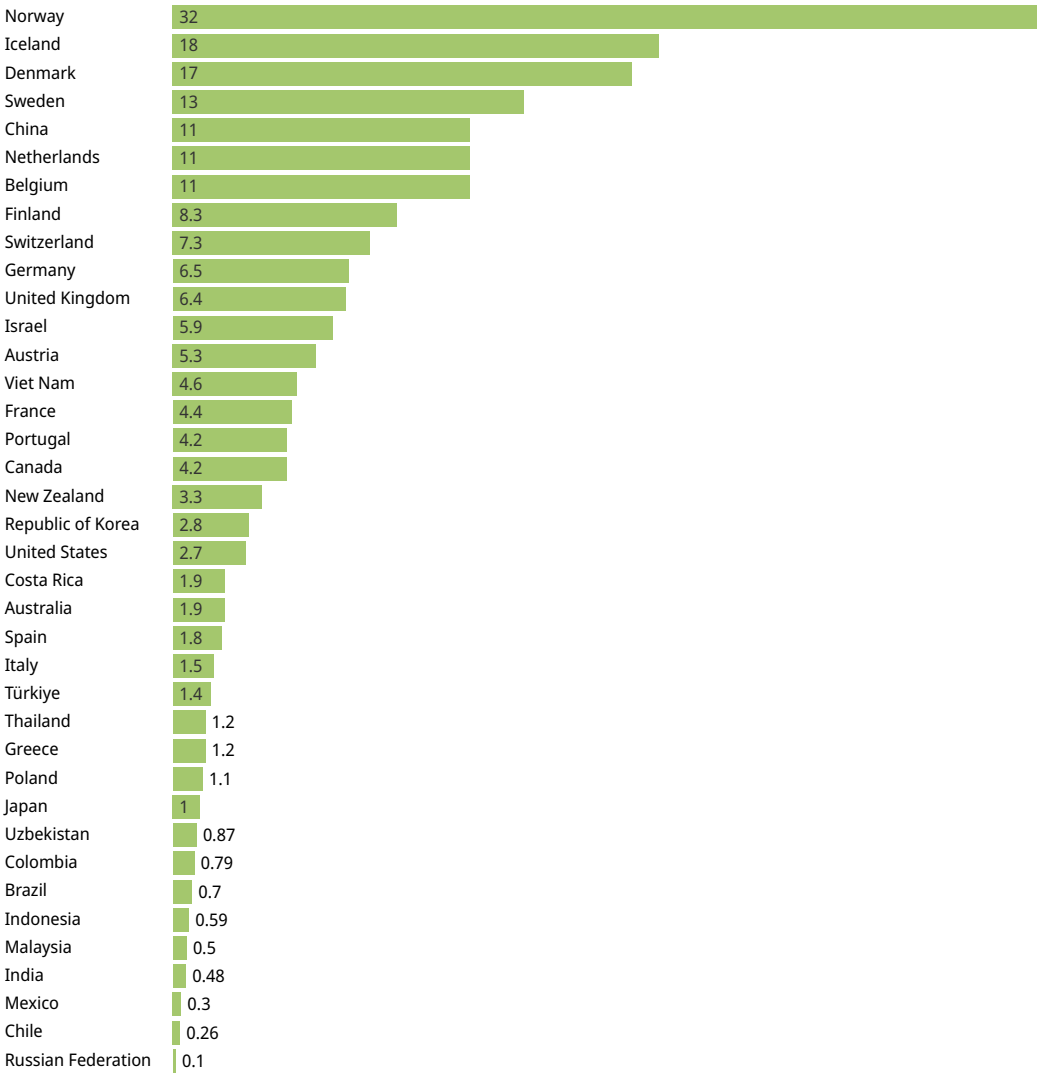
The global stock of electric cars grew by 18 million units in 2024 – a significant 45 percent increase over 2023. However, this growth rate shows signs of slowing when compared to the annualized long-run growth rate over the past decade, which averaged around 55 percent.

17 See IFR Press Room (2025), Robotics research: How Asia, Europe and America invest. International Federation of Robotics, February 11, available at: https://ifr.org/ifr-press-releases/news/robotics-research-goverment-programs-asia-europe-and-america-2025.

Several major markets experienced a sharp slowdown in electric car stock growth in 2024.[18] In contrast, electric car growth in China remained stable at 55 percent in both 2023 and 2024. Growth in 2024 was particularly strong in emerging economies such as the Russiaian Federation , Uzbekistan, Viet Nam, India, Türkiye and Brazil, all of which recorded rates exceeding 100 percent.

As of 2025, 4.5 out of every 100 cars worldwide are electric, a significant increase from just 0.07 per 100 a decade ago. As shown in Figure 12, Scandinavian countries lead in EV penetration, with Norway at 32 electric cars per 100, followed by Iceland (18), Denmark (17), and Sweden (13). Close behind are the Belgium, China and the Kingdom of the Netherlands, each with approximately 11 electric cars per 100. Looking ahead, despite rapid innovation and diffusion, the sector might face some headwinds in 2025. In the United States, EV demand is expected to slow.[19] Meanwhile, in China, the EV market faces its own set of challenges. A price war among domestic manufacturers has led to financial strain, with over one-third of publicly listed carmakers reporting liabilities exceeding assets by the end of 2024. [20]

Figure 12 Share of cars that are electric, 2024



Source: WIPO, based on data from the International Energy Agency (IEA).

18 In France, the annual increase dropped by 38 percentage points, from 49 percent in 2023 to just 11 percent in 2024. In the United States, growth fell from 59 percent to 35 percent, a decline of 24 points. Germany also saw a slowdown, with growth falling from 34 percent to 24 percent.

19 See "Donald Trump's Plans Threaten the EV Transition." *Financial Times*, Nov. 27, 2024 available at:https://www.ft.com/content/e8f623e1-c75a-478e-ad8f-aa5b05ef6aa0

20 "China's CarIndustry Runs on Empty as Supply Chain Bills Go Unpaid" *Financial Times*, June 13, 2025 https://www.ft.com/content/e6ae000d-d506-4a21-898e-213002234ee2

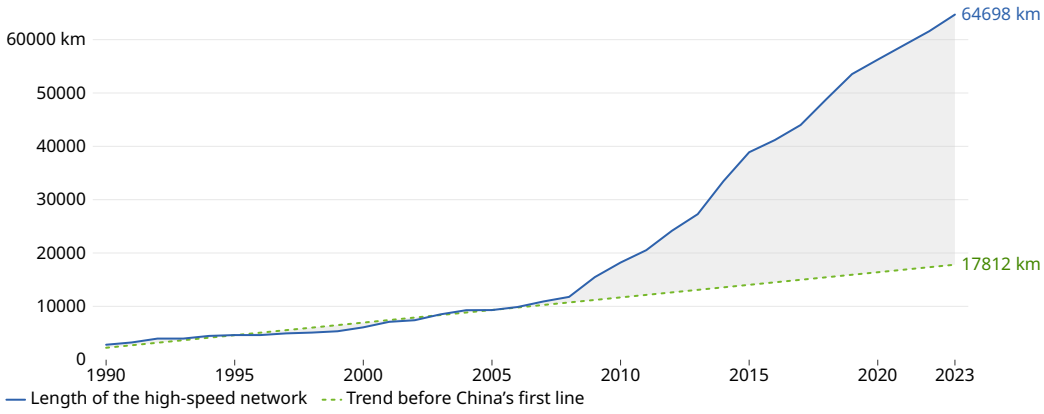
High-speed rail network

To capture the diffusion of transportation technology, the GII 2025 Tracker includes, for the first time, data on high-speed rail networks – measured as the total length of operational high-speed rail lines worldwide. Between 2022 and 2023, the global network expanded by 5 percent, which is below the annual growth rate of 9 percent for the decade .

Since Japan pioneered this technology by laying 515 km of track in 1964, high-speed rail has expanded dramatically across the globe. Italy followed in 1977, France in 1981, and Germany and Spain in the 1990s. The most remarkable growth, however, has taken place in China. Figure 13 shows the global high-speed rail network length, along with a projected trend based on data from 1990 to 2008 – the year China's first high-speed line became operational. That year marks a clear inflection point: since 2008, China has added approximately 45,400 km of high-speed rail to its network. This expansion accounts for the majority of the gap between the historical trend and the actual global total, with roughly 70 percent of the world's high-speed rail now within China.[21]

Today, roughly 5,000 high-speed trainsets operate daily worldwide, transporting 2 billion passengers annually. Expansion continues, with thousands of kilometers of new rail lines under construction across the globe, including in India, Morocco, Thailand, Türkiye, the United Statesand elsewhere.

Figure 13 Length of high-speed rail network in commercial operation worldwide, 1990–2023



Source: WIPO, based on data from the International Union of Railways (UIC).

Cancer radiotherapy

To capture the adoption of health-related technology, the GII 2025 Tracker provides information on the availability of cancer therapy equipment, specifically the number of linear accelerators (LINACs) – devices for delivering high-energy x-rays or electrons to cancers for therapeutic or palliative purposes – per inhabitant.

Data for 2024 show an around 1.3 percent increase in the availability of LINACs per capita compared to the previous year, which is below the average annual global increase in LINAC availability of 1.8 percent over the past decade.

In 2024, 25 out of 100 countries met the minimum radiotherapy requirements set out by the International Atomic Energy Agency (IAEA) DIrectory of RAdiotherapy Centres (DIRAC) (see Data note). Among high- and upper middle-income economies, there has been a notable increase in the percentage of economies meeting radiotherapy requirements. However, the number of lower middle- and low-income economies meeting radiotherapy technology minimum requirements remains low, indicating a persistent divide in access to adequate radiotherapy services.

21 See, https://uic.org/passenger/highspeed/article/high-speed-data-and-atlas.

Socioeconomic impact

In 2024, indicators of the socioeconomic impact of innovation showed continued recovery from the COVID-19 shock. Labor productivity increased slightly above the decade average, hinting at emerging benefits from recent innovation waves. Extreme poverty declined, though regional gaps remained. And life expectancy reached a new record high. However, progress stalled on when it comes to the climate: emissions have rebounded after a temporary pandemic-related decline, with pollution rising steadily post-reopening.

Labor productivity

Between 2023 and 2024, output per hour worked increased by 2.5 percent, closely aligning with the compound growth rate of 2.2 percent over the past decade. Productivity reached nearly 55,000 USD (PPP, constant 2024 prices) per worker – almost 10,000 USD more than a decade ago.[22]

The countries that experienced the fastest productivity growth from 2014 to 2024 were China (at 5.9 percent), Viet Nam (5.4 percent) and Ethiopia (5 percent), all annualized rates. Among the top growers it is worth mentioning African countries Burkina Faso (at 4.8 percent), Kenya (3.3 percent) and Rwanda (3.3 percent), as well as Asian countries Bangladesh and India at 4.5 and 4.3 percent, respectively. Such rapid productivity growth is particularly important, given that many of these countries have large populations andtheir economic progress therefore crucial for global development and poverty reduction.

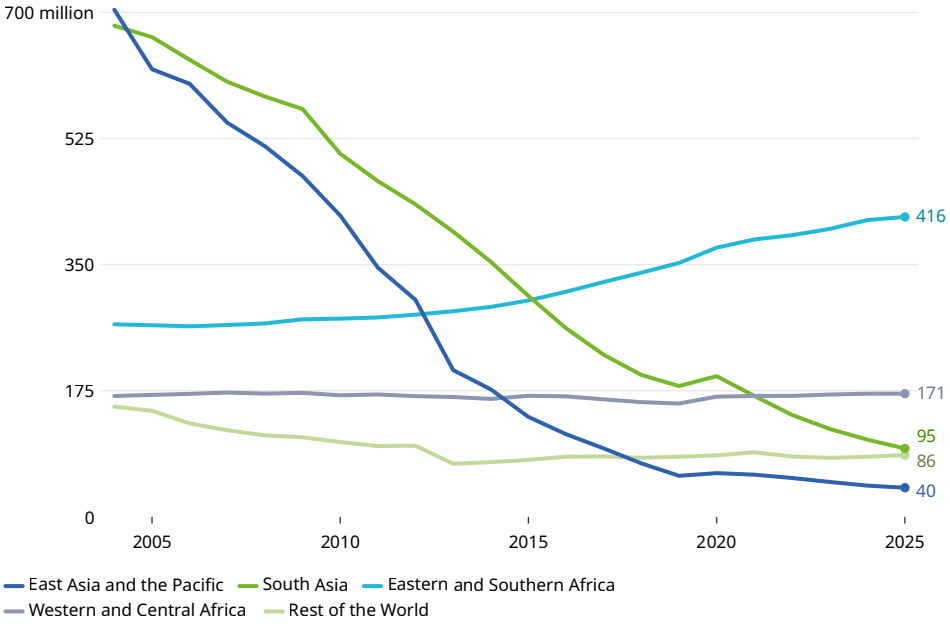
Poverty

The global population living in extreme poverty, defined as those living on less than 3 USD (2021 PPP) per day, decreased by 0.6 percent in 2024 compared to the previous year, falling to 817 million This is under half of what it was 20 years ago, whent almost two billion people. were in extreme poverty.[23]

Despite major global progress, regional disparities in poverty reduction remain stark (Figure 14). Between 2004 and 2024, the South Asia and East Asia and the Pacific – regions that, in 2004, had more than twice the level of extreme poverty of any of the other regions – achieved exceptional reductions, cutting extreme poverty by approximately 84 and 93 percent, respectively. In sharp contrast, poverty increased by 50 percent in Eastern and Southern Africa, and by 1.9 percent in Western and Central Africa. Meanwhile, in the rest of the world, poverty declined by 45 percent over the same period.

22 See the GII 2022 Special theme What is the future of innovation-driven growth?.
23 Poverty estimates previously used the 2017 PPP-adjusted international poverty line of USD2.15. In 2024, the World Bank updated its global poverty lines using 2021 PPPs and revised national poverty lines from 163 countries. The new international poverty line is USD3.00 (in 2021 prices), reflecting improved data on prices and consumption, particularly in low-income countries. This revised poverty line increases the estimated number of people in extreme poverty, but more accurately reflects basic living costs worldwide.

Figure 14 Population living in extreme poverty by region, 2004 - 2025



Note: Poverty line defined as USD 3 per day (PPP 2021). Estimates after 2023 are nowcasts.
Source: WIPO, based on data from World Bank, Poverty and Inequality Platform, June 2025.

Life expectancy

Average life expectancy at birth increased by 0.7 percent in 2023, following a stronger rebound of 2.5 percent in 2022. These gains came after two consecutive years of decline during the peak of the COVID-19 pandemic, with life expectancy falling by 1 percent in 2020 and 1.5 percent in 2021. Over the past few decades, life expectancy has shown a steady upward trend. In 35 years, global average life expectancy at birth has increased by 10 years. A person born in 2023 can now expect to live an average of 73 years (females: 76, males: 70) – up from 63 years (females: 66, males: 61) in 1988.

That said, a possibly better measure of an innovation-driven improvement in longevity is healthly life expectancy.[24] According to this indicator, the COVID-19 pandemic erased nearly a decade's progress made in improving healthy longevity. The average healthy life expectancy increased from 58 years in 2000 to 62 years in 2021, but that is down by –1.1 percent compared to 2020. Also, in general, the increase in healthy life expectancy has not kept pace with the increase in life expectancy.[25]. Indeed, the long-term annual growth rate of 0.1 percent for healthy life expectancy is considerably lower than the 0.3 percent for life expectancy.

Global warming

Global temperatures in 2024 reached 1.29°C above the 20th-century baseline (1951–1980) and 1.56°C above the 1880–1920 baseline, surpassing the record set in 2023. These figures approach the upper limit of the 2°C target set by the Paris Agreement and exceed its more ambitious goal of limiting warming to 1.5°C above the pre-industrial level. This milestone follows an unprecedented 15-month streak of record monthly temperatures from June 2023 through August 2024.

Warming in 2024 varied by region: Northern America saw the highest land temperature increase (2.8°C), followed by Western Europe (2.7°C), Southern Europe (2.6°C), and Eastern Europe (2.4°C). The lowest increases were in Melanesia and Polynesia (1.2°C) and Middle Africa (1.3°C).

24 Healthy life expectancy at birth measures the average number of years that a person can expect to live in "full health" from birth https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-life-expectancy-and-healthy-life-expectancy.
25 See GII2023 and GII2024 Global Innovation Tracker

Still, 163 of 237 countries and territories, representing 67 percent of the global population, experienced annual warming above 1.5°C.[26]

Rising temperatures align with record-high global carbon dioxide emissions from fossil fuels. Between 2023 and 2024, emissions are estimated to have grown by 0.8 percent annually, setting a new high after a temporary 6 percent drop in 2020. However, there are signs of progress. The 2024 growth rate is well below the 1.7 percent annual average since 1994, and emissions from most major emitters are falling. China, responsible for 32 percent of global emissions, is projected to see only a slight rise of 0.2 percent, though a decrease remains possible. Emissions in the United States (13 percent of global total) are expected to fall by 0.6 percent, while the EU (7 percent) is projected to decline by a notable 3.8 percent. However, India (8 percent) stands out with a projected sharp increase of 4.6 percent.[27]

Conclusion

The Global Innovation Index (GII) 2025 Tracker offers a comprehensive snapshot of innovation performance around the world. The GII Tracker evaluates innovation outcomes across the four stages of the innovation cycle: science and innovation investment, technological progress, technology adoption, and socioeconomic impact.

In 2024, innovation demonstrated overall resilience, despite a challenging environment. All four stages recorded progress, though gains were uneven and sector-specific. Science and innovation investment partially recovered from the sharp downturn of 2023, but remains subdued, with R&D growth projected to slow further in 2025. Technological progress was encouraging in digital and green technologies, but showed fragility in some health-related areas. Technology adoption continued, but at a slower pace, particularly in resect to cost-intensive or infrastructure-heavy innovations such as EVs and sanitation. Socioeconomic impacts improved – labor productivity and life expectancy increased; yet, climate indicators reached record highs, amplifying environmental concerns.

These findings highlight both progress and persistent vulnerabilities in the global innovation landscape. They suggest that in 2025, policymakers must balance, on the one hand, efforts to sustain innovation momentum, while, on the other, addressing emerging obstacles across the ecosystem. It is important to recall that the GII Tracker aims to capture broad innovation dynamics using a selective set of indicators. While investment measures are well-established, those relating to technological progress, adoption and impact remain selective and should be interpreted as indicative of wider trends rather than being exhaustive. Lastly, we hope that the GII, as an evolving tool, continues to stimulate debate on improving innovation metrics and policymaking.

Data notes

Scientific publications captures the number of peer-reviewed articles published across 182 fields of science and technology. Article counts are derived from journals indexed in the Social Sciences Citation Index (SSCI) and Science Citation Index Expanded (SCIE). Source: Web of Science (Clarivate), https://apps.webofknowledge.com.

R&D investment captures R&D expenditures worldwide in PPP-adjusted constant 2015 prices. The 2023 values were calculated using available real data of gross expenditure on R&D (GERD) and business enterprise expenditure on R&D (BERD) at the country level from the UNESCO Institute for Statistics (UIS) online database; the OECD's Main Science and Technology Indicators (MSTI) database (March 2025 update); Eurostat and the Ibero-American and Inter-American Network of Science and Technology Indicators (RICYT). For those countries for which data were

26 See, https://openknowledge.fao.org/items/3a1366a2-7165-4709-a4c9-4a33643ed507.
27 See, https://globalcarbonbudget.org/fossil-fuel-co2-emissions-increase-again-in-2024.

unavailable for 2023, the 2023 data were estimated using the last observation carried forward (LOCF) method for R&D intensities (R&D expenditures as a percentage of GDP) and applied to GDP PPP for the same year. R&D expenditures for 2024 and 2025 were estimated for all countries, using the latest available R&D intensity and estimations of GDP growth at constant prices from the International Monetary Fund, World Economic Outlook Database, April 2025.

Top corporate R&D spenders' 2018–2023 data is sourced from the European Commission's 2024 EU Industrial R&D Investment Scoreboard. The 2024 data is sourced from the Moody's Analytics Orbis database and from companies' annual reports. All figures are converted in current US dollars. Real R&D growth rates are calculated by first converting local-currency R&D figures into US dollars using market exchange rates at the end of the period and then deflating them using country-level GDP deflators. Growth rates are computed as weighted averages of firm-level growth, where weights are based on a firm's share in total nominal and real R&D spending in each year, respectively.

Venture capital (VC) refers to the number of VC deals worldwide. VC value refers to the total amount invested via venture capital, measured in current US dollars. Source: PitchBook Data, Inc, www.pitchbook.com.

International patent filings refers to the total number of patent applications filed through the WIPO-administered Patent Cooperation Treaty. Source: WIPO IP Statistics Data Center, www.wipo.int/ipstats.

Green supercomputers captures the average efficiency of the top 50 systems in the Green500 list. The Green500 ranks the most energy-efficient computer systems, by measuring computational capacity per unit of energy consumed (Gflops/Watts). Source: TOP500 (November 2024), www.top500.org/lists/green500.

Microchip transistor count (Moore's law) refers to the number of transistors to be found on the most advanced, commercially available microchips in a given year. Source: Karl Rupp, https://github.com/karlrupp/microprocessor-trend-data.

Cost of renewable energy captures the global weighted average levelized cost of electricity (LCOE) generation of solar photovoltaics and onshore and offshore wind. Onshore and offshore rates are weighted by their share total installed capacity. Source: International Renewable Energy Agency (IRENA), www.irena.org/Publications/2024/Sep/Renewable-Power-Generation-Costs-in-2023.

Electric battery price refers to the average price of lithium-ion batteries – including cell, module and pack components – measured in real 2024 USD per MWh and weighted by power capacity across all sectors. Source: BloombergNEF (BNEF), https://about.bnef.com/blog/lithium-ion-battery-pack-prices-see-largest-drop-since-2017-falling-to-115-per-kilowatt-hour-bloombergnef.

Cost of genome sequencing refers to the cost of sequencing the DNA of one human genome (in USD). Source: National Human Genome Research Institute (NHGRI), US National Institute of Health, Wetterstrand KA. DNA sequencing costs: data from the NHGRI Genome Sequencing Program (GSP), www.genome.gov/sequencingcostsdata.

Drug approvals refers to the number of novel active substances (NASs). A NAS is a new molecular or biologic entity or combination in which at least one element is new. Includes NASs launched anywhere in the world by year of first global launch. Launch is determined using IQVIA audits of sales activity, as well as companies' public statements. Source: IQVIA Institute for Human Data Science, *Global Trends in R&D 2025*, www.iqvia.com/insights/the-iqvia-institute/reports-and-publications/reports/global-trends-in-r-and-d-2025.

Safe sanitation refers to that proportion of the population that uses an improved sanitation facility not shared with other households, and where excreta are safely disposed of in situ or removed and treated off-site. Improved sanitation facilities include flush/pour toilets connected to piped sewerage systems; septic tanks or pit latrines; pit latrines with slabs; or composting toilets. Source: WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply, Sanitation and Hygiene (WASH), https://washdata.org.

Fixed broadband refers to fixed subscriptions for high-speed access to the public internet (a TCP/IP connection) at downstream speeds equal to, or greater than, 256 kbit/s. Penetration refers to the number of subscriptions per 100 inhabitants. Source: International Telecommunication Union (ITU) World Telecommunication/ICT Indicators database, www.itu.int/en/ITU-D/Statistics/Pages/facts.

5G coverage refers to that percentage of the population covered by 5G mobile network technology. Source: International Telecommunication Union (ITU), www.itu.int/en/ITU-D/Statistics/Pages/facts.

Robot adoption is a measure of the number of robots currently deployed in industrial automation applications (also known as the operational stock of industrial robots). The stock is calculated assuming an average service life of 12 years followed by immediate withdrawal from service at the end of that period. Source: International Federation of Robotics (IFR), https://ifr.org/worldrobotics/.

Electric cars stock is the number of passenger cars worldwide that are battery electric vehicles (BEVs) or plug-in hybrid electric vehicles (PHEVs), electric vehicle (EV) share is the percentage of the total passenger cars stock that are electric. Source: International Energy Agency. Global EV Outlook 2024, www.iea.org/data-and-statistics/data-tools/global-ev-data-explorer.

High-speed rail network refers to the total length of high-speed rail lines in commercial operation worldwide. The primary criterion for classification as high-speed rail is a commercial operating speed of 250 km/h or greater. A secondary criterion includes rail lines operating at speeds between 200–230 km/h on medium-distance routes (particularly those without significant air transport competition). Is defined as the ratio of the total length of high-speed rail lines to the global length of railway lines (https://uic.org/support-activities/statistics). For 2023, the global railway lengths were estimated through linear interpolation. Source: International Union of Railways (UIC) – High-Speed Rail Atlas 2024, https://uic.org/IMG/pdf/uic_high-speed_atlas_2024.pdf.

Cancer radiotherapy refers to the total number of linear accelerators per inhabitant. Linear accelerators (LINACs) are devices for delivering high-energy x-rays or electrons to cancers for a therapeutic purpose. A higher ratio indicates a better-equipped health care system. Penetration rate refers to the number of countries that meet minimal radiotherapy resource requirements worldwide, based on a rough assumption that one in every two cancer cases requires radiotherapy and that one machine is needed for every 500 patients requiring radiotherapy. Source: Special tabulations by the International Atomic Energy Agency (IAEA) DIrectory of RAdiotherapy Centres (DIRAC) for the GII based on IAEA DIRAC (https://dirac.iaea.org) and IARC GLOBOCAN (https://gco.iarc.fr) databases.

Labor productivity (rates) refers to the increase in global output per hour worked, expressed in 2024 real USD (PPP), weighted by countries' nominal GDP shares (PPP-converted); (levels) represents global output per employee, also in 2024 real USD (PPP). Source: The Conference Board Total Economy Database™, May 2025, https://conference-board.org/data/economydatabase.

Poverty refers to the number of people living below the international poverty line of USD 3 per day (2021 PPP). Estimates after 2023 are nowcasts. Source: World Bank Poverty and Inequality Platform, https://pip.worldbank.org.

Life expectancy refers to the remaining years of life expected by a hypothetical cohort of individuals alive at age 0 today, who would be subject during the remainder of their lives to the mortality rates of a given year. It is expressed as years. Source: United Nations World Population Prospects 2024, https://population.un.org/wpp/downloads?folder=Standard%20Projections&group=Mortality.

Air temperature anomaly refers to the global mean estimate temperature anomaly with respect to the base period 1951–1980 based on land and ocean data. Source: NASA GISS, https://data.giss.nasa.gov/gistemp.

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GII 2025 results

The GII unveils the world's innovation leaders and measures the performance of 139 economies.

This results section showcases the leading findings from the Global Innovation Index (GII) 2025, highlighting the top-performing economies across income groups and world regions. It identifies who are innovation leaders and who are the innovation overperformers achieving results beyond expectations.

The GII 2025 rankings primarily reflect data from 2023 to 2025 (representing approximately 80 percent of all data points). Appendix I provides comprehensive guidance on how to properly interpret these results, explaining the methodological considerations that affect a direct comparison being made between annual rankings.

Innovation leaders in 2025

Switzerland remains the world's innovation leader in 2025. China enters the top 10 for the first time, while middle-income economies – India, Türkiye, Viet Nam, the Philippines, Indonesia, Morocco, Albania and Iran – are the fastest climbers since 2013.

Switzerland tops the Global Innovation Index (GII) for a 15th consecutive year (Figure 1). It remains the global leader in the Creative outputs pillar and secures a top five position across all other pillars, except for Human capital and research (6th).

Sweden and the **United States of America** retain their 2nd and 3rd positions for the third year in a row.

Sweden ranks 2nd globally in both Business sophistication and Creative outputs and leads in the indicators Researchers (1st), Global brand value (2nd), Gross expenditure on R&D (3rd) and Knowledge-intensive employment (3rd).

The United States holds the top spot in both Market and Business sophistication. It leads in gross expenditure on R&D (4th), in Global corporate R&D investors (1st) and performs exceptionally well in R&D performed and financed by business (4th and 5th, respectively), underscoring the central role of the private sector in driving innovation. It is backed by having one of the world's largest Domestic market scales (2nd), robust Domestic credit to the private sector (4th) and dynamic startup funding. However, its performance in Infrastructure (32nd) remains lower in comparison. The United States is also home to 22 innovation clusters, characterized by having a high level of Venture Capital (VC) activity, vibrant startup ecosystems and close ties between universities and industry (Clusters section). The San Jose–San Francisco cluster ranks 3rd globally and leads in innovation intensity (1st), driven by Silicon Valley's tech giants and strong patent and VC output.

The **Republic of Korea** climbs to 4th place in 2025 – its highest position to date. It leads globally in the Human capital and research pillar and ranks among the top three worldwide for Researchers (2nd), overall R&D expenditure (2nd), R&D performed by business (1st), Researchers in businesses (1st), and PCT patents by inventor origin (3rd).

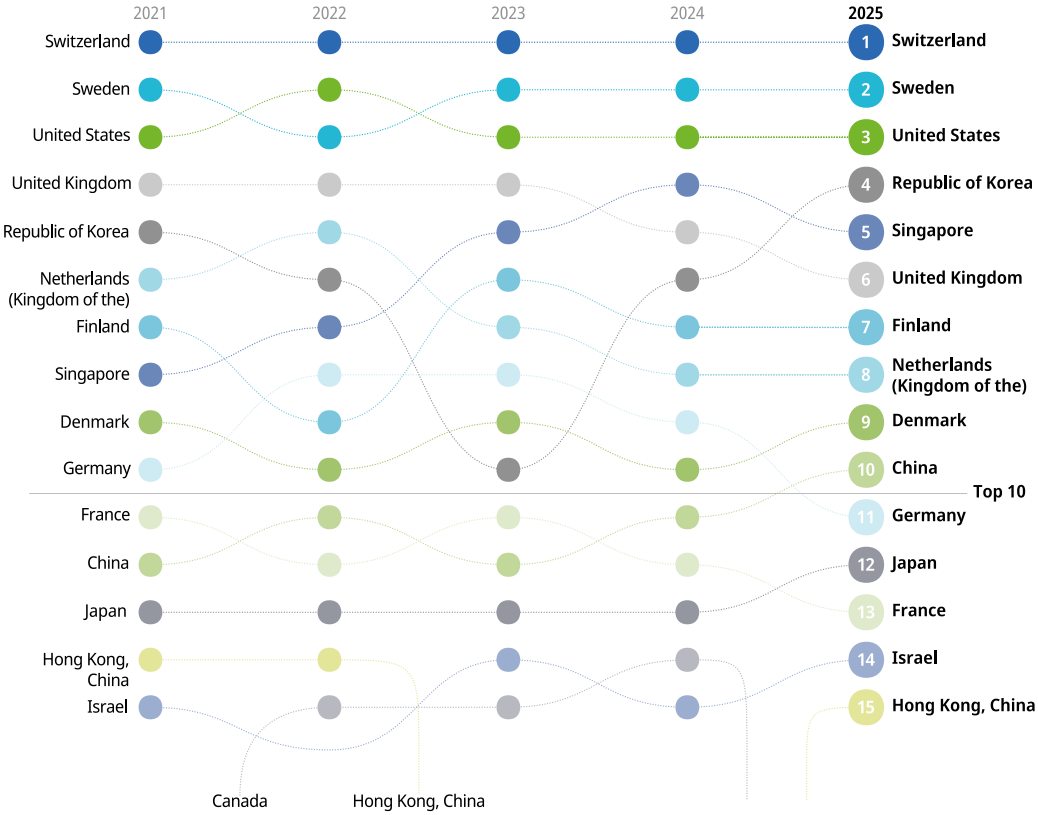
Singapore remains within the top 5, despite slipping down one rank to 5th in 2025. It maintains its position as the economy with the greatest number of GII indicators ranked 1st globally (10 out of 78), ahead of both the United States and China. Singapore continues to lead in innovation inputs overall, but still trails the top four in Innovation outputs, particularly in Creative outputs (15th).

Finland (7th) and **the Netherlands** (8th) maintain a strong position within the top 10. Finland excels in Infrastructure (3rd), while the Netherlands ranks 6th in Creative outputs, reflecting a balanced innovation ecosystem. Denmark advances one position to 9th, supported by a top-tier performance in Institutions (2nd), ICT access (1st), and Online creativity (5th).

China enters the GII top 10 for the first time, leading globally in Knowledge and technology outputs. As the only middle-income economy within the top 30, China continues to lead its income group and ranks 3rd in its region, behind Singapore and the Republic of Korea. China is set to become the top R&D spender in 2024, according to WIPO estimates. China leads globally

in patent filings and hosts the most top 100 innovation clusters (24), including Shenzhen–Hong Kong–Guangzhou – now ranked 1st – and Beijing, both hotspots for patents, science and, increasingly, VC. Its high-tech exports and position within global value chains continue to strengthen, especially within strategic sectors such as AI, semiconductors and green technologies. While traditionally lagging in terms of private innovation finance, China is quickly closing the gap. It now ranks 2nd in both Late-stage VC deals and business-financed R&D, and 3rd among the world's top corporate R&D investors – underscoring the growing role of its private sector in driving innovation.

Figure 1 The GII dynamo: the top 15 innovators, 2021–2025



Note: Changes in methodology and variations in data availability may affect the year-to-year comparison of GII rankings. The GII model undergoes periodic refinements, which should be a consideration when interpreting longitudinal performance trends.

Source: Global Innovation Index Database, WIPO, 2025.

Japan moves up one position to 12th in 2025 – its highest rank since 2011. It continues to excel in high-technology and R&D, ranking 2nd in Patent families and 3rd in R&D performed by business. Strong results in Business sophistication (6th) further reflect the depth of Japan's industrial innovation capabilities. Israel climbs one position to 14th. It ranks 1st in overall R&D expenditure, VC received, University–industry R&D collaboration, and R&D performed by business, showcasing a vibrant and well-funded innovation ecosystem.

Hong Kong, China rises three positions to 15th – its highest since 2018 – reflecting its enduring strength as a financial and logistics hub. It performs particularly well in Market sophistication (2nd) and Institutions (8th). Moreover, Shenzhen–Hong Kong–Guangzhou is the globally first ranked innovation cluster this year.

Estonia holds 16th place and continues to lead among smaller economies. It ranks 2nd in ICT use and 3rd in Government online services, underscoring its digital leadership. Estonia also leads in VC, ranking 1st in both VC received and VC investors.

Ireland rises one rank to 18th and solidifies its place within the top 20. It continues to benefit from its strong ICT sector, ranking 1st in ICT services exports and Intellectual property (IP) payments, 2nd in Intangible asset intensity, and 3rd in Software spending.

Belgium climbs three positions to 21st – its best result since 2013. It stands out in Business sophistication (10th), with a particularly strong performance in R&D performed by business (6th), Knowledge-intensive employment (11th), Researchers in businesses (11th), and University–industry and international engagement (14th). Australia ranks 22nd and continues its upward trend within the top 25. It performs exceptionally well in university quality (3rd), the impact of its Scientific publications (6th), and Tertiary inbound mobility (5th), reinforcing its appeal as a hub for global talent and research.

Economies soaring to new heights in innovation in 2025

Several economies soar to new heights in innovation in 2025 (Figure 2).

Norway enters the top 20 at 20th place. It leads the world in Infrastructure (1st) and performs strongly in Institutions (9th), supported by a robust innovation input profile.

The **United Arab Emirates** advances to 30th place, in 2025, marking continued progress and its best rank to date. The United Arab Emirates has top-tier rankings in Institutions (7th), Business sophistication (28th), plus a highly internationalized higher education system. It performs well in Business environment (2nd) and remains a benchmark in areas such as ICT access (6th), ICT use (7th) and Government online services (16th).

Croatia (40th) makes it into the top 40.

Figure 2 Economies soaring to new heights in innovation, 2025



Note: Year-on-year comparisons of GII rankings must take into account changes to the GII model that have occurred overtime, as well as data availability.

Source: Global Innovation Index Database, WIPO, 2025.

The **Philippines** (50th) continues to improve, breaking into the top 50, and reinforcing its position as one of the most consistent innovation climbers in South East Asia, East Asia, and Oceania. It also claims 3rd place among lower middle-income economies (Table 1).

A defining strength of the Philippine innovation ecosystem is its integration into global markets and its trade driven economy, that is both producing and absorbing advanced technologies and digital services and increasingly focused on applied innovation. The Philippines leads the world in High-tech exports (1st), ranks 4th in High-tech imports, and performs strongly in Creative goods exports (16th) and ICT services exports (20th). Though infrastructure and R&D spending remain relatively weak, the presence of high-tech manufacturing (20th), a growing production complexity and a budding creative sector – including an increasingly recognized brand landscape, and notable improvements in Intangible asset intensity (35th) – suggest that innovation is being embedded across multiple industries and reflects ongoing progress within knowledge-based sectors.

Morocco climbs to 57th place, joining the top 60 and marking its highest rank to date and major milestone in its long-term innovation trajectory. Morocco's progress reflects its industrial capacity, IP generation, and knowledge investment. At the heart of Morocco's progress is a shift toward high value-added production. Its economy has gradually moved beyond providing raw materials and low-cost manufacturing toward more sophisticated outputs – ranking 12th globally in High-tech manufacturing, which now accounts for nearly 50 percent of its total manufacturing output. The country performs strongly in industrial designs relative to GDP (6th), in Trademarks (24th) and Intangible asset intensity (26th), reflecting a private sector that is increasingly able to build brand value and move up the value chain. It has also top ranks in Expenditure on education (16th) and Labor productivity growth (24th).

Armenia (59th) makes notables strides and enters the top 60.

Bahrain (62nd), **Jordan** (65th) and **Oman** (69th) are making big strides; all three entering the top 70. These economies share a common foundation of strong institutions, expanding infrastructure and a growing pool of human capital. Bahrain shows strong performance in Infrastructure (15th), and particularly in ICT (11th), ranking 1st in ICT access, 11th in ICT use and 23rd in Government online service. It also stands out for having a highly supportive business environment, placing 7th in Entrepreneurship policies and culture, Policy stability for doing business, and Business environment overall. Oman stands out for its human capital, ranking high for its share of Graduates in science and engineering (12th).

Albania (67th) joins the top 70.

Tunisia moves up in the rankings this year, rising to 76th place and entering the top 80. Its 2025 improvement signals a renewed momentum and potential for future gains. Tunisia continues to leverage its strong human capital base and emerging innovation ecosystems, particularly in higher education and science. It holds top ranks for its Graduates in science and engineering (2nd) and its Scientific and technical articles (17th).

Uzbekistan rises to 79th – its best position ever and entering the top 80. It performs well in Labor productivity growth (6th), a sign of rising economic efficiency, and stands out for its growing pool of Graduates in science and engineering (13th). Uzbekistan also shows strength in creating an enabling Business environment, ranking 9th in this sub pillar, and continues to make progress in education financing – ranking 24th in Expenditure on education.

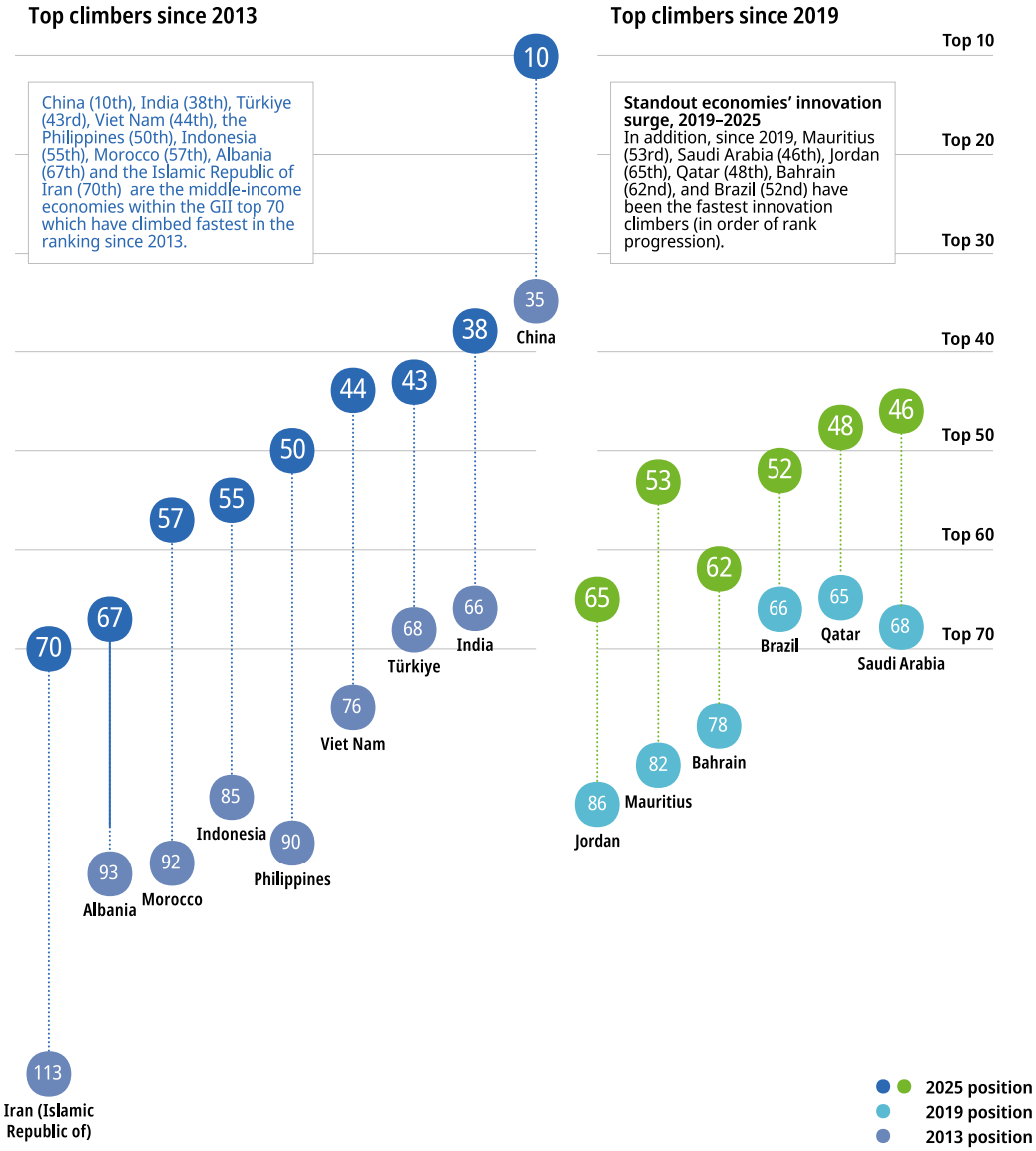
Seychelles (75th) returns to the GII in 2025, re-entering the rankings for the first time since 2015 and landing within the top 80. It establishes itself as one of the stronger performers in Sub-Saharan Africa.

Innovation climbers

China (10th), India (38th), Türkiye (43rd), Viet Nam (44th), the Philippines (50th), Indonesia (55th), Morocco (57th), Albania (67th) and the Islamic Republic of Iran (70th) are the middle-income economies within the GII top 70 which have climbed fastest in the ranking since 2013 (Figure 3).

Since 2019, Saudi Arabia (46th), Qatar (48th), Brazil (52nd), Mauritius (53rd), Bahrain (62nd) and Jordan (65th) have been the fastest innovation climbers. Bahrain and Jordan join this group thanks to progress made in 2025 (Figure 3).

Figure 3 Economies climbing the ladder in global innovation



Note: Year-on-year comparisons of GII rankings must take into account changes to the GII model that have occurred overtime, as well as data availability.

Source: Global Innovation Index Database, WIPO, 2025.

China continues to lead all middle-income economies (Table 1).

India strengthens its lead in Central and Southern Asia, rising to 38th place. It performs exceptionally well in areas such as ICT services exports (1st), Late-stage VC deals (4th), Intangible asset intensity (8th), and Unicorn valuation (11th), reflecting its growing innovation-driven economy.

Brazil ranks 52nd and continues to overperform relative to its level of development, anchored by strong research infrastructure, sustained R&D investment, and strong academic and corporate research capabilities. The São Paulo innovation cluster remains among the top 50 globally, reinforcing Brazil's regional leadership in scientific output and technological development.

Table 1 Top 10 economies by income group

Income Group Rank	GII Rank	Economy	Income Group Rank	GII Rank	Economy
	High-income economies (54 in total)			**Upper middle-income economies (36 in total)**	
1	1	Switzerland	1	10	China
2	2	Sweden	2	34	Malaysia
3	3	United States	3	43	Türkiye
4	4	Republic of Korea	4	45	Thailand
5	5	Singapore	5	52	Brazil
6	6	United Kingdom	6	53	Mauritius
7	7	Finland	7	54	Serbia
8	8	Netherlands (Kingdom of the)	8	55	Indonesia
9	9	Denmark	9	56	Georgia
10	11	Germany	10	58	Mexico
	Lower middle-income economies (37 in total)			**Low-income economies (11 in total)**	
1	38	India	1	104	Rwanda
2	44	Viet Nam	2	117	Togo
3	50	Philippines	3	120	Madagascar
4	57	Morocco	4	124	Uganda
5	65	Jordan	5	125	Malawi
6	76	Tunisia	6	126	Burkina Faso
7	79	Uzbekistan	7	127	Burundi
8	86	Egypt	8	128	Mozambique
9	89	Senegal	9	134	Ethiopia
10	90	Lebanon	10	135	Mali

Source: Global Innovation Index Database, WIPO, 2025.

Innovation momentum is rising in Northern Africa and Western Asia – especially in the Middle East – and in Sub-Saharan Africa

The Northern Africa and Western Asia region is building innovation momentum in 2025, with 14 economies improving their ranking. In Northern Africa, Morocco climbs nine ranks, marking one of the most significant improvements within the region.

Innovation performance in the Middle East is also gaining ground. The United Arab Emirates advances to 30th place in 2025. Saudi Arabia moves up to 46th, while Qatar (48th) continues its ascent within the top 50. Saudi Arabia and Qatar also benefit from high input scores – ranking 31st and 34th, respectively – driven by strengths in areas such as market sophistication, policy stability, and university–industry collaboration. Qatar stands out for attracting international talent, ranking 1st globally in Tertiary inbound mobility, and shows strong ICT use.

Ten out of the 32 economies from Sub-Saharan Africa covered this year have improved their ranking. Namibia (91st) has made the biggest improvement in the region, followed by South Africa (61st) and Nigeria (105th).

Sub-Saharan Africa leads in the number of economies overperforming on innovation, with six economies: South Africa (61st), Senegal (89th), Rwanda (104th), Madagascar (120th), Malawi (125th), and Burundi (127th). Malawi is a new entrant to this group.

Five Sub-Saharan African economies enter the GII in 2025, thanks to improved data collection: Seychelles (75th), Malawi (125th), Lesotho (132nd), Guinea (133rd) and Congo (137th) (Box 1), with Congo joining for the first time.

Singapore tops the most indicators globally, ahead of the United States and China; middle-income economies like Cambodia, Namibia, Nepal and Nigeria stand out in specific areas

Singapore maintains its leadership position in 2025, ranking 1st globally in 10 out of 78 innovation indicators (Figure 4). It excels in Government effectiveness, Policy stability for doing business, FDI net inflows, Unicorn valuation, High-tech manufacturing, and GitHub commits.

The United States follows closely, ranking 1st worldwide in nine indicators (unchanged from 2024). It leads in Late-stage VC deals, Global brand value, Global corporate R&D investors, Unicorn valuation, Software spending, and Intangible asset intensity. Israel and Hong Kong, China, share third place, each dominating seven innovation indicators. Israel tops indicators that include VC received and Unicorn valuation, while Hong Kong, China, leads in FDI net inflows and University industry and international engagement. China ranks fourth, achieving top position in six indicators, including Creative goods exports, Utility models, Trademarks, and Industrial designs. Iceland and Cyprus tie for fifth place, each ranking 1st in five indicators – Iceland excels in Low-carbon energy use, while Cyprus leads in Mobile app creation.

Several economies demonstrate exceptional performance in specific areas. Namibia leads in Expenditure on education, while Malaysia tops Graduates in science and engineering. Qatar and the United Arab Emirates lead in Tertiary inbound mobility, whereas Saudi Arabia dominates ICT use. Cambodia and Nepal rank 1st in Loans from microfinance institutions, while the Philippines and Viet Nam excel in High-tech exports. Nigeria achieves top position for Unicorn valuation, and India leads in ICT services exports.

Figure 4 Economies with the most GII indicators ranked top, 2025

Economy	Inputs	Outputs	Total
Singapore	6	4	10
United States	3	6	9
Israel	5	2	7
Hong Kong, China	6	1	7
China	2	4	6
Iceland	3	2	5
Cyprus	2	3	5

Note: More than one economy can share the top rank for a given indicator under the GII methodology. For details, see the Economy briefs and profiles and Appendix I.

Source: Global Innovation Index Database, WIPO, 2025.

Box 1 outlines important "dos and don'ts" to bear in mind when using the GII to improve an economy's innovation performance.

Box 1 How to use the Global Innovation Index: a strategic guide

The Global Innovation Index (GII) has grown from a benchmarking tool into a resource for shaping innovation policy used worldwide. According to a 2024 WIPO survey, 77 percent of member states now draw on the GII to inform national innovation strategies – a 20 percent surge from 2022. Uptake spans global regions, and the use of the GII has increased markedly in Africa (from 50 percent to 80 percent), the Arab States (60 percent to 75 percent) and Latin America (68 percent to 75 percent), in particular.

To nurture global engagement at scale, WIPO's GII team conducts up to 60 national and regional events annually, facilitating interministerial task forces across continents. The GII promotes evidence-based policymaking through a two-step methodology:

1. **Data-driven assessment** – Bringing together policymakers, statisticians and innovation actors to analyze national innovation performance.
2. **Strategic optimization** – Identifying strengths and weaknesses and designing coordinated policy responses with public and private actors.

Key implementation practices

- **Policy integration:** Embed innovation in national development frameworks and establish interministerial task forces operating through a "whole of government approach," reporting to top-level leadership.
- **Stakeholder engagement:** Consult broadly with startups, universities, IP offices and innovation clusters to ensure alignment across sectors; align national IP policies with broader innovation strategies for maximum synergy.
- **Measurable outcomes:** Set clear, quantifiable targets that enable systematic evaluation and course correction.
- **Realistic target-setting:** Focus on gradual system improvements, rather than immediate shifts in ranking; allow time for policy effects to materialize.

Building data infrastructure

The GII helps strengthen national innovation data systems, by relying on data from international sources like the UNESCO Institute for Statistics, rather than direct country submissions. The GII Innovation Ecosystems & Data Explorer 2025 supports countries in identifying data gaps and improving their innovation metrics.

Expanding use at the sub-national level

Several countries are now applying GII principles at both the regional and the city scale. Efforts include adapting core indicators, assessing local data availability, and addressing challenges around metrics such as creative outputs or access to finance. WIPO supports this trend through knowledge exchange workshops and through WIPO's (2024) Intellectual Property and Innovation Ecosystems Sector (IES) toolkit titled *Enabling Innovation Measurement at the Sub-National Level*, which has been designed for sub-national application.[1]

Innovating innovation metrics

To address persistent gaps in the data, the *GII iLens Innovation Data Lab* was launched in 2023. It explores emerging metrics in areas such as innovation finance, entrepreneurship, linkages, and deep science (e.g. genome sequencing). Using new data sources and analytical methods – for example, web scraping or geospatial analysis – the Lab's early findings are already informing the development of future GII editions and expanding the toolkit for innovation measurement.

1 The study and toolkit explore the transferability of core GII metrics to city, regional and provincial contexts; evaluates data availability;and highlights challenges when applying indicatorssuch as creative outputs and microfinanceat the local scale. A localized approach such as this enables the precise targeting of innovation policies at the most relevant geographical scale.

Innovation overperformers: a consistent group amid global competition

India and Viet Nam remain the longest-standing innovation overperformers, having maintained this status for 15 consecutive years. Rwanda and Ukraine follow closely, while Tunisia and Malawi are new entrants to the group of overperformers

The GII 2025 identifies 17 economies – two less than in 2024 – performing above expectation relative to their development level, thereby establishing themselves as the year's innovation overperformers (Figure 5 and Table 2).

India (38th) and Viet Nam (44th) maintain their remarkable streak as innovation overperformers for a 15th consecutive year since 2011. These lower middle-income economies outperform their income group across all seven GII pillars, even surpassing upper middle-income benchmarks.

Table 2 Innovation overperformers in 2025: income group, region and years as an innovation overperformer

Economy	Income group	Region	Years as an innovation overperformer (total)
India	Lower middle-income	Central and Southern Asia	2011–2025 (15)
Viet Nam	Lower middle-income	South East Asia, East Asia, and Oceania	2011–2025 (15)
Ukraine	Upper middle-income	Europe	2012, 2014–2025 (13)
Rwanda	Low-income	Sub-Saharan Africa	2012, 2014–2025 (13)
Thailand	Upper middle-income	South East Asia, East Asia, and Oceania	2011, 2014–2015, 2018–2025 (11)
Malawi	Low-income	Sub-Saharan Africa	2012, 2014-2021, 2025 (10)
Jordan	Lower middle-income	Northern Africa and Western Asia	2011–2015, 2022–2025 (9)
Madagascar	Low-income	Sub-Saharan Africa	2016–2018, 2020–2025 (9)
Senegal	Lower middle-income	Sub-Saharan Africa	2012–2015, 2017, 2023–2025 (8)
South Africa	Upper middle-income	Sub-Saharan Africa	2018–2025 (8)
Morocco	Lower middle-income	Northern Africa and Western Asia	2015, 2020–2025 (7)
Philippines	Lower middle-income	South East Asia, East Asia, and Oceania	2019–2025 (7)
Burundi	Low-income	Sub-Saharan Africa	2017, 2019, 2022–2025 (6)
Tunisia	Lower middle-income	Northern Africa and Western Asia	2018, 2020–2023, 2025 (6)
Brazil	Upper middle-income	Latin America and the Caribbean	2021–2025 (5)
Uzbekistan	Lower middle-income	Central and Southern Asia	2022–2025 (4)
Indonesia	Upper middle-income	South East Asia, East Asia, and Oceania	2022–2025 (4)

Note: Income group classification follows the World Bank Income Group classification (July 2024). Geographical regions correspond to the United Nations publication on standard country or area codes for statistical use (M49).

Source: Global Innovation Index Database, WIPO, 2025.

South Africa (61st) and Senegal (89th) secure their overperformer status for an eighth time, both advancing in this year's rankings. Senegal excels in areas such as capital formation (1st), microfinance (9th), and VC received (32nd), signaling a relatively healthy investment climate for startups and enterprises. It also has one of the highest unicorn valuations relative to GDP in the world (10th), pointing to a private sector that can scale new technologies within a context of constrained infrastructure and R&D capacity.

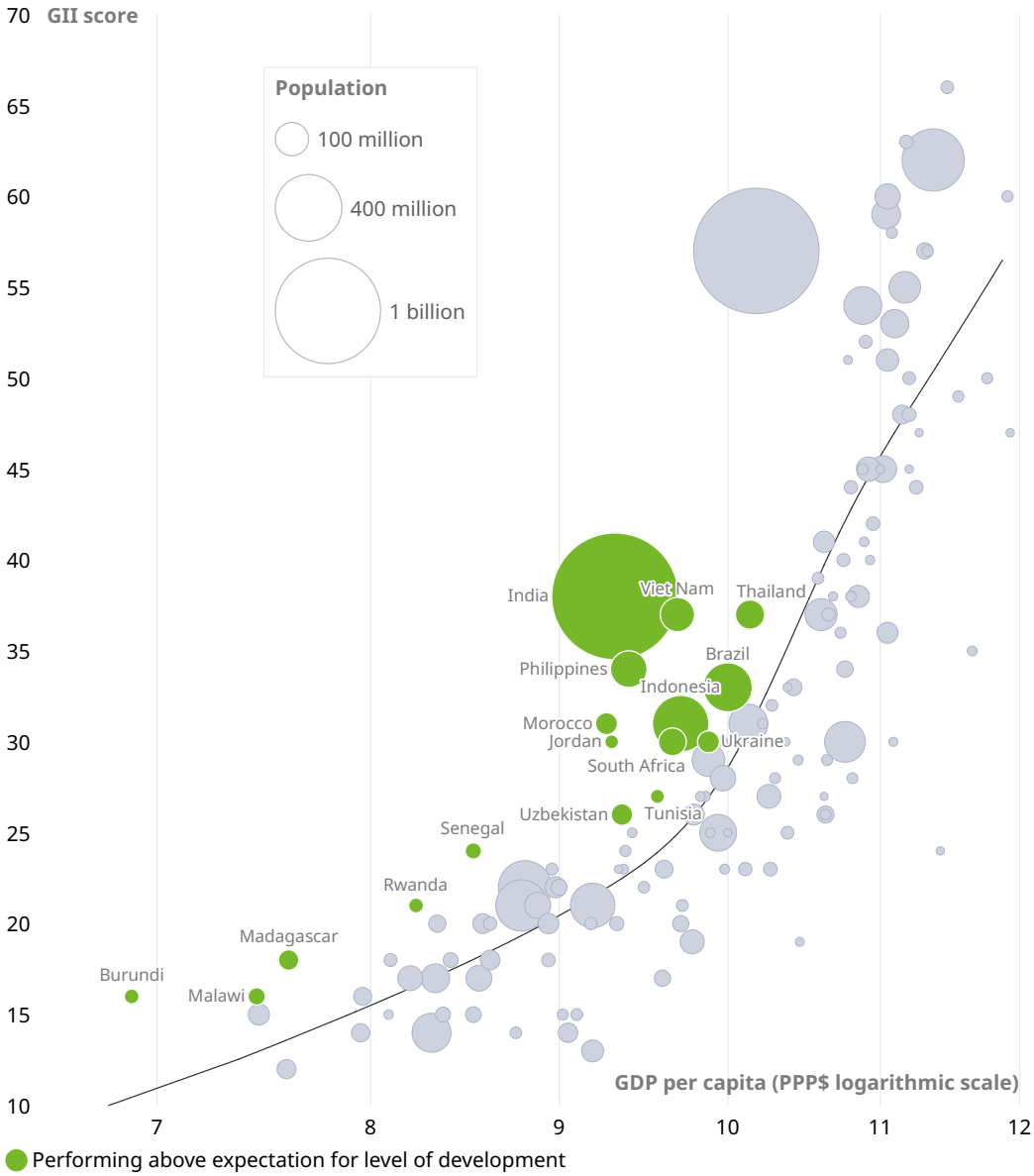
Morocco (57th) retains its overperformer designation this year and now breaks into the top 60.

Brazil (52nd) is an overperformer for a fifth consecutive year, while Indonesia (55th) and Uzbekistan are overperformers for a fourth year in a row. Tunisia (76th) and Malawi (125th) join this prestigious group in 2025.

Regionally, Sub-Saharan Africa leads in overperformers, with six economies (Table 2).

Conversely, 38 economies underperformed on innovation relative to expectations in 2025, with Latin America and the Caribbean having the largest share (13 economies). Among high-income economies that perform below their expected innovation levels, resource-driven economies from Northern Africa and Western Asia predominate, including Saudi Arabia (46th), Qatar (48th), Bahrain (62nd), Oman (69th) and Kuwait (73rd). Nevertheless, most of these economies (Kuwait excepted) improved in the innovation rankings in 2025, with Bahrain and Oman breaking into the top 70. The lower middle-income group includes 10 underperforming economies, six of which are in Sub-Saharan Africa.

Figure 5 Innovation overperformers, relative to economic development



Note: Bubbles are sized according to population. The cubic spline trendline shows the expected level of innovation performance at different levels of GDP per capita for all economies covered in the GII 2025.

Source: Global Innovation Index Database, WIPO, 2025.

Innovation efficiency leaders: maximizing output from available inputs

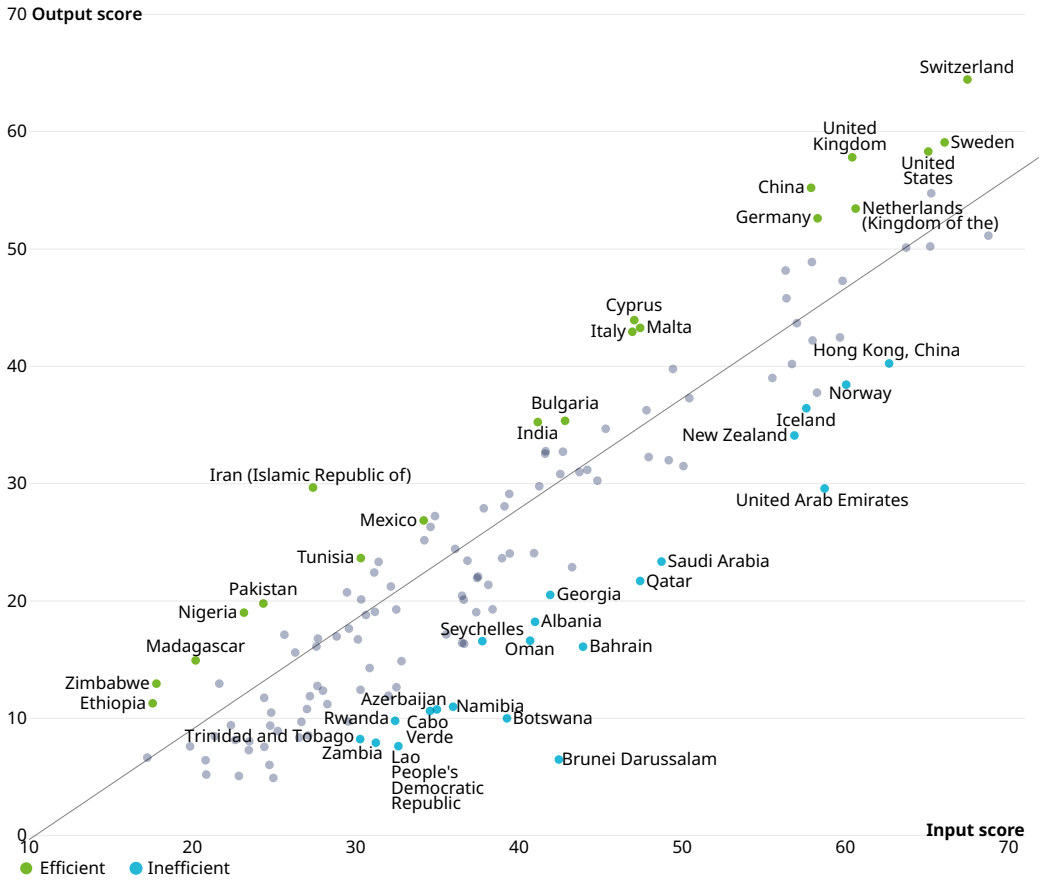
China surpasses several high-income economies in terms of innovation output, while other middle-income economies – the Islamic Republic of Iran, India, Mexico, Tunisia and Nigeria – demonstrate an enhanced innovation efficiency

Switzerland (1st) leads high-income economies in the transformation of innovation inputs into exceptional outputs, outperforming Sweden (2nd), the United States (3rd) and the United Kingdom (6th). The United Kingdom generates stronger outputs than Finland (7th), the Netherlands (8th) and Denmark (9th), achieving greater efficiency with lower input levels. Germany (11th) and Italy (28th) similarly demonstrate a high level of efficiency in output generation relative to input investment (Figure 6).

China (10th) dominates the upper middle-income group, producing innovation outputs that match or exceed those of several high-income economies, among them Singapore (5th), Germany (11th) and Australia (22nd), while deploying fewer resources. The Islamic Republic of Iran (70th) delivers outputs that exceed expectations based on its input level, surpassing Brazil (52nd) and the Russian Federation (60th). Mexico (58th) maintains robust output levels relative to inputs, outperforming Indonesia (55th), Chile (51st) and Colombia (71st).

In the lower middle-income category, India (38th), Tunisia (76th), Pakistan (99th), Nigeria (105th) and Zimbabwe (129th) emerge as efficient economies, converting limited innovation inputs into disproportionately high outputs. Madagascar (120th) continues to distinguish itself among low-income countries for innovation efficiency, while Ethiopia (134th) improves its efficiency in 2025, despite dropping in overall rank.

Figure 6 Innovation input to output performance, 2025



Note: Line corresponds to the fitted line between the input score and output score of all economies included in the GII 2025.

Source: Global Innovation Index Database, WIPO, 2025.

Box 2 Innovation linkages across income levels: spotlight on university rankings

Universities are central to innovation – producing knowledge, training talent, and linking academia, industry and government. They often anchor major innovation clusters (see Cluster ranking). Policymakers increasingly promote university collaboration with businesses and global partners in order to boost research impact and commercialization.

To capture this, the GII 2025 has this year introduced a new indicator: *University–industry and international engagement*. Based on Times Higher Education data, this indicator combines scores for industry ties and international collaboration across an economy's top five universities.

High-income economies lead on industry engagement and international outlook

The top 10 in this indicator are all stem from high-income economies (Box Table 1). The top universities in these 10 economies excel at fostering research–industry collaboration and cultivating globally-connected universities. Most top university locations within the top 10 economies are also home to leading innovation clusters — such as Shenzhen–Hong Kong–Guangzhou (ranked 1st), Paris (12th), Singapore (16th) (see Cluster ranking).

Emerging economies show strong potential

Among upper middle-income economies, universities from China (19th), South Africa (24th), and Türkiye (26th) lead. China, for instance, combines rapid university expansion with growing industry R&D activity, creating fertile ground for collaboration. In the lower middle-income group, Indian universities dominate in industry engagement, reflecting its dynamic startup ecosystem and R&D capabilities. Meanwhile, Jordan and Egypt's universities are among those who score highest on international outlook, showcasing global academic ties.

The ranking includes universities from several low-income economies, including from academic institutions in four Sub-Saharan African economies Uganda (63rd), Rwanda (73rd), Mozambique (84th), and Ethiopia (103rd). Among these, Uganda particularly distinguishes itself in terms of international engagement, with Makerere University achieving a high score (Box Table 2).

Box Table 1 Top 10 economies by average performance on university industry engagement and international outlook

Economy	Rank	University ranked first	University Location	Region
Hong Kong, China	1	City University of Hong Kong	Hong Kong	South East Asia, East Asia, and Oceania
Netherlands (Kingdom of the)	2	Maastricht University	Maastricht	Europe
Singapore	3	Nanyang Technological University, Singapore	Singapore	South East Asia, East Asia, and Oceania
Australia	4	The University of Queensland	Brisbane	South East Asia, East Asia, and Oceania
Switzerland	5	École Polytechnique Fédérale de Lausanne	Lausanne	Europe
United States	6	Massachusetts Institute of Technology	Cambridge	Northern America
United Kingdom	7	University of Oxford	Oxford	Europe
Canada	8	University of Alberta	Edmonton	Northern America
Austria	9	Medical University of Innsbruck	Innsbruck	Europe
France	10	Institut Polytechnique de Paris	Paris	Europe

Europe Northern America South East Asia, East Asia, and Oceania

Source: Global Innovation Index Database 2025, based on Times Higher Education (THE) World University Rankings 2025.

Box Table 2 Top 3 economies across middle- and low-income groups by average performance on university industry engagement and international outlook

Income group	Economy	Rank	University ranked first	University Location
Upper middle-income	China	19	Peking University	Beijing
Upper middle-income	South Africa	24	University of the Witwatersrand	Johannesburg
Upper middle-income	Türkiye	26	Sabancı University	Istanbul
Lower middle-income	Lebanon	40	American University of Beirut	Beirut
Lower middle-income	Jordan	42	Al-Ahliyya Amman University	Amman
Lower middle-income	India	52	Indian Institute of Science	Bengaluru
Low Income	Uganda	66	Makerere University	Kampala
Low Income	Rwanda	78	University of Rwanda	Kigali
Low Income	Mozambique	89	Universidade Eduardo Mondlane	Maputo

South East Asia, East Asia, and Oceania Northern Africa and Western Asia Sub-Saharan Africa Central and Southern Asia

Source: Global Innovation Index Database 2025, based on Times Higher Education World University Rankings 2025.

Several economies demonstrate enhanced innovation efficiency this year. Sweden, the United States, Malta (27th), India, Mexico, Tunisia, Nigeria and Ethiopia have advanced in terms of aligning innovation investment with output, optimizing their innovation ecosystems for a greater return.

Most innovation leaders (top 25) continue to showcase balanced strength across all seven pillars of the index – except for China – the only middle-income economy within the top 10, but which continues to perform less well on the Institutions pillar (ranked 44th) than it does on all other pillars. Beyond the top 10, Germany (11th), Japan (12th), France (13th), Hong Kong, China (15th), Canada (17th), Austria (19th), Norway (20th) and Australia (22nd) all exhibit a well-rounded ecosystem, excelling across both input and output dimensions (Table 3).

Table 3 Heatmap: GII 2025 rankings overall and by innovation pillar, 2025

Economy	Overall GII	Insti-tutions	Human capital and research	Infra-structure	Market sophist-ication	Business sophist-ication	Knowledge and technology outputs	Creative outputs
Switzerland	1	3	6	5	3	5	2	1
Sweden	2	12	3	4	9	2	4	2
United States	3	16	13	32	1	1	3	5
Republic of Korea	4	20	1	7	5	4	9	4
Singapore	5	1	2	19	6	3	7	15
United Kingdom	6	25	7	23	4	17	5	3
Finland	7	5	5	3	11	12	8	16
Netherlands (Kingdom of the)	8	11	14	30	12	7	10	6
Denmark	9	2	11	8	16	11	13	9
China	10	44	20	6	13	8	1	14
Germany	11	23	4	28	22	13	11	8
Japan	12	22	18	17	10	6	12	18
France	13	33	15	18	14	14	15	7
Israel	14	36	19	45	15	9	6	28
Hong Kong, China	15	8	12	21	2	23	30	17
Estonia	16	18	36	10	7	26	19	12
Canada	17	15	10	24	8	19	18	24
Ireland	18	10	24	13	36	15	14	21
Austria	19	21	9	12	30	16	21	23
Norway	20	9	22	1	21	20	32	22
Belgium	21	29	16	43	20	10	16	31
Australia	22	13	8	25	17	25	29	27
Luxembourg	23	4	27	57	23	21	53	10
Iceland	24	14	31	2	25	18	45	19
Cyprus	25	49	51	47	34	24	24	11
New Zealand	26	6	23	26	24	22	41	29
Malta	27	45	34	35	65	27	25	13
Italy	28	55	32	27	52	31	17	20
Spain	29	53	30	11	33	30	23	26
United Arab Emirates	30	7	17	9	19	28	57	35
Portugal	31	38	21	42	26	34	36	25
Czech Republic	32	34	37	33	73	29	20	43
Lithuania	33	19	45	29	32	35	33	48
Malaysia	34	30	46	54	18	38	34	41
Slovenia	35	48	26	20	63	36	27	53
Hungary	36	63	33	38	49	37	26	38
Bulgaria	37	81	64	22	35	50	28	32
India	38	58	54	61	38	64	22	42
Poland	39	68	43	51	64	32	42	33
Croatia	40	65	40	16	54	53	37	44
Latvia	41	46	47	34	56	47	51	36
Greece	42	60	29	41	57	65	43	40
Türkiye	43	100	38	44	41	41	48	30
Viet Nam	44	59	70	56	43	45	39	34
Thailand	45	76	53	59	27	42	44	39
Saudi Arabia	46	26	35	36	31	52	74	57
Slovakia	47	74	52	37	60	57	31	56
Qatar	48	17	44	14	48	90	83	60
Romania	49	85	72	31	62	59	40	52
Philippines	50	61	90	65	53	40	38	61
Chile	51	50	56	49	37	54	63	65
Brazil	52	107	48	60	71	39	50	50
Mauritius	53	32	78	84	28	103	97	37
Serbia	54	73	49	39	77	98	35	87
Indonesia	55	39	92	71	50	83	70	58
Georgia	56	28	61	73	59	69	66	76
Morocco	57	72	84	82	81	68	58	46
Mexico	58	104	67	77	68	72	54	49
Armenia	59	70	91	78	83	78	65	47
Russian Federation	60	131	28	76	76	46	62	55
South Africa	61	97	75	67	44	48	71	62
Bahrain	62	27	80	15	66	73	80	96

< 35 35–70 70–105 ≥ 105

Table 4 continued

Economy	Overall GII	Insti-tutions	Human capital and research	Infra-structure	Market sophist-ication	Business sophist-ication	Knowledge and technology outputs	Creative outputs
North Macedonia	63	78	71	53	69	80	52	78
Montenegro	64	88	59	50	45	96	75	69
Jordan	65	52	86	87	67	58	60	71
Ukraine	66	108	65	75	85	56	47	67
Albania	67	47	99	40	47	61	85	77
Uruguay	68	31	93	46	103	115	73	81
Oman	69	40	73	55	70	63	91	85
Iran (Islamic Republic of)	70	138	66	98	79	107	46	45
Colombia	71	86	62	74	75	60	78	72
Costa Rica	72	57	85	63	89	70	55	88
Kuwait	73	75	55	52	78	113	88	70
Republic of Moldova	74	91	69	95	88	131	67	63
Seychelles	75	37	94	88	58	89	133	64
Tunisia	76	111	50	116	84	123	56	66
Argentina	77	120	57	80	100	81	79	59
Mongolia	78	98	87	70	95	84	93	54
Uzbekistan	79	62	81	69	74	77	68	104
Peru	80	93	42	68	51	120	95	79
Kazakhstan	81	77	68	64	93	82	87	82
Panama	82	84	110	48	91	132	90	68
Jamaica	83	64	100	102	115	101	117	51
Barbados	84	56	89	121	127	51	61	90
Belarus	85	137	39	85	102	86	49	94
Egypt	86	96	101	92	86	93	84	75
Botswana	87	42	76	94	39	62	107	116
Brunei Darussalam	88	24	60	62	55	95	129	131
Senegal	89	71	97	79	90	112	77	111
Lebanon	90	133	63	120	42	71	59	102
Namibia	91	51	79	96	105	49	123	100
Bosnia and Herzegovina	92	121	77	72	80	130	72	99
Sri Lanka	93	105	109	66	109	121	89	84
Azerbaijan	94	41	88	105	72	111	110	108
Cabo Verde	95	43	106	83	106	75	111	109
Kyrgyzstan	96	119	58	89	82	117	103	89
Dominican Republic	97	54	111	81	112	87	113	97
El Salvador	98	92	122	113	87	122	104	73
Pakistan	99	127	123	123	101	94	69	80
Cambodia	100	90	114	93	29	133	92	113
Ghana	101	82	108	109	129	91	86	91
Kenya	102	95	124	119	121	92	64	101
Paraguay	103	94	119	58	111	104	122	93
Rwanda	104	35	83	108	131	114	106	120
Nigeria	105	126	125	126	128	55	76	83
Bangladesh	106	109	133	90	96	129	99	86
Nepal	107	113	127	101	61	124	98	103
Tajikistan	108	102	98	99	110	102	81	124
Lao People's Democratic Republic	109	83	121	100	46	76	127	125
Côte d'Ivoire	110	66	135	106	114	85	128	98
Bolivia (Plurinational State of)	111	134	41	124	40	106	126	106
Zambia	112	69	103	91	116	66	125	123
Ecuador	113	117	96	86	113	109	94	110
Trinidad and Tobago	114	80	74	110	98	135	121	127
Algeria	115	89	82	97	138	119	112	107
Cameroon	116	103	95	134	126	44	108	118
Togo	117	106	107	129	97	136	105	105
Benin	118	67	118	115	132	99	102	133
Honduras	119	130	113	107	94	126	96	122
Madagascar	120	128	116	137	117	116	124	74
United Republic of Tanzania	121	79	128	111	125	97	119	126
Myanmar	122	136	112	104	108	139	120	92
Guatemala	123	112	134	117	99	118	114	119
Uganda	124	87	131	125	123	88	118	121
Malawi	125	101	138	133	122	33	101	137

< 35 35–70 70–105 ≥ 105

Table 4 continued

Economy	Overall GII	Insti-tutions	Human capital and research	Infra-structure	Market sophist-ication	Business sophist-ication	Knowledge and technology outputs	Creative outputs
Burkina Faso	126	110	105	139	104	128	100	128
Burundi	127	116	104	128	118	108	138	112
Mozambique	128	124	130	103	119	127	131	117
Zimbabwe	129	132	137	132	136	74	116	95
Nicaragua	130	135	129	118	92	67	115	135
Mauritania	131	99	115	114	130	110	134	134
Lesotho	132	115	102	112	107	137	136	136
Guinea	133	118	120	127	137	100	135	114
Ethiopia	134	122	139	130	133	134	82	129
Mali	135	114	126	131	124	79	132	138
Venezuela (Bolivarian Republic of)	136	139	25	138	135	105	137	115
Congo	137	129	117	135	139	43	130	132
Angola	138	123	132	122	120	138	139	130
Niger	139	125	136	136	134	125	109	139

< 35 35–70 70–105 ≥ 105

Notes: Dark green cells correspond to the 4th quartile (best performers, ranks 1st to 34th); light green correspond to the 3rd quartile (ranks 35th to 69th); light blue correspond to the 2nd quartile (ranks 70th to 104th); and gray to the 1st quartile (ranks 105th to 139th).

Source: Global Innovation Index Database, WIPO, 2025

Among lower-ranked economies, several stand out for their exceptional performance in individual innovation pillars. Rwanda (104th overall) performs notably well in Institutions (35th), while Kyrgyzstan (96th) scores much better in Human capital and research (58th) relative to its overall ranking. Paraguay (103rd) places well in Infrastructure (58th) and Cambodia (100th) ranks solidly in Market sophistication (29th). In terms of Business sophistication, Namibia (91st) and Nigeria (105th) both perform well (49th and 55th, respectively). The Philippines (50th overall) and the Islamic Republic of Iran (70th) perform relatively well in Knowledge and technology outputs (38th and 46th), while Mongolia (78th) scores well in Creative outputs (54th). These diverse strengths represent valuable innovation assets that these economies can leverage to improve their overall innovation performance and global ranking.

Innovation across the world's regions

Driven by stronger innovation outputs, Central and Southern Asia edges ahead of Latin America and the Caribbean, while Sub-Saharan Africa shows promising gains

For the first time, Central and Southern Asia overtakes Latin America and the Caribbean in the regional GII rankings, based on the unweighted average GII score of all the economies within a region. While Northern America and Europe continue to lead, followed by South East Asia, East Asia, and Oceania, and Northern Africa and Western Asia, the most notable shift has occurred between Central and Southern Asia and Latin America and the Caribbean. This shift represents a milestone and is largely driven by Central and Southern Asia's edge in innovation outputs, where the region now scores on average higher than Latin America and the Caribbean. In contrast, Latin America and the Caribbean still leads on innovation inputs, though the gap is narrowing.

Central and Southern Asia's performance has been buoyed by economies like India (38th), Uzbekistan (79th) and Kazakhstan (81st), which show improved results across knowledge creation, technological outputs, and human capital development. These economies have built a strong culture of technology adoption and entrepreneurship, and are demonstrating that a focus on innovation outputs – whether through high-tech exports, research linkages or entrepreneurship – can allow an economy to leap ahead in the rankings, even if that economy does not have the most advanced innovation system.

In contrast, many Latin American and Caribbean economies remain stuck in the "input–output" gap –often as a result of having weak linkages in the innovation ecosystem or a rigid

institutional environment. In this case, they invest in education and policy reforms, but struggle to connect these investments to innovation results.

Sub-Saharan Africa, while still behind other regions on average, now surpasses both Central and Southern Asia and Latin America and the Caribbean in the Institutions and Business sophistication pillars – a clear sign of an increasing potential and a deepening capacity within the region.

The sections that follow highlight the most significant economy-level developments happening across the seven world regions.

Northern America

Northern America remains the most innovative world region in 2025. Comprised of the United States and Canada, the region continues to maintain a wide lead over other global regions in terms of overall innovation capacity and output.

Canada ranks 17th in 2025, slipping three positions compared to last year. Despite this setback, Canada stands out for its innovation inputs, ranking 13th globally, backed by a robust institutional framework, a high-quality education and research base, and a vibrant VC ecosystem. Canada ranks among the top economies for Market sophistication (8th), University–industry R&D collaboration (6th), and Late-stage VC deals (8th). Its innovation ecosystem is anchored by world-class universities and dynamic firms. Conversely, Canada's shortcomings include lower Labor productivity growth (101st), fewer Industrial designs (95th) and Trademarks (85th), and modest High-tech exports (37th) relative to its peers. Nevertheless, with three major innovation clusters in Toronto, Montréal, and Vancouver, and relatively good Intangible asset intensity (17th) and Software spending (7th), Canada remains a dynamic innovation leader with room to boost its output performance.

Europe

Europe remains the world's leading region in terms of the number of economies ranked among the top 25 of the GII, with 15 economies in this elite group – including six within the top 10. While most of the top performers hold steady, 13 of the 39 European economies move up the ranking in 2025, a notable increase from nine last year: namely, Denmark (9th), Ireland (18th), Norway (20th), Belgium (21st), Malta (27th), Lithuania (33rd), Bulgaria (37th), Poland (39th), Croatia (40th), Latvia (41st), Greece (42nd), Montenegro (64th) and Albania (67th). Norway enters the top 20, Croatia the top 40 and Albania the top 70 (Figure 2).

Belgium moves up three ranks – one of the highest jumps within the region. It has a strong base of Researchers (7th) and high Gross expenditure on R&D (6th) – equaling 3.3 percent of its GDP in 2023 – with significant contributions from business (high ranks in GERD performed and financed by business, ranked 6th and 7th, respectively). It also ranks well in University industry and international engagement (14th), and in Research talent (11th) and Knowledge-intensive employment (11th).

Eastern European economies and the Baltic States continue to gain ground in the innovation landscape, with several showing marked improvement, and with Albania, Croatia and Lithuania gaining the most. Estonia (16th), Lithuania and Latvia increasingly position themselves as agile, digitally savvy economies. Estonia remains a digital pioneer, consistently ranked among the best globally for ICT infrastructure, e-government, and online services.

Lithuania stands out for its vibrant startup scene. It performs well in VC received (20th) and has the world's highest Unicorn valuation relative to GDP (1st), signaling an early-stage funding landscape with potential to scale-up its enterprises globally. Lithuania also excels in Females employed with advanced degrees (3rd) and Knowledge-intensive employment (16th). The country's performance in Mobile app creation (8th) and Knowledge impact (13th) further showcases its growing digital and innovation outputs.

Latvia continues to advance by leveraging a skilled workforce and its integration into European value chains, while maintaining solid performance in infrastructure. Bulgaria (37th) and Poland

(39th) are also making strides. Poland remains one of the most diversified economies in the region and continues to grow its digital technologies and creative exports.

Europe also contributes a diverse group of innovation clusters. Germany leads with seven clusters, including Munich, Berlin, and Stuttgart. In the United Kingdom, with four clusters, Cambridge and Oxford stand out for their high scientific productivity and intensity. Other strong performers by intensity include Helsinki (Finland), Eindhoven (the Netherlands), Stockholm, Copenhagen, and Dublin (Cluster section). However, European clusters generally rank lower than US counterparts, because of their weaker VC ecosystems.

South East Asia, East Asia, and Oceania

Six economies in the region rank among the world's innovation leaders in 2025 – one less than in 2024. They are the Republic of Korea (4th), Singapore (5th), China (10th), Japan (12th), Hong Kong, China (15th) and Australia (22nd).

This group continues to dominate global innovation indicators: the Republic of Korea leads in R&D performed by business, and Researchers in business; Singapore ranks 1st globally in Unicorn valuation, High-tech manufacturing and GitHub commits; China maintains its 1st place in Trademarks, Utility models, and Industrial designs, and newly claims 1st overall in the Knowledge and technology outputs pillar; Japan leads in Production and export complexity; Hong Kong, China, ranks 1st in High-tech imports; and Australia ranks 2nd in Regulatory quality.

Nine of the 17 economies covered in the region improved their rankings in 2025, with Hong Kong, China (15th), the Philippines (50th), Cambodia (100th) and Myanmar (122nd) making the greatest advances.

The Philippines advances to 50th(Figure 2), and claims 3rd place among lower middle-income economies (Table 1).

Cambodia (100th) leads in financial inclusion and access to credit. It ranks 1st worldwide in Loans from microfinance institutions, 2nd in Credit, and 10th in Domestic credit to the private sector. Other areas of strength include FDI net inflows (13th), Gross capital formation (15th) and Labor productivity growth (19th), underscoring Cambodia's transformation and capital investment momentum.

Lao People's Democratic Republic (109th) also moves up the ranking.

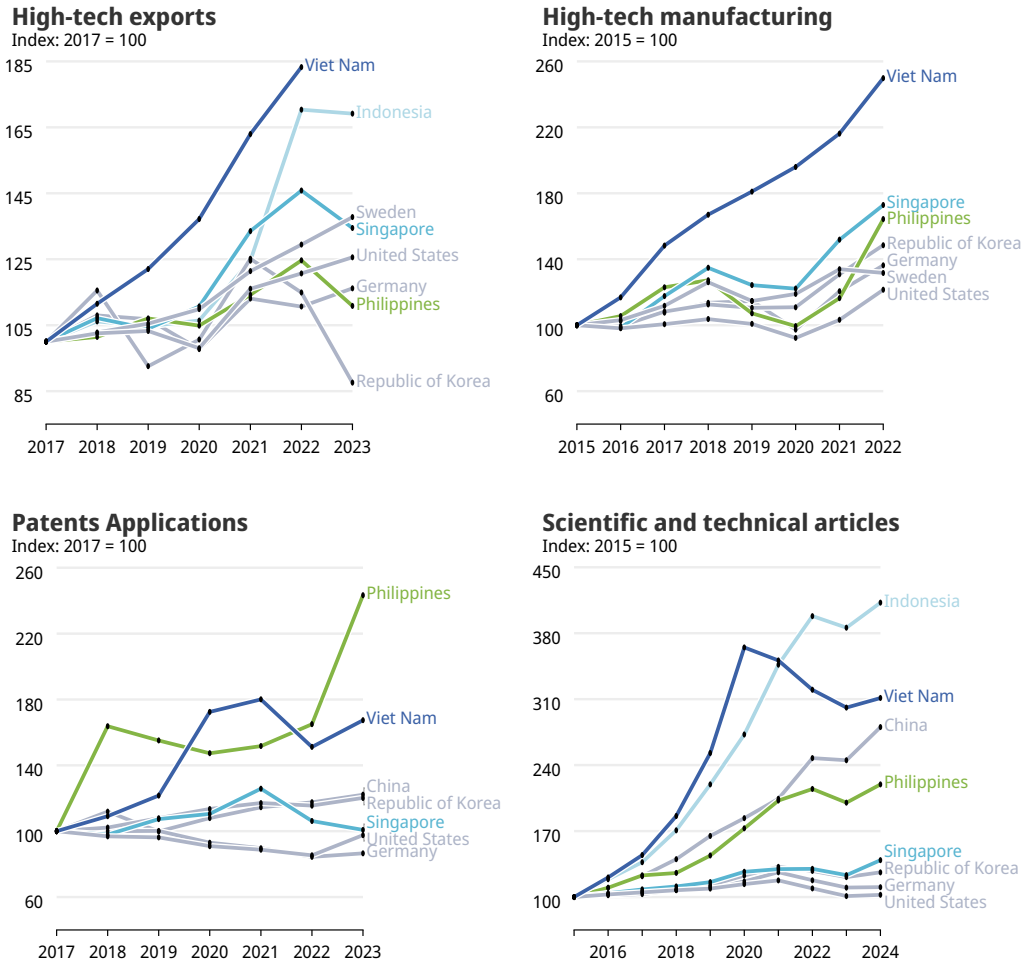
Box 3 ASEAN innovation performance – gains and global convergence

The Association of Southeast Asian Nations (ASEAN) is gaining ground in the global innovation landscape. Led by Singapore (5th), strong performers also include Malaysia (34th), Viet Nam (44th), Thailand (45th) and the Philippines (50th). What is more, Viet Nam and Indonesia (55th) continue to rank among the GII's innovation overperformers, for the 15th and 4th consecutive years, respectively.

From 2000 to 2023, ASEAN's R&D spending rose at a compound annual growth rate (CAGR) of 8.5 percent, reaching nearly USD 60 billion in real terms. ASEAN's High-tech exports more than doubled between 2015 and 2022, growing at 9.7 percent annually, and Global brand value reached 7 percent of regional GDP in 2023 – signaling a more sophisticated private sector. A 134 percent surge in venture capital funding received in 2021 also highlights ASEAN's expanding startup ecosystems.

At the economy level, key indicators – High-tech exports, High-tech manufacturing, Patents, and Scientific and technical articles – show the gap narrowing between ASEAN economies and the global innovation leaders (Box Figure 1). Viet Nam shows rapid gains, especially in high-tech exports, high-tech manufacturing, and publications. The Philippines is progressing in Patents and scientific output, while Singapore remains strong in high-tech manufacturing.

Box Figure 1 Closing the innovation gap: growth in key GII indicators in ASEAN vs. global innovation leaders, 2015–2024



Note: Dark grey lines represent selected innovation leaders for each indicator. High-technology exports contain technical products with a high intensity of R&D, as defined by Eurostat using the SITC Rev.4 and OECD classification. Key sectors include aerospace, chemicals and armaments, computers, electronics, electrical and non-electrical machinery, pharmaceuticals, scientific instruments, telecommunications. High-tech exports are measured in billion US dollars. High-tech manufacturing refers to high technology and medium-high technology (MHT) output based on the OECD classification of Technology Intensity Definition, itself based on International Standard Industrial Classification (ISIC) Rev.4 and Rev.3. High-tech manufacturing is measured in the local currency. Patent applications refer to the resident patent applications filed at a national or regional patent office.

Source: WIPO, the Global Innovation Index (GII) database, based on United Nations Comtrade Database, the United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database INDSTAT 2 2023 and INDSTAT 4 2023, World Intellectual Property Organization, Intellectual Property Statistics, and Clarivate, Web of Science.

Central and Southern Asia

India continues to lead innovation within the Central and Southern Asia region, rising one spot to 38th place in 2025. It remains the top performing lower middle-income economy (Table 1). Its strengths lie in its scale, entrepreneurial activity and a growing ability to translate scientific knowledge into commercial impact. India ranks 1st in ICT services exports and has a strong business landscape backed by a dynamic VC scene – it is placed 4th in Late-stage VC deals and 9th in Finance for startups and scaleups. Indian Unicorn valuation (11th) and its growing Intangible asset intensity (8th), reflect its knowledge and tech-driven economy. Yet, challenges remain. India continues to lag in Infrastructure and R&D spending – equal to only 0.65 percent of its GDP in 2020, reflecting the need for further investment to be made.

Three other economies within the region move up the ranking: Uzbekistan (79th) –entering the top 80 for the first time– Kyrgyzstan (96th) and Nepal (107th). Uzbekistan retains the 3rd place within the region, behind the Islamic Republic of Iran (70th).

Kyrgyzstan standouts in Expenditure on education (5th globally) and ranks among the top 15 for Low-carbon energy use (14th), reflecting strengths in environmental sustainability. Nepal ranks 1st globally in Loans from microfinance institutions. It also performs well in Credit (7th) and Gross capital formation (11th), pointing to access to finance and capital investment.

Northern Africa and Western Asia

The Northern Africa and Western Asia region is building innovation momentum in 2025, with 14 economies improving their ranking.

Israel (14th) continues to lead the region, gaining one rank and reinforcing its position among the top 15 global innovation economies. It tops several critical indicators, including overall R&D expenditure, VC received, ICT services exports, and Unicorn valuation, reflecting a dynamic innovation ecosystem.

Innovation performance in the Middle East is also gaining ground, with eigth economies moving up. The United Arab Emirates rises two ranks to a new high of 30th, marking upward momentum. Bahrain (62nd), Jordan (65th) and Oman (69th) make the most strides and enter the top 70. Saudi Arabia (46th) and Qatar (48th) move one position.

Cyprus (25th) moves up 2 spots and Georgia (56th) moves one. Morocco (57th) and Armenia (59th) make notables strides and enter the top 60; while Tunisia (76th) enters the top 80 (Figure 2).

Morocco climbs nine ranks in 2025, marking one of the most significant improvements within the region – second only to Bahrain. Its innovation performance reflects a clear shift from traditional sectors toward a more diversified, value-added economy. Looking ahead, Morocco's key challenge will be to deepen investments into R&D, and improve its innovation linkages and infrastructure. While the country has proven to be an innovation overperformer, further progress will depend on strengthening investment, in order to scale and sustain its innovation gains over time.

Lebanon (90th) and Azerbaijan (94th) also climb the ranking, this year gaining four and one rank, respectively.

Latin America and the Caribbean

In Latin America and the Caribbean, momentum slowed in 2025, with most economies either losing ground or stagnating. The region's persistent innovation input–output gap underscores the need for stronger linkages between research institutions and the private sector, as well as improved innovation governance and more effective financing mechanisms.

Chile (51st) is followed by Brazil (52nd) and Mexico (58th) in the regional rankings.

Chile obtains strong results in Tertiary enrolment (7th), Market capitalization (17th), and FDI net inflows (22nd). Brazil (52nd) drops two places, but continues to anchor the region's innovation output capacity, ranking highest within the region in terms of Knowledge and technology outputs (50th) and Creative outputs (50th). It also ranks among the top 25 globally in Expenditure on education (23rd) and Global corporate R&D investors (24th). The country leverages its sizable Domestic market scale (7th) to attract Late-stage VC (16th) and ranks highly in High-tech imports (19th) and ICT services imports (17th), indicating there is a demand for advanced technologies and digital services. Brazil is the only economy within Latin America and the Caribbean that performs on innovation above expectations for its level of development and has kept this status since 2021 and for five consecutive years (Table 2).

Mexico (58th) also slips down two ranks, but remains a strong performer in trade-related innovation indicators. It ranks 6th in Creative goods exports, and performs strongly in High-tech imports (16th), High-tech exports (13th), and High-tech manufacturing (13th), reflecting the

continued strength of its industrial base and export-led model. Mexico City enters the top 100 innovation clusters for the first time, debuting at 79th place.

Despite setbacks this year, Uruguay (68th), Colombia (71st) and Costa Rica (72nd) follow the region's top 3. Uruguay retains leading positions in Institutions (31st) and Infrastructure (46th). Colombia is an emerging hub for corporate R&D and startup development. It remains a strong performer in High-tech imports (15th) and Unicorn valuation (23rd). Panama (82nd), the Dominican Republic (97th) and El Salvador (98th) maintain a stable position in the 2025 rankings.

Panama continues to leverage its strategic geographical location and strong general infrastructure in support of trade, investment, and service-based innovation. It benefits from having a relatively strong financial sector, which helps attract foreign investment. Labor productivity growth (18th) is improving, and the country performs competitively in High-tech exports (21st). It also shows promise in the creative economy, with measurable outputs in Creative goods and services (24th) and Creative goods exports (21st), reflecting a growing cultural and digital industries base. While its research capacity remains limited, its service-based economy provides a platform for innovation.

The Bolivarian Republic of Venezuela returns to the GII for the first time since 2016 (136th).

Sub-Saharan Africa

Sub-Saharan Africa continues to make measured progress, with 10 economies improving in the ranking and several solidifying their position. Mauritius (53rd) remains the region's top performer. It leads in VC investors (5th), while maintaining top regional ranks in Institutions (32nd), Market sophistication (28th) and Creative outputs (37th). South Africa (61st), Seychelles (75th), Botswana (87th) and Senegal (89th) follow in the regional ranking – with all improving their ranking, except for Botswana. Seychelles returns to the GII in 2025, re-entering the rankings for the first time since 2015 and landing within the top 80.

Namibia (91st) registers the largest improvement in Sub-Saharan Africa, climbing 11 positions. It leads the world in Expenditure on education (1st) and ranks within the top 40 for FDI net inflows (10th), University–industry R&D collaboration (38th) and Public research–industry co-publications (31st), reflecting its emerging research partnerships and growing capacity. South Africa (61st) also advances in 2025 and continues to be a regional leader in Human capital and research (75th) and Infrastructure (67th). It performs strongly in ICT services imports (18th) and Global brand value (23th), underlining its growing branding ecosystem.

Senegal rises three positions and shows notable strengths in Unicorn valuation (10th), FDI net inflows (8th) and Loans from microfinance institutions (9th), signaling an expanding base for both startups and capital inflows. Nigeria (105th) emerges as one of Sub-Saharan Africa's fastest climbers in 2025. It ranks 1st globally in Unicorn valuation and performs well in Knowledge-intensive employment (35th), High-tech imports (8th) and Late-stage VC deals (26th) indicating a growing depth in its knowledge economy and entrepreneurial ecosystems. Cameroon (116th) also advances and performs well in Graduates in science and engineering (17th).

Rwanda (104th), Madagascar (120th), Malawi (125th), Senegal, South Africa and Burundi (127th) are innovation overperformers. Rwanda has been the longest overperforming economy within the region – overperforming for 13 years.

Five Sub-Saharan African economies join the GII this year, owing to improved data coverage: Seychelles, Malawi (125th), Lesotho (132nd), Guinea (133rd) and Congo (137th).

Conclusion

The 2025 edition of the Global Innovation Index reveals a world in transition, where innovation remains a critical driver of competitiveness and resilience – but one that is evolving rapidly in character and geography. While the group of top innovation leaders remain largely stable, the global innovation landscape is becoming more diverse, with several middle-income economies making steady progress and regional dynamics shifting.

Three broad messages emerge from this year's findings:

First, there is broad participation in innovation. Innovation capacity is expanding across regions and income groups. While it is not possible for every economy to rise in the rankings, several economies – from Central and Southern Asia to Sub-Saharan Africa, the Middle East, and Eastern Europe – are demonstrating stronger innovation performance. These economies are strengthening innovation through investment, education and business dynamism. Countries like India, Morocco, and the Philippines show that with focused strategies, they can build innovation capacity over time.

A standout development this year is the rise of Central and Southern Asia, which surpasses Latin America and the Caribbean in the regional GII rankings for the first time. This shift is driven by a strong output performance from India, Uzbekistan and Kazakhstan. In Sub-Saharan Africa, countries like Nigeria and Namibia have made notable gains, and the region as a whole now outperforms others in selected institutional and business sophistication indicators.

Momentum is also building in Northern Africa and Western Asia, with 14 economies improving their ranking. Morocco and Bahrain are among the fastest risers, while Israel and Türkiye continue to lead in R&D and intangible assets. In Eastern Europe, countries such as Croatia, Latvia, Lithuania and Albania post gains linked to investment into education, digital transformation and startup ecosystems.

Second, there is diversity in how economies engage in innovation. Some are leveraging strengths in high-tech manufacturing or digital services, while others are tapping into creative industries, natural resource linkages or regional market dynamics. This diversity means that there is no single path to innovation success. Rather, countries are finding ways to adapt innovation models to their unique economic structures and capabilities.

Northern America and Europe remain the most innovative regions globally, bolstered by strong ecosystems for research, VC and high-impact scientific outputs. China's remarkable trajectory to reach the top 10, reflects its sustained investment in R&D and technological leadership. India reinforces its role through having strong ICT service exports, startup dynamism and a large domestic R&D base. Türkiye, Viet Nam and Thailand – despite setbacks in 2025 – all edge closer to the top 40, supported by strengths in trade, their industrial base and high-tech manufacturing. The Philippines climbs thanks to global leadership in high-tech exports and ICT services.

Third, innovation ecosystems are increasingly shaped by agility and responsiveness. Economies that can adapt quickly – by embracing new technologies, supporting startups and strengthening linkages across sectors – are gaining ground. Innovation is no longer only about long-term investment into science, but also about the ability to act in response to global shifts, including digital transformation and sustainability. As the world navigates economic uncertainty, the ability to adapt and innovate across sectors and borders will remain a defining advantage.

Still, barriers remain. Long-term innovation capacity still depends on key investments. Moreover, many economies struggle to scale their innovation ecosystem, commercialize research, and integrate more fully into global value chains.

Policymakers, business leaders and academic institutions must together act decisively to unlock innovation's full potential. First, they must invest in long-term R&D and education systems that support frontier knowledge and its diffusion. Second, promote a deeper collaboration between universities and the private sector, in order to turn research into economic value. Third, ensure access to finance, especially for startups and high-growth firms in developing regions. Finally, improve measurement and data systems, so as to better track innovation performance and guide evidence-based policymaking.

As the global economy faces mounting sustainability and growth challenges, innovation remains the most powerful tool with which to respond. The GII will continue to serve as a platform for measuring progress and fostering cooperation across all sectors and regions.

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Cluster ranking

The GII reveals the top innovation clusters world-wide, by size and intensity. Innovation clusters – whether innovation-driven cities or regions – form the beating heart of national innovation systems. These hubs unite top universities, researchers, inventors, venture capitalists and R&D firms in driving forward breakthrough ideas.

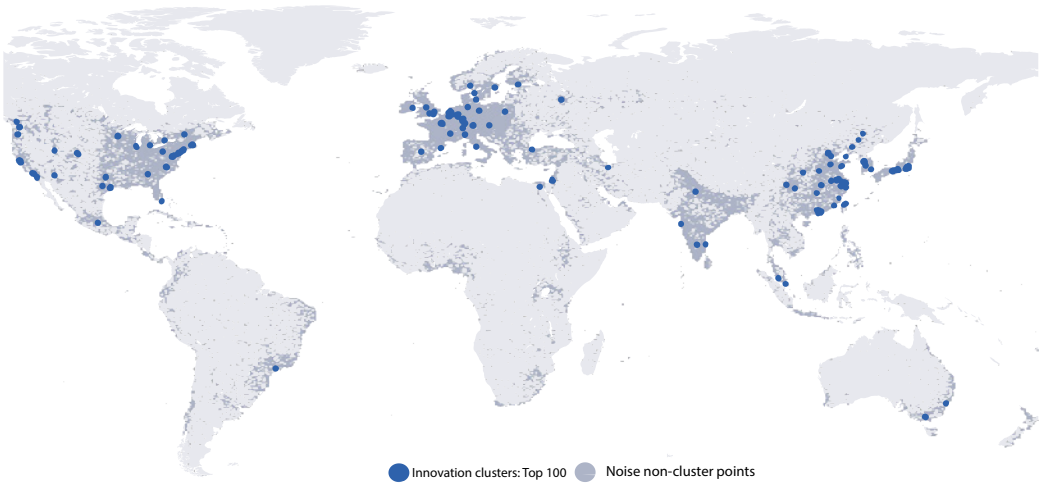
2025 GII Ranking of World's Top 100 Innovation Clusters

Innovation clusters – whether innovation-driven cities or regions – form the beating heart of national innovation systems. These hubs unite top universities, researchers, inventors, venture capitalists and R&D firms in driving forward breakthrough ideas.

From Bengaluru to Berlin, Boston to São Paulo, Shenzhen or Seoul, global cities blend research, start-ups and R&D firms to power innovation.

Each year, the Global Innovation Index (GII) ranks the top 100 innovation clusters worldwide (Map 1). The GII uses a bottom-up, data-driven methodology that disregards administrative or political borders and instead pinpoints those geographical areas where there is a high density of inventors and scientific authors. The clusters identified in this way often span several municipal districts, sub-federal states, and sometimes even two or more countries.

Map 1 Top 100 innovation clusters worldwide, 2025



Note: Gray points (noise) refer to all inventor/author locations not classified as being within a cluster.
Source: WIPO Statistics Database, May 2025.

New methodology incorporates venture capital data

In 2025, three metrics define the top 100 clusters globally (see Appendix IV for details and a comparison to earlier methods, in particular Appendix IV - Table 2 which ranks clusters in accordance with last year's methodology).

- The first metric focuses on the location of inventors listed in published patent applications under the WIPO Patent Cooperation Treaty (PCT).[1]
- The second metric considers the authors listed on published scientific articles.

These two metrics have served as the foundation for cluster identification across previous GII editions. This year, however, the GII is able to introduce a third metric, namely:

- Venture capital (VC) deal locations.

1 The WIPO Patent Cooperation Treaty (PCT) assists applicants in seeking patent protection for their inventions internationally, helps patent offices with making patent granting decisions, and facilitates public access to a wealth of technical information relating to these inventions. By filing one international patent application under the PCT System, applicants can simultaneously seek protection for an invention in a large number of countries (www.wipo.int/pct/en).

This new approach for 2025 allows the GII to capture entrepreneurial activity and innovation finance, emphasizing start-ups and spin-offs. Together, these three metrics reveal those areas where there is a high concentration of inventors, scientific authors, and/or VC activity.

The innovation ecosystems identified in this way frequently transcend administrative boundaries, encompassing metropolitan areas, multi-regional networks, and cross-border corridors. The resulting top 100 innovation clusters demonstrate a remarkable concentration, collectively accounting for roughly 70 percent of global PCT filings and VC deal activity, and around half of all scientific publications. This concentration becomes even more striking at the highest tier, with the leading 10 clusters alone generating around 40 percent of PCT filings, 35 percent of VC deal activity, and contributing over 15 percent of global scientific publications.

The GII 2025 is also able to identify emerging clusters beyond the top 100 that have an appreciably high level of science, technology and innovation finance. Added to this, the GII also releases a series of Cluster Briefs (available online) that provides further details on the top 100 ranking innovation hotspots.

Shenzhen–Hong Kong–Guangzhou, Tokyo–Yokohama, and San Jose–San Francisco lead the global innovation cluster ranking

Shenzhen–Hong Kong–Guangzhou (China and Hong Kong, China) tops the global rankings, followed by Tokyo–Yokohama (Japan) (see Figure 1). The methodology change has contributed to having a new top-ranked cluster for 2025, reflecting that Shenzhen–Hong Kong–Guangzhou performs more strongly on VC deals compared to Tokyo–Yokohama. However, both clusters continue to make a massive contribution to global scientific publications and patenting outputs, together accounting for nearly one in every five PCT applications filed globally.

San Jose–San Francisco in the United States of America, Beijing in China and Seoul in the Republic of Korea follow in third, fourth, and fifth place, respectively.

Figure 1 Top 10 innovation clusters, and their footprint, 2025

Rank	Cluster name	Global share of publications	Global share of PCT filings	Global share of VC deals
1	Shenzhen–Hong Kong–Guangzhou	2.4%	9.0%	2.9%
2	Tokyo–Yokohama	1.4%	10.3%	2.2%
3	San Jose–San Francisco	0.7%	3.9%	6.9%
4	Beijing	4.0%	3.8%	2.9%
5	Seoul	1.7%	5.4%	3.1%
6	Shanghai–Suzhou	2.5%	3.3%	3.7%
7	New York City	0.9%	1.0%	4.8%
8	London	0.7%	0.5%	4.4%
9	Boston–Cambridge	0.9%	1.5%	2.0%
10	Los Angeles	0.5%	0.9%	2.5%

Global share range



0.5% 10.3%

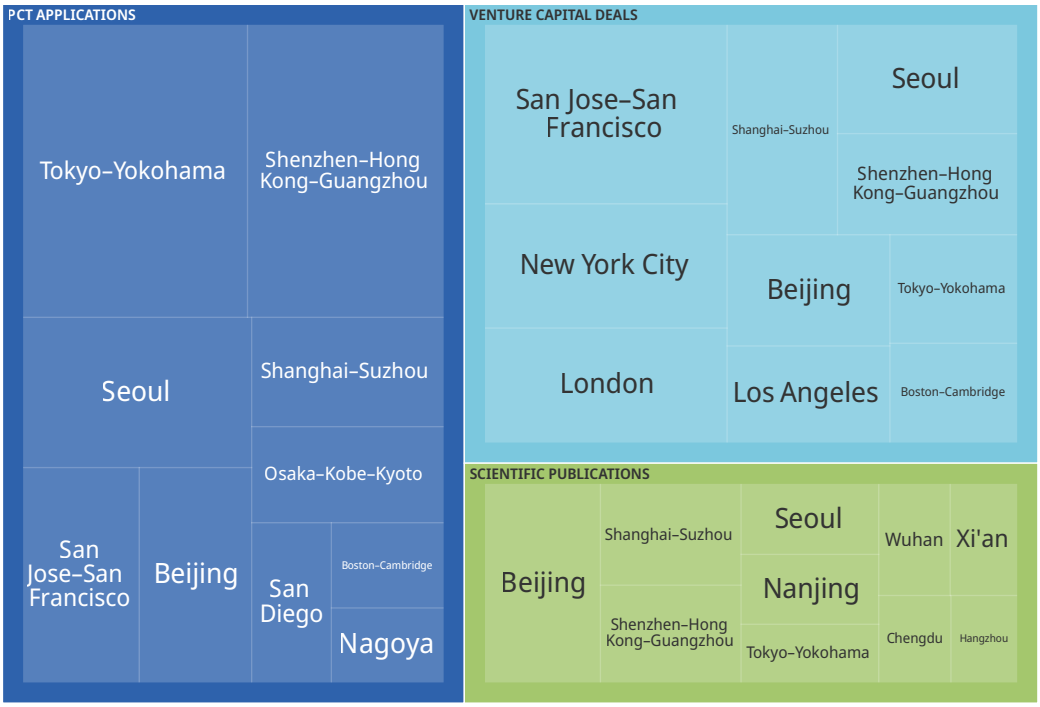
Source: WIPO Statistics Database, May 2025.

In the United States (US), New York City (7th) and Los Angeles (10th), along with London in the United Kingdom (8th), now join the top 10, compared to last year's methodology without VC data included. In turn, Osaka–Kobe–Kyoto (11th, Japan), San Diego (14th, United States) and Nanjing (15th, China) drop out of the top 10. Box 1 examines the top 10 global clusters on each of the three indicators, with Asia leading on scientific publications, Asian and US clusters leading on PCT filings, and US, UK and Asian clusters leading in VC.

Box 1 Top 10 innovation clusters by publications, patents or VC deals

The top 10 clusters by patents, publications or VC deals reveal distinct patterns (see Figure 2). Those clusters with the most publications are fully Asian, with the majority in China — with Beijing and Shanghai–Suzhou leading — but with Seoul (Republic of Korea) and Tokyo–Yokohama (Japan) also featuring. PCT applications show a more mixed picture. Three US clusters make the cut, but many Japanese and Chinese clusters feature too. For VC deals, the United States has the most clusters (four) among the top 10, with San Jose–San Francisco and New York City leading. The United Kingdom features among the top 10 for VC deals, with London third — but no other European cluster appears in any top 10 by variable.

Figure 2 Top 10 innovation clusters by metric, share of global total, 2025



Source: WIPO Statistics Database, May 2025.

Compared to last year, Singapore (16th, Singapore–Malaysia), Tel Aviv–Jerusalem (19th, Israel), Seattle (20th, United States) enter the top 20 in 2025. Two clusters in India enter the global top 30: Bengaluru (21st) and Delhi (26th), along with Philadelphia (23rd, United States) and Berlin (30th, Germany). Newcomers to the top 40 are Toronto (33rd, Canada), two clusters in the United States, Denver (35th) and Austin (37th), and Zürich (Switzerland) is ranked 40th. New to the top 50 are Copenhagen (42nd, Denmark), Mumbai (46th, India) , while São Paulo (Brazil) ranks 49th.

This year, 10 clusters entered the top 100 for the first time: three clusters in the United States, namely, Miami (67th), Phoenix (78th) and Salt Lake City (92nd), two clusters in China, namely, Ningbo (93rd) and Ningde (99th), Dublin (71st, Ireland), Mexico City (79th, Mexico), Oslo (85th, bringing Norway into the top 100), Hamburg (91st, Germany), and Manchester (94th, United Kingdom). The entry of Mexico City (79th) adds a second cluster in Latin America – next to São Paulo (49th) in Brazil – to the top 100.

A combination of performance shifts and the implementation of this year's new methodology has resulted in the exclusion of 10 clusters from the top 100: Nuremberg–Erlangen (Germany), Lanzhou (China), Fuzhou (China), Ankara (Türkiye), Cincinnati (United States), Daegu (Republic of Korea), Nanchang (China), Basel (Switzerland–Germany–France), Brisbane (Australia) and Kunming (China).

Clusters by economy

The top innovation clusters for each country or cross-border region are shown in Table 1. The leading clusters per country remain unchanged from last year, except for Barcelona overtaking Madrid to become the leading Spanish cluster. Additionally, the top 100 ranking now includes new entrants from previously unrepresented countries: Dublin emerges as the foremost innovation cluster for Ireland, Mexico City for Mexico, and Oslo for Norway.[2]

Table 1 Top innovation cluster by economy or cross-border region ranked among the top 100, 2025

Rank	Cluster name	Economy	Top applicant	Top organization
1	Shenzhen–Hong Kong–Guangzhou	CN / HK	Huawei	Sun Yat Sen University
2	Tokyo–Yokohama	JP	Mitsubishi Electric	University of Tokyo
3	San Jose–San Francisco	US	Google	Stanford University
4	Beijing	CN	BOE Technology	Tsinghua University
5	Seoul	KR	Samsung Electronics	Seoul National University
8	London	GB	Nicoventures Trading	University College London
12	Paris	FR	Safran Aircraft Engines	Sorbonne Université
16	Singapore	SG / MY	National University of Singapore	National University of Singapore
19	Tel Aviv–Jerusalem	IL	Tel Aviv University	Hebrew University Of Jerusalem
21	Bengaluru	IN	Samsung Electronics	IISC - Bangalore
22	Amsterdam–Rotterdam	NL	TNO	Utrecht University
27	Munich	DE	BMW	Technical University of Munich
32	Stockholm	SE	LM Ericsson	Karolinska Institutet
33	Toronto	CA	DH Technologies Development	University of Toronto
36	Sydney	AU	Cochlear	University of Sydney
40	Zürich	CH	ETH Zürich	ETH Zürich
41	Taipei–Hsinchu	TW*	MediaTek	National Taiwan University
42	Copenhagen	DK	Novozymes	University of Copenhagen
45	Barcelona	ES	Hewlett-Packard	University of Barcelona
48	Moscow	RU	Samsung Electronics	Lomonosov Moscow State University
49	São Paulo	BR	Braskem	Universidade de São Paulo
55	Brussels–Antwerp	BE	Agfa	KU Leuven
56	Milan	IT	Pirelli Tyre	University of Milan
58	Istanbul	TR	Arcelik	Istanbul Technical University
60	Helsinki	FI	Nokia	University of Helsinki
63	Tehran	IR	Abdolahad Mohammad	University of Tehran
71	Dublin	IE	Eaton Intelligent Power	University College Dublin
74	Vienna	AT	JT International	Medical University of Vienna
79	Mexico City	MX	Colgate-Palmolive	Universidad Nacional Autonoma de Mexico
83	Cairo	EG	Si-Ware Systems	Cairo University
85	Oslo	NO	Oslo University Hospital	University of Oslo
86	Kuala Lumpur	MY	MIMOS Berhad	Universiti Malaya
89	Warsaw	PL	Samsung Electronics	Warsaw University of Technology

Notes: Economy refers to ISO alpha-2 country codes. TW* = Taiwan Province of China. Economy labels were assigned to a cluster, when at least 1 percent of a cluster's output occurred in a given economy. Abbreviations are IISC – Bangalore = Indian Institute of Science – Bangalore, and BOE Technology = Beijing Oriental Electronics Group.

Source: WIPO Statistics Database, May 2025.

2 It is also worth noting that Safran Aircraft Engines becomes the top PCT applicant for the Paris (France) cluster instead of L'Oréal, while MediaTek overtakes Hewlett-Packard in the Taipei–Hsinchu (Taiwan Province of China) cluster, and JT International surpasses the Technische Universität Wien in the Vienna (Austria) cluster.

China and the United States lead on number of top innovation clusters

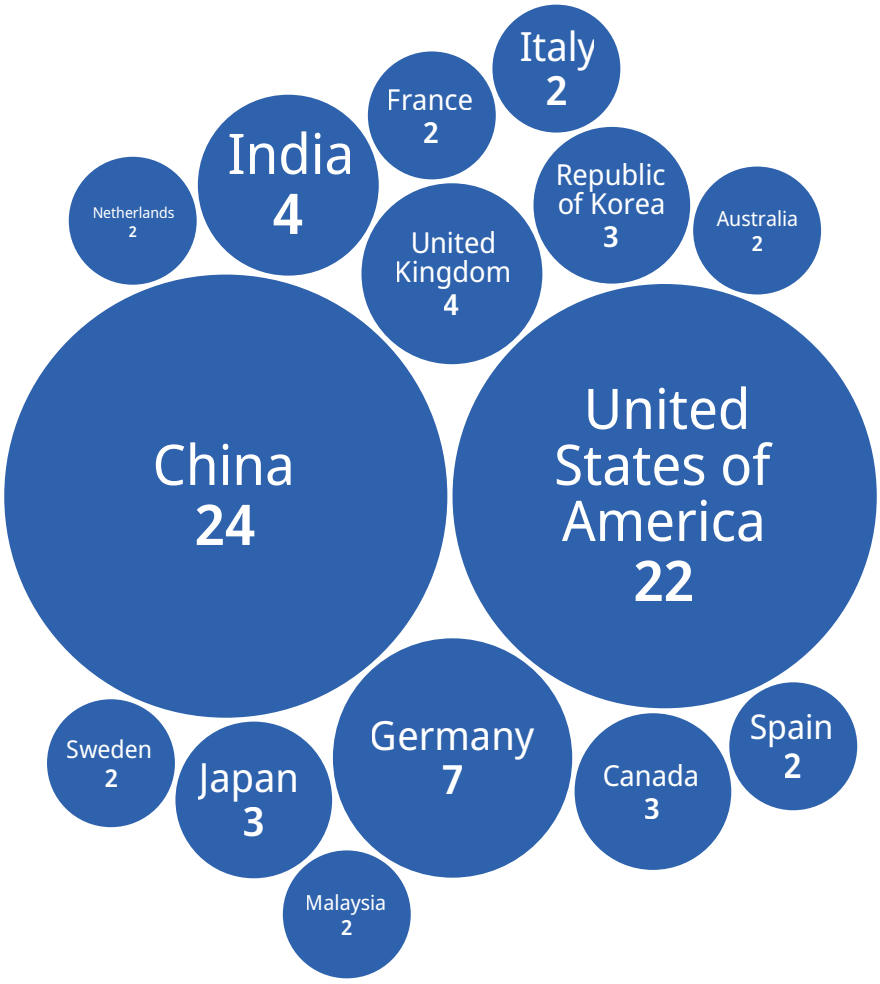
China, for the third consecutive year, leads with the most clusters (24, two fewer than last year) in the top 100 (see Figure 3 and Maps 2 a-e). The United States follows closely behind with 22 clusters (+2 compared to last year). The introduction of VC deal counts as a variable in this year's methodology has thus narrowed the gap between China and the United States.

Germany continues to rank third with seven clusters (one fewer than last year) in the top 100, with Munich (27th), Berlin (30th) and Cologne (43rd) in the lead. The United Kingdom now has four clusters among the top 100 (up from three last year, without VC), with London (8th), Cambridge (69th), Oxford (77th) and new entrant Manchester (94th). France has two clusters in the top 100 (down from three), with Paris still first at rank 12, followed by Lyon (90th), but Basel – a cross-border cluster previously shared with Germany, France and Switzerland – drops out of the top 100 ranking.

India still has four clusters in the top 100: Bengaluru (21st), Delhi (26th), Mumbai (46th) and Chennai (84th), with most clusters boosted significantly by the inclusion of VC deal counts. Japan maintains three clusters among the top 100: Tokyo–Yokohama (2nd), Osaka–Kobe–Kyoto (11th) and Nagoya (28th), whereas the number drops from four to three for the Republic of Korea—Seoul (5th), Daejeon (25th) and Busan (95th), with Daegu dropping out from the top 100.

Canada still has three clusters, with Toronto (33rd) retaining its position as the country's leading innovation cluster, followed by Montreal (62nd) and Vancouver (66th). Australia now has two clusters in the top 100, down from three in 2024, with Sydney (36th) and Melbourne (52nd).

Figure 3 Economies with two or more top 100 innovation clusters, 2025



Source: WIPO Statistics Database, May 2025.

In addition to China and India, – with Mexico entering in 2025 – six other middle-income economies have clusters among the top 100. They are as follows:

- Brazil (1 cluster), with São Paulo (49th)
- Egypt (1), with Cairo (83rd), the sole top 100 innovation cluster within Africa
- Islamic Republic of Iran (1), with Tehran (63rd)
- Malaysia (2), with Kuala Lumpur (86th), and its cluster shared with Singapore (16th)
- Mexico (1) enters the top 100 with Mexico City (79th), now the second cluster within Latin America
- Türkiye (1), with Istanbul in at 58th.

Note that the Russian Federation, with one cluster in 2025 (Moscow, ranking 48th), no longer features here as it now classifies as a high-income economy.

Regarding those African innovation clusters not yet covered by the top 100 a separate analysis was conducted last year (see "GII 2024: Sustaining the rise of top-notch African innovation clusters", GII Innovation Insights, November 20, 2024 www.wipo.int/en/web/global-innovation-index/w/blogs/2024/gii-2024-african-innovation-clusters).

Regional distribution

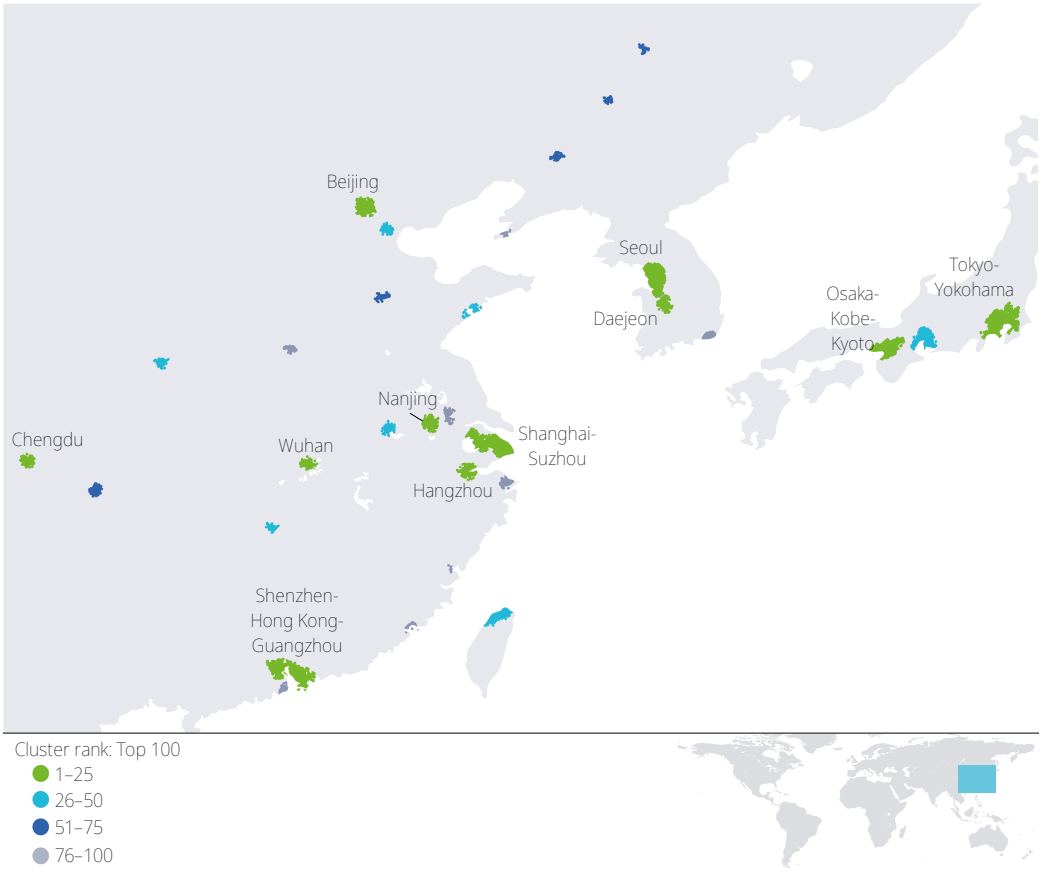
In general, when comparing the latest results of the top 100 clusters between the new and old methodologies, there is a slight downward trend observable in the rankings with respect to Asian clusters, whereas many clusters in the United States have made gains (see Appendix IV - Table 2). On average – and with notable exceptions such as Shenzhen–Hong Kong–Guangzhou, which now ranks first globally – Chinese clusters have declined in rank. A similar pattern is observed for clusters in Japan and the Republic of Korea, in part a reflection of the lesser but growing role played by VC, but also of the type and structure of innovation finance within these two economies – large industry conglomerates favoring in-house innovation.

However, within Asia the same is not true for Indian clusters. Three out of four Indian clusters rise sharply in the ranking when accounting for VC deals. Bengaluru moves to 21st (compared to 52nd when using the old methodology), Delhi to 26th (compared to 63rd) and Mumbai to 46th (compared to 88th); the exception is Chennai, now ranked 84th (compared to 77th when using the old methodology). Beyond the top 100, Indian clusters likewise gain: Hyderabad is 102ndand Pune 112th, both clusters now knocking at the door of the top 100, while Kolkata ranks 158th.

Clusters in the European Union – where VC markets are sometimes less vigorous than in the United States and other financial centers such as London or Singapore – also tend to have seen a decline in ranking compared to last year when VC capital activity was excluded.

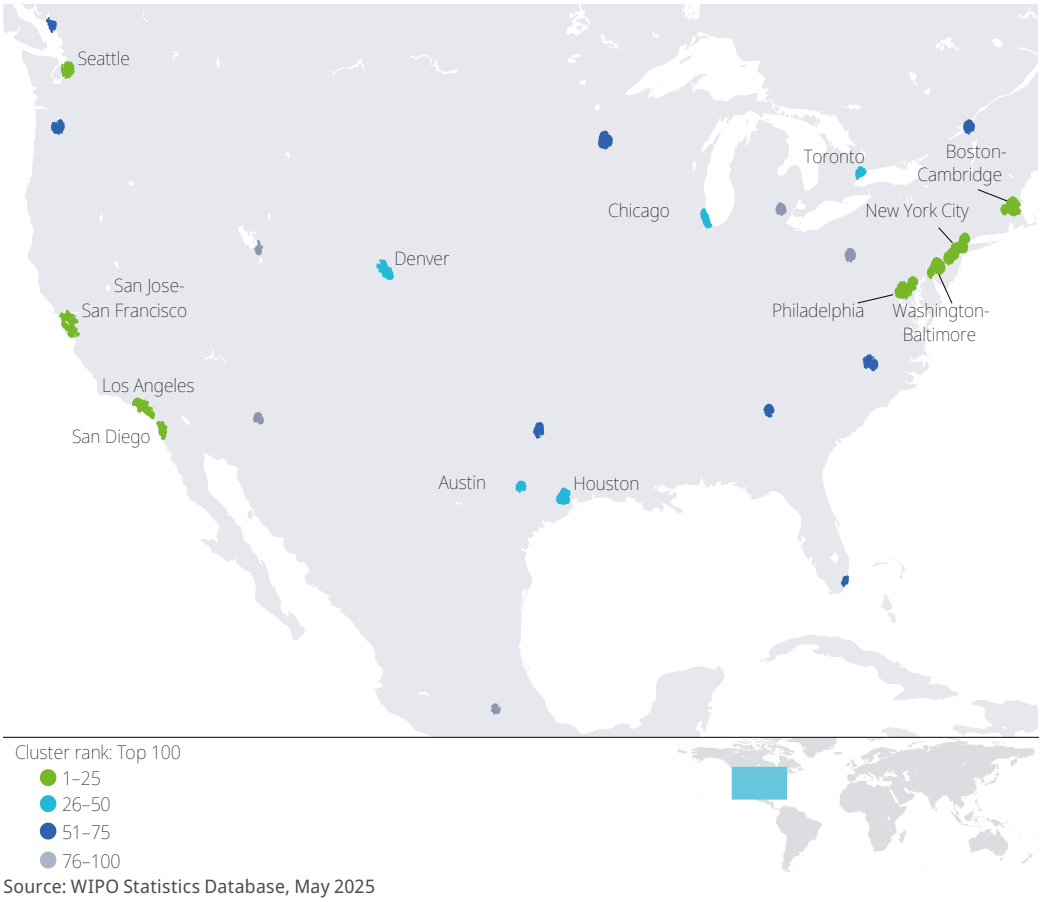
Map 2 Top innovation clusters, 2025

East Asia



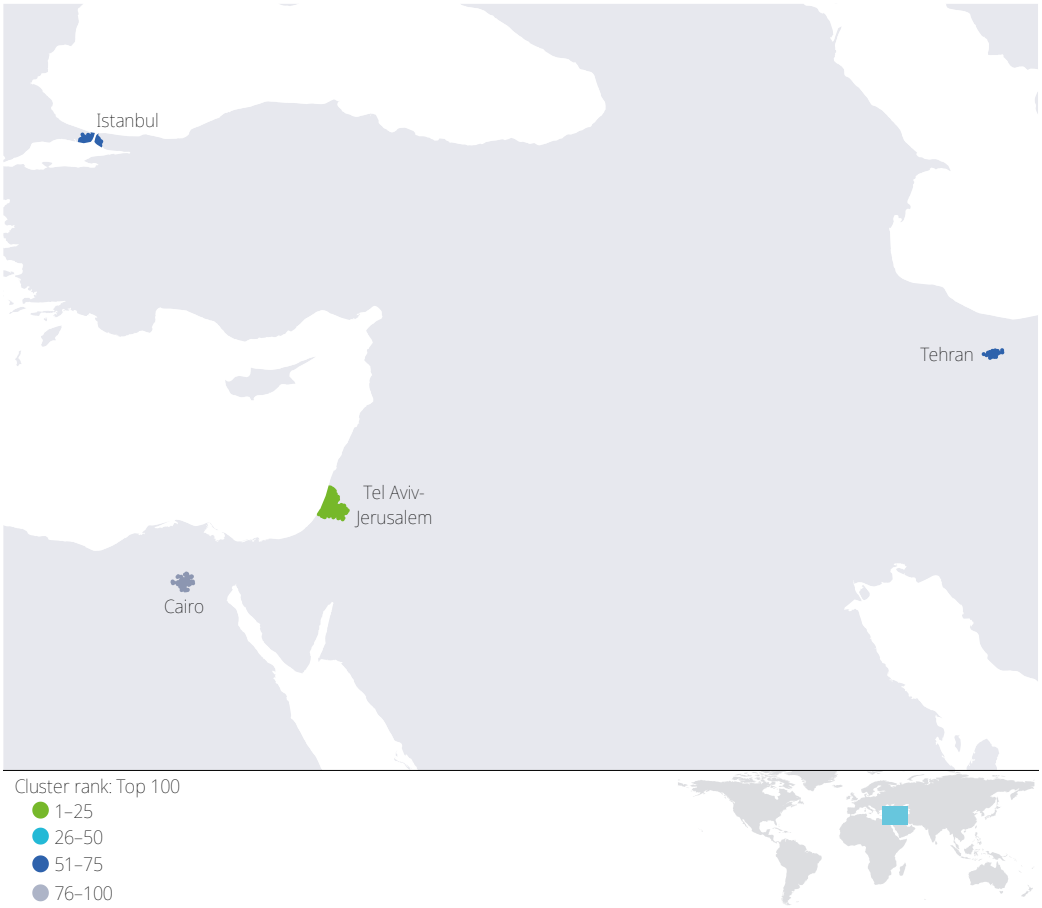
Source: WIPO Statistics Database, May 2025

North America



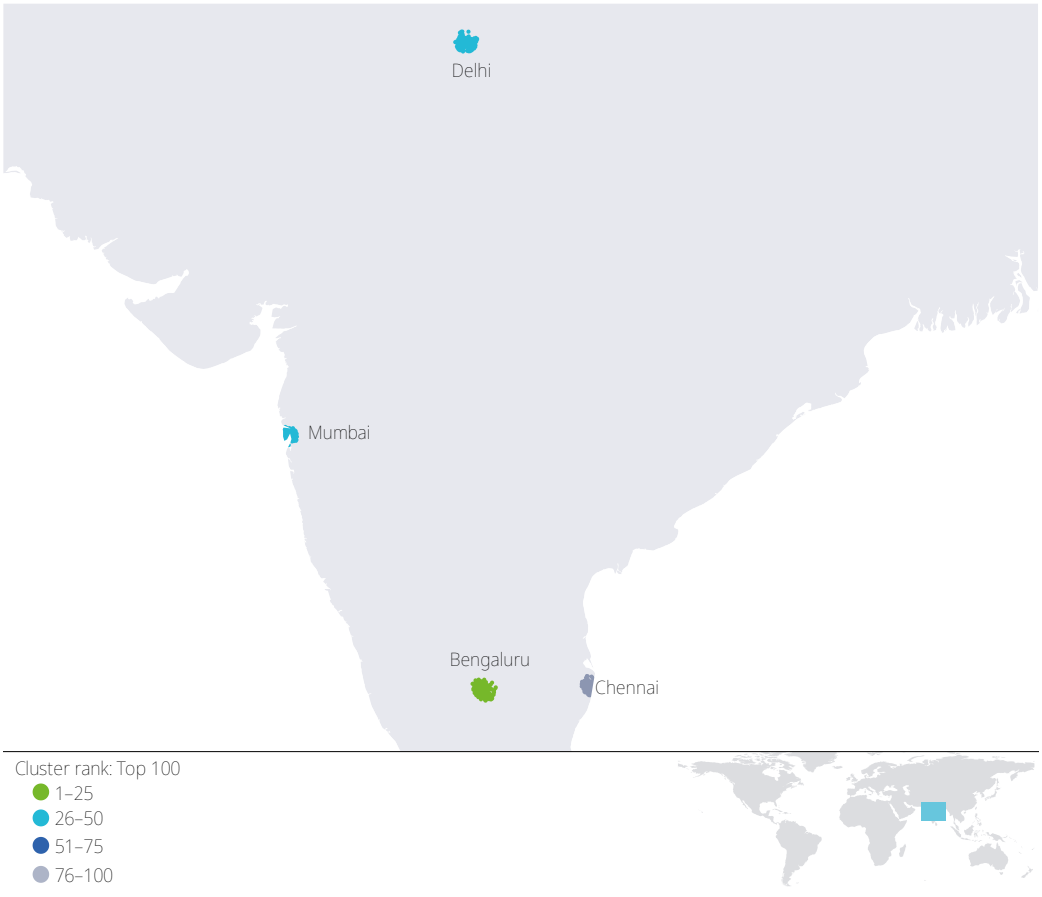
Source: WIPO Statistics Database, May 2025

Middle East



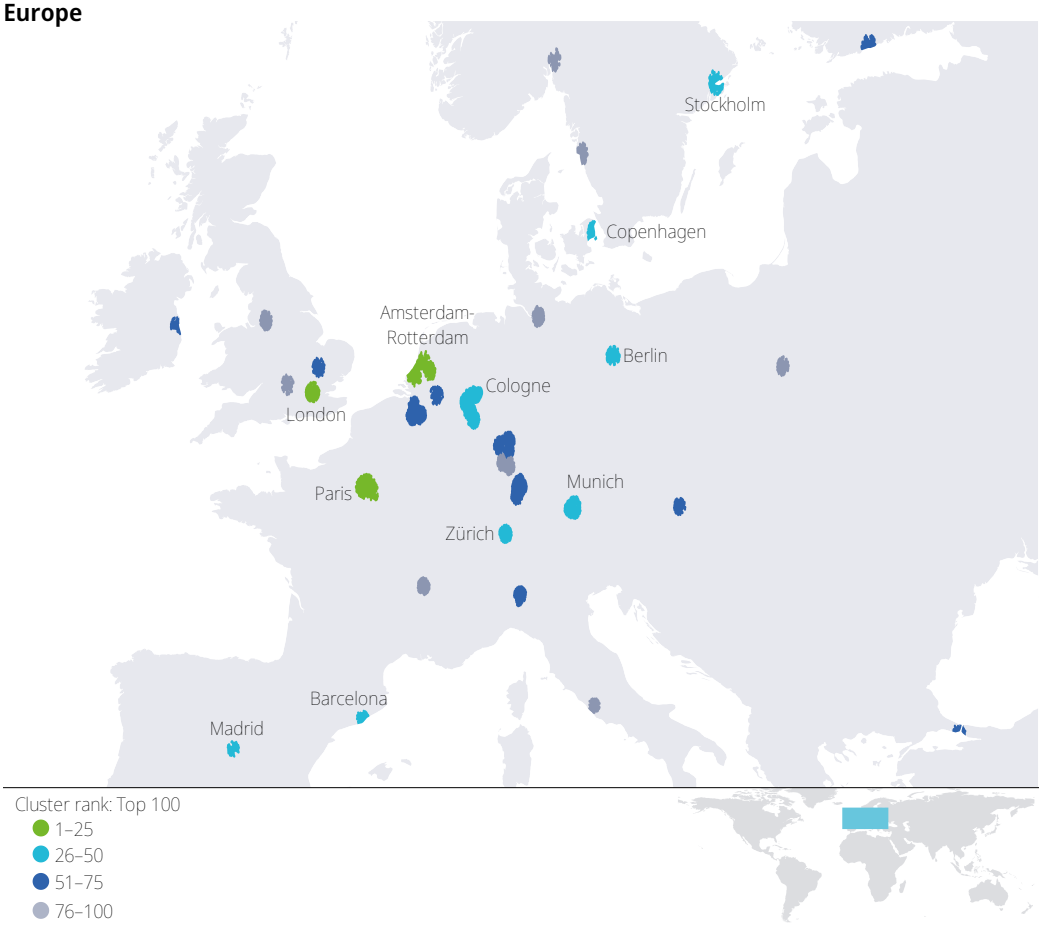
Source: WIPO Statistics Database, May 2025

India



Source: WIPO Statistics Database, May 2025

Europe



Source: WIPO Statistics Database, May 2025.

Beyond the top 100

Bangkok, Ankara, Rio De Janeiro and Buenos Aires are among top middle-income economy innovation clusters

The GII 2025 also presents innovation clusters beyond the top 100 in order to highlight additional areas around the world with an appreciably high level of science, technology and innovation finance.

Based on the same parameters applied in producing the top 100 innovation clusters ranking, and therefore including VC counts, an additional 137 clusters were identified beyond the top 100, with the following three close to entering: Riyadh (101st, Kingdom of Saudi Arabia), Hyderabad (102nd, India) and Lausanne (103rd, Switzerland).

Table 2 identifies the top innovation clusters in economies not previously represented in the top 100, including Pakistan, Portugal and Saudi Arabia. Moreover, Pakistan is effectively adding one cluster with Lahore joining Islamabad.

Table 2 Selected innovation clusters in extended ranking: economies beyond the top 100 innovation clusters, 2025

Economy	Economy name	Clusters beyond top 100	Cluster name(s)
SA	Saudi Arabia	2	Riyadh and Dammam
BR	Brazil	2	Rio De Janeiro and Porto Alegre
PT	Portugal	2	Lisbon and Porto
PK	Pakistan	2	Islamabad and Lahore
TH	Thailand	1	Bangkok
TR	Türkiye	1	Ankara
CZ	Czech Republic	1	Prague
CL	Chile	1	Santiago
HU	Hungary	1	Budapest
NZ	New Zealand	1	Auckland
PL	Poland	1	Kraków
GR	Greece	1	Athens
AR	Argentina	1	Buenos Aires
RO	Romania	1	Bucharest
RS	Serbia	1	Belgrade

Source: WIPO Statistics Database, May 2025.

Middle-income economies, Argentina, Serbia and Thailand each host a top innovation cluster in the extended list, namely, Buenos Aires, Belgrade and Bangkok, respectively.

GII 2025 adds seven new clusters to the list of innovation clusters beyond the top 100, compared to last year when VC was excluded:

- Canada (1 cluster): Québec City (228th)
- China (2): Ürümqi (218th) and Guilin (229th)
- Finland (1): Oulu (218th)
- Republic of Korea (1): Ulsan (209th)
- Pakistan (1): Lahore (191st)
- Slovenia (1): Ljubljana (225th).

Top innovation intensity clusters per capita

The most innovation-intensive clusters: Cambridge and San Jose–San Francisco lead; Ningde (China) ranks fifth in the world thanks to one company

Since 2020, the Global Innovation Index (GII) has also ranked the top 100 clusters by innovation intensity — measured as the combined global share of patents, scientific publications, and (now including) VC deals, normalized by population (see Appendix IV for methodology).

In the latest ranking, San Jose–San Francisco (United States), Cambridge (United Kingdom), Boston–Cambridge (United States), Ningde (China), and Oxford (United Kingdom) emerge as the world's foremost innovation-intensive clusters (Appendix IV - Table 2). The United States leads with five of the top 10 clusters, followed by the United Kingdom with two, and one each in China (Ningde), Finland (Helsinki) and the Kingdom of the Netherlands (Eindhoven).

Ningde's entry into the global top 5 is a standout development, driven primarily by a surge in patent activity from Contemporary Amperex Technology Co., Limited (CATL) — a global leader in energy technologies and battery innovation (Table 3).

Leading clusters typically host world-class research institutions such as Stanford, Cambridge and Harvard. Top innovation players include tech giants like Google, ARM, and Qualcomm, alongside leading universities such as the Massachusetts Institute of Technology (MIT) and the University of Michigan.

Table 3 Top innovation clusters, by intensity, 2025

Rank per-capita	Cluster name	Economy	Top applicant	Top scientific organization
1	San Jose–San Francisco	US	Google	Stanford University
2	Cambridge	GB	ARM	Cambridge University
3	Boston–Cambridge	US	MIT	Harvard Medical School
4	Ningde	CN	CATL	Ningde Normal University
5	Oxford	GB	Oxford University	Oxford University
6	Seattle	US	Microsoft	University of Washington Seattle
7	San Diego	US	Qualcomm	University of California San Diego
8	Ann Arbor	US	University of Michigan	University of Michigan
9	Helsinki	FI	Nokia	University of Helsinki
10	Eindhoven	NL	Philips Electronics	Eindhoven University of Tech.

Notes: MIT, Massachusetts Institute of Technology; CATL, Contemporary Amperex Technology Co, Limited.
Source: WIPO Statistics Database, May 2025.

Different Paths to Innovation Intensity among Top Clusters

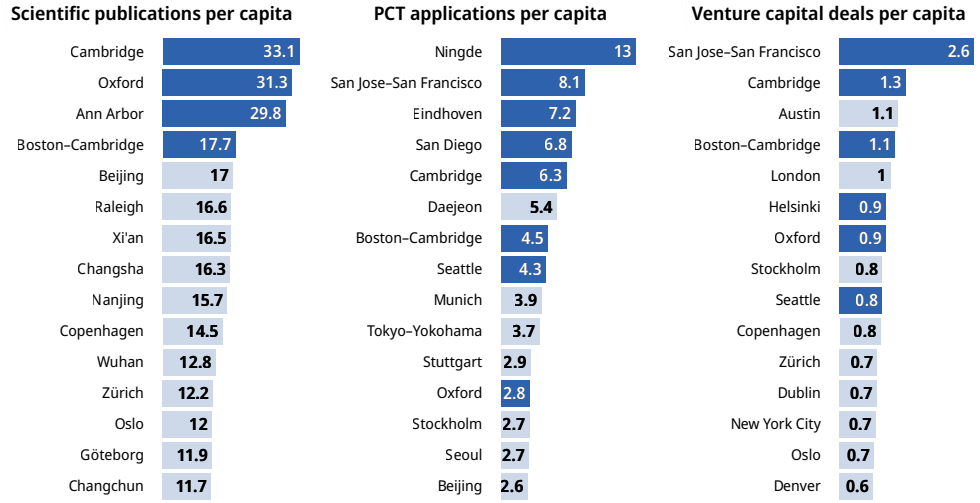
While all top 25 clusters rank highly in terms of overall innovation intensity, they have different strengths. Ningde (China), San Jose–San Francisco (United States) and Eindhoven (Kingdom of the Netherlands) lead in PCT patent applications per capita (see Figure 4). Cambridge (United Kingdom), Oxford (United Kingdom), and Ann Arbor (United States) — classic university towns — rank highest in scientific publications per capita, whereas San Jose–San Francisco (United States) Cambridge (United Kingdom) and Austin (United States) top the list for VC deals per capita.

Many clusters within the top 25 show a balanced performance across all three indicators. Others exhibit a distinct skew, for example:

- Ningde (China) leads in PCT applications per capita (over 13,000), yet has minimal scientific output and VC activity. Similar patters are also evident in Nagoya (Japan), Eindhoven (Kingdom of the Netherlands), Tokyo-Yokohama (Japan), Osaka–Kobe–Kyoto (Japan) and Stuttgart (Germany)
- Austin (United States), London (United Kingdom) and New York City (United States) all excel in VC deal activity, but are low in global publications;
- conversely, Chinese clusters Xi'an, Changsha, Changchun, Harbin, Chengdu and Jinan have solid publication activity, but are relatively low in patent and VC deal activity

These variations reflect a diversity of innovation models – ranging from science-driven ecosystems to VC-heavy start-up hubs and underscoring the different paths to innovation.

Figure 4 Top 15 innovation intensive clusters, by metric per capita (in thousands), 2025



Note: Dark blue represents a top 10 cluster.
Source: WIPO Statistics Database, May 2025.

Only two clusters rank among the global top 10 innovation clusters as well as the top 10 by intensity: San Jose–San Francisco and Boston–Cambridge, both located in the United States.

Expanding to the top 25, there are nine clusters that appear in both the global top 25 and the top 25 by intensity. In addition to San Jose–San Francisco and Boston–Cambridge, they include Seattle (United States), San Diego (United States), New York City (United States), London (United Kingdom), Beijing (China), Hangzhou (China) and Daejeon (Republic of Korea).

This overlap highlights the continued dominance of the United States in terms of both cluster size and intensity, while at the same time underscoring the global presence of select high-performing clusters in Asia and Europe.

Helsinki and Eindhoven lead the EU in innovation cluster intensity

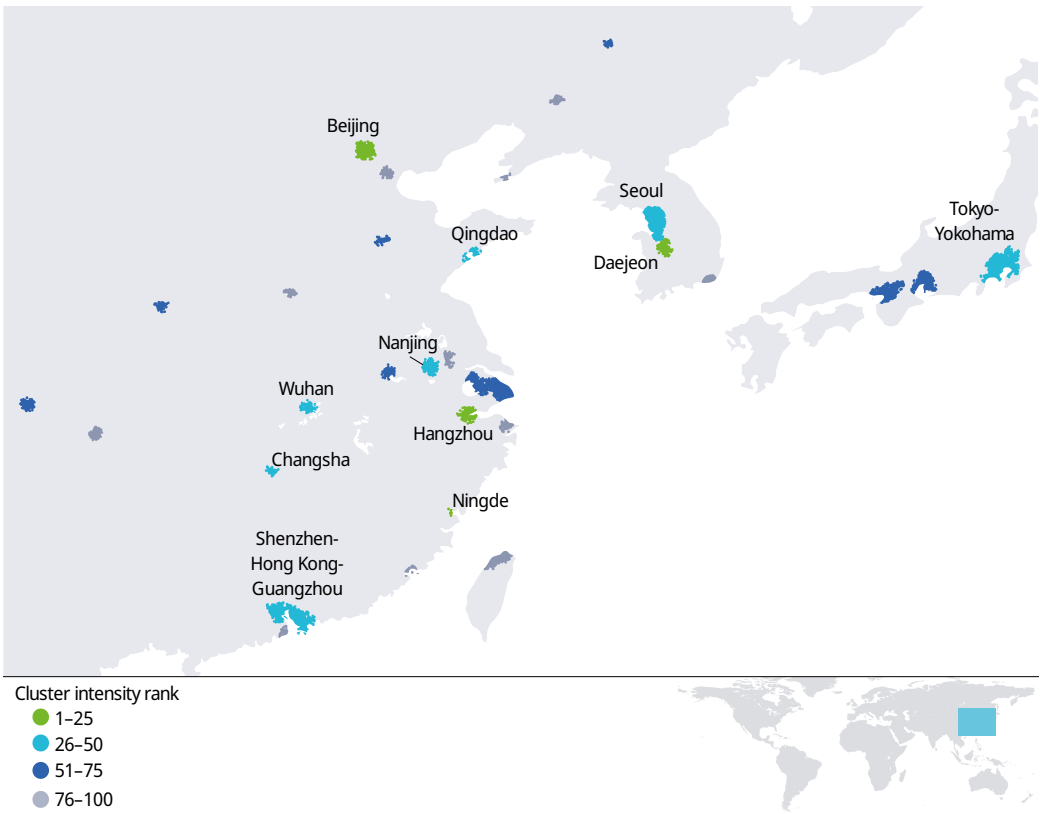
In the 2025 WIPO GII Global Innovation Cluster Intensity Ranking, Helsinki (9th, Finland) and Eindhoven (10th, Kingdom of the Netherlands) emerge as the highest-ranking clusters within the European Union (EU) (Appendix IV - Table 3). They are followed by EU clusters Stockholm (11th, Sweden), Copenhagen (12th, Denmark), Munich (16th, Germany), Göteborg (20th, Sweden) and Dublin (23rd, Ireland).

When focusing on innovation intensity — which accounts for patent filings, scientific publications and VC deals relative to population — North American clusters tend to outperform their Asian and EU counterparts, especially in respect to higher VC activity.However, the United Kingdom stands out as a strong performer in Europe, with Cambridge (2nd), Oxford (5th), and London (19th) consistently ranking among the most intense innovation hubs globally.

This contrast underscores regional differences in innovation ecosystems, with Northern America excelling in commercialization and investment, and European clusters leaning on strong research and technological foundations.

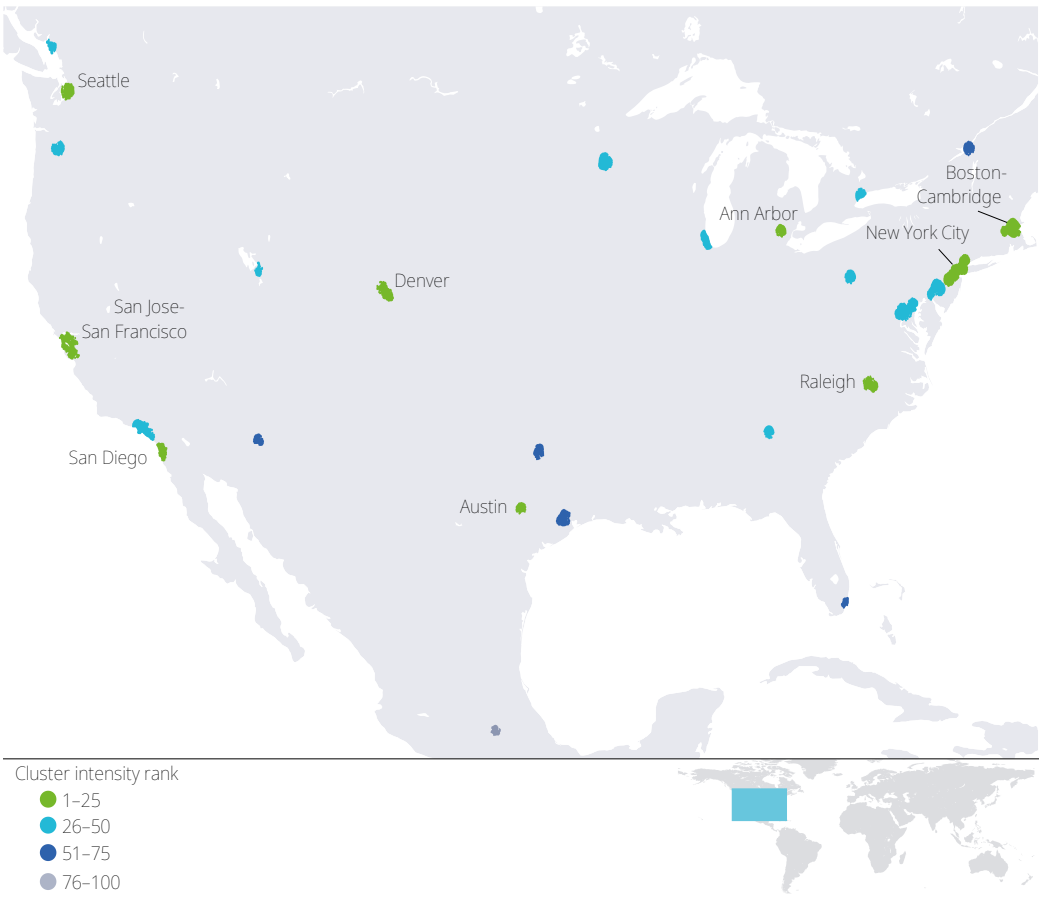
Map 3 Top 100 innovation clusters, by intensity, 2025

East Asia



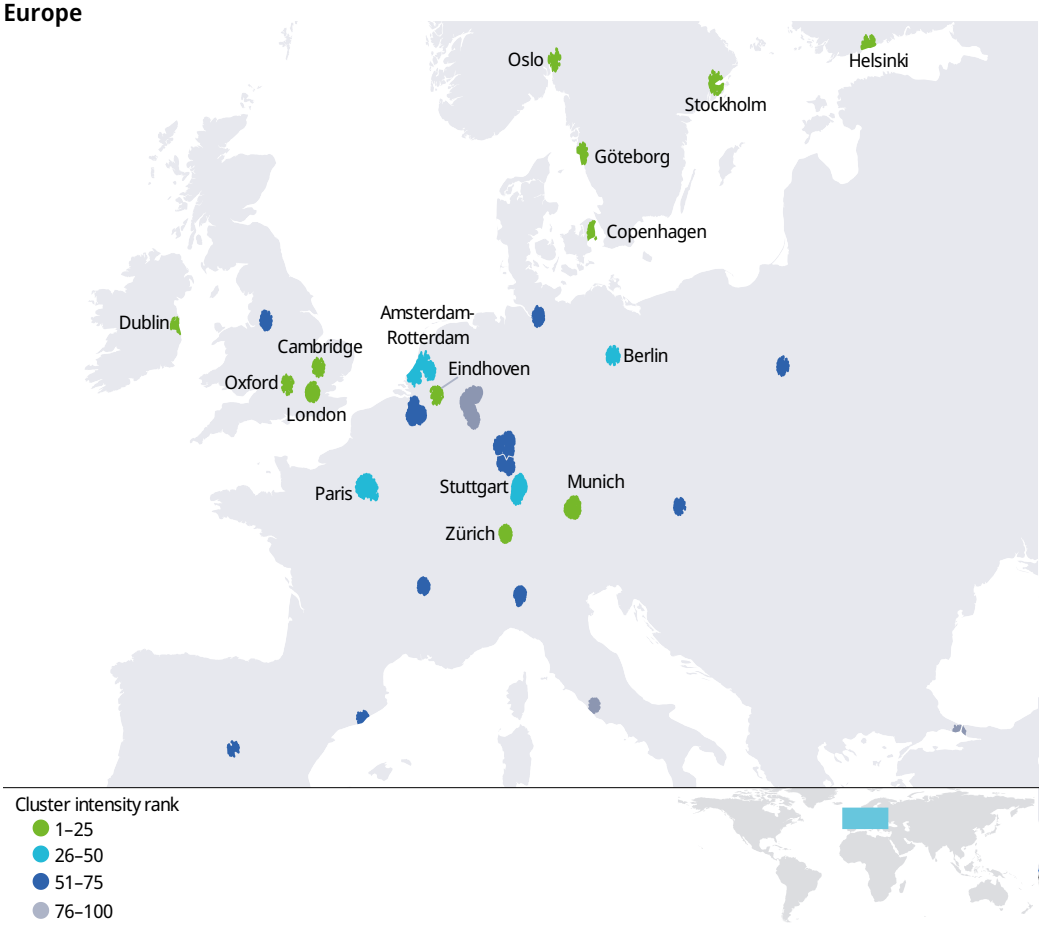
Source: WIPO Statistics Database, May 2025

North America



Source: WIPO Statistics Database, May 2025

Europe



Source: WIPO Statistics Database, May 2025.

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de Rassenfosse, G. and S. Wunsch-Vincent (2024). *Enabling Innovation Measurement at the Sub-National Level: A WIPO toolkit.* Lausanne and Geneva: École polytechnique fédérale de Lausanne and WIPO. Available at: www.wipo.int/edocs/pubdocs/en/wipo-pub-rn2023-27-en-enabling-innovation-measurement-at-the-sub-national-level.pdf.

WIPO (2025). Use of WIPO's global IP registries for patents, trademarks and designs grew in 2024. Geneva, March 17, 2025 PR/2025/934. Available at: www.wipo.int/pressroom/en/articles/2025/article_0003.html.

CATL has become the 5th biggest global PCT filer in 2024, after Huawei, Samsung, Qualcomm and LG Electronics, see (Annex 2): www.wipo.int/export/sites/www/pressroom/en/documents/pr-services2025-annexes.pdf#page=2.

GII 2025 Economy briefs and profiles

The following monitoring tools help users to track and interpret innovation performance metrics for 139 economies.

Framework of the Global Innovation Index 2025



Source: Global Innovation Index Database, WIPO, 2025.

GII Economy briefs and the GII Innovation Ecosystems and Data Explorer

Since 2024, comprehensive Economy briefs have been available in an interactive format via the GII Innovation Ecosystems and Data Explorer.

The Data Explorer serves as a monitoring tool to better understand the performance of a given economy's innovation ecosystem – identifying both its strengths and areas for improvement. It provides deeper insights into key indicator trends, highlights missing or outdated data, and allows users to download datasets, including country-level Innovation Tracker data. Users can also explore innovation clusters within specific regions and access a range of analytical tools.

Users can also download individual Economy briefs from the Data Explorer in PDF format. Full information on how to read and understand the different sections of the Data Explorer is available in the "About" section of the website.

How to read the Economy profiles

The following tables provide detailed profiles (a single page subset of the Economy briefs) for each of the 139 economies that feature in the *Global Innovation Index 2025*. Each Economy profile is composed of four sections.



1

GII 2025 rank

2

India

38

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
32	52	Lower middle	CSA	1,450.9	16,020.0	11,112

3

		Score/ Value	Rank	
Institutions		53.5	58	◆
1.1	Institutional environment	56.0	63	◆
1.1.1	Operational stability for businesses*	57.3	79	
1.1.2	Government effectiveness*	54.7	47	◆
1.2	Regulatory environment	50.2	65	◆
1.2.1	Regulatory quality*	43.6	81	◆
1.2.2	Rule of law*	56.8	60	◆
1.3	Business environment	54.2	53	
1.3.1	Policy stability for doing business†	38.7	84	
1.3.2	Entrepreneurship policies and culture†	69.7	12	●◆
Human capital and research		34.7	54	◆
2.1	Education	45.9	85	
2.1.1	Expenditure on education, %GDP	4.1	70	
2.1.2	Government funding/pupil, secondary, %GDP/cap	17.9	53	
2.1.3	School life expectancy, years	13.4	79	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	18.8	98	○
2.2	Tertiary education	25.1	82	
2.2.1	Tertiary enrolment, % gross	34.4	89	
2.2.2	Graduates in science and engineering, %	27.1	35	
2.2.3	Tertiary inbound mobility, %	0.1	113	○
2.3	Research and development (R&D)	33.3	34	◆
2.3.1	Researchers, FTE/mn pop.	259.3	80	○
2.3.2	Gross expenditure on R&D, %GDP	0.6	56	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	68.1	16	●◆
2.3.4	QS university ranking, top 3*	52.4	22	◆
Infrastructure		45.2	61	◆
3.1	Information and communication technology (ICT)	78.8	60	◆
3.1.1	ICT access*	84.0	72	◆
3.1.2	ICT use*	74.2	81	
3.1.3	Government online service*	78.2	44	◆
3.2	General infrastructure	43.5	37	◆
3.2.1	Electricity output, GWh/mn pop.	1,365.4	94	○
3.2.2	Logistics performance*	59.1	37	◆
3.2.3	Gross capital formation, %GDP	33.3	14	●
3.3	Ecological sustainability	13.3	103	○
3.3.1	GDP/unit of energy use	10.0	76	
3.3.2	Low-carbon energy use, %	10.4	92	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.9	72	
Market sophistication		43.1	38	◆
4.1	Credit	34.5	50	
4.1.1	Finance for startups and scaleups†	81.5	9	●◆
4.1.2	Domestic credit to private sector, % GDP	50.1	64	
4.1.3	Loans from microfinance institutions, % GDP	0.4	48	○
4.2	Investment	18.7	33	◆
4.2.1	Market capitalization, % GDP	106.0	18	◆
4.2.2	Venture capital (VC) received, deal court/bn PPP$ GDP	0.1	45	◆
4.2.3	Late-stage VC deal count, % global VC	1.4	4	●◆
4.2.4	VC investors, deal court/bn PPP$ GDP	0.1	63	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	52	◆
4.3	Trade, diversification and market scale	76.1	46	◆
4.3.1	Applied tariff rate, weighted avg., %	7.6	116	○
4.3.2	Domestic industry diversification	95.3	19	◆
4.3.3	Domestic market scale, bn PPP$	16,020.0	3	●◆

		Score/ Value	Rank	
Business sophistication		29.2	64	
5.1	Knowledge workers	25.8	112	○
5.1.1	Knowledge-intensive employment, %	11.6	95	○
5.1.2	Females employed w/advanced degrees, %	3.0	101	○
5.1.3	Youth demographic dividend, %	41.7	55	◇
5.1.4	GERD performed by business, % GDP	0.2	53	◆
5.1.5	GERD financed by business, %	40.6	42	
5.2	Innovation linkages	26.7	63	
5.2.1	Public research–industry co-publications, %	2.3	35	◆
5.2.2	University–industry R&D collaboration†	28.2	91	
5.2.3	University-industry and international engagement, top 5*	35.9	49	◆
5.2.4	State of cluster development	41.9	81	
5.2.5	Patent families/bn PPP$ GDP	0.2	45	◆
5.3	Knowledge absorption	35.1	38	◆
5.3.1	Intellectual property payments, % total trade	1.4	24	◆
5.3.2	High-tech imports, % total trade	11.8	25	
5.3.3	ICT services imports, % total trade	2.7	25	◆
5.3.4	FDI net inflows, % GDP	1.2	107	○
5.3.5	Research talent, % in businesses	30.7	47	
Knowledge and technology outputs		37.8	22	◆
6.1	Knowledge creation	25.5	38	◆
6.1.1	Patents by origin/bn PPP$ GDP	3.4	19	◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	43	◆
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	7.1	90	
6.1.5	Citable documents H-index	43.7	19	◆
6.2	Knowledge impact	48.5	11	●◆
6.2.1	Labor productivity growth, %	1.7	39	
6.2.2	Unicorn valuation, % GDP	4.0	11	●◆
6.2.3	Software spending, % GDP	0.3	44	◆
6.2.4	High-tech manufacturing, %	35.1	31	◆
6.3	Knowledge diffusion	39.4	27	◆
6.3.1	Intellectual property receipts, % total trade	0.2	50	◆
6.3.2	Production and export complexity	59.8	42	◆
6.3.3	High-tech exports, % total trade	5.1	41	
6.3.4	ICT services exports, % total trade	13.6	1	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.0	63	
Creative outputs		32.7	42	◆
7.1	Intangible assets	41.8	28	◆
7.1.1	Intangible asset intensity, top 15, %	80.7	8	●◆
7.1.2	Trademarks by origin/bn PPP$ GDP	32.4	59	
7.1.3	Global brand value, top 5,000, % GDP	5.7	31	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.7	41	
7.2	Creative goods and services	21.4	53	◆
7.2.1	Cultural and creative services exports, % total trade	2.2	13	●◆
7.2.2	National feature films/mn pop. 15–69	2.5	52	
7.2.3	Entertainment and media market/th pop. 15–69	1.1	61	○
7.2.4	Creative goods exports, % total trade	1.8	26	
7.3	Online creativity	25.9	64	◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.1	99	
7.3.2	GitHub commits/mn pop. 15–69	5.6	74	
7.3.3	Mobile app creation/bn PPP$ GDP	70.9	40	◆

4

NOTES ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ② indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

The Global Innovation Index 2025

1. This is the overall Global Innovation Index (GII) rank for each economy.

2. Below each Economy are a selection of key metrics:

• Innovation Input and Innovation Output Sub-Index rankings;• The income group to which that economy belongs [1];• Geographical region [2];• Population in millions [3];• GDP in billions of USD purchasing power parity (PPP), and lastly, GDP per capita in USD PPP [4];

Due to economies entering/exiting the GII, annual framework adjustments, and technical factors (missing data, updates), GII rankings aren't directly comparable year-to-year. See Appendix I for details.

The Innovation Input Sub-Index rank uses average scores from the first five pillars; Innovation Output Sub-Index rank uses average scores from the last two pillars. Scores are normalized values (0–100 range).

3. Pillars use icons, sub-pillars use two-digit numbers, indicators use three-digit numbers. For example, under the pillar Institutions is sub-pillar 1.3 Business environment, containing indicator 1.3.2 Entrepreneurship policies and culture.

The GII 2025 has 78 indicators with three data types: composite indicators (*), survey questions (†), and hard data series.

Where possible, we provide indicator values (scaled/unscaled) rather than scores. Survey-based indicators (5) and index indicators (10) are always reported as scores, plus 8 of the 63 hard data indicators also use scores. Overall, 55 of 78 indicators are reported as values in economy profiles.

When data are either unavailable or out of date, "n/a" is used, with a cutoff year of 2015. To the right of an indicator name, a clock symbol shows economy data older than the base year. See Appendix I for data exceptions/limitations and GII framework details; and Appendix III for indicator sources/definitions.

4. Right column symbols: solid circle ● = strengths, hollow circle ○ = weaknesses. Solid diamond ◆ = income group strengths, hollow diamond ◇ = income group weaknesses. Exception: top 25 high-income economies use top 25 group comparison instead [5].

Rankings 1-3 are highlighted as strengths, except when at the sub-pillar level the desired data minimum coverage (DMC) is unmet. Other strengths/weaknesses use percentile ranks where data is no older than indicator mode minus 5 years (e.g., 2019 or more recent for indicators with a data year mode of 2024).

For any economy, strengths ● are scores with percentile ranks above the 10th largest among its 78 indicators; weaknesses ○ are scores below the 10th smallest percentile rank.

Similarly, income group strengths ◆ are scores above group average plus standard deviation; weaknesses ◇ are scores below group average minus standard deviation.

Sub-pillars not meeting the DMC show scores in square brackets []. Pillars with multiple such sub-pillars not meeting the DMC also bracket pillar ranks []. No strengths/weaknesses signaled for these.

A complete explanation of the methodology for the calculation of strengths and weaknesses is available in Appendix I.

1 Based on the World Bank Income Group Classification (as of July 2024, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups).

2 Based on the United Nations' publication on standard country or area codes for statistical use (M49), as follows:• EUR = Europe;• NAC = Northern America;• LCN = Latin America and the Caribbean;• CSA = Central and Southern Asia;• SEAO = South East Asia, East Asia, and Oceania;• NAWA = Northern Africa and Western Asia;• SSA = Sub Saharan Africa;Further information is available here: https://unstats.un.org/unsd/methodology/m49/

3 Data are from the United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects 2024. Further information can be found here: https://population.un.org/wpp/

4 Data for GDP and GDP per capita are from the International Monetary Fund's World Economic Outlook Database: October 2024 edition. See: https://www.imf.org/en/Publications/WEO/weo-database/2024/October

5 As the only economy in the top 25 that does not fall within the high-income group, China's income-group strengths and weaknesses are computed within the non-top 25 group.

Albania

67

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
82	53	Upper middle	EUR	2.8	58.2	21,377

		Score/ Value	Rank	
Institutions		**58.7**	**47**	◆
1.1	**Institutional environment**	**57.3**	**60**	
1.1.1	Operational stability for businesses*	65.3	58	
1.1.2	Government effectiveness*	49.2	58	
1.2	**Regulatory environment**	**49.5**	**68**	
1.2.1	Regulatory quality*	50.7	63	
1.2.2	Rule of law*	48.3	77	
1.3	**Business environment**	**69.4**	**[19]**	
1.3.1	Policy stability for doing business†	69.4	24	◆
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**22.4**	**99**	
2.1	**Education**	**39.5**	**107**	
2.1.1	Expenditure on education, % GDP	2.9	114	
2.1.2	Government funding/pupil, secondary, % GDP/cap ⏲	9.8	85	○◇
2.1.3	School life expectancy, years	14.5	60	
2.1.4	PISA scales in reading, maths and science	367.5	76	
2.1.5	Pupil–teacher ratio, secondary	9.3	22	●
2.2	**Tertiary education**	**27.7**	**76**	
2.2.1	Tertiary enrolment, % gross	64.7	49	
2.2.2	Graduates in science and engineering, %	22.5	67	
2.2.3	Tertiary inbound mobility, %	1.7	82	
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**52.3**	**40**	◆
3.1	**Information and communication technology (ICT)**	**78.6**	**61**	
3.1.1	ICT access*	87.1	62	
3.1.2	ICT use*	71.1	86	
3.1.3	Government online service*	77.7	46	
3.2	**General infrastructure**	**20.9**	**106**	
3.2.1	Electricity output, GWh/mn pop.	3,252.7	64	
3.2.2	Logistics performance*	18.2	90	○
3.2.3	Gross capital formation, % GDP	21.8	86	
3.3	**Ecological sustainability**	**57.4**	**1**	●◆
3.3.1	GDP/unit of energy use	20.5	12	●◆
3.3.2	Low-carbon energy use, %	62.5	6	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	5.9	15	●◆
Market sophistication		**41.1**	**47**	
4.1	**Credit**	**8.4**	**121**	◇
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	32.4	91	
4.1.3	Loans from microfinance institutions, % GDP	0.6	41	
4.2	**Investment**	**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**73.7**	**56**	
4.3.1	Applied tariff rate, weighted avg., %	1.1	18	●
4.3.2	Domestic industry diversification	91.8	33	
4.3.3	Domestic market scale, bn PPP$	58.2	114	

		Score/ Value	Rank	
Business sophistication		**30.5**	**61**	
5.1	**Knowledge workers**	**32.2**	**[85]**	
5.1.1	Knowledge-intensive employment, % ⏲	21.4	71	
5.1.2	Females employed w/advanced degrees, % ⏲	13.8	58	
5.1.3	Youth demographic dividend, %	28.9	93	
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**36.1**	**39**	◆
5.2.1	Public research–industry co-publications, %	0.5	124	○
5.2.2	University–industry R&D collaboration†	50.8	37	◆
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	89.3	7	●◆
5.2.5	Patent families/bn PPP$ GDP	0.0	67	
5.3	**Knowledge absorption**	**23.2**	**85**	
5.3.1	Intellectual property payments, % total trade	0.4	81	
5.3.2	High-tech imports, % total trade	3.8	128	○◇
5.3.3	ICT services imports, % total trade	1.3	76	
5.3.4	FDI net inflows, % GDP	7.1	20	●◆
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**16.5**	**85**	
6.1	**Knowledge creation**	**5.3**	**114**	
6.1.1	Patents by origin/bn PPP$ GDP	0.3	87	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	56	
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	70	
6.1.4	Scientific and technical articles/bn PPP$ GDP	5.7	100	
6.1.5	Citable documents H-index	3.2	122	○
6.2	**Knowledge impact**	**22.2**	**83**	
6.2.1	Labor productivity growth, %	3.7	9	●◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	96	
6.2.4	High-tech manufacturing, %	6.0	99	◇
6.3	**Knowledge diffusion**	**21.9**	**57**	
6.3.1	Intellectual property receipts, % total trade	0.2	49	
6.3.2	Production and export complexity	43.0	80	
6.3.3	High-tech exports, % total trade	0.1	122	○
6.3.4	ICT services exports, % total trade	2.2	58	
6.3.5	ISO 9001 quality/bn PPP$ GDP	12.7	18	●◆
Creative outputs		**20.0**	**77**	
7.1	**Intangible assets**	**22.2**	**72**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	31.8	60	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	4.1	18	●◆
7.2	**Creative goods and services**	**13.0**	**65**	
7.2.1	Cultural and creative services exports, % total trade	1.1	25	◆
7.2.2	National feature films/mn pop. 15–69	3.0	45	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	94	
7.3	**Online creativity**	**22.7**	**87**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	5.8	57	
7.3.2	GitHub commits/mn pop. 15–69	8.3	62	
7.3.3	Mobile app creation/bn PPP$ GDP	53.9	99	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Algeria

GII 2025 rank **115**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
111	112	Upper middle	NAWA	46.8	826.1	17,718

			Score/ Value	Rank	
Institutions			**42.1**	**89**	
1.1	**Institutional environment**		**38.0**	**104**	
1.1.1	Operational stability for businesses*		49.3	98	
1.1.2	Government effectiveness*		26.6	110	
1.2	**Regulatory environment**		**30.3**	**113**	◇
1.2.1	Regulatory quality*		24.9	125	◇
1.2.2	Rule of law*		35.8	108	
1.3	**Business environment**		**58.0**	**[40]**	
1.3.1	Policy stability for doing business†		58.0	50	
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**26.9**	**82**	
2.1	**Education**		**43.2**	**[93]**	
2.1.1	Expenditure on education, % GDP		5.6	22	●
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years		15.3	48	
2.1.4	PISA scales in reading, maths and science	⏲	361.7	78	
2.1.5	Pupil–teacher ratio, secondary		n/a	n/a	
2.2	**Tertiary education**		**33.7**	**55**	
2.2.1	Tertiary enrolment, % gross		55.5	62	
2.2.2	Graduates in science and engineering, %		31.1	15	●◆
2.2.3	Tertiary inbound mobility, %		0.2	112	
2.3	**Research and development (R&D)**		**3.8**	**82**	
2.3.1	Researchers, FTE/mn pop.	⏲	821.7	59	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.5	65	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**34.0**	**97**	
3.1	**Information and communication technology (ICT)**		**61.3**	**95**	
3.1.1	ICT access*		86.8	63	
3.1.2	ICT use*		77.6	69	
3.1.3	Government online service*		19.6	131	◇
3.2	**General infrastructure**		**34.5**	**63**	
3.2.1	Electricity output, GWh/mn pop.	⏲	2,031.8	82	
3.2.2	Logistics performance*		18.2	90	
3.2.3	Gross capital formation, % GDP		37.0	10	●◆
3.3	**Ecological sustainability**		**6.1**	**133**	◇
3.3.1	GDP/unit of energy use		8.7	89	
3.3.2	Low-carbon energy use, %		0.3	134	◇
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.2	124	
Market sophistication			**10.5**	**138**	○◇
4.1	**Credit**		**4.5**	**[130]**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		18.9	117	
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**0.5**	**122**	
4.2.1	Market capitalization, % GDP	⏲	0.2	84	○◇
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.0	118	
4.2.3	Late-stage VC deal count, % global VC		0.0	102	
4.2.4	VC investors, deal count/bn PPP$ GDP	⏲	0.0	106	
4.2.5	VC investor co-participation/bn PPP$ GDP	⏲	0.0	93	
4.3	**Trade, diversification and market scale**		**26.4**	**136**	○◇
4.3.1	Applied tariff rate, weighted avg., %	⏲	12.7	137	
4.3.2	Domestic industry diversification	⏲	14.3	111	
4.3.3	Domestic market scale, bn PPP$		826.1	39	●

			Score/ Value	Rank	
Business sophistication			**21.6**	**119**	
5.1	**Knowledge workers**		**21.1**	**[131]**	
5.1.1	Knowledge-intensive employment, %		n/a	n/a	
5.1.2	Females employed w/advanced degrees, %		n/a	n/a	
5.1.3	Youth demographic dividend, %		44.3	46	●
5.1.4	GERD performed by business, % GDP	⏲	0.0	74	
5.1.5	GERD financed by business, %	⏲	6.7	78	
5.2	**Innovation linkages**		**26.4**	**64**	
5.2.1	Public research–industry co-publications, %		0.6	120	
5.2.2	University–industry R&D collaboration†		44.4	44	●
5.2.3	University industry and international engagement, top 5*		7.5	98	
5.2.4	State of cluster development†		76.2	24	●◆
5.2.5	Patent families/bn PPP$ GDP		0.0	96	
5.3	**Knowledge absorption**		**17.3**	**124**	◇
5.3.1	Intellectual property payments, % total trade		0.3	85	
5.3.2	High-tech imports, % total trade	⏲	10.4	36	
5.3.3	ICT services imports, % total trade		0.6	112	
5.3.4	FDI net inflows, % GDP		0.5	120	
5.3.5	Research talent, % in businesses	⏲	0.5	81	
Knowledge and technology outputs			**11.1**	**112**	
6.1	**Knowledge creation**		**12.4**	**75**	
6.1.1	Patents by origin/bn PPP$ GDP		1.8	30	●
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	85	
6.1.3	Utility models by origin/bn PPP$ GDP		-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP		7.0	91	
6.1.5	Citable documents H-index		10.5	74	
6.2	**Knowledge impact**		**13.6**	**126**	◇
6.2.1	Labor productivity growth, %		0.9	69	
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	137	○◇
6.2.4	High-tech manufacturing, %	⏲	4.1	105	
6.3	**Knowledge diffusion**		**7.2**	**123**	◇
6.3.1	Intellectual property receipts, % total trade		0.0	119	
6.3.2	Production and export complexity		32.7	103	
6.3.3	High-tech exports, % total trade	⏲	0.0	138	
6.3.4	ICT services exports, % total trade		0.2	132	
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.6	121	
Creative outputs			**10.5**	**107**	◇
7.1	**Intangible assets**		**11.9**	**97**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		18.0	92	
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP		1.4	47	●
7.2	**Creative goods and services**		**0.8**	**127**	
7.2.1	Cultural and creative services exports, % total trade		0.0	117	
7.2.2	National feature films/mn pop. 15–69		0.2	91	○
7.2.3	Entertainment and media market/th pop. 15–69		1.8	52	◇
7.2.4	Creative goods exports, % total trade	⏲	0.0	127	
7.3	**Online creativity**		**17.6**	**108**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.3	120	
7.3.2	GitHub commits/mn pop. 15–69		1.5	112	◇
7.3.3	Mobile app creation/bn PPP$ GDP		50.9	106	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

Angola

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
137	133	Lower middle	SSA	37.9	374.9	9,801

		Score/ Value	Rank	
Institutions		**27.6**	**123**	
1.1	**Institutional environment**	**34.8**	**111**	
1.1.1	Operational stability for businesses*	51.3	96	●
1.1.2	Government effectiveness*	18.3	129	
1.2	**Regulatory environment**	**27.4**	**125**	
1.2.1	Regulatory quality*	29.2	115	
1.2.2	Rule of law*	25.6	127	
1.3	**Business environment**	**20.7**	**122**	◇
1.3.1	Policy stability for doing business†	22.9	120	
1.3.2	Entrepreneurship policies and culture† ⏲	18.6	79	◇
Human capital and research		**12.9**	**132**	◇
2.1	**Education**	**33.7**	**[122]**	
2.1.1	Expenditure on education, % GDP	2.5	122	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	28.0	120	◇
2.2	**Tertiary education**	**4.8**	**127**	◇
2.2.1	Tertiary enrolment, % gross	10.0	122	
2.2.2	Graduates in science and engineering, % ⏲	11.2	114	◇
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**0.1**	**118**	
2.3.1	Researchers, FTE/mn pop. ⏲	18.9	107	
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.0	111	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**26.9**	**122**	
3.1	**Information and communication technology (ICT)**	**38.3**	**125**	◇
3.1.1	ICT access*	45.8	121	
3.1.2	ICT use*	41.6	116	◇
3.1.3	Government online service*	27.4	124	
3.2	**General infrastructure**	**22.7**	**98**	●
3.2.1	Electricity output, GWh/mn pop. ⏲	442.8	114	
3.2.2	Logistics performance*	0.0	113	○◇
3.2.3	Gross capital formation, % GDP	33.4	13	●
3.3	**Ecological sustainability**	**19.7**	**72**	●
3.3.1	GDP/unit of energy use	12.7	49	●
3.3.2	Low-carbon energy use, %	26.2	47	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.1	134	
Market sophistication		**20.7**	**120**	
4.1	**Credit**	**8.4**	**120**	
4.1.1	Finance for startups and scaleups† ⏲	24.7	85	◇
4.1.2	Domestic credit to private sector, % GDP	9.5	132	
4.1.3	Loans from microfinance institutions, % GDP ⏲	0.0	64	
4.2	**Investment**	**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**33.0**	**130**	◇
4.3.1	Applied tariff rate, weighted avg., % ⏲	7.3	115	
4.3.2	Domestic industry diversification	0.0	113	○◇
4.3.3	Domestic market scale, bn PPP$	374.9	58	●

		Score/ Value	Rank	
Business sophistication		**16.1**	**138**	◇
5.1	**Knowledge workers**	**35.5**	**[69]**	
5.1.1	Knowledge-intensive employment, % ⏲	8.4	106	
5.1.2	Females employed w/advanced degrees, % ⏲	1.3	115	
5.1.3	Youth demographic dividend, %	63.4	6	●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**0.3**	**139**	○◇
5.2.1	Public research–industry co-publications, %	0.3	134	◇
5.2.2	University–industry R&D collaboration†	0.0	134	○◇
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	0.0	135	○◇
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**12.5**	**138**	◇
5.3.1	Intellectual property payments, % total trade	0.6	66	●◆
5.3.2	High-tech imports, % total trade	4.7	123	
5.3.3	ICT services imports, % total trade	0.3	132	
5.3.4	FDI net inflows, % GDP	−5.1	133	◇
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**5.5**	**139**	○◇
6.1	**Knowledge creation**	**0.3**	**139**	○◇
6.1.1	Patents by origin/bn PPP$ GDP ⏲	0.0	135	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.0	64	
6.1.4	Scientific and technical articles/bn PPP$ GDP	0.5	139	○◇
6.1.5	Citable documents H-index	0.7	136	
6.2	**Knowledge impact**	**7.8**	**135**	◇
6.2.1	Labor productivity growth, %	−2.9	134	◇
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	77	●
6.2.4	High-tech manufacturing, %	3.6	108	◇
6.3	**Knowledge diffusion**	**8.3**	**116**	
6.3.1	Intellectual property receipts, % total trade	0.0	127	○◇
6.3.2	Production and export complexity	38.3	90	●
6.3.3	High-tech exports, % total trade	0.4	102	●
6.3.4	ICT services exports, % total trade	0.1	136	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.3	132	
Creative outputs		**5.0**	**[130]**	
7.1	**Intangible assets**	**4.4**	**[123]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	10.0	114	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP ⏲	0.1	111	
7.2	**Creative goods and services**	**0.1**	**[138]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	132	
7.3	**Online creativity**	**11.0**	**126**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.1	134	
7.3.2	GitHub commits/mn pop. 15–69	0.4	130	
7.3.3	Mobile app creation/bn PPP$ GDP	32.4	125	◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Argentina

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
64	92	Upper middle	LCN	45.7	1,353.8	28,704

		Score/ Value	Rank	
Institutions		**28.6**	**120**	○◇
1.1	**Institutional environment**	**37.2**	**106**	
1.1.1	Operational stability for businesses*	40.7	113	○
1.1.2	Government effectiveness*	33.8	96	
1.2	**Regulatory environment**	**38.9**	**97**	
1.2.1	Regulatory quality*	35.6	97	
1.2.2	Rule of law*	42.3	90	
1.3	**Business environment**	**9.6**	**130**	○◇
1.3.1	Policy stability for doing business†	8.3	132	○◇
1.3.2	Entrepreneurship policies and culture†	10.9	88	○
Human capital and research		**33.8**	**57**	
2.1	**Education**	**45.8**	**86**	
2.1.1	Expenditure on education, % GDP	4.8	45	
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.4	56	
2.1.3	School life expectancy, years	18.7	9	●◆
2.1.4	PISA scales in reading, maths and science	394.8	66	
2.1.5	Pupil–teacher ratio, secondary	n/a	n/a	
2.2	**Tertiary education**	**29.8**	**69**	
2.2.1	Tertiary enrolment, % gross	107.1	4	●◆
2.2.2	Graduates in science and engineering, %	14.8	107	○◇
2.2.3	Tertiary inbound mobility, %	3.7	61	
2.3	**Research and development (R&D)**	**25.7**	**41**	
2.3.1	Researchers, FTE/mn pop.	1,276.7	49	
2.3.2	Gross expenditure on R&D, % GDP	0.6	60	
2.3.3	Global corporate R&D investors, top 3, mn USD	41.4	41	◆
2.3.4	QS university ranking, top 3*	39.6	35	●◆
Infrastructure		**38.5**	**80**	
3.1	**Information and communication technology (ICT)**	**76.6**	**66**	
3.1.1	ICT access*	95.8	40	◆
3.1.2	ICT use*	58.4	106	◇
3.1.3	Government online service*	75.5	52	
3.2	**General infrastructure**	**22.4**	**99**	
3.2.1	Electricity output, GWh/mn pop.	3,133.0	66	
3.2.2	Logistics performance*	31.8	71	
3.2.3	Gross capital formation, % GDP	19.1	109	○
3.3	**Ecological sustainability**	**16.5**	**90**	
3.3.1	GDP/unit of energy use	10.6	71	
3.3.2	Low-carbon energy use, %	15.0	81	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.2	66	
Market sophistication		**28.2**	**100**	
4.1	**Credit**	**14.4**	**105**	
4.1.1	Finance for startups and scaleups†	25.5	83	○
4.1.2	Domestic credit to private sector, % GDP	16.0	122	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**2.5**	**92**	
4.2.1	Market capitalization, % GDP	8.4	77	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	83	
4.2.3	Late-stage VC deal count, % global VC	0.0	49	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	75	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	77	
4.3	**Trade, diversification and market scale**	**67.6**	**75**	
4.3.1	Applied tariff rate, weighted avg., %	6.5	110	◇
4.3.2	Domestic industry diversification	84.8	56	
4.3.3	Domestic market scale, bn PPP$	1,353.8	30	●

		Score/ Value	Rank
Business sophistication		**26.6**	**81**
5.1	**Knowledge workers**	**30.8**	**99**
5.1.1	Knowledge-intensive employment, %	23.4	63
5.1.2	Females employed w/advanced degrees, %	15.2	50
5.1.3	Youth demographic dividend, %	36.4	69
5.1.4	GERD performed by business, % GDP	0.3	52
5.1.5	GERD financed by business, %	22.9	64
5.2	**Innovation linkages**	**17.7**	**99**
5.2.1	Public research–industry co-publications, %	1.5	66
5.2.2	University–industry R&D collaboration†	27.0	94
5.2.3	University industry and international engagement, top 5*	14.2	80
5.2.4	State of cluster development†	31.9	103
5.2.5	Patent families/bn PPP$ GDP	0.0	68
5.3	**Knowledge absorption**	**31.5**	**50**
5.3.1	Intellectual property payments, % total trade	1.9	14	●◆
5.3.2	High-tech imports, % total trade	11.2	32	●
5.3.3	ICT services imports, % total trade	2.5	27	●◆
5.3.4	FDI net inflows, % GDP	2.5	72	
5.3.5	Research talent, % in businesses	11.2	62	
Knowledge and technology outputs		**18.1**	**79**	
6.1	**Knowledge creation**	**12.6**	**72**	
6.1.1	Patents by origin/bn PPP$ GDP	0.3	89	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	50	
6.1.4	Scientific and technical articles/bn PPP$ GDP	6.7	94	
6.1.5	Citable documents H-index	28.0	37	●◆
6.2	**Knowledge impact**	**22.8**	**79**	
6.2.1	Labor productivity growth, %	−2.2	129	○◇
6.2.2	Unicorn valuation, % GDP	0.5	43	
6.2.3	Software spending, % GDP	0.3	47	
6.2.4	High-tech manufacturing, %	31.8	37	
6.3	**Knowledge diffusion**	**19.0**	**66**	
6.3.1	Intellectual property receipts, % total trade	0.2	41	◆
6.3.2	Production and export complexity	42.1	81	
6.3.3	High-tech exports, % total trade	0.9	83	
6.3.4	ICT services exports, % total trade	3.0	48	
6.3.5	ISO 9001 quality/bn PPP$ GDP	5.2	50	
Creative outputs		**26.7**	**59**	
7.1	**Intangible assets**	**31.9**	**56**	
7.1.1	Intangible asset intensity, top 15, %	52.3	46	
7.1.2	Trademarks by origin/bn PPP$ GDP	51.2	30	●
7.1.3	Global brand value, top 5,000, % GDP	1.5	54	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.0	65	
7.2	**Creative goods and services**	**13.7**	**63**	
7.2.1	Cultural and creative services exports, % total trade	1.2	23	●◆
7.2.2	National feature films/mn pop. 15–69	5.4	30	
7.2.3	Entertainment and media market/th pop. 15–69	3.5	49	
7.2.4	Creative goods exports, % total trade	0.0	119	○
7.3	**Online creativity**	**29.4**	**56**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	4.9	63	
7.3.2	GitHub commits/mn pop. 15–69	15.9	50	
7.3.3	Mobile app creation/bn PPP$ GDP	67.3	60	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Armenia

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
53	78	Upper middle	NAWA	3.0	69.3	23,376

		Score/ Value	Rank	
Institutions		**49.0**	**70**	
1.1	**Institutional environment**	**47.9**	**82**	
1.1.1	Operational stability for businesses*	57.3	79	
1.1.2	Government effectiveness*	38.5	82	
1.2	**Regulatory environment**	**48.6**	**70**	
1.2.1	Regulatory quality*	47.8	74	
1.2.2	Rule of law*	49.3	70	
1.3	**Business environment**	**50.4**	**58**	
1.3.1	Policy stability for doing business†	45.9	69	
1.3.2	Entrepreneurship policies and culture†	54.9	23	●
Human capital and research		**24.7**	**91**	
2.1	**Education**	**43.0**	**94**	
2.1.1	Expenditure on education, % GDP	2.4	124	◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	11.2	78	
2.1.3	School life expectancy, years	13.8	71	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	11.6	51	
2.2	**Tertiary education**	**27.8**	**75**	
2.2.1	Tertiary enrolment, % gross	56.3	60	
2.2.2	Graduates in science and engineering, %	20.1	81	
2.2.3	Tertiary inbound mobility, %	7.0	42	
2.3	**Research and development (R&D)**	**3.2**	**89**	
2.3.1	Researchers, FTE/mn pop.	1,039.8	53	
2.3.2	Gross expenditure on R&D, % GDP	0.2	90	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**39.3**	**78**	
3.1	**Information and communication technology (ICT)**	**79.8**	**58**	
3.1.1	ICT access*	82.5	78	
3.1.2	ICT use*	82.0	51	
3.1.3	Government online service*	75.0	53	
3.2	**General infrastructure**	**20.2**	**110**	
3.2.1	Electricity output, GWh/mn pop.	3,183.5	65	
3.2.2	Logistics performance*	18.2	90	
3.2.3	Gross capital formation, % GDP	21.2	96	
3.3	**Ecological sustainability**	**17.8**	**83**	
3.3.1	GDP/unit of energy use	9.8	78	
3.3.2	Low-carbon energy use, %	27.5	43	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.1	132	○
Market sophistication		**33.0**	**83**	
4.1	**Credit**	**33.1**	**56**	
4.1.1	Finance for startups and scaleups†	45.8	55	
4.1.2	Domestic credit to private sector, % GDP	55.6	57	
4.1.3	Loans from microfinance institutions, % GDP	3.2	12	●
4.2	**Investment**	**4.6**	**76**	
4.2.1	Market capitalization, % GDP	0.6	83	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	65	
4.2.3	Late-stage VC deal count, % global VC	0.0	97	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	45	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	43	
4.3	**Trade, diversification and market scale**	**61.1**	**91**	
4.3.1	Applied tariff rate, weighted avg., %	3.9	85	
4.3.2	Domestic industry diversification	73.9	75	
4.3.3	Domestic market scale, bn PPP$	69.3	103	

		Score/ Value	Rank	
Business sophistication		**27.0**	**78**	
5.1	**Knowledge workers**	**44.3**	**40**	◆
5.1.1	Knowledge-intensive employment, %	29.4	51	
5.1.2	Females employed w/advanced degrees, %	27.1	15	●◆
5.1.3	Youth demographic dividend, %	31.4	82	
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	16.7	68	
5.2	**Innovation linkages**	**15.6**	**112**	
5.2.1	Public research–industry co-publications, %	1.7	59	
5.2.2	University–industry R&D collaboration†	17.9	116	
5.2.3	University industry and international engagement, top 5*	4.7	101	○
5.2.4	State of cluster development†	36.9	91	
5.2.5	Patent families/bn PPP$ GDP	0.1	62	
5.3	**Knowledge absorption**	**21.2**	**98**	
5.3.1	Intellectual property payments, % total trade	0.0	131	○◇
5.3.2	High-tech imports, % total trade	9.8	44	
5.3.3	ICT services imports, % total trade	0.6	109	
5.3.4	FDI net inflows, % GDP	3.3	53	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**21.5**	**65**	
6.1	**Knowledge creation**	**17.9**	**58**	
6.1.1	Patents by origin/bn PPP$ GDP	0.4	79	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	60	
6.1.3	Utility models by origin/bn PPP$ GDP	1.3	11	●
6.1.4	Scientific and technical articles/bn PPP$ GDP	14.5	50	
6.1.5	Citable documents H-index	9.6	81	
6.2	**Knowledge impact**	**20.6**	**91**	
6.2.1	Labor productivity growth, %	3.3	14	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	94	
6.2.4	High-tech manufacturing, %	4.0	106	◇
6.3	**Knowledge diffusion**	**25.9**	**50**	
6.3.1	Intellectual property receipts, % total trade	0.0	127	○◇
6.3.2	Production and export complexity	52.9	53	
6.3.3	High-tech exports, % total trade	5.9	39	●
6.3.4	ICT services exports, % total trade	7.6	11	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.3	133	○
Creative outputs		**31.2**	**47**	
7.1	**Intangible assets**	**22.0**	**73**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	82.4	12	●
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.3	54	
7.2	**Creative goods and services**	**47.0**	**[8]**	
7.2.1	Cultural and creative services exports, % total trade	0.4	67	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	6.4	8	●◆
7.3	**Online creativity**	**33.7**	**46**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	5.6	58	
7.3.2	GitHub commits/mn pop. 15–69	24.1	41	◆
7.3.3	Mobile app creation/bn PPP$ GDP	71.3	35	●

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Australia

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
27	16	High	SEAO	26.7	1,897.9	69,475

		Score/ Value	Rank	
Institutions		**76.1**	**13**	
1.1	**Institutional environment**	**82.1**	**13**	
1.1.1	Operational stability for businesses*	82.0	16	
1.1.2	Government effectiveness*	82.1	12	
1.2	**Regulatory environment**	**90.4**	**7**	●
1.2.1	Regulatory quality*	91.5	2	●
1.2.2	Rule of law*	89.2	15	
1.3	**Business environment**	**55.8**	**46**	
1.3.1	Policy stability for doing business†	66.3	31	
1.3.2	Entrepreneurship policies and culture† ⏲	45.3	43	
Human capital and research		**58.6**	**8**	●
2.1	**Education**	**61.9**	**30**	
2.1.1	Expenditure on education, % GDP ⏲	5.2	33	
2.1.2	Government funding/pupil, secondary, % GDP/cap	19.1	48	
2.1.3	School life expectancy, years	20.6	2	●◆
2.1.4	PISA scales in reading, maths and science	497.4	10	
2.1.5	Pupil–teacher ratio, secondary	n/a	n/a	
2.2	**Tertiary education**	**53.2**	**7**	●
2.2.1	Tertiary enrolment, % gross	104.6	6	●◆
2.2.2	Graduates in science and engineering, %	19.1	90	○
2.2.3	Tertiary inbound mobility, %	27.2	5	●◆
2.3	**Research and development (R&D)**	**60.6**	**13**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP ⏲	1.7	24	
2.3.3	Global corporate R&D investors, top 3, mn USD	65.8	17	
2.3.4	QS university ranking, top 3*	89.9	3	●◆
Infrastructure		**55.7**	**25**	
3.1	**Information and communication technology (ICT)**	**93.2**	**13**	
3.1.1	ICT access*	98.3	22	
3.1.2	ICT use*	90.6	20	
3.1.3	Government online service*	90.6	14	
3.2	**General infrastructure**	**50.8**	**21**	
3.2.1	Electricity output, GWh/mn pop.	10,265.7	14	
3.2.2	Logistics performance*	72.7	18	
3.2.3	Gross capital formation, % GDP	24.0	66	
3.3	**Ecological sustainability**	**23.0**	**58**	
3.3.1	GDP/unit of energy use	9.9	77	○
3.3.2	Low-carbon energy use, %	14.9	82	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	3.7	26	
Market sophistication		**55.4**	**17**	
4.1	**Credit**	**56.1**	**19**	
4.1.1	Finance for startups and scaleups† ⏲	62.5	28	
4.1.2	Domestic credit to private sector, % GDP	127.4	13	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**24.5**	**24**	
4.2.1	Market capitalization, % GDP	116.7	12	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	23	
4.2.3	Late-stage VC deal count, % global VC	0.5	11	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.5	28	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.2	27	
4.3	**Trade, diversification and market scale**	**85.7**	**12**	
4.3.1	Applied tariff rate, weighted avg., %	0.6	6	●
4.3.2	Domestic industry diversification	89.8	40	
4.3.3	Domestic market scale, bn PPP$	1,897.9	19	

		Score/ Value	Rank	
Business sophistication		**45.5**	**25**	◇
5.1	**Knowledge workers**	**53.2**	**23**	
5.1.1	Knowledge-intensive employment, %	49.5	13	
5.1.2	Females employed w/advanced degrees, %	29.0	9	●
5.1.3	Youth demographic dividend, %	29.9	91	○
5.1.4	GERD performed by business, % GDP ⏲	0.9	28	◇
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**55.1**	**21**	
5.2.1	Public research–industry co-publications, %	2.2	39	◇
5.2.2	University–industry R&D collaboration†	63.5	16	
5.2.3	University industry and international engagement, top 5*	98.4	4	●
5.2.4	State of cluster development†	76.6	23	
5.2.5	Patent families/bn PPP$ GDP	0.9	30	◇
5.3	**Knowledge absorption**	**28.3**	**63**	◇
5.3.1	Intellectual property payments, % total trade	1.0	35	
5.3.2	High-tech imports, % total trade	10.1	38	
5.3.3	ICT services imports, % total trade	1.2	79	○◇
5.3.4	FDI net inflows, % GDP	2.7	65	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**33.0**	**29**	◇
6.1	**Knowledge creation**	**46.9**	**16**	
6.1.1	Patents by origin/bn PPP$ GDP	1.4	40	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.9	23	◇
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	32.3	13	
6.1.5	Citable documents H-index	71.3	6	●
6.2	**Knowledge impact**	**34.1**	**42**	
6.2.1	Labor productivity growth, %	0.1	93	○
6.2.2	Unicorn valuation, % GDP	2.6	17	
6.2.3	Software spending, % GDP	0.2	58	
6.2.4	High-tech manufacturing, %	24.0	52	
6.3	**Knowledge diffusion**	**18.1**	**72**	◇
6.3.1	Intellectual property receipts, % total trade	0.3	36	◇
6.3.2	Production and export complexity	33.6	100	○◇
6.3.3	High-tech exports, % total trade	2.0	63	◇
6.3.4	ICT services exports, % total trade	1.4	76	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	7.5	35	
Creative outputs		**42.5**	**27**	◇
7.1	**Intangible assets**	**42.7**	**26**	
7.1.1	Intangible asset intensity, top 15, %	69.8	16	
7.1.2	Trademarks by origin/bn PPP$ GDP	46.5	37	
7.1.3	Global brand value, top 5,000, % GDP	7.2	27	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.4	46	
7.2	**Creative goods and services**	**22.2**	**51**	◇
7.2.1	Cultural and creative services exports, % total trade	0.3	75	○
7.2.2	National feature films/mn pop. 15–69	2.0	59	○
7.2.3	Entertainment and media market/th pop. 15–69	65.6	5	●
7.2.4	Creative goods exports, % total trade	0.5	62	
7.3	**Online creativity**	**62.4**	**19**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	68.8	10	●
7.3.2	GitHub commits/mn pop. 15–69	47.3	24	◇
7.3.3	Mobile app creation/bn PPP$ GDP	71.0	39	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Austria

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
21	17	High	EUR	9.1	667.2	73,051

		Score/ Value	Rank	
Institutions		**72.1**	**21**	
1.1	**Institutional environment**	**76.5**	**21**	
1.1.1	Operational stability for businesses*	77.3	28	
1.1.2	Government effectiveness*	75.7	19	
1.2	**Regulatory environment**	**86.4**	**12**	
1.2.1	Regulatory quality*	78.1	19	
1.2.2	Rule of law*	94.6	7	●
1.3	**Business environment**	**53.4**	**55**	○
1.3.1	Policy stability for doing business†	61.1	42	
1.3.2	Entrepreneurship policies and culture†	45.7	42	○
Human capital and research		**58.6**	**9**	●
2.1	**Education**	**62.9**	**26**	
2.1.1	Expenditure on education, % GDP	4.8	49	
2.1.2	Government funding/pupil, secondary, % GDP/cap	26.2	15	
2.1.3	School life expectancy, years	16.1	34	
2.1.4	PISA scales in reading, maths and science	486.3	19	
2.1.5	Pupil–teacher ratio, secondary	9.3	21	
2.2	**Tertiary education**	**57.2**	**4**	● ◆
2.2.1	Tertiary enrolment, % gross	91.7	14	
2.2.2	Graduates in science and engineering, %	31.1	16	◆
2.2.3	Tertiary inbound mobility, %	20.0	9	●
2.3	**Research and development (R&D)**	**55.6**	**18**	
2.3.1	Researchers, FTE/mn pop.	6,996.6	8	●
2.3.2	Gross expenditure on R&D, % GDP	3.3	8	●
2.3.3	Global corporate R&D investors, top 3, mn USD	56.8	28	
2.3.4	QS university ranking, top 3*	46.5	27	
Infrastructure		**59.3**	**12**	
3.1	**Information and communication technology (ICT)**	**90.1**	**22**	
3.1.1	ICT access*	98.9	14	
3.1.2	ICT use*	90.7	19	
3.1.3	Government online service*	80.5	39	
3.2	**General infrastructure**	**53.4**	**14**	
3.2.1	Electricity output, GWh/mn pop.	7,699.9	21	
3.2.2	Logistics performance*	86.4	7	
3.2.3	Gross capital formation, % GDP	25.5	44	
3.3	**Ecological sustainability**	**34.5**	**30**	
3.3.1	GDP/unit of energy use	15.6	30	
3.3.2	Low-carbon energy use, %	40.0	24	
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.5	37	
Market sophistication		**46.9**	**30**	◇
4.1	**Credit**	**44.4**	**33**	
4.1.1	Finance for startups and scaleups†	56.9	38	○
4.1.2	Domestic credit to private sector, % GDP	84.9	29	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**13.0**	**42**	◇
4.2.1	Market capitalization, % GDP	30.1	48	○ ◇
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.2	33	◇
4.2.3	Late-stage VC deal count, % global VC	0.1	27	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.5	29	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.2	34	◇
4.3	**Trade, diversification and market scale**	**83.3**	**16**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	98.6	4	●
4.3.3	Domestic market scale, bn PPP$	667.2	43	

		Score/ Value	Rank	
Business sophistication		**53.0**	**16**	
5.1	**Knowledge workers**	**53.2**	**22**	
5.1.1	Knowledge-intensive employment, %	45.9	20	
5.1.2	Females employed w/advanced degrees, %	20.3	34	◇
5.1.3	Youth demographic dividend, %	24.1	129	○
5.1.4	GERD performed by business, % GDP	2.3	7	●
5.1.5	GERD financed by business, %	51.2	25	
5.2	**Innovation linkages**	**62.7**	**14**	
5.2.1	Public research–industry co-publications, %	5.6	8	●
5.2.2	University–industry R&D collaboration†	57.0	25	
5.2.3	University industry and international engagement, top 5*	90.3	9	
5.2.4	State of cluster development†	73.2	29	
5.2.5	Patent families/bn PPP$ GDP	3.1	11	●
5.3	**Knowledge absorption**	**43.1**	**17**	
5.3.1	Intellectual property payments, % total trade	0.7	59	○
5.3.2	High-tech imports, % total trade	9.9	41	
5.3.3	ICT services imports, % total trade	3.8	10	●
5.3.4	FDI net inflows, % GDP	2.5	68	○
5.3.5	Research talent, % in businesses	63.7	8	
Knowledge and technology outputs		**39.9**	**21**	
6.1	**Knowledge creation**	**42.7**	**18**	
6.1.1	Patents by origin/bn PPP$ GDP	6.3	11	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	2.4	11	
6.1.3	Utility models by origin/bn PPP$ GDP	0.3	36	○
6.1.4	Scientific and technical articles/bn PPP$ GDP	27.0	19	
6.1.5	Citable documents H-index	44.3	18	
6.2	**Knowledge impact**	**39.1**	**26**	
6.2.1	Labor productivity growth, %	−0.5	109	○
6.2.2	Unicorn valuation, % GDP	1.4	30	
6.2.3	Software spending, % GDP	0.6	16	
6.2.4	High-tech manufacturing, %	40.3	22	
6.3	**Knowledge diffusion**	**38.0**	**29**	
6.3.1	Intellectual property receipts, % total trade	0.6	28	
6.3.2	Production and export complexity	87.0	7	●
6.3.3	High-tech exports, % total trade	9.6	22	
6.3.4	ICT services exports, % total trade	3.8	34	
6.3.5	ISO 9001 quality/bn PPP$ GDP	5.8	46	
Creative outputs		**44.5**	**23**	
7.1	**Intangible assets**	**43.3**	**25**	
7.1.1	Intangible asset intensity, top 15, %	39.8	58	○ ◇
7.1.2	Trademarks by origin/bn PPP$ GDP	37.1	50	
7.1.3	Global brand value, top 5,000, % GDP	8.5	22	
7.1.4	Industrial designs by origin/bn PPP$ GDP	3.9	20	
7.2	**Creative goods and services**	**29.7**	**35**	
7.2.1	Cultural and creative services exports, % total trade	1.0	27	
7.2.2	National feature films/mn pop. 15–69	6.3	27	
7.2.3	Entertainment and media market/th pop. 15–69	55.3	9	
7.2.4	Creative goods exports, % total trade	0.8	48	
7.3	**Online creativity**	**61.7**	**20**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	58.0	14	
7.3.2	GitHub commits/mn pop. 15–69	58.3	19	
7.3.3	Mobile app creation/bn PPP$ GDP	68.9	52	○

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Azerbaijan

GII 2025 rank **94**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
112	76	Upper middle	NAWA	10.3	253.1	24,698

		Score/ Value	Rank	
Institutions		**60.9**	**41**	●◆
1.1	**Institutional environment**	**55.8**	**65**	
1.1.1	Operational stability for businesses*	69.3	45	●
1.1.2	Government effectiveness*	42.3	74	
1.2	**Regulatory environment**	**41.4**	**91**	
1.2.1	Regulatory quality*	44.2	78	
1.2.2	Rule of law*	38.5	104	
1.3	**Business environment**	**85.6**	**3**	●◆
1.3.1	Policy stability for doing business† ⏲	72.5	20	●◆
1.3.2	Entrepreneurship policies and culture†	98.6	2	●◆
Human capital and research		**25.2**	**88**	
2.1	**Education**	**42.3**	**95**	
2.1.1	Expenditure on education, % GDP	3.6	94	
2.1.2	Government funding/pupil, secondary, % GDP/cap	15.1	67	
2.1.3	School life expectancy, years	12.9	88	
2.1.4	PISA scales in reading, maths and science	380.7	70	
2.1.5	Pupil–teacher ratio, secondary	9.2	20	●
2.2	**Tertiary education**	**27.8**	**74**	
2.2.1	Tertiary enrolment, % gross	41.4	82	
2.2.2	Graduates in science and engineering, %	26.5	36	●
2.2.3	Tertiary inbound mobility, %	2.5	72	
2.3	**Research and development (R&D)**	**5.7**	**76**	
2.3.1	Researchers, FTE/mn pop.	1,663.3	47	
2.3.2	Gross expenditure on R&D, % GDP	0.2	89	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	3.9	79	
Infrastructure		**31.2**	**105**	◇
3.1	**Information and communication technology (ICT)**	**75.7**	**70**	
3.1.1	ICT access*	83.2	74	
3.1.2	ICT use*	75.3	76	
3.1.3	Government online service*	68.6	66	
3.2	**General infrastructure**	**10.8**	**130**	◇
3.2.1	Electricity output, GWh/mn pop.	2,865.1	70	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	14.8	127	○◇
3.3	**Ecological sustainability**	**7.0**	**126**	◇
3.3.1	GDP/unit of energy use	7.5	98	
3.3.2	Low-carbon energy use, %	2.3	119	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.6	85	
Market sophistication		**35.2**	**72**	
4.1	**Credit**	**42.2**	**37**	●◆
4.1.1	Finance for startups and scaleups†	78.2	12	●◆
4.1.2	Domestic credit to private sector, % GDP	23.2	111	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**0.4**	**124**	○
4.2.1	Market capitalization, % GDP	2.7	82	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	120	○
4.2.3	Late-stage VC deal count, % global VC	0.0	98	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	110	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	111	○
4.3	**Trade, diversification and market scale**	**63.0**	**82**	
4.3.1	Applied tariff rate, weighted avg., %	5.8	103	
4.3.2	Domestic industry diversification	81.4	63	
4.3.3	Domestic market scale, bn PPP$	253.1	70	

		Score/ Value	Rank	
Business sophistication		**22.4**	**111**	
5.1	**Knowledge workers**	**24.6**	**[119]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	35.2	73	
5.1.4	GERD performed by business, % GDP ⏲	0.0	85	○
5.1.5	GERD financed by business, % ⏲	30.8	58	
5.2	**Innovation linkages**	**27.4**	**60**	
5.2.1	Public research–industry co-publications, %	1.3	70	
5.2.2	University–industry R&D collaboration† ⏲	51.8	36	●◆
5.2.3	University industry and international engagement, top 5*	0.0	104	○◇
5.2.4	State of cluster development† ⏲	72.2	30	●◆
5.2.5	Patent families/bn PPP$ GDP	0.0	75	
5.3	**Knowledge absorption**	**15.0**	**134**	○◇
5.3.1	Intellectual property payments, % total trade	0.5	69	
5.3.2	High-tech imports, % total trade	5.1	120	
5.3.3	ICT services imports, % total trade	0.4	124	◇
5.3.4	FDI net inflows, % GDP	−2.8	131	○◇
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**11.1**	**110**	
6.1	**Knowledge creation**	**8.9**	**89**	
6.1.1	Patents by origin/bn PPP$ GDP	1.0	57	●
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	80	
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	38	
6.1.4	Scientific and technical articles/bn PPP$ GDP	7.1	89	
6.1.5	Citable documents H-index	5.7	97	
6.2	**Knowledge impact**	**18.6**	**102**	
6.2.1	Labor productivity growth, %	1.1	55	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	103	
6.2.4	High-tech manufacturing, %	14.5	76	
6.3	**Knowledge diffusion**	**6.0**	**129**	◇
6.3.1	Intellectual property receipts, % total trade	0.0	100	
6.3.2	Production and export complexity	20.5	122	◇
6.3.3	High-tech exports, % total trade	0.2	116	
6.3.4	ICT services exports, % total trade	0.5	108	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.4	99	
Creative outputs		**10.4**	**108**	◇
7.1	**Intangible assets**	**8.9**	**[107]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	28.7	71	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.1	112	
7.2	**Creative goods and services**	**1.7**	**115**	
7.2.1	Cultural and creative services exports, % total trade	0.1	97	
7.2.2	National feature films/mn pop. 15–69 ⏲	0.0	93	○◇
7.2.3	Entertainment and media market/th pop. 15–69	3.6	47	
7.2.4	Creative goods exports, % total trade	0.1	107	
7.3	**Online creativity**	**22.0**	**89**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.4	95	
7.3.2	GitHub commits/mn pop. 15–69	4.9	82	
7.3.3	Mobile app creation/bn PPP$ GDP	59.5	86	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Bahrain

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
94	41	High	NAWA	1.6	105.6	65,345

		Score/ Value	Rank	
Institutions		**68.6**	**27**	●
1.1	**Institutional environment**	**60.1**	**52**	
1.1.1	Operational stability for businesses*	60.0	73	◇
1.1.2	Government effectiveness*	60.2	41	
1.2	**Regulatory environment**	**67.6**	**35**	
1.2.1	Regulatory quality*	71.6	28	●
1.2.2	Rule of law*	63.6	42	
1.3	**Business environment**	**78.2**	**7**	●◆
1.3.1	Policy stability for doing business†	82.5	7	●◆
1.3.2	Entrepreneurship policies and culture†	73.9	7	●◆
Human capital and research		**28.2**	**80**	◇
2.1	**Education**	**47.6**	**79**	◇
2.1.1	Expenditure on education, % GDP	2.0	128	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.4	57	
2.1.3	School life expectancy, years	15.5	47	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	12.4	57	
2.2	**Tertiary education**	**28.3**	**72**	◇
2.2.1	Tertiary enrolment, % gross	57.1	58	
2.2.2	Graduates in science and engineering, %	18.0	94	◇
2.2.3	Tertiary inbound mobility, %	10.1	28	
2.3	**Research and development (R&D)**	**8.9**	**[66]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	17.8	55	
Infrastructure		**58.1**	**15**	●
3.1	**Information and communication technology (ICT)**	**94.0**	**11**	●
3.1.1	ICT access*	100.0	1	●
3.1.2	ICT use*	93.6	11	●
3.1.3	Government online service*	88.3	23	●
3.2	**General infrastructure**	**71.8**	**2**	●◆
3.2.1	Electricity output, GWh/mn pop.	24,251.7	1	●◆
3.2.2	Logistics performance*	63.6	33	
3.2.3	Gross capital formation, % GDP	28.6	29	●◆
3.3	**Ecological sustainability**	**8.6**	**117**	◇
3.3.1	GDP/unit of energy use	4.4	124	○◇
3.3.2	Low-carbon energy use, %	0.0	137	○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.4	38	
Market sophistication		**37.2**	**66**	
4.1	**Credit**	**43.7**	**35**	
4.1.1	Finance for startups and scaleups†	61.6	30	
4.1.2	Domestic credit to private sector, % GDP	70.6	40	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**11.4**	**45**	
4.2.1	Market capitalization, % GDP	67.9	29	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.2	40	
4.2.3	Late-stage VC deal count, % global VC	0.0	75	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.3	38	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	39	
4.3	**Trade, diversification and market scale**	**56.4**	**101**	◇
4.3.1	Applied tariff rate, weighted avg., %	3.5	82	
4.3.2	Domestic industry diversification	52.6	104	
4.3.3	Domestic market scale, bn PPP$	105.6	92	

		Score/ Value	Rank	
Business sophistication		**27.4**	**73**	◇
5.1	**Knowledge workers**	**26.5**	**[109]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	30.7	84	
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**31.1**	**51**	
5.2.1	Public research–industry co-publications, %	0.4	132	○◇
5.2.2	University–industry R&D collaboration†	35.9	66	
5.2.3	University industry and international engagement, top 5*	47.9	37	
5.2.4	State of cluster development†	70.3	31	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**24.6**	**78**	
5.3.1	Intellectual property payments, % total trade	0.3	84	
5.3.2	High-tech imports, % total trade	4.0	127	○◇
5.3.3	ICT services imports, % total trade	1.6	60	
5.3.4	FDI net inflows, % GDP	7.8	16	●
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**17.8**	**80**	◇
6.1	**Knowledge creation**	**5.4**	**112**	◇
6.1.1	Patents by origin/bn PPP$ GDP	0.1	107	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	72	◇
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	6.4	96	◇
6.1.5	Citable documents H-index	4.6	110	◇
6.2	**Knowledge impact**	**24.5**	**70**	
6.2.1	Labor productivity growth, %	1.1	60	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.4	22	●
6.2.4	High-tech manufacturing, %	9.8	89	
6.3	**Knowledge diffusion**	**23.5**	**53**	
6.3.1	Intellectual property receipts, % total trade	0.2	46	
6.3.2	Production and export complexity	56.0	45	
6.3.3	High-tech exports, % total trade	1.5	67	
6.3.4	ICT services exports, % total trade	3.7	37	
6.3.5	ISO 9001 quality/bn PPP$ GDP	6.1	43	
Creative outputs		**14.4**	**96**	◇
7.1	**Intangible assets**	**12.3**	**95**	◇
7.1.1	Intangible asset intensity, top 15, %	5.3	70	◇
7.1.2	Trademarks by origin/bn PPP$ GDP	4.3	127	○◇
7.1.3	Global brand value, top 5,000, % GDP	0.7	63	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.1	114	◇
7.2	**Creative goods and services**	**9.3**	**72**	◇
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.8	75	◇
7.2.3	Entertainment and media market/th pop. 15–69	9.7	37	◇
7.2.4	Creative goods exports, % total trade	1.1	43	
7.3	**Online creativity**	**23.8**	**77**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	3.1	75	◇
7.3.2	GitHub commits/mn pop. 15–69	8.8	60	◇
7.3.3	Mobile app creation/bn PPP$ GDP	59.4	88	◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Bangladesh

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
95	**115**	**Lower middle**	**CSA**	**173.6**	**1,692.7**	**9,840**

		Score/ Value	Rank	
Institutions		**33.9**	**109**	
1.1	**Institutional environment**	**30.3**	**118**	
1.1.1	Operational stability for businesses*	34.7	123	
1.1.2	Government effectiveness*	25.9	111	
1.2	**Regulatory environment**	**32.8**	**109**	
1.2.1	Regulatory quality*	25.7	122	
1.2.2	Rule of law*	40.0	98	
1.3	**Business environment**	**38.5**	**[81]**	
1.3.1	Policy stability for doing business†	38.5	85	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**12.8**	**133**	○◇
2.1	**Education**	**23.4**	**134**	○◇
2.1.1	Expenditure on education, % GDP	2.0	129	○
2.1.2	Government funding/pupil, secondary, % GDP/cap	6.5	91	○
2.1.3	School life expectancy, years	11.1	104	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	28.6	121	○◇
2.2	**Tertiary education**	**6.1**	**122**	◇
2.2.1	Tertiary enrolment, % gross	24.2	98	
2.2.2	Graduates in science and engineering, %	11.1	115	○◇
2.2.3	Tertiary inbound mobility, %	0.1	115	○
2.3	**Research and development (R&D)**	**8.8**	**[67]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	17.7	57	●
Infrastructure		**36.4**	**90**	
3.1	**Information and communication technology (ICT)**	**63.3**	**94**	
3.1.1	ICT access*	52.5	114	
3.1.2	ICT use*	68.9	90	
3.1.3	Government online service*	68.4	67	◆
3.2	**General infrastructure**	**28.0**	**87**	
3.2.1	Electricity output, GWh/mn pop.	613.8	111	
3.2.2	Logistics performance*	22.7	82	
3.2.3	Gross capital formation, % GDP	31.0	21	●
3.3	**Ecological sustainability**	**17.9**	**82**	
3.3.1	GDP/unit of energy use	22.2	9	●◆
3.3.2	Low-carbon energy use, %	0.8	128	◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.2	118	
Market sophistication		**29.0**	**96**	
4.1	**Credit**	**23.8**	**82**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	37.6	80	
4.1.3	Loans from microfinance institutions, % GDP	3.3	11	●
4.2	**Investment**	**2.1**	**98**	
4.2.1	Market capitalization, % GDP	19.8	62	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	104	
4.2.3	Late-stage VC deal count, % global VC	0.0	52	●
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	108	○
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	103	
4.3	**Trade, diversification and market scale**	**61.0**	**93**	
4.3.1	Applied tariff rate, weighted avg., %	7.0	114	
4.3.2	Domestic industry diversification	67.1	80	
4.3.3	Domestic market scale, bn PPP$	1,692.7	23	●◆

		Score/ Value	Rank	
Business sophistication		**19.5**	**129**	○◇
5.1	**Knowledge workers**	**25.1**	**[115]**	
5.1.1	Knowledge-intensive employment, %	9.2	102	
5.1.2	Females employed w/advanced degrees, %	1.9	112	
5.1.3	Youth demographic dividend, %	46.6	40	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**16.1**	**105**	
5.2.1	Public research–industry co-publications, %	1.1	80	
5.2.2	University–industry R&D collaboration†	14.1	124	○◇
5.2.3	University industry and international engagement, top 5*	14.9	77	
5.2.4	State of cluster development†	41.2	84	
5.2.5	Patent families/bn PPP$ GDP	0.0	99	
5.3	**Knowledge absorption**	**17.1**	**125**	
5.3.1	Intellectual property payments, % total trade	0.1	117	
5.3.2	High-tech imports, % total trade	8.5	62	
5.3.3	ICT services imports, % total trade	0.2	134	○
5.3.4	FDI net inflows, % GDP	0.4	123	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**13.2**	**99**	
6.1	**Knowledge creation**	**7.3**	**[97]**	
6.1.1	Patents by origin/bn PPP$ GDP	0.0	124	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	3.6	117	
6.1.5	Citable documents H-index	14.5	59	●
6.2	**Knowledge impact**	**23.3**	**77**	
6.2.1	Labor productivity growth, %	3.5	11	●◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	78	
6.2.4	High-tech manufacturing, %	6.5	97	
6.3	**Knowledge diffusion**	**8.9**	**114**	
6.3.1	Intellectual property receipts, % total trade	0.0	114	
6.3.2	Production and export complexity	34.2	98	
6.3.3	High-tech exports, % total trade	0.2	111	
6.3.4	ICT services exports, % total trade	1.0	86	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.7	119	
Creative outputs		**18.1**	**86**	
7.1	**Intangible assets**	**23.9**	**71**	
7.1.1	Intangible asset intensity, top 15, %	55.7	42	
7.1.2	Trademarks by origin/bn PPP$ GDP	5.6	119	
7.1.3	Global brand value, top 5,000, % GDP	0.3	73	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.6	76	
7.2	**Creative goods and services**	**2.1**	**[113]**	
7.2.1	Cultural and creative services exports, % total trade	0.2	86	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	108	
7.3	**Online creativity**	**22.4**	**88**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.2	123	
7.3.2	GitHub commits/mn pop. 15–69	3.3	95	
7.3.3	Mobile app creation/bn PPP$ GDP	63.6	72	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Barbados

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
78	91	High	LCN	0.3	6.4	22,035

		Score/ Value	Rank	
Institutions		**54.1**	**56**	
1.1	**Institutional environment**	**63.9**	**45**	●
1.1.1	Operational stability for businesses*	75.3	35	●
1.1.2	Government effectiveness*	52.4	54	
1.2	**Regulatory environment**	**60.3**	**49**	
1.2.1	Regulatory quality*	58.3	49	
1.2.2	Rule of law*	62.3	49	
1.3	**Business environment**	**38.2**	**82**	
1.3.1	Policy stability for doing business†	45.6	71	⏲
1.3.2	Entrepreneurship policies and culture†	30.9	57	⏲
Human capital and research		**24.9**	**[89]**	
2.1	**Education**	**49.9**	**[70]**	
2.1.1	Expenditure on education, % GDP	4.0	75	
2.1.2	Government funding/pupil, secondary, % GDP/cap	20.0	45	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	14.7	79	◇
2.2	**Tertiary education**	**n/a**	**[n/a]**	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**26.9**	**121**	○◇
3.1	**Information and communication technology (ICT)**	**60.1**	**98**	◇
3.1.1	ICT access*	80.9	84	◇
3.1.2	ICT use*	59.7	105	◇
3.1.3	Government online service*	39.6	106	◇
3.2	**General infrastructure**	**14.0**	**[126]**	
3.2.1	Electricity output, GWh/mn pop.	n/a	n/a	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	16.2	121	○◇
3.3	**Ecological sustainability**	**6.6**	**128**	○◇
3.3.1	GDP/unit of energy use	n/a	n/a	
3.3.2	Low-carbon energy use, %	4.2	114	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.0	69	
Market sophistication		**17.6**	**127**	○◇
4.1	**Credit**	**30.1**	**65**	
4.1.1	Finance for startups and scaleups†	36.8	65	⏲
4.1.2	Domestic credit to private sector, % GDP	64.2	47	●
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**12.5**	**43**	●
4.2.1	Market capitalization, % GDP	58.5	33	⏲
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	29	●
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	56	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	89	◇
4.3	**Trade, diversification and market scale**	**10.1**	**139**	○◇
4.3.1	Applied tariff rate, weighted avg., %	11.7	135	○◇
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	6.4	137	○◇

		Score/ Value	Rank	
Business sophistication		**32.3**	**51**	
5.1	**Knowledge workers**	**35.4**	**[70]**	
5.1.1	Knowledge-intensive employment, %	30.8	48	⏲ ◇
5.1.2	Females employed w/advanced degrees, %	11.7	67	⏲ ◇
5.1.3	Youth demographic dividend, %	30.0	89	
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**38.4**	**34**	●
5.2.1	Public research–industry co-publications, %	0.8	104	◇
5.2.2	University–industry R&D collaboration†	16.6	120	⏲ ○◇
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	31.2	104	⏲ ◇
5.2.5	Patent families/bn PPP$ GDP	73.7	1	●◆
5.3	**Knowledge absorption**	**23.1**	**86**	◇
5.3.1	Intellectual property payments, % total trade	0.4	80	⏲
5.3.2	High-tech imports, % total trade	5.7	110	
5.3.3	ICT services imports, % total trade	1.6	62	⏲
5.3.4	FDI net inflows, % GDP	3.7	46	●
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**22.1**	**61**	
6.1	**Knowledge creation**	**50.6**	**13**	●◆
6.1.1	Patents by origin/bn PPP$ GDP	16.5	4	⏲ ●◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	7.6	1	●◆
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	14.8	47	●
6.1.5	Citable documents H-index	3.2	124	○◇
6.2	**Knowledge impact**	**6.0**	**[137]**	
6.2.1	Labor productivity growth, %	n/a	n/a	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	81	
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**9.7**	**107**	◇
6.3.1	Intellectual property receipts, % total trade	0.6	24	⏲ ●
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade	1.0	76	◇
6.3.4	ICT services exports, % total trade	0.4	112	⏲
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.2	88	
Creative outputs		**16.1**	**90**	◇
7.1	**Intangible assets**	**11.8**	**[98]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	30.0	63	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.3	93	◇
7.2	**Creative goods and services**	**21.7**	**52**	
7.2.1	Cultural and creative services exports, % total trade	0.5	62	
7.2.2	National feature films/mn pop. 15–69	9.8	9	●
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.7	55	
7.3	**Online creativity**	**19.0**	**101**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	8.3	52	
7.3.2	GitHub commits/mn pop. 15–69	7.1	67	◇
7.3.3	Mobile app creation/bn PPP$ GDP	41.5	117	○◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Belarus

GII 2025 rank

85

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
70	**102**	**Upper middle**	**EUR**	**9.1**	**293.1**	**32,098**

		Score/ Value	Rank	
Institutions		**14.8**	**137**	○◇
1.1	**Institutional environment**	**24.7**	**128**	◇
1.1.1	Operational stability for businesses*	30.7	124	◇
1.1.2	Government effectiveness*	18.7	128	◇
1.2	**Regulatory environment**	**17.9**	**136**	○◇
1.2.1	Regulatory quality*	14.0	136	○◇
1.2.2	Rule of law*	21.9	133	○◇
1.3	**Business environment**	**1.8**	**[135]**	
1.3.1	Policy stability for doing business†	n/a	n/a	
1.3.2	Entrepreneurship policies and culture†	1.8	92	○◇
Human capital and research		**40.4**	**39**	◆
2.1	**Education**	**62.9**	**27**	●
2.1.1	Expenditure on education, % GDP	5.0	41	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	14.3	67	
2.1.4	PISA scales in reading, maths and science	472.3	35	◆
2.1.5	Pupil–teacher ratio, secondary	10.0	33	●
2.2	**Tertiary education**	**48.8**	**12**	●◆
2.2.1	Tertiary enrolment, % gross	72.8	42	
2.2.2	Graduates in science and engineering, %	36.8	3	●◆
2.2.3	Tertiary inbound mobility, %	7.0	43	
2.3	**Research and development (R&D)**	**9.7**	**63**	
2.3.1	Researchers, FTE/mn pop.	1,504.4	48	
2.3.2	Gross expenditure on R&D, % GDP	0.6	61	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	15.4	61	
Infrastructure		**38.0**	**85**	
3.1	**Information and communication technology (ICT)**	**73.5**	**76**	
3.1.1	ICT access*	89.7	56	
3.1.2	ICT use*	81.9	52	
3.1.3	Government online service*	49.0	94	
3.2	**General infrastructure**	**27.1**	**90**	
3.2.1	Electricity output, GWh/mn pop.	4,278.0	52	
3.2.2	Logistics performance*	27.3	76	
3.2.3	Gross capital formation, % GDP	23.6	70	
3.3	**Ecological sustainability**	**13.6**	**102**	
3.3.1	GDP/unit of energy use	6.6	105	◇
3.3.2	Low-carbon energy use, %	11.0	90	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.9	49	
Market sophistication		**27.9**	**102**	
4.1	**Credit**	**7.0**	**123**	◇
4.1.1	Finance for startups and scaleups†	12.2	90	○◇
4.1.2	Domestic credit to private sector, % GDP	29.2	99	
4.1.3	Loans from microfinance institutions, % GDP	0.0	61	◇
4.2	**Investment**	**0.3**	**126**	○
4.2.1	Market capitalization, % GDP	3.7	80	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	124	○◇
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	115	○
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	116	○◇
4.3	**Trade, diversification and market scale**	**76.4**	**45**	
4.3.1	Applied tariff rate, weighted avg., %	2.1	66	
4.3.2	Domestic industry diversification	91.5	35	
4.3.3	Domestic market scale, bn PPP$	293.1	64	

		Score/ Value	Rank	
Business sophistication		**26.1**	**86**	
5.1	**Knowledge workers**	**43.1**	**45**	◆
5.1.1	Knowledge-intensive employment, %	42.9	25	●◆
5.1.2	Females employed w/advanced degrees, %	21.7	29	●◆
5.1.3	Youth demographic dividend, %	26.3	112	◇
5.1.4	GERD performed by business, % GDP	0.4	42	
5.1.5	GERD financed by business, %	45.0	34	
5.2	**Innovation linkages**	**15.7**	**[110]**	
5.2.1	Public research–industry co-publications, %	0.6	114	
5.2.2	University–industry R&D collaboration†	n/a	n/a	
5.2.3	University industry and international engagement, top 5*	42.2	44	
5.2.4	State of cluster development†	n/a	n/a	
5.2.5	Patent families/bn PPP$ GDP	0.0	76	
5.3	**Knowledge absorption**	**19.5**	**109**	◇
5.3.1	Intellectual property payments, % total trade	0.4	78	
5.3.2	High-tech imports, % total trade	5.4	116	
5.3.3	ICT services imports, % total trade	0.7	101	
5.3.4	FDI net inflows, % GDP	2.2	79	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**26.1**	**49**	
6.1	**Knowledge creation**	**13.1**	**70**	
6.1.1	Patents by origin/bn PPP$ GDP	1.4	41	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	75	
6.1.3	Utility models by origin/bn PPP$ GDP	0.9	20	●
6.1.4	Scientific and technical articles/bn PPP$ GDP	3.5	118	
6.1.5	Citable documents H-index	9.5	82	
6.2	**Knowledge impact**	**24.1**	**73**	
6.2.1	Labor productivity growth, %	1.9	30	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	118	
6.2.4	High-tech manufacturing, %	27.6	44	
6.3	**Knowledge diffusion**	**41.0**	**24**	●◆
6.3.1	Intellectual property receipts, % total trade	0.2	48	
6.3.2	Production and export complexity	64.8	36	●◆
6.3.3	High-tech exports, % total trade	2.0	62	
6.3.4	ICT services exports, % total trade	5.2	22	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	25.9	3	●◆
Creative outputs		**15.4**	**94**	
7.1	**Intangible assets**	**9.9**	**102**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	16.5	95	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.0	64	
7.2	**Creative goods and services**	**7.4**	**81**	
7.2.1	Cultural and creative services exports, % total trade	0.4	72	
7.2.2	National feature films/mn pop. 15–69	0.5	84	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.9	46	
7.3	**Online creativity**	**34.6**	**43**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	4.3	65	
7.3.2	GitHub commits/mn pop. 15–69	21.1	42	◆
7.3.3	Mobile app creation/bn PPP$ GDP	78.3	11	●◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Belgium

21

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
23	23	High	EUR	11.7	863.8	73,222

		Score/ Value	Rank	
Institutions		**68.1**	**29**	
1.1	**Institutional environment**	**69.9**	**31**	◇
1.1.1	Operational stability for businesses*	71.3	42	
1.1.2	Government effectiveness*	68.5	30	◇
1.2	**Regulatory environment**	**78.7**	**22**	
1.2.1	Regulatory quality*	73.7	24	
1.2.2	Rule of law*	83.7	20	
1.3	**Business environment**	**55.6**	**49**	
1.3.1	Policy stability for doing business†	60.9	44	
1.3.2	Entrepreneurship policies and culture† ⏲	50.2	29	
Human capital and research		**54.9**	**16**	
2.1	**Education**	**70.0**	**7**	● ◆
2.1.1	Expenditure on education, % GDP ⏲	6.4	13	● ◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	24.3	22	
2.1.3	School life expectancy, years ⏲	19.0	7	● ◆
2.1.4	PISA scales in reading, maths and science	486.3	20	
2.1.5	Pupil–teacher ratio, secondary ⏲	8.4	14	◆
2.2	**Tertiary education**	**34.6**	**50**	
2.2.1	Tertiary enrolment, % gross ⏲	83.6	18	
2.2.2	Graduates in science and engineering, %	18.8	91	○ ◇
2.2.3	Tertiary inbound mobility, % ⏲	10.1	27	
2.3	**Research and development (R&D)**	**60.3**	**15**	
2.3.1	Researchers, FTE/mn pop.	7,091.5	7	●
2.3.2	Gross expenditure on R&D, % GDP	3.3	6	●
2.3.3	Global corporate R&D investors, top 3, mn USD	63.9	20	
2.3.4	QS university ranking, top 3*	56.8	18	
Infrastructure		**51.7**	**43**	◇
3.1	**Information and communication technology (ICT)**	**80.1**	**57**	◇
3.1.1	ICT access*	95.0	45	
3.1.2	ICT use*	78.8	64	○ ◇
3.1.3	Government online service*	66.6	70	○ ◇
3.2	**General infrastructure**	**52.5**	**17**	
3.2.1	Electricity output, GWh/mn pop.	6,904.8	26	
3.2.2	Logistics performance*	86.4	7	
3.2.3	Gross capital formation, % GDP	25.7	42	
3.3	**Ecological sustainability**	**22.5**	**60**	
3.3.1	GDP/unit of energy use	12.5	51	
3.3.2	Low-carbon energy use, %	24.2	53	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.4	59	
Market sophistication		**53.4**	**20**	
4.1	**Credit**	**57.5**	**17**	
4.1.1	Finance for startups and scaleups† ⏲	89.3	5	
4.1.2	Domestic credit to private sector, % GDP	70.0	41	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**21.2**	**31**	◇
4.2.1	Market capitalization, % GDP ⏲	75.4	25	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	25	
4.2.3	Late-stage VC deal count, % global VC	0.3	18	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.6	23	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.3	26	
4.3	**Trade, diversification and market scale**	**81.4**	**24**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	90.3	38	
4.3.3	Domestic market scale, bn PPP$	863.8	35	

		Score/ Value	Rank	
Business sophistication		**55.5**	**10**	●
5.1	**Knowledge workers**	**64.9**	**6**	●
5.1.1	Knowledge-intensive employment, %	50.4	11	●
5.1.2	Females employed w/advanced degrees, %	27.6	14	
5.1.3	Youth demographic dividend, %	27.4	104	○
5.1.4	GERD performed by business, % GDP	2.5	6	●
5.1.5	GERD financed by business, % ⏲	64.4	7	●
5.2	**Innovation linkages**	**58.9**	**18**	
5.2.1	Public research–industry co-publications, %	4.6	17	
5.2.2	University–industry R&D collaboration†	62.6	18	
5.2.3	University industry and international engagement, top 5*	85.8	14	
5.2.4	State of cluster development†	70.2	32	
5.2.5	Patent families/bn PPP$ GDP	2.2	16	
5.3	**Knowledge absorption**	**42.9**	**19**	
5.3.1	Intellectual property payments, % total trade	0.7	57	
5.3.2	High-tech imports, % total trade	11.6	28	
5.3.3	ICT services imports, % total trade	3.3	14	●
5.3.4	FDI net inflows, % GDP	2.5	70	○
5.3.5	Research talent, % in businesses	62.5	11	
Knowledge and technology outputs		**41.4**	**16**	
6.1	**Knowledge creation**	**47.0**	**15**	
6.1.1	Patents by origin/bn PPP$ GDP	4.0	17	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.5	16	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	26.1	22	
6.1.5	Citable documents H-index	54.2	14	●
6.2	**Knowledge impact**	**42.1**	**22**	
6.2.1	Labor productivity growth, %	0.6	78	○
6.2.2	Unicorn valuation, % GDP	1.7	25	
6.2.3	Software spending, % GDP	0.5	18	
6.2.4	High-tech manufacturing, %	38.3	25	
6.3	**Knowledge diffusion**	**34.9**	**33**	
6.3.1	Intellectual property receipts, % total trade	0.8	22	
6.3.2	Production and export complexity	73.6	24	
6.3.3	High-tech exports, % total trade	9.8	20	
6.3.4	ICT services exports, % total trade	3.7	35	
6.3.5	ISO 9001 quality/bn PPP$ GDP	3.6	67	○
Creative outputs		**39.1**	**31**	◇
7.1	**Intangible assets**	**36.3**	**46**	◇
7.1.1	Intangible asset intensity, top 15, %	57.7	39	○
7.1.2	Trademarks by origin/bn PPP$ GDP	23.7	80	○
7.1.3	Global brand value, top 5,000, % GDP	5.7	30	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.5	44	
7.2	**Creative goods and services**	**25.3**	**45**	◇
7.2.1	Cultural and creative services exports, % total trade	1.2	22	
7.2.2	National feature films/mn pop. 15–69	3.9	38	
7.2.3	Entertainment and media market/th pop. 15–69	45.1	17	
7.2.4	Creative goods exports, % total trade	0.8	47	
7.3	**Online creativity**	**58.4**	**25**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	47.2	19	
7.3.2	GitHub commits/mn pop. 15–69	66.1	14	
7.3.3	Mobile app creation/bn PPP$ GDP	61.9	79	○ ◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Benin

GII 2025 rank **118**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
122	111	Lower middle	SSA	14.5	63.5	4,501

		Score/ Value	Rank	
Institutions		**50.0**	**67**	●◆
1.1	**Institutional environment**	**44.8**	**90**	
1.1.1	Operational stability for businesses*	52.0	93	
1.1.2	Government effectiveness*	37.7	85	
1.2	**Regulatory environment**	**39.9**	**95**	
1.2.1	Regulatory quality*	39.9	90	
1.2.2	Rule of law*	40.0	99	
1.3	**Business environment**	**65.1**	**[26]**	
1.3.1	Policy stability for doing business† ⏲	65.1	35	●◆
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**17.4**	**118**	
2.1	**Education**	**35.4**	**119**	
2.1.1	Expenditure on education, % GDP	3.7	88	
2.1.2	Government funding/pupil, secondary, % GDP/cap ⏲	8.2	89	
2.1.3	School life expectancy, years ⏲	10.0	111	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	16.2	87	
2.2	**Tertiary education**	**17.0**	**105**	
2.2.1	Tertiary enrolment, % gross ⏲	10.2	119	
2.2.2	Graduates in science and engineering, %	21.8	70	●
2.2.3	Tertiary inbound mobility, % ⏲	3.1	67	●
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**28.4**	**115**	
3.1	**Information and communication technology (ICT)**	**40.0**	**122**	
3.1.1	ICT access*	42.2	129	◇
3.1.2	ICT use*	35.6	120	◇
3.1.3	Government online service*	42.3	102	
3.2	**General infrastructure**	**39.1**	**46**	●◆
3.2.1	Electricity output, GWh/mn pop. ⏲	74.9	128	○
3.2.2	Logistics performance*	36.4	65	
3.2.3	Gross capital formation, % GDP	38.2	7	●◆
3.3	**Ecological sustainability**	**6.1**	**131**	◇
3.3.1	GDP/unit of energy use	8.7	90	
3.3.2	Low-carbon energy use, %	0.5	131	◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.2	122	
Market sophistication		**15.6**	**132**	◇
4.1	**Credit**	**13.3**	**110**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	18.6	118	
4.1.3	Loans from microfinance institutions, % GDP	2.1	21	●
4.2	**Investment**	**2.4**	**[93]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	95	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**31.2**	**132**	◇
4.3.1	Applied tariff rate, weighted avg., %	9.8	126	◇
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	63.5	110	

		Score/ Value	Rank	
Business sophistication		**24.0**	**99**	
5.1	**Knowledge workers**	**31.7**	**[93]**	
5.1.1	Knowledge-intensive employment, % ⏲	4.6	114	◇
5.1.2	Females employed w/advanced degrees, % ⏲	1.1	116	◇
5.1.3	Youth demographic dividend, %	60.9	15	●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**18.2**	**97**	
5.2.1	Public research–industry co-publications, %	0.2	139	○◇
5.2.2	University–industry R&D collaboration† ⏲	29.4	85	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development† ⏲	43.5	75	●
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**22.0**	**93**	
5.3.1	Intellectual property payments, % total trade ⏲	0.0	128	◇
5.3.2	High-tech imports, % total trade	5.6	111	
5.3.3	ICT services imports, % total trade ⏲	2.4	34	●◆
5.3.4	FDI net inflows, % GDP	2.1	86	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**12.6**	**102**	
6.1	**Knowledge creation**	**5.7**	**110**	
6.1.1	Patents by origin/bn PPP$ GDP	0.4	76	●
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP	8.0	85	
6.1.5	Citable documents H-index	4.1	115	
6.2	**Knowledge impact**	**24.1**	**74**	●
6.2.1	Labor productivity growth, %	2.8	17	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	105	
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**8.1**	**118**	
6.3.1	Intellectual property receipts, % total trade ⏲	0.0	109	
6.3.2	Production and export complexity	35.4	97	
6.3.3	High-tech exports, % total trade	0.1	133	○
6.3.4	ICT services exports, % total trade ⏲	0.3	117	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.7	118	
Creative outputs		**4.5**	**133**	◇
7.1	**Intangible assets**	**1.4**	**134**	○◇
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	3.6	129	◇
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.1	117	
7.2	**Creative goods and services**	**1.3**	**[119]**	
7.2.1	Cultural and creative services exports, % total trade ⏲	0.1	94	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	129	
7.3	**Online creativity**	**13.7**	**121**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.3	121	
7.3.2	GitHub commits/mn pop. 15–69	0.9	120	
7.3.3	Mobile app creation/bn PPP$ GDP	39.8	122	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Bolivia (Plurinational State of)

111

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
117	101	Lower middle	LCN	12.4	139.2	11,323

		Score/ Value	Rank
Institutions		**17.7**	**134** ○◇
1.1	**Institutional environment**	**32.0**	**114**
1.1.1	Operational stability for businesses*	36.7	121
1.1.2	Government effectiveness*	27.4	106
1.2	**Regulatory environment**	**21.1**	**133** ○◇
1.2.1	Regulatory quality*	19.6	132 ○◇
1.2.2	Rule of law*	22.6	132 ○◇
1.3	**Business environment**	**0.0**	**[137]**
1.3.1	Policy stability for doing business†	0.0	135 ○◇
1.3.2	Entrepreneurship policies and culture†	n/a	n/a
Human capital and research		**39.3**	**[41]**
2.1	**Education**	**78.4**	**[2]**
2.1.1	Expenditure on education, % GDP	8.3	2 ●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a
2.1.3	School life expectancy, years	n/a	n/a
2.1.4	PISA scales in reading, maths and science	n/a	n/a
2.1.5	Pupil–teacher ratio, secondary	18.2	97
2.2	**Tertiary education**	**n/a**	**[n/a]**
2.2.1	Tertiary enrolment, % gross	n/a	n/a
2.2.2	Graduates in science and engineering, %	n/a	n/a
2.2.3	Tertiary inbound mobility, %	n/a	n/a
2.3	**Research and development (R&D)**	**0.2**	**117**
2.3.1	Researchers, FTE/mn pop. ⏲	63.1	95
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44 ○◇
2.3.4	QS university ranking, top 3*	0.0	80 ○◇
Infrastructure		**25.9**	**124**
3.1	**Information and communication technology (ICT)**	**55.7**	**108**
3.1.1	ICT access*	59.6	108
3.1.2	ICT use*	n/a	n/a
3.1.3	Government online service*	51.7	90
3.2	**General infrastructure**	**11.2**	**129** ◇
3.2.1	Electricity output, GWh/mn pop. ⏲	933.7	101
3.2.2	Logistics performance*	13.6	104
3.2.3	Gross capital formation, % GDP	16.9	117 ◇
3.3	**Ecological sustainability**	**10.8**	**110**
3.3.1	GDP/unit of energy use	9.3	83
3.3.2	Low-carbon energy use, %	9.5	94
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.4	100
Market sophistication		**42.0**	**40** ●◆
4.1	**Credit**	**63.7**	**9** ●◆
4.1.1	Finance for startups and scaleups†	n/a	n/a
4.1.2	Domestic credit to private sector, % GDP ⏲	74.2	38 ●
4.1.3	Loans from microfinance institutions, % GDP	17.3	1 ●◆
4.2	**Investment**	**0.7**	**[118]**
4.2.1	Market capitalization, % GDP	n/a	n/a
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP ⏲	0.0	109
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	109 ○
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	112 ○
4.3	**Trade, diversification and market scale**	**61.5**	**90**
4.3.1	Applied tariff rate, weighted avg., %	5.2	97
4.3.2	Domestic industry diversification ⏲	78.1	70
4.3.3	Domestic market scale, bn PPP$	139.2	87

		Score/ Value	Rank
Business sophistication		**22.8**	**106**
5.1	**Knowledge workers**	**42.4**	**[46]**
5.1.1	Knowledge-intensive employment, % ⏲	15.5	87
5.1.2	Females employed w/advanced degrees, % ⏲	14.2	56 ●◆
5.1.3	Youth demographic dividend, %	47.8	37 ●
5.1.4	GERD performed by business, % GDP	n/a	n/a
5.1.5	GERD financed by business, %	n/a	n/a
5.2	**Innovation linkages**	**9.5**	**132** ○◇
5.2.1	Public research–industry co-publications, %	1.0	87
5.2.2	University–industry R&D collaboration†	9.3	129 ○◇
5.2.3	University industry and international engagement, top 5*	n/a	n/a
5.2.4	State of cluster development†	19.2	128 ○◇
5.2.5	Patent families/bn PPP$ GDP	0.0	84 ●
5.3	**Knowledge absorption**	**16.5**	**128**
5.3.1	Intellectual property payments, % total trade	0.2	101
5.3.2	High-tech imports, % total trade	8.7	58 ●
5.3.3	ICT services imports, % total trade	0.6	111
5.3.4	FDI net inflows, % GDP	0.7	114
5.3.5	Research talent, % in businesses ⏲	4.0	73
Knowledge and technology outputs		**8.6**	**126**
6.1	**Knowledge creation**	**3.3**	**123**
6.1.1	Patents by origin/bn PPP$ GDP ⏲	0.1	117
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.1	58
6.1.4	Scientific and technical articles/bn PPP$ GDP	2.2	126
6.1.5	Citable documents H-index	6.3	94
6.2	**Knowledge impact**	**15.0**	**121**
6.2.1	Labor productivity growth, %	−1.9	128 ◇
6.2.2	Unicorn valuation, % GDP	0.0	53 ○◇
6.2.3	Software spending, % GDP	0.3	41 ●◆
6.2.4	High-tech manufacturing, % ⏲	10.4	84
6.3	**Knowledge diffusion**	**7.3**	**122**
6.3.1	Intellectual property receipts, % total trade	0.0	105
6.3.2	Production and export complexity	25.4	120
6.3.3	High-tech exports, % total trade	0.6	93
6.3.4	ICT services exports, % total trade	0.4	115
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.8	92
Creative outputs		**10.9**	**106**
7.1	**Intangible assets**	**12.8**	**[92]**
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a
7.1.2	Trademarks by origin/bn PPP$ GDP ⏲	38.0	47 ●◆
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a
7.1.4	Industrial designs by origin/bn PPP$ GDP ⏲	0.2	100
7.2	**Creative goods and services**	**1.2**	**121**
7.2.1	Cultural and creative services exports, % total trade	0.0	112
7.2.2	National feature films/mn pop. 15–69	0.5	83
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a
7.2.4	Creative goods exports, % total trade	0.1	100
7.3	**Online creativity**	**16.8**	**110**
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.0	102
7.3.2	GitHub commits/mn pop. 15–69	5.0	81 ●
7.3.3	Mobile app creation/bn PPP$ GDP	44.5	111

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

Bosnia and Herzegovina

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
88	99	Upper middle	EUR	3.2	74.3	21,498

		Score/ Value	Rank	
Institutions		**28.5**	**121**	◇
1.1	**Institutional environment**	**34.3**	**112**	
1.1.1	Operational stability for businesses*	49.3	98	
1.1.2	Government effectiveness*	19.3	127	◇
1.2	**Regulatory environment**	**43.6**	**84**	
1.2.1	Regulatory quality*	43.5	82	
1.2.2	Rule of law*	43.7	87	
1.3	**Business environment**	**7.7**	**132**	○◇
1.3.1	Policy stability for doing business†	15.3	127	○◇
1.3.2	Entrepreneurship policies and culture†	0.0	93	○◇
Human capital and research		**28.7**	**77**	
2.1	**Education**	**53.0**	**61**	
2.1.1	Expenditure on education, % GDP	3.0	111	
2.1.2	Government funding/pupil, secondary, % GDP/cap	33.0	6	●◆
2.1.3	School life expectancy, years	14.3	66	
2.1.4	PISA scales in reading, maths and science	402.6	61	
2.1.5	Pupil–teacher ratio, secondary	8.3	13	●
2.2	**Tertiary education**	**30.6**	**66**	
2.2.1	Tertiary enrolment, % gross	45.5	76	
2.2.2	Graduates in science and engineering, %	24.2	48	
2.2.3	Tertiary inbound mobility, %	7.9	39	◆
2.3	**Research and development (R&D)**	**2.3**	**93**	
2.3.1	Researchers, FTE/mn pop.	669.8	66	
2.3.2	Gross expenditure on R&D, % GDP	0.2	88	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**41.5**	**72**	
3.1	**Information and communication technology (ICT)**	**64.7**	**93**	
3.1.1	ICT access*	81.3	83	
3.1.2	ICT use*	72.8	82	
3.1.3	Government online service*	39.9	104	◇
3.2	**General infrastructure**	**35.3**	**57**	
3.2.1	Electricity output, GWh/mn pop.	5,061.9	43	◆
3.2.2	Logistics performance*	40.9	60	
3.2.3	Gross capital formation, % GDP	26.2	40	●
3.3	**Ecological sustainability**	**24.6**	**52**	
3.3.1	GDP/unit of energy use	7.1	101	
3.3.2	Low-carbon energy use, %	23.0	57	
3.3.3	ISO 14001 environment/bn PPP$ GDP	4.0	25	●
Market sophistication		**33.5**	**80**	
4.1	**Credit**	**25.3**	**76**	
4.1.1	Finance for startups and scaleups†	32.6	74	
4.1.2	Domestic credit to private sector, % GDP	47.5	71	
4.1.3	Loans from microfinance institutions, % GDP	2.6	19	●
4.2	**Investment**	**0.6**	**[120]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	117	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**74.7**	**51**	
4.3.1	Applied tariff rate, weighted avg., %	1.5	54	
4.3.2	Domestic industry diversification	95.2	20	●
4.3.3	Domestic market scale, bn PPP$	74.3	102	

		Score/ Value	Rank	
Business sophistication		**18.4**	**130**	◇
5.1	**Knowledge workers**	**25.7**	**113**	
5.1.1	Knowledge-intensive employment, %	25.9	55	
5.1.2	Females employed w/advanced degrees, %	9.7	75	
5.1.3	Youth demographic dividend, %	23.3	133	○◇
5.1.4	GERD performed by business, % GDP	0.1	60	
5.1.5	GERD financed by business, %	38.7	48	
5.2	**Innovation linkages**	**11.4**	**124**	◇
5.2.1	Public research–industry co-publications, %	1.3	69	
5.2.2	University–industry R&D collaboration†	12.3	126	○◇
5.2.3	University industry and international engagement, top 5*	1.4	102	○◇
5.2.4	State of cluster development†	29.1	111	
5.2.5	Patent families/bn PPP$ GDP	0.1	60	
5.3	**Knowledge absorption**	**18.2**	**119**	◇
5.3.1	Intellectual property payments, % total trade	0.1	110	◇
5.3.2	High-tech imports, % total trade	6.9	88	
5.3.3	ICT services imports, % total trade	0.4	122	◇
5.3.4	FDI net inflows, % GDP	3.5	49	
5.3.5	Research talent, % in businesses	11.5	60	
Knowledge and technology outputs		**20.3**	**72**	
6.1	**Knowledge creation**	**10.0**	**82**	
6.1.1	Patents by origin/bn PPP$ GDP	0.6	69	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	71	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.5	64	
6.1.5	Citable documents H-index	5.3	99	
6.2	**Knowledge impact**	**21.3**	**88**	
6.2.1	Labor productivity growth, %	1.8	35	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	98	
6.2.4	High-tech manufacturing, %	16.8	70	
6.3	**Knowledge diffusion**	**29.6**	**42**	●
6.3.1	Intellectual property receipts, % total trade	0.1	74	
6.3.2	Production and export complexity	66.9	33	●◆
6.3.3	High-tech exports, % total trade	2.8	53	
6.3.4	ICT services exports, % total trade	3.1	43	●
6.3.5	ISO 9001 quality/bn PPP$ GDP	13.6	16	●◆
Creative outputs		**13.1**	**99**	
7.1	**Intangible assets**	**12.8**	**91**	
7.1.1	Intangible asset intensity, top 15, %	–27.9	77	○◇
7.1.2	Trademarks by origin/bn PPP$ GDP	15.0	102	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.4	48	
7.2	**Creative goods and services**	**7.0**	**82**	
7.2.1	Cultural and creative services exports, % total trade	0.2	78	
7.2.2	National feature films/mn pop. 15–69	2.6	49	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.3	72	
7.3	**Online creativity**	**19.9**	**98**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	3.9	68	
7.3.2	GitHub commits/mn pop. 15–69	8.7	61	
7.3.3	Mobile app creation/bn PPP$ GDP	47.1	108	◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Botswana

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
115	58	Upper middle	SSA	2.5	53.6	19,723

		Score/ Value	Rank	
Institutions		**60.3**	**42**	◆
1.1	**Institutional environment**	**64.2**	**41**	●◆
1.1.1	Operational stability for businesses*	74.7	37	●◆
1.1.2	Government effectiveness*	53.6	48	◆
1.2	**Regulatory environment**	**60.0**	**50**	◆
1.2.1	Regulatory quality*	58.2	50	
1.2.2	Rule of law*	61.7	51	◆
1.3	**Business environment**	**56.7**	**43**	
1.3.1	Policy stability for doing business†	64.4	37	●◆
1.3.2	Entrepreneurship policies and culture† ⏲	48.9	35	
Human capital and research		**28.9**	**[76]**	
2.1	**Education**	**70.4**	**[6]**	
2.1.1	Expenditure on education, % GDP ⏲	8.1	3	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years ⏲	12.2	96	◇
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	11.7	53	
2.2	**Tertiary education**	**16.2**	**107**	◇
2.2.1	Tertiary enrolment, % gross	20.6	103	◇
2.2.2	Graduates in science and engineering, %	18.1	93	
2.2.3	Tertiary inbound mobility, %	4.2	59	
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**35.2**	**94**	
3.1	**Information and communication technology (ICT)**	**59.4**	**101**	
3.1.1	ICT access*	79.8	86	
3.1.2	ICT use*	70.9	87	
3.1.3	Government online service*	27.6	123	◇
3.2	**General infrastructure**	**35.3**	**58**	
3.2.1	Electricity output, GWh/mn pop. ⏲	969.6	98	◇
3.2.2	Logistics performance*	45.5	56	
3.2.3	Gross capital formation, % GDP	30.2	23	●
3.3	**Ecological sustainability**	**10.8**	**111**	
3.3.1	GDP/unit of energy use	14.1	38	●
3.3.2	Low-carbon energy use, %	0.1	136	○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.2	116	
Market sophistication		**42.1**	**39**	●
4.1	**Credit**	**33.4**	**55**	
4.1.1	Finance for startups and scaleups† ⏲	59.6	33	
4.1.2	Domestic credit to private sector, % GDP	30.1	96	
4.1.3	Loans from microfinance institutions, % GDP	3.0	15	●
4.2	**Investment**	**21.9**	**[29]**	
4.2.1	Market capitalization, % GDP	63.8	31	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**71.2**	**60**	
4.3.1	Applied tariff rate, weighted avg., %	0.7	9	●
4.3.2	Domestic industry diversification	81.7	62	
4.3.3	Domestic market scale, bn PPP$	53.6	119	◇

		Score/ Value	Rank	
Business sophistication		**29.9**	**62**	
5.1	**Knowledge workers**	**51.3**	**[26]**	
5.1.1	Knowledge-intensive employment, % ⏲	21.8	70	
5.1.2	Females employed w/advanced degrees, % ⏲	17.5	45	
5.1.3	Youth demographic dividend, %	51.0	31	●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**12.1**	**122**	
5.2.1	Public research–industry co-publications, %	0.6	113	
5.2.2	University–industry R&D collaboration†	0.8	133	○◇
5.2.3	University industry and international engagement, top 5*	24.4	62	
5.2.4	State of cluster development†	30.7	108	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**26.2**	**74**	
5.3.1	Intellectual property payments, % total trade	1.2	30	●
5.3.2	High-tech imports, % total trade	4.7	122	◇
5.3.3	ICT services imports, % total trade	2.1	35	●
5.3.4	FDI net inflows, % GDP	1.7	96	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**11.7**	**107**	
6.1	**Knowledge creation**	**6.7**	**101**	
6.1.1	Patents by origin/bn PPP$ GDP	0.2	97	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	40	
6.1.4	Scientific and technical articles/bn PPP$ GDP	8.6	78	
6.1.5	Citable documents H-index	5.4	98	
6.2	**Knowledge impact**	**21.4**	**87**	
6.2.1	Labor productivity growth, %	1.0	63	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	87	
6.2.4	High-tech manufacturing, %	20.1	65	
6.3	**Knowledge diffusion**	**7.1**	**125**	◇
6.3.1	Intellectual property receipts, % total trade	0.0	110	
6.3.2	Production and export complexity	29.3	111	◇
6.3.3	High-tech exports, % total trade	0.4	99	
6.3.4	ICT services exports, % total trade	0.4	111	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.5	127	○
Creative outputs		**8.3**	**116**	◇
7.1	**Intangible assets**	**11.7**	**99**	
7.1.1	Intangible asset intensity, top 15, %	−16.3	73	◇
7.1.2	Trademarks by origin/bn PPP$ GDP	29.0	67	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.3	99	
7.2	**Creative goods and services**	**4.0**	**[104]**	
7.2.1	Cultural and creative services exports, % total trade	0.2	80	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.3	76	
7.3	**Online creativity**	**5.7**	**130**	○◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.8	89	
7.3.2	GitHub commits/mn pop. 15–69	2.0	110	
7.3.3	Mobile app creation/bn PPP$ GDP ⏲	13.2	130	○◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Brazil

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
50	63	Upper middle	LCN	212.0	4,702.0	22,123

		Score/ Value	Rank	
Institutions		**34.2**	**107**	○
1.1	**Institutional environment**	**43.8**	**91**	
1.1.1	Operational stability for businesses*	58.0	78	
1.1.2	Government effectiveness*	29.6	102	○
1.2	**Regulatory environment**	**42.3**	**87**	
1.2.1	Regulatory quality*	39.9	91	
1.2.2	Rule of law*	44.7	84	
1.3	**Business environment**	**16.5**	**129**	○ ◇
1.3.1	Policy stability for doing business†	14.3	128	○ ◇
1.3.2	Entrepreneurship policies and culture†	18.7	78	○
Human capital and research		**37.5**	**48**	
2.1	**Education**	**51.5**	**66**	
2.1.1	Expenditure on education, % GDP	5.5	23	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	20.5	43	
2.1.3	School life expectancy, years	15.8	39	
2.1.4	PISA scales in reading, maths and science	397.3	64	○
2.1.5	Pupil–teacher ratio, secondary	14.5	73	
2.2	**Tertiary education**	**19.0**	**98**	
2.2.1	Tertiary enrolment, % gross	60.4	52	
2.2.2	Graduates in science and engineering, %	16.3	100	○
2.2.3	Tertiary inbound mobility, %	0.2	110	○
2.3	**Research and development (R&D)**	**42.1**	**26**	◆
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	1.1	36	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	60.5	24	◆
2.3.4	QS university ranking, top 3*	47.9	26	◆
Infrastructure		**45.5**	**60**	
3.1	**Information and communication technology (ICT)**	**83.1**	**51**	
3.1.1	ICT access*	86.1	66	
3.1.2	ICT use*	74.5	80	
3.1.3	Government online service*	88.7	21	● ◆
3.2	**General infrastructure**	**26.3**	**92**	
3.2.1	Electricity output, GWh/mn pop.	3,269.6	63	
3.2.2	Logistics performance*	50.0	50	
3.2.3	Gross capital formation, % GDP	16.7	118	○ ◇
3.3	**Ecological sustainability**	**27.2**	**47**	
3.3.1	GDP/unit of energy use	10.5	72	
3.3.2	Low-carbon energy use, %	44.4	18	● ◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.8	77	
Market sophistication		**35.4**	**71**	
4.1	**Credit**	**20.9**	**88**	
4.1.1	Finance for startups and scaleups†	36.2	67	
4.1.2	Domestic credit to private sector, % GDP	71.6	39	
4.1.3	Loans from microfinance institutions, % GDP	0.0	62	○ ◇
4.2	**Investment**	**10.9**	**46**	
4.2.1	Market capitalization, % GDP	52.2	37	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	49	◆
4.2.3	Late-stage VC deal count, % global VC	0.4	16	●
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	57	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	48	
4.3	**Trade, diversification and market scale**	**74.4**	**53**	
4.3.1	Applied tariff rate, weighted avg., %	6.3	106	○
4.3.2	Domestic industry diversification	91.9	31	
4.3.3	Domestic market scale, bn PPP$	4,702.0	7	● ◆

		Score/ Value	Rank	
Business sophistication		**36.6**	**39**	◆
5.1	**Knowledge workers**	**42.4**	**47**	◆
5.1.1	Knowledge-intensive employment, %	25.1	57	
5.1.2	Females employed w/advanced degrees, %	15.2	51	
5.1.3	Youth demographic dividend, %	33.6	76	
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	43.2	40	
5.2	**Innovation linkages**	**27.3**	**61**	
5.2.1	Public research–industry co-publications, %	1.8	56	
5.2.2	University–industry R&D collaboration†	29.5	84	
5.2.3	University industry and international engagement, top 5*	46.6	38	
5.2.4	State of cluster development†	40.6	86	
5.2.5	Patent families/bn PPP$ GDP	0.1	51	
5.3	**Knowledge absorption**	**40.0**	**28**	◆
5.3.1	Intellectual property payments, % total trade	1.8	17	● ◆
5.3.2	High-tech imports, % total trade	13.1	19	●
5.3.3	ICT services imports, % total trade	3.2	17	● ◆
5.3.4	FDI net inflows, % GDP	3.2	55	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**25.8**	**50**	
6.1	**Knowledge creation**	**19.9**	**54**	
6.1.1	Patents by origin/bn PPP$ GDP	1.1	51	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	54	
6.1.3	Utility models by origin/bn PPP$ GDP	0.5	28	
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.4	65	
6.1.5	Citable documents H-index	39.6	24	● ◆
6.2	**Knowledge impact**	**39.4**	**25**	◆
6.2.1	Labor productivity growth, %	1.5	45	
6.2.2	Unicorn valuation, % GDP	1.6	28	◆
6.2.3	Software spending, % GDP	0.4	26	◆
6.2.4	High-tech manufacturing, %	35.7	29	◆
6.3	**Knowledge diffusion**	**18.1**	**70**	
6.3.1	Intellectual property receipts, % total trade	0.2	43	◆
6.3.2	Production and export complexity	47.8	64	
6.3.3	High-tech exports, % total trade	2.3	57	
6.3.4	ICT services exports, % total trade	1.6	71	
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.1	61	
Creative outputs		**29.9**	**50**	
7.1	**Intangible assets**	**41.7**	**29**	
7.1.1	Intangible asset intensity, top 15, %	65.9	21	
7.1.2	Trademarks by origin/bn PPP$ GDP	86.9	9	●
7.1.3	Global brand value, top 5,000, % GDP	3.4	37	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.2	55	
7.2	**Creative goods and services**	**6.3**	**89**	
7.2.1	Cultural and creative services exports, % total trade	0.5	52	
7.2.2	National feature films/mn pop. 15–69	1.0	71	○
7.2.3	Entertainment and media market/th pop. 15–69	6.2	44	
7.2.4	Creative goods exports, % total trade	0.2	81	
7.3	**Online creativity**	**30.0**	**54**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	6.8	53	
7.3.2	GitHub commits/mn pop. 15–69	12.5	55	
7.3.3	Mobile app creation/bn PPP$ GDP	70.7	41	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Brunei Darussalam

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
134	47	High	SEAO	0.5	41.0	91,046

			Score/ Value	Rank	
Institutions			**69.7**	**24**	●
1.1	**Institutional environment**		**88.8**	**4**	●◆
1.1.1	Operational stability for businesses*		100.0	1	●◆
1.1.2	Government effectiveness*		77.5	18	●
1.2	**Regulatory environment**		**71.5**	**31**	●
1.2.1	Regulatory quality*		69.3	32	●
1.2.2	Rule of law*		73.8	30	●
1.3	**Business environment**		**48.9**	**[60]**	
1.3.1	Policy stability for doing business†	⏲	48.9	62	
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**33.2**	**60**	◇
2.1	**Education**		**54.4**	**58**	
2.1.1	Expenditure on education, % GDP	⏲	4.4	59	
2.1.2	Government funding/pupil, secondary, % GDP/cap	⏲	24.0	24	
2.1.3	School life expectancy, years		13.6	75	◇
2.1.4	PISA scales in reading, maths and science		439.1	44	
2.1.5	Pupil–teacher ratio, secondary		8.1	11	●◆
2.2	**Tertiary education**		**38.5**	**38**	
2.2.1	Tertiary enrolment, % gross		36.4	86	◇
2.2.2	Graduates in science and engineering, %		35.9	7	●◆
2.2.3	Tertiary inbound mobility, %		4.7	54	
2.3	**Research and development (R&D)**		**6.8**	**73**	◇
2.3.1	Researchers, FTE/mn pop.	⏲	506.2	73	◇
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.3	79	◇
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		18.0	54	
Infrastructure			**44.7**	**62**	◇
3.1	**Information and communication technology (ICT)**		**77.7**	**62**	◇
3.1.1	ICT access*		97.8	25	●
3.1.2	ICT use*		85.9	31	
3.1.3	Government online service*		49.5	93	◇
3.2	**General infrastructure**		**51.9**	**18**	●
3.2.1	Electricity output, GWh/mn pop.	⏲	12,444.4	11	●
3.2.2	Logistics performance*		n/a	n/a	
3.2.3	Gross capital formation, % GDP		28.9	26	●◆
3.3	**Ecological sustainability**		**4.6**	**136**	○◇
3.3.1	GDP/unit of energy use		6.0	113	◇
3.3.2	Low-carbon energy use, %		0.0	138	○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.5	87	◇
Market sophistication			**39.5**	**[55]**	
4.1	**Credit**		**12.0**	**[115]**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		37.0	82	
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**67.1**	**77**	
4.3.1	Applied tariff rate, weighted avg., %		0.1	3	●◆
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		41.0	124	◇

			Score/ Value	Rank	
Business sophistication			**25.0**	**95**	◇
5.1	**Knowledge workers**		**33.7**	**75**	
5.1.1	Knowledge-intensive employment, %	⏲	38.0	36	
5.1.2	Females employed w/advanced degrees, %	⏲	14.1	57	◇
5.1.3	Youth demographic dividend, %		35.0	74	◆
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %	⏲	0.0	94	○◇
5.2	**Innovation linkages**		**27.7**	**58**	
5.2.1	Public research–industry co-publications, %		2.0	45	
5.2.2	University–industry R&D collaboration†	⏲	39.8	53	
5.2.3	University industry and international engagement, top 5*		32.0	53	◇
5.2.4	State of cluster development†	⏲	46.8	68	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**13.5**	**135**	○◇
5.3.1	Intellectual property payments, % total trade		0.1	116	◇
5.3.2	High-tech imports, % total trade		3.6	130	◇
5.3.3	ICT services imports, % total trade		0.6	114	◇
5.3.4	FDI net inflows, % GDP		−0.2	126	
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**8.2**	**129**	◇
6.1	**Knowledge creation**		**6.1**	**106**	◇
6.1.1	Patents by origin/bn PPP$ GDP	⏲	0.0	136	○◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP		-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP		9.9	71	◇
6.1.5	Citable documents H-index		4.7	104	◇
6.2	**Knowledge impact**		**15.7**	**119**	◇
6.2.1	Labor productivity growth, %		−0.8	118	◇
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.2	79	
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**2.8**	**135**	○◇
6.3.1	Intellectual property receipts, % total trade		0.0	127	○◇
6.3.2	Production and export complexity		n/a	n/a	
6.3.3	High-tech exports, % total trade		0.3	109	◇
6.3.4	ICT services exports, % total trade		0.3	116	◇
6.3.5	ISO 9001 quality/bn PPP$ GDP		2.4	81	
Creative outputs			**4.8**	**[131]**	
7.1	**Intangible assets**		**1.3**	**[135]**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		5.1	121	◇
7.1.3	Global brand value, top 5,000, % GDP		n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.0	130	○◇
7.2	**Creative goods and services**		**0.2**	**[135]**	
7.2.1	Cultural and creative services exports, % total trade	⏲	0.0	116	○◇
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.0	121	
7.3	**Online creativity**		**16.3**	**112**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69		3.8	70	◇
7.3.2	GitHub commits/mn pop. 15–69		3.0	98	◇
7.3.3	Mobile app creation/bn PPP$ GDP		42.2	116	◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Bulgaria

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
31	44	High	EUR	6.8	248.9	39,185

		Score/ Value	Rank	
Institutions		**46.0**	**81**	◇
1.1	**Institutional environment**	**54.8**	**66**	◇
1.1.1	Operational stability for businesses*	65.3	58	
1.1.2	Government effectiveness*	44.2	69	◇
1.2	**Regulatory environment**	**54.1**	**60**	◇
1.2.1	Regulatory quality*	56.2	53	◇
1.2.2	Rule of law*	52.1	63	◇
1.3	**Business environment**	**29.2**	**101**	○◇
1.3.1	Policy stability for doing business†	29.4	105	○◇
1.3.2	Entrepreneurship policies and culture† ⏲	29.0	64	○
Human capital and research		**32.7**	**64**	◇
2.1	**Education**	**52.9**	**62**	
2.1.1	Expenditure on education, % GDP ⏲	3.9	85	
2.1.2	Government funding/pupil, secondary, % GDP/cap	27.3	12	●
2.1.3	School life expectancy, years	15.1	50	
2.1.4	PISA scales in reading, maths and science	414.2	52	◇
2.1.5	Pupil–teacher ratio, secondary ⏲	11.6	49	
2.2	**Tertiary education**	**34.3**	**53**	
2.2.1	Tertiary enrolment, % gross	79.9	24	
2.2.2	Graduates in science and engineering, %	20.4	76	○
2.2.3	Tertiary inbound mobility, %	8.7	36	
2.3	**Research and development (R&D)**	**10.8**	**61**	◇
2.3.1	Researchers, FTE/mn pop.	2,537.2	37	
2.3.2	Gross expenditure on R&D, % GDP	0.8	48	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	6.5	76	◇
Infrastructure		**57.1**	**22**	●
3.1	**Information and communication technology (ICT)**	**84.5**	**46**	
3.1.1	ICT access*	95.1	44	
3.1.2	ICT use*	85.8	32	
3.1.3	Government online service*	72.7	57	
3.2	**General infrastructure**	**33.3**	**68**	
3.2.1	Electricity output, GWh/mn pop.	6,248.8	32	
3.2.2	Logistics performance*	50.0	50	
3.2.3	Gross capital formation, % GDP	19.6	105	○
3.3	**Ecological sustainability**	**53.4**	**2**	●◆
3.3.1	GDP/unit of energy use	9.5	81	
3.3.2	Low-carbon energy use, %	34.2	30	
3.3.3	ISO 14001 environment/bn PPP$ GDP	11.9	1	●◆
Market sophistication		**45.6**	**35**	
4.1	**Credit**	**39.5**	**38**	
4.1.1	Finance for startups and scaleups† ⏲	63.7	25	
4.1.2	Domestic credit to private sector, % GDP	45.2	75	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**18.1**	**34**	
4.2.1	Market capitalization, % GDP	20.8	61	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	22	
4.2.3	Late-stage VC deal count, % global VC	0.0	47	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.5	26	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.4	19	●
4.3	**Trade, diversification and market scale**	**79.3**	**31**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	96.1	10	●
4.3.3	Domestic market scale, bn PPP$	248.9	72	

		Score/ Value	Rank
Business sophistication		**32.7**	**50**
5.1	**Knowledge workers**	**39.1**	**57**
5.1.1	Knowledge-intensive employment, %	37.6	39
5.1.2	Females employed w/advanced degrees, %	22.5	26
5.1.3	Youth demographic dividend, %	24.3	127 ○
5.1.4	GERD performed by business, % GDP	0.5	38
5.1.5	GERD financed by business, %	34.7	55
5.2	**Innovation linkages**	**25.3**	**66** ◇
5.2.1	Public research–industry co-publications, %	1.9	47
5.2.2	University–industry R&D collaboration†	40.2	51
5.2.3	University industry and international engagement, top 5*	9.8	95 ○◇
5.2.4	State of cluster development†	54.0	53
5.2.5	Patent families/bn PPP$ GDP	0.1	49
5.3	**Knowledge absorption**	**33.7**	**41**
5.3.1	Intellectual property payments, % total trade	0.5	71
5.3.2	High-tech imports, % total trade	9.3	50
5.3.3	ICT services imports, % total trade	1.4	70
5.3.4	FDI net inflows, % GDP	4.1	38
5.3.5	Research talent, % in businesses	49.3	25
Knowledge and technology outputs		**33.2**	**28**
6.1	**Knowledge creation**	**21.2**	**50**
6.1.1	Patents by origin/bn PPP$ GDP	1.0	58
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	47
6.1.3	Utility models by origin/bn PPP$ GDP	1.4	10 ●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	12.2	56
6.1.5	Citable documents H-index	16.0	53
6.2	**Knowledge impact**	**28.9**	**55**
6.2.1	Labor productivity growth, %	2.3	20 ●◆
6.2.2	Unicorn valuation, % GDP	0.0	53 ○◇
6.2.3	Software spending, % GDP	0.2	72
6.2.4	High-tech manufacturing, %	29.7	42
6.3	**Knowledge diffusion**	**49.6**	**15** ●
6.3.1	Intellectual property receipts, % total trade	0.5	31
6.3.2	Production and export complexity	64.5	37
6.3.3	High-tech exports, % total trade	5.3	40
6.3.4	ICT services exports, % total trade	6.2	15 ●
6.3.5	ISO 9001 quality/bn PPP$ GDP	29.9	1 ●◆
Creative outputs		**37.5**	**32**
7.1	**Intangible assets**	**38.8**	**38**
7.1.1	Intangible asset intensity, top 15, %	56.6	41
7.1.2	Trademarks by origin/bn PPP$ GDP	61.2	23
7.1.3	Global brand value, top 5,000, % GDP	0.0	81 ○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	3.7	21 ●
7.2	**Creative goods and services**	**31.9**	**27**
7.2.1	Cultural and creative services exports, % total trade	2.5	11 ●
7.2.2	National feature films/mn pop. 15–69	6.5	26
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a
7.2.4	Creative goods exports, % total trade	0.8	49
7.3	**Online creativity**	**40.5**	**36**
7.3.1	Top-level domains (TLDs)/th pop. 15–69	15.8	40
7.3.2	GitHub commits/mn pop. 15–69	36.3	31
7.3.3	Mobile app creation/bn PPP$ GDP	69.4	49

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Burkina Faso

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
119	130	Low	SSA	23.5	68.6	2,850

			Score/ Value	Rank	
Institutions			**33.5**	**110**	
1.1	**Institutional environment**		**22.7**	**129**	
1.1.1	Operational stability for businesses*		22.7	130	
1.1.2	Government effectiveness*		22.8	119	
1.2	**Regulatory environment**		**34.9**	**107**	
1.2.1	Regulatory quality*		35.5	98	
1.2.2	Rule of law*		34.2	110	
1.3	**Business environment**		**42.8**	**71**	●
1.3.1	Policy stability for doing business†	⏲	43.5	74	●
1.3.2	Entrepreneurship policies and culture†	⏲	42.0	46	●◆
Human capital and research			**19.9**	**105**	
2.1	**Education**		**38.7**	**110**	
2.1.1	Expenditure on education, % GDP		5.3	29	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	⏲	16.2	62	
2.1.3	School life expectancy, years		7.3	123	○◇
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary		17.5	95	
2.2	**Tertiary education**		**19.7**	**96**	◆
2.2.1	Tertiary enrolment, % gross		10.1	120	
2.2.2	Graduates in science and engineering, %		25.3	42	●
2.2.3	Tertiary inbound mobility, %		1.9	78	
2.3	**Research and development (R&D)**		**1.3**	**98**	
2.3.1	Researchers, FTE/mn pop.		n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.3	83	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**11.1**	**139**	○◇
3.1	**Information and communication technology (ICT)**		**15.0**	**138**	○◇
3.1.1	ICT access*		19.7	135	
3.1.2	ICT use*		4.9	129	○
3.1.3	Government online service*		20.3	129	
3.2	**General infrastructure**		**16.7**	**121**	
3.2.1	Electricity output, GWh/mn pop.		n/a	n/a	
3.2.2	Logistics performance*		9.1	107	○◇
3.2.3	Gross capital formation, % GDP		19.6	106	
3.3	**Ecological sustainability**		**1.5**	**138**	○◇
3.3.1	GDP/unit of energy use		n/a	n/a	
3.3.2	Low-carbon energy use, %		2.0	124	◇
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.1	130	
Market sophistication			**27.6**	**104**	◆
4.1	**Credit**		**21.8**	**87**	◆
4.1.1	Finance for startups and scaleups†	⏲	25.6	82	
4.1.2	Domestic credit to private sector, % GDP		31.6	93	
4.1.3	Loans from microfinance institutions, % GDP		2.8	17	●
4.2	**Investment**		**16.7**	**[36]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.0	84	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.4	30	●◆
4.2.5	VC investor co-participation/bn PPP$ GDP		0.3	21	●◆
4.3	**Trade, diversification and market scale**		**44.3**	**118**	
4.3.1	Applied tariff rate, weighted avg., %		6.6	113	
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		68.6	104	

			Score/ Value	Rank	
Business sophistication			**19.8**	**128**	
5.1	**Knowledge workers**		**36.0**	**[66]**	
5.1.1	Knowledge-intensive employment, %		12.2	93	◆
5.1.2	Females employed w/advanced degrees, %		0.8	119	
5.1.3	Youth demographic dividend, %		62.1	9	●
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**4.6**	**135**	◇
5.2.1	Public research–industry co-publications, %		0.4	129	◇
5.2.2	University–industry R&D collaboration†	⏲	11.6	127	◇
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†	⏲	4.7	134	○◇
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**18.7**	**113**	
5.3.1	Intellectual property payments, % total trade	⏲	0.0	125	
5.3.2	High-tech imports, % total trade		5.7	109	
5.3.3	ICT services imports, % total trade	⏲	1.5	67	●
5.3.4	FDI net inflows, % GDP		1.2	106	
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**13.0**	**100**	
6.1	**Knowledge creation**		**4.8**	**117**	
6.1.1	Patents by origin/bn PPP$ GDP		0.1	114	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	96	
6.1.3	Utility models by origin/bn PPP$ GDP	⏲	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP		8.4	81	
6.1.5	Citable documents H-index		4.9	101	
6.2	**Knowledge impact**		**25.4**	**66**	●◆
6.2.1	Labor productivity growth, %		3.5	12	●◆
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	123	
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**9.0**	**113**	
6.3.1	Intellectual property receipts, % total trade	⏲	0.0	106	
6.3.2	Production and export complexity		35.9	96	
6.3.3	High-tech exports, % total trade		0.2	118	
6.3.4	ICT services exports, % total trade	⏲	0.9	93	
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.5	124	
Creative outputs			**5.8**	**128**	
7.1	**Intangible assets**		**3.6**	**128**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		6.2	118	
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.3	98	
7.2	**Creative goods and services**		**1.7**	**[117]**	
7.2.1	Cultural and creative services exports, % total trade	⏲	0.1	87	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.0	126	
7.3	**Online creativity**		**14.3**	**119**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.1	136	
7.3.2	GitHub commits/mn pop. 15–69		0.1	134	
7.3.3	Mobile app creation/bn PPP$ GDP		42.6	115	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Burundi

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
127	125	Low	SSA	14.0	13.2	986

		Score/ Value	Rank	
Institutions		**30.7**	**116**	
1.1	**Institutional environment**	**22.1**	**132**	
1.1.1	Operational stability for businesses*	30.7	124	
1.1.2	Government effectiveness*	13.6	135	○◇
1.2	**Regulatory environment**	**22.9**	**130**	◇
1.2.1	Regulatory quality*	24.0	126	◇
1.2.2	Rule of law*	21.9	134	◇
1.3	**Business environment**	**47.0**	**[64]**	
1.3.1	Policy stability for doing business† ⏲	47.0	67	●
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**19.9**	**104**	
2.1	**Education**	**40.4**	**[106]**	
2.1.1	Expenditure on education, % GDP ⏲	4.4	58	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years ⏲	9.9	112	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	24.9	113	
2.2	**Tertiary education**	**18.5**	**99**	◆
2.2.1	Tertiary enrolment, % gross	6.0	127	
2.2.2	Graduates in science and engineering, % ⏲	19.7	82	
2.2.3	Tertiary inbound mobility, %	8.6	37	●◆
2.3	**Research and development (R&D)**	**0.9**	**105**	
2.3.1	Researchers, FTE/mn pop. ⏲	22.5	104	
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.2	86	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**23.3**	**128**	
3.1	**Information and communication technology (ICT)**	**10.3**	**139**	○◇
3.1.1	ICT access*	0.0	138	○◇
3.1.2	ICT use*	13.5	125	
3.1.3	Government online service*	17.5	134	
3.2	**General infrastructure**	**30.9**	**[79]**	
3.2.1	Electricity output, GWh/mn pop.	n/a	n/a	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	21.8	87	
3.3	**Ecological sustainability**	**28.7**	**45**	●◆
3.3.1	GDP/unit of energy use	n/a	n/a	
3.3.2	Low-carbon energy use, %	43.2	19	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.6	82	◆
Market sophistication		**21.0**	**118**	
4.1	**Credit**	**13.0**	**111**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	48.5	68	◆
4.1.3	Loans from microfinance institutions, % GDP ⏲	0.9	35	
4.2	**Investment**	**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**28.9**	**133**	◇
4.3.1	Applied tariff rate, weighted avg., % ⏲	8.2	120	
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	13.2	135	○◇

		Score/ Value	Rank	
Business sophistication		**22.5**	**108**	
5.1	**Knowledge workers**	**21.9**	**127**	
5.1.1	Knowledge-intensive employment, % ⏲	2.7	121	○
5.1.2	Females employed w/advanced degrees, % ⏲	0.7	120	
5.1.3	Youth demographic dividend, %	64.5	4	●
5.1.4	GERD performed by business, % GDP ⏲	0.0	78	
5.1.5	GERD financed by business, % ⏲	8.8	74	◆
5.2	**Innovation linkages**	**15.1**	**114**	
5.2.1	Public research–industry co-publications, %	0.8	102	
5.2.2	University–industry R&D collaboration† ⏲	22.9	104	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development† ⏲	31.0	105	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**30.5**	**53**	●
5.3.1	Intellectual property payments, % total trade	8.3	2	●◆
5.3.2	High-tech imports, % total trade ⏲	6.9	90	
5.3.3	ICT services imports, % total trade	1.7	53	●
5.3.4	FDI net inflows, % GDP	1.0	111	
5.3.5	Research talent, % in businesses ⏲	1.5	78	
Knowledge and technology outputs		**6.2**	**138**	○◇
6.1	**Knowledge creation**	**5.3**	**115**	
6.1.1	Patents by origin/bn PPP$ GDP ⏲	0.1	115	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.3	37	●
6.1.4	Scientific and technical articles/bn PPP$ GDP	5.1	108	
6.1.5	Citable documents H-index	0.9	135	○◇
6.2	**Knowledge impact**	**11.2**	**129**	
6.2.1	Labor productivity growth, %	−1.4	124	◇
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	104	◆
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**2.1**	**136**	○◇
6.3.1	Intellectual property receipts, % total trade ⏲	0.0	118	
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade ⏲	0.0	135	○◇
6.3.4	ICT services exports, % total trade	0.6	104	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.4	102	
Creative outputs		**9.9**	**112**	
7.1	**Intangible assets**	**9.7**	**103**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	9.7	115	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.2	57	●
7.2	**Creative goods and services**	**5.4**	**[93]**	
7.2.1	Cultural and creative services exports, % total trade	0.5	60	●
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade ⏲	0.0	123	
7.3	**Online creativity**	**14.8**	**117**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.1	135	○
7.3.2	GitHub commits/mn pop. 15–69	0.2	133	
7.3.3	Mobile app creation/bn PPP$ GDP	44.3	113	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Cabo Verde

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
113	79	Lower middle	SSA	0.5	5.8	11,397

			Score/ Value	Rank
Institutions			**60.2**	**43** ●◆
1.1	**Institutional environment**		**58.0**	**59** ●◆
1.1.1	Operational stability for businesses*		72.7	40 ●◆
1.1.2	Government effectiveness*		43.4	71 ◆
1.2	**Regulatory environment**		**57.2**	**56** ●◆
1.2.1	Regulatory quality*		52.3	60 ●◆
1.2.2	Rule of law*		62.0	50 ●◆
1.3	**Business environment**		**65.5**	**[24]**
1.3.1	Policy stability for doing business†		65.5	34 ●◆
1.3.2	Entrepreneurship policies and culture†		n/a	n/a
Human capital and research			**19.7**	**106**
2.1	**Education**		**46.7**	**81**
2.1.1	Expenditure on education, % GDP		4.3	60
2.1.2	Government funding/pupil, secondary, % GDP/cap	⏲	14.1	68
2.1.3	School life expectancy, years	⏲	13.3	81
2.1.4	PISA scales in reading, maths and science		n/a	n/a
2.1.5	Pupil–teacher ratio, secondary	⏲	15.3	82
2.2	**Tertiary education**		**12.5**	**112** ○
2.2.1	Tertiary enrolment, % gross	⏲	24.3	97
2.2.2	Graduates in science and engineering, %	⏲	16.1	101 ○
2.2.3	Tertiary inbound mobility, %	⏲	1.4	85
2.3	**Research and development (R&D)**		**0.0**	**[124]**
2.3.1	Researchers, FTE/mn pop.		n/a	n/a
2.3.2	Gross expenditure on R&D, % GDP		n/a	n/a
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44 ○◇
2.3.4	QS university ranking, top 3*		0.0	80 ○◇
Infrastructure			**38.3**	**83**
3.1	**Information and communication technology (ICT)**		**70.2**	**84** ◆
3.1.1	ICT access*		72.9	92
3.1.2	ICT use*		75.1	77
3.1.3	Government online service*		62.6	78
3.2	**General infrastructure**		**38.6**	**[47]**
3.2.1	Electricity output, GWh/mn pop.		n/a	n/a
3.2.2	Logistics performance*		n/a	n/a
3.2.3	Gross capital formation, % GDP		24.3	58
3.3	**Ecological sustainability**		**6.2**	**130** ○◇
3.3.1	GDP/unit of energy use		n/a	n/a
3.3.2	Low-carbon energy use, %		8.0	102
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.4	97
Market sophistication			**27.3**	**[106]**
4.1	**Credit**		**19.8**	**[93]**
4.1.1	Finance for startups and scaleups†		n/a	n/a
4.1.2	Domestic credit to private sector, % GDP		55.7	56 ●
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a
4.2	**Investment**		**n/a**	**[n/a]**
4.2.1	Market capitalization, % GDP		n/a	n/a
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		n/a	n/a
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a
4.3	**Trade, diversification and market scale**		**34.9**	**127** ○◇
4.3.1	Applied tariff rate, weighted avg., %		9.0	124 ○
4.3.2	Domestic industry diversification	⏲	65.2	86
4.3.3	Domestic market scale, bn PPP$		5.8	138 ○◇

			Score/ Value	Rank
Business sophistication			**27.1**	**75**
5.1	**Knowledge workers**		**32.2**	**[86]**
5.1.1	Knowledge-intensive employment, %	⏲	17.1	83
5.1.2	Females employed w/advanced degrees, %	⏲	7.6	86
5.1.3	Youth demographic dividend, %		42.1	53 ●◇
5.1.4	GERD performed by business, % GDP		n/a	n/a
5.1.5	GERD financed by business, %		n/a	n/a
5.2	**Innovation linkages**		**23.2**	**77**
5.2.1	Public research–industry co-publications, %		0.7	105
5.2.2	University–industry R&D collaboration†		36.8	62
5.2.3	University industry and international engagement, top 5*		n/a	n/a
5.2.4	State of cluster development†		50.0	61
5.2.5	Patent families/bn PPP$ GDP		0.0	100 ○◇
5.3	**Knowledge absorption**		**26.1**	**75**
5.3.1	Intellectual property payments, % total trade		0.2	105
5.3.2	High-tech imports, % total trade		8.1	67
5.3.3	ICT services imports, % total trade		1.8	47 ●
5.3.4	FDI net inflows, % GDP		5.4	28 ●
5.3.5	Research talent, % in businesses		n/a	n/a
Knowledge and technology outputs			**11.1**	**111**
6.1	**Knowledge creation**		**7.7**	**[94]**
6.1.1	Patents by origin/bn PPP$ GDP		0.2	100
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		n/a	n/a
6.1.3	Utility models by origin/bn PPP$ GDP		-	-
6.1.4	Scientific and technical articles/bn PPP$ GDP		9.6	73
6.1.5	Citable documents H-index		0.0	139 ○◇
6.2	**Knowledge impact**		**19.7**	**97**
6.2.1	Labor productivity growth, %		0.7	77
6.2.2	Unicorn valuation, % GDP		0.0	53 ○◇
6.2.3	Software spending, % GDP		0.2	60 ●
6.2.4	High-tech manufacturing, %	⏲	10.3	85
6.3	**Knowledge diffusion**		**5.9**	**130** ○
6.3.1	Intellectual property receipts, % total trade		0.0	115 ○
6.3.2	Production and export complexity		n/a	n/a
6.3.3	High-tech exports, % total trade		0.3	108
6.3.4	ICT services exports, % total trade		0.9	89
6.3.5	ISO 9001 quality/bn PPP$ GDP		4.8	54 ●◆
Creative outputs			**10.1**	**[109]**
7.1	**Intangible assets**		**15.6**	**[85]**
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a
7.1.2	Trademarks by origin/bn PPP$ GDP		16.2	96
7.1.3	Global brand value, top 5,000, % GDP		n/a	n/a
7.1.4	Industrial designs by origin/bn PPP$ GDP	⏲	1.1	60
7.2	**Creative goods and services**		**4.9**	**[97]**
7.2.1	Cultural and creative services exports, % total trade		0.4	65
7.2.2	National feature films/mn pop. 15–69		n/a	n/a
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a
7.2.4	Creative goods exports, % total trade		0.1	111 ○
7.3	**Online creativity**		**4.3**	**132** ○◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69		2.6	80 ◆
7.3.2	GitHub commits/mn pop. 15–69		6.0	72
7.3.3	Mobile app creation/bn PPP$ GDP		n/a	n/a

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Cambodia

GII 2025 rank **100**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
105	88	Lower middle	SEAO	17.6	139.8	8,137

		Score/ Value	Rank	
Institutions		**41.0**	**90**	
1.1	**Institutional environment**	**50.8**	**76**	◆
1.1.1	Operational stability for businesses*	66.0	56	●◆
1.1.2	Government effectiveness*	35.5	93	
1.2	**Regulatory environment**	**31.7**	**111**	
1.2.1	Regulatory quality*	30.9	112	
1.2.2	Rule of law*	32.4	112	
1.3	**Business environment**	**40.6**	**[75]**	
1.3.1	Policy stability for doing business†	40.6	80	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**18.5**	**114**	
2.1	**Education**	**37.5**	**115**	
2.1.1	Expenditure on education, % GDP	3.0	112	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	10.8	107	
2.1.4	PISA scales in reading, maths and science	337.4	86	○◇
2.1.5	Pupil–teacher ratio, secondary	9.9	31	●◆
2.2	**Tertiary education**	**17.6**	**101**	
2.2.1	Tertiary enrolment, % gross	17.4	106	
2.2.2	Graduates in science and engineering, %	23.2	58	
2.2.3	Tertiary inbound mobility, %	0.3	109	○
2.3	**Research and development (R&D)**	**0.5**	**111**	
2.3.1	Researchers, FTE/mn pop.	30.4	100	
2.3.2	Gross expenditure on R&D, % GDP	0.1	100	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**35.3**	**93**	
3.1	**Information and communication technology (ICT)**	**60.1**	**99**	
3.1.1	ICT access*	71.6	94	
3.1.2	ICT use*	74.7	79	
3.1.3	Government online service*	33.9	114	
3.2	**General infrastructure**	**27.4**	**89**	
3.2.1	Electricity output, GWh/mn pop.	813.0	103	
3.2.2	Logistics performance*	13.6	104	○
3.2.3	Gross capital formation, % GDP	33.1	15	●
3.3	**Ecological sustainability**	**18.3**	**79**	
3.3.1	GDP/unit of energy use	11.7	60	
3.3.2	Low-carbon energy use, %	22.8	59	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.4	95	
Market sophistication		**46.9**	**29**	●◆
4.1	**Credit**	**75.3**	**2**	●◆
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	130.1	10	●◆
4.1.3	Loans from microfinance institutions, % GDP	16.1	1	●◆
4.2	**Investment**	**0.9**	**115**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	115	
4.2.3	Late-stage VC deal count, % global VC	0.0	94	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	91	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	94	
4.3	**Trade, diversification and market scale**	**64.5**	**81**	
4.3.1	Applied tariff rate, weighted avg., %	2.3	68	◆
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	139.8	86	

		Score/ Value	Rank	
Business sophistication		**18.2**	**133**	○◇
5.1	**Knowledge workers**	**19.2**	**136**	○◇
5.1.1	Knowledge-intensive employment, %	5.9	110	◇
5.1.2	Females employed w/advanced degrees, %	2.1	107	
5.1.3	Youth demographic dividend, %	46.8	39	●
5.1.4	GERD performed by business, % GDP	0.0	80	
5.1.5	GERD financed by business, %	19.4	66	
5.2	**Innovation linkages**	**17.5**	**101**	
5.2.1	Public research–industry co-publications, %	1.0	90	
5.2.2	University–industry R&D collaboration†	18.9	111	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	42.4	79	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**18.0**	**120**	
5.3.1	Intellectual property payments, % total trade	0.1	112	
5.3.2	High-tech imports, % total trade	3.6	129	○
5.3.3	ICT services imports, % total trade	0.6	108	
5.3.4	FDI net inflows, % GDP	9.3	13	●◆
5.3.5	Research talent, % in businesses	4.3	72	
Knowledge and technology outputs		**14.0**	**92**	
6.1	**Knowledge creation**	**2.3**	**127**	
6.1.1	Patents by origin/bn PPP$ GDP	0.0	134	○
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	106	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	2.5	124	
6.1.5	Citable documents H-index	4.9	101	
6.2	**Knowledge impact**	**22.8**	**78**	
6.2.1	Labor productivity growth, %	2.7	19	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	126	◇
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**16.9**	**75**	
6.3.1	Intellectual property receipts, % total trade	0.0	84	
6.3.2	Production and export complexity	44.0	75	
6.3.3	High-tech exports, % total trade	8.2	27	●
6.3.4	ICT services exports, % total trade	0.8	94	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.3	103	
Creative outputs		**9.9**	**113**	
7.1	**Intangible assets**	**3.6**	**127**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	16.1	97	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.1	113	
7.2	**Creative goods and services**	**8.0**	**[77]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.6	57	●
7.3	**Online creativity**	**24.1**	**73**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.8	107	
7.3.2	GitHub commits/mn pop. 15–69	3.5	93	
7.3.3	Mobile app creation/bn PPP$ GDP	68.2	55	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Cameroon

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
118	113	Lower middle	SSA	29.1	163.2	5,566

		Score/ Value	Rank	
Institutions		**35.0**	**103**	
1.1	**Institutional environment**	**30.1**	**119**	
1.1.1	Operational stability for businesses*	39.3	116	
1.1.2	Government effectiveness*	20.8	124	
1.2	**Regulatory environment**	**26.4**	**126**	
1.2.1	Regulatory quality*	25.7	121	
1.2.2	Rule of law*	27.0	123	
1.3	**Business environment**	**48.7**	**61**	●
1.3.1	Policy stability for doing business†	39.7	82	
1.3.2	Entrepreneurship policies and culture† ⏲	57.7	21	
Human capital and research		**23.5**	**[95]**	
2.1	**Education**	**43.7**	**[92]**	
2.1.1	Expenditure on education, % GDP	2.8	118	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	10.9	106	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	17.0	92	
2.2	**Tertiary education**	**26.9**	**79**	
2.2.1	Tertiary enrolment, % gross	16.0	108	
2.2.2	Graduates in science and engineering, %	31.0	17	●◆
2.2.3	Tertiary inbound mobility, %	1.8	80	
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**20.8**	**134**	○◇
3.1	**Information and communication technology (ICT)**	**31.3**	**129**	◇
3.1.1	ICT access*	47.9	119	
3.1.2	ICT use*	18.2	123	◇
3.1.3	Government online service*	27.7	122	
3.2	**General infrastructure**	**8.7**	**134**	○◇
3.2.1	Electricity output, GWh/mn pop. ⏲	357.2	118	
3.2.2	Logistics performance*	0.0	113	○◇
3.2.3	Gross capital formation, % GDP	19.8	104	
3.3	**Ecological sustainability**	**22.6**	**59**	●
3.3.1	GDP/unit of energy use	9.4	82	
3.3.2	Low-carbon energy use, %	38.9	25	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	106	
Market sophistication		**18.1**	**126**	◇
4.1	**Credit**	**24.2**	**79**	
4.1.1	Finance for startups and scaleups† ⏲	59.2	36	
4.1.2	Domestic credit to private sector, % GDP ⏲	14.1	124	
4.1.3	Loans from microfinance institutions, % GDP ⏲	1.0	33	●
4.2	**Investment**	**1.1**	**112**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	82	
4.2.3	Late-stage VC deal count, % global VC	0.0	86	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	111	○
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	108	
4.3	**Trade, diversification and market scale**	**28.9**	**134**	○◇
4.3.1	Applied tariff rate, weighted avg., % ⏲	11.6	132	○◇
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	163.2	83	

		Score/ Value	Rank	
Business sophistication		**35.8**	**44**	●◆
5.1	**Knowledge workers**	**63.2**	**[7]**	
5.1.1	Knowledge-intensive employment, % ⏲	27.2	54	●◆
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	61.0	14	●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**21.0**	**87**	
5.2.1	Public research–industry co-publications, %	0.7	111	
5.2.2	University–industry R&D collaboration†	36.3	63	●
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	42.6	77	
5.2.5	Patent families/bn PPP$ GDP	0.0	86	
5.3	**Knowledge absorption**	**23.4**	**82**	
5.3.1	Intellectual property payments, % total trade	0.2	102	
5.3.2	High-tech imports, % total trade ⏲	5.0	121	
5.3.3	ICT services imports, % total trade	2.6	26	●◆
5.3.4	FDI net inflows, % GDP	2.0	91	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**11.3**	**108**	
6.1	**Knowledge creation**	**7.0**	**100**	
6.1.1	Patents by origin/bn PPP$ GDP	0.3	91	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	83	
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.3	66	●
6.1.5	Citable documents H-index	7.4	89	
6.2	**Knowledge impact**	**19.9**	**95**	
6.2.1	Labor productivity growth, %	0.4	85	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	74	
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**7.1**	**126**	
6.3.1	Intellectual property receipts, % total trade	0.0	88	
6.3.2	Production and export complexity	18.0	124	○◇
6.3.3	High-tech exports, % total trade ⏲	0.1	131	○
6.3.4	ICT services exports, % total trade	1.5	72	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.2	104	
Creative outputs		**8.1**	**118**	
7.1	**Intangible assets**	**4.3**	**124**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	4.8	122	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.4	88	
7.2	**Creative goods and services**	**4.8**	**[98]**	
7.2.1	Cultural and creative services exports, % total trade	0.4	63	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade ⏲	0.0	128	
7.3	**Online creativity**	**18.8**	**103**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.5	113	
7.3.2	GitHub commits/mn pop. 15–69	1.2	113	
7.3.3	Mobile app creation/bn PPP$ GDP	54.8	98	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

Canada

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
20	13	High	NAC	39.7	2,582.2	62,766

		Score/ Value	Rank	
Institutions		**75.2**	**15**	
1.1	**Institutional environment**	**81.5**	**14**	
1.1.1	Operational stability for businesses*	82.7	15	
1.1.2	Government effectiveness*	80.3	16	
1.2	**Regulatory environment**	**86.3**	**13**	
1.2.1	Regulatory quality*	84.7	11	●
1.2.2	Rule of law*	88.0	16	
1.3	**Business environment**	**57.9**	**41**	
1.3.1	Policy stability for doing business†	67.4	27	
1.3.2	Entrepreneurship policies and culture†	48.4	37	
Human capital and research		**58.3**	**10**	●
2.1	**Education**	**68.2**	**11**	●
2.1.1	Expenditure on education, % GDP	4.5	54	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.8	40	
2.1.4	PISA scales in reading, maths and science	506.4	7	●
2.1.5	Pupil–teacher ratio, secondary	9.4	26	
2.2	**Tertiary education**	**48.1**	**14**	
2.2.1	Tertiary enrolment, % gross	78.9	27	
2.2.2	Graduates in science and engineering, %	25.9	38	
2.2.3	Tertiary inbound mobility, %	18.6	12	
2.3	**Research and development (R&D)**	**58.6**	**17**	
2.3.1	Researchers, FTE/mn pop.	5,573.3	16	
2.3.2	Gross expenditure on R&D, % GDP	1.8	22	
2.3.3	Global corporate R&D investors, top 3, mn USD	68.1	15	
2.3.4	QS university ranking, top 3*	84.7	5	●
Infrastructure		**55.8**	**24**	
3.1	**Information and communication technology (ICT)**	**85.9**	**41**	◇
3.1.1	ICT access*	98.3	23	
3.1.2	ICT use*	77.0	73	○◇
3.1.3	Government online service*	82.6	34	
3.2	**General infrastructure**	**63.1**	**9**	●◆
3.2.1	Electricity output, GWh/mn pop.	15,628.2	8	●◆
3.2.2	Logistics performance*	86.4	7	
3.2.3	Gross capital formation, % GDP	24.3	61	○
3.3	**Ecological sustainability**	**18.3**	**80**	○◇
3.3.1	GDP/unit of energy use	6.1	109	○◇
3.3.2	Low-carbon energy use, %	34.1	31	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.5	90	○◇
Market sophistication		**59.5**	**8**	●
4.1	**Credit**	**59.3**	**[11]**	
4.1.1	Finance for startups and scaleups†	59.3	35	
4.1.2	Domestic credit to private sector, % GDP	n/a	n/a	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**32.2**	**16**	
4.2.1	Market capitalization, % GDP	149.7	8	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.4	16	
4.2.3	Late-stage VC deal count, % global VC	0.9	8	●
4.2.4	VC investors, deal count/bn PPP$ GDP	0.6	19	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.3	25	
4.3	**Trade, diversification and market scale**	**87.0**	**9**	●
4.3.1	Applied tariff rate, weighted avg., %	1.2	21	
4.3.2	Domestic industry diversification	95.7	12	
4.3.3	Domestic market scale, bn PPP$	2,582.2	16	

		Score/ Value	Rank	
Business sophistication		**49.5**	**19**	
5.1	**Knowledge workers**	**43.2**	**44**	◇
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	21.1	31	◇
5.1.3	Youth demographic dividend, %	26.5	109	○
5.1.4	GERD performed by business, % GDP	1.1	21	
5.1.5	GERD financed by business, %	48.1	30	
5.2	**Innovation linkages**	**62.9**	**13**	
5.2.1	Public research–industry co-publications, %	4.2	21	
5.2.2	University–industry R&D collaboration†	67.9	6	●
5.2.3	University industry and international engagement, top 5*	95.0	7	●
5.2.4	State of cluster development†	83.0	14	
5.2.5	Patent families/bn PPP$ GDP	1.8	17	
5.3	**Knowledge absorption**	**42.4**	**23**	
5.3.1	Intellectual property payments, % total trade	2.4	11	●
5.3.2	High-tech imports, % total trade	10.5	35	
5.3.3	ICT services imports, % total trade	1.6	59	
5.3.4	FDI net inflows, % GDP	2.4	75	○
5.3.5	Research talent, % in businesses	63.4	9	
Knowledge and technology outputs		**40.4**	**18**	
6.1	**Knowledge creation**	**48.7**	**14**	
6.1.1	Patents by origin/bn PPP$ GDP	1.6	32	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.3	18	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	25.7	23	
6.1.5	Citable documents H-index	80.5	4	●◆
6.2	**Knowledge impact**	**42.9**	**18**	
6.2.1	Labor productivity growth, %	−0.1	101	○
6.2.2	Unicorn valuation, % GDP	2.4	18	
6.2.3	Software spending, % GDP	0.6	7	●
6.2.4	High-tech manufacturing, %	31.8	38	
6.3	**Knowledge diffusion**	**29.8**	**41**	
6.3.1	Intellectual property receipts, % total trade	1.2	17	
6.3.2	Production and export complexity	63.2	40	
6.3.3	High-tech exports, % total trade	6.1	37	
6.3.4	ICT services exports, % total trade	2.3	56	
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.4	82	○◇
Creative outputs		**44.5**	**24**	
7.1	**Intangible assets**	**39.9**	**34**	
7.1.1	Intangible asset intensity, top 15, %	69.2	17	
7.1.2	Trademarks by origin/bn PPP$ GDP	21.5	85	○
7.1.3	Global brand value, top 5,000, % GDP	11.6	12	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.3	95	○◇
7.2	**Creative goods and services**	**31.1**	**28**	
7.2.1	Cultural and creative services exports, % total trade	1.4	19	
7.2.2	National feature films/mn pop. 15–69	4.6	36	
7.2.3	Entertainment and media market/th pop. 15–69	61.6	7	
7.2.4	Creative goods exports, % total trade	0.8	51	
7.3	**Online creativity**	**67.1**	**13**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	61.7	13	
7.3.2	GitHub commits/mn pop. 15–69	69.6	12	
7.3.3	Mobile app creation/bn PPP$ GDP	70.1	45	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Chile

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
63	43	High	LCN	19.8	674.4	33,574

		Score/ Value	Rank	
Institutions		**57.5**	**50**	
1.1	**Institutional environment**	**64.7**	**39**	
1.1.1	Operational stability for businesses*	68.7	46	
1.1.2	Government effectiveness*	60.7	38	
1.2	**Regulatory environment**	**67.8**	**34**	
1.2.1	Regulatory quality*	68.1	34	
1.2.2	Rule of law*	67.4	38	
1.3	**Business environment**	**40.1**	**77**	
1.3.1	Policy stability for doing business†	30.9	101	○ ◇
1.3.2	Entrepreneurship policies and culture†	49.3	32	
Human capital and research		**34.2**	**56**	
2.1	**Education**	**52.8**	**63**	
2.1.1	Expenditure on education, % GDP	5.0	40	
2.1.2	Government funding/pupil, secondary, % GDP/cap	18.0	52	
2.1.3	School life expectancy, years	17.1	19	●
2.1.4	PISA scales in reading, maths and science	434.4	46	◇
2.1.5	Pupil–teacher ratio, secondary	17.2	93	○ ◇
2.2	**Tertiary education**	**34.5**	**52**	
2.2.1	Tertiary enrolment, % gross	104.7	5	● ◆
2.2.2	Graduates in science and engineering, %	21.4	73	
2.2.3	Tertiary inbound mobility, %	1.5	83	○ ◇
2.3	**Research and development (R&D)**	**15.3**	**53**	
2.3.1	Researchers, FTE/mn pop.	730.9	62	◇
2.3.2	Gross expenditure on R&D, % GDP	0.4	68	◇
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○ ◇
2.3.4	QS university ranking, top 3*	48.2	25	●
Infrastructure		**49.0**	**49**	
3.1	**Information and communication technology (ICT)**	**89.4**	**24**	●
3.1.1	ICT access*	96.5	32	
3.1.2	ICT use*	88.4	26	
3.1.3	Government online service*	83.3	33	
3.2	**General infrastructure**	**31.8**	**75**	◇
3.2.1	Electricity output, GWh/mn pop.	4,395.8	50	
3.2.2	Logistics performance*	40.9	60	◇
3.2.3	Gross capital formation, % GDP	23.7	69	
3.3	**Ecological sustainability**	**25.7**	**51**	
3.3.1	GDP/unit of energy use	12.1	56	
3.3.2	Low-carbon energy use, %	31.5	37	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.6	55	
Market sophistication		**43.9**	**37**	
4.1	**Credit**	**38.9**	**39**	
4.1.1	Finance for startups and scaleups†	35.7	68	○ ◇
4.1.2	Domestic credit to private sector, % GDP	109.5	20	●
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**13.5**	**40**	
4.2.1	Market capitalization, % GDP	107.3	17	●
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	41	
4.2.3	Late-stage VC deal count, % global VC	0.1	37	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	48	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	45	
4.3	**Trade, diversification and market scale**	**79.3**	**32**	
4.3.1	Applied tariff rate, weighted avg., %	0.3	5	●
4.3.2	Domestic industry diversification	78.5	68	
4.3.3	Domestic market scale, bn PPP$	674.4	42	

		Score/ Value	Rank	
Business sophistication		**31.7**	**54**	
5.1	**Knowledge workers**	**33.6**	**77**	
5.1.1	Knowledge-intensive employment, %	33.9	44	
5.1.2	Females employed w/advanced degrees, %	13.4	60	◇
5.1.3	Youth demographic dividend, %	29.2	92	
5.1.4	GERD performed by business, % GDP	0.2	57	◇
5.1.5	GERD financed by business, %	39.8	46	
5.2	**Innovation linkages**	**25.1**	**68**	◇
5.2.1	Public research–industry co-publications, %	0.9	100	○ ◇
5.2.2	University–industry R&D collaboration†	35.0	69	
5.2.3	University industry and international engagement, top 5*	36.8	48	
5.2.4	State of cluster development†	42.8	76	
5.2.5	Patent families/bn PPP$ GDP	0.2	44	
5.3	**Knowledge absorption**	**36.4**	**35**	
5.3.1	Intellectual property payments, % total trade	1.6	19	●
5.3.2	High-tech imports, % total trade	7.9	74	
5.3.3	ICT services imports, % total trade	2.4	28	
5.3.4	FDI net inflows, % GDP	5.8	22	●
5.3.5	Research talent, % in businesses	35.9	36	
Knowledge and technology outputs		**21.8**	**63**	
6.1	**Knowledge creation**	**16.7**	**59**	
6.1.1	Patents by origin/bn PPP$ GDP	0.6	70	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.3	40	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	46	
6.1.4	Scientific and technical articles/bn PPP$ GDP	15.9	42	
6.1.5	Citable documents H-index	25.2	39	
6.2	**Knowledge impact**	**34.4**	**41**	
6.2.1	Labor productivity growth, %	1.1	57	
6.2.2	Unicorn valuation, % GDP	0.7	41	
6.2.3	Software spending, % GDP	0.6	13	●
6.2.4	High-tech manufacturing, %	21.5	58	
6.3	**Knowledge diffusion**	**14.3**	**85**	◇
6.3.1	Intellectual property receipts, % total trade	0.1	80	
6.3.2	Production and export complexity	44.0	76	◇
6.3.3	High-tech exports, % total trade	1.8	65	
6.3.4	ICT services exports, % total trade	0.6	102	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.3	59	
Creative outputs		**24.0**	**65**	◇
7.1	**Intangible assets**	**29.7**	**61**	
7.1.1	Intangible asset intensity, top 15, %	43.0	57	○
7.1.2	Trademarks by origin/bn PPP$ GDP	72.3	18	● ◆
7.1.3	Global brand value, top 5,000, % GDP	2.9	39	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.1	119	○ ◇
7.2	**Creative goods and services**	**8.7**	**74**	◇
7.2.1	Cultural and creative services exports, % total trade	0.2	85	○
7.2.2	National feature films/mn pop. 15–69	3.7	41	
7.2.3	Entertainment and media market/th pop. 15–69	12.1	32	◇
7.2.4	Creative goods exports, % total trade	0.1	88	
7.3	**Online creativity**	**27.8**	**59**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	9.4	47	
7.3.2	GitHub commits/mn pop. 15–69	10.0	57	◇
7.3.3	Mobile app creation/bn PPP$ GDP	64.0	71	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

China

GII 2025 rank **10**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
5	19	Upper middle	SEAO	1,419.3	37,072.1	26,310

		Score/ Value	Rank	
Institutions		**60.0**	**44**	◆
1.1	**Institutional environment**	**63.9**	**44**	◆
1.1.1	Operational stability for businesses*	68.0	47	
1.1.2	Government effectiveness*	59.7	43	◆
1.2	**Regulatory environment**	**44.9**	**80**	○
1.2.1	Regulatory quality*	38.5	94	○
1.2.2	Rule of law*	51.3	64	
1.3	**Business environment**	**71.1**	**16**	◆
1.3.1	Policy stability for doing business† ⏲	73.0	17	◆
1.3.2	Entrepreneurship policies and culture†	69.2	13	◆
Human capital and research		**52.0**	**20**	◆
2.1	**Education**	**74.0**	**[4]**	
2.1.1	Expenditure on education, % GDP ⏲	4.0	76	○
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science ⏲	579.0	1	●◆
2.1.5	Pupil–teacher ratio, secondary	13.3	64	
2.2	**Tertiary education**	**22.3**	**90**	○
2.2.1	Tertiary enrolment, % gross	74.6	38	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.3	107	○
2.3	**Research and development (R&D)**	**59.5**	**16**	◆
2.3.1	Researchers, FTE/mn pop.	2,129.1	42	◆
2.3.2	Gross expenditure on R&D, % GDP	2.6	14	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	89.9	3	●◆
2.3.4	QS university ranking, top 3*	87.2	4	◆
Infrastructure		**64.3**	**6**	◆
3.1	**Information and communication technology (ICT)**	**89.3**	**25**	◆
3.1.1	ICT access*	89.2	57	
3.1.2	ICT use*	87.5	28	
3.1.3	Government online service*	91.1	11	◆
3.2	**General infrastructure**	**64.5**	**7**	◆
3.2.1	Electricity output, GWh/mn pop.	6,747.7	30	◆
3.2.2	Logistics performance*	72.7	18	◆
3.2.3	Gross capital formation, % GDP	42.3	2	●◆
3.3	**Ecological sustainability**	**39.1**	**22**	◆
3.3.1	GDP/unit of energy use	6.9	102	○
3.3.2	Low-carbon energy use, %	18.4	70	
3.3.3	ISO 14001 environment/bn PPP$ GDP	9.8	3	●◆
Market sophistication		**57.3**	**13**	◆
4.1	**Credit**	**50.0**	**27**	◆
4.1.1	Finance for startups and scaleups†	66.1	22	◆
4.1.2	Domestic credit to private sector, % GDP	194.7	3	●◆
4.1.3	Loans from microfinance institutions, % GDP	0.6	43	○
4.2	**Investment**	**29.3**	**19**	◆
4.2.1	Market capitalization, % GDP	76.2	24	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.2	36	◆
4.2.3	Late-stage VC deal count, % global VC	6.5	2	●◆
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	52	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.2	36	
4.3	**Trade, diversification and market scale**	**92.6**	**2**	●◆
4.3.1	Applied tariff rate, weighted avg., %	2.7	75	
4.3.2	Domestic industry diversification ⏲	98.5	5	◆
4.3.3	Domestic market scale, bn PPP$	37,072.1	1	●◆

		Score/ Value	Rank	
Business sophistication		**56.0**	**8**	◆
5.1	**Knowledge workers**	**56.0**	**[19]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	27.0	105	○◇
5.1.4	GERD performed by business, % GDP	2.0	11	◆
5.1.5	GERD financed by business, %	79.3	2	●◆
5.2	**Innovation linkages**	**69.2**	**4**	◆
5.2.1	Public research–industry co-publications, %	7.7	4	◆
5.2.2	University–industry R&D collaboration† ⏲	65.3	11	◆
5.2.3	University industry and international engagement, top 5*	78.3	19	◆
5.2.4	State of cluster development† ⏲	96.9	2	●◆
5.2.5	Patent families/bn PPP$ GDP	1.5	22	◆
5.3	**Knowledge absorption**	**42.7**	**21**	◆
5.3.1	Intellectual property payments, % total trade	1.4	25	
5.3.2	High-tech imports, % total trade	18.0	11	◆
5.3.3	ICT services imports, % total trade	1.2	83	○
5.3.4	FDI net inflows, % GDP	1.1	110	○
5.3.5	Research talent, % in businesses	59.2	16	◆
Knowledge and technology outputs		**60.7**	**1**	●◆
6.1	**Knowledge creation**	**70.3**	**1**	●◆
6.1.1	Patents by origin/bn PPP$ GDP	44.1	2	●◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.8	13	◆
6.1.3	Utility models by origin/bn PPP$ GDP	88.5	1	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	20.4	32	◆
6.1.5	Citable documents H-index	70.3	8	◆
6.2	**Knowledge impact**	**60.2**	**3**	●◆
6.2.1	Labor productivity growth, %	5.4	2	●◆
6.2.2	Unicorn valuation, % GDP	3.6	13	◆
6.2.3	Software spending, % GDP	0.3	33	
6.2.4	High-tech manufacturing, % ⏲	48.4	11	◆
6.3	**Knowledge diffusion**	**51.6**	**9**	◆
6.3.1	Intellectual property receipts, % total trade	0.4	34	◆
6.3.2	Production and export complexity	80.1	17	◆
6.3.3	High-tech exports, % total trade	23.9	5	◆
6.3.4	ICT services exports, % total trade	2.7	50	
6.3.5	ISO 9001 quality/bn PPP$ GDP	18.3	6	◆
Creative outputs		**49.7**	**14**	◆
7.1	**Intangible assets**	**81.2**	**1**	●◆
7.1.1	Intangible asset intensity, top 15, %	62.8	29	
7.1.2	Trademarks by origin/bn PPP$ GDP	202.3	1	●◆
7.1.3	Global brand value, top 5,000, % GDP	9.3	18	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	23.3	1	●◆
7.2	**Creative goods and services**	**31.9**	**26**	◆
7.2.1	Cultural and creative services exports, % total trade	0.6	49	
7.2.2	National feature films/mn pop. 15–69	0.7	76	○
7.2.3	Entertainment and media market/th pop. 15–69	11.0	34	○◆
7.2.4	Creative goods exports, % total trade	9.5	1	●◆
7.3	**Online creativity**	**4.6**	**[131]**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	4.6	64	
7.3.2	GitHub commits/mn pop. 15–69	n/a	n/a	
7.3.3	Mobile app creation/bn PPP$ GDP	n/a	n/a	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Colombia

71

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
72	71	Upper middle	LCN	52.9	1,129.6	21,437

		Score/ Value	Rank	
Institutions		**43.1**	**86**	
1.1	**Institutional environment**	**48.6**	**81**	
1.1.1	Operational stability for businesses*	56.0	86	
1.1.2	Government effectiveness*	41.2	78	
1.2	**Regulatory environment**	**45.1**	**79**	
1.2.1	Regulatory quality*	49.1	71	
1.2.2	Rule of law*	41.1	93	
1.3	**Business environment**	**35.5**	**88**	
1.3.1	Policy stability for doing business†	33.8	96	
1.3.2	Entrepreneurship policies and culture† ⏲	37.2	51	
Human capital and research		**32.9**	**62**	
2.1	**Education**	**46.3**	**82**	
2.1.1	Expenditure on education, % GDP ⏲	5.3	31	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years ⏲	14.3	65	
2.1.4	PISA scales in reading, maths and science	400.8	63	○
2.1.5	Pupil–teacher ratio, secondary ⏲	25.4	115	○◇
2.2	**Tertiary education**	**26.3**	**81**	
2.2.1	Tertiary enrolment, % gross ⏲	59.3	54	
2.2.2	Graduates in science and engineering, %	23.3	56	
2.2.3	Tertiary inbound mobility, % ⏲	0.2	111	○
2.3	**Research and development (R&D)**	**26.2**	**39**	◆
2.3.1	Researchers, FTE/mn pop. ⏲	90.2	92	
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.1	97	○
2.3.3	Global corporate R&D investors, top 3, mn USD	59.9	25	●◆
2.3.4	QS university ranking, top 3*	42.2	33	●◆
Infrastructure		**40.8**	**74**	
3.1	**Information and communication technology (ICT)**	**69.5**	**85**	
3.1.1	ICT access*	68.4	99	◇
3.1.2	ICT use*	70.0	88	
3.1.3	Government online service*	70.2	65	
3.2	**General infrastructure**	**18.6**	**115**	○
3.2.1	Electricity output, GWh/mn pop.	1,741.7	90	
3.2.2	Logistics performance*	36.4	65	
3.2.3	Gross capital formation, % GDP	15.7	124	○◇
3.3	**Ecological sustainability**	**34.1**	**35**	◆
3.3.1	GDP/unit of energy use	18.7	16	●◆
3.3.2	Low-carbon energy use, %	26.5	45	
3.3.3	ISO 14001 environment/bn PPP$ GDP	3.3	28	●
Market sophistication		**34.9**	**75**	
4.1	**Credit**	**21.9**	**86**	
4.1.1	Finance for startups and scaleups† ⏲	29.7	79	○
4.1.2	Domestic credit to private sector, % GDP	42.0	77	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**4.7**	**75**	
4.2.1	Market capitalization, % GDP	29.2	49	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	61	
4.2.3	Late-stage VC deal count, % global VC	0.1	41	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	78	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	81	
4.3	**Trade, diversification and market scale**	**78.0**	**39**	
4.3.1	Applied tariff rate, weighted avg., %	2.2	67	
4.3.2	Domestic industry diversification	84.5	58	
4.3.3	Domestic market scale, bn PPP$	1,129.6	31	●

		Score/ Value	Rank	
Business sophistication		**31.0**	**60**	
5.1	**Knowledge workers**	**35.5**	**67**	
5.1.1	Knowledge-intensive employment, %	23.9	62	
5.1.2	Females employed w/advanced degrees, %	16.4	48	
5.1.3	Youth demographic dividend, %	35.4	72	
5.1.4	GERD performed by business, % GDP ⏲	0.1	63	
5.1.5	GERD financed by business, %	43.9	39	
5.2	**Innovation linkages**	**23.8**	**75**	
5.2.1	Public research–industry co-publications, %	1.9	52	
5.2.2	University–industry R&D collaboration†	38.2	59	
5.2.3	University industry and international engagement, top 5*	20.0	69	
5.2.4	State of cluster development†	40.6	87	
5.2.5	Patent families/bn PPP$ GDP	0.0	65	
5.3	**Knowledge absorption**	**33.6**	**42**	
5.3.1	Intellectual property payments, % total trade	2.2	13	●◆
5.3.2	High-tech imports, % total trade	15.4	15	●◆
5.3.3	ICT services imports, % total trade	2.4	33	●◆
5.3.4	FDI net inflows, % GDP	4.2	36	
5.3.5	Research talent, % in businesses ⏲	2.5	75	
Knowledge and technology outputs		**19.6**	**78**	
6.1	**Knowledge creation**	**8.3**	**91**	
6.1.1	Patents by origin/bn PPP$ GDP	0.2	95	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	66	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	54	
6.1.4	Scientific and technical articles/bn PPP$ GDP	6.1	99	
6.1.5	Citable documents H-index	19.2	46	
6.2	**Knowledge impact**	**29.4**	**51**	
6.2.1	Labor productivity growth, %	0.9	67	
6.2.2	Unicorn valuation, % GDP	1.8	24	●◆
6.2.3	Software spending, % GDP	0.2	80	
6.2.4	High-tech manufacturing, %	20.4	63	
6.3	**Knowledge diffusion**	**21.1**	**59**	
6.3.1	Intellectual property receipts, % total trade	0.2	42	◆
6.3.2	Production and export complexity	46.9	67	
6.3.3	High-tech exports, % total trade	1.3	72	
6.3.4	ICT services exports, % total trade	1.7	70	
6.3.5	ISO 9001 quality/bn PPP$ GDP	9.6	26	●
Creative outputs		**21.3**	**72**	
7.1	**Intangible assets**	**24.7**	**67**	
7.1.1	Intangible asset intensity, top 15, %	39.7	59	○
7.1.2	Trademarks by origin/bn PPP$ GDP	29.0	68	
7.1.3	Global brand value, top 5,000, % GDP	1.7	50	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.5	85	
7.2	**Creative goods and services**	**6.9**	**83**	
7.2.1	Cultural and creative services exports, % total trade	0.5	59	
7.2.2	National feature films/mn pop. 15–69	1.9	60	
7.2.3	Entertainment and media market/th pop. 15–69	5.9	45	○
7.2.4	Creative goods exports, % total trade	0.2	82	
7.3	**Online creativity**	**28.8**	**58**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	15.3	41	
7.3.2	GitHub commits/mn pop. 15–69	9.1	59	
7.3.3	Mobile app creation/bn PPP$ GDP	62.0	77	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Congo

GII 2025 rank **137**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
135	134	Lower middle	SSA	6.3	40.4	6,404

		Score/ Value	Rank	
Institutions		**25.0**	**129**	
1.1	**Institutional environment**	**27.1**	**125**	
1.1.1	Operational stability for businesses*	44.0	108	
1.1.2	Government effectiveness*	10.3	136	◇
1.2	**Regulatory environment**	**22.8**	**131**	◇
1.2.1	Regulatory quality*	18.2	134	◇
1.2.2	Rule of law*	27.5	121	
1.3	**Business environment**	**n/a**	**[n/a]**	
1.3.1	Policy stability for doing business†	n/a	n/a	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**17.8**	**117**	
2.1	**Education**	**40.6**	**[105]**	
2.1.1	Expenditure on education, % GDP	3.3	97	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	26.2	117	
2.2	**Tertiary education**	**11.2**	**115**	
2.2.1	Tertiary enrolment, % gross	10.4	118	
2.2.2	Graduates in science and engineering, %	15.1	106	◇
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**1.8**	**94**	
2.3.1	Researchers, FTE/mn pop.	127.0	90	
2.3.2	Gross expenditure on R&D, % GDP	0.4	69	●
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**18.9**	**135**	◇
3.1	**Information and communication technology (ICT)**	**23.3**	**133**	◇
3.1.1	ICT access*	43.8	125	◇
3.1.2	ICT use*	13.3	126	◇
3.1.3	Government online service*	12.9	137	○◇
3.2	**General infrastructure**	**24.7**	**95**	
3.2.1	Electricity output, GWh/mn pop.	839.2	102	
3.2.2	Logistics performance*	22.7	82	
3.2.3	Gross capital formation, % GDP	27.5	37	●
3.3	**Ecological sustainability**	**8.7**	**116**	◇
3.3.1	GDP/unit of energy use	5.1	118	◇
3.3.2	Low-carbon energy use, %	13.6	84	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	108	
Market sophistication		**6.0**	**139**	○◇
4.1	**Credit**	**2.3**	**[136]**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	13.8	125	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**2.6**	**91**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	64	●
4.2.3	Late-stage VC deal count, % global VC	0.0	98	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	90	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	76	●
4.3	**Trade, diversification and market scale**	**13.1**	**138**	○◇
4.3.1	Applied tariff rate, weighted avg., %	12.8	138	○◇
4.3.2	Domestic industry diversification	4.9	112	○◇
4.3.3	Domestic market scale, bn PPP$	40.4	126	

		Score/ Value	Rank	
Business sophistication		**36.3**	**[43]**	
5.1	**Knowledge workers**	**85.0**	**[1]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	59.5	19	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**1.2**	**[138]**	
5.2.1	Public research–industry co-publications, %	0.4	127	
5.2.2	University–industry R&D collaboration†	n/a	n/a	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	n/a	n/a	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**22.5**	**89**	●
5.3.1	Intellectual property payments, % total trade	0.3	95	
5.3.2	High-tech imports, % total trade	1.7	137	○◇
5.3.3	ICT services imports, % total trade	3.2	19	●◆
5.3.4	FDI net inflows, % GDP	1.8	94	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**8.1**	**130**	◇
6.1	**Knowledge creation**	**6.6**	**104**	
6.1.1	Patents by origin/bn PPP$ GDP	0.1	113	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	98	
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP	12.7	55	●
6.1.5	Citable documents H-index	4.7	106	
6.2	**Knowledge impact**	**16.7**	**113**	
6.2.1	Labor productivity growth, %	−2.7	131	◇
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	n/a	n/a	
6.2.4	High-tech manufacturing, %	27.3	45	●
6.3	**Knowledge diffusion**	**1.1**	**137**	◇
6.3.1	Intellectual property receipts, % total trade	0.0	113	
6.3.2	Production and export complexity	0.0	129	○◇
6.3.3	High-tech exports, % total trade	0.3	107	
6.3.4	ICT services exports, % total trade	0.2	124	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.8	115	
Creative outputs		**4.7**	**[132]**	
7.1	**Intangible assets**	**3.2**	**[130]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	1.1	133	◇
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.2	104	
7.2	**Creative goods and services**	**5.5**	**[92]**	
7.2.1	Cultural and creative services exports, % total trade	0.5	56	●
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	130	
7.3	**Online creativity**	**7.0**	**129**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.2	124	
7.3.2	GitHub commits/mn pop. 15–69	0.2	132	
7.3.3	Mobile app creation/bn PPP$ GDP	20.7	129	◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Costa Rica

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
74	70	Upper middle	LCN	5.1	158.6	29,779

		Score/ Value	Rank	
Institutions		**53.5**	**57**	
1.1	**Institutional environment**	**58.7**	**56**	
1.1.1	Operational stability for businesses*	68.0	47	
1.1.2	Government effectiveness*	49.5	57	
1.2	**Regulatory environment**	**60.5**	**48**	◆
1.2.1	Regulatory quality*	59.3	47	◆
1.2.2	Rule of law*	61.7	53	◆
1.3	**Business environment**	**41.3**	**74**	
1.3.1	Policy stability for doing business†	60.6	45	
1.3.2	Entrepreneurship policies and culture†	22.0	72	
Human capital and research		**25.7**	**85**	
2.1	**Education**	**54.5**	**57**	
2.1.1	Expenditure on education, % GDP	6.2	14	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	21.8	37	
2.1.3	School life expectancy, years	15.6	41	
2.1.4	PISA scales in reading, maths and science	403.6	59	
2.1.5	Pupil–teacher ratio, secondary	13.5	66	
2.2	**Tertiary education**	**18.2**	**100**	
2.2.1	Tertiary enrolment, % gross	55.0	66	
2.2.2	Graduates in science and engineering, %	15.8	102	○
2.2.3	Tertiary inbound mobility, %	1.2	90	
2.3	**Research and development (R&D)**	**4.5**	**81**	
2.3.1	Researchers, FTE/mn pop.	462.5	76	
2.3.2	Gross expenditure on R&D, % GDP	0.3	72	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	8.3	73	
Infrastructure		**44.3**	**63**	
3.1	**Information and communication technology (ICT)**	**75.4**	**71**	
3.1.1	ICT access*	81.9	79	
3.1.2	ICT use*	77.7	68	
3.1.3	Government online service*	66.5	71	
3.2	**General infrastructure**	**20.1**	**111**	
3.2.1	Electricity output, GWh/mn pop.	2,342.2	76	
3.2.2	Logistics performance*	36.4	65	
3.2.3	Gross capital formation, % GDP	16.3	120	○◇
3.3	**Ecological sustainability**	**37.3**	**25**	●◆
3.3.1	GDP/unit of energy use	21.7	10	●◆
3.3.2	Low-carbon energy use, %	44.4	17	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.0	70	
Market sophistication		**31.6**	**89**	
4.1	**Credit**	**22.0**	**85**	
4.1.1	Finance for startups and scaleups†	26.1	81	○
4.1.2	Domestic credit to private sector, % GDP	51.1	63	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**2.9**	**87**	
4.2.1	Market capitalization, % GDP	3.1	81	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	69	
4.2.3	Late-stage VC deal count, % global VC	0.0	80	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	58	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	66	
4.3	**Trade, diversification and market scale**	**69.9**	**64**	
4.3.1	Applied tariff rate, weighted avg., %	0.9	14	●
4.3.2	Domestic industry diversification	68.6	78	
4.3.3	Domestic market scale, bn PPP$	158.6	84	

		Score/ Value	Rank	
Business sophistication		**28.0**	**70**	
5.1	**Knowledge workers**	**28.3**	**104**	
5.1.1	Knowledge-intensive employment, %	23.2	66	
5.1.2	Females employed w/advanced degrees, %	12.8	63	
5.1.3	Youth demographic dividend, %	32.5	77	
5.1.4	GERD performed by business, % GDP	0.1	58	
5.1.5	GERD financed by business, %	29.0	61	
5.2	**Innovation linkages**	**23.5**	**76**	
5.2.1	Public research–industry co-publications, %	1.2	75	
5.2.2	University–industry R&D collaboration†	38.7	57	
5.2.3	University industry and international engagement, top 5*	10.4	93	○
5.2.4	State of cluster development†	56.9	48	
5.2.5	Patent families/bn PPP$ GDP	0.0	85	
5.3	**Knowledge absorption**	**32.0**	**46**	
5.3.1	Intellectual property payments, % total trade	3.1	8	●◆
5.3.2	High-tech imports, % total trade	8.7	60	
5.3.3	ICT services imports, % total trade	1.4	69	
5.3.4	FDI net inflows, % GDP	5.4	27	●
5.3.5	Research talent, % in businesses	15.4	56	
Knowledge and technology outputs		**23.4**	**55**	
6.1	**Knowledge creation**	**5.7**	**109**	
6.1.1	Patents by origin/bn PPP$ GDP	0.1	110	○
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	57	
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	66	
6.1.4	Scientific and technical articles/bn PPP$ GDP	5.4	104	
6.1.5	Citable documents H-index	10.0	78	
6.2	**Knowledge impact**	**35.4**	**33**	◆
6.2.1	Labor productivity growth, %	4.1	7	●◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.3	54	
6.2.4	High-tech manufacturing, %	33.9	35	
6.3	**Knowledge diffusion**	**29.0**	**46**	
6.3.1	Intellectual property receipts, % total trade	0.0	91	
6.3.2	Production and export complexity	54.2	49	
6.3.3	High-tech exports, % total trade	9.1	23	●
6.3.4	ICT services exports, % total trade	6.8	13	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.7	76	
Creative outputs		**16.9**	**88**	
7.1	**Intangible assets**	**15.4**	**86**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	92.0	8	●
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.0	126	○◇
7.2	**Creative goods and services**	**10.9**	**70**	
7.2.1	Cultural and creative services exports, % total trade	0.8	39	
7.2.2	National feature films/mn pop. 15–69	2.4	54	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.3	75	
7.3	**Online creativity**	**25.8**	**65**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	6.4	55	
7.3.2	GitHub commits/mn pop. 15–69	13.1	53	
7.3.3	Mobile app creation/bn PPP$ GDP	58.0	89	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Croatia

GII 2025 rank **40**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
41	40	High	EUR	3.9	187.2	48,811

		Score/ Value	Rank	
Institutions		**51.0**	**65**	◇
1.1	**Institutional environment**	**68.3**	**36**	
1.1.1	Operational stability for businesses*	76.0	32	
1.1.2	Government effectiveness*	60.6	39	
1.2	**Regulatory environment**	**61.3**	**46**	
1.2.1	Regulatory quality*	61.6	44	
1.2.2	Rule of law*	61.0	54	
1.3	**Business environment**	**23.4**	**117**	○◇
1.3.1	Policy stability for doing business†	33.3	99	○◇
1.3.2	Entrepreneurship policies and culture†	13.5	86	○◇
Human capital and research		**40.3**	**40**	
2.1	**Education**	**68.6**	**9**	●◆
2.1.1	Expenditure on education, % GDP	4.8	48	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	16.3	31	
2.1.4	PISA scales in reading, maths and science	473.8	34	
2.1.5	Pupil–teacher ratio, secondary	6.1	1	●◆
2.2	**Tertiary education**	**39.1**	**34**	
2.2.1	Tertiary enrolment, % gross	80.8	21	●
2.2.2	Graduates in science and engineering, %	28.7	27	
2.2.3	Tertiary inbound mobility, %	3.6	62	
2.3	**Research and development (R&D)**	**13.2**	**56**	
2.3.1	Researchers, FTE/mn pop.	2,543.6	36	
2.3.2	Gross expenditure on R&D, % GDP	1.4	32	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	6.5	75	◇
Infrastructure		**58.0**	**16**	●
3.1	**Information and communication technology (ICT)**	**91.1**	**18**	●
3.1.1	ICT access*	97.2	27	
3.1.2	ICT use*	91.3	18	●
3.1.3	Government online service*	84.8	31	
3.2	**General infrastructure**	**36.3**	**54**	
3.2.1	Electricity output, GWh/mn pop.	4,485.6	46	
3.2.2	Logistics performance*	54.5	42	
3.2.3	Gross capital formation, % GDP	23.4	73	
3.3	**Ecological sustainability**	**46.7**	**6**	●◆
3.3.1	GDP/unit of energy use	15.5	32	
3.3.2	Low-carbon energy use, %	31.8	36	
3.3.3	ISO 14001 environment/bn PPP$ GDP	8.0	6	●◆
Market sophistication		**39.9**	**54**	
4.1	**Credit**	**34.0**	**53**	
4.1.1	Finance for startups and scaleups†	51.7	45	
4.1.2	Domestic credit to private sector, % GDP	47.1	72	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**7.3**	**58**	
4.2.1	Market capitalization, % GDP	32.0	46	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	43	
4.2.3	Late-stage VC deal count, % global VC	0.0	61	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	43	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	53	
4.3	**Trade, diversification and market scale**	**78.5**	**36**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	96.5	8	●
4.3.3	Domestic market scale, bn PPP$	187.2	78	

		Score/ Value	Rank	
Business sophistication		**31.7**	**53**	
5.1	**Knowledge workers**	**42.2**	**49**	
5.1.1	Knowledge-intensive employment, %	42.3	28	
5.1.2	Females employed w/advanced degrees, %	21.0	32	
5.1.3	Youth demographic dividend, %	24.2	128	○
5.1.4	GERD performed by business, % GDP	0.8	34	
5.1.5	GERD financed by business, %	40.4	43	
5.2	**Innovation linkages**	**22.9**	**79**	◇
5.2.1	Public research–industry co-publications, %	3.0	27	
5.2.2	University–industry R&D collaboration†	24.0	101	○◇
5.2.3	University industry and international engagement, top 5*	14.1	83	○◇
5.2.4	State of cluster development†	41.7	82	○◇
5.2.5	Patent families/bn PPP$ GDP	0.1	52	
5.3	**Knowledge absorption**	**30.1**	**56**	
5.3.1	Intellectual property payments, % total trade	1.0	37	
5.3.2	High-tech imports, % total trade	8.0	68	
5.3.3	ICT services imports, % total trade	1.6	56	
5.3.4	FDI net inflows, % GDP	5.6	24	●
5.3.5	Research talent, % in businesses	25.4	50	
Knowledge and technology outputs		**30.3**	**37**	
6.1	**Knowledge creation**	**20.0**	**53**	
6.1.1	Patents by origin/bn PPP$ GDP	1.2	46	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.3	39	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	49	
6.1.4	Scientific and technical articles/bn PPP$ GDP	23.6	26	
6.1.5	Citable documents H-index	18.0	48	
6.2	**Knowledge impact**	**34.7**	**39**	
6.2.1	Labor productivity growth, %	1.6	43	
6.2.2	Unicorn valuation, % GDP	3.1	14	●
6.2.3	Software spending, % GDP	0.0	113	○◇
6.2.4	High-tech manufacturing, %	20.6	61	
6.3	**Knowledge diffusion**	**36.1**	**31**	
6.3.1	Intellectual property receipts, % total trade	0.3	39	
6.3.2	Production and export complexity	69.1	30	
6.3.3	High-tech exports, % total trade	4.1	45	
6.3.4	ICT services exports, % total trade	4.0	30	
6.3.5	ISO 9001 quality/bn PPP$ GDP	16.6	9	●◆
Creative outputs		**32.1**	**44**	
7.1	**Intangible assets**	**30.1**	**60**	
7.1.1	Intangible asset intensity, top 15, %	55.2	43	
7.1.2	Trademarks by origin/bn PPP$ GDP	23.4	82	○
7.1.3	Global brand value, top 5,000, % GDP	0.3	75	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.8	40	
7.2	**Creative goods and services**	**29.7**	**34**	
7.2.1	Cultural and creative services exports, % total trade	1.8	16	●
7.2.2	National feature films/mn pop. 15–69	8.8	14	●
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.6	56	
7.3	**Online creativity**	**38.3**	**37**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	16.7	39	
7.3.2	GitHub commits/mn pop. 15–69	30.5	34	
7.3.3	Mobile app creation/bn PPP$ GDP	67.8	58	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Cyprus

25

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
16	36	High	NAWA	1.4	55.1	59,858

		Score/ Value	Rank	
Institutions		**57.9**	**49**	◇
1.1	**Institutional environment**	**67.3**	**37**	◇
1.1.1	Operational stability for businesses*	73.3	38	
1.1.2	Government effectiveness*	61.2	37	◇
1.2	**Regulatory environment**	**66.1**	**37**	◇
1.2.1	Regulatory quality*	64.7	36	◇
1.2.2	Rule of law*	67.5	37	◇
1.3	**Business environment**	**40.3**	**76**	◇
1.3.1	Policy stability for doing business†	54.8	56	◇
1.3.2	Entrepreneurship policies and culture†	25.8	70	○◇
Human capital and research		**35.8**	**51**	◇
2.1	**Education**	**61.3**	**35**	
2.1.1	Expenditure on education, % GDP	5.1	36	
2.1.2	Government funding/pupil, secondary, % GDP/cap	34.3	4	●◆
2.1.3	School life expectancy, years	16.2	32	
2.1.4	PISA scales in reading, maths and science	403.4	60	◇
2.1.5	Pupil–teacher ratio, secondary	7.9	6	●◆
2.2	**Tertiary education**	**36.8**	**43**	
2.2.1	Tertiary enrolment, % gross	98.3	9	
2.2.2	Graduates in science and engineering, %	10.2	117	○◇
2.2.3	Tertiary inbound mobility, %	20.2	8	
2.3	**Research and development (R&D)**	**9.2**	**65**	◇
2.3.1	Researchers, FTE/mn pop.	1,675.3	46	◇
2.3.2	Gross expenditure on R&D, % GDP	0.7	54	◇
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	10.3	71	◇
Infrastructure		**50.4**	**47**	◇
3.1	**Information and communication technology (ICT)**	**86.4**	**39**	◇
3.1.1	ICT access*	98.8	17	
3.1.2	ICT use*	82.0	50	◇
3.1.3	Government online service*	78.5	42	◇
3.2	**General infrastructure**	**34.3**	**65**	◇
3.2.1	Electricity output, GWh/mn pop.	5,804.3	37	
3.2.2	Logistics performance*	50.0	50	◇
3.2.3	Gross capital formation, % GDP	21.1	97	
3.3	**Ecological sustainability**	**30.4**	**40**	
3.3.1	GDP/unit of energy use	17.3	21	
3.3.2	Low-carbon energy use, %	8.9	97	
3.3.3	ISO 14001 environment/bn PPP$ GDP	5.0	17	
Market sophistication		**45.6**	**34**	◇
4.1	**Credit**	**27.8**	**72**	◇
4.1.1	Finance for startups and scaleups†	33.0	73	○◇
4.1.2	Domestic credit to private sector, % GDP	62.7	49	◇
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**41.5**	**10**	
4.2.1	Market capitalization, % GDP	19.4	63	○◇
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.7	8	
4.2.3	Late-stage VC deal count, % global VC	0.0	59	
4.2.4	VC investors, deal count/bn PPP$ GDP	2.4	6	●◆
4.2.5	VC investor co-participation/bn PPP$ GDP	0.9	1	●◆
4.3	**Trade, diversification and market scale**	**67.7**	**74**	◇
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	75.8	73	◇
4.3.3	Domestic market scale, bn PPP$	55.1	117	○◇

		Score/ Value	Rank	
Business sophistication		**45.6**	**24**	◇
5.1	**Knowledge workers**	**44.8**	**38**	◇
5.1.1	Knowledge-intensive employment, %	42.3	26	
5.1.2	Females employed w/advanced degrees, %	29.1	8	
5.1.3	Youth demographic dividend, %	26.5	111	○
5.1.4	GERD performed by business, % GDP	0.3	50	◇
5.1.5	GERD financed by business, %	35.7	54	◇
5.2	**Innovation linkages**	**38.5**	**33**	◇
5.2.1	Public research–industry co-publications, %	4.4	19	
5.2.2	University–industry R&D collaboration†	38.8	56	◇
5.2.3	University industry and international engagement, top 5*	48.0	36	◇
5.2.4	State of cluster development†	43.8	74	◇
5.2.5	Patent families/bn PPP$ GDP	0.9	29	◇
5.3	**Knowledge absorption**	**53.7**	**4**	●◆
5.3.1	Intellectual property payments, % total trade	1.2	28	
5.3.2	High-tech imports, % total trade	3.2	132	○◇
5.3.3	ICT services imports, % total trade	16.0	1	●◆
5.3.4	FDI net inflows, % GDP	19.1	5	●◆
5.3.5	Research talent, % in businesses	34.0	39	◇
Knowledge and technology outputs		**36.3**	**24**	
6.1	**Knowledge creation**	**32.5**	**28**	◇
6.1.1	Patents by origin/bn PPP$ GDP	1.1	52	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.6	31	◇
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	37.4	9	◆
6.1.5	Citable documents H-index	13.8	63	◇
6.2	**Knowledge impact**	**22.4**	**80**	◇
6.2.1	Labor productivity growth, %	2.2	23	◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	83	◇
6.2.4	High-tech manufacturing, %	13.9	78	◇
6.3	**Knowledge diffusion**	**54.0**	**5**	●
6.3.1	Intellectual property receipts, % total trade	2.2	12	
6.3.2	Production and export complexity	52.6	55	◇
6.3.3	High-tech exports, % total trade	0.7	90	◇
6.3.4	ICT services exports, % total trade	26.6	1	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	16.1	12	◆
Creative outputs		**51.6**	**11**	
7.1	**Intangible assets**	**51.6**	**15**	
7.1.1	Intangible asset intensity, top 15, %	37.2	63	○◇
7.1.2	Trademarks by origin/bn PPP$ GDP	95.6	7	◆
7.1.3	Global brand value, top 5,000, % GDP	1.0	58	◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	17.5	2	●◆
7.2	**Creative goods and services**	**43.2**	**12**	
7.2.1	Cultural and creative services exports, % total trade	4.6	1	●◆
7.2.2	National feature films/mn pop. 15–69	6.0	28	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	90	
7.3	**Online creativity**	**59.9**	**22**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	39.1	23	
7.3.2	GitHub commits/mn pop. 15–69	40.6	27	◇
7.3.3	Mobile app creation/bn PPP$ GDP	100.0	1	●◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Czech Republic

GII 2025 rank **32**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
30	33	High	EUR	10.7	619.9	56,686

		Score/ Value	Rank	
Institutions		**66.3**	**34**	
1.1	**Institutional environment**	**73.9**	**24**	
1.1.1	Operational stability for businesses*	77.3	28	
1.1.2	Government effectiveness*	70.4	27	
1.2	**Regulatory environment**	**78.4**	**23**	
1.2.1	Regulatory quality*	76.8	21	
1.2.2	Rule of law*	80.0	25	
1.3	**Business environment**	**46.6**	**[65]**	
1.3.1	Policy stability for doing business†	46.6	68	○
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**42.3**	**37**	
2.1	**Education**	**57.5**	**49**	
2.1.1	Expenditure on education, % GDP	4.7	50	
2.1.2	Government funding/pupil, secondary, % GDP/cap	26.7	13	
2.1.3	School life expectancy, years	16.8	25	
2.1.4	PISA scales in reading, maths and science	491.1	15	
2.1.5	Pupil–teacher ratio, secondary	n/a	n/a	
2.2	**Tertiary education**	**43.0**	**26**	
2.2.1	Tertiary enrolment, % gross	70.8	45	
2.2.2	Graduates in science and engineering, %	24.9	44	
2.2.3	Tertiary inbound mobility, %	15.8	13	●
2.3	**Research and development (R&D)**	**26.4**	**38**	
2.3.1	Researchers, FTE/mn pop.	4,504.7	27	
2.3.2	Gross expenditure on R&D, % GDP	1.8	21	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	33.6	41	
Infrastructure		**53.9**	**33**	
3.1	**Information and communication technology (ICT)**	**80.5**	**55**	
3.1.1	ICT access*	95.2	43	
3.1.2	ICT use*	82.2	47	
3.1.3	Government online service*	64.0	76	○◇
3.2	**General infrastructure**	**44.9**	**33**	
3.2.1	Electricity output, GWh/mn pop.	7,113.0	25	
3.2.2	Logistics performance*	54.5	42	
3.2.3	Gross capital formation, % GDP	28.4	30	◆
3.3	**Ecological sustainability**	**36.4**	**28**	
3.3.1	GDP/unit of energy use	10.7	70	○
3.3.2	Low-carbon energy use, %	25.7	48	
3.3.3	ISO 14001 environment/bn PPP$ GDP	6.7	13	●◆
Market sophistication		**35.2**	**73**	○◇
4.1	**Credit**	**16.6**	**[99]**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	48.0	70	○
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**8.1**	**52**	
4.2.1	Market capitalization, % GDP	11.0	73	○◇
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	44	
4.2.3	Late-stage VC deal count, % global VC	0.0	45	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.3	35	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	38	
4.3	**Trade, diversification and market scale**	**80.9**	**25**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	92.0	30	
4.3.3	Domestic market scale, bn PPP$	619.9	45	

		Score/ Value	Rank	
Business sophistication		**41.4**	**29**	
5.1	**Knowledge workers**	**40.2**	**54**	
5.1.1	Knowledge-intensive employment, %	42.3	27	
5.1.2	Females employed w/advanced degrees, %	14.7	53	◇
5.1.3	Youth demographic dividend, %	25.6	115	○
5.1.4	GERD performed by business, % GDP	1.2	19	
5.1.5	GERD financed by business, %	37.6	52	○
5.2	**Innovation linkages**	**38.8**	**31**	
5.2.1	Public research–industry co-publications, %	2.2	37	
5.2.2	University–industry R&D collaboration†	54.7	32	
5.2.3	University industry and international engagement, top 5*	50.1	34	
5.2.4	State of cluster development†	58.5	45	
5.2.5	Patent families/bn PPP$ GDP	0.4	35	
5.3	**Knowledge absorption**	**45.0**	**13**	●
5.3.1	Intellectual property payments, % total trade	0.8	50	
5.3.2	High-tech imports, % total trade	21.0	7	●◆
5.3.3	ICT services imports, % total trade	1.9	43	
5.3.4	FDI net inflows, % GDP	3.3	54	
5.3.5	Research talent, % in businesses	54.5	20	
Knowledge and technology outputs		**40.1**	**20**	
6.1	**Knowledge creation**	**32.3**	**29**	
6.1.1	Patents by origin/bn PPP$ GDP	1.2	48	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.4	35	
6.1.3	Utility models by origin/bn PPP$ GDP	1.6	6	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	23.3	27	
6.1.5	Citable documents H-index	30.8	32	
6.2	**Knowledge impact**	**36.1**	**29**	
6.2.1	Labor productivity growth, %	0.3	91	○
6.2.2	Unicorn valuation, % GDP	0.3	46	
6.2.3	Software spending, % GDP	0.3	43	
6.2.4	High-tech manufacturing, %	56.3	6	●◆
6.3	**Knowledge diffusion**	**51.9**	**7**	●◆
6.3.1	Intellectual property receipts, % total trade	0.4	33	
6.3.2	Production and export complexity	88.3	6	●◆
6.3.3	High-tech exports, % total trade	20.9	6	●◆
6.3.4	ICT services exports, % total trade	3.1	44	
6.3.5	ISO 9001 quality/bn PPP$ GDP	18.0	7	●◆
Creative outputs		**32.4**	**43**	
7.1	**Intangible assets**	**12.5**	**93**	○◇
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	0.0	135	○◇
7.1.3	Global brand value, top 5,000, % GDP	1.5	52	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.7	42	
7.2	**Creative goods and services**	**44.9**	**11**	●◆
7.2.1	Cultural and creative services exports, % total trade	0.9	38	
7.2.2	National feature films/mn pop. 15–69	7.7	23	
7.2.3	Entertainment and media market/th pop. 15–69	25.3	25	
7.2.4	Creative goods exports, % total trade	8.2	1	●◆
7.3	**Online creativity**	**59.8**	**23**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	43.2	21	
7.3.2	GitHub commits/mn pop. 15–69	62.7	16	●
7.3.3	Mobile app creation/bn PPP$ GDP	73.6	26	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Côte d'Ivoire

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
109	104	Lower middle	SSA	31.9	244.6	7,648

		Score/ Value	Rank
Institutions		**50.4**	**66** ●◆
1.1	**Institutional environment**	**47.4**	**83**
1.1.1	Operational stability for businesses*	60.7	71 ●◆
1.1.2	Government effectiveness*	34.2	95
1.2	**Regulatory environment**	**42.6**	**85**
1.2.1	Regulatory quality*	44.1	79 ◆
1.2.2	Rule of law*	41.0	94
1.3	**Business environment**	**61.3**	**[32]**
1.3.1	Policy stability for doing business†	61.3	41 ●◆
1.3.2	Entrepreneurship policies and culture†	n/a	n/a
Human capital and research		**10.5**	**135** ○◇
2.1	**Education**	**26.9**	**133** ○
2.1.1	Expenditure on education, % GDP	3.4	95
2.1.2	Government funding/pupil, secondary, % GDP/cap	10.6	81
2.1.3	School life expectancy, years	10.7	108
2.1.4	PISA scales in reading, maths and science	n/a	n/a
2.1.5	Pupil–teacher ratio, secondary	32.0	125 ○◇
2.2	**Tertiary education**	**4.4**	**129** ○◇
2.2.1	Tertiary enrolment, % gross	11.6	112
2.2.2	Graduates in science and engineering, %	n/a	n/a
2.2.3	Tertiary inbound mobility, %	1.4	86
2.3	**Research and development (R&D)**	**0.3**	**113**
2.3.1	Researchers, FTE/mn pop.	n/a	n/a
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.1	106
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44 ○◇
2.3.4	QS university ranking, top 3*	0.0	80 ○◇
Infrastructure		**31.0**	**106**
3.1	**Information and communication technology (ICT)**	**57.6**	**104**
3.1.1	ICT access*	66.3	101
3.1.2	ICT use*	63.9	99
3.1.3	Government online service*	42.5	100
3.2	**General infrastructure**	**22.1**	**101**
3.2.1	Electricity output, GWh/mn pop. ⏲	442.5	115
3.2.2	Logistics performance*	n/a	n/a
3.2.3	Gross capital formation, % GDP	25.6	43 ●
3.3	**Ecological sustainability**	**13.2**	**104**
3.3.1	GDP/unit of energy use	11.2	63 ●
3.3.2	Low-carbon energy use, %	11.9	88
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	110
Market sophistication		**23.2**	**114**
4.1	**Credit**	**9.2**	**117**
4.1.1	Finance for startups and scaleups†	n/a	n/a
4.1.2	Domestic credit to private sector, % GDP	22.4	115
4.1.3	Loans from microfinance institutions, % GDP ⏲	1.2	29 ●
4.2	**Investment**	**2.3**	**96**
4.2.1	Market capitalization, % GDP ⏲	13.2	70
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	80
4.2.3	Late-stage VC deal count, % global VC	0.0	73
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	86
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	90
4.3	**Trade, diversification and market scale**	**58.1**	**98**
4.3.1	Applied tariff rate, weighted avg., %	5.5	102
4.3.2	Domestic industry diversification	65.1	87
4.3.3	Domestic market scale, bn PPP$	244.6	74

		Score/ Value	Rank
Business sophistication		**26.2**	**85**
5.1	**Knowledge workers**	**31.9**	**[90]**
5.1.1	Knowledge-intensive employment, % ⏲	4.7	113 ○◇
5.1.2	Females employed w/advanced degrees, % ⏲	1.8	113
5.1.3	Youth demographic dividend, %	60.2	17 ●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a
5.1.5	GERD financed by business, %	n/a	n/a
5.2	**Innovation linkages**	**23.8**	**73**
5.2.1	Public research–industry co-publications, %	0.4	130 ○
5.2.2	University–industry R&D collaboration†	38.9	55 ●
5.2.3	University industry and international engagement, top 5*	n/a	n/a
5.2.4	State of cluster development†	54.1	52 ●
5.2.5	Patent families/bn PPP$ GDP	0.0	90
5.3	**Knowledge absorption**	**22.7**	**88**
5.3.1	Intellectual property payments, % total trade ⏲	0.1	118
5.3.2	High-tech imports, % total trade	5.8	108
5.3.3	ICT services imports, % total trade ⏲	2.4	32 ●◆
5.3.4	FDI net inflows, % GDP	2.1	84
5.3.5	Research talent, % in businesses	n/a	n/a
Knowledge and technology outputs		**8.3**	**128**
6.1	**Knowledge creation**	**1.8**	**131** ○
6.1.1	Patents by origin/bn PPP$ GDP	0.1	118
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	108
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.0	75 ○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP	1.8	129 ○
6.1.5	Citable documents H-index	4.7	104
6.2	**Knowledge impact**	**16.0**	**117**
6.2.1	Labor productivity growth, %	1.6	41 ●
6.2.2	Unicorn valuation, % GDP	0.0	53 ○◇
6.2.3	Software spending, % GDP	0.0	129 ○◇
6.2.4	High-tech manufacturing, %	5.6	100
6.3	**Knowledge diffusion**	**7.1**	**124**
6.3.1	Intellectual property receipts, % total trade ⏲	0.0	126
6.3.2	Production and export complexity	26.1	117
6.3.3	High-tech exports, % total trade	0.6	94
6.3.4	ICT services exports, % total trade ⏲	0.4	110
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.4	101
Creative outputs		**14.1**	**98**
7.1	**Intangible assets**	**20.9**	**77**
7.1.1	Intangible asset intensity, top 15, % ⏲	35.9	65
7.1.2	Trademarks by origin/bn PPP$ GDP	4.5	125
7.1.3	Global brand value, top 5,000, % GDP	0.5	67
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.7	70
7.2	**Creative goods and services**	**1.0**	**[125]**
7.2.1	Cultural and creative services exports, % total trade	0.1	102
7.2.2	National feature films/mn pop. 15–69	n/a	n/a
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a
7.2.4	Creative goods exports, % total trade	0.0	115
7.3	**Online creativity**	**13.6**	**122**
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.4	115
7.3.2	GitHub commits/mn pop. 15–69	0.4	128 ○
7.3.3	Mobile app creation/bn PPP$ GDP	40.1	120

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Denmark

GII 2025 rank **9**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
11	7	High	EUR	6.0	496.7	83,454

		Score/ Value	Rank
Institutions		**86.9**	**2** ●◆
1.1	**Institutional environment**	**90.0**	**3** ●◆
1.1.1	Operational stability for businesses*	87.3	7 ●
1.1.2	Government effectiveness*	92.6	3 ●◆
1.2	**Regulatory environment**	**93.9**	**2** ●
1.2.1	Regulatory quality*	89.2	5 ●
1.2.2	Rule of law*	98.6	2 ●◆
1.3	**Business environment**	**77.0**	**[8]**
1.3.1	Policy stability for doing business†	77.0	13
1.3.2	Entrepreneurship policies and culture†	n/a	n/a
Human capital and research		**57.4**	**11**
2.1	**Education**	**65.2**	**16**
2.1.1	Expenditure on education, % GDP ⏲	5.3	30
2.1.2	Government funding/pupil, secondary, % GDP/cap	22.3	34
2.1.3	School life expectancy, years	18.3	13
2.1.4	PISA scales in reading, maths and science	490.6	16
2.1.5	Pupil–teacher ratio, secondary ⏲	10.2	36
2.2	**Tertiary education**	**40.9**	**31**
2.2.1	Tertiary enrolment, % gross	81.2	20
2.2.2	Graduates in science and engineering, %	25.4	40
2.2.3	Tertiary inbound mobility, %	9.9	29
2.3	**Research and development (R&D)**	**66.2**	**9**
2.3.1	Researchers, FTE/mn pop.	9,078.6	3 ●◆
2.3.2	Gross expenditure on R&D, % GDP	3.0	11
2.3.3	Global corporate R&D investors, top 3, mn USD	72.1	11
2.3.4	QS university ranking, top 3*	58.4	16
Infrastructure		**62.9**	**8**
3.1	**Information and communication technology (ICT)**	**98.1**	**3** ●◆
3.1.1	ICT access*	100.0	1 ●
3.1.2	ICT use*	94.5	8 ◆
3.1.3	Government online service*	99.9	2 ●◆
3.2	**General infrastructure**	**49.8**	**24**
3.2.1	Electricity output, GWh/mn pop.	5,705.9	40
3.2.2	Logistics performance*	90.9	3 ●◆
3.2.3	Gross capital formation, % GDP	23.2	75 ○
3.3	**Ecological sustainability**	**40.7**	**15**
3.3.1	GDP/unit of energy use	22.6	8
3.3.2	Low-carbon energy use, %	41.1	23
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.4	39
Market sophistication		**56.0**	**16**
4.1	**Credit**	**57.5**	**[16]**
4.1.1	Finance for startups and scaleups†	n/a	n/a
4.1.2	Domestic credit to private sector, % GDP	146.6	8
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a
4.2	**Investment**	**31.3**	**17**
4.2.1	Market capitalization, % GDP	n/a	n/a
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.7	10
4.2.3	Late-stage VC deal count, % global VC	0.2	21
4.2.4	VC investors, deal count/bn PPP$ GDP	0.8	17
4.2.5	VC investor co-participation/bn PPP$ GDP	0.4	18
4.3	**Trade, diversification and market scale**	**79.0**	**33**
4.3.1	Applied tariff rate, weighted avg., %	1.3	24
4.3.2	Domestic industry diversification	88.6	43 ○
4.3.3	Domestic market scale, bn PPP$	496.7	51

		Score/ Value	Rank
Business sophistication		**55.3**	**11**
5.1	**Knowledge workers**	**59.0**	**14**
5.1.1	Knowledge-intensive employment, %	48.5	15
5.1.2	Females employed w/advanced degrees, %	26.2	18
5.1.3	Youth demographic dividend, %	27.6	103 ○
5.1.4	GERD performed by business, % GDP	1.8	14
5.1.5	GERD financed by business, % ⏲	59.6	12
5.2	**Innovation linkages**	**65.6**	**9**
5.2.1	Public research–industry co-publications, %	5.5	10
5.2.2	University–industry R&D collaboration†	65.7	9
5.2.3	University industry and international engagement, top 5*	86.2	13
5.2.4	State of cluster development†	79.5	18
5.2.5	Patent families/bn PPP$ GDP	4.0	9
5.3	**Knowledge absorption**	**41.3**	**26**
5.3.1	Intellectual property payments, % total trade	0.8	48
5.3.2	High-tech imports, % total trade	5.9	105 ○
5.3.3	ICT services imports, % total trade	4.0	8
5.3.4	FDI net inflows, % GDP	4.3	33
5.3.5	Research talent, % in businesses	58.3	17
Knowledge and technology outputs		**46.0**	**13**
6.1	**Knowledge creation**	**51.5**	**11**
6.1.1	Patents by origin/bn PPP$ GDP	7.7	10
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	3.1	8
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	51 ○
6.1.4	Scientific and technical articles/bn PPP$ GDP	40.9	3 ●◆
6.1.5	Citable documents H-index	51.5	15
6.2	**Knowledge impact**	**46.5**	**12**
6.2.1	Labor productivity growth, %	1.2	54 ○
6.2.2	Unicorn valuation, % GDP	1.6	29
6.2.3	Software spending, % GDP	0.6	8
6.2.4	High-tech manufacturing, %	46.1	14
6.3	**Knowledge diffusion**	**40.1**	**26**
6.3.1	Intellectual property receipts, % total trade	2.3	11
6.3.2	Production and export complexity	74.2	23
6.3.3	High-tech exports, % total trade	6.5	35
6.3.4	ICT services exports, % total trade	3.4	40
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.9	52 ○
Creative outputs		**54.2**	**9**
7.1	**Intangible assets**	**55.5**	**13**
7.1.1	Intangible asset intensity, top 15, %	87.3	3 ●◆
7.1.2	Trademarks by origin/bn PPP$ GDP	21.4	86 ○
7.1.3	Global brand value, top 5,000, % GDP	15.0	8
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.9	28
7.2	**Creative goods and services**	**30.0**	**33**
7.2.1	Cultural and creative services exports, % total trade ⏲	0.7	45 ○
7.2.2	National feature films/mn pop. 15–69	4.1	37 ○
7.2.3	Entertainment and media market/th pop. 15–69	67.6	4
7.2.4	Creative goods exports, % total trade	1.3	39
7.3	**Online creativity**	**75.9**	**5** ●
7.3.1	Top-level domains (TLDs)/th pop. 15–69	79.6	7 ●
7.3.2	GitHub commits/mn pop. 15–69	74.3	10
7.3.3	Mobile app creation/bn PPP$ GDP	73.9	25

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Dominican Republic

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
102	84	Upper middle	LCN	11.4	312.6	28,950

			Score/ Value	Rank	
Institutions			**54.3**	**54**	
1.1	**Institutional environment**		**59.1**	**53**	
1.1.1	Operational stability for businesses*		72.0	41	●
1.1.2	Government effectiveness*		46.2	65	
1.2	**Regulatory environment**		**49.9**	**67**	
1.2.1	Regulatory quality*		50.7	64	
1.2.2	Rule of law*		49.1	72	
1.3	**Business environment**		**53.9**	**54**	
1.3.1	Policy stability for doing business†		70.3	23	●◆
1.3.2	Entrepreneurship policies and culture†	⏲	37.4	49	
Human capital and research			**18.9**	**111**	◇
2.1	**Education**		**40.9**	**103**	
2.1.1	Expenditure on education, % GDP		4.3	63	
2.1.2	Government funding/pupil, secondary, % GDP/cap		13.7	73	
2.1.3	School life expectancy, years	⏲	13.6	74	
2.1.4	PISA scales in reading, maths and science		350.3	85	○◇
2.1.5	Pupil–teacher ratio, secondary		10.6	40	●
2.2	**Tertiary education**		**15.8**	**108**	◇
2.2.1	Tertiary enrolment, % gross	⏲	55.2	65	
2.2.2	Graduates in science and engineering, %		12.4	111	◇
2.2.3	Tertiary inbound mobility, %	⏲	2.5	74	
2.3	**Research and development (R&D)**		**0.0**	**122**	
2.3.1	Researchers, FTE/mn pop.	⏲	20.0	106	○◇
2.3.2	Gross expenditure on R&D, % GDP		n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**38.4**	**81**	
3.1	**Information and communication technology (ICT)**		**66.3**	**88**	
3.1.1	ICT access*		69.5	97	
3.1.2	ICT use*		72.5	83	
3.1.3	Government online service*		56.7	84	
3.2	**General infrastructure**		**30.4**	**81**	
3.2.1	Electricity output, GWh/mn pop.	⏲	1,907.4	84	
3.2.2	Logistics performance*		22.7	82	
3.2.3	Gross capital formation, % GDP		31.6	20	●◆
3.3	**Ecological sustainability**		**18.6**	**77**	
3.3.1	GDP/unit of energy use		19.6	14	●◆
3.3.2	Low-carbon energy use, %		8.4	99	
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.2	121	
Market sophistication			**24.8**	**112**	◇
4.1	**Credit**		**12.4**	**113**	
4.1.1	Finance for startups and scaleups†	⏲	15.5	89	◇
4.1.2	Domestic credit to private sector, % GDP		30.6	95	
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**0.3**	**[125]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	⏲	0.0	125	○◇
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.0	107	
4.2.5	VC investor co-participation/bn PPP$ GDP		0.0	110	
4.3	**Trade, diversification and market scale**		**61.7**	**88**	
4.3.1	Applied tariff rate, weighted avg., %		4.0	86	
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		312.6	62	

			Score/ Value	Rank	
Business sophistication			**26.0**	**87**	
5.1	**Knowledge workers**		**35.5**	**[68]**	
5.1.1	Knowledge-intensive employment, %	⏲	16.9	84	
5.1.2	Females employed w/advanced degrees, %	⏲	10.1	73	
5.1.3	Youth demographic dividend, %		43.1	48	●
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**20.9**	**88**	
5.2.1	Public research–industry co-publications, %		0.4	128	
5.2.2	University–industry R&D collaboration†		25.6	99	
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†		55.6	49	
5.2.5	Patent families/bn PPP$ GDP		0.0	95	
5.3	**Knowledge absorption**		**21.6**	**96**	
5.3.1	Intellectual property payments, % total trade		0.6	64	
5.3.2	High-tech imports, % total trade		6.3	96	
5.3.3	ICT services imports, % total trade		0.5	118	◇
5.3.4	FDI net inflows, % GDP		3.7	47	●
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**11.0**	**113**	
6.1	**Knowledge creation**		**0.9**	**137**	○◇
6.1.1	Patents by origin/bn PPP$ GDP		0.0	132	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	91	
6.1.3	Utility models by origin/bn PPP$ GDP		0.0	67	
6.1.4	Scientific and technical articles/bn PPP$ GDP		0.8	138	○◇
6.1.5	Citable documents H-index		2.5	128	
6.2	**Knowledge impact**		**20.5**	**92**	
6.2.1	Labor productivity growth, %		2.0	28	●
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	131	◇
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**11.6**	**96**	
6.3.1	Intellectual property receipts, % total trade		0.0	120	
6.3.2	Production and export complexity		48.6	62	
6.3.3	High-tech exports, % total trade		1.5	68	
6.3.4	ICT services exports, % total trade		0.2	126	
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.8	114	
Creative outputs			**14.3**	**97**	
7.1	**Intangible assets**		**0.2**	**138**	○◇
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		0.0	135	○◇
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.0	128	○◇
7.2	**Creative goods and services**		**37.7**	**[17]**	
7.2.1	Cultural and creative services exports, % total trade		n/a	n/a	
7.2.2	National feature films/mn pop. 15–69		9.7	10	●◆
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		2.3	25	●
7.3	**Online creativity**		**19.2**	**100**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		2.0	85	
7.3.2	GitHub commits/mn pop. 15–69		4.4	86	
7.3.3	Mobile app creation/bn PPP$ GDP		51.1	105	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

Ecuador

113

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
106	110	Upper middle	LCN	18.1	296.7	16,516

		Score/ Value	Rank	
Institutions		**29.5**	**117**	
1.1	**Institutional environment**	**38.8**	**101**	
1.1.1	Operational stability for businesses*	46.7	103	
1.1.2	Government effectiveness*	30.9	101	
1.2	**Regulatory environment**	**29.6**	**117**	◇
1.2.1	Regulatory quality*	30.2	114	
1.2.2	Rule of law*	29.0	118	◇
1.3	**Business environment**	**20.0**	**125**	○
1.3.1	Policy stability for doing business†	21.2	122	○
1.3.2	Entrepreneurship policies and culture†	18.9	77	
Human capital and research		**22.7**	**96**	
2.1	**Education**	**40.7**	**104**	
2.1.1	Expenditure on education, % GDP	3.9	84	
2.1.2	Government funding/pupil, secondary, % GDP/cap	6.0	93	○◇
2.1.3	School life expectancy, years	14.9	55	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	19.7	102	◇
2.2	**Tertiary education**	**22.9**	**87**	
2.2.1	Tertiary enrolment, % gross	59.9	53	●
2.2.2	Graduates in science and engineering, %	19.7	84	
2.2.3	Tertiary inbound mobility, %	0.7	96	
2.3	**Research and development (R&D)**	**4.6**	**[80]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	9.1	72	
Infrastructure		**37.3**	**86**	
3.1	**Information and communication technology (ICT)**	**70.4**	**83**	
3.1.1	ICT access*	60.5	107	◇
3.1.2	ICT use*	64.5	96	
3.1.3	Government online service*	86.2	25	●◆
3.2	**General infrastructure**	**19.1**	**113**	
3.2.1	Electricity output, GWh/mn pop.	1,833.9	88	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	21.8	91	
3.3	**Ecological sustainability**	**22.3**	**61**	
3.3.1	GDP/unit of energy use	12.3	54	●
3.3.2	Low-carbon energy use, %	28.9	40	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.8	79	
Market sophistication		**24.0**	**113**	◇
4.1	**Credit**	**15.3**	**102**	
4.1.1	Finance for startups and scaleups†	19.1	87	○◇
4.1.2	Domestic credit to private sector, % GDP	55.6	58	
4.1.3	Loans from microfinance institutions, % GDP	0.7	39	
4.2	**Investment**	**1.3**	**108**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	97	
4.2.3	Late-stage VC deal count, % global VC	0.0	69	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	94	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	91	
4.3	**Trade, diversification and market scale**	**55.6**	**102**	
4.3.1	Applied tariff rate, weighted avg., %	6.5	111	◇
4.3.2	Domestic industry diversification	63.6	89	
4.3.3	Domestic market scale, bn PPP$	296.7	63	

		Score/ Value	Rank	
Business sophistication		**22.5**	**109**	
5.1	**Knowledge workers**	**30.4**	**[100]**	
5.1.1	Knowledge-intensive employment, %	13.0	92	◇
5.1.2	Females employed w/advanced degrees, %	8.5	80	
5.1.3	Youth demographic dividend, %	41.1	57	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**15.8**	**109**	
5.2.1	Public research–industry co-publications, %	0.5	125	○
5.2.2	University–industry R&D collaboration†	23.4	103	
5.2.3	University industry and international engagement, top 5*	29.0	58	
5.2.4	State of cluster development†	23.0	123	○◇
5.2.5	Patent families/bn PPP$ GDP	0.0	94	
5.3	**Knowledge absorption**	**21.2**	**99**	
5.3.1	Intellectual property payments, % total trade	0.8	54	●
5.3.2	High-tech imports, % total trade	7.5	79	
5.3.3	ICT services imports, % total trade	0.5	116	◇
5.3.4	FDI net inflows, % GDP	0.6	117	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**13.8**	**94**	
6.1	**Knowledge creation**	**6.6**	**102**	
6.1.1	Patents by origin/bn PPP$ GDP	0.1	105	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	84	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	59	
6.1.4	Scientific and technical articles/bn PPP$ GDP	9.0	77	
6.1.5	Citable documents H-index	9.5	82	
6.2	**Knowledge impact**	**25.2**	**68**	
6.2.1	Labor productivity growth, %	0.7	76	
6.2.2	Unicorn valuation, % GDP	1.2	33	●◆
6.2.3	Software spending, % GDP	0.3	52	●
6.2.4	High-tech manufacturing, %	9.9	88	
6.3	**Knowledge diffusion**	**9.4**	**111**	
6.3.1	Intellectual property receipts, % total trade	0.0	86	
6.3.2	Production and export complexity	27.3	114	○◇
6.3.3	High-tech exports, % total trade	0.3	106	
6.3.4	ICT services exports, % total trade	0.2	122	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.5	57	●
Creative outputs		**10.0**	**110**	◇
7.1	**Intangible assets**	**9.2**	**105**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	46.2	38	●
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.2	108	
7.2	**Creative goods and services**	**0.6**	**[129]**	
7.2.1	Cultural and creative services exports, % total trade	0.0	106	○
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	118	
7.3	**Online creativity**	**20.9**	**95**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.6	91	
7.3.2	GitHub commits/mn pop. 15–69	5.3	77	
7.3.3	Mobile app creation/bn PPP$ GDP	55.9	94	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Egypt

86

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
81	94	Lower middle	NAWA	116.5	2,231.8	20,799

		Score/ Value	Rank	
Institutions		**39.1**	**96**	
1.1	**Institutional environment**	**40.3**	**97**	
1.1.1	Operational stability for businesses*	43.3	110	
1.1.2	Government effectiveness*	37.2	86	
1.2	**Regulatory environment**	**39.6**	**96**	
1.2.1	Regulatory quality*	31.4	110	
1.2.2	Rule of law*	47.8	80	
1.3	**Business environment**	**37.4**	**84**	
1.3.1	Policy stability for doing business†	48.3	64	
1.3.2	Entrepreneurship policies and culture†	26.5	68	
Human capital and research		**21.1**	**101**	
2.1	**Education**	**39.3**	**108**	
2.1.1	Expenditure on education, % GDP	3.9	82	
2.1.2	Government funding/pupil, secondary, % GDP/cap	9.4	86	○
2.1.3	School life expectancy, years	12.8	89	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	19.6	101	
2.2	**Tertiary education**	**11.0**	**116**	○
2.2.1	Tertiary enrolment, % gross	39.0	83	
2.2.2	Graduates in science and engineering, %	11.9	113	○◇
2.2.3	Tertiary inbound mobility, %	1.3	87	
2.3	**Research and development (R&D)**	**13.1**	**57**	◆
2.3.1	Researchers, FTE/mn pop.	845.3	58	◆
2.3.2	Gross expenditure on R&D, % GDP	1.0	41	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	28.2	47	●◆
Infrastructure		**35.3**	**92**	
3.1	**Information and communication technology (ICT)**	**71.2**	**81**	◆
3.1.1	ICT access*	81.7	80	◆
3.1.2	ICT use*	67.9	94	
3.1.3	Government online service*	63.9	77	◆
3.2	**General infrastructure**	**19.7**	**112**	
3.2.1	Electricity output, GWh/mn pop.	1,853.7	87	
3.2.2	Logistics performance*	45.5	56	◆
3.2.3	Gross capital formation, % GDP	13.6	130	○◇
3.3	**Ecological sustainability**	**15.2**	**96**	
3.3.1	GDP/unit of energy use	15.3	33	●
3.3.2	Low-carbon energy use, %	5.9	108	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.6	84	
Market sophistication		**32.2**	**86**	
4.1	**Credit**	**19.9**	**91**	
4.1.1	Finance for startups and scaleups†	45.9	54	
4.1.2	Domestic credit to private sector, % GDP	29.3	98	
4.1.3	Loans from microfinance institutions, % GDP	0.5	45	
4.2	**Investment**	**2.3**	**95**	
4.2.1	Market capitalization, % GDP	10.1	75	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	86	
4.2.3	Late-stage VC deal count, % global VC	0.0	44	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	87	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	82	
4.3	**Trade, diversification and market scale**	**74.3**	**54**	◆
4.3.1	Applied tariff rate, weighted avg., %	5.4	100	
4.3.2	Domestic industry diversification	91.5	34	●
4.3.3	Domestic market scale, bn PPP$	2,231.8	17	●◆

		Score/ Value	Rank	
Business sophistication		**25.3**	**93**	
5.1	**Knowledge workers**	**23.5**	**123**	○
5.1.1	Knowledge-intensive employment, %	21.3	73	
5.1.2	Females employed w/advanced degrees, %	5.9	91	
5.1.3	Youth demographic dividend, %	49.2	33	●
5.1.4	GERD performed by business, % GDP	0.0	75	○
5.1.5	GERD financed by business, %	3.9	82	○
5.2	**Innovation linkages**	**33.2**	**46**	●◆
5.2.1	Public research–industry co-publications, %	0.9	98	
5.2.2	University–industry R&D collaboration†	37.6	61	
5.2.3	University industry and international engagement, top 5*	31.7	54	
5.2.4	State of cluster development†	89.0	8	●◆
5.2.5	Patent families/bn PPP$ GDP	0.0	92	
5.3	**Knowledge absorption**	**19.3**	**111**	
5.3.1	Intellectual property payments, % total trade	0.5	73	
5.3.2	High-tech imports, % total trade	7.6	78	
5.3.3	ICT services imports, % total trade	0.9	94	
5.3.4	FDI net inflows, % GDP	2.0	88	
5.3.5	Research talent, % in businesses	6.3	66	
Knowledge and technology outputs		**16.9**	**84**	
6.1	**Knowledge creation**	**10.0**	**81**	
6.1.1	Patents by origin/bn PPP$ GDP	0.3	85	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	77	
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	72	○
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.8	62	
6.1.5	Citable documents H-index	20.0	44	●◆
6.2	**Knowledge impact**	**26.8**	**64**	
6.2.1	Labor productivity growth, %	1.1	59	
6.2.2	Unicorn valuation, % GDP	0.3	48	●
6.2.3	Software spending, % GDP	0.4	31	●◆
6.2.4	High-tech manufacturing, %	18.5	66	
6.3	**Knowledge diffusion**	**13.9**	**87**	
6.3.1	Intellectual property receipts, % total trade	0.1	77	
6.3.2	Production and export complexity	44.3	73	
6.3.3	High-tech exports, % total trade	0.9	82	
6.3.4	ICT services exports, % total trade	2.0	63	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.5	97	
Creative outputs		**20.7**	**75**	
7.1	**Intangible assets**	**27.4**	**64**	
7.1.1	Intangible asset intensity, top 15, %	52.5	45	
7.1.2	Trademarks by origin/bn PPP$ GDP	22.3	84	
7.1.3	Global brand value, top 5,000, % GDP	0.9	59	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.9	66	
7.2	**Creative goods and services**	**6.6**	**88**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.5	80	○
7.2.3	Entertainment and media market/th pop. 15–69	1.3	57	○
7.2.4	Creative goods exports, % total trade	1.2	41	●
7.3	**Online creativity**	**21.5**	**91**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.5	111	
7.3.2	GitHub commits/mn pop. 15–69	3.8	90	
7.3.3	Mobile app creation/bn PPP$ GDP	60.1	83	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

El Salvador

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
87	106	Upper middle	LCN	6.3	84.2	13,173

		Score/ Value	Rank	
Institutions		**40.0**	**92**	
1.1	**Institutional environment**	**49.5**	**78**	
1.1.1	Operational stability for businesses*	54.7	89	
1.1.2	Government effectiveness*	44.3	68	
1.2	**Regulatory environment**	**41.5**	**90**	
1.2.1	Regulatory quality*	39.6	92	
1.2.2	Rule of law*	43.3	88	
1.3	**Business environment**	**29.2**	**102**	
1.3.1	Policy stability for doing business†	23.7	117	
1.3.2	Entrepreneurship policies and culture† ⏲	34.7	52	
Human capital and research		**16.6**	**122**	◇
2.1	**Education**	**29.1**	**129**	○◇
2.1.1	Expenditure on education, % GDP	3.2	105	
2.1.2	Government funding/pupil, secondary, % GDP/cap	13.9	71	
2.1.3	School life expectancy, years	11.1	103	◇
2.1.4	PISA scales in reading, maths and science	360.5	79	○
2.1.5	Pupil–teacher ratio, secondary	23.7	111	◇
2.2	**Tertiary education**	**20.0**	**95**	
2.2.1	Tertiary enrolment, % gross	32.4	91	◇
2.2.2	Graduates in science and engineering, %	22.4	68	
2.2.3	Tertiary inbound mobility, %	0.5	100	
2.3	**Research and development (R&D)**	**0.7**	**108**	
2.3.1	Researchers, FTE/mn pop. ⏲	57.6	96	◇
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.1	96	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**28.8**	**113**	◇
3.1	**Information and communication technology (ICT)**	**46.2**	**117**	◇
3.1.1	ICT access*	51.5	116	◇
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government online service*	40.9	103	◇
3.2	**General infrastructure**	**20.2**	**109**	
3.2.1	Electricity output, GWh/mn pop. ⏲	1,165.6	95	◇
3.2.2	Logistics performance*	27.3	76	
3.2.3	Gross capital formation, % GDP	21.0	99	
3.3	**Ecological sustainability**	**19.9**	**71**	
3.3.1	GDP/unit of energy use	11.6	62	
3.3.2	Low-carbon energy use, %	27.4	44	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	105	
Market sophistication		**32.2**	**87**	
4.1	**Credit**	**28.0**	**69**	
4.1.1	Finance for startups and scaleups† ⏲	33.8	72	
4.1.2	Domestic credit to private sector, % GDP	61.6	51	●
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**5.6**	**65**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	51	●◆
4.2.3	Late-stage VC deal count, % global VC	0.0	102	○
4.2.4	VC investors, deal count/bn PPP$ GDP	0.3	39	●
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	56	
4.3	**Trade, diversification and market scale**	**62.8**	**84**	
4.3.1	Applied tariff rate, weighted avg., %	2.1	65	
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	84.2	98	

		Score/ Value	Rank	
Business sophistication		**20.9**	**122**	
5.1	**Knowledge workers**	**25.0**	**116**	
5.1.1	Knowledge-intensive employment, % ⏲	13.8	89	◇
5.1.2	Females employed w/advanced degrees, % ⏲	5.4	93	◇
5.1.3	Youth demographic dividend, %	42.2	52	●
5.1.4	GERD performed by business, % GDP ⏲	0.1	66	
5.1.5	GERD financed by business, % ⏲	31.5	57	
5.2	**Innovation linkages**	**11.1**	**126**	◇
5.2.1	Public research–industry co-publications, %	0.4	131	○
5.2.2	University–industry R&D collaboration†	18.4	114	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	24.2	120	◇
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**26.6**	**69**	
5.3.1	Intellectual property payments, % total trade	0.9	41	●
5.3.2	High-tech imports, % total trade	9.8	43	●
5.3.3	ICT services imports, % total trade	1.1	85	
5.3.4	FDI net inflows, % GDP	1.6	98	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**12.4**	**104**	
6.1	**Knowledge creation**	**1.4**	**134**	○◇
6.1.1	Patents by origin/bn PPP$ GDP	0.1	111	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	61	
6.1.4	Scientific and technical articles/bn PPP$ GDP	1.2	136	○◇
6.1.5	Citable documents H-index	1.9	131	○
6.2	**Knowledge impact**	**18.4**	**104**	
6.2.1	Labor productivity growth, %	1.1	61	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	115	
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**17.4**	**73**	
6.3.1	Intellectual property receipts, % total trade	0.0	117	
6.3.2	Production and export complexity	50.7	58	
6.3.3	High-tech exports, % total trade	2.2	59	●
6.3.4	ICT services exports, % total trade	3.1	46	●
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.9	90	
Creative outputs		**21.2**	**[73]**	
7.1	**Intangible assets**	**30.5**	**[57]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	76.1	15	●
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.1	59	
7.2	**Creative goods and services**	**4.7**	**[99]**	
7.2.1	Cultural and creative services exports, % total trade	0.1	90	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.5	64	
7.3	**Online creativity**	**19.0**	**102**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.5	93	
7.3.2	GitHub commits/mn pop. 15–69	5.6	75	
7.3.3	Mobile app creation/bn PPP$ GDP	49.7	107	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Estonia

16

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
15	24	High	EUR	1.4	65.5	48,008

		Score/ Value	Rank	
Institutions		**73.6**	**18**	
1.1	**Institutional environment**	**79.1**	**19**	
1.1.1	Operational stability for businesses*	84.0	12	
1.1.2	Government effectiveness*	74.1	20	
1.2	**Regulatory environment**	**83.3**	**19**	
1.2.1	Regulatory quality*	79.7	17	
1.2.2	Rule of law*	86.9	17	
1.3	**Business environment**	**58.5**	**39**	
1.3.1	Policy stability for doing business†	45.1	72	○ ◇
1.3.2	Entrepreneurship policies and culture†	72.0	11	◆
Human capital and research		**42.7**	**36**	◇
2.1	**Education**	**63.6**	**21**	
2.1.1	Expenditure on education, % GDP	5.7	19	
2.1.2	Government funding/pupil, secondary, % GDP/cap	18.9	49	○
2.1.3	School life expectancy, years	15.6	44	◇
2.1.4	PISA scales in reading, maths and science	515.6	6	
2.1.5	Pupil–teacher ratio, secondary	9.1	19	
2.2	**Tertiary education**	**41.3**	**29**	
2.2.1	Tertiary enrolment, % gross	67.6	47	
2.2.2	Graduates in science and engineering, %	27.5	32	
2.2.3	Tertiary inbound mobility, %	11.1	23	
2.3	**Research and development (R&D)**	**23.1**	**45**	◇
2.3.1	Researchers, FTE/mn pop.	4,783.0	24	
2.3.2	Gross expenditure on R&D, % GDP	1.8	20	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○ ◇
2.3.4	QS university ranking, top 3*	17.8	56	◇
Infrastructure		**60.8**	**10**	
3.1	**Information and communication technology (ICT)**	**98.6**	**1**	● ◆
3.1.1	ICT access*	97.8	24	
3.1.2	ICT use*	98.5	2	● ◆
3.1.3	Government online service*	99.4	3	● ◆
3.2	**General infrastructure**	**44.7**	**34**	
3.2.1	Electricity output, GWh/mn pop.	4,138.7	55	
3.2.2	Logistics performance*	68.2	25	◇
3.2.3	Gross capital formation, % GDP	27.7	34	
3.3	**Ecological sustainability**	**39.2**	**21**	
3.3.1	GDP/unit of energy use	11.7	59	
3.3.2	Low-carbon energy use, %	14.2	83	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	9.0	5	● ◆
Market sophistication		**60.0**	**7**	
4.1	**Credit**	**45.2**	**31**	
4.1.1	Finance for startups and scaleups†	70.9	17	
4.1.2	Domestic credit to private sector, % GDP	57.9	55	◇
4.1.3	Loans from microfinance institutions, % GDP	4.2	8	
4.2	**Investment**	**60.8**	**2**	● ◆
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	2.0	1	● ◆
4.2.3	Late-stage VC deal count, % global VC	0.1	38	
4.2.4	VC investors, deal count/bn PPP$ GDP	3.1	4	● ◆
4.2.5	VC investor co-participation/bn PPP$ GDP	1.2	1	● ◆
4.3	**Trade, diversification and market scale**	**74.0**	**55**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	93.0	27	
4.3.3	Domestic market scale, bn PPP$	65.5	109	○ ◇

		Score/ Value	Rank	
Business sophistication		**44.8**	**26**	◇
5.1	**Knowledge workers**	**52.7**	**25**	
5.1.1	Knowledge-intensive employment, %	46.4	19	
5.1.2	Females employed w/advanced degrees, %	28.4	11	
5.1.3	Youth demographic dividend, %	25.9	113	○
5.1.4	GERD performed by business, % GDP	1.1	22	
5.1.5	GERD financed by business, %	49.5	27	
5.2	**Innovation linkages**	**34.0**	**43**	◇
5.2.1	Public research–industry co-publications, %	1.7	57	◇
5.2.2	University–industry R&D collaboration†	44.7	43	◇
5.2.3	University industry and international engagement, top 5*	41.5	46	◇
5.2.4	State of cluster development†	53.3	55	◇
5.2.5	Patent families/bn PPP$ GDP	0.8	31	◇
5.3	**Knowledge absorption**	**47.7**	**10**	
5.3.1	Intellectual property payments, % total trade	0.3	92	○ ◇
5.3.2	High-tech imports, % total trade	8.4	63	
5.3.3	ICT services imports, % total trade	6.0	3	● ◆
5.3.4	FDI net inflows, % GDP	12.7	7	◆
5.3.5	Research talent, % in businesses	46.0	31	
Knowledge and technology outputs		**40.2**	**19**	
6.1	**Knowledge creation**	**28.9**	**33**	◇
6.1.1	Patents by origin/bn PPP$ GDP	1.5	36	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.6	29	◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.6	27	
6.1.4	Scientific and technical articles/bn PPP$ GDP	32.3	12	
6.1.5	Citable documents H-index	18.0	49	◇
6.2	**Knowledge impact**	**44.0**	**16**	
6.2.1	Labor productivity growth, %	−0.8	119	○ ◇
6.2.2	Unicorn valuation, % GDP	21.8	1	● ◆
6.2.3	Software spending, % GDP	0.1	88	○ ◇
6.2.4	High-tech manufacturing, %	26.3	48	
6.3	**Knowledge diffusion**	**47.8**	**17**	
6.3.1	Intellectual property receipts, % total trade	0.6	25	
6.3.2	Production and export complexity	70.1	29	
6.3.3	High-tech exports, % total trade	6.9	33	
6.3.4	ICT services exports, % total trade	9.4	6	● ◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	15.5	15	◆
Creative outputs		**51.4**	**12**	
7.1	**Intangible assets**	**38.9**	**37**	
7.1.1	Intangible asset intensity, top 15, %	49.8	49	○ ◇
7.1.2	Trademarks by origin/bn PPP$ GDP	68.9	20	
7.1.3	Global brand value, top 5,000, % GDP	1.3	55	◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	3.1	27	
7.2	**Creative goods and services**	**64.0**	**1**	● ◆
7.2.1	Cultural and creative services exports, % total trade	3.4	8	◆
7.2.2	National feature films/mn pop. 15–69	29.6	1	● ◆
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	1.3	38	
7.3	**Online creativity**	**63.6**	**17**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	37.7	25	
7.3.2	GitHub commits/mn pop. 15–69	69.6	11	
7.3.3	Mobile app creation/bn PPP$ GDP	83.4	6	◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Ethiopia

GII 2025 rank **134**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
108	138	Low	SSA	132.1	434.4	4,045

			Score/ Value	Rank	
Institutions			**27.6**	**122**	
1.1	**Institutional environment**		**25.4**	**126**	
1.1.1	Operational stability for businesses*		26.7	128	
1.1.2	Government effectiveness*		24.2	115	
1.2	**Regulatory environment**		**29.6**	**118**	
1.2.1	Regulatory quality*		23.2	129	◇
1.2.2	Rule of law*		36.0	107	
1.3	**Business environment**		**27.9**	**[106]**	
1.3.1	Policy stability for doing business†	⏲	27.9	108	
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**5.5**	**[139]**	
2.1	**Education**		**10.8**	**[138]**	
2.1.1	Expenditure on education, % GDP		2.3	125	◇
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years		n/a	n/a	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	44.7	130	
2.2	**Tertiary education**		**4.5**	**[128]**	
2.2.1	Tertiary enrolment, % gross	⏲	10.1	121	
2.2.2	Graduates in science and engineering, %		n/a	n/a	
2.2.3	Tertiary inbound mobility, %		n/a	n/a	
2.3	**Research and development (R&D)**		**1.3**	**100**	
2.3.1	Researchers, FTE/mn pop.	⏲	89.0	93	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.3	80	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**22.3**	**130**	
3.1	**Information and communication technology (ICT)**		**29.0**	**130**	
3.1.1	ICT access*	⏲	17.6	136	○
3.1.2	ICT use*		48.5	113	◆
3.1.3	Government online service*		20.8	128	
3.2	**General infrastructure**		**16.7**	**120**	
3.2.1	Electricity output, GWh/mn pop.	⏲	140.5	123	
3.2.2	Logistics performance*		n/a	n/a	
3.2.3	Gross capital formation, % GDP		22.5	84	
3.3	**Ecological sustainability**		**21.3**	**65**	●
3.3.1	GDP/unit of energy use		5.9	114	
3.3.2	Low-carbon energy use, %		44.6	16	●
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.1	135	◇
Market sophistication			**14.6**	**133**	◇
4.1	**Credit**		**4.9**	**[128]**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		n/a	n/a	
4.1.3	Loans from microfinance institutions, % GDP	⏲	0.5	47	
4.2	**Investment**		**0.9**	**116**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.0	116	
4.2.3	Late-stage VC deal count, % global VC		0.0	91	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.0	98	
4.2.5	VC investor co-participation/bn PPP$ GDP		0.0	92	
4.3	**Trade, diversification and market scale**		**37.9**	**124**	
4.3.1	Applied tariff rate, weighted avg., %		10.5	129	◇
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		434.4	54	●◆

			Score/ Value	Rank	
Business sophistication			**17.8**	**134**	
5.1	**Knowledge workers**		**19.7**	**134**	◇
5.1.1	Knowledge-intensive employment, %	⏲	4.4	117	
5.1.2	Females employed w/advanced degrees, %	⏲	2.4	104	
5.1.3	Youth demographic dividend, %		59.8	18	●
5.1.4	GERD performed by business, % GDP	⏲	0.0	83	
5.1.5	GERD financed by business, %	⏲	1.5	87	
5.2	**Innovation linkages**		**10.8**	**129**	
5.2.1	Public research–industry co-publications, %		0.6	115	
5.2.2	University–industry R&D collaboration†	⏲	24.4	100	
5.2.3	University industry and international engagement, top 5*		1.3	103	○◇
5.2.4	State of cluster development†	⏲	23.9	121	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**22.8**	**87**	
5.3.1	Intellectual property payments, % total trade		0.0	123	
5.3.2	High-tech imports, % total trade		11.2	31	●◆
5.3.3	ICT services imports, % total trade		2.4	31	●
5.3.4	FDI net inflows, % GDP		2.9	60	●
5.3.5	Research talent, % in businesses	⏲	2.2	76	
Knowledge and technology outputs			**17.0**	**82**	◆
6.1	**Knowledge creation**		**15.3**	**65**	●◆
6.1.1	Patents by origin/bn PPP$ GDP		0.1	112	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP		0.6	26	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP		14.9	46	●◆
6.1.5	Citable documents H-index		10.2	75	●◆
6.2	**Knowledge impact**		**28.1**	**59**	●◆
6.2.1	Labor productivity growth, %		4.6	5	●◆
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	138	○◇
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**7.7**	**120**	
6.3.1	Intellectual property receipts, % total trade		0.0	121	
6.3.2	Production and export complexity		30.9	106	
6.3.3	High-tech exports, % total trade		0.1	132	◇
6.3.4	ICT services exports, % total trade		0.9	88	
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.3	134	◇
Creative outputs			**5.5**	**129**	
7.1	**Intangible assets**		**3.2**	**129**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		3.4	130	
7.1.3	Global brand value, top 5,000, % GDP		0.3	76	
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.2	101	
7.2	**Creative goods and services**		**0.1**	**[137]**	
7.2.1	Cultural and creative services exports, % total trade	⏲	0.0	121	○◇
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.0	125	
7.3	**Online creativity**		**15.5**	**115**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.0	139	○◇
7.3.2	GitHub commits/mn pop. 15–69		1.0	118	
7.3.3	Mobile app creation/bn PPP$ GDP		45.6	110	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Finland

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
10	5	High	EUR	5.6	361.3	64,657

		Score/ Value	Rank	
Institutions		**83.6**	**5**	●
1.1	**Institutional environment**	**84.6**	**11**	
1.1.1	Operational stability for businesses*	83.3	14	
1.1.2	Government effectiveness*	85.8	6	
1.2	**Regulatory environment**	**93.7**	**3**	●
1.2.1	Regulatory quality*	87.5	7	
1.2.2	Rule of law*	100.0	1	●◆
1.3	**Business environment**	**72.4**	**14**	
1.3.1	Policy stability for doing business†	78.5	9	
1.3.2	Entrepreneurship policies and culture† ⏲	66.4	17	
Human capital and research		**60.9**	**5**	●
2.1	**Education**	**70.0**	**8**	◆
2.1.1	Expenditure on education, % GDP ⏲	6.5	11	◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	24.8	21	
2.1.3	School life expectancy, years	19.6	4	●◆
2.1.4	PISA scales in reading, maths and science	495.1	11	
2.1.5	Pupil–teacher ratio, secondary	12.6	60	○
2.2	**Tertiary education**	**50.0**	**11**	
2.2.1	Tertiary enrolment, % gross	108.1	3	●◆
2.2.2	Graduates in science and engineering, %	29.4	25	
2.2.3	Tertiary inbound mobility, %	9.3	32	
2.3	**Research and development (R&D)**	**62.6**	**11**	
2.3.1	Researchers, FTE/mn pop.	8,354.3	5	◆
2.3.2	Gross expenditure on R&D, % GDP	3.1	10	
2.3.3	Global corporate R&D investors, top 3, mn USD	71.0	13	
2.3.4	QS university ranking, top 3*	50.5	24	
Infrastructure		**67.6**	**3**	●◆
3.1	**Information and communication technology (ICT)**	**95.4**	**7**	
3.1.1	ICT access*	100.0	5	●
3.1.2	ICT use*	97.2	4	●◆
3.1.3	Government online service*	89.1	19	
3.2	**General infrastructure**	**64.3**	**8**	◆
3.2.1	Electricity output, GWh/mn pop.	14,513.4	9	
3.2.2	Logistics performance*	95.5	2	●◆
3.2.3	Gross capital formation, % GDP	24.0	64	○
3.3	**Ecological sustainability**	**43.0**	**11**	◆
3.3.1	GDP/unit of energy use	7.8	96	○
3.3.2	Low-carbon energy use, %	60.5	9	◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	4.9	18	
Market sophistication		**58.6**	**11**	
4.1	**Credit**	**57.9**	**15**	
4.1.1	Finance for startups and scaleups† ⏲	100.0	1	●◆
4.1.2	Domestic credit to private sector, % GDP	93.1	24	
4.1.3	Loans from microfinance institutions, % GDP	3.6	10	
4.2	**Investment**	**37.4**	**13**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.8	7	
4.2.3	Late-stage VC deal count, % global VC	0.2	22	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.9	14	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.5	10	
4.3	**Trade, diversification and market scale**	**80.6**	**26**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	96.4	9	
4.3.3	Domestic market scale, bn PPP$	361.3	59	○

		Score/ Value	Rank	
Business sophistication		**55.3**	**12**	
5.1	**Knowledge workers**	**59.6**	**12**	
5.1.1	Knowledge-intensive employment, %	47.8	17	
5.1.2	Females employed w/advanced degrees, %	27.0	16	
5.1.3	Youth demographic dividend, %	25.7	114	○
5.1.4	GERD performed by business, % GDP	2.1	10	
5.1.5	GERD financed by business, %	58.1	16	
5.2	**Innovation linkages**	**60.2**	**16**	
5.2.1	Public research–industry co-publications, %	4.9	15	
5.2.2	University–industry R&D collaboration†	64.8	14	
5.2.3	University industry and international engagement, top 5*	66.5	28	
5.2.4	State of cluster development†	69.7	35	
5.2.5	Patent families/bn PPP$ GDP	6.7	5	●◆
5.3	**Knowledge absorption**	**46.1**	**11**	
5.3.1	Intellectual property payments, % total trade	0.9	45	
5.3.2	High-tech imports, % total trade	7.9	72	○
5.3.3	ICT services imports, % total trade	5.3	4	●◆
5.3.4	FDI net inflows, % GDP	4.2	37	
5.3.5	Research talent, % in businesses	59.8	15	
Knowledge and technology outputs		**52.7**	**8**	
6.1	**Knowledge creation**	**55.2**	**9**	
6.1.1	Patents by origin/bn PPP$ GDP	11.3	6	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	3.9	5	◆
6.1.3	Utility models by origin/bn PPP$ GDP	0.7	25	
6.1.4	Scientific and technical articles/bn PPP$ GDP	38.4	6	◆
6.1.5	Citable documents H-index	42.3	20	
6.2	**Knowledge impact**	**51.2**	**9**	
6.2.1	Labor productivity growth, %	−0.8	117	○◇
6.2.2	Unicorn valuation, % GDP	4.7	8	◆
6.2.3	Software spending, % GDP	0.6	14	
6.2.4	High-tech manufacturing, %	34.1	33	
6.3	**Knowledge diffusion**	**51.6**	**10**	
6.3.1	Intellectual property receipts, % total trade	2.7	9	
6.3.2	Production and export complexity	78.8	18	
6.3.3	High-tech exports, % total trade	4.9	43	
6.3.4	ICT services exports, % total trade	9.0	7	◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	8.4	30	
Creative outputs		**47.8**	**16**	
7.1	**Intangible assets**	**45.7**	**22**	
7.1.1	Intangible asset intensity, top 15, %	67.0	18	
7.1.2	Trademarks by origin/bn PPP$ GDP	26.7	76	○
7.1.3	Global brand value, top 5,000, % GDP	10.3	14	
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.2	35	
7.2	**Creative goods and services**	**27.4**	**42**	◇
7.2.1	Cultural and creative services exports, % total trade	0.6	50	○
7.2.2	National feature films/mn pop. 15–69	9.0	13	
7.2.3	Entertainment and media market/th pop. 15–69	48.4	14	
7.2.4	Creative goods exports, % total trade	0.5	63	○
7.3	**Online creativity**	**72.4**	**7**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	39.7	22	
7.3.2	GitHub commits/mn pop. 15–69	98.8	3	●◆
7.3.3	Mobile app creation/bn PPP$ GDP	78.8	9	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

France

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
12	18	High	EUR	66.5	4,359.4	65,940

		Score/ Value	Rank	
Institutions		**66.8**	**33**	
1.1	**Institutional environment**	**68.6**	**34**	◇
1.1.1	Operational stability for businesses*	66.0	56	○◇
1.1.2	Government effectiveness*	71.2	26	
1.2	**Regulatory environment**	**77.1**	**25**	
1.2.1	Regulatory quality*	73.4	25	
1.2.2	Rule of law*	80.9	24	
1.3	**Business environment**	**54.7**	**50**	
1.3.1	Policy stability for doing business†	58.3	49	
1.3.2	Entrepreneurship policies and culture†	51.1	26	
Human capital and research		**55.1**	**15**	
2.1	**Education**	**61.1**	**36**	
2.1.1	Expenditure on education, % GDP	5.4	26	
2.1.2	Government funding/pupil, secondary, % GDP/cap	25.2	20	
2.1.3	School life expectancy, years	16.1	36	
2.1.4	PISA scales in reading, maths and science	478.3	26	
2.1.5	Pupil–teacher ratio, secondary	13.4	65	○
2.2	**Tertiary education**	**43.6**	**24**	
2.2.1	Tertiary enrolment, % gross	71.4	43	
2.2.2	Graduates in science and engineering, %	30.5	19	
2.2.3	Tertiary inbound mobility, %	9.1	33	
2.3	**Research and development (R&D)**	**60.4**	**14**	
2.3.1	Researchers, FTE/mn pop.	5,067.5	22	
2.3.2	Gross expenditure on R&D, % GDP	2.2	16	
2.3.3	Global corporate R&D investors, top 3, mn USD	79.4	9	●
2.3.4	QS university ranking, top 3*	79.4	8	●
Infrastructure		**57.4**	**18**	
3.1	**Information and communication technology (ICT)**	**87.5**	**34**	
3.1.1	ICT access*	95.8	39	
3.1.2	ICT use*	85.4	33	
3.1.3	Government online service*	81.2	37	
3.2	**General infrastructure**	**50.6**	**22**	
3.2.1	Electricity output, GWh/mn pop.	7,609.8	23	
3.2.2	Logistics performance*	81.8	13	
3.2.3	Gross capital formation, % GDP	24.3	57	○
3.3	**Ecological sustainability**	**34.2**	**34**	
3.3.1	GDP/unit of energy use	13.8	41	
3.3.2	Low-carbon energy use, %	50.4	13	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.4	61	○
Market sophistication		**57.1**	**14**	
4.1	**Credit**	**57.0**	**18**	
4.1.1	Finance for startups and scaleups†	70.6	18	
4.1.2	Domestic credit to private sector, % GDP	112.7	19	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**25.2**	**23**	
4.2.1	Market capitalization, % GDP	92.9	20	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	21	
4.2.3	Late-stage VC deal count, % global VC	1.2	5	●
4.2.4	VC investors, deal count/bn PPP$ GDP	0.4	31	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.2	29	◇
4.3	**Trade, diversification and market scale**	**88.9**	**5**	●◆
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	97.6	7	●
4.3.3	Domestic market scale, bn PPP$	4,359.4	9	●

		Score/ Value	Rank	
Business sophistication		**53.4**	**14**	
5.1	**Knowledge workers**	**57.0**	**17**	
5.1.1	Knowledge-intensive employment, %	49.7	12	
5.1.2	Females employed w/advanced degrees, %	26.2	17	
5.1.3	Youth demographic dividend, %	28.7	96	○
5.1.4	GERD performed by business, % GDP	1.4	17	
5.1.5	GERD financed by business, %	56.3	18	
5.2	**Innovation linkages**	**59.8**	**17**	
5.2.1	Public research–industry co-publications, %	5.0	14	
5.2.2	University–industry R&D collaboration†	55.3	30	
5.2.3	University industry and international engagement, top 5*	90.1	10	
5.2.4	State of cluster development†	69.7	36	
5.2.5	Patent families/bn PPP$ GDP	2.6	14	
5.3	**Knowledge absorption**	**43.3**	**16**	
5.3.1	Intellectual property payments, % total trade	1.4	27	
5.3.2	High-tech imports, % total trade	9.9	40	
5.3.3	ICT services imports, % total trade	3.2	16	
5.3.4	FDI net inflows, % GDP	2.5	69	○
5.3.5	Research talent, % in businesses	61.2	13	
Knowledge and technology outputs		**41.8**	**15**	
6.1	**Knowledge creation**	**41.2**	**20**	
6.1.1	Patents by origin/bn PPP$ GDP	5.8	13	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.8	12	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	52	○
6.1.4	Scientific and technical articles/bn PPP$ GDP	15.6	44	◇
6.1.5	Citable documents H-index	77.7	5	●
6.2	**Knowledge impact**	**45.0**	**14**	
6.2.1	Labor productivity growth, %	−0.5	110	○
6.2.2	Unicorn valuation, % GDP	2.2	19	
6.2.3	Software spending, % GDP	0.6	9	●
6.2.4	High-tech manufacturing, %	45.8	15	
6.3	**Knowledge diffusion**	**39.2**	**28**	
6.3.1	Intellectual property receipts, % total trade	1.5	15	
6.3.2	Production and export complexity	76.4	21	
6.3.3	High-tech exports, % total trade	11.1	17	
6.3.4	ICT services exports, % total trade	2.6	52	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.8	53	○
Creative outputs		**56.0**	**7**	●
7.1	**Intangible assets**	**70.6**	**3**	●◆
7.1.1	Intangible asset intensity, top 15, %	81.8	6	●
7.1.2	Trademarks by origin/bn PPP$ GDP	65.8	21	
7.1.3	Global brand value, top 5,000, % GDP	18.1	4	●◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	8.3	9	●◆
7.2	**Creative goods and services**	**29.3**	**37**	
7.2.1	Cultural and creative services exports, % total trade	1.3	21	
7.2.2	National feature films/mn pop. 15–69	5.3	31	
7.2.3	Entertainment and media market/th pop. 15–69	44.1	18	
7.2.4	Creative goods exports, % total trade	1.6	31	
7.3	**Online creativity**	**53.5**	**27**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	37.6	26	
7.3.2	GitHub commits/mn pop. 15–69	48.6	22	◇
7.3.3	Mobile app creation/bn PPP$ GDP	74.1	21	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Georgia

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
71	48	Upper middle	NAWA	3.8	102.2	27,363

		Score/ Value	Rank	
Institutions		**68.4**	**28**	●◆
1.1	**Institutional environment**	**63.6**	**47**	◆
1.1.1	Operational stability for businesses*	64.7	63	
1.1.2	Government effectiveness*	62.5	35	◆
1.2	**Regulatory environment**	**62.6**	**43**	◆
1.2.1	Regulatory quality*	68.6	33	●◆
1.2.2	Rule of law*	56.5	61	
1.3	**Business environment**	**79.1**	**6**	●◆
1.3.1	Policy stability for doing business†	68.7	26	●◆
1.3.2	Entrepreneurship policies and culture† ⏲	89.5	4	
Human capital and research		**33.0**	**61**	
2.1	**Education**	**54.9**	**56**	
2.1.1	Expenditure on education, % GDP	3.7	90	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	16.4	30	◆
2.1.4	PISA scales in reading, maths and science	382.7	69	○
2.1.5	Pupil–teacher ratio, secondary	8.5	16	●
2.2	**Tertiary education**	**39.0**	**35**	◆
2.2.1	Tertiary enrolment, % gross	78.3	28	●◆
2.2.2	Graduates in science and engineering, %	20.1	80	
2.2.3	Tertiary inbound mobility, %	15.2	14	●◆
2.3	**Research and development (R&D)**	**5.2**	**77**	
2.3.1	Researchers, FTE/mn pop.	1,768.2	44	◆
2.3.2	Gross expenditure on R&D, % GDP	0.3	82	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**41.2**	**73**	
3.1	**Information and communication technology (ICT)**	**73.1**	**78**	
3.1.1	ICT access*	87.8	61	
3.1.2	ICT use*	83.8	41	
3.1.3	Government online service*	47.7	96	
3.2	**General infrastructure**	**27.6**	**88**	
3.2.1	Electricity output, GWh/mn pop.	3,891.9	56	
3.2.2	Logistics performance*	27.3	76	
3.2.3	Gross capital formation, % GDP	24.6	51	
3.3	**Ecological sustainability**	**23.0**	**57**	
3.3.1	GDP/unit of energy use	12.8	48	
3.3.2	Low-carbon energy use, %	33.0	33	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	112	○
Market sophistication		**38.7**	**59**	
4.1	**Credit**	**36.9**	**42**	
4.1.1	Finance for startups and scaleups† ⏲	64.0	24	
4.1.2	Domestic credit to private sector, % GDP	66.1	45	
4.1.3	Loans from microfinance institutions, % GDP	2.2	20	
4.2	**Investment**	**3.1**	**85**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	78	
4.2.3	Late-stage VC deal count, % global VC	0.0	102	○
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	53	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	68	
4.3	**Trade, diversification and market scale**	**76.1**	**47**	
4.3.1	Applied tariff rate, weighted avg., %	0.3	4	●◆
4.3.2	Domestic industry diversification	87.1	48	
4.3.3	Domestic market scale, bn PPP$	102.2	93	

		Score/ Value	Rank	
Business sophistication		**28.2**	**69**	
5.1	**Knowledge workers**	**32.3**	**84**	
5.1.1	Knowledge-intensive employment, % ⏲	24.7	59	
5.1.2	Females employed w/advanced degrees, % ⏲	19.5	38	
5.1.3	Youth demographic dividend, %	32.4	78	
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, % ⏲	1.7	85	○◇
5.2	**Innovation linkages**	**25.1**	**67**	
5.2.1	Public research–industry co-publications, %	1.1	83	
5.2.2	University–industry R&D collaboration†	41.9	48	
5.2.3	University industry and international engagement, top 5*	6.1	99	○
5.2.4	State of cluster development†	66.4	38	◆
5.2.5	Patent families/bn PPP$ GDP	0.1	59	
5.3	**Knowledge absorption**	**27.0**	**68**	
5.3.1	Intellectual property payments, % total trade	0.6	63	
5.3.2	High-tech imports, % total trade	6.9	89	
5.3.3	ICT services imports, % total trade	1.1	88	
5.3.4	FDI net inflows, % GDP	7.6	17	●◆
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**21.0**	**66**	
6.1	**Knowledge creation**	**14.1**	**68**	
6.1.1	Patents by origin/bn PPP$ GDP	1.0	54	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	65	
6.1.3	Utility models by origin/bn PPP$ GDP	0.8	24	
6.1.4	Scientific and technical articles/bn PPP$ GDP	9.1	76	
6.1.5	Citable documents H-index	10.8	73	
6.2	**Knowledge impact**	**29.1**	**53**	
6.2.1	Labor productivity growth, %	6.3	1	●◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	109	○
6.2.4	High-tech manufacturing, %	11.2	83	○
6.3	**Knowledge diffusion**	**19.8**	**63**	
6.3.1	Intellectual property receipts, % total trade	0.1	69	
6.3.2	Production and export complexity	47.5	66	
6.3.3	High-tech exports, % total trade	0.8	86	
6.3.4	ICT services exports, % total trade	5.4	21	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.7	93	
Creative outputs		**20.0**	**76**	
7.1	**Intangible assets**	**18.0**	**81**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	32.6	58	
7.1.3	Global brand value, top 5,000, % GDP	1.2	56	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.8	39	
7.2	**Creative goods and services**	**11.1**	**69**	
7.2.1	Cultural and creative services exports, % total trade	0.8	43	
7.2.2	National feature films/mn pop. 15–69 ⏲	2.7	47	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.3	73	
7.3	**Online creativity**	**33.0**	**49**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	5.1	62	
7.3.2	GitHub commits/mn pop. 15–69	27.9	37	◆
7.3.3	Mobile app creation/bn PPP$ GDP	65.9	64	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Germany

GII 2025 rank **11**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
8	15	High	EUR	84.6	6,017.2	70,930

		Score/ Value	Rank
Institutions		**70.2**	**23**
1.1	**Institutional environment**	**74.8**	**23**
1.1.1	Operational stability for businesses*	77.3	28
1.1.2	Government effectiveness*	72.2	23
1.2	**Regulatory environment**	**85.1**	**15**
1.2.1	Regulatory quality*	80.4	16
1.2.2	Rule of law*	89.9	13
1.3	**Business environment**	**50.7**	**57** ○
1.3.1	Policy stability for doing business†	55.3	54 ◇
1.3.2	Entrepreneurship policies and culture†	46.1	41 ○
Human capital and research		**61.0**	**4** ●
2.1	**Education**	**61.8**	**32**
2.1.1	Expenditure on education, % GDP	4.5	56 ○
2.1.2	Government funding/pupil, secondary, % GDP/cap	25.3	17
2.1.3	School life expectancy, years	17.1	20
2.1.4	PISA scales in reading, maths and science	482.3	23
2.1.5	Pupil–teacher ratio, secondary ⏲	11.4	45
2.2	**Tertiary education**	**53.3**	**6** ●
2.2.1	Tertiary enrolment, % gross	76.3	34
2.2.2	Graduates in science and engineering, %	35.9	6 ●◆
2.2.3	Tertiary inbound mobility, %	12.7	21
2.3	**Research and development (R&D)**	**68.0**	**6** ●
2.3.1	Researchers, FTE/mn pop.	5,997.5	11
2.3.2	Gross expenditure on R&D, % GDP	3.1	9
2.3.3	Global corporate R&D investors, top 3, mn USD	91.1	2 ●
2.3.4	QS university ranking, top 3*	74.6	11
Infrastructure		**54.9**	**28**
3.1	**Information and communication technology (ICT)**	**89.1**	**26**
3.1.1	ICT access*	95.9	37
3.1.2	ICT use*	80.5	57 ○◇
3.1.3	Government online service*	90.8	12
3.2	**General infrastructure**	**48.9**	**25**
3.2.1	Electricity output, GWh/mn pop.	6,088.0	34
3.2.2	Logistics performance*	90.9	3 ●◆
3.2.3	Gross capital formation, % GDP	21.8	89 ○
3.3	**Ecological sustainability**	**26.7**	**48**
3.3.1	GDP/unit of energy use	17.1	23
3.3.2	Low-carbon energy use, %	24.0	54
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.6	57 ○
Market sophistication		**50.8**	**22**
4.1	**Credit**	**47.0**	**29**
4.1.1	Finance for startups and scaleups†	63.3	27
4.1.2	Domestic credit to private sector, % GDP ⏲	81.8	32
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a
4.2	**Investment**	**16.3**	**38** ◇
4.2.1	Market capitalization, % GDP	53.6	35 ○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.2	38 ◇
4.2.3	Late-stage VC deal count, % global VC	0.7	9
4.2.4	VC investors, deal count/bn PPP$ GDP	0.4	34
4.2.5	VC investor co-participation/bn PPP$ GDP	0.2	37 ◇
4.3	**Trade, diversification and market scale**	**89.2**	**4** ●◆
4.3.1	Applied tariff rate, weighted avg., %	1.3	24
4.3.2	Domestic industry diversification	95.4	18
4.3.3	Domestic market scale, bn PPP$	6,017.2	6 ●◆

		Score/ Value	Rank
Business sophistication		**54.5**	**13**
5.1	**Knowledge workers**	**53.1**	**24**
5.1.1	Knowledge-intensive employment, %	47.7	18
5.1.2	Females employed w/advanced degrees, %	16.6	47 ◇
5.1.3	Youth demographic dividend, %	23.4	131 ○
5.1.4	GERD performed by business, % GDP	2.1	9
5.1.5	GERD financed by business, % ⏲	62.8	9
5.2	**Innovation linkages**	**67.5**	**7** ●
5.2.1	Public research–industry co-publications, %	6.1	6 ●
5.2.2	University–industry R&D collaboration†	64.2	15
5.2.3	University industry and international engagement, top 5*	88.5	11
5.2.4	State of cluster development†	79.4	19
5.2.5	Patent families/bn PPP$ GDP	4.4	8
5.3	**Knowledge absorption**	**42.8**	**20**
5.3.1	Intellectual property payments, % total trade	1.1	33
5.3.2	High-tech imports, % total trade	11.8	24
5.3.3	ICT services imports, % total trade	3.0	22
5.3.4	FDI net inflows, % GDP	1.4	99 ○
5.3.5	Research talent, % in businesses	61.7	12
Knowledge and technology outputs		**49.6**	**11**
6.1	**Knowledge creation**	**54.3**	**10**
6.1.1	Patents by origin/bn PPP$ GDP	10.8	7 ●
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	2.8	9
6.1.3	Utility models by origin/bn PPP$ GDP	0.9	21
6.1.4	Scientific and technical articles/bn PPP$ GDP	17.5	39
6.1.5	Citable documents H-index	87.4	3 ●◆
6.2	**Knowledge impact**	**44.7**	**15**
6.2.1	Labor productivity growth, %	−0.3	106 ○
6.2.2	Unicorn valuation, % GDP	1.8	23
6.2.3	Software spending, % GDP	0.5	21
6.2.4	High-tech manufacturing, %	56.9	5 ●
6.3	**Knowledge diffusion**	**49.9**	**14**
6.3.1	Intellectual property receipts, % total trade	2.7	8 ●
6.3.2	Production and export complexity	92.0	5 ●
6.3.3	High-tech exports, % total trade	13.6	12
6.3.4	ICT services exports, % total trade	2.4	54
6.3.5	ISO 9001 quality/bn PPP$ GDP	7.3	36
Creative outputs		**55.6**	**8** ●
7.1	**Intangible assets**	**62.6**	**6** ●
7.1.1	Intangible asset intensity, top 15, %	75.6	12
7.1.2	Trademarks by origin/bn PPP$ GDP	47.5	33
7.1.3	Global brand value, top 5,000, % GDP	14.9	9
7.1.4	Industrial designs by origin/bn PPP$ GDP	7.4	12
7.2	**Creative goods and services**	**27.7**	**39**
7.2.1	Cultural and creative services exports, % total trade ⏲	1.0	30
7.2.2	National feature films/mn pop. 15–69	3.1	44 ○
7.2.3	Entertainment and media market/th pop. 15–69	50.8	13
7.2.4	Creative goods exports, % total trade	1.8	27
7.3	**Online creativity**	**69.5**	**10**
7.3.1	Top-level domains (TLDs)/th pop. 15–69	78.5	8 ●
7.3.2	GitHub commits/mn pop. 15–69	60.7	18
7.3.3	Mobile app creation/bn PPP$ GDP	69.4	48

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Ghana

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
93	108	Lower middle	SSA	34.4	269.1	7,975

		Score/ Value	Rank	
Institutions		**45.6**	**82**	
1.1	**Institutional environment**	**46.1**	**86**	
1.1.1	Operational stability for businesses*	51.3	96	
1.1.2	Government effectiveness*	40.8	79	
1.2	**Regulatory environment**	**46.2**	**77**	◆
1.2.1	Regulatory quality*	42.6	85	◆
1.2.2	Rule of law*	49.8	69	◆
1.3	**Business environment**	**44.7**	**[68]**	
1.3.1	Policy stability for doing business†	44.7	73	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**19.4**	**108**	
2.1	**Education**	**46.2**	**[84]**	
2.1.1	Expenditure on education, % GDP	2.9	115	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	11.6	101	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	16.1	86	
2.2	**Tertiary education**	**11.9**	**113**	
2.2.1	Tertiary enrolment, % gross	22.1	101	
2.2.2	Graduates in science and engineering, %	16.6	99	
2.2.3	Tertiary inbound mobility, %	0.7	97	
2.3	**Research and development (R&D)**	**0.3**	**115**	
2.3.1	Researchers, FTE/mn pop.	87.5	94	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**30.3**	**109**	
3.1	**Information and communication technology (ICT)**	**61.0**	**96**	
3.1.1	ICT access*	65.8	102	
3.1.2	ICT use*	64.2	98	
3.1.3	Government online service*	52.9	86	
3.2	**General infrastructure**	**8.4**	**135**	○◇
3.2.1	Electricity output, GWh/mn pop.	711.0	108	
3.2.2	Logistics performance*	18.2	90	
3.2.3	Gross capital formation, % GDP	12.9	131	○◇
3.3	**Ecological sustainability**	**21.6**	**62**	●
3.3.1	GDP/unit of energy use	16.8	24	●◆
3.3.2	Low-carbon energy use, %	20.0	64	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.4	91	
Market sophistication		**16.9**	**129**	○◇
4.1	**Credit**	**1.1**	**138**	○◇
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	10.0	131	○
4.1.3	Loans from microfinance institutions, % GDP	0.1	56	
4.2	**Investment**	**3.2**	**82**	
4.2.1	Market capitalization, % GDP	11.7	72	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	57	●
4.2.3	Late-stage VC deal count, % global VC	0.0	57	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	85	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	95	
4.3	**Trade, diversification and market scale**	**46.5**	**115**	
4.3.1	Applied tariff rate, weighted avg., %	7.7	117	
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	269.1	68	

		Score/ Value	Rank	
Business sophistication		**25.6**	**91**	
5.1	**Knowledge workers**	**32.0**	**[89]**	
5.1.1	Knowledge-intensive employment, %	8.8	105	
5.1.2	Females employed w/advanced degrees, %	3.3	99	
5.1.3	Youth demographic dividend, %	54.7	26	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**24.3**	**71**	
5.2.1	Public research–industry co-publications, %	1.8	53	●◆
5.2.2	University–industry R&D collaboration†	33.6	74	
5.2.3	University industry and international engagement, top 5*	22.0	67	
5.2.4	State of cluster development†	48.2	63	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**20.5**	**105**	
5.3.1	Intellectual property payments, % total trade	1.0	39	●◆
5.3.2	High-tech imports, % total trade	4.1	125	
5.3.3	ICT services imports, % total trade	0.6	113	
5.3.4	FDI net inflows, % GDP	2.3	78	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**16.3**	**86**	
6.1	**Knowledge creation**	**6.2**	**105**	
6.1.1	Patents by origin/bn PPP$ GDP	0.0	127	○
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	104	
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	71	
6.1.4	Scientific and technical articles/bn PPP$ GDP	9.9	70	
6.1.5	Citable documents H-index	9.9	79	
6.2	**Knowledge impact**	**34.0**	**43**	●◆
6.2.1	Labor productivity growth, %	1.4	49	●
6.2.2	Unicorn valuation, % GDP	2.6	16	●◆
6.2.3	Software spending, % GDP	0.0	132	○◇
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**8.8**	**115**	
6.3.1	Intellectual property receipts, % total trade	0.1	73	
6.3.2	Production and export complexity	33.0	101	
6.3.3	High-tech exports, % total trade	0.1	125	
6.3.4	ICT services exports, % total trade	0.7	98	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.8	116	
Creative outputs		**15.9**	**91**	
7.1	**Intangible assets**	**9.2**	**106**	
7.1.1	Intangible asset intensity, top 15, %	−52.8	78	○◇
7.1.2	Trademarks by origin/bn PPP$ GDP	3.0	131	○◇
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.3	49	●
7.2	**Creative goods and services**	**30.6**	**[30]**	
7.2.1	Cultural and creative services exports, % total trade	2.8	9	●◆
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	113	
7.3	**Online creativity**	**14.5**	**118**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.3	122	
7.3.2	GitHub commits/mn pop. 15–69	2.8	100	
7.3.3	Mobile app creation/bn PPP$ GDP	40.4	119	○

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Greece

GII 2025 rank **42**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
42	42	High	EUR	10.0	436.8	42,066

		Score/ Value	Rank	
Institutions		**52.0**	**60**	◇
1.1	**Institutional environment**	**58.7**	**57**	
1.1.1	Operational stability for businesses*	70.7	44	
1.1.2	Government effectiveness*	46.7	63	◇
1.2	**Regulatory environment**	**58.8**	**51**	
1.2.1	Regulatory quality*	60.1	46	
1.2.2	Rule of law*	57.4	58	◇
1.3	**Business environment**	**38.5**	**80**	
1.3.1	Policy stability for doing business†	47.7	66	
1.3.2	Entrepreneurship policies and culture†	29.3	63	○
Human capital and research		**46.8**	**29**	●
2.1	**Education**	**60.9**	**38**	
2.1.1	Expenditure on education, % GDP	3.8	87	○
2.1.2	Government funding/pupil, secondary, % GDP/cap	20.1	44	
2.1.3	School life expectancy, years	20.8	1	●◆
2.1.4	PISA scales in reading, maths and science	436.5	45	
2.1.5	Pupil–teacher ratio, secondary	8.5	15	●
2.2	**Tertiary education**	**53.4**	**5**	●◆
2.2.1	Tertiary enrolment, % gross	166.7	1	●◆
2.2.2	Graduates in science and engineering, %	26.2	37	
2.2.3	Tertiary inbound mobility, %	3.1	68	
2.3	**Research and development (R&D)**	**26.0**	**40**	
2.3.1	Researchers, FTE/mn pop.	5,250.7	19	●
2.3.2	Gross expenditure on R&D, % GDP	1.5	29	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	30.0	46	
Infrastructure		**52.1**	**41**	
3.1	**Information and communication technology (ICT)**	**84.6**	**45**	
3.1.1	ICT access*	96.0	36	
3.1.2	ICT use*	80.3	58	
3.1.3	Government online service*	77.7	45	
3.2	**General infrastructure**	**39.2**	**45**	
3.2.1	Electricity output, GWh/mn pop.	4,500.5	45	
3.2.2	Logistics performance*	72.7	18	●
3.2.3	Gross capital formation, % GDP	20.3	102	○
3.3	**Ecological sustainability**	**32.6**	**37**	
3.3.1	GDP/unit of energy use	16.4	26	●
3.3.2	Low-carbon energy use, %	20.8	62	
3.3.3	ISO 14001 environment/bn PPP$ GDP	4.3	21	●
Market sophistication		**39.0**	**57**	
4.1	**Credit**	**30.8**	**64**	
4.1.1	Finance for startups and scaleups†	44.7	57	
4.1.2	Domestic credit to private sector, % GDP	49.1	67	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**7.9**	**55**	
4.2.1	Market capitalization, % GDP	26.9	53	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	46	
4.2.3	Late-stage VC deal count, % global VC	0.0	56	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	42	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	41	
4.3	**Trade, diversification and market scale**	**78.1**	**38**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	87.0	49	
4.3.3	Domestic market scale, bn PPP$	436.8	53	

		Score/ Value	Rank	
Business sophistication		**28.7**	**65**	◇
5.1	**Knowledge workers**	**37.4**	**61**	
5.1.1	Knowledge-intensive employment, %	31.6	47	◇
5.1.2	Females employed w/advanced degrees, %	20.2	37	
5.1.3	Youth demographic dividend, %	23.4	130	○
5.1.4	GERD performed by business, % GDP	0.7	35	
5.1.5	GERD financed by business, %	37.9	51	
5.2	**Innovation linkages**	**23.8**	**74**	◇
5.2.1	Public research–industry co-publications, %	2.5	33	
5.2.2	University–industry R&D collaboration†	21.8	107	○◇
5.2.3	University industry and international engagement, top 5*	44.2	40	
5.2.4	State of cluster development†	20.2	125	○◇
5.2.5	Patent families/bn PPP$ GDP	0.4	37	
5.3	**Knowledge absorption**	**24.8**	**77**	
5.3.1	Intellectual property payments, % total trade	0.3	86	
5.3.2	High-tech imports, % total trade	7.2	85	
5.3.3	ICT services imports, % total trade	0.9	96	○
5.3.4	FDI net inflows, % GDP	2.8	63	
5.3.5	Research talent, % in businesses	31.1	45	
Knowledge and technology outputs		**28.1**	**43**	
6.1	**Knowledge creation**	**25.4**	**40**	
6.1.1	Patents by origin/bn PPP$ GDP	1.6	34	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.3	38	
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	62	○
6.1.4	Scientific and technical articles/bn PPP$ GDP	27.6	18	●
6.1.5	Citable documents H-index	33.7	30	
6.2	**Knowledge impact**	**33.4**	**45**	
6.2.1	Labor productivity growth, %	0.4	86	
6.2.2	Unicorn valuation, % GDP	1.3	32	
6.2.3	Software spending, % GDP	0.6	15	●
6.2.4	High-tech manufacturing, %	16.5	71	○◇
6.3	**Knowledge diffusion**	**25.6**	**51**	
6.3.1	Intellectual property receipts, % total trade	0.1	78	
6.3.2	Production and export complexity	53.8	51	
6.3.3	High-tech exports, % total trade	2.7	54	
6.3.4	ICT services exports, % total trade	1.3	80	
6.3.5	ISO 9001 quality/bn PPP$ GDP	15.6	14	●◆
Creative outputs		**33.8**	**40**	
7.1	**Intangible assets**	**40.6**	**31**	
7.1.1	Intangible asset intensity, top 15, %	55.0	44	
7.1.2	Trademarks by origin/bn PPP$ GDP	n/a	n/a	
7.1.3	Global brand value, top 5,000, % GDP	0.9	60	
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.9	29	
7.2	**Creative goods and services**	**18.3**	**57**	
7.2.1	Cultural and creative services exports, % total trade	0.5	53	
7.2.2	National feature films/mn pop. 15–69	5.2	33	
7.2.3	Entertainment and media market/th pop. 15–69	22.4	29	
7.2.4	Creative goods exports, % total trade	1.1	42	
7.3	**Online creativity**	**35.9**	**41**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	22.0	34	
7.3.2	GitHub commits/mn pop. 15–69	24.7	40	
7.3.3	Mobile app creation/bn PPP$ GDP	61.0	82	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Guatemala

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
120	120	Upper middle	LCN	18.4	264.0	14,791

		Score/ Value	Rank	
Institutions		**33.2**	**112**	
1.1	**Institutional environment**	**37.2**	**107**	
1.1.1	Operational stability for businesses*	53.3	92	
1.1.2	Government effectiveness*	21.0	123	◇
1.2	**Regulatory environment**	**33.1**	**108**	
1.2.1	Regulatory quality*	40.0	89	
1.2.2	Rule of law*	26.1	125	◇
1.3	**Business environment**	**29.3**	**100**	
1.3.1	Policy stability for doing business†	41.1	79	
1.3.2	Entrepreneurship policies and culture†	17.4	82	
Human capital and research		**12.4**	**134**	○◇
2.1	**Education**	**31.7**	**127**	◇
2.1.1	Expenditure on education, % GDP	3.2	104	
2.1.2	Government funding/pupil, secondary, % GDP/cap	6.5	90	○◇
2.1.3	School life expectancy, years	10.6	109	◇
2.1.4	PISA scales in reading, maths and science	363.8	77	
2.1.5	Pupil–teacher ratio, secondary	11.6	50	●
2.2	**Tertiary education**	**5.6**	**123**	◇
2.2.1	Tertiary enrolment, % gross	27.3	93	◇
2.2.2	Graduates in science and engineering, %	9.8	118	
2.2.3	Tertiary inbound mobility, %	0.4	102	
2.3	**Research and development (R&D)**	**0.0**	**124**	○◇
2.3.1	Researchers, FTE/mn pop.	4.5	109	○◇
2.3.2	Gross expenditure on R&D, % GDP	0.0	115	○◇
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**28.2**	**117**	◇
3.1	**Information and communication technology (ICT)**	**54.4**	**110**	◇
3.1.1	ICT access*	52.5	113	◇
3.1.2	ICT use*	52.3	111	◇
3.1.3	Government online service*	58.3	82	
3.2	**General infrastructure**	**13.5**	**127**	◇
3.2.1	Electricity output, GWh/mn pop.	765.3	105	◇
3.2.2	Logistics performance*	22.7	82	
3.2.3	Gross capital formation, % GDP	16.4	119	◇
3.3	**Ecological sustainability**	**16.8**	**88**	
3.3.1	GDP/unit of energy use	10.0	75	
3.3.2	Low-carbon energy use, %	23.3	56	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	109	
Market sophistication		**28.2**	**99**	
4.1	**Credit**	**15.4**	**101**	
4.1.1	Finance for startups and scaleups†	18.7	88	◇
4.1.2	Domestic credit to private sector, % GDP	37.1	81	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**1.7**	**104**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	99	
4.2.3	Late-stage VC deal count, % global VC	0.0	83	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	76	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	80	
4.3	**Trade, diversification and market scale**	**67.6**	**76**	
4.3.1	Applied tariff rate, weighted avg., %	2.3	69	●
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	264.0	69	●

		Score/ Value	Rank	
Business sophistication		**21.7**	**118**	
5.1	**Knowledge workers**	**19.5**	**135**	○◇
5.1.1	Knowledge-intensive employment, %	7.8	107	◇
5.1.2	Females employed w/advanced degrees, %	2.3	105	◇
5.1.3	Youth demographic dividend, %	51.1	30	●◆
5.1.4	GERD performed by business, % GDP	0.0	87	○
5.1.5	GERD financed by business, %	11.1	72	
5.2	**Innovation linkages**	**20.7**	**89**	
5.2.1	Public research–industry co-publications, %	0.9	99	
5.2.2	University–industry R&D collaboration†	30.8	80	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	44.4	70	
5.2.5	Patent families/bn PPP$ GDP	0.0	93	
5.3	**Knowledge absorption**	**24.9**	**76**	
5.3.1	Intellectual property payments, % total trade	1.7	18	●◆
5.3.2	High-tech imports, % total trade	9.9	42	●
5.3.3	ICT services imports, % total trade	1.2	78	
5.3.4	FDI net inflows, % GDP	2.4	76	
5.3.5	Research talent, % in businesses	3.5	74	
Knowledge and technology outputs		**10.9**	**114**	
6.1	**Knowledge creation**	**1.3**	**135**	○◇
6.1.1	Patents by origin/bn PPP$ GDP	0.0	129	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	101	
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	65	
6.1.4	Scientific and technical articles/bn PPP$ GDP	1.0	137	○◇
6.1.5	Citable documents H-index	4.0	117	
6.2	**Knowledge impact**	**16.7**	**114**	
6.2.1	Labor productivity growth, %	0.8	73	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	133	○◇
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**14.8**	**83**	
6.3.1	Intellectual property receipts, % total trade	0.1	68	●
6.3.2	Production and export complexity	44.7	72	
6.3.3	High-tech exports, % total trade	1.5	69	●
6.3.4	ICT services exports, % total trade	2.4	55	●
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.1	108	
Creative outputs		**7.8**	**[119]**	
7.1	**Intangible assets**	**7.0**	**[109]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	26.4	77	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.0	124	◇
7.2	**Creative goods and services**	**2.3**	**[109]**	
7.2.1	Cultural and creative services exports, % total trade	0.1	99	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.2	83	
7.3	**Online creativity**	**15.0**	**116**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	2.2	83	
7.3.2	GitHub commits/mn pop. 15–69	2.7	102	
7.3.3	Mobile app creation/bn PPP$ GDP	40.0	121	◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Guinea

GII 2025 rank **133**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
123	132	Lower middle	SSA	14.8	66.6	4,321

			Score/ Value	Rank	
Institutions			**29.4**	**118**	
1.1	**Institutional environment**		**28.4**	**122**	
1.1.1	Operational stability for businesses*		36.0	122	
1.1.2	Government effectiveness*		20.8	125	
1.2	**Regulatory environment**		**23.6**	**129**	◇
1.2.1	Regulatory quality*		21.9	130	◇
1.2.2	Rule of law*		25.2	128	
1.3	**Business environment**		**36.3**	**[86]**	
1.3.1	Policy stability for doing business†	⏲	36.3	90	●
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**17.3**	**[120]**	
2.1	**Education**		**29.4**	**[128]**	
2.1.1	Expenditure on education, % GDP		1.7	132	◇
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years	⏲	8.6	120	◇
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	22.5	108	
2.2	**Tertiary education**		**22.5**	**89**	●
2.2.1	Tertiary enrolment, % gross	⏲	6.7	125	◇
2.2.2	Graduates in science and engineering, %	⏲	23.0	62	●
2.2.3	Tertiary inbound mobility, %		n/a	n/a	
2.3	**Research and development (R&D)**		**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.		n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP		n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**24.0**	**127**	◇
3.1	**Information and communication technology (ICT)**		**36.3**	**126**	◇
3.1.1	ICT access*		35.1	130	◇
3.1.2	ICT use*		n/a	n/a	
3.1.3	Government online service*		37.5	108	
3.2	**General infrastructure**		**15.6**	**124**	
3.2.1	Electricity output, GWh/mn pop.		n/a	n/a	
3.2.2	Logistics performance*		18.2	90	
3.2.3	Gross capital formation, % GDP		15.9	122	◇
3.3	**Ecological sustainability**		**20.2**	**68**	●
3.3.1	GDP/unit of energy use		n/a	n/a	
3.3.2	Low-carbon energy use, %		33.0	32	●
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.1	131	
Market sophistication			**12.4**	**137**	◇
4.1	**Credit**		**2.4**	**134**	◇
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	⏲	9.1	133	
4.1.3	Loans from microfinance institutions, % GDP		0.4	49	
4.2	**Investment**		**1.8**	**[103]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	⏲	0.0	85	●
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	⏲	0.0	93	
4.2.5	VC investor co-participation/bn PPP$ GDP	⏲	0.0	97	
4.3	**Trade, diversification and market scale**		**32.9**	**131**	◇
4.3.1	Applied tariff rate, weighted avg., %		9.4	125	
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		66.6	108	

			Score/ Value	Rank	
Business sophistication			**23.7**	**100**	
5.1	**Knowledge workers**		**34.2**	**[72]**	
5.1.1	Knowledge-intensive employment, %	⏲	7.4	108	
5.1.2	Females employed w/advanced degrees, %	⏲	2.2	106	
5.1.3	Youth demographic dividend, %		60.8	16	●◆
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**18.2**	**96**	
5.2.1	Public research–industry co-publications, %		0.7	109	
5.2.2	University–industry R&D collaboration†	⏲	34.2	71	●
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†	⏲	33.6	97	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**18.6**	**115**	
5.3.1	Intellectual property payments, % total trade		0.0	131	○◇
5.3.2	High-tech imports, % total trade	⏲	2.6	136	
5.3.3	ICT services imports, % total trade		1.8	48	●
5.3.4	FDI net inflows, % GDP		3.5	51	●
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**7.8**	**135**	◇
6.1	**Knowledge creation**		**1.0**	**136**	
6.1.1	Patents by origin/bn PPP$ GDP		0.0	130	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP	⏲	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP		1.7	132	
6.1.5	Citable documents H-index		2.1	130	
6.2	**Knowledge impact**		**21.9**	**84**	●
6.2.1	Labor productivity growth, %		2.3	21	●
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	122	◇
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**0.5**	**138**	○◇
6.3.1	Intellectual property receipts, % total trade	⏲	0.0	127	○◇
6.3.2	Production and export complexity		1.5	128	○◇
6.3.3	High-tech exports, % total trade	⏲	0.0	137	
6.3.4	ICT services exports, % total trade	⏲	0.1	137	
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.2	137	
Creative outputs			**9.1**	**[114]**	
7.1	**Intangible assets**		**13.9**	**[89]**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		4.7	124	
7.1.3	Global brand value, top 5,000, % GDP		n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP		1.3	53	●
7.2	**Creative goods and services**		**1.1**	**[122]**	
7.2.1	Cultural and creative services exports, % total trade		0.1	98	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade	⏲	0.0	134	
7.3	**Online creativity**		**7.7**	**128**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.1	137	
7.3.2	GitHub commits/mn pop. 15–69		0.0	136	○
7.3.3	Mobile app creation/bn PPP$ GDP		23.0	128	◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

Honduras

119

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
114	119	Lower middle	LCN	10.8	81.1	7,605

		Score/ Value	Rank	
Institutions		**24.1**	**130**	◇
1.1	**Institutional environment**	**33.8**	**113**	
1.1.1	Operational stability for businesses*	44.0	108	
1.1.2	Government effectiveness*	23.5	117	
1.2	**Regulatory environment**	**29.8**	**115**	
1.2.1	Regulatory quality*	34.0	103	
1.2.2	Rule of law*	25.7	126	
1.3	**Business environment**	**8.8**	**[131]**	
1.3.1	Policy stability for doing business†	8.8	130	◇
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**18.7**	**113**	
2.1	**Education**	**44.3**	**89**	
2.1.1	Expenditure on education, % GDP	4.0	74	
2.1.2	Government funding/pupil, secondary, % GDP/cap	18.0	51	
2.1.3	School life expectancy, years ⏲	9.9	114	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	11.8	54	●◆
2.2	**Tertiary education**	**11.2**	**114**	
2.2.1	Tertiary enrolment, % gross	22.5	100	
2.2.2	Graduates in science and engineering, % ⏲	15.7	103	
2.2.3	Tertiary inbound mobility, % ⏲	0.8	93	
2.3	**Research and development (R&D)**	**0.7**	**109**	
2.3.1	Researchers, FTE/mn pop. ⏲	187.8	84	
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.1	107	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**30.9**	**107**	
3.1	**Information and communication technology (ICT)**	**47.6**	**114**	
3.1.1	ICT access*	58.5	110	
3.1.2	ICT use*	49.5	112	
3.1.3	Government online service*	34.9	113	
3.2	**General infrastructure**	**26.7**	**91**	
3.2.1	Electricity output, GWh/mn pop. ⏲	1,088.2	97	
3.2.2	Logistics performance*	36.4	65	
3.2.3	Gross capital formation, % GDP	24.6	53	●
3.3	**Ecological sustainability**	**18.5**	**78**	
3.3.1	GDP/unit of energy use	9.1	86	
3.3.2	Low-carbon energy use, %	29.0	39	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	101	
Market sophistication		**29.9**	**[94]**	
4.1	**Credit**	**28.0**	**[70]**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	75.6	37	●
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**0.5**	**[123]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	119	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**61.1**	**92**	
4.3.1	Applied tariff rate, weighted avg., %	2.5	73	◆
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	81.1	100	

		Score/ Value	Rank	
Business sophistication		**20.4**	**126**	
5.1	**Knowledge workers**	**21.2**	**128**	◇
5.1.1	Knowledge-intensive employment, % ⏲	11.6	96	
5.1.2	Females employed w/advanced degrees, % ⏲	0.4	123	○◇
5.1.3	Youth demographic dividend, %	49.5	32	●
5.1.4	GERD performed by business, % GDP ⏲	0.0	84	
5.1.5	GERD financed by business, % ⏲	21.1	65	
5.2	**Innovation linkages**	**12.4**	**121**	
5.2.1	Public research–industry co-publications, %	0.3	137	○◇
5.2.2	University–industry R&D collaboration†	16.8	118	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	32.4	101	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**27.6**	**67**	
5.3.1	Intellectual property payments, % total trade	0.9	46	●◆
5.3.2	High-tech imports, % total trade	7.9	71	
5.3.3	ICT services imports, % total trade	1.8	50	●
5.3.4	FDI net inflows, % GDP	2.8	62	●
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**13.6**	**96**	
6.1	**Knowledge creation**	**1.6**	**133**	
6.1.1	Patents by origin/bn PPP$ GDP	0.0	136	○◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	90	
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP	3.0	121	
6.1.5	Citable documents H-index	2.1	129	
6.2	**Knowledge impact**	**28.9**	**54**	●
6.2.1	Labor productivity growth, %	3.0	15	●◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	68	
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**10.3**	**104**	
6.3.1	Intellectual property receipts, % total trade	0.0	127	○◇
6.3.2	Production and export complexity	35.9	95	
6.3.3	High-tech exports, % total trade	0.6	91	
6.3.4	ICT services exports, % total trade	0.8	96	
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.3	83	
Creative outputs		**7.4**	**122**	
7.1	**Intangible assets**	**6.6**	**112**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	39.4	46	●◆
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP ⏲	0.0	129	
7.2	**Creative goods and services**	**0.6**	**[130]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	112	
7.3	**Online creativity**	**15.7**	**114**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.5	112	
7.3.2	GitHub commits/mn pop. 15–69	2.2	108	
7.3.3	Mobile app creation/bn PPP$ GDP	44.3	112	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Hong Kong, China

GII 2025 rank **15**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
22	8	High	SEAO	7.4	569.8	75,407

		Score/ Value	Rank	
Institutions		**81.2**	**8**	
1.1	**Institutional environment**	**85.3**	**9**	
1.1.1	Operational stability for businesses*	89.3	5	◆
1.1.2	Government effectiveness*	81.3	14	
1.2	**Regulatory environment**	**83.7**	**18**	
1.2.1	Regulatory quality*	83.8	12	
1.2.2	Rule of law*	83.6	21	
1.3	**Business environment**	**74.7**	**11**	◆
1.3.1	Policy stability for doing business†	75.5	15	
1.3.2	Entrepreneurship policies and culture†	73.9	8	
Human capital and research		**57.2**	**12**	
2.1	**Education**	**63.5**	**23**	
2.1.1	Expenditure on education, % GDP	3.8	86	
2.1.2	Government funding/pupil, secondary, % GDP/cap	25.2	19	
2.1.3	School life expectancy, years	16.9	23	
2.1.4	PISA scales in reading, maths and science	520.2	5	
2.1.5	Pupil–teacher ratio, secondary	10.6	39	
2.2	**Tertiary education**	**57.5**	**3**	● ◆
2.2.1	Tertiary enrolment, % gross	100.5	8	◆
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	22.4	6	◆
2.3	**Research and development (R&D)**	**50.6**	**20**	
2.3.1	Researchers, FTE/mn pop.	5,273.7	18	
2.3.2	Gross expenditure on R&D, % GDP	1.1	37	◇
2.3.3	Global corporate R&D investors, top 3, mn USD	n/a	n/a	
2.3.4	QS university ranking, top 3*	84.0	6	
Infrastructure		**57.1**	**21**	
3.1	**Information and communication technology (ICT)**	**95.9**	**6**	◆
3.1.1	ICT access*	98.8	16	
3.1.2	ICT use*	93.0	13	
3.1.3	Government online service*	n/a	n/a	
3.2	**General infrastructure**	**39.7**	**44**	◇
3.2.1	Electricity output, GWh/mn pop.	4,911.6	44	
3.2.2	Logistics performance*	86.4	7	
3.2.3	Gross capital formation, % GDP	15.8	123	○ ◇
3.3	**Ecological sustainability**	**35.8**	**29**	
3.3.1	GDP/unit of energy use	36.7	2	● ◆
3.3.2	Low-carbon energy use, %	0.4	133	○ ◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.2	44	
Market sophistication		**70.7**	**2**	● ◆
4.1	**Credit**	**92.6**	**1**	● ◆
4.1.1	Finance for startups and scaleups†	85.1	8	
4.1.2	Domestic credit to private sector, % GDP	248.8	1	● ◆
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**43.7**	**9**	
4.2.1	Market capitalization, % GDP	1,507.8	1	● ◆
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	28	
4.2.3	Late-stage VC deal count, % global VC	0.1	33	
4.2.4	VC investors, deal count/bn PPP$ GDP	2.0	7	◆
4.2.5	VC investor co-participation/bn PPP$ GDP	0.6	9	
4.3	**Trade, diversification and market scale**	**75.7**	**50**	
4.3.1	Applied tariff rate, weighted avg., %	0.0	1	● ◆
4.3.2	Domestic industry diversification	66.9	81	○ ◇
4.3.3	Domestic market scale, bn PPP$	569.8	48	

		Score/ Value	Rank	
Business sophistication		**47.1**	**23**	◇
5.1	**Knowledge workers**	**36.5**	**63**	◇
5.1.1	Knowledge-intensive employment, %	41.1	31	
5.1.2	Females employed w/advanced degrees, %	16.4	49	◇
5.1.3	Youth demographic dividend, %	17.6	139	○ ◇
5.1.4	GERD performed by business, % GDP	0.4	43	◇
5.1.5	GERD financed by business, %	49.2	29	
5.2	**Innovation linkages**	**53.8**	**23**	
5.2.1	Public research–industry co-publications, %	2.1	41	◇
5.2.2	University–industry R&D collaboration†	57.7	22	
5.2.3	University industry and international engagement, top 5*	100.0	1	● ◆
5.2.4	State of cluster development†	78.4	22	
5.2.5	Patent families/bn PPP$ GDP	0.6	33	◇
5.3	**Knowledge absorption**	**51.1**	**5**	●
5.3.1	Intellectual property payments, % total trade	0.3	89	◇
5.3.2	High-tech imports, % total trade	55.2	1	● ◆
5.3.3	ICT services imports, % total trade	0.4	125	○ ◇
5.3.4	FDI net inflows, % GDP	34.4	1	● ◆
5.3.5	Research talent, % in businesses	35.6	37	◇
Knowledge and technology outputs		**32.8**	**30**	◇
6.1	**Knowledge creation**	**41.0**	**22**	
6.1.1	Patents by origin/bn PPP$ GDP	0.9	61	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	0.8	22	
6.1.4	Scientific and technical articles/bn PPP$ GDP	40.6	4	● ◆
6.1.5	Citable documents H-index	40.6	23	
6.2	**Knowledge impact**	**35.1**	**34**	
6.2.1	Labor productivity growth, %	1.2	52	
6.2.2	Unicorn valuation, % GDP	2.7	15	
6.2.3	Software spending, % GDP	0.4	27	
6.2.4	High-tech manufacturing, %	10.2	86	○ ◇
6.3	**Knowledge diffusion**	**22.4**	**56**	◇
6.3.1	Intellectual property receipts, % total trade	0.1	59	◇
6.3.2	Production and export complexity	83.5	11	
6.3.3	High-tech exports, % total trade	0.1	130	○ ◇
6.3.4	ICT services exports, % total trade	0.6	101	○ ◇
6.3.5	ISO 9001 quality/bn PPP$ GDP	5.7	47	
Creative outputs		**47.7**	**17**	
7.1	**Intangible assets**	**39.1**	**36**	
7.1.1	Intangible asset intensity, top 15, %	44.6	55	○ ◇
7.1.2	Trademarks by origin/bn PPP$ GDP	47.1	34	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.3	52	
7.2	**Creative goods and services**	**48.0**	**7**	
7.2.1	Cultural and creative services exports, % total trade	0.1	92	○ ◇
7.2.2	National feature films/mn pop. 15–69	8.2	19	
7.2.3	Entertainment and media market/th pop. 15–69	50.9	12	
7.2.4	Creative goods exports, % total trade	11.5	1	● ◆
7.3	**Online creativity**	**64.6**	**16**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	44.4	20	
7.3.2	GitHub commits/mn pop. 15–69	n/a	n/a	
7.3.3	Mobile app creation/bn PPP$ GDP	84.8	4	● ◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Hungary

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
33	38	High	EUR	9.7	448.5	46,807

		Score/ Value	Rank	
Institutions		**51.1**	**63**	◇
1.1	**Institutional environment**	**64.1**	**42**	
1.1.1	Operational stability for businesses*	76.0	32	
1.1.2	Government effectiveness*	52.2	55	
1.2	**Regulatory environment**	**58.3**	**53**	◇
1.2.1	Regulatory quality*	54.1	57	◇
1.2.2	Rule of law*	62.6	47	
1.3	**Business environment**	**30.8**	**98**	○◇
1.3.1	Policy stability for doing business†	28.7	107	○◇
1.3.2	Entrepreneurship policies and culture†	32.9	54	○
Human capital and research		**43.7**	**33**	
2.1	**Education**	**58.1**	**43**	
2.1.1	Expenditure on education, % GDP	5.1	37	
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.7	55	○
2.1.3	School life expectancy, years	15.6	42	
2.1.4	PISA scales in reading, maths and science	477.2	29	
2.1.5	Pupil–teacher ratio, secondary	9.9	30	
2.2	**Tertiary education**	**38.2**	**39**	
2.2.1	Tertiary enrolment, % gross	56.6	59	
2.2.2	Graduates in science and engineering, %	24.1	49	
2.2.3	Tertiary inbound mobility, %	14.4	17	
2.3	**Research and development (R&D)**	**35.0**	**30**	
2.3.1	Researchers, FTE/mn pop.	4,610.4	26	
2.3.2	Gross expenditure on R&D, % GDP	1.4	33	
2.3.3	Global corporate R&D investors, top 3, mn USD	51.5	32	
2.3.4	QS university ranking, top 3*	22.3	51	
Infrastructure		**52.8**	**38**	
3.1	**Information and communication technology (ICT)**	**80.4**	**56**	
3.1.1	ICT access*	96.1	34	
3.1.2	ICT use*	79.3	60	
3.1.3	Government online service*	65.6	72	
3.2	**General infrastructure**	**38.0**	**50**	
3.2.1	Electricity output, GWh/mn pop.	3,703.9	59	
3.2.2	Logistics performance*	50.0	50	
3.2.3	Gross capital formation, % GDP	27.7	33	
3.3	**Ecological sustainability**	**39.9**	**18**	●
3.3.1	GDP/unit of energy use	13.8	44	
3.3.2	Low-carbon energy use, %	25.5	49	
3.3.3	ISO 14001 environment/bn PPP$ GDP	7.0	10	●◆
Market sophistication		**40.9**	**49**	
4.1	**Credit**	**32.5**	**58**	
4.1.1	Finance for startups and scaleups†	54.6	40	
4.1.2	Domestic credit to private sector, % GDP	33.0	90	○◇
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**9.7**	**49**	
4.2.1	Market capitalization, % GDP	16.2	67	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.2	39	
4.2.3	Late-stage VC deal count, % global VC	0.1	43	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.3	41	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.2	33	
4.3	**Trade, diversification and market scale**	**80.4**	**27**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	93.6	25	
4.3.3	Domestic market scale, bn PPP$	448.5	52	

		Score/ Value	Rank	
Business sophistication		**38.1**	**37**	
5.1	**Knowledge workers**	**43.5**	**41**	
5.1.1	Knowledge-intensive employment, %	41.0	32	
5.1.2	Females employed w/advanced degrees, %	19.4	39	
5.1.3	Youth demographic dividend, %	24.9	120	○
5.1.4	GERD performed by business, % GDP	1.0	25	
5.1.5	GERD financed by business, %	44.9	35	
5.2	**Innovation linkages**	**33.2**	**45**	
5.2.1	Public research–industry co-publications, %	5.3	13	●
5.2.2	University–industry R&D collaboration†	37.9	60	
5.2.3	University industry and international engagement, top 5*	42.3	43	
5.2.4	State of cluster development†	23.6	122	○◇
5.2.5	Patent families/bn PPP$ GDP	0.3	41	
5.3	**Knowledge absorption**	**37.6**	**33**	
5.3.1	Intellectual property payments, % total trade	0.9	42	
5.3.2	High-tech imports, % total trade	15.7	14	●◆
5.3.3	ICT services imports, % total trade	1.6	57	
5.3.4	FDI net inflows, % GDP	−5.6	134	○◇
5.3.5	Research talent, % in businesses	62.7	10	●
Knowledge and technology outputs		**35.2**	**26**	
6.1	**Knowledge creation**	**24.2**	**42**	
6.1.1	Patents by origin/bn PPP$ GDP	1.1	49	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.6	30	
6.1.3	Utility models by origin/bn PPP$ GDP	0.4	31	
6.1.4	Scientific and technical articles/bn PPP$ GDP	19.5	35	
6.1.5	Citable documents H-index	28.9	35	
6.2	**Knowledge impact**	**34.4**	**40**	
6.2.1	Labor productivity growth, %	0.8	71	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	61	
6.2.4	High-tech manufacturing, %	56.1	7	●◆
6.3	**Knowledge diffusion**	**47.0**	**18**	●
6.3.1	Intellectual property receipts, % total trade	0.9	19	●
6.3.2	Production and export complexity	82.6	12	●
6.3.3	High-tech exports, % total trade	14.6	9	●◆
6.3.4	ICT services exports, % total trade	2.1	60	
6.3.5	ISO 9001 quality/bn PPP$ GDP	16.2	11	●◆
Creative outputs		**34.2**	**38**	
7.1	**Intangible assets**	**32.2**	**54**	
7.1.1	Intangible asset intensity, top 15, %	57.9	38	
7.1.2	Trademarks by origin/bn PPP$ GDP	22.8	83	○
7.1.3	Global brand value, top 5,000, % GDP	2.5	41	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.5	45	
7.2	**Creative goods and services**	**31.1**	**29**	
7.2.1	Cultural and creative services exports, % total trade	0.9	35	
7.2.2	National feature films/mn pop. 15–69	3.2	43	
7.2.3	Entertainment and media market/th pop. 15–69	13.5	31	◇
7.2.4	Creative goods exports, % total trade	5.7	9	●◆
7.3	**Online creativity**	**41.1**	**35**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	28.0	28	
7.3.2	GitHub commits/mn pop. 15–69	28.6	36	
7.3.3	Mobile app creation/bn PPP$ GDP	66.8	61	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Iceland

GII 2025 rank **24**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
29	20	High	EUR	0.4	30.2	78,808

		Score/ Value	Rank	
Institutions		**75.9**	**14**	
1.1	**Institutional environment**	**86.3**	**8**	
1.1.1	Operational stability for businesses*	91.3	4	●◆
1.1.2	Government effectiveness*	81.3	13	
1.2	**Regulatory environment**	**85.2**	**14**	
1.2.1	Regulatory quality*	76.4	22	
1.2.2	Rule of law*	94.0	8	
1.3	**Business environment**	**56.2**	**[44]**	
1.3.1	Policy stability for doing business†	56.2	52	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**45.4**	**31**	◇
2.1	**Education**	**65.9**	**14**	
2.1.1	Expenditure on education, % GDP	6.7	6	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	22.0	35	
2.1.3	School life expectancy, years ⏲	18.9	8	◆
2.1.4	PISA scales in reading, maths and science	447.3	41	◇
2.1.5	Pupil–teacher ratio, secondary ⏲	9.4	23	
2.2	**Tertiary education**	**32.4**	**61**	◇
2.2.1	Tertiary enrolment, % gross ⏲	85.0	17	
2.2.2	Graduates in science and engineering, %	16.9	98	○◇
2.2.3	Tertiary inbound mobility, % ⏲	9.6	30	
2.3	**Research and development (R&D)**	**37.9**	**27**	◇
2.3.1	Researchers, FTE/mn pop.	6,029.0	10	
2.3.2	Gross expenditure on R&D, % GDP	2.7	13	
2.3.3	Global corporate R&D investors, top 3, mn USD	44.2	39	
2.3.4	QS university ranking, top 3*	7.7	74	◇
Infrastructure		**67.7**	**2**	●◆
3.1	**Information and communication technology (ICT)**	**93.4**	**12**	
3.1.1	ICT access*	99.3	13	
3.1.2	ICT use*	92.0	16	
3.1.3	Government online service*	88.9	20	
3.2	**General infrastructure**	**69.3**	**4**	●◆
3.2.1	Electricity output, GWh/mn pop.	53,263.2	1	●◆
3.2.2	Logistics performance*	68.2	25	◇
3.2.3	Gross capital formation, % GDP	24.7	50	
3.3	**Ecological sustainability**	**40.3**	**16**	
3.3.1	GDP/unit of energy use	3.4	128	○◇
3.3.2	Low-carbon energy use, %	82.6	1	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.1	45	
Market sophistication		**49.5**	**25**	◇
4.1	**Credit**	**33.7**	**[54]**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	89.3	28	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**55.0**	**5**	●◆
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	1.1	1	●◆
4.2.3	Late-stage VC deal count, % global VC	0.0	51	
4.2.4	VC investors, deal count/bn PPP$ GDP	1.7	9	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.9	6	●◆
4.3	**Trade, diversification and market scale**	**59.7**	**96**	○◇
4.3.1	Applied tariff rate, weighted avg., %	1.6	57	
4.3.2	Domestic industry diversification	60.2	98	○◇
4.3.3	Domestic market scale, bn PPP$	30.2	133	○◇

		Score/ Value	Rank	
Business sophistication		**49.6**	**18**	
5.1	**Knowledge workers**	**62.1**	**8**	
5.1.1	Knowledge-intensive employment, %	54.7	6	●
5.1.2	Females employed w/advanced degrees, %	27.7	13	
5.1.3	Youth demographic dividend, %	30.5	86	
5.1.4	GERD performed by business, % GDP	2.0	12	
5.1.5	GERD financed by business, %	52.5	24	
5.2	**Innovation linkages**	**48.8**	**25**	◇
5.2.1	Public research–industry co-publications, %	5.6	7	●
5.2.2	University–industry R&D collaboration†	56.6	27	
5.2.3	University industry and international engagement, top 5*	43.3	42	◇
5.2.4	State of cluster development†	61.1	42	◇
5.2.5	Patent families/bn PPP$ GDP	1.6	21	
5.3	**Knowledge absorption**	**37.8**	**32**	
5.3.1	Intellectual property payments, % total trade	0.6	67	
5.3.2	High-tech imports, % total trade	6.8	91	○
5.3.3	ICT services imports, % total trade	3.7	11	
5.3.4	FDI net inflows, % GDP	4.0	42	
5.3.5	Research talent, % in businesses	50.4	24	
Knowledge and technology outputs		**27.5**	**45**	◇
6.1	**Knowledge creation**	**42.3**	**19**	
6.1.1	Patents by origin/bn PPP$ GDP	2.1	27	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.4	17	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	40.3	5	●◆
6.1.5	Citable documents H-index	18.1	47	◇
6.2	**Knowledge impact**	**21.8**	**85**	◇
6.2.1	Labor productivity growth, %	0.8	74	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.3	48	
6.2.4	High-tech manufacturing, %	14.0	77	○◇
6.3	**Knowledge diffusion**	**18.4**	**68**	◇
6.3.1	Intellectual property receipts, % total trade	0.6	27	
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade	3.4	48	
6.3.4	ICT services exports, % total trade	3.8	33	
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.9	74	
Creative outputs		**45.4**	**19**	
7.1	**Intangible assets**	**30.1**	**59**	◇
7.1.1	Intangible asset intensity, top 15, %	58.6	37	
7.1.2	Trademarks by origin/bn PPP$ GDP	55.8	26	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.6	78	◇
7.2	**Creative goods and services**	**41.3**	**13**	
7.2.1	Cultural and creative services exports, % total trade ⏲	1.0	29	
7.2.2	National feature films/mn pop. 15–69	46.9	1	●◆
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	95	○
7.3	**Online creativity**	**80.1**	**4**	●
7.3.1	Top-level domains (TLDs)/th pop. 15–69	100.0	1	●◆
7.3.2	GitHub commits/mn pop. 15–69	80.4	8	
7.3.3	Mobile app creation/bn PPP$ GDP	59.8	85	○◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

India

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
32	52	Lower middle	CSA	1,450.9	16,020.0	11,112

		Score/ Value	Rank	
Institutions		**53.5**	**58**	◆
1.1	**Institutional environment**	**56.0**	**63**	◆
1.1.1	Operational stability for businesses*	57.3	79	
1.1.2	Government effectiveness*	54.7	47	◆
1.2	**Regulatory environment**	**50.2**	**65**	◆
1.2.1	Regulatory quality*	43.6	81	◆
1.2.2	Rule of law*	56.8	60	◆
1.3	**Business environment**	**54.2**	**53**	
1.3.1	Policy stability for doing business†	38.7	84	
1.3.2	Entrepreneurship policies and culture†	69.7	12	●◆
Human capital and research		**34.7**	**54**	◆
2.1	**Education**	**45.9**	**85**	
2.1.1	Expenditure on education, % GDP	4.1	70	
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.9	53	
2.1.3	School life expectancy, years	13.4	79	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	18.8	98	○
2.2	**Tertiary education**	**25.1**	**82**	
2.2.1	Tertiary enrolment, % gross	34.4	89	
2.2.2	Graduates in science and engineering, %	27.1	35	
2.2.3	Tertiary inbound mobility, %	0.1	113	○
2.3	**Research and development (R&D)**	**33.3**	**34**	◆
2.3.1	Researchers, FTE/mn pop.	259.3	80	○
2.3.2	Gross expenditure on R&D, % GDP	0.6	56	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	68.1	16	●◆
2.3.4	QS university ranking, top 3*	52.4	22	◆
Infrastructure		**45.2**	**61**	◆
3.1	**Information and communication technology (ICT)**	**78.8**	**60**	◆
3.1.1	ICT access*	84.0	72	◆
3.1.2	ICT use*	74.2	81	
3.1.3	Government online service*	78.2	44	◆
3.2	**General infrastructure**	**43.5**	**37**	◆
3.2.1	Electricity output, GWh/mn pop.	1,365.4	94	○
3.2.2	Logistics performance*	59.1	37	◆
3.2.3	Gross capital formation, % GDP	33.3	14	●
3.3	**Ecological sustainability**	**13.3**	**103**	○
3.3.1	GDP/unit of energy use	10.0	76	
3.3.2	Low-carbon energy use, %	10.4	92	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.9	72	
Market sophistication		**43.1**	**38**	◆
4.1	**Credit**	**34.5**	**50**	
4.1.1	Finance for startups and scaleups†	81.5	9	●◆
4.1.2	Domestic credit to private sector, % GDP	50.1	64	
4.1.3	Loans from microfinance institutions, % GDP	0.4	48	○
4.2	**Investment**	**18.7**	**33**	◆
4.2.1	Market capitalization, % GDP	106.0	18	◆
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	45	◆
4.2.3	Late-stage VC deal count, % global VC	1.4	4	●◆
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	63	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	52	◆
4.3	**Trade, diversification and market scale**	**76.1**	**46**	◆
4.3.1	Applied tariff rate, weighted avg., %	7.6	116	○
4.3.2	Domestic industry diversification	95.3	19	◆
4.3.3	Domestic market scale, bn PPP$	16,020.0	3	●◆

		Score/ Value	Rank	
Business sophistication		**29.2**	**64**	
5.1	**Knowledge workers**	**25.8**	**112**	○
5.1.1	Knowledge-intensive employment, %	11.6	95	○
5.1.2	Females employed w/advanced degrees, %	3.0	101	○
5.1.3	Youth demographic dividend, %	41.7	55	◇
5.1.4	GERD performed by business, % GDP	0.2	53	◆
5.1.5	GERD financed by business, %	40.6	42	
5.2	**Innovation linkages**	**26.7**	**63**	
5.2.1	Public research–industry co-publications, %	2.3	35	◆
5.2.2	University–industry R&D collaboration†	28.2	91	
5.2.3	University industry and international engagement, top 5*	35.9	49	◆
5.2.4	State of cluster development†	41.9	81	
5.2.5	Patent families/bn PPP$ GDP	0.2	45	◆
5.3	**Knowledge absorption**	**35.1**	**38**	◆
5.3.1	Intellectual property payments, % total trade	1.4	24	◆
5.3.2	High-tech imports, % total trade	11.8	25	
5.3.3	ICT services imports, % total trade	2.7	25	◆
5.3.4	FDI net inflows, % GDP	1.2	107	○
5.3.5	Research talent, % in businesses	30.7	47	
Knowledge and technology outputs		**37.8**	**22**	◆
6.1	**Knowledge creation**	**25.5**	**38**	◆
6.1.1	Patents by origin/bn PPP$ GDP	3.4	19	◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	43	◆
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	7.1	90	
6.1.5	Citable documents H-index	43.7	19	◆
6.2	**Knowledge impact**	**48.5**	**11**	●◆
6.2.1	Labor productivity growth, %	1.7	39	
6.2.2	Unicorn valuation, % GDP	4.0	11	●◆
6.2.3	Software spending, % GDP	0.3	44	◆
6.2.4	High-tech manufacturing, %	35.1	31	◆
6.3	**Knowledge diffusion**	**39.4**	**27**	◆
6.3.1	Intellectual property receipts, % total trade	0.2	50	◆
6.3.2	Production and export complexity	59.8	42	◆
6.3.3	High-tech exports, % total trade	5.1	41	
6.3.4	ICT services exports, % total trade	13.6	1	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.0	63	
Creative outputs		**32.7**	**42**	◆
7.1	**Intangible assets**	**41.8**	**28**	◆
7.1.1	Intangible asset intensity, top 15, %	80.7	8	●◆
7.1.2	Trademarks by origin/bn PPP$ GDP	32.4	59	
7.1.3	Global brand value, top 5,000, % GDP	5.7	31	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.7	41	
7.2	**Creative goods and services**	**21.4**	**53**	◆
7.2.1	Cultural and creative services exports, % total trade	2.2	13	●◆
7.2.2	National feature films/mn pop. 15–69	2.5	52	
7.2.3	Entertainment and media market/th pop. 15–69	1.1	61	○
7.2.4	Creative goods exports, % total trade	1.8	26	
7.3	**Online creativity**	**25.9**	**64**	◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.1	99	
7.3.2	GitHub commits/mn pop. 15–69	5.6	74	
7.3.3	Mobile app creation/bn PPP$ GDP	70.9	40	◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Indonesia

GII 2025 rank

55

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
59	60	Upper middle	SEAO	283.5	4,658.3	16,542

		Score/ Value	Rank	
Institutions		**61.6**	**39**	◆
1.1	**Institutional environment**	**59.0**	**54**	
1.1.1	Operational stability for businesses*	60.7	71	
1.1.2	Government effectiveness*	57.3	46	◆
1.2	**Regulatory environment**	**51.1**	**64**	
1.2.1	Regulatory quality*	53.7	58	
1.2.2	Rule of law*	48.5	75	
1.3	**Business environment**	**74.8**	**10**	●◆
1.3.1	Policy stability for doing business†	77.4	11	●◆
1.3.2	Entrepreneurship policies and culture†	72.2	10	●◆
Human capital and research		**24.4**	**92**	
2.1	**Education**	**28.7**	**130**	○◇
2.1.1	Expenditure on education, % GDP	1.3	133	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	10.6	82	
2.1.3	School life expectancy, years	13.1	83	
2.1.4	PISA scales in reading, maths and science	369.0	75	○
2.1.5	Pupil–teacher ratio, secondary	20.2	103	◇
2.2	**Tertiary education**	**19.1**	**97**	
2.2.1	Tertiary enrolment, % gross	44.9	77	
2.2.2	Graduates in science and engineering, %	19.4	88	
2.2.3	Tertiary inbound mobility, %	0.1	114	○◇
2.3	**Research and development (R&D)**	**25.5**	**42**	
2.3.1	Researchers, FTE/mn pop.	395.3	78	
2.3.2	Gross expenditure on R&D, % GDP	0.3	78	
2.3.3	Global corporate R&D investors, top 3, mn USD	50.5	33	◆
2.3.4	QS university ranking, top 3*	43.5	31	◆
Infrastructure		**41.6**	**71**	
3.1	**Information and communication technology (ICT)**	**76.6**	**65**	
3.1.1	ICT access*	74.6	90	
3.1.2	ICT use*	78.8	65	
3.1.3	Government online service*	76.4	51	
3.2	**General infrastructure**	**34.4**	**64**	
3.2.1	Electricity output, GWh/mn pop.	1,379.2	93	◇
3.2.2	Logistics performance*	40.9	60	
3.2.3	Gross capital formation, % GDP	30.2	22	●
3.3	**Ecological sustainability**	**13.8**	**100**	
3.3.1	GDP/unit of energy use	13.2	46	
3.3.2	Low-carbon energy use, %	5.2	111	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.8	76	
Market sophistication		**40.6**	**50**	
4.1	**Credit**	**29.3**	**66**	
4.1.1	Finance for startups and scaleups†	76.3	14	●◆
4.1.2	Domestic credit to private sector, % GDP	36.0	84	
4.1.3	Loans from microfinance institutions, % GDP	0.0	63	○◇
4.2	**Investment**	**5.3**	**68**	
4.2.1	Market capitalization, % GDP	47.3	40	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	79	
4.2.3	Late-stage VC deal count, % global VC	0.1	25	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	88	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	96	
4.3	**Trade, diversification and market scale**	**87.2**	**8**	●◆
4.3.1	Applied tariff rate, weighted avg., %	1.7	62	
4.3.2	Domestic industry diversification	95.0	22	
4.3.3	Domestic market scale, bn PPP$	4,658.3	8	●◆

		Score/ Value	Rank	
Business sophistication		**26.5**	**83**	
5.1	**Knowledge workers**	**17.9**	**138**	○◇
5.1.1	Knowledge-intensive employment, %	11.1	99	◇
5.1.2	Females employed w/advanced degrees, %	6.2	90	◇
5.1.3	Youth demographic dividend, %	40.2	61	
5.1.4	GERD performed by business, % GDP	0.0	79	○
5.1.5	GERD financed by business, %	8.0	76	
5.2	**Innovation linkages**	**37.3**	**37**	◆
5.2.1	Public research–industry co-publications, %	0.6	117	○
5.2.2	University–industry R&D collaboration†	64.8	13	●◆
5.2.3	University industry and international engagement, top 5*	31.0	55	
5.2.4	State of cluster development†	86.6	11	●◆
5.2.5	Patent families/bn PPP$ GDP	0.0	97	
5.3	**Knowledge absorption**	**24.3**	**79**	
5.3.1	Intellectual property payments, % total trade	0.8	51	
5.3.2	High-tech imports, % total trade	9.3	51	
5.3.3	ICT services imports, % total trade	2.0	39	
5.3.4	FDI net inflows, % GDP	1.7	95	
5.3.5	Research talent, % in businesses	7.5	64	
Knowledge and technology outputs		**20.6**	**70**	
6.1	**Knowledge creation**	**10.9**	**78**	
6.1.1	Patents by origin/bn PPP$ GDP	0.4	80	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	97	
6.1.3	Utility models by origin/bn PPP$ GDP	1.0	18	
6.1.4	Scientific and technical articles/bn PPP$ GDP	1.6	133	○◇
6.1.5	Citable documents H-index	14.8	58	
6.2	**Knowledge impact**	**35.8**	**30**	◆
6.2.1	Labor productivity growth, %	1.1	58	
6.2.2	Unicorn valuation, % GDP	0.7	40	
6.2.3	Software spending, % GDP	0.5	19	●◆
6.2.4	High-tech manufacturing, %	29.4	43	
6.3	**Knowledge diffusion**	**15.0**	**82**	
6.3.1	Intellectual property receipts, % total trade	0.1	75	
6.3.2	Production and export complexity	44.8	71	
6.3.3	High-tech exports, % total trade	3.7	46	
6.3.4	ICT services exports, % total trade	1.0	85	
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.3	84	
Creative outputs		**26.7**	**58**	
7.1	**Intangible assets**	**35.4**	**48**	
7.1.1	Intangible asset intensity, top 15, %	75.6	11	●◆
7.1.2	Trademarks by origin/bn PPP$ GDP	27.2	74	
7.1.3	Global brand value, top 5,000, % GDP	3.2	38	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.1	61	
7.2	**Creative goods and services**	**11.9**	**68**	
7.2.1	Cultural and creative services exports, % total trade	0.0	109	○
7.2.2	National feature films/mn pop. 15–69	0.5	81	○
7.2.3	Entertainment and media market/th pop. 15–69	3.5	48	
7.2.4	Creative goods exports, % total trade	3.1	17	●
7.3	**Online creativity**	**24.2**	**72**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.7	90	
7.3.2	GitHub commits/mn pop. 15–69	4.7	84	
7.3.3	Mobile app creation/bn PPP$ GDP	66.0	63	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Iran (Islamic Republic of)

70

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
46	109	Upper middle	CSA	91.6	1,698.5	19,607

		Score/ Value	Rank	
Institutions		**14.1**	**138**	○◇
1.1	**Institutional environment**	**17.6**	**134**	○◇
1.1.1	Operational stability for businesses*	17.3	135	○◇
1.1.2	Government effectiveness*	17.9	130	◇
1.2	**Regulatory environment**	**17.1**	**137**	○◇
1.2.1	Regulatory quality*	7.8	138	○◇
1.2.2	Rule of law*	26.5	124	◇
1.3	**Business environment**	**7.6**	**133**	○◇
1.3.1	Policy stability for doing business†	9.1	129	○◇
1.3.2	Entrepreneurship policies and culture† ⏲	6.2	90	○◇
Human capital and research		**32.4**	**66**	
2.1	**Education**	**42.2**	**96**	
2.1.1	Expenditure on education, % GDP	2.8	119	
2.1.2	Government funding/pupil, secondary, % GDP/cap ⏲	16.0	65	
2.1.3	School life expectancy, years ⏲	13.9	69	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	19.0	99	
2.2	**Tertiary education**	**38.9**	**36**	◆
2.2.1	Tertiary enrolment, % gross ⏲	58.7	55	
2.2.2	Graduates in science and engineering, %	35.0	8	●◆
2.2.3	Tertiary inbound mobility, % ⏲	0.8	94	
2.3	**Research and development (R&D)**	**16.2**	**51**	
2.3.1	Researchers, FTE/mn pop. ⏲	2,239.7	40	◆
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.7	50	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	32.1	44	
Infrastructure		**33.9**	**98**	
3.1	**Information and communication technology (ICT)**	**61.0**	**97**	
3.1.1	ICT access*	73.7	91	
3.1.2	ICT use*	84.1	40	
3.1.3	Government online service*	25.1	126	◇
3.2	**General infrastructure**	**37.3**	**52**	
3.2.1	Electricity output, GWh/mn pop. ⏲	4,152.1	53	
3.2.2	Logistics performance*	9.1	107	○◇
3.2.3	Gross capital formation, % GDP	39.8	6	●◆
3.3	**Ecological sustainability**	**3.6**	**137**	○◇
3.3.1	GDP/unit of energy use	4.6	122	◇
3.3.2	Low-carbon energy use, %	2.3	121	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.2	115	
Market sophistication		**33.7**	**79**	
4.1	**Credit**	**26.6**	**74**	
4.1.1	Finance for startups and scaleups† ⏲	31.5	76	
4.1.2	Domestic credit to private sector, % GDP ⏲	60.3	53	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**20.3**	**32**	◆
4.2.1	Market capitalization, % GDP	463.2	1	●◆
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	122	○◇
4.2.3	Late-stage VC deal count, % global VC	0.0	65	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	113	○
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	105	
4.3	**Trade, diversification and market scale**	**54.1**	**103**	◇
4.3.1	Applied tariff rate, weighted avg., % ⏲	11.7	134	○◇
4.3.2	Domestic industry diversification ⏲	82.7	60	
4.3.3	Domestic market scale, bn PPP$	1,698.5	22	●

		Score/ Value	Rank	
Business sophistication		**22.7**	**107**	
5.1	**Knowledge workers**	**23.9**	**122**	
5.1.1	Knowledge-intensive employment, % ⏲	20.6	76	
5.1.2	Females employed w/advanced degrees, % ⏲	8.2	82	
5.1.3	Youth demographic dividend, %	35.4	71	
5.1.4	GERD performed by business, % GDP ⏲	0.2	55	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**21.9**	**81**	
5.2.1	Public research–industry co-publications, %	1.1	81	
5.2.2	University–industry R&D collaboration†	17.0	117	
5.2.3	University industry and international engagement, top 5*	49.3	35	◆
5.2.4	State of cluster development†	32.4	100	
5.2.5	Patent families/bn PPP$ GDP	0.0	80	
5.3	**Knowledge absorption**	**22.3**	**92**	
5.3.1	Intellectual property payments, % total trade ⏲	0.2	99	◇
5.3.2	High-tech imports, % total trade ⏲	11.9	23	●
5.3.3	ICT services imports, % total trade ⏲	0.6	110	
5.3.4	FDI net inflows, % GDP	0.4	122	◇
5.3.5	Research talent, % in businesses ⏲	19.2	53	
Knowledge and technology outputs		**27.5**	**46**	
6.1	**Knowledge creation**	**31.0**	**31**	◆
6.1.1	Patents by origin/bn PPP$ GDP	5.3	14	●◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	48	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	23.0	28	◆
6.1.5	Citable documents H-index	24.5	40	
6.2	**Knowledge impact**	**40.9**	**24**	◆
6.2.1	Labor productivity growth, %	3.5	10	●◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.7	5	●◆
6.2.4	High-tech manufacturing, % ⏲	30.1	40	
6.3	**Knowledge diffusion**	**10.5**	**103**	
6.3.1	Intellectual property receipts, % total trade ⏲	0.0	96	
6.3.2	Production and export complexity	45.3	70	
6.3.3	High-tech exports, % total trade ⏲	0.2	115	
6.3.4	ICT services exports, % total trade ⏲	0.2	125	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.2	105	
Creative outputs		**31.9**	**45**	◆
7.1	**Intangible assets**	**51.6**	**14**	●◆
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	199.6	2	●◆
7.1.3	Global brand value, top 5,000, % GDP	0.2	78	
7.1.4	Industrial designs by origin/bn PPP$ GDP	4.9	14	●◆
7.2	**Creative goods and services**	**3.5**	**106**	
7.2.1	Cultural and creative services exports, % total trade	0.1	89	
7.2.2	National feature films/mn pop. 15–69	1.7	63	
7.2.3	Entertainment and media market/th pop. 15–69	1.3	55	◇
7.2.4	Creative goods exports, % total trade ⏲	0.1	89	
7.3	**Online creativity**	**20.8**	**96**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	5.1	61	
7.3.2	GitHub commits/mn pop. 15–69	2.2	106	
7.3.3	Mobile app creation/bn PPP$ GDP	55.1	96	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Ireland

GII 2025 rank

18

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
17	**21**	**High**	**EUR**	**5.3**	**691.9**	**127,750**

		Score/ Value	Rank	
Institutions		**79.4**	**10**	●
1.1	**Institutional environment**	**81.1**	**15**	
1.1.1	Operational stability for businesses*	80.0	21	
1.1.2	Government effectiveness*	82.2	11	
1.2	**Regulatory environment**	**89.5**	**10**	●
1.2.1	Regulatory quality*	87.1	8	●
1.2.2	Rule of law*	91.9	11	
1.3	**Business environment**	**67.7**	**20**	
1.3.1	Policy stability for doing business†	76.9	14	
1.3.2	Entrepreneurship policies and culture† ⏲	58.5	19	
Human capital and research		**48.9**	**24**	
2.1	**Education**	**55.3**	**55**	◇
2.1.1	Expenditure on education, % GDP ⏲	3.0	110	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	10.6	80	○◇
2.1.3	School life expectancy, years ⏲	19.2	5	●◆
2.1.4	PISA scales in reading, maths and science	503.8	8	
2.1.5	Pupil–teacher ratio, secondary ⏲	14.1	70	○◇
2.2	**Tertiary education**	**41.3**	**30**	
2.2.1	Tertiary enrolment, % gross ⏲	76.6	31	
2.2.2	Graduates in science and engineering, %	25.8	39	
2.2.3	Tertiary inbound mobility, % ⏲	11.0	24	
2.3	**Research and development (R&D)**	**50.1**	**21**	
2.3.1	Researchers, FTE/mn pop.	5,321.0	17	
2.3.2	Gross expenditure on R&D, % GDP	1.6	25	
2.3.3	Global corporate R&D investors, top 3, mn USD	71.1	12	
2.3.4	QS university ranking, top 3*	53.3	21	
Infrastructure		**58.6**	**13**	
3.1	**Information and communication technology (ICT)**	**87.2**	**37**	
3.1.1	ICT access*	98.4	21	
3.1.2	ICT use*	78.2	67	◇
3.1.3	Government online service*	85.2	29	
3.2	**General infrastructure**	**42.0**	**40**	
3.2.1	Electricity output, GWh/mn pop.	5,862.3	36	
3.2.2	Logistics performance*	68.2	25	◇
3.2.3	Gross capital formation, % GDP	22.7	81	○
3.3	**Ecological sustainability**	**46.7**	**5**	●◆
3.3.1	GDP/unit of energy use	41.2	1	●◆
3.3.2	Low-carbon energy use, %	20.7	63	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.8	53	
Market sophistication		**44.8**	**36**	◇
4.1	**Credit**	**35.5**	**46**	◇
4.1.1	Finance for startups and scaleups† ⏲	63.5	26	
4.1.2	Domestic credit to private sector, % GDP	26.0	106	○◇
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**23.1**	**26**	
4.2.1	Market capitalization, % GDP ⏲	36.4	43	◇
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.5	14	
4.2.3	Late-stage VC deal count, % global VC	0.3	19	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.5	25	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.4	20	
4.3	**Trade, diversification and market scale**	**75.8**	**48**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	691.9	41	

		Score/ Value	Rank	
Business sophistication		**53.3**	**15**	
5.1	**Knowledge workers**	**60.7**	**10**	●
5.1.1	Knowledge-intensive employment, %	49.2	14	
5.1.2	Females employed w/advanced degrees, %	31.0	1	●◆
5.1.3	Youth demographic dividend, %	31.6	81	○◆
5.1.4	GERD performed by business, % GDP	1.4	18	
5.1.5	GERD financed by business, % ⏲	55.5	20	
5.2	**Innovation linkages**	**55.0**	**22**	
5.2.1	Public research–industry co-publications, %	3.8	23	
5.2.2	University–industry R&D collaboration†	59.6	20	
5.2.3	University industry and international engagement, top 5*	80.3	16	
5.2.4	State of cluster development†	73.2	28	
5.2.5	Patent families/bn PPP$ GDP	1.5	23	
5.3	**Knowledge absorption**	**44.3**	**14**	
5.3.1	Intellectual property payments, % total trade	23.2	1	●◆
5.3.2	High-tech imports, % total trade	7.4	83	○
5.3.3	ICT services imports, % total trade	1.8	46	
5.3.4	FDI net inflows, % GDP	−5.7	135	○◇
5.3.5	Research talent, % in businesses	47.4	27	
Knowledge and technology outputs		**42.7**	**14**	
6.1	**Knowledge creation**	**23.6**	**44**	◇
6.1.1	Patents by origin/bn PPP$ GDP	1.7	31	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.8	26	◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	43	
6.1.4	Scientific and technical articles/bn PPP$ GDP	14.2	52	◇
6.1.5	Citable documents H-index	35.1	28	
6.2	**Knowledge impact**	**41.7**	**23**	
6.2.1	Labor productivity growth, %	−0.4	107	○
6.2.2	Unicorn valuation, % GDP	1.9	22	
6.2.3	Software spending, % GDP	0.7	3	●
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**62.8**	**1**	●◆
6.3.1	Intellectual property receipts, % total trade	2.6	10	●
6.3.2	Production and export complexity	81.9	14	
6.3.3	High-tech exports, % total trade	14.5	10	●
6.3.4	ICT services exports, % total trade	37.0	1	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.3	60	
Creative outputs		**44.7**	**21**	
7.1	**Intangible assets**	**45.2**	**24**	
7.1.1	Intangible asset intensity, top 15, %	87.8	2	●◆
7.1.2	Trademarks by origin/bn PPP$ GDP	n/a	n/a	
7.1.3	Global brand value, top 5,000, % GDP	4.6	34	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.6	77	○◇
7.2	**Creative goods and services**	**29.5**	**36**	
7.2.1	Cultural and creative services exports, % total trade	0.9	36	
7.2.2	National feature films/mn pop. 15–69	8.5	16	
7.2.3	Entertainment and media market/th pop. 15–69	45.6	16	
7.2.4	Creative goods exports, % total trade	1.0	45	
7.3	**Online creativity**	**58.9**	**24**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	38.4	24	
7.3.2	GitHub commits/mn pop. 15–69	65.7	15	
7.3.3	Mobile app creation/bn PPP$ GDP	72.8	29	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Israel

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
13	25	High	NAWA	9.4	541.3	54,446

		Score/ Value	Rank	
Institutions		**65.3**	**36**	◇
1.1	**Institutional environment**	**63.6**	**46**	◇
1.1.1	Operational stability for businesses*	56.0	86	○ ◇
1.1.2	Government effectiveness*	71.2	25	
1.2	**Regulatory environment**	**71.9**	**29**	◇
1.2.1	Regulatory quality*	72.6	27	
1.2.2	Rule of law*	71.3	34	◇
1.3	**Business environment**	**60.2**	**35**	
1.3.1	Policy stability for doing business†	72.9	18	
1.3.2	Entrepreneurship policies and culture†	47.6	38	
Human capital and research		**52.3**	**19**	
2.1	**Education**	**57.8**	**47**	◇
2.1.1	Expenditure on education, % GDP	6.5	12	◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	19.9	46	○
2.1.3	School life expectancy, years	14.9	53	◇
2.1.4	PISA scales in reading, maths and science	465.5	37	
2.1.5	Pupil–teacher ratio, secondary	14.5	72	○ ◇
2.2	**Tertiary education**	**32.7**	**60**	◇
2.2.1	Tertiary enrolment, % gross	57.6	57	◇
2.2.2	Graduates in science and engineering, %	27.5	33	
2.2.3	Tertiary inbound mobility, %	3.2	64	○ ◇
2.3	**Research and development (R&D)**	**66.4**	**8**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	6.3	1	● ◆
2.3.3	Global corporate R&D investors, top 3, mn USD	61.1	23	
2.3.4	QS university ranking, top 3*	38.1	37	
Infrastructure		**51.5**	**45**	◇
3.1	**Information and communication technology (ICT)**	**87.4**	**35**	
3.1.1	ICT access*	85.7	68	○ ◇
3.1.2	ICT use*	94.1	10	◆
3.1.3	Government online service*	82.4	35	
3.2	**General infrastructure**	**47.2**	**31**	
3.2.1	Electricity output, GWh/mn pop.	7,690.6	22	
3.2.2	Logistics performance*	68.2	25	◇
3.2.3	Gross capital formation, % GDP	25.4	46	
3.3	**Ecological sustainability**	**19.9**	**70**	○ ◇
3.3.1	GDP/unit of energy use	17.2	22	
3.3.2	Low-carbon energy use, %	6.8	104	○ ◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.6	56	
Market sophistication		**56.8**	**15**	
4.1	**Credit**	**45.0**	**32**	
4.1.1	Finance for startups and scaleups†	64.5	23	
4.1.2	Domestic credit to private sector, % GDP	69.3	42	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**46.5**	**8**	
4.2.1	Market capitalization, % GDP	63.0	32	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	1.2	1	● ◆
4.2.3	Late-stage VC deal count, % global VC	0.5	13	
4.2.4	VC investors, deal count/bn PPP$ GDP	1.5	10	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.7	8	
4.3	**Trade, diversification and market scale**	**79.0**	**34**	
4.3.1	Applied tariff rate, weighted avg., %	1.0	16	
4.3.2	Domestic industry diversification	85.1	55	○
4.3.3	Domestic market scale, bn PPP$	541.3	49	

		Score/ Value	Rank	
Business sophistication		**55.7**	**9**	
5.1	**Knowledge workers**	**72.8**	**2**	● ◆
5.1.1	Knowledge-intensive employment, %	51.5	10	
5.1.2	Females employed w/advanced degrees, %	24.7	21	
5.1.3	Youth demographic dividend, %	42.8	51	◆
5.1.4	GERD performed by business, % GDP	5.9	1	● ◆
5.1.5	GERD financed by business, %	47.2	32	
5.2	**Innovation linkages**	**65.3**	**10**	
5.2.1	Public research–industry co-publications, %	3.2	26	
5.2.2	University–industry R&D collaboration†	100.0	1	● ◆
5.2.3	University industry and international engagement, top 5*	52.8	33	◇
5.2.4	State of cluster development†	100.0	1	● ◆
5.2.5	Patent families/bn PPP$ GDP	4.6	7	●
5.3	**Knowledge absorption**	**29.0**	**60**	◇
5.3.1	Intellectual property payments, % total trade	0.9	44	
5.3.2	High-tech imports, % total trade	9.4	48	
5.3.3	ICT services imports, % total trade	1.5	63	○
5.3.4	FDI net inflows, % GDP	3.7	44	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**55.4**	**6**	●
6.1	**Knowledge creation**	**50.9**	**12**	
6.1.1	Patents by origin/bn PPP$ GDP	2.7	22	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	3.9	6	● ◆
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	25.6	24	
6.1.5	Citable documents H-index	45.6	17	
6.2	**Knowledge impact**	**56.5**	**6**	●
6.2.1	Labor productivity growth, %	1.3	50	
6.2.2	Unicorn valuation, % GDP	10.2	1	● ◆
6.2.3	Software spending, % GDP	0.2	59	
6.2.4	High-tech manufacturing, %	43.0	18	
6.3	**Knowledge diffusion**	**58.9**	**3**	● ◆
6.3.1	Intellectual property receipts, % total trade	0.6	29	
6.3.2	Production and export complexity	75.7	22	
6.3.3	High-tech exports, % total trade	11.6	15	
6.3.4	ICT services exports, % total trade	21.2	1	● ◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	16.7	8	◆
Creative outputs		**40.9**	**28**	◇
7.1	**Intangible assets**	**32.1**	**55**	◇
7.1.1	Intangible asset intensity, top 15, %	76.7	10	
7.1.2	Trademarks by origin/bn PPP$ GDP	7.9	117	○ ◇
7.1.3	Global brand value, top 5,000, % GDP	2.4	43	◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.1	62	○
7.2	**Creative goods and services**	**38.6**	**15**	
7.2.1	Cultural and creative services exports, % total trade	3.4	7	◆
7.2.2	National feature films/mn pop. 15–69	5.1	34	
7.2.3	Entertainment and media market/th pop. 15–69	37.8	21	
7.2.4	Creative goods exports, % total trade	1.4	37	
7.3	**Online creativity**	**61.0**	**21**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	18.0	37	◇
7.3.2	GitHub commits/mn pop. 15–69	79.9	9	
7.3.3	Mobile app creation/bn PPP$ GDP	85.1	3	● ◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Italy

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
19	**37**	**High**	**EUR**	**59.3**	**3,598.0**	**60,993**

		Score/ Value	Rank	
Institutions		**54.2**	**55**	
1.1	**Institutional environment**	**61.7**	**49**	
1.1.1	Operational stability for businesses*	65.3	58	
1.1.2	Government effectiveness*	58.1	45	
1.2	**Regulatory environment**	**61.7**	**45**	
1.2.1	Regulatory quality*	61.6	43	
1.2.2	Rule of law*	61.7	52	
1.3	**Business environment**	**39.4**	**79**	○
1.3.1	Policy stability for doing business†	48.7	63	
1.3.2	Entrepreneurship policies and culture†	30.0	62	○
Human capital and research		**45.1**	**32**	
2.1	**Education**	**59.4**	**41**	
2.1.1	Expenditure on education, % GDP	4.0	80	○
2.1.2	Government funding/pupil, secondary, % GDP/cap	22.8	32	
2.1.3	School life expectancy, years	16.8	24	
2.1.4	PISA scales in reading, maths and science	476.8	31	
2.1.5	Pupil–teacher ratio, secondary	10.0	34	
2.2	**Tertiary education**	**33.4**	**57**	
2.2.1	Tertiary enrolment, % gross	75.9	35	
2.2.2	Graduates in science and engineering, %	23.4	55	
2.2.3	Tertiary inbound mobility, %	4.8	52	
2.3	**Research and development (R&D)**	**42.4**	**25**	
2.3.1	Researchers, FTE/mn pop.	2,888.7	32	
2.3.2	Gross expenditure on R&D, % GDP	1.3	34	
2.3.3	Global corporate R&D investors, top 3, mn USD	64.6	19	
2.3.4	QS university ranking, top 3*	56.8	17	●
Infrastructure		**54.9**	**27**	
3.1	**Information and communication technology (ICT)**	**82.6**	**52**	
3.1.1	ICT access*	93.0	49	
3.1.2	ICT use*	83.5	43	
3.1.3	Government online service*	71.4	61	
3.2	**General infrastructure**	**42.1**	**39**	
3.2.1	Electricity output, GWh/mn pop.	4,453.6	48	
3.2.2	Logistics performance*	72.7	18	
3.2.3	Gross capital formation, % GDP	23.2	74	○
3.3	**Ecological sustainability**	**40.0**	**17**	●
3.3.1	GDP/unit of energy use	17.7	19	
3.3.2	Low-carbon energy use, %	18.9	66	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	6.8	12	●◆
Market sophistication		**40.4**	**52**	
4.1	**Credit**	**25.1**	**77**	○◇
4.1.1	Finance for startups and scaleups†	52.3	42	
4.1.2	Domestic credit to private sector, % GDP	63.5	48	
4.1.3	Loans from microfinance institutions, % GDP	0.0	65	○◇
4.2	**Investment**	**7.4**	**57**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	53	
4.2.3	Late-stage VC deal count, % global VC	0.3	20	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	59	○
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	50	
4.3	**Trade, diversification and market scale**	**88.8**	**6**	●◆
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	99.0	2	●
4.3.3	Domestic market scale, bn PPP$	3,598.0	11	●◆

		Score/ Value	Rank	
Business sophistication		**40.0**	**31**	
5.1	**Knowledge workers**	**39.0**	**59**	
5.1.1	Knowledge-intensive employment, %	37.5	40	
5.1.2	Females employed w/advanced degrees, %	14.9	52	◇
5.1.3	Youth demographic dividend, %	21.7	136	○◇
5.1.4	GERD performed by business, % GDP	0.8	33	
5.1.5	GERD financed by business, %	53.2	22	
5.2	**Innovation linkages**	**47.5**	**26**	
5.2.1	Public research–industry co-publications, %	3.2	25	
5.2.2	University–industry R&D collaboration†	47.8	40	
5.2.3	University industry and international engagement, top 5*	67.8	27	
5.2.4	State of cluster development†	65.4	40	
5.2.5	Patent families/bn PPP$ GDP	1.7	19	
5.3	**Knowledge absorption**	**33.5**	**43**	
5.3.1	Intellectual property payments, % total trade	0.8	53	
5.3.2	High-tech imports, % total trade	9.3	49	
5.3.3	ICT services imports, % total trade	2.1	36	
5.3.4	FDI net inflows, % GDP	2.0	90	○
5.3.5	Research talent, % in businesses	42.9	33	
Knowledge and technology outputs		**40.7**	**17**	●
6.1	**Knowledge creation**	**38.9**	**24**	
6.1.1	Patents by origin/bn PPP$ GDP	3.9	18	●
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.0	22	
6.1.3	Utility models by origin/bn PPP$ GDP	0.5	29	
6.1.4	Scientific and technical articles/bn PPP$ GDP	21.2	29	
6.1.5	Citable documents H-index	68.3	9	●◆
6.2	**Knowledge impact**	**34.9**	**38**	
6.2.1	Labor productivity growth, %	0.3	89	○
6.2.2	Unicorn valuation, % GDP	0.2	51	
6.2.3	Software spending, % GDP	0.6	12	●◆
6.2.4	High-tech manufacturing, %	35.1	30	
6.3	**Knowledge diffusion**	**48.4**	**16**	●
6.3.1	Intellectual property receipts, % total trade	0.7	23	
6.3.2	Production and export complexity	81.4	15	●
6.3.3	High-tech exports, % total trade	7.7	29	
6.3.4	ICT services exports, % total trade	1.4	79	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	28.8	2	●◆
Creative outputs		**45.2**	**20**	
7.1	**Intangible assets**	**57.7**	**9**	●◆
7.1.1	Intangible asset intensity, top 15, %	62.8	28	
7.1.2	Trademarks by origin/bn PPP$ GDP	36.8	51	
7.1.3	Global brand value, top 5,000, % GDP	9.7	17	
7.1.4	Industrial designs by origin/bn PPP$ GDP	14.6	5	●◆
7.2	**Creative goods and services**	**27.5**	**40**	
7.2.1	Cultural and creative services exports, % total trade	0.5	54	
7.2.2	National feature films/mn pop. 15–69	8.6	15	
7.2.3	Entertainment and media market/th pop. 15–69	27.4	23	
7.2.4	Creative goods exports, % total trade	2.3	24	
7.3	**Online creativity**	**37.7**	**39**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	26.6	29	
7.3.2	GitHub commits/mn pop. 15–69	19.9	45	
7.3.3	Mobile app creation/bn PPP$ GDP	66.6	62	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Jamaica

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
73	95	Upper middle	LCN	2.8	33.8	12,283

		Score/ Value	Rank	
Institutions		**51.0**	**64**	
1.1	**Institutional environment**	**58.2**	**58**	●
1.1.1	Operational stability for businesses*	63.3	65	
1.1.2	Government effectiveness*	53.1	50	●
1.2	**Regulatory environment**	**48.5**	**71**	
1.2.1	Regulatory quality*	49.0	72	
1.2.2	Rule of law*	48.0	79	
1.3	**Business environment**	**46.3**	**66**	
1.3.1	Policy stability for doing business†	55.2	55	●
1.3.2	Entrepreneurship policies and culture† ⏲	37.4	50	
Human capital and research		**22.2**	**[100]**	
2.1	**Education**	**52.2**	**64**	
2.1.1	Expenditure on education, % GDP	5.7	20	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	31.7	8	●◆
2.1.3	School life expectancy, years ⏲	12.6	92	
2.1.4	PISA scales in reading, maths and science	396.7	65	
2.1.5	Pupil–teacher ratio, secondary	14.7	78	
2.2	**Tertiary education**	**14.3**	**[111]**	
2.2.1	Tertiary enrolment, % gross ⏲	26.2	95	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**31.9**	**102**	
3.1	**Information and communication technology (ICT)**	**66.2**	**89**	
3.1.1	ICT access*	82.7	76	
3.1.2	ICT use*	68.0	93	
3.1.3	Government online service*	48.0	95	
3.2	**General infrastructure**	**21.2**	**105**	
3.2.1	Electricity output, GWh/mn pop. ⏲	1,568.9	92	
3.2.2	Logistics performance*	18.2	90	○
3.2.3	Gross capital formation, % GDP	24.5	56	●
3.3	**Ecological sustainability**	**8.4**	**118**	◇
3.3.1	GDP/unit of energy use	9.6	80	
3.3.2	Low-carbon energy use, %	3.8	115	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.2	117	
Market sophistication		**22.9**	**115**	◇
4.1	**Credit**	**25.9**	**75**	
4.1.1	Finance for startups and scaleups† ⏲	34.7	70	
4.1.2	Domestic credit to private sector, % GDP	49.1	66	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**7.9**	**56**	
4.2.1	Market capitalization, % GDP	81.3	22	●
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP ⏲	0.1	73	
4.2.3	Late-stage VC deal count, % global VC ⏲	0.0	95	○
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	77	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	65	
4.3	**Trade, diversification and market scale**	**35.0**	**126**	○◇
4.3.1	Applied tariff rate, weighted avg., %	8.0	119	◇
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	33.8	131	○◇

		Score/ Value	Rank	
Business sophistication		**23.6**	**101**	
5.1	**Knowledge workers**	**32.9**	**[82]**	
5.1.1	Knowledge-intensive employment, % ⏲	22.6	68	
5.1.2	Females employed w/advanced degrees, % ⏲	10.7	72	
5.1.3	Youth demographic dividend, %	34.1	75	
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**17.6**	**100**	
5.2.1	Public research–industry co-publications, %	0.7	110	
5.2.2	University–industry R&D collaboration†	30.5	81	
5.2.3	University industry and international engagement, top 5*	16.9	74	
5.2.4	State of cluster development†	35.7	94	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**20.3**	**107**	
5.3.1	Intellectual property payments, % total trade	0.7	56	●
5.3.2	High-tech imports, % total trade	4.2	124	○◇
5.3.3	ICT services imports, % total trade	0.9	92	
5.3.4	FDI net inflows, % GDP	2.0	89	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**10.4**	**117**	
6.1	**Knowledge creation**	**4.7**	**118**	
6.1.1	Patents by origin/bn PPP$ GDP	0.1	121	○
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	70	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	5.6	101	
6.1.5	Citable documents H-index	4.7	106	
6.2	**Knowledge impact**	**14.6**	**122**	◇
6.2.1	Labor productivity growth, %	−0.4	108	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	101	
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**12.0**	**93**	
6.3.1	Intellectual property receipts, % total trade	0.1	76	
6.3.2	Production and export complexity	39.2	86	
6.3.3	High-tech exports, % total trade	0.1	126	○
6.3.4	ICT services exports, % total trade	1.5	74	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.9	91	
Creative outputs		**29.8**	**51**	●
7.1	**Intangible assets**	**49.9**	**18**	●◆
7.1.1	Intangible asset intensity, top 15, %	50.2	48	
7.1.2	Trademarks by origin/bn PPP$ GDP	81.4	13	●
7.1.3	Global brand value, top 5,000, % GDP	6.6	28	●◆
7.1.4	Industrial designs by origin/bn PPP$ GDP ⏲	5.0	13	●◆
7.2	**Creative goods and services**	**1.3**	**120**	
7.2.1	Cultural and creative services exports, % total trade	0.0	103	
7.2.2	National feature films/mn pop. 15–69 ⏲	0.5	82	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	117	
7.3	**Online creativity**	**18.4**	**106**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.5	94	
7.3.2	GitHub commits/mn pop. 15–69	2.6	104	
7.3.3	Mobile app creation/bn PPP$ GDP	51.2	104	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Japan

GII 2025 rank

12

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
14	**12**	**High**	**SEAO**	**123.8**	**6,572.2**	**53,059**

		Score/ Value	Rank	
Institutions		**70.9**	**22**	
1.1	**Institutional environment**	**84.9**	**10**	
1.1.1	Operational stability for businesses*	86.7	8	
1.1.2	Government effectiveness*	83.1	7	
1.2	**Regulatory environment**	**85.1**	**16**	
1.2.1	Regulatory quality*	80.6	15	
1.2.2	Rule of law*	89.5	14	
1.3	**Business environment**	**42.6**	**72**	◇
1.3.1	Policy stability for doing business†	57.7	51	
1.3.2	Entrepreneurship policies and culture†	27.5	66	○◇
Human capital and research		**53.5**	**18**	
2.1	**Education**	**66.1**	**13**	
2.1.1	Expenditure on education, % GDP	3.2	102	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.5	46	◇
2.1.4	PISA scales in reading, maths and science	532.7	3	●◆
2.1.5	Pupil–teacher ratio, secondary	10.6	38	
2.2	**Tertiary education**	**27.4**	**77**	○◇
2.2.1	Tertiary enrolment, % gross	64.6	50	
2.2.2	Graduates in science and engineering, %	19.6	85	○
2.2.3	Tertiary inbound mobility, %	5.1	51	
2.3	**Research and development (R&D)**	**66.9**	**7**	
2.3.1	Researchers, FTE/mn pop.	5,623.0	14	
2.3.2	Gross expenditure on R&D, % GDP	3.4	5	
2.3.3	Global corporate R&D investors, top 3, mn USD	83.9	6	
2.3.4	QS university ranking, top 3*	75.7	10	
Infrastructure		**57.6**	**17**	
3.1	**Information and communication technology (ICT)**	**93.2**	**14**	
3.1.1	ICT access*	96.9	30	
3.1.2	ICT use*	89.6	23	
3.1.3	Government online service*	93.1	9	
3.2	**General infrastructure**	**53.2**	**15**	
3.2.1	Electricity output, GWh/mn pop.	7,833.5	20	
3.2.2	Logistics performance*	81.8	13	
3.2.3	Gross capital formation, % GDP	26.6	39	
3.3	**Ecological sustainability**	**26.4**	**50**	
3.3.1	GDP/unit of energy use	14.3	37	
3.3.2	Low-carbon energy use, %	16.5	78	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	3.4	27	
Market sophistication		**59.4**	**10**	
4.1	**Credit**	**66.5**	**8**	
4.1.1	Finance for startups and scaleups†	55.0	39	
4.1.2	Domestic credit to private sector, % GDP	195.7	2	●◆
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**23.6**	**25**	
4.2.1	Market capitalization, % GDP	129.8	10	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.2	37	◇
4.2.3	Late-stage VC deal count, % global VC	1.1	7	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.3	37	◇
4.2.5	VC investor co-participation/bn PPP$ GDP	0.2	32	◇
4.3	**Trade, diversification and market scale**	**88.2**	**7**	
4.3.1	Applied tariff rate, weighted avg., %	1.4	51	
4.3.2	Domestic industry diversification	91.9	32	
4.3.3	Domestic market scale, bn PPP$	6,572.2	5	◆

		Score/ Value	Rank	
Business sophistication		**57.8**	**6**	
5.1	**Knowledge workers**	**55.1**	**20**	
5.1.1	Knowledge-intensive employment, %	21.3	72	○◇
5.1.2	Females employed w/advanced degrees, %	22.9	24	
5.1.3	Youth demographic dividend, %	20.8	137	○◇
5.1.4	GERD performed by business, % GDP	2.7	3	●
5.1.5	GERD financed by business, %	78.0	3	●◆
5.2	**Innovation linkages**	**68.6**	**6**	
5.2.1	Public research–industry co-publications, %	9.1	1	●◆
5.2.2	University–industry R&D collaboration†	56.9	26	
5.2.3	University industry and international engagement, top 5*	70.9	23	
5.2.4	State of cluster development†	55.2	51	◇
5.2.5	Patent families/bn PPP$ GDP	12.3	2	●◆
5.3	**Knowledge absorption**	**49.6**	**8**	
5.3.1	Intellectual property payments, % total trade	3.0	10	
5.3.2	High-tech imports, % total trade	13.8	17	
5.3.3	ICT services imports, % total trade	2.4	30	
5.3.4	FDI net inflows, % GDP	0.8	113	○
5.3.5	Research talent, % in businesses	74.9	5	◆
Knowledge and technology outputs		**48.2**	**12**	
6.1	**Knowledge creation**	**56.9**	**8**	
6.1.1	Patents by origin/bn PPP$ GDP	35.8	3	●◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	6.6	2	●◆
6.1.3	Utility models by origin/bn PPP$ GDP	0.4	30	
6.1.4	Scientific and technical articles/bn PPP$ GDP	11.9	57	◇
6.1.5	Citable documents H-index	65.7	11	
6.2	**Knowledge impact**	**35.0**	**35**	
6.2.1	Labor productivity growth, %	0.1	96	○
6.2.2	Unicorn valuation, % GDP	0.2	49	◇
6.2.3	Software spending, % GDP	0.3	36	
6.2.4	High-tech manufacturing, %	53.7	9	
6.3	**Knowledge diffusion**	**52.8**	**6**	
6.3.1	Intellectual property receipts, % total trade	5.1	2	●◆
6.3.2	Production and export complexity	100.0	1	●◆
6.3.3	High-tech exports, % total trade	11.1	16	
6.3.4	ICT services exports, % total trade	1.1	83	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	6.2	41	
Creative outputs		**46.4**	**18**	
7.1	**Intangible assets**	**58.0**	**8**	
7.1.1	Intangible asset intensity, top 15, %	65.4	25	
7.1.2	Trademarks by origin/bn PPP$ GDP	40.1	44	
7.1.3	Global brand value, top 5,000, % GDP	17.8	5	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	3.3	26	
7.2	**Creative goods and services**	**32.9**	**21**	
7.2.1	Cultural and creative services exports, % total trade	0.4	64	○
7.2.2	National feature films/mn pop. 15–69	8.4	17	
7.2.3	Entertainment and media market/th pop. 15–69	59.9	8	
7.2.4	Creative goods exports, % total trade	1.7	29	
7.3	**Online creativity**	**36.5**	**40**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	12.7	42	◇
7.3.2	GitHub commits/mn pop. 15–69	25.7	39	◇
7.3.3	Mobile app creation/bn PPP$ GDP	71.1	38	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Jordan

65

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
66	66	Lower middle	NAWA	11.6	124.3	10,917

		Score/ Value	Rank	
Institutions		**56.0**	**52**	◆
1.1	**Institutional environment**	**54.3**	**67**	◆
1.1.1	Operational stability for businesses*	56.0	85	
1.1.2	Government effectiveness*	52.6	53	◆
1.2	**Regulatory environment**	**55.1**	**57**	◆
1.2.1	Regulatory quality*	51.8	61	◆
1.2.2	Rule of law*	58.5	56	◆
1.3	**Business environment**	**58.7**	**38**	
1.3.1	Policy stability for doing business†	66.6	29	●◆
1.3.2	Entrepreneurship policies and culture†	50.8	27	
Human capital and research		**25.6**	**86**	
2.1	**Education**	**37.9**	**114**	
2.1.1	Expenditure on education, % GDP	3.2	106	
2.1.2	Government funding/pupil, secondary, % GDP/cap	16.2	63	
2.1.3	School life expectancy, years	13.1	84	
2.1.4	PISA scales in reading, maths and science	359.3	81	○
2.1.5	Pupil–teacher ratio, secondary	13.8	69	
2.2	**Tertiary education**	**29.0**	**71**	
2.2.1	Tertiary enrolment, % gross	33.1	90	
2.2.2	Graduates in science and engineering, %	23.2	59	
2.2.3	Tertiary inbound mobility, %	10.3	26	●◆
2.3	**Research and development (R&D)**	**9.9**	**62**	
2.3.1	Researchers, FTE/mn pop.	576.0	69	
2.3.2	Gross expenditure on R&D, % GDP	0.7	51	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	23.4	50	◆
Infrastructure		**37.1**	**87**	
3.1	**Information and communication technology (ICT)**	**77.0**	**64**	◆
3.1.1	ICT access*	88.0	60	◆
3.1.2	ICT use*	71.9	85	
3.1.3	Government online service*	71.0	63	◆
3.2	**General infrastructure**	**15.0**	**125**	○
3.2.1	Electricity output, GWh/mn pop.	1,998.2	83	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	18.8	110	
3.3	**Ecological sustainability**	**19.4**	**75**	
3.3.1	GDP/unit of energy use	11.8	58	
3.3.2	Low-carbon energy use, %	12.0	87	
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.3	42	◆
Market sophistication		**37.1**	**67**	
4.1	**Credit**	**28.7**	**68**	
4.1.1	Finance for startups and scaleups†	46.3	52	
4.1.2	Domestic credit to private sector, % GDP	82.0	31	●◆
4.1.3	Loans from microfinance institutions, % GDP	0.9	37	
4.2	**Investment**	**8.1**	**51**	◆
4.2.1	Market capitalization, % GDP	47.0	41	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	58	
4.2.3	Late-stage VC deal count, % global VC	0.0	66	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	44	◆
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	46	◆
4.3	**Trade, diversification and market scale**	**74.5**	**52**	◆
4.3.1	Applied tariff rate, weighted avg., %	1.7	61	◆
4.3.2	Domestic industry diversification	91.2	36	
4.3.3	Domestic market scale, bn PPP$	124.3	89	

		Score/ Value	Rank	
Business sophistication		**31.3**	**58**	◆
5.1	**Knowledge workers**	**39.1**	**[58]**	
5.1.1	Knowledge-intensive employment, %	21.2	74	
5.1.2	Females employed w/advanced degrees, %	7.8	84	
5.1.3	Youth demographic dividend, %	48.9	34	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**37.7**	**35**	●◆
5.2.1	Public research–industry co-publications, %	0.5	126	○
5.2.2	University–industry R&D collaboration†	56.1	28	●◆
5.2.3	University industry and international engagement, top 5*	43.8	41	◆
5.2.4	State of cluster development†	84.9	13	●◆
5.2.5	Patent families/bn PPP$ GDP	0.1	63	◆
5.3	**Knowledge absorption**	**17.0**	**126**	○
5.3.1	Intellectual property payments, % total trade	0.1	111	
5.3.2	High-tech imports, % total trade	6.7	93	
5.3.3	ICT services imports, % total trade	0.2	135	○◇
5.3.4	FDI net inflows, % GDP	1.9	93	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**22.2**	**60**	
6.1	**Knowledge creation**	**27.2**	**36**	●◆
6.1.1	Patents by origin/bn PPP$ GDP	0.2	104	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	52	◆
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	41.6	2	●◆
6.1.5	Citable documents H-index	11.4	70	
6.2	**Knowledge impact**	**23.4**	**76**	
6.2.1	Labor productivity growth, %	0.3	88	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.3	42	◆
6.2.4	High-tech manufacturing, %	20.5	62	
6.3	**Knowledge diffusion**	**16.0**	**79**	
6.3.1	Intellectual property receipts, % total trade	0.1	64	
6.3.2	Production and export complexity	48.3	63	
6.3.3	High-tech exports, % total trade	1.1	74	
6.3.4	ICT services exports, % total trade	0.1	134	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	6.9	37	●◆
Creative outputs		**21.7**	**71**	
7.1	**Intangible assets**	**24.2**	**70**	
7.1.1	Intangible asset intensity, top 15, %	30.5	68	○
7.1.2	Trademarks by origin/bn PPP$ GDP	33.1	57	
7.1.3	Global brand value, top 5,000, % GDP	0.7	64	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.8	68	
7.2	**Creative goods and services**	**11.9**	**67**	
7.2.1	Cultural and creative services exports, % total trade	0.0	114	○
7.2.2	National feature films/mn pop. 15–69	0.3	89	○
7.2.3	Entertainment and media market/th pop. 15–69	1.4	54	○
7.2.4	Creative goods exports, % total trade	3.4	14	●◆
7.3	**Online creativity**	**26.6**	**61**	◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69	2.2	84	◆
7.3.2	GitHub commits/mn pop. 15–69	3.8	91	
7.3.3	Mobile app creation/bn PPP$ GDP	73.9	24	●◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Kazakhstan

GII 2025 rank

81

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
84	75	Upper middle	CSA	20.6	830.6	41,366

		Score/ Value	Rank	
Institutions		**47.1**	**77**	
1.1	**Institutional environment**	**52.0**	**75**	
1.1.1	Operational stability for businesses*	57.3	79	
1.1.2	Government effectiveness*	46.7	64	
1.2	**Regulatory environment**	**44.8**	**81**	
1.2.1	Regulatory quality*	48.3	73	
1.2.2	Rule of law*	41.4	92	
1.3	**Business environment**	**44.4**	**69**	
1.3.1	Policy stability for doing business†	39.4	83	
1.3.2	Entrepreneurship policies and culture†	49.5	30	
Human capital and research		**31.1**	**68**	
2.1	**Education**	**51.1**	**68**	
2.1.1	Expenditure on education, % GDP	4.9	43	
2.1.2	Government funding/pupil, secondary, % GDP/cap	21.2	40	
2.1.3	School life expectancy, years	13.7	73	
2.1.4	PISA scales in reading, maths and science	411.6	54	
2.1.5	Pupil–teacher ratio, secondary	9.9	32	●
2.2	**Tertiary education**	**30.2**	**67**	
2.2.1	Tertiary enrolment, % gross	53.5	68	
2.2.2	Graduates in science and engineering, %	24.1	51	
2.2.3	Tertiary inbound mobility, %	5.5	48	
2.3	**Research and development (R&D)**	**12.0**	**59**	
2.3.1	Researchers, FTE/mn pop.	693.1	65	
2.3.2	Gross expenditure on R&D, % GDP	0.1	95	○
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	39.1	36	●◆
Infrastructure		**43.0**	**64**	
3.1	**Information and communication technology (ICT)**	**89.0**	**27**	●◆
3.1.1	ICT access*	90.8	53	
3.1.2	ICT use*	83.6	42	
3.1.3	Government online service*	92.7	10	●◆
3.2	**General infrastructure**	**33.2**	**69**	
3.2.1	Electricity output, GWh/mn pop.	5,753.5	39	●◆
3.2.2	Logistics performance*	27.3	76	
3.2.3	Gross capital formation, % GDP	27.7	35	●
3.3	**Ecological sustainability**	**6.7**	**127**	○◇
3.3.1	GDP/unit of energy use	7.2	99	
3.3.2	Low-carbon energy use, %	4.5	113	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	111	
Market sophistication		**29.9**	**93**	
4.1	**Credit**	**19.3**	**96**	
4.1.1	Finance for startups and scaleups†	38.5	62	
4.1.2	Domestic credit to private sector, % GDP	26.0	105	
4.1.3	Loans from microfinance institutions, % GDP	1.1	30	
4.2	**Investment**	**2.6**	**90**	
4.2.1	Market capitalization, % GDP	25.3	56	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	112	○
4.2.3	Late-stage VC deal count, % global VC	0.0	74	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	92	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	85	
4.3	**Trade, diversification and market scale**	**67.8**	**73**	
4.3.1	Applied tariff rate, weighted avg., %	3.0	77	
4.3.2	Domestic industry diversification	63.0	91	◇
4.3.3	Domestic market scale, bn PPP$	830.6	38	●

		Score/ Value	Rank	
Business sophistication		**26.6**	**82**	
5.1	**Knowledge workers**	**37.3**	**[62]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	43.3	47	
5.1.4	GERD performed by business, % GDP	0.1	69	
5.1.5	GERD financed by business, %	47.4	31	
5.2	**Innovation linkages**	**18.3**	**95**	
5.2.1	Public research–industry co-publications, %	1.3	73	
5.2.2	University–industry R&D collaboration†	18.1	115	○
5.2.3	University industry and international engagement, top 5*	33.0	51	
5.2.4	State of cluster development†	27.7	112	○
5.2.5	Patent families/bn PPP$ GDP	0.0	83	
5.3	**Knowledge absorption**	**24.3**	**80**	
5.3.1	Intellectual property payments, % total trade	0.4	76	
5.3.2	High-tech imports, % total trade	9.8	46	
5.3.3	ICT services imports, % total trade	1.0	90	
5.3.4	FDI net inflows, % GDP	2.2	82	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**16.0**	**87**	
6.1	**Knowledge creation**	**14.8**	**67**	
6.1.1	Patents by origin/bn PPP$ GDP	1.0	55	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	79	
6.1.3	Utility models by origin/bn PPP$ GDP	1.5	8	●
6.1.4	Scientific and technical articles/bn PPP$ GDP	3.1	119	○
6.1.5	Citable documents H-index	6.5	93	
6.2	**Knowledge impact**	**19.0**	**100**	
6.2.1	Labor productivity growth, %	1.7	40	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	136	○◇
6.2.4	High-tech manufacturing, %	15.1	73	
6.3	**Knowledge diffusion**	**14.3**	**84**	
6.3.1	Intellectual property receipts, % total trade	0.0	101	
6.3.2	Production and export complexity	40.9	83	
6.3.3	High-tech exports, % total trade	6.4	36	●
6.3.4	ICT services exports, % total trade	0.9	90	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.5	125	○
Creative outputs		**18.3**	**82**	
7.1	**Intangible assets**	**17.1**	**84**	
7.1.1	Intangible asset intensity, top 15, %	13.2	69	○
7.1.2	Trademarks by origin/bn PPP$ GDP	30.3	62	
7.1.3	Global brand value, top 5,000, % GDP	0.5	68	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.2	106	
7.2	**Creative goods and services**	**14.6**	**61**	
7.2.1	Cultural and creative services exports, % total trade	0.5	61	
7.2.2	National feature films/mn pop. 15–69	5.9	29	●
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.5	66	
7.3	**Online creativity**	**24.1**	**74**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	2.6	79	
7.3.2	GitHub commits/mn pop. 15–69	5.5	76	
7.3.3	Mobile app creation/bn PPP$ GDP	64.4	70	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Kenya

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
85	116	Lower middle	SSA	56.4	375.4	7,157

		Score/ Value	Rank	
Institutions		**39.2**	**95**	
1.1	**Institutional environment**	**40.1**	**98**	
1.1.1	Operational stability for businesses*	44.7	107	
1.1.2	Government effectiveness*	35.6	92	
1.2	**Regulatory environment**	**41.0**	**92**	
1.2.1	Regulatory quality*	37.7	96	
1.2.2	Rule of law*	44.3	85	
1.3	**Business environment**	**36.4**	**[85]**	
1.3.1	Policy stability for doing business†	36.4	89	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**15.4**	**124**	○
2.1	**Education**	**38.5**	**[111]**	
2.1.1	Expenditure on education, % GDP	4.0	77	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	30.7	124	⏲
2.2	**Tertiary education**	**4.0**	**130**	○◇
2.2.1	Tertiary enrolment, % gross	10.5	117	⏲ ○
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	1.3	88	⏲
2.3	**Research and development (R&D)**	**3.6**	**84**	
2.3.1	Researchers, FTE/mn pop.	200.9	83	
2.3.2	Gross expenditure on R&D, % GDP	0.8	46	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**27.9**	**119**	
3.1	**Information and communication technology (ICT)**	**56.8**	**106**	
3.1.1	ICT access*	44.0	124	○◇
3.1.2	ICT use*	53.3	110	
3.1.3	Government online service*	73.2	55	◆
3.2	**General infrastructure**	**9.2**	**132**	○◇
3.2.1	Electricity output, GWh/mn pop.	230.5	120	○
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	17.4	115	◇
3.3	**Ecological sustainability**	**17.7**	**85**	
3.3.1	GDP/unit of energy use	8.4	94	
3.3.2	Low-carbon energy use, %	28.5	42	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.4	99	
Market sophistication		**20.3**	**121**	
4.1	**Credit**	**6.2**	**126**	○
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	31.6	92	
4.1.3	Loans from microfinance institutions, % GDP	0.2	53	
4.2	**Investment**	**10.1**	**47**	◆
4.2.1	Market capitalization, % GDP	18.7	64	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	27	●◆
4.2.3	Late-stage VC deal count, % global VC	0.1	35	●
4.2.4	VC investors, deal count/bn PPP$ GDP	0.3	40	●◆
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	47	◆
4.3	**Trade, diversification and market scale**	**44.5**	**117**	
4.3.1	Applied tariff rate, weighted avg., %	11.0	131	○◇
4.3.2	Domestic industry diversification	63.0	90	⏲
4.3.3	Domestic market scale, bn PPP$	375.4	57	

		Score/ Value	Rank	
Business sophistication		**25.5**	**92**	
5.1	**Knowledge workers**	**36.1**	**[65]**	
5.1.1	Knowledge-intensive employment, %	15.8	85	⏲
5.1.2	Females employed w/advanced degrees, %	1.9	111	⏲ ○
5.1.3	Youth demographic dividend, %	57.8	23	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**20.3**	**92**	
5.2.1	Public research–industry co-publications, %	1.9	50	◆
5.2.2	University–industry R&D collaboration†	29.5	83	
5.2.3	University industry and international engagement, top 5*	12.4	89	
5.2.4	State of cluster development†	40.2	88	
5.2.5	Patent families/bn PPP$ GDP	0.0	87	
5.3	**Knowledge absorption**	**20.1**	**108**	
5.3.1	Intellectual property payments, % total trade	0.3	82	⏲
5.3.2	High-tech imports, % total trade	8.7	59	
5.3.3	ICT services imports, % total trade	0.5	119	⏲
5.3.4	FDI net inflows, % GDP	0.6	116	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**21.6**	**64**	
6.1	**Knowledge creation**	**15.3**	**64**	
6.1.1	Patents by origin/bn PPP$ GDP	1.0	53	◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	88	
6.1.3	Utility models by origin/bn PPP$ GDP	1.0	19	●
6.1.4	Scientific and technical articles/bn PPP$ GDP	7.4	87	
6.1.5	Citable documents H-index	15.9	54	
6.2	**Knowledge impact**	**28.2**	**58**	
6.2.1	Labor productivity growth, %	1.9	29	●
6.2.2	Unicorn valuation, % GDP	1.7	26	●
6.2.3	Software spending, % GDP	0.1	89	
6.2.4	High-tech manufacturing, %	12.4	81	⏲
6.3	**Knowledge diffusion**	**21.3**	**58**	
6.3.1	Intellectual property receipts, % total trade	0.4	35	⏲ ●◆
6.3.2	Production and export complexity	43.3	79	
6.3.3	High-tech exports, % total trade	0.6	92	
6.3.4	ICT services exports, % total trade	5.6	19	⏲ ●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.6	95	
Creative outputs		**12.6**	**101**	
7.1	**Intangible assets**	**13.3**	**90**	
7.1.1	Intangible asset intensity, top 15, %	−16.5	74	○◇
7.1.2	Trademarks by origin/bn PPP$ GDP	16.6	94	
7.1.3	Global brand value, top 5,000, % GDP	1.7	48	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.5	86	
7.2	**Creative goods and services**	**2.7**	**107**	
7.2.1	Cultural and creative services exports, % total trade	0.0	115	○
7.2.2	National feature films/mn pop. 15–69	1.4	65	
7.2.3	Entertainment and media market/th pop. 15–69	1.7	53	
7.2.4	Creative goods exports, % total trade	0.2	84	
7.3	**Online creativity**	**21.2**	**93**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.9	104	
7.3.2	GitHub commits/mn pop. 15–69	6.7	68	
7.3.3	Mobile app creation/bn PPP$ GDP	56.1	93	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Kuwait

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
79	**67**	**High**	**NAWA**	**4.9**	**249.3**	**49,736**

			Score/ Value	Rank	
Institutions			**47.8**	**75**	◇
1.1	**Institutional environment**		**53.6**	**70**	◇
1.1.1	Operational stability for businesses*		64.0	64	
1.1.2	Government effectiveness*		43.2	73	◇
1.2	**Regulatory environment**		**57.3**	**54**	◇
1.2.1	Regulatory quality*		54.1	55	◇
1.2.2	Rule of law*		60.5	55	
1.3	**Business environment**		**32.5**	**93**	◇
1.3.1	Policy stability for doing business†		34.9	92	◇
1.3.2	Entrepreneurship policies and culture†	⏲	30.1	61	
Human capital and research			**34.5**	**[55]**	
2.1	**Education**		**68.6**	**[10]**	
2.1.1	Expenditure on education, % GDP		5.0	39	
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years	⏲	14.7	59	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	7.6	5	
2.2	**Tertiary education**		**30.0**	**[68]**	
2.2.1	Tertiary enrolment, % gross	⏲	51.9	72	◇
2.2.2	Graduates in science and engineering, %		n/a	n/a	
2.2.3	Tertiary inbound mobility, %		n/a	n/a	
2.3	**Research and development (R&D)**		**4.9**	**79**	◇
2.3.1	Researchers, FTE/mn pop.		159.4	87	◇
2.3.2	Gross expenditure on R&D, % GDP		0.1	103	◇
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		16.8	59	
Infrastructure			**48.0**	**52**	
3.1	**Information and communication technology (ICT)**		**84.8**	**42**	
3.1.1	ICT access*		100.0	4	●
3.1.2	ICT use*		98.2	3	●◆
3.1.3	Government online service*		56.3	85	◇
3.2	**General infrastructure**		**51.6**	**19**	●
3.2.1	Electricity output, GWh/mn pop.	⏲	19,564.4	5	●◆
3.2.2	Logistics performance*		50.0	50	
3.2.3	Gross capital formation, % GDP		19.5	107	◇
3.3	**Ecological sustainability**		**7.6**	**124**	◇
3.3.1	GDP/unit of energy use		4.5	123	○◇
3.3.2	Low-carbon energy use, %		0.1	135	○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP		2.0	48	
Market sophistication			**34.4**	**78**	◇
4.1	**Credit**		**43.6**	**36**	
4.1.1	Finance for startups and scaleups†	⏲	52.3	44	
4.1.2	Domestic credit to private sector, % GDP	⏲	92.0	25	●
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**8.0**	**54**	
4.2.1	Market capitalization, % GDP		90.2	21	●
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.0	88	◇
4.2.3	Late-stage VC deal count, % global VC		0.0	71	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.1	70	
4.2.5	VC investor co-participation/bn PPP$ GDP		0.0	75	◇
4.3	**Trade, diversification and market scale**		**51.7**	**109**	◇
4.3.1	Applied tariff rate, weighted avg., %		3.7	84	
4.3.2	Domestic industry diversification	⏲	31.9	109	○◇
4.3.3	Domestic market scale, bn PPP$		249.3	71	

			Score/ Value	Rank	
Business sophistication			**22.2**	**113**	◇
5.1	**Knowledge workers**		**27.0**	**[107]**	
5.1.1	Knowledge-intensive employment, %	⏲	22.7	67	
5.1.2	Females employed w/advanced degrees, %		n/a	n/a	
5.1.3	Youth demographic dividend, %		28.8	95	
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**21.7**	**83**	◇
5.2.1	Public research–industry co-publications, %		1.1	85	◇
5.2.2	University–industry R&D collaboration†		13.1	125	○◇
5.2.3	University industry and international engagement, top 5*		34.2	50	◇
5.2.4	State of cluster development†		51.2	58	
5.2.5	Patent families/bn PPP$ GDP		0.0	81	
5.3	**Knowledge absorption**		**17.9**	**121**	◇
5.3.1	Intellectual property payments, % total trade		0.6	65	
5.3.2	High-tech imports, % total trade		5.4	115	
5.3.3	ICT services imports, % total trade		0.3	127	○◇
5.3.4	FDI net inflows, % GDP		0.5	119	
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**15.8**	**88**	◇
6.1	**Knowledge creation**		**7.4**	**96**	◇
6.1.1	Patents by origin/bn PPP$ GDP	⏲	0.1	119	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	99	◇
6.1.3	Utility models by origin/bn PPP$ GDP		-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP		9.2	75	◇
6.1.5	Citable documents H-index		9.4	86	◇
6.2	**Knowledge impact**		**17.1**	**111**	◇
6.2.1	Labor productivity growth, %		−3.6	136	○◇
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.4	23	●
6.2.4	High-tech manufacturing, %	⏲	20.9	60	
6.3	**Knowledge diffusion**		**22.8**	**55**	
6.3.1	Intellectual property receipts, % total trade		0.6	26	●
6.3.2	Production and export complexity		26.4	116	◇
6.3.3	High-tech exports, % total trade		0.4	98	◇
6.3.4	ICT services exports, % total trade		6.6	14	●
6.3.5	ISO 9001 quality/bn PPP$ GDP		3.9	65	
Creative outputs			**22.3**	**70**	◇
7.1	**Intangible assets**		**30.5**	**58**	
7.1.1	Intangible asset intensity, top 15, %		44.5	56	
7.1.2	Trademarks by origin/bn PPP$ GDP	⏲	19.3	89	
7.1.3	Global brand value, top 5,000, % GDP		9.0	19	●
7.1.4	Industrial designs by origin/bn PPP$ GDP	⏲	0.1	120	○◇
7.2	**Creative goods and services**		**4.7**	**100**	◇
7.2.1	Cultural and creative services exports, % total trade		n/a	n/a	
7.2.2	National feature films/mn pop. 15–69		0.3	90	○◇
7.2.3	Entertainment and media market/th pop. 15–69		10.7	35	◇
7.2.4	Creative goods exports, % total trade		0.2	86	
7.3	**Online creativity**		**23.6**	**78**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69		3.2	74	◇
7.3.2	GitHub commits/mn pop. 15–69		2.2	107	◇
7.3.3	Mobile app creation/bn PPP$ GDP		65.5	68	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Kyrgyzstan

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
98	93	Lower middle	CSA	7.2	55.0	7,773

		Score/ Value	Rank	
Institutions		**28.9**	**119**	
1.1	**Institutional environment**	**24.9**	**127**	
1.1.1	Operational stability for businesses*	28.7	127	◇
1.1.2	Government effectiveness*	21.2	122	
1.2	**Regulatory environment**	**28.1**	**123**	
1.2.1	Regulatory quality*	32.5	107	
1.2.2	Rule of law*	23.7	130	◇
1.3	**Business environment**	**33.7**	**[91]**	
1.3.1	Policy stability for doing business†	33.7	97	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**33.6**	**58**	◆
2.1	**Education**	**65.7**	**[15]**	
2.1.1	Expenditure on education, % GDP	6.8	5	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	12.6	93	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	12.8	63	◆
2.2	**Tertiary education**	**34.8**	**49**	◆
2.2.1	Tertiary enrolment, % gross	53.2	70	◆
2.2.2	Graduates in science and engineering, %	17.6	97	
2.2.3	Tertiary inbound mobility, %	19.5	11	●◆
2.3	**Research and development (R&D)**	**0.3**	**114**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.1	108	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**36.9**	**89**	
3.1	**Information and communication technology (ICT)**	**71.1**	**82**	◆
3.1.1	ICT access*	82.9	75	◆
3.1.2	ICT use*	77.6	70	◆
3.1.3	Government online service*	52.7	87	
3.2	**General infrastructure**	**15.8**	**123**	
3.2.1	Electricity output, GWh/mn pop. ⏲	2,041.2	81	
3.2.2	Logistics performance*	9.1	107	○
3.2.3	Gross capital formation, % GDP	21.5	93	
3.3	**Ecological sustainability**	**23.8**	**56**	
3.3.1	GDP/unit of energy use	6.9	103	
3.3.2	Low-carbon energy use, %	48.9	14	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.1	138	○
Market sophistication		**33.1**	**82**	
4.1	**Credit**	**19.4**	**95**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	21.6	116	
4.1.3	Loans from microfinance institutions, % GDP	3.2	14	●
4.2	**Investment**	**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**46.7**	**114**	
4.3.1	Applied tariff rate, weighted avg., %	4.1	89	
4.3.2	Domestic industry diversification	34.9	108	○◇
4.3.3	Domestic market scale, bn PPP$	55.0	118	

		Score/ Value	Rank	
Business sophistication		**21.8**	**117**	
5.1	**Knowledge workers**	**27.4**	**106**	
5.1.1	Knowledge-intensive employment, % ⏲	20.9	75	
5.1.2	Females employed w/advanced degrees, % ⏲	11.7	66	
5.1.3	Youth demographic dividend, %	48.0	36	●
5.1.4	GERD performed by business, % GDP ⏲	0.0	76	
5.1.5	GERD financed by business, % ⏲	6.9	77	
5.2	**Innovation linkages**	**14.9**	**115**	
5.2.1	Public research–industry co-publications, %	0.6	121	
5.2.2	University–industry R&D collaboration†	21.5	108	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	34.1	96	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**23.2**	**84**	
5.3.1	Intellectual property payments, % total trade ⏲	0.1	107	
5.3.2	High-tech imports, % total trade	11.7	26	●
5.3.3	ICT services imports, % total trade ⏲	0.7	106	
5.3.4	FDI net inflows, % GDP	2.1	85	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**12.5**	**103**	
6.1	**Knowledge creation**	**9.1**	**87**	
6.1.1	Patents by origin/bn PPP$ GDP	1.5	37	●◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	82	
6.1.3	Utility models by origin/bn PPP$ GDP	0.4	35	
6.1.4	Scientific and technical articles/bn PPP$ GDP	4.7	109	
6.1.5	Citable documents H-index	3.5	120	
6.2	**Knowledge impact**	**15.5**	**120**	
6.2.1	Labor productivity growth, %	1.6	42	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	106	
6.2.4	High-tech manufacturing, %	2.3	110	○◇
6.3	**Knowledge diffusion**	**12.8**	**91**	
6.3.1	Intellectual property receipts, % total trade ⏲	0.0	85	
6.3.2	Production and export complexity	50.2	60	
6.3.3	High-tech exports, % total trade	2.1	60	
6.3.4	ICT services exports, % total trade ⏲	0.5	105	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.2	136	○
Creative outputs		**16.1**	**89**	
7.1	**Intangible assets**	**5.4**	**118**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	20.4	87	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.2	103	
7.2	**Creative goods and services**	**30.4**	**31**	●◆
7.2.1	Cultural and creative services exports, % total trade	0.8	42	●
7.2.2	National feature films/mn pop. 15–69	14.5	6	●◆
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.5	65	
7.3	**Online creativity**	**23.3**	**84**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.6	108	
7.3.2	GitHub commits/mn pop. 15–69	5.8	73	
7.3.3	Mobile app creation/bn PPP$ GDP	63.3	73	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

Lao People's Democratic Republic

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
129	83	Lower middle	SEAO	7.8	74.8	9,727

			Score/ Value	Rank	
Institutions			**45.1**	**83**	
1.1	**Institutional environment**		**41.0**	**96**	
1.1.1	Operational stability for businesses*		54.7	89	
1.1.2	Government effectiveness*		27.3	108	
1.2	**Regulatory environment**		**28.7**	**120**	
1.2.1	Regulatory quality*		25.3	123	
1.2.2	Rule of law*		32.0	114	
1.3	**Business environment**		**65.8**	**[23]**	
1.3.1	Policy stability for doing business†		65.8	33	●◆
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**16.9**	**[121]**	
2.1	**Education**		**33.4**	**[123]**	
2.1.1	Expenditure on education, % GDP		1.2	134	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years		8.9	119	◇
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	16.6	91	
2.2	**Tertiary education**		**17.3**	**104**	
2.2.1	Tertiary enrolment, % gross		14.9	110	
2.2.2	Graduates in science and engineering, %	⏲	23.1	60	
2.2.3	Tertiary inbound mobility, %	⏲	0.6	98	
2.3	**Research and development (R&D)**		**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.		n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP		n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**32.9**	**100**	
3.1	**Information and communication technology (ICT)**		**48.9**	**112**	
3.1.1	ICT access*		71.1	96	
3.1.2	ICT use*		56.7	108	
3.1.3	Government online service*		19.0	132	◇
3.2	**General infrastructure**		**20.7**	**108**	
3.2.1	Electricity output, GWh/mn pop.	⏲	6,776.9	29	●◆
3.2.2	Logistics performance*		13.6	104	
3.2.3	Gross capital formation, % GDP		n/a	n/a	
3.3	**Ecological sustainability**		**28.9**	**43**	●◆
3.3.1	GDP/unit of energy use		8.9	87	
3.3.2	Low-carbon energy use, %		55.5	11	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.3	107	
Market sophistication			**41.1**	**[46]**	
4.1	**Credit**		**8.6**	**[119]**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		n/a	n/a	
4.1.3	Loans from microfinance institutions, % GDP		0.8	38	
4.2	**Investment**		**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**73.6**	**57**	◆
4.3.1	Applied tariff rate, weighted avg., %	⏲	0.7	10	●◆
4.3.2	Domestic industry diversification	⏲	85.9	53	
4.3.3	Domestic market scale, bn PPP$		74.8	101	

			Score/ Value	Rank	
Business sophistication			**27.1**	**76**	
5.1	**Knowledge workers**		**29.1**	**[101]**	
5.1.1	Knowledge-intensive employment, %	⏲	9.0	104	
5.1.2	Females employed w/advanced degrees, %	⏲	4.6	94	
5.1.3	Youth demographic dividend, %		48.3	35	●
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**34.4**	**42**	●◆
5.2.1	Public research–industry co-publications, %		1.6	63	
5.2.2	University–industry R&D collaboration†		52.5	35	●◆
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†		69.8	34	●◆
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**17.8**	**122**	
5.3.1	Intellectual property payments, % total trade	⏲	0.0	131	○◇
5.3.2	High-tech imports, % total trade	⏲	4.0	126	
5.3.3	ICT services imports, % total trade	⏲	0.2	137	○◇
5.3.4	FDI net inflows, % GDP		7.2	18	●◆
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**8.5**	**127**	
6.1	**Knowledge creation**		**2.1**	**129**	
6.1.1	Patents by origin/bn PPP$ GDP		0.0	131	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP		0.0	63	
6.1.4	Scientific and technical articles/bn PPP$ GDP		2.9	122	
6.1.5	Citable documents H-index		3.9	118	
6.2	**Knowledge impact**		**13.8**	**125**	
6.2.1	Labor productivity growth, %		−0.7	116	
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.2	73	
6.2.4	High-tech manufacturing, %	⏲	4.8	102	
6.3	**Knowledge diffusion**		**9.6**	**108**	
6.3.1	Intellectual property receipts, % total trade	⏲	0.0	127	○◇
6.3.2	Production and export complexity		31.7	104	
6.3.3	High-tech exports, % total trade	⏲	3.2	50	●
6.3.4	ICT services exports, % total trade	⏲	0.3	121	
6.3.5	ISO 9001 quality/bn PPP$ GDP		1.0	110	
Creative outputs			**6.8**	**125**	
7.1	**Intangible assets**		**2.9**	**131**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		15.0	101	
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.0	122	
7.2	**Creative goods and services**		**19.8**	**[54]**	
7.2.1	Cultural and creative services exports, % total trade		n/a	n/a	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade	⏲	1.5	34	●
7.3	**Online creativity**		**1.6**	**133**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69		2.6	78	◆
7.3.2	GitHub commits/mn pop. 15–69		0.5	125	
7.3.3	Mobile app creation/bn PPP$ GDP		n/a	n/a	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Latvia

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
44	39	High	EUR	1.9	81.8	43,527

		Score/ Value	Rank	
Institutions		**59.4**	**46**	
1.1	**Institutional environment**	**69.8**	**32**	
1.1.1	Operational stability for businesses*	79.3	22	●
1.1.2	Government effectiveness*	60.2	42	
1.2	**Regulatory environment**	**75.6**	**26**	
1.2.1	Regulatory quality*	73.8	23	
1.2.2	Rule of law*	77.5	27	
1.3	**Business environment**	**32.7**	**92**	◇
1.3.1	Policy stability for doing business†	19.0	126	○◇
1.3.2	Entrepreneurship policies and culture†	46.3	39	
Human capital and research		**37.6**	**47**	
2.1	**Education**	**61.9**	**31**	
2.1.1	Expenditure on education, % GDP	5.4	28	
2.1.2	Government funding/pupil, secondary, % GDP/cap	21.9	36	
2.1.3	School life expectancy, years	16.1	35	
2.1.4	PISA scales in reading, maths and science	483.9	22	
2.1.5	Pupil–teacher ratio, secondary	9.8	29	
2.2	**Tertiary education**	**38.6**	**37**	
2.2.1	Tertiary enrolment, % gross	85.7	16	●
2.2.2	Graduates in science and engineering, %	19.7	83	○
2.2.3	Tertiary inbound mobility, %	13.4	19	
2.3	**Research and development (R&D)**	**12.3**	**58**	
2.3.1	Researchers, FTE/mn pop.	2,189.7	41	
2.3.2	Gross expenditure on R&D, % GDP	0.8	45	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	15.1	63	
Infrastructure		**53.7**	**34**	
3.1	**Information and communication technology (ICT)**	**88.5**	**31**	
3.1.1	ICT access*	95.2	42	
3.1.2	ICT use*	93.4	12	●
3.1.3	Government online service*	77.0	47	
3.2	**General infrastructure**	**38.1**	**49**	
3.2.1	Electricity output, GWh/mn pop.	3,398.9	61	
3.2.2	Logistics performance*	63.6	33	
3.2.3	Gross capital formation, % GDP	23.7	68	
3.3	**Ecological sustainability**	**34.4**	**33**	
3.3.1	GDP/unit of energy use	13.0	47	
3.3.2	Low-carbon energy use, %	32.5	35	
3.3.3	ISO 14001 environment/bn PPP$ GDP	4.3	22	●
Market sophistication		**39.5**	**56**	
4.1	**Credit**	**34.4**	**52**	
4.1.1	Finance for startups and scaleups†	60.2	31	
4.1.2	Domestic credit to private sector, % GDP	28.9	101	○◇
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**13.6**	**39**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	30	
4.2.3	Late-stage VC deal count, % global VC	0.0	62	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.4	32	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.2	31	
4.3	**Trade, diversification and market scale**	**70.5**	**61**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	80.5	65	
4.3.3	Domestic market scale, bn PPP$	81.8	99	○

		Score/ Value	Rank	
Business sophistication		**33.9**	**47**	
5.1	**Knowledge workers**	**44.7**	**39**	
5.1.1	Knowledge-intensive employment, %	44.5	24	
5.1.2	Females employed w/advanced degrees, %	27.7	12	●
5.1.3	Youth demographic dividend, %	25.6	117	○
5.1.4	GERD performed by business, % GDP	0.3	48	
5.1.5	GERD financed by business, %	37.3	53	
5.2	**Innovation linkages**	**25.3**	**65**	◇
5.2.1	Public research–industry co-publications, %	2.1	43	
5.2.2	University–industry R&D collaboration†	40.1	52	
5.2.3	University industry and international engagement, top 5*	26.1	60	◇
5.2.4	State of cluster development†	32.4	102	○◇
5.2.5	Patent families/bn PPP$ GDP	0.3	38	
5.3	**Knowledge absorption**	**31.8**	**47**	
5.3.1	Intellectual property payments, % total trade	0.1	108	○◇
5.3.2	High-tech imports, % total trade	11.9	22	●
5.3.3	ICT services imports, % total trade	2.0	40	
5.3.4	FDI net inflows, % GDP	5.7	23	
5.3.5	Research talent, % in businesses	31.7	43	
Knowledge and technology outputs		**25.4**	**51**	
6.1	**Knowledge creation**	**21.9**	**49**	
6.1.1	Patents by origin/bn PPP$ GDP	2.1	28	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.4	34	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	16.8	41	
6.1.5	Citable documents H-index	9.5	82	
6.2	**Knowledge impact**	**21.6**	**86**	
6.2.1	Labor productivity growth, %	2.1	26	◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	90	◇
6.2.4	High-tech manufacturing, %	14.8	74	◇
6.3	**Knowledge diffusion**	**32.6**	**36**	
6.3.1	Intellectual property receipts, % total trade	0.0	82	
6.3.2	Production and export complexity	64.0	38	
6.3.3	High-tech exports, % total trade	7.6	30	
6.3.4	ICT services exports, % total trade	4.8	25	
6.3.5	ISO 9001 quality/bn PPP$ GDP	10.8	23	
Creative outputs		**35.2**	**36**	
7.1	**Intangible assets**	**17.6**	**83**	◇
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	35.9	52	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.1	37	
7.2	**Creative goods and services**	**58.1**	**2**	●◆
7.2.1	Cultural and creative services exports, % total trade	2.6	10	●
7.2.2	National feature films/mn pop. 15–69	16.9	5	●◆
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	2.9	19	●
7.3	**Online creativity**	**47.4**	**31**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	24.5	32	
7.3.2	GitHub commits/mn pop. 15–69	39.6	28	
7.3.3	Mobile app creation/bn PPP$ GDP	78.2	12	●

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Lebanon

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
83	100	Lower middle	NAWA	5.8	NA	NA

		Score/ Value	Rank	
Institutions		**18.3**	**133**	○◇
1.1	**Institutional environment**	**2.5**	**138**	○◇
1.1.1	Operational stability for businesses*	0.7	138	○◇
1.1.2	Government effectiveness*	4.2	137	○◇
1.2	**Regulatory environment**	**23.6**	**128**	◇
1.2.1	Regulatory quality*	23.3	128	
1.2.2	Rule of law*	24.0	129	○◇
1.3	**Business environment**	**28.7**	**103**	
1.3.1	Policy stability for doing business† ⏲	8.4	131	○◇
1.3.2	Entrepreneurship policies and culture† ⏲	49.1	33	
Human capital and research		**32.8**	**63**	◆
2.1	**Education**	**41.1**	**102**	
2.1.1	Expenditure on education, % GDP ⏲	2.4	123	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	11.2	102	
2.1.4	PISA scales in reading, maths and science ⏲	376.8	72	
2.1.5	Pupil–teacher ratio, secondary	9.4	24	●◆
2.2	**Tertiary education**	**43.3**	**25**	●◆
2.2.1	Tertiary enrolment, % gross	54.4	67	◆
2.2.2	Graduates in science and engineering, %	30.6	18	●◆
2.2.3	Tertiary inbound mobility, %	12.9	20	●◆
2.3	**Research and development (R&D)**	**13.9**	**[54]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	27.9	48	◆
Infrastructure		**27.0**	**120**	
3.1	**Information and communication technology (ICT)**	**58.8**	**102**	
3.1.1	ICT access*	81.6	81	◆
3.1.2	ICT use*	61.1	102	
3.1.3	Government online service*	33.7	116	
3.2	**General infrastructure**	**3.1**	**[139]**	
3.2.1	Electricity output, GWh/mn pop. ⏲	788.7	104	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	n/a	n/a	
3.3	**Ecological sustainability**	**19.2**	**76**	
3.3.1	GDP/unit of energy use	17.5	20	●◆
3.3.2	Low-carbon energy use, %	6.7	106	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.2	64	
Market sophistication		**41.8**	**42**	◆
4.1	**Credit**	**58.1**	**14**	●◆
4.1.1	Finance for startups and scaleups† ⏲	75.3	15	
4.1.2	Domestic credit to private sector, % GDP ⏲	106.6	21	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**7.0**	**59**	
4.2.1	Market capitalization, % GDP ⏲	27.3	52	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP ⏲	0.1	60	
4.2.3	Late-stage VC deal count, % global VC	0.0	81	
4.2.4	VC investors, deal count/bn PPP$ GDP ⏲	0.4	33	◆
4.2.5	VC investor co-participation/bn PPP$ GDP ⏲	0.1	49	◆
4.3	**Trade, diversification and market scale**	**60.4**	**95**	
4.3.1	Applied tariff rate, weighted avg., %	4.1	88	
4.3.2	Domestic industry diversification ⏲	73.9	76	
4.3.3	Domestic market scale, bn PPP$ ⏲	66.7	107	

		Score/ Value	Rank	
Business sophistication		**28.0**	**71**	
5.1	**Knowledge workers**	**45.6**	**[35]**	
5.1.1	Knowledge-intensive employment, % ⏲	27.5	53	◆
5.1.2	Females employed w/advanced degrees, % ⏲	14.6	55	◆
5.1.3	Youth demographic dividend, %	42.9	50	◇
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**21.3**	**85**	
5.2.1	Public research–industry co-publications, %	0.2	138	○◇
5.2.2	University–industry R&D collaboration† ⏲	25.8	98	
5.2.3	University industry and international engagement, top 5*	44.5	39	◆
5.2.4	State of cluster development† ⏲	33.0	99	
5.2.5	Patent families/bn PPP$ GDP	0.1	48	◆
5.3	**Knowledge absorption**	**17.0**	**127**	
5.3.1	Intellectual property payments, % total trade	0.1	119	
5.3.2	High-tech imports, % total trade	5.8	107	
5.3.3	ICT services imports, % total trade	0.3	130	○
5.3.4	FDI net inflows, % GDP ⏲	3.4	52	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**22.7**	**59**	◆
6.1	**Knowledge creation**	**42.9**	**[17]**	
6.1.1	Patents by origin/bn PPP$ GDP ⏲	0.9	60	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP ⏲	47.7	1	●◆
6.1.5	Citable documents H-index	13.5	64	
6.2	**Knowledge impact**	**5.0**	**138**	○◇
6.2.1	Labor productivity growth, %	−4.6	137	○◇
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	119	◇
6.2.4	High-tech manufacturing, % ⏲	14.6	75	
6.3	**Knowledge diffusion**	**20.1**	**61**	
6.3.1	Intellectual property receipts, % total trade	0.1	58	
6.3.2	Production and export complexity	57.2	44	◆
6.3.3	High-tech exports, % total trade	0.7	89	
6.3.4	ICT services exports, % total trade	0.8	95	
6.3.5	ISO 9001 quality/bn PPP$ GDP	9.0	27	●◆
Creative outputs		**12.6**	**102**	
7.1	**Intangible assets**	**3.9**	**[126]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP ⏲	10.2	112	
7.1.3	Global brand value, top 5,000, % GDP	0.6	65	
7.1.4	Industrial designs by origin/bn PPP$ GDP	n/a	n/a	
7.2	**Creative goods and services**	**14.9**	**60**	
7.2.1	Cultural and creative services exports, % total trade	1.0	32	
7.2.2	National feature films/mn pop. 15–69	3.9	39	
7.2.3	Entertainment and media market/th pop. 15–69 ⏲	1.2	58	○
7.2.4	Creative goods exports, % total trade	1.4	35	●
7.3	**Online creativity**	**27.8**	**60**	◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69	3.5	71	◆
7.3.2	GitHub commits/mn pop. 15–69	8.0	63	◆
7.3.3	Mobile app creation/bn PPP$ GDP ⏲	71.8	31	●◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Lesotho

132

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
139	118	Lower middle	SSA	2.3	7.1	3,260

		Score/ Value	Rank	
Institutions		**31.6**	**115**	
1.1	**Institutional environment**	**37.2**	**108**	
1.1.1	Operational stability for businesses*	54.7	91	●
1.1.2	Government effectiveness*	19.6	126	
1.2	**Regulatory environment**	**36.9**	**104**	
1.2.1	Regulatory quality*	33.1	106	
1.2.2	Rule of law*	40.6	97	
1.3	**Business environment**	**20.8**	**[121]**	
1.3.1	Policy stability for doing business†	20.8	123	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**20.8**	**102**	
2.1	**Education**	**54.0**	**60**	●◆
2.1.1	Expenditure on education, % GDP	6.6	10	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	34.8	3	●◆
2.1.3	School life expectancy, years	11.0	105	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	25.3	114	
2.2	**Tertiary education**	**8.1**	**119**	
2.2.1	Tertiary enrolment, % gross	11.0	115	
2.2.2	Graduates in science and engineering, %	15.4	105	
2.2.3	Tertiary inbound mobility, %	0.4	105	
2.3	**Research and development (R&D)**	**0.2**	**116**	
2.3.1	Researchers, FTE/mn pop.	23.7	103	
2.3.2	Gross expenditure on R&D, % GDP	0.1	109	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**29.1**	**112**	
3.1	**Information and communication technology (ICT)**	**28.7**	**131**	◇
3.1.1	ICT access*	33.7	132	◇
3.1.2	ICT use*	38.3	118	◇
3.1.3	Government online service*	14.1	136	○◇
3.2	**General infrastructure**	**50.2**	**[23]**	
3.2.1	Electricity output, GWh/mn pop.	n/a	n/a	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	28.1	31	●
3.3	**Ecological sustainability**	**8.3**	**119**	◇
3.3.1	GDP/unit of energy use	n/a	n/a	
3.3.2	Low-carbon energy use, %	13.0	85	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.1	126	
Market sophistication		**27.2**	**[107]**	
4.1	**Credit**	**6.9**	**[124]**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	24.9	108	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**47.4**	**112**	
4.3.1	Applied tariff rate, weighted avg., %	2.3	70	●◆
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	7.1	136	○◇

		Score/ Value	Rank	
Business sophistication		**16.2**	**137**	○◇
5.1	**Knowledge workers**	**25.4**	**114**	
5.1.1	Knowledge-intensive employment, %	12.2	94	
5.1.2	Females employed w/advanced degrees, %	3.7	98	
5.1.3	Youth demographic dividend, %	54.0	28	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	0.8	90	
5.2	**Innovation linkages**	**9.9**	**131**	◇
5.2.1	Public research–industry co-publications, %	1.7	58	●◆
5.2.2	University–industry R&D collaboration†	2.2	131	○◇
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	20.2	126	◇
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**13.2**	**136**	○◇
5.3.1	Intellectual property payments, % total trade	0.2	104	
5.3.2	High-tech imports, % total trade	2.8	134	
5.3.3	ICT services imports, % total trade	0.6	107	
5.3.4	FDI net inflows, % GDP	−0.7	129	◇
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**6.6**	**136**	○◇
6.1	**Knowledge creation**	**8.3**	**90**	●
6.1.1	Patents by origin/bn PPP$ GDP	0.2	103	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	55	●◆
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	11.5	61	●
6.1.5	Citable documents H-index	0.3	138	○◇
6.2	**Knowledge impact**	**11.1**	**130**	◇
6.2.1	Labor productivity growth, %	−1.6	127	◇
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	97	
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**0.5**	**139**	○◇
6.3.1	Intellectual property receipts, % total trade	0.0	108	
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade	0.1	134	
6.3.4	ICT services exports, % total trade	0.0	139	○◇
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.4	131	
Creative outputs		**3.2**	**[136]**	
7.1	**Intangible assets**	**5.8**	**[116]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	11.7	110	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	n/a	n/a	
7.2	**Creative goods and services**	**0.5**	**[134]**	
7.2.1	Cultural and creative services exports, % total trade	0.0	119	○
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	105	
7.3	**Online creativity**	**0.8**	**134**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.4	117	
7.3.2	GitHub commits/mn pop. 15–69	1.2	114	
7.3.3	Mobile app creation/bn PPP$ GDP	n/a	n/a	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Lithuania

GII 2025 rank **33**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
40	28	High	EUR	2.9	154.6	53,624

			Score/ Value	Rank	
Institutions			**72.6**	**19**	
1.1	**Institutional environment**		**73.8**	**25**	
1.1.1	Operational stability for businesses*		78.7	23	
1.1.2	Government effectiveness*		68.9	28	
1.2	**Regulatory environment**		**80.3**	**21**	
1.2.1	Regulatory quality*		77.6	20	
1.2.2	Rule of law*		83.0	22	
1.3	**Business environment**		**63.9**	**28**	
1.3.1	Policy stability for doing business†	⏲	52.0	60	
1.3.2	Entrepreneurship policies and culture†		75.7	6	●◆
Human capital and research			**37.8**	**45**	
2.1	**Education**		**58.0**	**45**	
2.1.1	Expenditure on education, % GDP	⏲	4.3	64	
2.1.2	Government funding/pupil, secondary, % GDP/cap		17.7	54	
2.1.3	School life expectancy, years	⏲	16.5	29	
2.1.4	PISA scales in reading, maths and science		477.1	30	
2.1.5	Pupil–teacher ratio, secondary	⏲	8.8	17	●
2.2	**Tertiary education**		**37.4**	**41**	
2.2.1	Tertiary enrolment, % gross	⏲	76.9	29	
2.2.2	Graduates in science and engineering, %		23.8	52	
2.2.3	Tertiary inbound mobility, %	⏲	8.8	35	
2.3	**Research and development (R&D)**		**18.1**	**50**	
2.3.1	Researchers, FTE/mn pop.		3,672.1	29	
2.3.2	Gross expenditure on R&D, % GDP		1.0	38	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		20.6	52	
Infrastructure			**54.8**	**29**	
3.1	**Information and communication technology (ICT)**		**92.9**	**15**	●
3.1.1	ICT access*		96.9	29	
3.1.2	ICT use*		95.7	5	●◆
3.1.3	Government online service*		86.0	26	
3.2	**General infrastructure**		**32.8**	**72**	◇
3.2.1	Electricity output, GWh/mn pop.		1,895.5	85	○◇
3.2.2	Logistics performance*		59.1	37	
3.2.3	Gross capital formation, % GDP		22.0	85	○
3.3	**Ecological sustainability**		**38.6**	**23**	
3.3.1	GDP/unit of energy use		15.7	29	
3.3.2	Low-carbon energy use, %		17.6	73	
3.3.3	ISO 14001 environment/bn PPP$ GDP		7.1	9	●◆
Market sophistication			**46.6**	**32**	
4.1	**Credit**		**45.4**	**30**	
4.1.1	Finance for startups and scaleups†		79.9	11	●◆
4.1.2	Domestic credit to private sector, % GDP		34.4	87	○◇
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**17.8**	**35**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.4	20	
4.2.3	Late-stage VC deal count, % global VC		0.0	54	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.6	21	
4.2.5	VC investor co-participation/bn PPP$ GDP		0.2	28	
4.3	**Trade, diversification and market scale**		**76.7**	**44**	
4.3.1	Applied tariff rate, weighted avg., %		1.3	24	
4.3.2	Domestic industry diversification	⏲	92.7	28	
4.3.3	Domestic market scale, bn PPP$		154.6	85	

			Score/ Value	Rank	
Business sophistication			**38.5**	**35**	
5.1	**Knowledge workers**		**48.7**	**29**	
5.1.1	Knowledge-intensive employment, %		47.9	16	●
5.1.2	Females employed w/advanced degrees, %		30.8	3	●◆
5.1.3	Youth demographic dividend, %		24.8	122	○
5.1.4	GERD performed by business, % GDP		0.4	41	
5.1.5	GERD financed by business, %		39.9	45	
5.2	**Innovation linkages**		**37.7**	**36**	
5.2.1	Public research–industry co-publications, %		4.8	16	●
5.2.2	University–industry R&D collaboration†	⏲	53.3	33	
5.2.3	University industry and international engagement, top 5*		23.9	65	○◇
5.2.4	State of cluster development†	⏲	52.1	57	
5.2.5	Patent families/bn PPP$ GDP		0.4	36	
5.3	**Knowledge absorption**		**29.1**	**58**	
5.3.1	Intellectual property payments, % total trade		0.5	72	
5.3.2	High-tech imports, % total trade		7.7	76	
5.3.3	ICT services imports, % total trade		1.9	44	
5.3.4	FDI net inflows, % GDP		4.0	40	
5.3.5	Research talent, % in businesses		31.0	46	
Knowledge and technology outputs			**32.1**	**33**	
6.1	**Knowledge creation**		**20.5**	**52**	
6.1.1	Patents by origin/bn PPP$ GDP		1.3	42	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.2	45	
6.1.3	Utility models by origin/bn PPP$ GDP		-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP		19.5	34	
6.1.5	Citable documents H-index		13.3	65	
6.2	**Knowledge impact**		**45.9**	**13**	●
6.2.1	Labor productivity growth, %		0.9	68	
6.2.2	Unicorn valuation, % GDP		9.5	1	●◆
6.2.3	Software spending, % GDP		0.1	102	○◇
6.2.4	High-tech manufacturing, %	⏲	23.4	54	
6.3	**Knowledge diffusion**		**30.0**	**40**	
6.3.1	Intellectual property receipts, % total trade		0.0	97	○◇
6.3.2	Production and export complexity		67.4	31	
6.3.3	High-tech exports, % total trade		7.4	31	
6.3.4	ICT services exports, % total trade		3.8	31	
6.3.5	ISO 9001 quality/bn PPP$ GDP		8.6	29	
Creative outputs			**30.9**	**48**	
7.1	**Intangible assets**		**25.2**	**66**	
7.1.1	Intangible asset intensity, top 15, %		0.3	72	○◇
7.1.2	Trademarks by origin/bn PPP$ GDP		45.6	40	
7.1.3	Global brand value, top 5,000, % GDP		0.2	79	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP		2.7	32	
7.2	**Creative goods and services**		**24.8**	**48**	
7.2.1	Cultural and creative services exports, % total trade		0.9	34	
7.2.2	National feature films/mn pop. 15–69		7.9	21	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		1.3	40	
7.3	**Online creativity**		**48.2**	**30**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		26.6	30	
7.3.2	GitHub commits/mn pop. 15–69		37.6	30	
7.3.3	Mobile app creation/bn PPP$ GDP		80.6	8	●

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Luxembourg

23

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
25	26	High	EUR	0.7	101.9	151,146

		Score/ Value	Rank	
Institutions		**83.8**	**4**	●
1.1	**Institutional environment**	**88.4**	**5**	●
1.1.1	Operational stability for businesses*	86.7	8	
1.1.2	Government effectiveness*	90.1	4	●◆
1.2	**Regulatory environment**	**93.0**	**4**	●
1.2.1	Regulatory quality*	91.2	3	●
1.2.2	Rule of law*	94.8	6	●
1.3	**Business environment**	**69.9**	**18**	
1.3.1	Policy stability for doing business†	93.7	2	●◆
1.3.2	Entrepreneurship policies and culture†	46.2	40	
Human capital and research		**47.9**	**27**	◇
2.1	**Education**	**57.8**	**46**	◇
2.1.1	Expenditure on education, % GDP	4.7	51	
2.1.2	Government funding/pupil, secondary, % GDP/cap	20.9	41	
2.1.3	School life expectancy, years	14.4	62	◇
2.1.4	PISA scales in reading, maths and science	476.7	32	
2.1.5	Pupil–teacher ratio, secondary	8.1	10	◆
2.2	**Tertiary education**	**51.1**	**9**	
2.2.1	Tertiary enrolment, % gross	21.0	102	○◇
2.2.2	Graduates in science and engineering, %	22.9	63	
2.2.3	Tertiary inbound mobility, %	50.5	1	●◆
2.3	**Research and development (R&D)**	**34.9**	**31**	◇
2.3.1	Researchers, FTE/mn pop.	5,224.2	20	
2.3.2	Gross expenditure on R&D, % GDP	1.0	40	◇
2.3.3	Global corporate R&D investors, top 3, mn USD	62.3	22	
2.3.4	QS university ranking, top 3*	11.0	68	◇
Infrastructure		**46.6**	**57**	◇
3.1	**Information and communication technology (ICT)**	**84.8**	**43**	◇
3.1.1	ICT access*	99.3	12	
3.1.2	ICT use*	84.6	39	
3.1.3	Government online service*	70.6	64	◇
3.2	**General infrastructure**	**31.0**	**78**	◇
3.2.1	Electricity output, GWh/mn pop.	1,865.7	86	◇
3.2.2	Logistics performance*	68.2	25	◇
3.2.3	Gross capital formation, % GDP	17.3	116	○◇
3.3	**Ecological sustainability**	**23.9**	**55**	
3.3.1	GDP/unit of energy use	23.4	7	
3.3.2	Low-carbon energy use, %	9.1	95	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.8	78	
Market sophistication		**50.2**	**23**	
4.1	**Credit**	**43.9**	**34**	
4.1.1	Finance for startups and scaleups†	51.0	46	◇
4.1.2	Domestic credit to private sector, % GDP	96.5	23	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**40.3**	**11**	
4.2.1	Market capitalization, % GDP	67.9	28	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	24	
4.2.3	Late-stage VC deal count, % global VC	0.0	55	
4.2.4	VC investors, deal count/bn PPP$ GDP	4.3	2	●◆
4.2.5	VC investor co-participation/bn PPP$ GDP	1.3	1	●◆
4.3	**Trade, diversification and market scale**	**66.6**	**79**	◇
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	101.9	94	○◇

		Score/ Value	Rank	
Business sophistication		**49.0**	**21**	
5.1	**Knowledge workers**	**56.1**	**18**	
5.1.1	Knowledge-intensive employment, %	68.0	1	●◆
5.1.2	Females employed w/advanced degrees, %	29.7	5	●◆
5.1.3	Youth demographic dividend, %	26.5	110	○
5.1.4	GERD performed by business, % GDP	0.5	39	◇
5.1.5	GERD financed by business, %	44.2	37	◇
5.2	**Innovation linkages**	**60.8**	**15**	
5.2.1	Public research–industry co-publications, %	4.5	18	
5.2.2	University–industry R&D collaboration†	63.2	17	
5.2.3	University industry and international engagement, top 5*	85.7	15	
5.2.4	State of cluster development†	75.2	26	
5.2.5	Patent families/bn PPP$ GDP	3.0	12	
5.3	**Knowledge absorption**	**30.2**	**55**	◇
5.3.1	Intellectual property payments, % total trade	4.6	6	●◆
5.3.2	High-tech imports, % total trade	1.3	138	○◇
5.3.3	ICT services imports, % total trade	4.7	6	●
5.3.4	FDI net inflows, % GDP	−161.3	137	○◇
5.3.5	Research talent, % in businesses	32.4	41	◇
Knowledge and technology outputs		**24.7**	**53**	◇
6.1	**Knowledge creation**	**27.8**	**34**	◇
6.1.1	Patents by origin/bn PPP$ GDP	4.5	15	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.9	25	◇
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	14.6	49	◇
6.1.5	Citable documents H-index	12.4	66	◇
6.2	**Knowledge impact**	**26.8**	**63**	◇
6.2.1	Labor productivity growth, %	−1.0	122	○◇
6.2.2	Unicorn valuation, % GDP	2.1	20	
6.2.3	Software spending, % GDP	0.2	82	◇
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**19.4**	**64**	◇
6.3.1	Intellectual property receipts, % total trade	1.4	16	
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade	0.7	87	◇
6.3.4	ICT services exports, % total trade	3.5	39	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.4	100	○◇
Creative outputs		**53.4**	**10**	
7.1	**Intangible assets**	**48.5**	**20**	
7.1.1	Intangible asset intensity, top 15, %	71.6	14	
7.1.2	Trademarks by origin/bn PPP$ GDP	43.9	41	
7.1.3	Global brand value, top 5,000, % GDP	8.2	24	
7.1.4	Industrial designs by origin/bn PPP$ GDP	3.4	22	
7.2	**Creative goods and services**	**49.5**	**4**	●◆
7.2.1	Cultural and creative services exports, % total trade	6.3	1	●◆
7.2.2	National feature films/mn pop. 15–69	10.2	8	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	109	○
7.3	**Online creativity**	**67.1**	**14**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	82.6	6	●◆
7.3.2	GitHub commits/mn pop. 15–69	48.3	23	◇
7.3.3	Mobile app creation/bn PPP$ GDP	70.4	42	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Madagascar

GII 2025 rank **120**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
96	135	Low	SSA	32.0	60.9	1,990

			Score/ Value	Rank	
Institutions			**25.6**	**128**	
1.1	**Institutional environment**		**29.3**	**121**	
1.1.1	Operational stability for businesses*		40.7	113	
1.1.2	Government effectiveness*		17.9	131	
1.2	**Regulatory environment**		**28.4**	**122**	
1.2.1	Regulatory quality*		28.3	117	
1.2.2	Rule of law*		28.6	119	
1.3	**Business environment**		**19.0**	**127**	◇
1.3.1	Policy stability for doing business†	⏲	20.0	124	◇
1.3.2	Entrepreneurship policies and culture†	⏲	18.0	81	
Human capital and research			**18.3**	**116**	
2.1	**Education**		**38.3**	**[112]**	
2.1.1	Expenditure on education, % GDP		3.0	109	
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years	⏲	9.1	118	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	19.1	100	
2.2	**Tertiary education**		**16.4**	**106**	
2.2.1	Tertiary enrolment, % gross		6.1	126	
2.2.2	Graduates in science and engineering, %		24.2	47	●
2.2.3	Tertiary inbound mobility, %		0.3	106	
2.3	**Research and development (R&D)**		**0.1**	**121**	
2.3.1	Researchers, FTE/mn pop.	⏲	32.9	99	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.0	113	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**13.9**	**137**	○◇
3.1	**Information and communication technology (ICT)**		**19.8**	**136**	
3.1.1	ICT access*		15.8	137	○
3.1.2	ICT use*		15.3	124	
3.1.3	Government online service*		28.4	121	
3.2	**General infrastructure**		**13.2**	**128**	
3.2.1	Electricity output, GWh/mn pop.	⏲	88.1	126	
3.2.2	Logistics performance*		9.1	107	○◇
3.2.3	Gross capital formation, % GDP		21.6	92	
3.3	**Ecological sustainability**		**8.7**	**115**	
3.3.1	GDP/unit of energy use		4.7	121	
3.3.2	Low-carbon energy use, %		15.6	80	●
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.1	129	
Market sophistication			**21.2**	**117**	
4.1	**Credit**		**14.2**	**106**	
4.1.1	Finance for startups and scaleups†	⏲	27.3	80	
4.1.2	Domestic credit to private sector, % GDP		17.2	120	
4.1.3	Loans from microfinance institutions, % GDP		1.1	31	●
4.2	**Investment**		**3.1**	**[84]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	⏲	0.0	100	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.1	67	
4.2.5	VC investor co-participation/bn PPP$ GDP		0.0	62	●
4.3	**Trade, diversification and market scale**		**46.2**	**116**	
4.3.1	Applied tariff rate, weighted avg., %		6.3	107	
4.3.2	Domestic industry diversification	⏲	49.3	105	
4.3.3	Domestic market scale, bn PPP$		60.9	111	

			Score/ Value	Rank	
Business sophistication			**22.0**	**116**	
5.1	**Knowledge workers**		**31.1**	**[94]**	
5.1.1	Knowledge-intensive employment, %	⏲	4.2	118	
5.1.2	Females employed w/advanced degrees, %	⏲	1.9	110	
5.1.3	Youth demographic dividend, %		59.0	20	●◇
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**12.5**	**120**	
5.2.1	Public research–industry co-publications, %		1.0	89	
5.2.2	University–industry R&D collaboration†	⏲	14.5	123	◇
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†	⏲	26.9	116	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**22.5**	**91**	
5.3.1	Intellectual property payments, % total trade	⏲	0.3	91	
5.3.2	High-tech imports, % total trade		6.0	102	
5.3.3	ICT services imports, % total trade	⏲	1.7	55	●
5.3.4	FDI net inflows, % GDP		2.7	64	●
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**9.0**	**124**	
6.1	**Knowledge creation**		**3.8**	**121**	
6.1.1	Patents by origin/bn PPP$ GDP		0.0	126	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP		-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP		5.4	103	
6.1.5	Citable documents H-index		4.1	115	
6.2	**Knowledge impact**		**9.5**	**134**	◇
6.2.1	Labor productivity growth, %		−0.7	115	
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	124	
6.2.4	High-tech manufacturing, %	⏲	1.0	112	○◇
6.3	**Knowledge diffusion**		**13.7**	**89**	◆
6.3.1	Intellectual property receipts, % total trade	⏲	0.0	103	
6.3.2	Production and export complexity		30.5	109	
6.3.3	High-tech exports, % total trade		0.3	104	◆
6.3.4	ICT services exports, % total trade	⏲	4.6	29	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.9	113	
Creative outputs			**20.9**	**[74]**	
7.1	**Intangible assets**		**39.6**	**[35]**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		55.9	25	●◆
7.1.3	Global brand value, top 5,000, % GDP		n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP		4.3	17	●◆
7.2	**Creative goods and services**		**4.0**	**[105]**	
7.2.1	Cultural and creative services exports, % total trade		0.3	76	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.1	98	
7.3	**Online creativity**		**0.3**	**135**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.1	132	
7.3.2	GitHub commits/mn pop. 15–69		0.9	119	
7.3.3	Mobile app creation/bn PPP$ GDP	⏲	0.0	131	○◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Malawi

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
131	122	Low	SSA	21.7	40.1	1,714

			Score/ Value	Rank	
Institutions			**35.5**	**101**	
1.1	**Institutional environment**		**30.0**	**120**	
1.1.1	Operational stability for businesses*		38.0	119	
1.1.2	Government effectiveness*		21.9	121	
1.2	**Regulatory environment**		**38.7**	**98**	
1.2.1	Regulatory quality*		28.9	116	
1.2.2	Rule of law*		48.5	76	●◆
1.3	**Business environment**		**37.9**	**[83]**	
1.3.1	Policy stability for doing business†		37.9	86	
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**6.8**	**[138]**	
2.1	**Education**		**20.4**	**136**	○◇
2.1.1	Expenditure on education, % GDP	⏲	3.3	99	
2.1.2	Government funding/pupil, secondary, % GDP/cap	⏲	16.8	59	
2.1.3	School life expectancy, years	⏲	9.9	113	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	68.1	130	○◇
2.2	**Tertiary education**		**0.0**	**[134]**	
2.2.1	Tertiary enrolment, % gross	⏲	2.7	133	○◇
2.2.2	Graduates in science and engineering, %		n/a	n/a	
2.2.3	Tertiary inbound mobility, %		n/a	n/a	
2.3	**Research and development (R&D)**		**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.		n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP		n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**21.2**	**133**	
3.1	**Information and communication technology (ICT)**		**25.4**	**132**	
3.1.1	ICT access*		30.8	133	
3.1.2	ICT use*		9.9	128	○
3.1.3	Government online service*		35.3	112	
3.2	**General infrastructure**		**8.9**	**[133]**	
3.2.1	Electricity output, GWh/mn pop.		n/a	n/a	
3.2.2	Logistics performance*		n/a	n/a	
3.2.3	Gross capital formation, % GDP		14.5	128	◇
3.3	**Ecological sustainability**		**29.3**	**41**	●◆
3.3.1	GDP/unit of energy use		n/a	n/a	
3.3.2	Low-carbon energy use, %		46.5	15	●
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.3	104	
Market sophistication			**19.5**	**122**	
4.1	**Credit**		**4.6**	**129**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		8.1	135	○◇
4.1.3	Loans from microfinance institutions, % GDP	⏲	0.9	36	●
4.2	**Investment**		**1.3**	**[109]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.0	93	
4.2.3	Late-stage VC deal count, % global VC	⏲	0.0	95	◇
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**52.6**	**104**	◆
4.3.1	Applied tariff rate, weighted avg., %		5.0	96	◆
4.3.2	Domestic industry diversification	⏲	62.5	93	◆
4.3.3	Domestic market scale, bn PPP$		40.1	128	

			Score/ Value	Rank	
Business sophistication			**39.0**	**33**	●◆
5.1	**Knowledge workers**		**45.7**	**[34]**	
5.1.1	Knowledge-intensive employment, %		n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	⏲	0.6	122	○
5.1.3	Youth demographic dividend, %		61.9	10	●
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**20.4**	**90**	
5.2.1	Public research–industry co-publications, %		0.5	123	
5.2.2	University–industry R&D collaboration†		35.5	67	●◆
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†		42.5	78	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**50.9**	**6**	●◆
5.3.1	Intellectual property payments, % total trade	⏲	3.1	9	●◆
5.3.2	High-tech imports, % total trade		6.5	94	
5.3.3	ICT services imports, % total trade	⏲	8.1	1	●◆
5.3.4	FDI net inflows, % GDP		1.4	100	
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**12.8**	**101**	
6.1	**Knowledge creation**		**12.0**	**77**	◆
6.1.1	Patents by origin/bn PPP$ GDP	⏲	0.1	109	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	93	◆
6.1.3	Utility models by origin/bn PPP$ GDP		-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP		18.1	37	●◆
6.1.5	Citable documents H-index		7.1	90	
6.2	**Knowledge impact**		**9.8**	**133**	◇
6.2.1	Labor productivity growth, %		−1.5	126	◇
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	112	
6.2.4	High-tech manufacturing, %	⏲	7.3	95	
6.3	**Knowledge diffusion**		**16.7**	**76**	●◆
6.3.1	Intellectual property receipts, % total trade	⏲	0.1	57	●◆
6.3.2	Production and export complexity		32.9	102	
6.3.3	High-tech exports, % total trade		0.1	123	
6.3.4	ICT services exports, % total trade	⏲	5.9	17	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.5	126	
Creative outputs			**2.3**	**137**	○◇
7.1	**Intangible assets**		**2.2**	**[133]**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		8.9	116	
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP		n/a	n/a	
7.2	**Creative goods and services**		**4.6**	**101**	
7.2.1	Cultural and creative services exports, % total trade	⏲	0.3	77	
7.2.2	National feature films/mn pop. 15–69		1.7	62	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.0	131	
7.3	**Online creativity**		**0.2**	**137**	○◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.1	133	
7.3.2	GitHub commits/mn pop. 15–69		0.4	127	
7.3.3	Mobile app creation/bn PPP$ GDP		n/a	n/a	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Malaysia

GII 2025 rank **34**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
39	30	Upper middle	SEAO	35.6	1,372.6	41,022

		Score/ Value	Rank	
Institutions		**68.0**	**30**	◆
1.1	**Institutional environment**	**73.0**	**29**	◆
1.1.1	Operational stability for businesses*	81.3	18	●◆
1.1.2	Government effectiveness*	64.6	32	◆
1.2	**Regulatory environment**	**64.1**	**41**	◆
1.2.1	Regulatory quality*	62.0	42	◆
1.2.2	Rule of law*	66.1	41	◆
1.3	**Business environment**	**66.9**	**21**	◆
1.3.1	Policy stability for doing business†	64.8	36	◆
1.3.2	Entrepreneurship policies and culture† ⏲	69.0	14	
Human capital and research		**37.7**	**46**	
2.1	**Education**	**44.1**	**90**	○
2.1.1	Expenditure on education, % GDP	3.6	91	○
2.1.2	Government funding/pupil, secondary, % GDP/cap ⏲	20.6	42	
2.1.3	School life expectancy, years	11.7	98	○◇
2.1.4	PISA scales in reading, maths and science	404.4	58	○
2.1.5	Pupil–teacher ratio, secondary	11.0	43	
2.2	**Tertiary education**	**48.3**	**13**	●◆
2.2.1	Tertiary enrolment, % gross	37.3	85	○
2.2.2	Graduates in science and engineering, %	41.1	1	●◆
2.2.3	Tertiary inbound mobility, %	9.6	31	◆
2.3	**Research and development (R&D)**	**20.6**	**46**	
2.3.1	Researchers, FTE/mn pop. ⏲	711.5	64	
2.3.2	Gross expenditure on R&D, % GDP ⏲	1.0	42	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	60.7	15	●◆
Infrastructure		**47.4**	**54**	
3.1	**Information and communication technology (ICT)**	**84.7**	**44**	
3.1.1	ICT access*	97.2	26	◆
3.1.2	ICT use*	89.6	22	◆
3.1.3	Government online service*	67.3	68	
3.2	**General infrastructure**	**41.8**	**41**	◆
3.2.1	Electricity output, GWh/mn pop. ⏲	5,518.6	41	◆
3.2.2	Logistics performance*	68.2	25	◆
3.2.3	Gross capital formation, % GDP	22.9	79	
3.3	**Ecological sustainability**	**15.6**	**94**	○
3.3.1	GDP/unit of energy use	9.7	79	
3.3.2	Low-carbon energy use, %	7.1	103	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.3	41	
Market sophistication		**54.9**	**18**	●◆
4.1	**Credit**	**69.5**	**6**	●◆
4.1.1	Finance for startups and scaleups† ⏲	93.7	2	
4.1.2	Domestic credit to private sector, % GDP	117.2	18	●◆
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**11.6**	**44**	
4.2.1	Market capitalization, % GDP	111.2	14	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	62	
4.2.3	Late-stage VC deal count, % global VC	0.1	30	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	64	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	58	
4.3	**Trade, diversification and market scale**	**83.5**	**15**	●◆
4.3.1	Applied tariff rate, weighted avg., %	0.9	13	●
4.3.2	Domestic industry diversification ⏲	88.7	42	
4.3.3	Domestic market scale, bn PPP$	1,372.6	28	

		Score/ Value	Rank	
Business sophistication		**38.0**	**38**	◆
5.1	**Knowledge workers**	**33.3**	**[81]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	37.8	65	
5.1.4	GERD performed by business, % GDP ⏲	0.5	40	
5.1.5	GERD financed by business, % ⏲	38.2	49	
5.2	**Innovation linkages**	**38.5**	**32**	◆
5.2.1	Public research–industry co-publications, %	1.1	82	
5.2.2	University–industry R&D collaboration†	48.7	39	◆
5.2.3	University industry and international engagement, top 5*	65.1	30	◆
5.2.4	State of cluster development†	66.2	39	◆
5.2.5	Patent families/bn PPP$ GDP	0.1	50	
5.3	**Knowledge absorption**	**42.1**	**25**	◆
5.3.1	Intellectual property payments, % total trade	1.0	38	
5.3.2	High-tech imports, % total trade	29.0	3	●◆
5.3.3	ICT services imports, % total trade	1.9	45	
5.3.4	FDI net inflows, % GDP	3.7	45	
5.3.5	Research talent, % in businesses ⏲	15.8	55	○
Knowledge and technology outputs		**31.0**	**34**	◆
6.1	**Knowledge creation**	**12.9**	**71**	
6.1.1	Patents by origin/bn PPP$ GDP	0.7	67	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	58	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	56	○
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.0	69	
6.1.5	Citable documents H-index	25.4	38	
6.2	**Knowledge impact**	**35.6**	**31**	◆
6.2.1	Labor productivity growth, %	1.0	64	
6.2.2	Unicorn valuation, % GDP	0.3	45	
6.2.3	Software spending, % GDP	0.4	29	◆
6.2.4	High-tech manufacturing, % ⏲	45.4	16	◆
6.3	**Knowledge diffusion**	**44.4**	**19**	●◆
6.3.1	Intellectual property receipts, % total trade	0.1	60	
6.3.2	Production and export complexity	71.8	28	◆
6.3.3	High-tech exports, % total trade	48.4	1	●◆
6.3.4	ICT services exports, % total trade	1.5	73	
6.3.5	ISO 9001 quality/bn PPP$ GDP	10.2	25	
Creative outputs		**33.0**	**41**	◆
7.1	**Intangible assets**	**37.3**	**44**	
7.1.1	Intangible asset intensity, top 15, %	59.6	36	
7.1.2	Trademarks by origin/bn PPP$ GDP	15.7	100	○
7.1.3	Global brand value, top 5,000, % GDP	11.0	13	●◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.4	87	○
7.2	**Creative goods and services**	**32.5**	**23**	◆
7.2.1	Cultural and creative services exports, % total trade	0.4	69	
7.2.2	National feature films/mn pop. 15–69	2.4	55	
7.2.3	Entertainment and media market/th pop. 15–69	10.2	36	◆
7.2.4	Creative goods exports, % total trade	7.5	1	●◆
7.3	**Online creativity**	**25.0**	**67**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	5.3	60	
7.3.2	GitHub commits/mn pop. 15–69	7.4	65	
7.3.3	Mobile app creation/bn PPP$ GDP	62.4	76	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Mali

135

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
138	128	Low	SSA	24.5	68.5	2,843

			Score/ Value	Rank	
Institutions			**32.5**	**114**	
1.1	**Institutional environment**		**17.5**	**135**	◇
1.1.1	Operational stability for businesses*		20.0	132	◇
1.1.2	Government effectiveness*		15.1	133	◇
1.2	**Regulatory environment**		**29.8**	**116**	
1.2.1	Regulatory quality*		31.1	111	
1.2.2	Rule of law*		28.5	120	
1.3	**Business environment**		**50.1**	**[59]**	
1.3.1	Policy stability for doing business†		50.1	61	●
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**14.6**	**126**	
2.1	**Education**		**41.4**	**98**	
2.1.1	Expenditure on education, % GDP		4.2	68	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	⏲	26.5	14	●
2.1.3	School life expectancy, years	⏲	6.9	124	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary		16.2	88	◆
2.2	**Tertiary education**		**1.6**	**131**	○
2.2.1	Tertiary enrolment, % gross	⏲	4.6	131	○
2.2.2	Graduates in science and engineering, %		n/a	n/a	
2.2.3	Tertiary inbound mobility, %	⏲	0.9	91	
2.3	**Research and development (R&D)**		**0.7**	**107**	
2.3.1	Researchers, FTE/mn pop.	⏲	28.7	101	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.2	91	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**21.7**	**131**	
3.1	**Information and communication technology (ICT)**		**32.1**	**128**	
3.1.1	ICT access*		44.4	123	
3.1.2	ICT use*		n/a	n/a	
3.1.3	Government online service*		19.8	130	
3.2	**General infrastructure**		**21.5**	**104**	
3.2.1	Electricity output, GWh/mn pop.		n/a	n/a	
3.2.2	Logistics performance*		22.7	82	
3.2.3	Gross capital formation, % GDP		18.3	112	
3.3	**Ecological sustainability**		**11.6**	**108**	
3.3.1	GDP/unit of energy use		n/a	n/a	
3.3.2	Low-carbon energy use, %		18.1	72	●
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.2	119	
Market sophistication			**18.4**	**124**	
4.1	**Credit**		**12.5**	**112**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		27.9	104	
4.1.3	Loans from microfinance institutions, % GDP		1.6	22	●
4.2	**Investment**		**5.2**	**[70]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	⏲	0.1	71	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**37.5**	**125**	
4.3.1	Applied tariff rate, weighted avg., %	⏲	6.0	105	
4.3.2	Domestic industry diversification	⏲	19.1	110	◇
4.3.3	Domestic market scale, bn PPP$		68.5	105	

			Score/ Value	Rank	
Business sophistication			**27.0**	**79**	
5.1	**Knowledge workers**		**26.4**	**110**	
5.1.1	Knowledge-intensive employment, %	⏲	3.9	119	○
5.1.2	Females employed w/advanced degrees, %	⏲	1.0	117	
5.1.3	Youth demographic dividend, %		66.4	2	●◆
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %	⏲	0.8	89	
5.2	**Innovation linkages**		**28.5**	**[56]**	
5.2.1	Public research–industry co-publications, %		1.0	91	
5.2.2	University–industry R&D collaboration†		29.2	87	
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†		47.6	66	●
5.2.5	Patent families/bn PPP$ GDP		n/a	n/a	
5.3	**Knowledge absorption**		**26.2**	**73**	
5.3.1	Intellectual property payments, % total trade	⏲	0.0	131	○◇
5.3.2	High-tech imports, % total trade	⏲	7.5	82	
5.3.3	ICT services imports, % total trade	⏲	1.9	42	●
5.3.4	FDI net inflows, % GDP		3.5	48	●
5.3.5	Research talent, % in businesses	⏲	31.4	44	
Knowledge and technology outputs			**8.1**	**132**	
6.1	**Knowledge creation**		**3.0**	**124**	
6.1.1	Patents by origin/bn PPP$ GDP		0.1	106	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	87	◆
6.1.3	Utility models by origin/bn PPP$ GDP	⏲	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP		3.6	116	◇
6.1.5	Citable documents H-index		4.6	110	
6.2	**Knowledge impact**		**10.4**	**132**	
6.2.1	Labor productivity growth, %		−1.0	120	
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	125	
6.2.4	High-tech manufacturing, %	⏲	6.2	98	
6.3	**Knowledge diffusion**		**10.9**	**99**	
6.3.1	Intellectual property receipts, % total trade	⏲	0.0	123	
6.3.2	Production and export complexity		30.9	107	
6.3.3	High-tech exports, % total trade	⏲	0.2	113	
6.3.4	ICT services exports, % total trade	⏲	2.9	49	●
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.4	129	
Creative outputs			**2.1**	**138**	○◇
7.1	**Intangible assets**		**4.1**	**125**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		4.5	126	
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.4	90	
7.2	**Creative goods and services**		**0.2**	**[136]**	
7.2.1	Cultural and creative services exports, % total trade	⏲	0.0	118	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade	⏲	0.0	122	
7.3	**Online creativity**		**0.1**	**139**	○◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.2	128	
7.3.2	GitHub commits/mn pop. 15–69		0.1	135	○
7.3.3	Mobile app creation/bn PPP$ GDP		n/a	n/a	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Malta

GII 2025 rank

27

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
18	**35**	**High**	**EUR**	**0.5**	**40.3**	**72,942**

		Score/ Value	Rank	
Institutions		**59.4**	**45**	
1.1	**Institutional environment**	**64.4**	**40**	
1.1.1	Operational stability for businesses*	76.0	32	
1.1.2	Government effectiveness*	52.8	51	
1.2	**Regulatory environment**	**65.9**	**39**	
1.2.1	Regulatory quality*	62.6	40	
1.2.2	Rule of law*	69.3	36	
1.3	**Business environment**	**47.9**	**[62]**	
1.3.1	Policy stability for doing business†	47.9	65	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**43.5**	**34**	
2.1	**Education**	**65.2**	**17**	
2.1.1	Expenditure on education, % GDP	4.8	47	◴
2.1.2	Government funding/pupil, secondary, % GDP/cap	33.2	5	● ◆
2.1.3	School life expectancy, years	16.2	33	
2.1.4	PISA scales in reading, maths and science	459.0	39	
2.1.5	Pupil–teacher ratio, secondary	6.8	2	◴ ● ◆
2.2	**Tertiary education**	**46.3**	**18**	
2.2.1	Tertiary enrolment, % gross	80.5	22	
2.2.2	Graduates in science and engineering, %	15.4	104	○ ◇
2.2.3	Tertiary inbound mobility, %	29.6	4	● ◆
2.3	**Research and development (R&D)**	**19.0**	**48**	
2.3.1	Researchers, FTE/mn pop.	2,341.1	39	
2.3.2	Gross expenditure on R&D, % GDP	0.6	59	
2.3.3	Global corporate R&D investors, top 3, mn USD	44.2	38	
2.3.4	QS university ranking, top 3*	0.0	80	○ ◇
Infrastructure		**53.1**	**35**	
3.1	**Information and communication technology (ICT)**	**91.4**	**17**	
3.1.1	ICT access*	99.3	11	
3.1.2	ICT use*	89.8	21	
3.1.3	Government online service*	85.0	30	
3.2	**General infrastructure**	**34.2**	**67**	
3.2.1	Electricity output, GWh/mn pop.	4,434.0	49	
3.2.2	Logistics performance*	54.5	42	
3.2.3	Gross capital formation, % GDP	21.4	94	○
3.3	**Ecological sustainability**	**33.9**	**36**	
3.3.1	GDP/unit of energy use	33.7	3	● ◆
3.3.2	Low-carbon energy use, %	2.1	122	○ ◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.2	43	
Market sophistication		**37.2**	**65**	
4.1	**Credit**	**23.6**	**[83]**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	65.0	46	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**26.1**	**21**	
4.2.1	Market capitalization, % GDP	26.0	55	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.4	19	
4.2.3	Late-stage VC deal count, % global VC	0.0	67	
4.2.4	VC investors, deal count/bn PPP$ GDP	1.9	8	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.5	11	
4.3	**Trade, diversification and market scale**	**62.0**	**87**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	61.9	96	○ ◇
4.3.3	Domestic market scale, bn PPP$	40.3	127	○ ◇

		Score/ Value	Rank	
Business sophistication		**43.8**	**27**	
5.1	**Knowledge workers**	**43.4**	**43**	
5.1.1	Knowledge-intensive employment, %	45.3	22	
5.1.2	Females employed w/advanced degrees, %	19.2	40	
5.1.3	Youth demographic dividend, %	22.0	135	○ ◇
5.1.4	GERD performed by business, % GDP	0.3	46	
5.1.5	GERD financed by business, %	58.3	15	
5.2	**Innovation linkages**	**30.0**	**54**	
5.2.1	Public research–industry co-publications, %	1.5	64	
5.2.2	University–industry R&D collaboration†	38.3	58	
5.2.3	University industry and international engagement, top 5*	26.8	59	◇
5.2.4	State of cluster development†	47.6	67	
5.2.5	Patent families/bn PPP$ GDP	1.7	20	
5.3	**Knowledge absorption**	**58.0**	**3**	● ◆
5.3.1	Intellectual property payments, % total trade	8.1	3	● ◆
5.3.2	High-tech imports, % total trade	6.0	103	○
5.3.3	ICT services imports, % total trade	3.8	9	
5.3.4	FDI net inflows, % GDP	224.3	1	● ◆
5.3.5	Research talent, % in businesses	46.9	28	
Knowledge and technology outputs		**36.2**	**25**	
6.1	**Knowledge creation**	**18.2**	**57**	
6.1.1	Patents by origin/bn PPP$ GDP	1.4	39	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.4	36	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	14.0	53	
6.1.5	Citable documents H-index	7.4	88	◇
6.2	**Knowledge impact**	**55.6**	**7**	● ◆
6.2.1	Labor productivity growth, %	0.8	70	
6.2.2	Unicorn valuation, % GDP	3.8	12	◆
6.2.3	Software spending, % GDP	0.3	45	
6.2.4	High-tech manufacturing, %	67.0	3	● ◆
6.3	**Knowledge diffusion**	**34.7**	**34**	
6.3.1	Intellectual property receipts, % total trade	4.0	5	● ◆
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade	4.4	44	
6.3.4	ICT services exports, % total trade	1.3	82	
6.3.5	ISO 9001 quality/bn PPP$ GDP	8.4	31	
Creative outputs		**50.4**	**13**	
7.1	**Intangible assets**	**55.9**	**12**	◆
7.1.1	Intangible asset intensity, top 15, %	74.8	13	
7.1.2	Trademarks by origin/bn PPP$ GDP	112.9	5	● ◆
7.1.3	Global brand value, top 5,000, % GDP	2.0	44	
7.1.4	Industrial designs by origin/bn PPP$ GDP	8.1	10	◆
7.2	**Creative goods and services**	**38.6**	**16**	
7.2.1	Cultural and creative services exports, % total trade	18.3	1	● ◆
7.2.2	National feature films/mn pop. 15–69	7.7	22	
7.2.3	Entertainment and media market/th pop. 15–69	16.5	30	◇
7.2.4	Creative goods exports, % total trade	0.1	92	○
7.3	**Online creativity**	**51.1**	**28**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	50.3	18	
7.3.2	GitHub commits/mn pop. 15–69	30.0	35	
7.3.3	Mobile app creation/bn PPP$ GDP	73.1	28	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Mauritania

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
136	121	Lower middle	SSA	5.2	37.3	8,233

			Score/ Value	Rank	
Institutions			**37.2**	**99**	
1.1	**Institutional environment**		**38.2**	**103**	
1.1.1	Operational stability for businesses*		52.0	93	
1.1.2	Government effectiveness*		24.3	114	
1.2	**Regulatory environment**		**30.2**	**114**	
1.2.1	Regulatory quality*		23.7	127	
1.2.2	Rule of law*		36.7	106	
1.3	**Business environment**		**43.1**	**[70]**	
1.3.1	Policy stability for doing business†	⏲	43.1	75	●
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**18.4**	**115**	
2.1	**Education**		**26.9**	**132**	
2.1.1	Expenditure on education, % GDP		4.8	46	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	⏲	8.7	88	
2.1.3	School life expectancy, years	⏲	7.9	121	◇
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	28.8	122	◇
2.2	**Tertiary education**		**28.3**	**73**	●
2.2.1	Tertiary enrolment, % gross	⏲	6.0	128	◇
2.2.2	Graduates in science and engineering, %	⏲	34.6	9	●◆
2.2.3	Tertiary inbound mobility, %	⏲	1.4	84	
2.3	**Research and development (R&D)**		**0.0**	**123**	
2.3.1	Researchers, FTE/mn pop.		n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.0	114	○
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**28.8**	**114**	
3.1	**Information and communication technology (ICT)**		**32.6**	**127**	◇
3.1.1	ICT access*		42.7	127	◇
3.1.2	ICT use*		55.3	109	
3.1.3	Government online service*		0.0	138	○◇
3.2	**General infrastructure**		**47.8**	**28**	●◆
3.2.1	Electricity output, GWh/mn pop.		n/a	n/a	
3.2.2	Logistics performance*		9.1	107	
3.2.3	Gross capital formation, % GDP		40.1	5	●◆
3.3	**Ecological sustainability**		**5.8**	**135**	◇
3.3.1	GDP/unit of energy use		n/a	n/a	
3.3.2	Low-carbon energy use, %		8.0	101	
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.3	113	
Market sophistication			**16.8**	**[130]**	
4.1	**Credit**		**6.1**	**[127]**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	⏲	22.7	114	
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**27.5**	**135**	◇
4.3.1	Applied tariff rate, weighted avg., %		10.1	127	◇
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		37.3	129	

			Score/ Value	Rank	
Business sophistication			**22.5**	**110**	
5.1	**Knowledge workers**		**30.8**	**[98]**	
5.1.1	Knowledge-intensive employment, %		n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	⏲	0.7	121	◇
5.1.3	Youth demographic dividend, %		62.3	8	●◆
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %	⏲	0.0	94	○◇
5.2	**Innovation linkages**		**15.6**	**111**	
5.2.1	Public research–industry co-publications, %		0.7	108	
5.2.2	University–industry R&D collaboration†	⏲	39.5	54	●
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†	⏲	17.5	130	◇
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**21.0**	**102**	
5.3.1	Intellectual property payments, % total trade	⏲	0.0	127	◇
5.3.2	High-tech imports, % total trade		2.8	135	
5.3.3	ICT services imports, % total trade	⏲	0.5	115	
5.3.4	FDI net inflows, % GDP		11.4	9	●◆
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**7.8**	**134**	◇
6.1	**Knowledge creation**		**0.9**	**138**	○
6.1.1	Patents by origin/bn PPP$ GDP		0.1	123	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP	⏲	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP		1.8	131	
6.1.5	Citable documents H-index		0.5	137	◇
6.2	**Knowledge impact**		**18.2**	**106**	
6.2.1	Labor productivity growth, %		0.2	92	●
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.1	84	●
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**4.3**	**131**	
6.3.1	Intellectual property receipts, % total trade	⏲	0.0	127	○◇
6.3.2	Production and export complexity		18.6	123	◇
6.3.3	High-tech exports, % total trade		0.1	129	
6.3.4	ICT services exports, % total trade	⏲	0.2	128	
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.5	128	
Creative outputs			**4.3**	**[134]**	
7.1	**Intangible assets**		**0.9**	**[136]**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		1.9	132	◇
7.1.3	Global brand value, top 5,000, % GDP		n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.0	125	
7.2	**Creative goods and services**		**2.1**	**[111]**	
7.2.1	Cultural and creative services exports, % total trade	⏲	0.2	81	●
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.0	136	
7.3	**Online creativity**		**13.1**	**123**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.1	129	
7.3.2	GitHub commits/mn pop. 15–69		0.5	124	
7.3.3	Mobile app creation/bn PPP$ GDP		38.8	123	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Mauritius

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
56	54	Upper middle	SSA	1.3	40.4	32,063

		Score/ Value	Rank	
Institutions		**67.0**	**32**	◆
1.1	**Institutional environment**	**73.6**	**27**	●◆
1.1.1	Operational stability for businesses*	86.7	8	●◆
1.1.2	Government effectiveness*	60.5	40	◆
1.2	**Regulatory environment**	**71.5**	**30**	◆
1.2.1	Regulatory quality*	71.3	29	◆
1.2.2	Rule of law*	71.8	33	◆
1.3	**Business environment**	**55.7**	**47**	
1.3.1	Policy stability for doing business†	59.6	47	
1.3.2	Entrepreneurship policies and culture†	51.9	25	
Human capital and research		**28.5**	**78**	
2.1	**Education**	**58.1**	**42**	
2.1.1	Expenditure on education, % GDP	3.3	100	
2.1.2	Government funding/pupil, secondary, % GDP/cap	31.8	7	●◆
2.1.3	School life expectancy, years ⏲	14.2	68	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	10.7	41	
2.2	**Tertiary education**	**24.5**	**84**	
2.2.1	Tertiary enrolment, % gross ⏲	44.2	80	
2.2.2	Graduates in science and engineering, %	19.2	89	
2.2.3	Tertiary inbound mobility, %	7.0	41	
2.3	**Research and development (R&D)**	**2.9**	**91**	
2.3.1	Researchers, FTE/mn pop.	852.7	57	
2.3.2	Gross expenditure on R&D, % GDP	0.2	84	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**38.1**	**84**	
3.1	**Information and communication technology (ICT)**	**72.4**	**79**	
3.1.1	ICT access*	84.2	71	
3.1.2	ICT use*	82.2	48	
3.1.3	Government online service*	50.7	92	
3.2	**General infrastructure**	**20.8**	**107**	
3.2.1	Electricity output, GWh/mn pop.	2,595.2	75	
3.2.2	Logistics performance*	18.2	90	○
3.2.3	Gross capital formation, % GDP	22.6	83	
3.3	**Ecological sustainability**	**21.3**	**64**	
3.3.1	GDP/unit of energy use	20.1	13	●◆
3.3.2	Low-carbon energy use, %	6.8	105	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.2	65	
Market sophistication		**47.8**	**28**	●◆
4.1	**Credit**	**35.3**	**47**	
4.1.1	Finance for startups and scaleups†	46.1	53	
4.1.2	Domestic credit to private sector, % GDP	67.2	43	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**39.9**	**12**	●◆
4.2.1	Market capitalization, % GDP	66.0	30	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	42	◆
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	2.5	5	●◆
4.2.5	VC investor co-participation/bn PPP$ GDP	0.8	7	●◆
4.3	**Trade, diversification and market scale**	**68.3**	**71**	
4.3.1	Applied tariff rate, weighted avg., %	1.1	17	●
4.3.2	Domestic industry diversification	79.0	67	
4.3.3	Domestic market scale, bn PPP$	40.4	125	○◇

		Score/ Value	Rank	
Business sophistication		**23.2**	**103**	
5.1	**Knowledge workers**	**20.0**	**133**	○◇
5.1.1	Knowledge-intensive employment, % ⏲	30.6	50	
5.1.2	Females employed w/advanced degrees, % ⏲	9.2	79	
5.1.3	Youth demographic dividend, %	28.3	99	◇
5.1.4	GERD performed by business, % GDP ⏲	0.0	77	○
5.1.5	GERD financed by business, % ⏲	4.1	81	○◇
5.2	**Innovation linkages**	**27.0**	**62**	
5.2.1	Public research–industry co-publications, %	2.5	32	
5.2.2	University–industry R&D collaboration†	28.3	90	
5.2.3	University industry and international engagement, top 5*	20.9	68	
5.2.4	State of cluster development†	44.6	69	
5.2.5	Patent families/bn PPP$ GDP	0.9	28	●◆
5.3	**Knowledge absorption**	**22.5**	**90**	
5.3.1	Intellectual property payments, % total trade	0.2	103	◇
5.3.2	High-tech imports, % total trade	6.2	99	
5.3.3	ICT services imports, % total trade	2.9	23	●◆
5.3.4	FDI net inflows, % GDP	4.0	41	
5.3.5	Research talent, % in businesses ⏲	4.4	71	○
Knowledge and technology outputs		**13.4**	**97**	
6.1	**Knowledge creation**	**3.6**	**122**	○
6.1.1	Patents by origin/bn PPP$ GDP	0.1	116	○
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	76	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	3.6	115	
6.1.5	Citable documents H-index	4.7	106	
6.2	**Knowledge impact**	**18.0**	**108**	
6.2.1	Labor productivity growth, %	1.5	48	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	75	
6.2.4	High-tech manufacturing, %	3.7	107	○◇
6.3	**Knowledge diffusion**	**18.6**	**67**	
6.3.1	Intellectual property receipts, % total trade	0.0	99	
6.3.2	Production and export complexity	50.8	57	
6.3.3	High-tech exports, % total trade	0.5	96	
6.3.4	ICT services exports, % total trade	2.5	53	
6.3.5	ISO 9001 quality/bn PPP$ GDP	6.3	40	
Creative outputs		**34.8**	**37**	◆
7.1	**Intangible assets**	**35.9**	**47**	
7.1.1	Intangible asset intensity, top 15, %	39.3	60	
7.1.2	Trademarks by origin/bn PPP$ GDP	52.6	28	●
7.1.3	Global brand value, top 5,000, % GDP	2.7	40	
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.7	31	
7.2	**Creative goods and services**	**40.9**	**14**	●◆
7.2.1	Cultural and creative services exports, % total trade	0.7	44	
7.2.2	National feature films/mn pop. 15–69	21.4	1	●◆
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.5	60	
7.3	**Online creativity**	**26.4**	**62**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	8.5	51	
7.3.2	GitHub commits/mn pop. 15–69	7.4	64	
7.3.3	Mobile app creation/bn PPP$ GDP	63.2	74	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Mexico

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
52	81	Upper middle	LCN	130.9	3,303.1	24,971

		Score/ Value	Rank	
Institutions		**34.9**	**104**	
1.1	**Institutional environment**	**42.8**	**92**	
1.1.1	Operational stability for businesses*	47.3	102	
1.1.2	Government effectiveness*	38.2	83	
1.2	**Regulatory environment**	**37.7**	**101**	
1.2.1	Regulatory quality*	42.8	83	
1.2.2	Rule of law*	32.7	111	○
1.3	**Business environment**	**24.2**	**112**	○
1.3.1	Policy stability for doing business†	28.7	106	○
1.3.2	Entrepreneurship policies and culture†	19.8	75	○
Human capital and research		**32.1**	**67**	
2.1	**Education**	**44.4**	**88**	
2.1.1	Expenditure on education, % GDP	4.2	65	
2.1.2	Government funding/pupil, secondary, % GDP/cap	13.9	69	
2.1.3	School life expectancy, years	14.5	61	
2.1.4	PISA scales in reading, maths and science	406.8	55	
2.1.5	Pupil–teacher ratio, secondary	15.2	81	
2.2	**Tertiary education**	**24.8**	**83**	
2.2.1	Tertiary enrolment, % gross	46.4	74	
2.2.2	Graduates in science and engineering, %	23.7	53	
2.2.3	Tertiary inbound mobility, %	1.2	89	○
2.3	**Research and development (R&D)**	**27.0**	**37**	◆
2.3.1	Researchers, FTE/mn pop.	272.3	79	
2.3.2	Gross expenditure on R&D, % GDP	0.3	81	
2.3.3	Global corporate R&D investors, top 3, mn USD	57.9	26	●◆
2.3.4	QS university ranking, top 3*	43.6	30	●◆
Infrastructure		**39.9**	**77**	
3.1	**Information and communication technology (ICT)**	**75.1**	**73**	
3.1.1	ICT access*	76.3	89	
3.1.2	ICT use*	77.5	71	
3.1.3	Government online service*	71.6	60	
3.2	**General infrastructure**	**28.4**	**86**	
3.2.1	Electricity output, GWh/mn pop.	2,756.1	72	
3.2.2	Logistics performance*	36.4	65	
3.2.3	Gross capital formation, % GDP	24.0	65	
3.3	**Ecological sustainability**	**16.2**	**92**	
3.3.1	GDP/unit of energy use	13.9	40	
3.3.2	Low-carbon energy use, %	9.8	93	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.8	74	
Market sophistication		**36.1**	**68**	
4.1	**Credit**	**19.4**	**94**	
4.1.1	Finance for startups and scaleups†	37.3	64	
4.1.2	Domestic credit to private sector, % GDP	33.3	88	
4.1.3	Loans from microfinance institutions, % GDP	1.0	34	
4.2	**Investment**	**4.8**	**73**	
4.2.1	Market capitalization, % GDP	33.9	45	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	74	
4.2.3	Late-stage VC deal count, % global VC	0.1	29	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	79	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	79	
4.3	**Trade, diversification and market scale**	**83.9**	**14**	●◆
4.3.1	Applied tariff rate, weighted avg., %	1.7	59	
4.3.2	Domestic industry diversification	87.6	46	
4.3.3	Domestic market scale, bn PPP$	3,303.1	13	●◆

		Score/ Value	Rank	
Business sophistication		**27.8**	**72**	
5.1	**Knowledge workers**	**26.9**	**108**	○
5.1.1	Knowledge-intensive employment, %	21.9	69	
5.1.2	Females employed w/advanced degrees, %	11.2	69	
5.1.3	Youth demographic dividend, %	41.0	58	
5.1.4	GERD performed by business, % GDP	0.1	67	○
5.1.5	GERD financed by business, %	16.1	69	
5.2	**Innovation linkages**	**24.4**	**70**	
5.2.1	Public research–industry co-publications, %	0.6	119	○
5.2.2	University–industry R&D collaboration†	36.0	64	
5.2.3	University industry and international engagement, top 5*	24.1	64	
5.2.4	State of cluster development†	57.0	47	
5.2.5	Patent families/bn PPP$ GDP	0.0	73	
5.3	**Knowledge absorption**	**32.3**	**45**	
5.3.1	Intellectual property payments, % total trade	0.8	47	
5.3.2	High-tech imports, % total trade	15.1	16	●
5.3.3	ICT services imports, % total trade	0.8	99	
5.3.4	FDI net inflows, % GDP	2.4	77	
5.3.5	Research talent, % in businesses	32.3	42	
Knowledge and technology outputs		**23.5**	**54**	
6.1	**Knowledge creation**	**10.5**	**79**	
6.1.1	Patents by origin/bn PPP$ GDP	0.3	88	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	68	
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	44	
6.1.4	Scientific and technical articles/bn PPP$ GDP	5.2	106	○
6.1.5	Citable documents H-index	29.5	34	●◆
6.2	**Knowledge impact**	**31.8**	**47**	
6.2.1	Labor productivity growth, %	−0.6	114	○◇
6.2.2	Unicorn valuation, % GDP	1.0	35	
6.2.3	Software spending, % GDP	0.2	71	
6.2.4	High-tech manufacturing, %	46.1	13	●◆
6.3	**Knowledge diffusion**	**28.0**	**48**	
6.3.1	Intellectual property receipts, % total trade	0.2	45	◆
6.3.2	Production and export complexity	77.0	20	●◆
6.3.3	High-tech exports, % total trade	12.2	13	●◆
6.3.4	ICT services exports, % total trade	0.2	130	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	3.2	70	
Creative outputs		**30.3**	**49**	
7.1	**Intangible assets**	**33.7**	**50**	
7.1.1	Intangible asset intensity, top 15, %	65.5	23	
7.1.2	Trademarks by origin/bn PPP$ GDP	48.1	32	●
7.1.3	Global brand value, top 5,000, % GDP	4.0	36	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.3	92	
7.2	**Creative goods and services**	**30.3**	**32**	●◆
7.2.1	Cultural and creative services exports, % total trade	0.1	96	○
7.2.2	National feature films/mn pop. 15–69	2.6	51	
7.2.3	Entertainment and media market/th pop. 15–69	8.6	39	
7.2.4	Creative goods exports, % total trade	7.4	6	●◆
7.3	**Online creativity**	**23.4**	**81**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	3.9	69	
7.3.2	GitHub commits/mn pop. 15–69	4.3	87	
7.3.3	Mobile app creation/bn PPP$ GDP	62.0	78	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Mongolia

GII 2025 rank **78**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
69	87	Upper middle	SEAO	3.5	67.7	19,063

		Score/ Value	Rank	
Institutions		**38.1**	**98**	
1.1	**Institutional environment**	**45.7**	**87**	
1.1.1	Operational stability for businesses*	60.0	73	
1.1.2	Government effectiveness*	31.5	99	
1.2	**Regulatory environment**	**45.2**	**78**	
1.2.1	Regulatory quality*	42.7	84	
1.2.2	Rule of law*	47.8	81	
1.3	**Business environment**	**23.4**	**[115]**	
1.3.1	Policy stability for doing business†	23.4	118	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**25.5**	**87**	
2.1	**Education**	**51.2**	**67**	
2.1.1	Expenditure on education, % GDP	3.7	89	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	13.6	76	
2.1.4	PISA scales in reading, maths and science	405.1	56	
2.1.5	Pupil–teacher ratio, secondary	10.3	37	●
2.2	**Tertiary education**	**23.9**	**85**	
2.2.1	Tertiary enrolment, % gross	66.8	48	
2.2.2	Graduates in science and engineering, %	17.8	95	
2.2.3	Tertiary inbound mobility, %	2.5	73	
2.3	**Research and development (R&D)**	**1.6**	**96**	
2.3.1	Researchers, FTE/mn pop.	535.4	72	
2.3.2	Gross expenditure on R&D, % GDP	0.1	105	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**41.8**	**70**	
3.1	**Information and communication technology (ICT)**	**81.8**	**54**	
3.1.1	ICT access*	83.9	73	
3.1.2	ICT use*	82.9	45	
3.1.3	Government online service*	78.6	41	●
3.2	**General infrastructure**	**35.2**	**59**	
3.2.1	Electricity output, GWh/mn pop.	2,279.4	77	
3.2.2	Logistics performance*	18.2	90	
3.2.3	Gross capital formation, % GDP	37.4	9	●◆
3.3	**Ecological sustainability**	**8.2**	**121**	◇
3.3.1	GDP/unit of energy use	6.1	110	◇
3.3.2	Low-carbon energy use, %	2.3	120	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.4	60	
Market sophistication		**29.0**	**95**	
4.1	**Credit**	**34.4**	**51**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	38.6	79	
4.1.3	Loans from microfinance institutions, % GDP	5.3	6	●◆
4.2	**Investment**	**0.8**	**117**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	102	
4.2.3	Late-stage VC deal count, % global VC	0.0	98	○
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	102	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	104	
4.3	**Trade, diversification and market scale**	**51.9**	**107**	◇
4.3.1	Applied tariff rate, weighted avg., %	5.0	95	
4.3.2	Domestic industry diversification	55.0	102	◇
4.3.3	Domestic market scale, bn PPP$	67.7	106	

		Score/ Value	Rank	
Business sophistication		**26.3**	**84**	
5.1	**Knowledge workers**	**34.0**	**74**	
5.1.1	Knowledge-intensive employment, %	25.9	56	
5.1.2	Females employed w/advanced degrees, %	20.3	35	●◆
5.1.3	Youth demographic dividend, %	46.3	42	◆
5.1.4	GERD performed by business, % GDP	0.0	82	○
5.1.5	GERD financed by business, %	8.1	75	
5.2	**Innovation linkages**	**15.9**	**108**	
5.2.1	Public research–industry co-publications, %	1.6	62	
5.2.2	University–industry R&D collaboration†	23.9	102	
5.2.3	University industry and international engagement, top 5*	12.9	88	
5.2.4	State of cluster development†	27.0	115	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**29.0**	**59**	
5.3.1	Intellectual property payments, % total trade	0.3	90	
5.3.2	High-tech imports, % total trade	6.0	104	
5.3.3	ICT services imports, % total trade	1.1	86	
5.3.4	FDI net inflows, % GDP	13.3	6	●◆
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**13.9**	**93**	
6.1	**Knowledge creation**	**16.4**	**60**	
6.1.1	Patents by origin/bn PPP$ GDP	1.2	47	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP	1.3	12	●
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.3	67	
6.1.5	Citable documents H-index	4.7	106	
6.2	**Knowledge impact**	**17.5**	**110**	
6.2.1	Labor productivity growth, %	1.8	36	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	93	
6.2.4	High-tech manufacturing, %	4.2	104	○◇
6.3	**Knowledge diffusion**	**8.0**	**119**	◇
6.3.1	Intellectual property receipts, % total trade	0.0	107	
6.3.2	Production and export complexity	14.5	125	○◇
6.3.3	High-tech exports, % total trade	0.5	97	
6.3.4	ICT services exports, % total trade	0.4	114	
6.3.5	ISO 9001 quality/bn PPP$ GDP	6.1	42	
Creative outputs		**28.5**	**54**	
7.1	**Intangible assets**	**45.4**	**23**	●◆
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	133.4	3	●◆
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	8.5	8	●◆
7.2	**Creative goods and services**	**2.0**	**[114]**	
7.2.1	Cultural and creative services exports, % total trade	0.2	84	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	124	
7.3	**Online creativity**	**21.4**	**92**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	2.0	86	
7.3.2	GitHub commits/mn pop. 15–69	6.6	69	
7.3.3	Mobile app creation/bn PPP$ GDP	55.5	95	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Montenegro

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
68	62	Upper middle	EUR	0.6	20.2	31,858

		Score/ Value	Rank	
Institutions		**42.8**	**88**	
1.1	**Institutional environment**	**55.9**	**64**	
1.1.1	Operational stability for businesses*	62.7	68	
1.1.2	Government effectiveness*	49.1	59	
1.2	**Regulatory environment**	**53.3**	**62**	
1.2.1	Regulatory quality*	55.4	54	
1.2.2	Rule of law*	51.2	65	
1.3	**Business environment**	**19.1**	**[126]**	
1.3.1	Policy stability for doing business† ⏲	19.1	125	○◇
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**33.3**	**59**	
2.1	**Education**	**62.5**	**[28]**	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.5	45	
2.1.4	PISA scales in reading, maths and science	404.6	57	
2.1.5	Pupil–teacher ratio, secondary	7.6	4	●◆
2.2	**Tertiary education**	**34.1**	**54**	
2.2.1	Tertiary enrolment, % gross	55.2	63	
2.2.2	Graduates in science and engineering, % ⏲	21.0	75	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**3.2**	**88**	
2.3.1	Researchers, FTE/mn pop. ⏲	753.6	61	
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.4	71	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**48.8**	**50**	
3.1	**Information and communication technology (ICT)**	**73.5**	**77**	
3.1.1	ICT access*	92.0	51	◆
3.1.2	ICT use*	86.1	30	
3.1.3	Government online service*	42.4	101	◇
3.2	**General infrastructure**	**36.3**	**55**	
3.2.1	Electricity output, GWh/mn pop.	6,801.9	27	◆
3.2.2	Logistics performance*	31.8	71	
3.2.3	Gross capital formation, % GDP	27.7	32	
3.3	**Ecological sustainability**	**36.5**	**27**	◆
3.3.1	GDP/unit of energy use	11.9	57	
3.3.2	Low-carbon energy use, %	41.6	22	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	4.1	24	●
Market sophistication		**41.2**	**45**	
4.1	**Credit**	**13.7**	**108**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	43.0	76	
4.1.3	Loans from microfinance institutions, % GDP	1.2	26	
4.2	**Investment**	**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**68.7**	**69**	
4.3.1	Applied tariff rate, weighted avg., %	1.0	15	●
4.3.2	Domestic industry diversification ⏲	86.8	50	
4.3.3	Domestic market scale, bn PPP$	20.2	134	○◇

		Score/ Value	Rank	
Business sophistication		**24.6**	**96**	
5.1	**Knowledge workers**	**30.9**	**96**	
5.1.1	Knowledge-intensive employment, % ⏲	38.0	37	◆
5.1.2	Females employed w/advanced degrees, % ⏲	18.2	43	
5.1.3	Youth demographic dividend, %	30.3	88	
5.1.4	GERD performed by business, % GDP ⏲	0.0	70	
5.1.5	GERD financed by business, % ⏲	11.8	71	
5.2	**Innovation linkages**	**14.5**	**116**	
5.2.1	Public research–industry co-publications, %	0.9	97	
5.2.2	University–industry R&D collaboration† ⏲	26.7	97	
5.2.3	University industry and international engagement, top 5*	12.2	90	○
5.2.4	State of cluster development† ⏲	24.6	119	○◇
5.2.5	Patent families/bn PPP$ GDP	0.1	61	
5.3	**Knowledge absorption**	**28.5**	**62**	
5.3.1	Intellectual property payments, % total trade	0.2	100	◇
5.3.2	High-tech imports, % total trade	6.3	98	
5.3.3	ICT services imports, % total trade	2.7	24	●◆
5.3.4	FDI net inflows, % GDP	10.9	11	●◆
5.3.5	Research talent, % in businesses ⏲	12.5	59	
Knowledge and technology outputs		**19.8**	**75**	
6.1	**Knowledge creation**	**15.5**	**63**	
6.1.1	Patents by origin/bn PPP$ GDP	0.4	78	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	41	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	20.1	33	◆
6.1.5	Citable documents H-index	2.6	127	○
6.2	**Knowledge impact**	**28.0**	**60**	
6.2.1	Labor productivity growth, %	4.0	8	●◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.3	37	
6.2.4	High-tech manufacturing, % ⏲	7.3	94	
6.3	**Knowledge diffusion**	**15.9**	**80**	
6.3.1	Intellectual property receipts, % total trade	0.0	98	
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade	0.3	103	
6.3.4	ICT services exports, % total trade	4.7	26	●
6.3.5	ISO 9001 quality/bn PPP$ GDP	8.1	33	
Creative outputs		**23.0**	**69**	
7.1	**Intangible assets**	**6.9**	**110**	◇
7.1.1	Intangible asset intensity, top 15, % ⏲	−181.4	78	○◇
7.1.2	Trademarks by origin/PPP$ GDP ⏲	27.1	75	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.6	79	
7.2	**Creative goods and services**	**8.6**	**[75]**	
7.2.1	Cultural and creative services exports, % total trade	0.7	46	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.2	85	
7.3	**Online creativity**	**69.6**	**9**	●◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69	100.0	1	●◆
7.3.2	GitHub commits/mn pop. 15–69	30.6	33	◆
7.3.3	Mobile app creation/bn PPP$ GDP	78.1	13	●◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Morocco

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
51	77	Lower middle	NAWA	38.1	396.7	10,615

		Score/ Value	Rank	
Institutions		**48.1**	**72**	
1.1	**Institutional environment**	**49.4**	**79**	
1.1.1	Operational stability for businesses*	56.7	84	
1.1.2	Government effectiveness*	42.2	75	◆
1.2	**Regulatory environment**	**47.2**	**73**	◆
1.2.1	Regulatory quality*	45.3	76	◆
1.2.2	Rule of law*	49.1	71	◆
1.3	**Business environment**	**47.8**	**63**	
1.3.1	Policy stability for doing business†	69.2	25	● ◆
1.3.2	Entrepreneurship policies and culture†	26.4	69	
Human capital and research		**26.1**	**84**	
2.1	**Education**	**48.5**	**78**	
2.1.1	Expenditure on education, % GDP	6.0	16	● ◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.1	51	◆
2.1.4	PISA scales in reading, maths and science	356.5	82	○
2.1.5	Pupil–teacher ratio, secondary	20.4	104	○
2.2	**Tertiary education**	**26.4**	**80**	
2.2.1	Tertiary enrolment, % gross	47.5	73	◆
2.2.2	Graduates in science and engineering, %	24.6	45	
2.2.3	Tertiary inbound mobility, %	1.8	79	
2.3	**Research and development (R&D)**	**3.5**	**86**	
2.3.1	Researchers, FTE/mn pop.	1,083.4 🕘	52	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○ ◇
2.3.4	QS university ranking, top 3*	0.0	80	○ ◇
Infrastructure		**38.4**	**82**	
3.1	**Information and communication technology (ICT)**	**71.3**	**80**	◆
3.1.1	ICT access*	88.2	59	◆
3.1.2	ICT use*	78.4	66	◆
3.1.3	Government online service*	47.3	97	
3.2	**General infrastructure**	**28.5**	**85**	
3.2.1	Electricity output, GWh/mn pop.	1,150.9	96	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	28.9	27	●
3.3	**Ecological sustainability**	**15.5**	**95**	
3.3.1	GDP/unit of energy use	14.0	39	●
3.3.2	Low-carbon energy use, %	8.4	98	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.7	80	
Market sophistication		**33.4**	**81**	
4.1	**Credit**	**24.1**	**80**	
4.1.1	Finance for startups and scaleups†	35.3	69	
4.1.2	Domestic credit to private sector, % GDP	81.5	34	● ◆
4.1.3	Loans from microfinance institutions, % GDP	0.6	42	
4.2	**Investment**	**5.6**	**66**	
4.2.1	Market capitalization, % GDP	49.2	39	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	77	
4.2.3	Late-stage VC deal count, % global VC	0.0	82	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	71	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	63	
4.3	**Trade, diversification and market scale**	**70.5**	**62**	
4.3.1	Applied tariff rate, weighted avg., %	4.3	91	
4.3.2	Domestic industry diversification	88.2	44	
4.3.3	Domestic market scale, bn PPP$	396.7	56	

		Score/ Value	Rank	
Business sophistication		**28.2**	**68**	
5.1	**Knowledge workers**	**48.1**	**[30]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	41.3	56	◇
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**17.7**	**98**	
5.2.1	Public research–industry co-publications, %	0.6	112	○
5.2.2	University–industry R&D collaboration†	26.8	96	
5.2.3	University industry and international engagement, top 5*	14.2	80	○
5.2.4	State of cluster development†	42.3	80	
5.2.5	Patent families/bn PPP$ GDP	0.0	77	
5.3	**Knowledge absorption**	**18.7**	**114**	○
5.3.1	Intellectual property payments, % total trade	0.3	94	
5.3.2	High-tech imports, % total trade	8.3	64	
5.3.3	ICT services imports, % total trade	1.0	91	
5.3.4	FDI net inflows, % GDP	1.4	102	
5.3.5	Research talent, % in businesses 🕘	7.0	65	
Knowledge and technology outputs		**22.8**	**58**	◆
6.1	**Knowledge creation**	**15.9**	**61**	
6.1.1	Patents by origin/bn PPP$ GDP	0.8	62	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	50	◆
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	15.1	45	
6.1.5	Citable documents H-index	11.7	69	
6.2	**Knowledge impact**	**35.4**	**32**	● ◆
6.2.1	Labor productivity growth, %	2.2	24	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○ ◇
6.2.3	Software spending, % GDP	0.2	55	
6.2.4	High-tech manufacturing, %	48.2	12	● ◆
6.3	**Knowledge diffusion**	**17.1**	**74**	
6.3.1	Intellectual property receipts, % total trade	0.0	111	○
6.3.2	Production and export complexity	40.6	85	
6.3.3	High-tech exports, % total trade	2.6	55	
6.3.4	ICT services exports, % total trade	3.5	38	●
6.3.5	ISO 9001 quality/bn PPP$ GDP	3.0	73	
Creative outputs		**31.7**	**46**	◆
7.1	**Intangible assets**	**50.0**	**17**	● ◆
7.1.1	Intangible asset intensity, top 15, %	64.2	26	
7.1.2	Trademarks by origin/bn PPP$ GDP	58.4	24	● ◆
7.1.3	Global brand value, top 5,000, % GDP	1.9	45	
7.1.4	Industrial designs by origin/bn PPP$ GDP	12.0	6	● ◆
7.2	**Creative goods and services**	**4.0**	**103**	
7.2.1	Cultural and creative services exports, % total trade 🕘	0.4	73	
7.2.2	National feature films/mn pop. 15–69	1.3	66	
7.2.3	Entertainment and media market/th pop. 15–69	1.2	60	○
7.2.4	Creative goods exports, % total trade	0.1	97	
7.3	**Online creativity**	**22.7**	**86**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.6	92	
7.3.2	GitHub commits/mn pop. 15–69	5.2	78	
7.3.3	Mobile app creation/bn PPP$ GDP	61.3	80	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Mozambique

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
126	129	Low	SSA	34.6	60.3	1,730

			Score/ Value	Rank	
Institutions			**26.9**	**124**	
1.1	**Institutional environment**		**31.4**	**116**	
1.1.1	Operational stability for businesses*		37.3	120	
1.1.2	Government effectiveness*		25.5	113	
1.2	**Regulatory environment**		**28.9**	**119**	
1.2.1	Regulatory quality*		30.4	113	
1.2.2	Rule of law*		27.3	122	
1.3	**Business environment**		**20.5**	**123**	◇
1.3.1	Policy stability for doing business†	⏲	34.3	94	
1.3.2	Entrepreneurship policies and culture†	⏲	6.8	89	
Human capital and research			**13.2**	**130**	
2.1	**Education**		**37.1**	**[116]**	
2.1.1	Expenditure on education, % GDP	⏲	6.0	17	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years	⏲	10.4	110	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	36.5	129	
2.2	**Tertiary education**		**1.2**	**133**	
2.2.1	Tertiary enrolment, % gross	⏲	7.3	124	
2.2.2	Graduates in science and engineering, %	⏲	9.6	119	○◇
2.2.3	Tertiary inbound mobility, %	⏲	0.4	104	
2.3	**Research and development (R&D)**		**1.3**	**99**	
2.3.1	Researchers, FTE/mn pop.	⏲	44.4	97	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.3	76	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**31.9**	**103**	◆
3.1	**Information and communication technology (ICT)**		**20.4**	**135**	
3.1.1	ICT access*		34.0	131	
3.1.2	ICT use*		0.0	130	○◇
3.1.3	Government online service*		27.3	125	
3.2	**General infrastructure**		**47.3**	**30**	●◆
3.2.1	Electricity output, GWh/mn pop.	⏲	593.3	112	◆
3.2.2	Logistics performance*		n/a	n/a	
3.2.3	Gross capital formation, % GDP	⏲	42.0	3	●◆
3.3	**Ecological sustainability**		**28.0**	**46**	●◆
3.3.1	GDP/unit of energy use		3.6	127	◇
3.3.2	Low-carbon energy use, %		62.2	7	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.6	83	◆
Market sophistication			**20.9**	**119**	
4.1	**Credit**		**7.8**	**122**	
4.1.1	Finance for startups and scaleups†	⏲	4.9	92	
4.1.2	Domestic credit to private sector, % GDP		18.5	119	
4.1.3	Loans from microfinance institutions, % GDP		1.4	25	●
4.2	**Investment**		**2.4**	**[94]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.0	96	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**52.5**	**105**	◆
4.3.1	Applied tariff rate, weighted avg., %		4.3	90	◆
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		60.3	113	

			Score/ Value	Rank	
Business sophistication			**20.1**	**127**	
5.1	**Knowledge workers**		**20.4**	**132**	◇
5.1.1	Knowledge-intensive employment, %	⏲	4.4	116	
5.1.2	Females employed w/advanced degrees, %	⏲	1.0	118	
5.1.3	Youth demographic dividend, %		64.4	5	●
5.1.4	GERD performed by business, % GDP	⏲	0.0	88	
5.1.5	GERD financed by business, %	⏲	0.5	93	
5.2	**Innovation linkages**		**13.7**	**118**	
5.2.1	Public research–industry co-publications, %		2.0	46	●◆
5.2.2	University–industry R&D collaboration†	⏲	16.8	119	
5.2.3	University industry and international engagement, top 5*		13.8	84	
5.2.4	State of cluster development†	⏲	18.1	129	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**26.4**	**71**	●
5.3.1	Intellectual property payments, % total trade		0.0	131	○◇
5.3.2	High-tech imports, % total trade		6.1	101	
5.3.3	ICT services imports, % total trade		1.2	80	
5.3.4	FDI net inflows, % GDP		20.5	1	●◆
5.3.5	Research talent, % in businesses	⏲	0.3	83	
Knowledge and technology outputs			**8.1**	**131**	
6.1	**Knowledge creation**		**6.6**	**103**	
6.1.1	Patents by origin/bn PPP$ GDP		0.3	86	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP		0.2	41	●
6.1.4	Scientific and technical articles/bn PPP$ GDP		8.3	82	
6.1.5	Citable documents H-index		4.9	101	
6.2	**Knowledge impact**		**13.8**	**124**	
6.2.1	Labor productivity growth, %		−0.2	105	
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	128	
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**3.9**	**133**	◇
6.3.1	Intellectual property receipts, % total trade		0.0	127	○◇
6.3.2	Production and export complexity		14.1	126	◇
6.3.3	High-tech exports, % total trade		0.2	119	
6.3.4	ICT services exports, % total trade		0.1	135	◇
6.3.5	ISO 9001 quality/bn PPP$ GDP		1.2	106	
Creative outputs			**8.2**	**117**	
7.1	**Intangible assets**		**9.9**	**101**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		28.7	72	●
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.7	75	●
7.2	**Creative goods and services**		**0.1**	**[139]**	
7.2.1	Cultural and creative services exports, % total trade		n/a	n/a	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.0	133	
7.3	**Online creativity**		**13.0**	**124**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.1	130	
7.3.2	GitHub commits/mn pop. 15–69		0.3	131	
7.3.3	Mobile app creation/bn PPP$ GDP		38.7	124	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Myanmar

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
99	131	Lower middle	SEAO	54.5	283.7	5,206

			Score/ Value	Rank	
Institutions			**15.7**	**136**	◇
1.1	**Institutional environment**		**10.0**	**137**	◇
1.1.1	Operational stability for businesses*		20.0	132	◇
1.1.2	Government effectiveness*		0.0	139	○◇
1.2	**Regulatory environment**		**13.3**	**138**	○◇
1.2.1	Regulatory quality*		13.6	137	◇
1.2.2	Rule of law*		13.0	138	○◇
1.3	**Business environment**		**23.7**	**[114]**	
1.3.1	Policy stability for doing business†	⏲	23.7	116	
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**18.9**	**112**	
2.1	**Education**		**27.4**	**131**	
2.1.1	Expenditure on education, % GDP	⏲	2.0	127	
2.1.2	Government funding/pupil, secondary, % GDP/cap	⏲	10.2	84	
2.1.3	School life expectancy, years	⏲	11.7	99	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	27.2	119	
2.2	**Tertiary education**		**29.1**	**70**	
2.2.1	Tertiary enrolment, % gross	⏲	20.4	104	
2.2.2	Graduates in science and engineering, %	⏲	33.7	11	●◆
2.2.3	Tertiary inbound mobility, %	⏲	0.0	116	○
2.3	**Research and development (R&D)**		**0.1**	**119**	
2.3.1	Researchers, FTE/mn pop.		28.0	102	
2.3.2	Gross expenditure on R&D, % GDP		0.0	112	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**31.2**	**104**	
3.1	**Information and communication technology (ICT)**		**47.4**	**115**	
3.1.1	ICT access*		63.1	105	
3.1.2	ICT use*		60.1	104	
3.1.3	Government online service*		18.9	133	◇
3.2	**General infrastructure**		**32.1**	**74**	
3.2.1	Electricity output, GWh/mn pop.	⏲	386.1	117	
3.2.2	Logistics performance*		n/a	n/a	
3.2.3	Gross capital formation, % GDP		32.3	17	●
3.3	**Ecological sustainability**		**14.2**	**99**	
3.3.1	GDP/unit of energy use		10.9	68	
3.3.2	Low-carbon energy use, %		16.0	79	
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.1	127	
Market sophistication			**27.1**	**108**	
4.1	**Credit**		**12.3**	**114**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	⏲	29.0	100	
4.1.3	Loans from microfinance institutions, % GDP	⏲	1.5	24	●
4.2	**Investment**		**0.1**	**[127]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.0	116	○◇
4.2.5	VC investor co-participation/bn PPP$ GDP		0.0	114	◇
4.3	**Trade, diversification and market scale**		**68.8**	**67**	
4.3.1	Applied tariff rate, weighted avg., %		1.2	22	●◆
4.3.2	Domestic industry diversification		62.4	94	
4.3.3	Domestic market scale, bn PPP$		283.7	66	●

			Score/ Value	Rank	
Business sophistication			**15.4**	**139**	○◇
5.1	**Knowledge workers**		**18.4**	**137**	◇
5.1.1	Knowledge-intensive employment, %	⏲	5.2	112	◇
5.1.2	Females employed w/advanced degrees, %	⏲	7.2	89	
5.1.3	Youth demographic dividend, %		40.2	60	●◇
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %	⏲	0.0	94	○◇
5.2	**Innovation linkages**		**6.5**	**[133]**	
5.2.1	Public research–industry co-publications, %		0.9	93	
5.2.2	University–industry R&D collaboration†		n/a	n/a	
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†	⏲	11.3	131	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**21.2**	**100**	
5.3.1	Intellectual property payments, % total trade	⏲	0.2	98	
5.3.2	High-tech imports, % total trade		5.5	112	
5.3.3	ICT services imports, % total trade	⏲	1.6	61	●
5.3.4	FDI net inflows, % GDP		2.5	74	
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**10.2**	**120**	
6.1	**Knowledge creation**		**2.1**	**[130]**	
6.1.1	Patents by origin/bn PPP$ GDP		n/a	n/a	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP		-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP		1.2	135	
6.1.5	Citable documents H-index		2.8	126	
6.2	**Knowledge impact**		**19.1**	**99**	
6.2.1	Labor productivity growth, %		−3.5	135	◇
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.2	70	
6.2.4	High-tech manufacturing, %		40.7	21	●◆
6.3	**Knowledge diffusion**		**9.5**	**110**	
6.3.1	Intellectual property receipts, % total trade	⏲	0.1	70	
6.3.2	Production and export complexity		27.8	113	
6.3.3	High-tech exports, % total trade		1.5	70	
6.3.4	ICT services exports, % total trade	⏲	0.9	91	
6.3.5	ISO 9001 quality/bn PPP$ GDP		1.5	96	
Creative outputs			**15.7**	**[92]**	
7.1	**Intangible assets**		**18.5**	**[80]**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		71.3	19	●◆
7.1.3	Global brand value, top 5,000, % GDP		0.3	72	
7.1.4	Industrial designs by origin/bn PPP$ GDP		n/a	n/a	
7.2	**Creative goods and services**		**7.5**	**[80]**	
7.2.1	Cultural and creative services exports, % total trade	⏲	0.1	101	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		1.0	44	●
7.3	**Online creativity**		**18.5**	**104**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.0	138	○◇
7.3.2	GitHub commits/mn pop. 15–69		0.4	129	
7.3.3	Mobile app creation/bn PPP$ GDP		55.0	97	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Namibia

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
110	74	Upper middle	SSA	3.0	35.1	11,730

			Score/ Value	Rank	
Institutions			**56.2**	**51**	●
1.1	**Institutional environment**		**53.6**	**71**	
1.1.1	Operational stability for businesses*		63.3	66	
1.1.2	Government effectiveness*		43.8	70	
1.2	**Regulatory environment**		**54.2**	**59**	
1.2.1	Regulatory quality*		45.3	75	
1.2.2	Rule of law*		63.1	44	●◆
1.3	**Business environment**		**61.0**	**[33]**	
1.3.1	Policy stability for doing business†		61.0	43	●
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**28.5**	**79**	
2.1	**Education**		**74.4**	**[3]**	
2.1.1	Expenditure on education, % GDP	⏲	9.4	1	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years		n/a	n/a	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	25.9	116	
2.2	**Tertiary education**		**8.1**	**118**	◇
2.2.1	Tertiary enrolment, % gross	⏲	26.1	96	◇
2.2.2	Graduates in science and engineering, %		10.3	116	○◇
2.2.3	Tertiary inbound mobility, %	⏲	3.1	65	
2.3	**Research and development (R&D)**		**3.1**	**90**	
2.3.1	Researchers, FTE/mn pop.	⏲	224.8	82	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.6	55	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**34.5**	**96**	
3.1	**Information and communication technology (ICT)**		**58.3**	**103**	◇
3.1.1	ICT access*		72.7	93	
3.1.2	ICT use*		62.6	100	
3.1.3	Government online service*		39.8	105	◇
3.2	**General infrastructure**		**25.7**	**93**	
3.2.1	Electricity output, GWh/mn pop.		684.6	109	◇
3.2.2	Logistics performance*		36.4	65	
3.2.3	Gross capital formation, % GDP		24.1	63	
3.3	**Ecological sustainability**		**19.6**	**74**	
3.3.1	GDP/unit of energy use		12.1	55	
3.3.2	Low-carbon energy use, %		23.8	55	●
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.6	86	
Market sophistication			**27.4**	**105**	
4.1	**Credit**		**22.0**	**[84]**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	⏲	61.0	52	●
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**3.4**	**80**	
4.2.1	Market capitalization, % GDP		18.0	66	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.1	68	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.0	97	
4.2.5	VC investor co-participation/bn PPP$ GDP		0.0	98	
4.3	**Trade, diversification and market scale**		**56.8**	**100**	
4.3.1	Applied tariff rate, weighted avg., %		2.4	71	
4.3.2	Domestic industry diversification		56.1	101	○◇
4.3.3	Domestic market scale, bn PPP$		35.1	130	○◇

			Score/ Value	Rank	
Business sophistication			**33.1**	**49**	●
5.1	**Knowledge workers**		**40.8**	**[53]**	
5.1.1	Knowledge-intensive employment, %	⏲	18.1	82	
5.1.2	Females employed w/advanced degrees, %	⏲	7.4	87	
5.1.3	Youth demographic dividend, %		54.4	27	●◆
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**30.0**	**52**	●
5.2.1	Public research–industry co-publications, %		2.6	31	●◆
5.2.2	University–industry R&D collaboration†		49.0	38	●◆
5.2.3	University industry and international engagement, top 5*		17.8	71	
5.2.4	State of cluster development†		52.9	56	
5.2.5	Patent families/bn PPP$ GDP		0.1	46	●
5.3	**Knowledge absorption**		**28.5**	**61**	
5.3.1	Intellectual property payments, % total trade		0.1	113	◇
5.3.2	High-tech imports, % total trade		7.2	84	
5.3.3	ICT services imports, % total trade		1.4	71	
5.3.4	FDI net inflows, % GDP		11.3	10	●◆
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**9.2**	**123**	○◇
6.1	**Knowledge creation**		**7.1**	**99**	
6.1.1	Patents by origin/bn PPP$ GDP	⏲	0.5	72	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	92	
6.1.3	Utility models by origin/bn PPP$ GDP	⏲	0.1	47	
6.1.4	Scientific and technical articles/bn PPP$ GDP		8.5	79	
6.1.5	Citable documents H-index		4.2	114	
6.2	**Knowledge impact**		**10.4**	**131**	○◇
6.2.1	Labor productivity growth, %		−1.4	125	○◇
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.1	86	
6.2.4	High-tech manufacturing, %		3.4	109	○◇
6.3	**Knowledge diffusion**		**10.2**	**106**	
6.3.1	Intellectual property receipts, % total trade		0.1	65	
6.3.2	Production and export complexity		36.5	93	
6.3.3	High-tech exports, % total trade		1.1	75	
6.3.4	ICT services exports, % total trade		0.3	119	
6.3.5	ISO 9001 quality/bn PPP$ GDP		1.4	98	
Creative outputs			**12.8**	**100**	
7.1	**Intangible assets**		**10.1**	**100**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	⏲	12.4	109	
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	⏲	1.2	56	
7.2	**Creative goods and services**		**6.2**	**[90]**	
7.2.1	Cultural and creative services exports, % total trade		0.5	55	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.1	96	
7.3	**Online creativity**		**24.6**	**68**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		4.2	66	
7.3.2	GitHub commits/mn pop. 15–69		1.9	111	
7.3.3	Mobile app creation/bn PPP$ GDP		67.8	57	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Nepal

GII 2025 rank **107**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
101	107	Lower middle	CSA	29.7	169.1	5,348

		Score/ Value	Rank	
Institutions		**32.5**	**113**	
1.1	**Institutional environment**	**34.9**	**110**	
1.1.1	Operational stability for businesses*	46.7	103	
1.1.2	Government effectiveness*	23.2	118	
1.2	**Regulatory environment**	**36.2**	**105**	
1.2.1	Regulatory quality*	31.5	109	
1.2.2	Rule of law*	41.0	95	
1.3	**Business environment**	**26.3**	**[110]**	
1.3.1	Policy stability for doing business†	26.3	112	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**13.9**	**[127]**	
2.1	**Education**	**31.8**	**126**	
2.1.1	Expenditure on education, % GDP	4.0	79	
2.1.2	Government funding/pupil, secondary, % GDP/cap	9.4	87	
2.1.3	School life expectancy, years	13.5	77	◆
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	33.0	126	○◇
2.2	**Tertiary education**	**10.0**	**[117]**	
2.2.1	Tertiary enrolment, % gross	19.0	105	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**32.6**	**101**	
3.1	**Information and communication technology (ICT)**	**42.2**	**119**	
3.1.1	ICT access*	50.9	117	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government online service*	33.6	117	
3.2	**General infrastructure**	**34.9**	**61**	
3.2.1	Electricity output, GWh/mn pop.	349.9	119	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	34.2	11	●
3.3	**Ecological sustainability**	**20.6**	**67**	
3.3.1	GDP/unit of energy use	7.1	100	
3.3.2	Low-carbon energy use, %	38.4	26	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.4	98	
Market sophistication		**38.4**	**61**	◆
4.1	**Credit**	**67.4**	**7**	●◆
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	91.9	26	●◆
4.1.3	Loans from microfinance institutions, % GDP	9.5	1	●◆
4.2	**Investment**	**1.0**	**114**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	110	
4.2.3	Late-stage VC deal count, % global VC	0.0	84	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	103	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	88	
4.3	**Trade, diversification and market scale**	**46.8**	**113**	
4.3.1	Applied tariff rate, weighted avg., %	12.2	136	○◇
4.3.2	Domestic industry diversification	86.5	51	
4.3.3	Domestic market scale, bn PPP$	169.1	82	

		Score/ Value	Rank	
Business sophistication		**20.9**	**124**	
5.1	**Knowledge workers**	**28.9**	**[102]**	
5.1.1	Knowledge-intensive employment, %	13.2	91	
5.1.2	Females employed w/advanced degrees, %	2.9	102	
5.1.3	Youth demographic dividend, %	47.5	38	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**15.3**	**113**	
5.2.1	Public research–industry co-publications, %	1.8	54	●◆
5.2.2	University–industry R&D collaboration†	22.9	105	
5.2.3	University industry and international engagement, top 5*	10.8	92	
5.2.4	State of cluster development†	25.1	117	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**18.4**	**116**	
5.3.1	Intellectual property payments, % total trade	0.0	130	◇
5.3.2	High-tech imports, % total trade	10.7	33	●
5.3.3	ICT services imports, % total trade	0.2	136	○◇
5.3.4	FDI net inflows, % GDP	0.3	124	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**13.2**	**98**	
6.1	**Knowledge creation**	**9.7**	**[84]**	
6.1.1	Patents by origin/bn PPP$ GDP	0.2	98	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	8.2	83	
6.1.5	Citable documents H-index	8.6	87	
6.2	**Knowledge impact**	**15.9**	**118**	
6.2.1	Labor productivity growth, %	1.1	56	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	130	○◇
6.2.4	High-tech manufacturing, %	9.0	91	
6.3	**Knowledge diffusion**	**14.1**	**86**	
6.3.1	Intellectual property receipts, % total trade	0.1	61	
6.3.2	Production and export complexity	45.5	69	
6.3.3	High-tech exports, % total trade	0.0	136	○
6.3.4	ICT services exports, % total trade	1.4	77	
6.3.5	ISO 9001 quality/bn PPP$ GDP	3.2	71	
Creative outputs		**12.3**	**103**	
7.1	**Intangible assets**	**7.9**	**108**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	39.7	45	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.1	110	
7.2	**Creative goods and services**	**7.8**	**[79]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	2.7	46	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.2	78	
7.3	**Online creativity**	**25.5**	**66**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.3	97	
7.3.2	GitHub commits/mn pop. 15–69	6.6	70	
7.3.3	Mobile app creation/bn PPP$ GDP	68.5	54	●

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Netherlands (Kingdom of the) 8

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
7	9	High	EUR	18.2	1,460.5	81,495

			Score/ Value	Rank	
Institutions			**79.0**	**11**	
1.1	**Institutional environment**		**80.2**	**17**	
1.1.1	Operational stability for businesses*		77.3	28	
1.1.2	Government effectiveness*		83.0	8	
1.2	**Regulatory environment**		**90.1**	**9**	
1.2.1	Regulatory quality*		88.1	6	●
1.2.2	Rule of law*		92.1	10	
1.3	**Business environment**		**66.9**	**22**	
1.3.1	Policy stability for doing business†		61.3	40	
1.3.2	Entrepreneurship policies and culture†	⏲	72.4	9	◆
Human capital and research			**55.3**	**14**	
2.1	**Education**		**63.0**	**24**	
2.1.1	Expenditure on education, % GDP	⏲	5.1	38	
2.1.2	Government funding/pupil, secondary, % GDP/cap		23.7	25	
2.1.3	School life expectancy, years	⏲	18.6	10	
2.1.4	PISA scales in reading, maths and science		480.1	25	
2.1.5	Pupil–teacher ratio, secondary	⏲	13.7	68	○
2.2	**Tertiary education**		**40.1**	**32**	
2.2.1	Tertiary enrolment, % gross	⏲	89.4	15	
2.2.2	Graduates in science and engineering, %		20.1	79	○
2.2.3	Tertiary inbound mobility, %	⏲	13.7	18	
2.3	**Research and development (R&D)**		**62.9**	**10**	
2.3.1	Researchers, FTE/mn pop.		6,583.0	9	
2.3.2	Gross expenditure on R&D, % GDP		2.2	15	
2.3.3	Global corporate R&D investors, top 3, mn USD		81.8	8	
2.3.4	QS university ranking, top 3*		71.6	12	
Infrastructure			**54.6**	**30**	
3.1	**Information and communication technology (ICT)**		**90.5**	**21**	
3.1.1	ICT access*		96.4	33	
3.1.2	ICT use*		84.6	38	
3.1.3	Government online service*		90.5	15	
3.2	**General infrastructure**		**48.9**	**26**	
3.2.1	Electricity output, GWh/mn pop.		6,785.8	28	
3.2.2	Logistics performance*		90.9	3	●◆
3.2.3	Gross capital formation, % GDP		20.8	100	○
3.3	**Ecological sustainability**		**24.4**	**53**	○
3.3.1	GDP/unit of energy use		16.4	27	
3.3.2	Low-carbon energy use, %		17.0	77	○
3.3.3	ISO 14001 environment/bn PPP$ GDP		1.9	50	○
Market sophistication			**57.5**	**12**	
4.1	**Credit**		**59.2**	**12**	
4.1.1	Finance for startups and scaleups†	⏲	86.8	7	◆
4.1.2	Domestic credit to private sector, % GDP		84.1	30	
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**30.2**	**18**	
4.2.1	Market capitalization, % GDP	⏲	108.2	16	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.4	17	
4.2.3	Late-stage VC deal count, % global VC		0.5	12	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.9	15	
4.2.5	VC investor co-participation/bn PPP$ GDP		0.4	17	
4.3	**Trade, diversification and market scale**		**83.2**	**17**	
4.3.1	Applied tariff rate, weighted avg., %		1.3	24	○
4.3.2	Domestic industry diversification		90.9	37	
4.3.3	Domestic market scale, bn PPP$		1,460.5	27	

		Score/ Value	Rank	
Business sophistication		**56.6**	**7**	●
5.1	**Knowledge workers**	**57.5**	**16**	
5.1.1	Knowledge-intensive employment, %	55.0	5	●
5.1.2	Females employed w/advanced degrees, %	23.8	22	
5.1.3	Youth demographic dividend, %	26.9	106	○
5.1.4	GERD performed by business, % GDP	1.6	15	
5.1.5	GERD financed by business, %	58.3	14	
5.2	**Innovation linkages**	**69.7**	**3**	●
5.2.1	Public research–industry co-publications, %	5.5	9	
5.2.2	University–industry R&D collaboration†	70.5	5	●
5.2.3	University industry and international engagement, top 5*	99.4	2	●◆
5.2.4	State of cluster development†	82.6	16	
5.2.5	Patent families/bn PPP$ GDP	3.8	10	
5.3	**Knowledge absorption**	**42.6**	**22**	
5.3.1	Intellectual property payments, % total trade	4.4	7	●◆
5.3.2	High-tech imports, % total trade	11.3	30	
5.3.3	ICT services imports, % total trade	3.0	21	
5.3.4	FDI net inflows, % GDP	−12.1	137	○◇
5.3.5	Research talent, % in businesses	71.6	6	◆
Knowledge and technology outputs		**50.8**	**10**	
6.1	**Knowledge creation**	**58.0**	**6**	●
6.1.1	Patents by origin/bn PPP$ GDP	6.2	12	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	2.6	10	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	26.6	20	
6.1.5	Citable documents H-index	71.1	7	●
6.2	**Knowledge impact**	**42.6**	**20**	
6.2.1	Labor productivity growth, %	0.1	95	○
6.2.2	Unicorn valuation, % GDP	1.9	21	
6.2.3	Software spending, % GDP	0.5	20	
6.2.4	High-tech manufacturing, %	41.5	19	
6.3	**Knowledge diffusion**	**51.9**	**8**	
6.3.1	Intellectual property receipts, % total trade	4.4	3	●◆
6.3.2	Production and export complexity	72.8	26	
6.3.3	High-tech exports, % total trade	12.0	14	
6.3.4	ICT services exports, % total trade	4.6	27	
6.3.5	ISO 9001 quality/bn PPP$ GDP	6.4	38	
Creative outputs		**56.1**	**6**	●
7.1	**Intangible assets**	**49.2**	**19**	
7.1.1	Intangible asset intensity, top 15, %	85.7	4	●◆
7.1.2	Trademarks by origin/bn PPP$ GDP	35.9	53	○
7.1.3	Global brand value, top 5,000, % GDP	8.7	21	
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.7	30	
7.2	**Creative goods and services**	**37.4**	**18**	
7.2.1	Cultural and creative services exports, % total trade	2.1	14	
7.2.2	National feature films/mn pop. 15–69	3.8	40	○
7.2.3	Entertainment and media market/th pop. 15–69	43.7	19	
7.2.4	Creative goods exports, % total trade	3.1	15	
7.3	**Online creativity**	**88.6**	**3**	●◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69	100.0	1	●◆
7.3.2	GitHub commits/mn pop. 15–69	93.6	4	●◆
7.3.3	Mobile app creation/bn PPP$ GDP	72.3	30	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

New Zealand

GII 2025 rank **26**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
34	22	High	SEAO	5.2	283.9	52,983

		Score/ Value	Rank
Institutions		**83.1**	**6** ●◆
1.1	**Institutional environment**	**86.3**	**7** ●◆
1.1.1	Operational stability for businesses*	92.0	3 ●◆
1.1.2	Government effectiveness*	80.7	15
1.2	**Regulatory environment**	**92.2**	**5** ●◆
1.2.1	Regulatory quality*	90.8	4 ●◆
1.2.2	Rule of law*	93.7	9 ●◆
1.3	**Business environment**	**70.8**	**[17]**
1.3.1	Policy stability for doing business†	70.8	22
1.3.2	Entrepreneurship policies and culture†	n/a	n/a
Human capital and research		**48.9**	**23**
2.1	**Education**	**61.7**	**33**
2.1.1	Expenditure on education, % GDP ⏲	5.2	32
2.1.2	Government funding/pupil, secondary, % GDP/cap	16.7	60 ○
2.1.3	School life expectancy, years	19.1	6 ●◆
2.1.4	PISA scales in reading, maths and science	494.7	12
2.1.5	Pupil–teacher ratio, secondary	14.8	80 ○◇
2.2	**Tertiary education**	**41.4**	**28**
2.2.1	Tertiary enrolment, % gross	76.4	33
2.2.2	Graduates in science and engineering, %	23.0	61 ○
2.2.3	Tertiary inbound mobility, %	14.9	16
2.3	**Research and development (R&D)**	**43.7**	**23**
2.3.1	Researchers, FTE/mn pop. ⏲	5,101.0	21
2.3.2	Gross expenditure on R&D, % GDP ⏲	1.5	30
2.3.3	Global corporate R&D investors, top 3, mn USD	49.4	35
2.3.4	QS university ranking, top 3*	53.5	20
Infrastructure		**55.1**	**26**
3.1	**Information and communication technology (ICT)**	**89.0**	**29**
3.1.1	ICT access*	92.9	50
3.1.2	ICT use*	80.6	56
3.1.3	Government online service*	93.4	8 ●
3.2	**General infrastructure**	**47.5**	**29**
3.2.1	Electricity output, GWh/mn pop.	8,506.7	17
3.2.2	Logistics performance*	68.2	25
3.2.3	Gross capital formation, % GDP	24.6	52
3.3	**Ecological sustainability**	**28.8**	**44**
3.3.1	GDP/unit of energy use	11.0	66
3.3.2	Low-carbon energy use, %	42.3	20
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.5	58
Market sophistication		**49.5**	**24**
4.1	**Credit**	**55.9**	**[20]**
4.1.1	Finance for startups and scaleups†	n/a	n/a
4.1.2	Domestic credit to private sector, % GDP	142.6	9 ●◆
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a
4.2	**Investment**	**21.4**	**30**
4.2.1	Market capitalization, % GDP	50.1	38
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.5	15
4.2.3	Late-stage VC deal count, % global VC	0.1	28
4.2.4	VC investors, deal count/bn PPP$ GDP	0.5	24
4.2.5	VC investor co-participation/bn PPP$ GDP	0.3	23
4.3	**Trade, diversification and market scale**	**71.3**	**59**
4.3.1	Applied tariff rate, weighted avg., %	0.7	8 ●
4.3.2	Domestic industry diversification	65.6	83 ○◇
4.3.3	Domestic market scale, bn PPP$	283.9	65

		Score/ Value	Rank
Business sophistication		**47.7**	**22**
5.1	**Knowledge workers**	**44.9**	**37**
5.1.1	Knowledge-intensive employment, %	n/a	n/a
5.1.2	Females employed w/advanced degrees, % ⏲	21.5	30
5.1.3	Youth demographic dividend, %	30.6	85 ○
5.1.4	GERD performed by business, % GDP ⏲	0.9	29
5.1.5	GERD financed by business, % ⏲	50.1	26
5.2	**Innovation linkages**	**55.9**	**19**
5.2.1	Public research–industry co-publications, %	4.2	20
5.2.2	University–industry R&D collaboration†	61.5	19
5.2.3	University industry and international engagement, top 5*	75.1	20
5.2.4	State of cluster development†	79.2	20
5.2.5	Patent families/bn PPP$ GDP	1.2	25
5.3	**Knowledge absorption**	**42.3**	**24**
5.3.1	Intellectual property payments, % total trade	1.6	21
5.3.2	High-tech imports, % total trade	12.3	21
5.3.3	ICT services imports, % total trade	3.5	12 ●
5.3.4	FDI net inflows, % GDP	2.2	83 ○
5.3.5	Research talent, % in businesses ⏲	46.2	30
Knowledge and technology outputs		**28.6**	**41**
6.1	**Knowledge creation**	**37.2**	**25**
6.1.1	Patents by origin/bn PPP$ GDP	1.1	50
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.1	21
6.1.3	Utility models by origin/bn PPP$ GDP	-	-
6.1.4	Scientific and technical articles/bn PPP$ GDP	29.9	15
6.1.5	Citable documents H-index	35.3	27
6.2	**Knowledge impact**	**20.8**	**90** ○
6.2.1	Labor productivity growth, %	0.1	97 ○
6.2.2	Unicorn valuation, % GDP	0.0	53 ○◇
6.2.3	Software spending, % GDP	0.2	57
6.2.4	High-tech manufacturing, %	17.5	68 ○
6.3	**Knowledge diffusion**	**27.9**	**49**
6.3.1	Intellectual property receipts, % total trade	1.8	13 ●
6.3.2	Production and export complexity	53.9	50
6.3.3	High-tech exports, % total trade	2.1	61
6.3.4	ICT services exports, % total trade	1.9	64
6.3.5	ISO 9001 quality/bn PPP$ GDP	3.6	68
Creative outputs		**39.6**	**29**
7.1	**Intangible assets**	**38.3**	**39**
7.1.1	Intangible asset intensity, top 15, %	65.6	22
7.1.2	Trademarks by origin/bn PPP$ GDP	73.5	17 ◆
7.1.3	Global brand value, top 5,000, % GDP	2.4	42
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.1	63
7.2	**Creative goods and services**	**19.2**	**55**
7.2.1	Cultural and creative services exports, % total trade ⏲	0.5	51
7.2.2	National feature films/mn pop. 15–69	1.7	64 ○
7.2.3	Entertainment and media market/th pop. 15–69	51.5	11
7.2.4	Creative goods exports, % total trade	0.5	68
7.3	**Online creativity**	**62.6**	**18**
7.3.1	Top-level domains (TLDs)/th pop. 15–69	51.2	17
7.3.2	GitHub commits/mn pop. 15–69	67.4	13 ●
7.3.3	Mobile app creation/bn PPP$ GDP	69.2	50

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Nicaragua

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
132	126	Lower middle	LCN	6.9	60.4	8,950

		Score/ Value	Rank	
Institutions		**17.6**	**135**	◇
1.1	**Institutional environment**	**27.9**	**123**	
1.1.1	Operational stability for businesses*	39.3	116	
1.1.2	Government effectiveness*	16.4	132	◇
1.2	**Regulatory environment**	**23.8**	**127**	◇
1.2.1	Regulatory quality*	26.5	119	
1.2.2	Rule of law*	21.2	137	○◇
1.3	**Business environment**	**1.0**	**[136]**	
1.3.1	Policy stability for doing business† ⏲	1.0	134	○◇
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**13.3**	**129**	◇
2.1	**Education**	**21.7**	**135**	◇
2.1.1	Expenditure on education, % GDP	2.9	117	
2.1.2	Government funding/pupil, secondary, % GDP/cap	6.0	94	○◇
2.1.3	School life expectancy, years	11.8	97	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	36.4	127	◇
2.2	**Tertiary education**	**17.6**	**102**	
2.2.1	Tertiary enrolment, % gross	30.4	92	
2.2.2	Graduates in science and engineering, %	19.5	86	
2.2.3	Tertiary inbound mobility, %	1.7	81	
2.3	**Research and development (R&D)**	**0.5**	**110**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.1	101	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**28.1**	**118**	
3.1	**Information and communication technology (ICT)**	**48.8**	**113**	
3.1.1	ICT access*	55.1	112	
3.1.2	ICT use*	57.7	107	
3.1.3	Government online service*	33.7	115	
3.2	**General infrastructure**	**18.5**	**116**	
3.2.1	Electricity output, GWh/mn pop. ⏲	628.8	110	
3.2.2	Logistics performance*	18.2	90	
3.2.3	Gross capital formation, % GDP	23.1	77	
3.3	**Ecological sustainability**	**17.1**	**86**	
3.3.1	GDP/unit of energy use	9.3	84	
3.3.2	Low-carbon energy use, %	26.5	46	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.2	125	
Market sophistication		**29.9**	**92**	
4.1	**Credit**	**20.1**	**90**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	30.0	97	
4.1.3	Loans from microfinance institutions, % GDP	2.9	16	●
4.2	**Investment**	**1.3**	**[106]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP ⏲	0.0	89	
4.2.3	Late-stage VC deal count, % global VC ⏲	0.0	107	○◇
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**68.4**	**70**	●
4.3.1	Applied tariff rate, weighted avg., %	1.8	63	●◆
4.3.2	Domestic industry diversification ⏲	81.1	64	●
4.3.3	Domestic market scale, bn PPP$	60.4	112	

		Score/ Value	Rank	
Business sophistication		**28.3**	**67**	●
5.1	**Knowledge workers**	**58.7**	**[15]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	46.6	41	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**5.4**	**134**	◇
5.2.1	Public research–industry co-publications, %	1.2	77	●
5.2.2	University–industry R&D collaboration† ⏲	1.0	132	◇
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development† ⏲	9.2	133	○◇
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**20.9**	**103**	
5.3.1	Intellectual property payments, % total trade	0.0	124	
5.3.2	High-tech imports, % total trade	6.3	97	
5.3.3	ICT services imports, % total trade	0.3	126	
5.3.4	FDI net inflows, % GDP	7.9	15	●◆
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**10.9**	**115**	
6.1	**Knowledge creation**	**1.6**	**[132]**	
6.1.1	Patents by origin/bn PPP$ GDP	n/a	n/a	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	102	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	1.3	134	
6.1.5	Citable documents H-index	3.2	122	
6.2	**Knowledge impact**	**19.7**	**96**	
6.2.1	Labor productivity growth, %	1.9	32	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	110	
6.2.4	High-tech manufacturing, % ⏲	13.6	79	
6.3	**Knowledge diffusion**	**11.3**	**97**	
6.3.1	Intellectual property receipts, % total trade	0.0	127	○◇
6.3.2	Production and export complexity	31.5	105	
6.3.3	High-tech exports, % total trade	0.2	110	
6.3.4	ICT services exports, % total trade	3.0	47	●
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.7	120	
Creative outputs		**3.7**	**[135]**	
7.1	**Intangible assets**	**0.0**	**[139]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	n/a	n/a	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	n/a	n/a	
7.2	**Creative goods and services**	**5.2**	**[94]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade ⏲	0.4	69	●
7.3	**Online creativity**	**9.6**	**127**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.4	96	
7.3.2	GitHub commits/mn pop. 15–69	2.1	109	
7.3.3	Mobile app creation/bn PPP$ GDP ⏲	25.1	127	◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Niger

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
133	139	Low	SSA	27.0	55.5	1,978

		Score/ Value	Rank	
Institutions		**26.9**	**125**	
1.1	**Institutional environment**	**22.3**	**131**	
1.1.1	Operational stability for businesses*	17.3	134	◇
1.1.2	Government effectiveness*	27.3	107	
1.2	**Regulatory environment**	**31.5**	**112**	
1.2.1	Regulatory quality*	27.9	118	
1.2.2	Rule of law*	35.0	109	
1.3	**Business environment**	**n/a**	**[n/a]**	
1.3.1	Policy stability for doing business†	n/a	n/a	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**8.9**	**136**	◇
2.1	**Education**	**18.8**	**137**	◇
2.1.1	Expenditure on education, % GDP	4.1	71	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	11.8	77	◇
2.1.3	School life expectancy, years	6.3	125	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	36.5	128	
2.2	**Tertiary education**	**7.8**	**120**	
2.2.1	Tertiary enrolment, % gross	4.6	130	
2.2.2	Graduates in science and engineering, %	12.3	112	◇
2.2.3	Tertiary inbound mobility, %	5.4	49	●
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**15.4**	**136**	◇
3.1	**Information and communication technology (ICT)**	**22.4**	**134**	
3.1.1	ICT access*	28.1	134	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government online service*	16.8	135	
3.2	**General infrastructure**	**17.9**	**117**	
3.2.1	Electricity output, GWh/mn pop.	29.8	129	○◇
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	23.4	72	●
3.3	**Ecological sustainability**	**5.8**	**134**	◇
3.3.1	GDP/unit of energy use	8.3	95	◆
3.3.2	Low-carbon energy use, %	1.2	126	◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.1	137	◇
Market sophistication		**14.4**	**134**	◇
4.1	**Credit**	**1.5**	**137**	◇
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	11.0	130	◇
4.1.3	Loans from microfinance institutions, % GDP	0.2	55	
4.2	**Investment**	**1.2**	**[111]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	98	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	95	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	109	
4.3	**Trade, diversification and market scale**	**40.5**	**123**	
4.3.1	Applied tariff rate, weighted avg., %	8.0	118	
4.3.2	Domestic industry diversification	46.2	106	
4.3.3	Domestic market scale, bn PPP$	55.5	116	

		Score/ Value	Rank	
Business sophistication		**20.6**	**[125]**	
5.1	**Knowledge workers**	**33.5**	**[78]**	
5.1.1	Knowledge-intensive employment, %	2.0	122	○◇
5.1.2	Females employed w/advanced degrees, %	0.3	124	◇
5.1.3	Youth demographic dividend, %	66.9	1	●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**2.0**	**[137]**	
5.2.1	Public research–industry co-publications, %	0.6	118	
5.2.2	University–industry R&D collaboration†	n/a	n/a	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	n/a	n/a	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**26.3**	**72**	●
5.3.1	Intellectual property payments, % total trade	0.0	131	○◇
5.3.2	High-tech imports, % total trade	10.7	34	●◆
5.3.3	ICT services imports, % total trade	1.5	66	●
5.3.4	FDI net inflows, % GDP	5.4	26	●
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**11.3**	**109**	
6.1	**Knowledge creation**	**2.2**	**128**	◇
6.1.1	Patents by origin/bn PPP$ GDP	0.2	101	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP	2.4	125	◇
6.1.5	Citable documents H-index	3.0	125	
6.2	**Knowledge impact**	**20.0**	**94**	
6.2.1	Labor productivity growth, %	1.8	38	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	127	
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**11.8**	**94**	
6.3.1	Intellectual property receipts, % total trade	0.0	122	
6.3.2	Production and export complexity	39.2	87	◆
6.3.3	High-tech exports, % total trade	0.1	128	
6.3.4	ICT services exports, % total trade	2.7	51	●
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.1	138	◇
Creative outputs		**2.0**	**[139]**	
7.1	**Intangible assets**	**0.5**	**[137]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	0.7	134	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.0	127	
7.2	**Creative goods and services**	**6.9**	**[85]**	
7.2.1	Cultural and creative services exports, % total trade	0.6	48	●
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	137	
7.3	**Online creativity**	**0.2**	**138**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.3	118	◆
7.3.2	GitHub commits/mn pop. 15–69	0.0	137	○◇
7.3.3	Mobile app creation/bn PPP$ GDP	n/a	n/a	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Nigeria

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
80	127	Lower middle	SSA	232.7	1,489.8	6,543

		Score/ Value	Rank	
Institutions		**26.7**	**126**	
1.1	**Institutional environment**	**22.4**	**130**	◇
1.1.1	Operational stability for businesses*	22.7	130	○◇
1.1.2	Government effectiveness*	22.2	120	
1.2	**Regulatory environment**	**27.9**	**124**	
1.2.1	Regulatory quality*	25.1	124	
1.2.2	Rule of law*	30.7	116	
1.3	**Business environment**	**29.6**	**[99]**	
1.3.1	Policy stability for doing business†	29.6	104	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**14.8**	**[125]**	
2.1	**Education**	**38.1**	**[113]**	
2.1.1	Expenditure on education, % GDP ⏲	0.3	136	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	15.3	83	
2.2	**Tertiary education**	**5.3**	**[124]**	
2.2.1	Tertiary enrolment, % gross ⏲	11.3	113	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**1.1**	**103**	
2.3.1	Researchers, FTE/mn pop. ⏲	22.1	105	○
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.3	77	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**25.3**	**126**	◇
3.1	**Information and communication technology (ICT)**	**44.8**	**118**	
3.1.1	ICT access*	51.6	115	
3.1.2	ICT use*	38.5	117	◇
3.1.3	Government online service*	44.3	99	
3.2	**General infrastructure**	**19.0**	**114**	
3.2.1	Electricity output, GWh/mn pop.	189.7	121	
3.2.2	Logistics performance*	22.7	82	
3.2.3	Gross capital formation, % GDP	22.7	82	
3.3	**Ecological sustainability**	**12.2**	**105**	
3.3.1	GDP/unit of energy use	14.4	36	●
3.3.2	Low-carbon energy use, %	3.6	117	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.1	128	
Market sophistication		**17.4**	**128**	◇
4.1	**Credit**	**3.6**	**131**	○
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP ⏲	13.0	127	○
4.1.3	Loans from microfinance institutions, % GDP ⏲	0.5	46	
4.2	**Investment**	**5.6**	**67**	
4.2.1	Market capitalization, % GDP	22.0	58	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	55	●
4.2.3	Late-stage VC deal count, % global VC	0.1	36	●
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	62	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	57	
4.3	**Trade, diversification and market scale**	**43.1**	**121**	
4.3.1	Applied tariff rate, weighted avg., %	10.7	130	◇
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	1,489.8	26	●◆

		Score/ Value	Rank	
Business sophistication		**31.5**	**55**	●◆
5.1	**Knowledge workers**	**50.8**	**[27]**	
5.1.1	Knowledge-intensive employment, % ⏲	38.1	35	●◆
5.1.2	Females employed w/advanced degrees, % ⏲	2.8	103	
5.1.3	Youth demographic dividend, %	61.4	13	●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**12.1**	**123**	
5.2.1	Public research–industry co-publications, %	0.9	94	
5.2.2	University–industry R&D collaboration†	10.1	128	○◇
5.2.3	University industry and international engagement, top 5*	14.9	77	
5.2.4	State of cluster development†	27.6	113	
5.2.5	Patent families/bn PPP$ GDP	0.0	98	
5.3	**Knowledge absorption**	**31.6**	**48**	●◆
5.3.1	Intellectual property payments, % total trade	0.4	79	
5.3.2	High-tech imports, % total trade	20.3	8	●◆
5.3.3	ICT services imports, % total trade	0.8	98	
5.3.4	FDI net inflows, % GDP	0.4	121	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**19.8**	**76**	
6.1	**Knowledge creation**	**7.2**	**98**	
6.1.1	Patents by origin/bn PPP$ GDP ⏲	0.4	82	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	105	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	3.8	114	
6.1.5	Citable documents H-index	14.4	60	●
6.2	**Knowledge impact**	**49.0**	**10**	●◆
6.2.1	Labor productivity growth, %	−1.4	123	
6.2.2	Unicorn valuation, % GDP	5.8	1	●◆
6.2.3	Software spending, % GDP	0.2	63	●
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**3.0**	**134**	○◇
6.3.1	Intellectual property receipts, % total trade	0.0	127	○◇
6.3.2	Production and export complexity	10.5	127	○◇
6.3.3	High-tech exports, % total trade	0.1	127	
6.3.4	ICT services exports, % total trade	0.3	118	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.7	117	
Creative outputs		**18.3**	**83**	
7.1	**Intangible assets**	**25.4**	**65**	
7.1.1	Intangible asset intensity, top 15, %	49.7	50	
7.1.2	Trademarks by origin/bn PPP$ GDP ⏲	10.1	113	
7.1.3	Global brand value, top 5,000, % GDP	1.1	57	
7.1.4	Industrial designs by origin/bn PPP$ GDP ⏲	0.9	67	
7.2	**Creative goods and services**	**1.1**	**124**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	0.4	85	
7.2.3	Entertainment and media market/th pop. 15–69	1.3	56	
7.2.4	Creative goods exports, % total trade	0.0	138	○◇
7.3	**Online creativity**	**21.0**	**94**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.5	110	
7.3.2	GitHub commits/mn pop. 15–69	2.7	103	
7.3.3	Mobile app creation/bn PPP$ GDP	60.0	84	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

North Macedonia

GII 2025 rank **63**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
65	65	Upper middle	EUR	1.8	49.3	26,912

		Score/ Value	Rank	
Institutions		**47.0**	**78**	
1.1	**Institutional environment**	**54.2**	**68**	
1.1.1	Operational stability for businesses*	66.7	53	
1.1.2	Government effectiveness*	41.8	77	
1.2	**Regulatory environment**	**52.4**	**63**	
1.2.1	Regulatory quality*	56.6	52	
1.2.2	Rule of law*	48.2	78	
1.3	**Business environment**	**34.3**	**90**	
1.3.1	Policy stability for doing business†	34.9	93	
1.3.2	Entrepreneurship policies and culture† ⏲	33.7	53	
Human capital and research		**30.4**	**71**	
2.1	**Education**	**56.4**	**[52]**	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years ⏲	14.8	58	
2.1.4	PISA scales in reading, maths and science	375.7	73	
2.1.5	Pupil–teacher ratio, secondary ⏲	8.0	7	●◆
2.2	**Tertiary education**	**31.1**	**64**	
2.2.1	Tertiary enrolment, % gross ⏲	53.2	71	
2.2.2	Graduates in science and engineering, %	22.8	64	
2.2.3	Tertiary inbound mobility, % ⏲	8.4	38	◆
2.3	**Research and development (R&D)**	**3.7**	**83**	
2.3.1	Researchers, FTE/mn pop.	922.5	55	
2.3.2	Gross expenditure on R&D, % GDP	0.4	67	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**47.5**	**53**	
3.1	**Information and communication technology (ICT)**	**75.2**	**72**	
3.1.1	ICT access*	90.2	55	
3.1.2	ICT use*	75.9	74	
3.1.3	Government online service*	59.6	80	
3.2	**General infrastructure**	**29.5**	**84**	
3.2.1	Electricity output, GWh/mn pop.	3,331.7	62	
3.2.2	Logistics performance*	45.5	56	
3.2.3	Gross capital formation, % GDP	n/a	n/a	
3.3	**Ecological sustainability**	**37.8**	**24**	●◆
3.3.1	GDP/unit of energy use	12.4	53	
3.3.2	Low-carbon energy use, %	17.5	75	
3.3.3	ISO 14001 environment/bn PPP$ GDP	7.8	8	●◆
Market sophistication		**35.6**	**69**	
4.1	**Credit**	**34.7**	**49**	
4.1.1	Finance for startups and scaleups† ⏲	50.9	47	
4.1.2	Domestic credit to private sector, % GDP	52.3	61	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**1.9**	**100**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	67	
4.2.3	Late-stage VC deal count, % global VC	0.0	91	○
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	101	○
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	99	○
4.3	**Trade, diversification and market scale**	**70.3**	**63**	
4.3.1	Applied tariff rate, weighted avg., %	1.5	52	
4.3.2	Domestic industry diversification ⏲	85.9	54	
4.3.3	Domestic market scale, bn PPP$	49.3	122	○◇

		Score/ Value	Rank	
Business sophistication		**26.9**	**80**	
5.1	**Knowledge workers**	**32.1**	**87**	
5.1.1	Knowledge-intensive employment, %	34.2	43	◆
5.1.2	Females employed w/advanced degrees, %	17.6	44	
5.1.3	Youth demographic dividend, %	28.0	101	◇
5.1.4	GERD performed by business, % GDP ⏲	0.1	59	
5.1.5	GERD financed by business, %	25.9	63	
5.2	**Innovation linkages**	**17.4**	**102**	
5.2.1	Public research–industry co-publications, %	1.0	88	
5.2.2	University–industry R&D collaboration†	28.7	89	
5.2.3	University industry and international engagement, top 5*	14.2	80	
5.2.4	State of cluster development†	34.9	95	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**31.3**	**51**	
5.3.1	Intellectual property payments, % total trade	1.4	26	●
5.3.2	High-tech imports, % total trade	7.9	73	
5.3.3	ICT services imports, % total trade	1.6	58	
5.3.4	FDI net inflows, % GDP	5.1	31	●
5.3.5	Research talent, % in businesses ⏲	27.9	48	
Knowledge and technology outputs		**24.7**	**52**	
6.1	**Knowledge creation**	**9.5**	**85**	
6.1.1	Patents by origin/bn PPP$ GDP	0.5	73	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	61	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	9.2	74	
6.1.5	Citable documents H-index	6.6	92	
6.2	**Knowledge impact**	**35.0**	**36**	◆
6.2.1	Labor productivity growth, %	2.9	16	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	85	
6.2.4	High-tech manufacturing, % ⏲	49.4	10	●◆
6.3	**Knowledge diffusion**	**29.6**	**44**	
6.3.1	Intellectual property receipts, % total trade	0.1	51	
6.3.2	Production and export complexity	55.0	48	
6.3.3	High-tech exports, % total trade	3.3	49	
6.3.4	ICT services exports, % total trade	5.1	23	●
6.3.5	ISO 9001 quality/bn PPP$ GDP	11.2	21	●
Creative outputs		**19.5**	**78**	
7.1	**Intangible assets**	**12.2**	**96**	
7.1.1	Intangible asset intensity, top 15, % ⏲	−26.7	76	○◇
7.1.2	Trademarks by origin/bn PPP$ GDP	33.3	56	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.6	81	
7.2	**Creative goods and services**	**24.8**	**47**	
7.2.1	Cultural and creative services exports, % total trade	1.4	20	●◆
7.2.2	National feature films/mn pop. 15–69	9.1	11	●◆
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	87	
7.3	**Online creativity**	**28.9**	**57**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	8.6	50	
7.3.2	GitHub commits/mn pop. 15–69	12.3	56	
7.3.3	Mobile app creation/bn PPP$ GDP	65.7	67	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Norway

20

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
26	11	High	EUR	5.6	576.2	103,446

		Score/ Value	Rank	
Institutions		**80.3**	**9**	
1.1	**Institutional environment**	**88.3**	**6**	●
1.1.1	Operational stability for businesses*	89.3	5	●◆
1.1.2	Government effectiveness*	87.3	5	●
1.2	**Regulatory environment**	**90.2**	**8**	
1.2.1	Regulatory quality*	83.6	13	
1.2.2	Rule of law*	96.8	3	●
1.3	**Business environment**	**62.4**	**31**	
1.3.1	Policy stability for doing business†	66.4	30	
1.3.2	Entrepreneurship policies and culture†	58.5	20	
Human capital and research		**49.7**	**22**	
2.1	**Education**	**63.0**	**25**	
2.1.1	Expenditure on education, % GDP	4.0	78	○
2.1.2	Government funding/pupil, secondary, % GDP/cap	23.6	26	
2.1.3	School life expectancy, years	18.6	11	
2.1.4	PISA scales in reading, maths and science	474.4	33	
2.1.5	Pupil–teacher ratio, secondary	8.0	8	◆
2.2	**Tertiary education**	**35.2**	**48**	
2.2.1	Tertiary enrolment, % gross	95.1	11	
2.2.2	Graduates in science and engineering, %	21.6	71	○
2.2.3	Tertiary inbound mobility, %	4.5	56	○
2.3	**Research and development (R&D)**	**50.8**	**19**	
2.3.1	Researchers, FTE/mn pop.	7,428.1	6	
2.3.2	Gross expenditure on R&D, % GDP	1.9	18	
2.3.3	Global corporate R&D investors, top 3, mn USD	57.7	27	
2.3.4	QS university ranking, top 3*	45.2	29	
Infrastructure		**68.8**	**1**	●◆
3.1	**Information and communication technology (ICT)**	**90.9**	**19**	
3.1.1	ICT access*	98.5	20	
3.1.2	ICT use*	84.9	35	
3.1.3	Government online service*	89.4	18	
3.2	**General infrastructure**	**70.4**	**3**	●◆
3.2.1	Electricity output, GWh/mn pop.	27,734.7	1	●◆
3.2.2	Logistics performance*	72.7	18	
3.2.3	Gross capital formation, % GDP	24.3	60	
3.3	**Ecological sustainability**	**45.2**	**8**	◆
3.3.1	GDP/unit of energy use	13.8	43	
3.3.2	Low-carbon energy use, %	71.1	4	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.4	40	
Market sophistication		**52.1**	**21**	
4.1	**Credit**	**55.7**	**21**	
4.1.1	Finance for startups and scaleups†	62.2	29	
4.1.2	Domestic credit to private sector, % GDP	126.8	14	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**22.1**	**28**	◇
4.2.1	Market capitalization, % GDP	68.2	27	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.4	18	
4.2.3	Late-stage VC deal count, % global VC	0.2	23	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.6	22	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.3	24	
4.3	**Trade, diversification and market scale**	**78.4**	**37**	
4.3.1	Applied tariff rate, weighted avg., %	1.6	56	
4.3.2	Domestic industry diversification	87.2	47	
4.3.3	Domestic market scale, bn PPP$	576.2	47	

		Score/ Value	Rank	
Business sophistication		**49.3**	**20**	
5.1	**Knowledge workers**	**54.6**	**21**	
5.1.1	Knowledge-intensive employment, %	51.9	9	
5.1.2	Females employed w/advanced degrees, %	29.1	7	
5.1.3	Youth demographic dividend, %	28.2	100	○
5.1.4	GERD performed by business, % GDP	1.1	24	
5.1.5	GERD financed by business, %	44.6	36	◇
5.2	**Innovation linkages**	**55.5**	**20**	
5.2.1	Public research–industry co-publications, %	3.2	24	
5.2.2	University–industry R&D collaboration†	73.1	3	●
5.2.3	University industry and international engagement, top 5*	56.8	31	◇
5.2.4	State of cluster development†	92.3	4	●◆
5.2.5	Patent families/bn PPP$ GDP	1.5	24	
5.3	**Knowledge absorption**	**37.9**	**31**	
5.3.1	Intellectual property payments, % total trade	0.3	87	○◇
5.3.2	High-tech imports, % total trade	6.3	95	○
5.3.3	ICT services imports, % total trade	4.2	7	●
5.3.4	FDI net inflows, % GDP	2.8	61	
5.3.5	Research talent, % in businesses	54.4	21	
Knowledge and technology outputs		**32.2**	**32**	◇
6.1	**Knowledge creation**	**41.0**	**21**	
6.1.1	Patents by origin/bn PPP$ GDP	2.7	23	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.2	20	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	26.5	21	
6.1.5	Citable documents H-index	42.3	21	
6.2	**Knowledge impact**	**34.9**	**37**	
6.2.1	Labor productivity growth, %	0.6	80	○
6.2.2	Unicorn valuation, % GDP	0.9	37	
6.2.3	Software spending, % GDP	0.6	11	
6.2.4	High-tech manufacturing, %	23.7	53	
6.3	**Knowledge diffusion**	**20.7**	**60**	◇
6.3.1	Intellectual property receipts, % total trade	0.2	44	◇
6.3.2	Production and export complexity	52.8	54	◇
6.3.3	High-tech exports, % total trade	3.4	47	
6.3.4	ICT services exports, % total trade	2.2	57	
6.3.5	ISO 9001 quality/bn PPP$ GDP	3.9	66	
Creative outputs		**44.7**	**22**	
7.1	**Intangible assets**	**37.7**	**42**	
7.1.1	Intangible asset intensity, top 15, %	66.5	19	
7.1.2	Trademarks by origin/bn PPP$ GDP	14.5	103	○
7.1.3	Global brand value, top 5,000, % GDP	8.8	20	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.8	69	○
7.2	**Creative goods and services**	**32.0**	**25**	
7.2.1	Cultural and creative services exports, % total trade	0.5	57	
7.2.2	National feature films/mn pop. 15–69	9.0	12	
7.2.3	Entertainment and media market/th pop. 15–69	68.8	3	●
7.2.4	Creative goods exports, % total trade	0.5	67	○
7.3	**Online creativity**	**71.2**	**8**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	61.7	12	
7.3.2	GitHub commits/mn pop. 15–69	80.7	7	●
7.3.3	Mobile app creation/bn PPP$ GDP	71.2	36	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Oman

GII 2025 rank

69

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
89	**55**	**High**	**NAWA**	**5.3**	**222.1**	**41,652**

		Score/ Value	Rank	
Institutions		**61.5**	**40**	
1.1	**Institutional environment**	**58.9**	**55**	
1.1.1	Operational stability for businesses*	68.0	47	
1.1.2	Government effectiveness*	49.8	56	◇
1.2	**Regulatory environment**	**61.9**	**44**	
1.2.1	Regulatory quality*	56.8	51	
1.2.2	Rule of law*	67.1	39	●
1.3	**Business environment**	**63.5**	**29**	●
1.3.1	Policy stability for doing business†	77.9	10	●◆
1.3.2	Entrepreneurship policies and culture†	49.1	34	
Human capital and research		**30.2**	**73**	◇
2.1	**Education**	**49.1**	**75**	◇
2.1.1	Expenditure on education, % GDP	4.2	67	
2.1.2	Government funding/pupil, secondary, % GDP/cap	16.5	61	
2.1.3	School life expectancy, years	13.0	86	◇
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	11.9	55	
2.2	**Tertiary education**	**35.7**	**46**	
2.2.1	Tertiary enrolment, % gross	43.8	81	◇
2.2.2	Graduates in science and engineering, %	33.3	12	●◆
2.2.3	Tertiary inbound mobility, %	2.7	71	
2.3	**Research and development (R&D)**	**5.7**	**75**	◇
2.3.1	Researchers, FTE/mn pop.	655.1	67	◇
2.3.2	Gross expenditure on R&D, % GDP	0.4	70	◇
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	10.8	69	
Infrastructure		**47.0**	**55**	
3.1	**Information and communication technology (ICT)**	**86.2**	**40**	
3.1.1	ICT access*	98.8	15	●
3.1.2	ICT use*	83.0	44	
3.1.3	Government online service*	76.9	48	
3.2	**General infrastructure**	**44.1**	**35**	●
3.2.1	Electricity output, GWh/mn pop.	9,338.4	16	●
3.2.2	Logistics performance*	54.5	42	
3.2.3	Gross capital formation, % GDP	24.5	54	
3.3	**Ecological sustainability**	**10.7**	**112**	◇
3.3.1	GDP/unit of energy use	6.0	112	○◇
3.3.2	Low-carbon energy use, %	1.0	127	○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.5	36	●
Market sophistication		**35.5**	**70**	◇
4.1	**Credit**	**36.8**	**43**	
4.1.1	Finance for startups and scaleups†	52.7	41	
4.1.2	Domestic credit to private sector, % GDP	58.3	54	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**3.2**	**83**	◇
4.2.1	Market capitalization, % GDP	21.1	60	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	106	○◇
4.2.3	Late-stage VC deal count, % global VC	0.0	90	○
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	65	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	67	◇
4.3	**Trade, diversification and market scale**	**66.7**	**78**	
4.3.1	Applied tariff rate, weighted avg., %	2.0	64	
4.3.2	Domestic industry diversification	64.1	88	◇
4.3.3	Domestic market scale, bn PPP$	222.1	76	

		Score/ Value	Rank	
Business sophistication		**29.2**	**63**	◇
5.1	**Knowledge workers**	**27.4**	**[105]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	38.0	64	◆
5.1.4	GERD performed by business, % GDP	0.1	61	◇
5.1.5	GERD financed by business, %	31.8	56	
5.2	**Innovation linkages**	**39.0**	**30**	●
5.2.1	Public research–industry co-publications, %	1.1	86	◇
5.2.2	University–industry R&D collaboration†	56.0	29	●
5.2.3	University industry and international engagement, top 5*	42.2	44	
5.2.4	State of cluster development†	87.3	9	●◆
5.2.5	Patent families/bn PPP$ GDP	0.0	89	
5.3	**Knowledge absorption**	**21.3**	**97**	◇
5.3.1	Intellectual property payments, % total trade	0.6	68	
5.3.2	High-tech imports, % total trade	5.5	113	
5.3.3	ICT services imports, % total trade	1.0	89	
5.3.4	FDI net inflows, % GDP	9.2	14	●
5.3.5	Research talent, % in businesses	0.3	82	○◇
Knowledge and technology outputs		**15.0**	**91**	◇
6.1	**Knowledge creation**	**12.0**	**76**	◇
6.1.1	Patents by origin/bn PPP$ GDP	1.5	38	●
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	94	◇
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	8.1	84	◇
6.1.5	Citable documents H-index	9.5	82	
6.2	**Knowledge impact**	**20.2**	**93**	◇
6.2.1	Labor productivity growth, %	0.4	84	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	116	○◇
6.2.4	High-tech manufacturing, %	26.1	49	
6.3	**Knowledge diffusion**	**12.9**	**90**	◇
6.3.1	Intellectual property receipts, % total trade	0.0	102	◇
6.3.2	Production and export complexity	39.0	88	◇
6.3.3	High-tech exports, % total trade	1.8	66	
6.3.4	ICT services exports, % total trade	0.4	109	
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.6	56	
Creative outputs		**18.2**	**85**	◇
7.1	**Intangible assets**	**21.4**	**75**	
7.1.1	Intangible asset intensity, top 15, %	31.2	67	○◇
7.1.2	Trademarks by origin/bn PPP$ GDP	33.5	55	
7.1.3	Global brand value, top 5,000, % GDP	1.9	47	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.0	121	○◇
7.2	**Creative goods and services**	**6.1**	**[91]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	7.2	42	◇
7.2.4	Creative goods exports, % total trade	0.4	71	
7.3	**Online creativity**	**24.0**	**75**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.1	100	◇
7.3.2	GitHub commits/mn pop. 15–69	3.1	97	◇
7.3.3	Mobile app creation/bn PPP$ GDP	68.0	56	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Pakistan

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
75	124	Lower middle	CSA	251.3	1,584.5	6,715

		Score/ Value	Rank	
Institutions		**26.1**	**127**	
1.1	**Institutional environment**	**27.4**	**124**	
1.1.1	Operational stability for businesses*	26.0	129	○ ◇
1.1.2	Government effectiveness*	28.9	104	
1.2	**Regulatory environment**	**28.7**	**121**	
1.2.1	Regulatory quality*	26.0	120	
1.2.2	Rule of law*	31.4	115	
1.3	**Business environment**	**22.2**	**120**	
1.3.1	Policy stability for doing business†	30.8	102	
1.3.2	Entrepreneurship policies and culture† ⏲	13.7	85	◇
Human capital and research		**15.8**	**123**	
2.1	**Education**	**32.8**	**125**	
2.1.1	Expenditure on education, % GDP	1.9	130	○
2.1.2	Government funding/pupil, secondary, % GDP/cap ⏲	15.4	66	
2.1.3	School life expectancy, years ⏲	7.5	122	○ ◇
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	11.7	52	● ◆
2.2	**Tertiary education**	**5.2**	**[125]**	
2.2.1	Tertiary enrolment, % gross	11.2	114	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**9.4**	**64**	
2.3.1	Researchers, FTE/mn pop.	473.7	75	
2.3.2	Gross expenditure on R&D, % GDP	0.2	92	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○ ◇
2.3.4	QS university ranking, top 3*	30.7	45	● ◆
Infrastructure		**26.5**	**123**	
3.1	**Information and communication technology (ICT)**	**57.0**	**105**	
3.1.1	ICT access*	42.2	128	○ ◇
3.1.2	ICT use*	64.5	97	
3.1.3	Government online service*	64.4	75	◆
3.2	**General infrastructure**	**5.5**	**137**	○ ◇
3.2.1	Electricity output, GWh/mn pop. ⏲	732.8	107	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	14.3	129	○ ◇
3.3	**Ecological sustainability**	**16.9**	**87**	
3.3.1	GDP/unit of energy use	11.2	64	
3.3.2	Low-carbon energy use, %	18.1	71	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.7	81	
Market sophistication		**28.1**	**101**	
4.1	**Credit**	**13.6**	**109**	
4.1.1	Finance for startups and scaleups† ⏲	32.4	75	◇
4.1.2	Domestic credit to private sector, % GDP	12.0	129	○
4.1.3	Loans from microfinance institutions, % GDP	0.6	40	
4.2	**Investment**	**1.8**	**101**	
4.2.1	Market capitalization, % GDP	12.3	71	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	90	
4.2.3	Late-stage VC deal count, % global VC	0.0	58	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	99	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	102	
4.3	**Trade, diversification and market scale**	**68.9**	**65**	
4.3.1	Applied tariff rate, weighted avg., %	6.6	112	
4.3.2	Domestic industry diversification ⏲	87.9	45	
4.3.3	Domestic market scale, bn PPP$	1,584.5	25	● ◆

		Score/ Value	Rank	
Business sophistication		**25.2**	**94**	
5.1	**Knowledge workers**	**32.9**	**[83]**	
5.1.1	Knowledge-intensive employment, % ⏲	11.4	97	
5.1.2	Females employed w/advanced degrees, % ⏲	2.0	108	
5.1.3	Youth demographic dividend, %	56.2	25	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**21.1**	**86**	
5.2.1	Public research–industry co-publications, %	0.6	122	
5.2.2	University–industry R&D collaboration†	27.0	95	
5.2.3	University industry and international engagement, top 5*	30.4	56	
5.2.4	State of cluster development†	44.0	73	
5.2.5	Patent families/bn PPP$ GDP	0.0	91	
5.3	**Knowledge absorption**	**21.6**	**95**	
5.3.1	Intellectual property payments, % total trade	0.3	88	
5.3.2	High-tech imports, % total trade	10.0	39	●
5.3.3	ICT services imports, % total trade	0.7	103	
5.3.4	FDI net inflows, % GDP	0.5	118	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**20.6**	**69**	
6.1	**Knowledge creation**	**19.1**	**[56]**	
6.1.1	Patents by origin/bn PPP$ GDP	0.3	90	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	14.4	51	●
6.1.5	Citable documents H-index	21.5	42	● ◆
6.2	**Knowledge impact**	**24.3**	**72**	
6.2.1	Labor productivity growth, %	0.1	94	
6.2.2	Unicorn valuation, % GDP	0.0	53	○ ◇
6.2.3	Software spending, % GDP	0.4	30	● ◆
6.2.4	High-tech manufacturing, % ⏲	21.5	59	
6.3	**Knowledge diffusion**	**18.3**	**69**	
6.3.1	Intellectual property receipts, % total trade	0.0	93	
6.3.2	Production and export complexity	37.2	91	
6.3.3	High-tech exports, % total trade	1.0	77	
6.3.4	ICT services exports, % total trade	5.9	18	● ◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.2	87	
Creative outputs		**19.0**	**80**	
7.1	**Intangible assets**	**24.2**	**69**	
7.1.1	Intangible asset intensity, top 15, %	48.8	51	
7.1.2	Trademarks by origin/bn PPP$ GDP	28.8	70	
7.1.3	Global brand value, top 5,000, % GDP	0.3	74	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.4	89	
7.2	**Creative goods and services**	**1.4**	**118**	
7.2.1	Cultural and creative services exports, % total trade	0.2	82	
7.2.2	National feature films/mn pop. 15–69	0.1	92	○
7.2.3	Entertainment and media market/th pop. 15–69	0.0	62	○ ◇
7.2.4	Creative goods exports, % total trade	0.1	103	
7.3	**Online creativity**	**26.2**	**63**	◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.4	116	
7.3.2	GitHub commits/mn pop. 15–69	2.6	105	
7.3.3	Mobile app creation/bn PPP$ GDP	75.6	17	● ◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Panama

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
77	**85**	**High**	**LCN**	**4.5**	**186.2**	**41,292**

		Score/ Value	Rank	
Institutions		**44.5**	**84**	◇
1.1	**Institutional environment**	**50.6**	**77**	◇
1.1.1	Operational stability for businesses*	63.3	66	
1.1.2	Government effectiveness*	37.9	84	◇
1.2	**Regulatory environment**	**46.7**	**74**	◇
1.2.1	Regulatory quality*	49.5	69	◇
1.2.2	Rule of law*	43.8	86	◇
1.3	**Business environment**	**36.2**	**87**	
1.3.1	Policy stability for doing business†	41.9	76	
1.3.2	Entrepreneurship policies and culture† ⏲	30.6	58	
Human capital and research		**19.1**	**110**	◇
2.1	**Education**	**38.8**	**109**	◇
2.1.1	Expenditure on education, % GDP	3.9	81	
2.1.2	Government funding/pupil, secondary, % GDP/cap ⏲	10.7	79	◇
2.1.3	School life expectancy, years ⏲	13.0	85	
2.1.4	PISA scales in reading, maths and science	378.8	71	◇
2.1.5	Pupil–teacher ratio, secondary ⏲	13.6	67	
2.2	**Tertiary education**	**17.3**	**103**	◇
2.2.1	Tertiary enrolment, % gross ⏲	57.8	56	
2.2.2	Graduates in science and engineering, %	13.0	110	○◇
2.2.3	Tertiary inbound mobility, % ⏲	3.0	69	
2.3	**Research and development (R&D)**	**1.2**	**102**	◇
2.3.1	Researchers, FTE/mn pop.	253.3	81	◇
2.3.2	Gross expenditure on R&D, % GDP	0.2	94	◇
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**49.1**	**48**	●
3.1	**Information and communication technology (ICT)**	**68.7**	**86**	◇
3.1.1	ICT access*	79.4	87	◇
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government online service*	58.0	83	◇
3.2	**General infrastructure**	**47.9**	**27**	●
3.2.1	Electricity output, GWh/mn pop.	2,879.2	69	
3.2.2	Logistics performance*	45.5	56	◇
3.2.3	Gross capital formation, % GDP	40.1	4	●◆
3.3	**Ecological sustainability**	**30.6**	**39**	●
3.3.1	GDP/unit of energy use	27.9	4	●◆
3.3.2	Low-carbon energy use, %	18.7	68	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.4	92	◇
Market sophistication		**31.4**	**91**	◇
4.1	**Credit**	**31.7**	**61**	
4.1.1	Finance for startups and scaleups† ⏲	25.1	84	○◇
4.1.2	Domestic credit to private sector, % GDP ⏲	100.2	22	●
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**5.0**	**71**	◇
4.2.1	Market capitalization, % GDP	22.6	57	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	56	
4.2.3	Late-stage VC deal count, % global VC	0.0	88	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	49	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	70	◇
4.3	**Trade, diversification and market scale**	**57.6**	**99**	◇
4.3.1	Applied tariff rate, weighted avg., %	2.9	76	
4.3.2	Domestic industry diversification	45.8	107	○◇
4.3.3	Domestic market scale, bn PPP$	186.2	79	

		Score/ Value	Rank	
Business sophistication		**18.3**	**132**	○◇
5.1	**Knowledge workers**	**23.1**	**124**	◇
5.1.1	Knowledge-intensive employment, % ⏲	23.2	65	◇
5.1.2	Females employed w/advanced degrees, % ⏲	11.0	71	◇
5.1.3	Youth demographic dividend, %	40.5	59	◆
5.1.4	GERD performed by business, % GDP ⏲	0.0	86	○◇
5.1.5	GERD financed by business, %	1.6	86	◇
5.2	**Innovation linkages**	**16.7**	**103**	◇
5.2.1	Public research–industry co-publications, %	1.9	49	●
5.2.2	University–industry R&D collaboration†	16.6	121	○◇
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	30.3	109	◇
5.2.5	Patent families/bn PPP$ GDP	0.0	74	
5.3	**Knowledge absorption**	**15.0**	**133**	○◇
5.3.1	Intellectual property payments, % total trade	0.0	121	◇
5.3.2	High-tech imports, % total trade	3.1	133	○◇
5.3.3	ICT services imports, % total trade	0.4	121	◇
5.3.4	FDI net inflows, % GDP	2.9	59	
5.3.5	Research talent, % in businesses ⏲	13.2	57	◇
Knowledge and technology outputs		**15.5**	**90**	◇
6.1	**Knowledge creation**	**4.8**	**116**	◇
6.1.1	Patents by origin/bn PPP$ GDP ⏲	0.3	92	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	78	◇
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.0	69	
6.1.4	Scientific and technical articles/bn PPP$ GDP	3.1	120	◇
6.1.5	Citable documents H-index	11.4	71	
6.2	**Knowledge impact**	**22.3**	**81**	
6.2.1	Labor productivity growth, %	2.7	18	●◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	67	
6.2.4	High-tech manufacturing, %	5.3	101	◇
6.3	**Knowledge diffusion**	**19.4**	**65**	
6.3.1	Intellectual property receipts, % total trade	0.0	116	◇
6.3.2	Production and export complexity	45.7	68	◇
6.3.3	High-tech exports, % total trade ⏲	9.6	21	●
6.3.4	ICT services exports, % total trade	1.5	75	
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.4	79	
Creative outputs		**23.0**	**68**	◇
7.1	**Intangible assets**	**14.9**	**87**	◇
7.1.1	Intangible asset intensity, top 15, % ⏲	2.5	71	◇
7.1.2	Trademarks by origin/bn PPP$ GDP ⏲	35.6	54	●
7.1.3	Global brand value, top 5,000, % GDP	0.4	69	
7.1.4	Industrial designs by origin/bn PPP$ GDP ⏲	0.0	123	○◇
7.2	**Creative goods and services**	**32.3**	**[24]**	
7.2.1	Cultural and creative services exports, % total trade	0.2	79	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade ⏲	4.5	12	●◆
7.3	**Online creativity**	**30.2**	**53**	●◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	16.9	38	●
7.3.2	GitHub commits/mn pop. 15–69	3.7	92	◇
7.3.3	Mobile app creation/bn PPP$ GDP	69.9	46	●

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Paraguay

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
103	97	Upper middle	LCN	6.9	127.4	16,642

		Score/ Value	Rank	
Institutions		**39.6**	**94**	
1.1	**Institutional environment**	**45.2**	**89**	
1.1.1	Operational stability for businesses*	58.7	77	
1.1.2	Government effectiveness*	31.7	98	
1.2	**Regulatory environment**	**41.5**	**89**	
1.2.1	Regulatory quality*	44.9	77	
1.2.2	Rule of law*	38.1	105	
1.3	**Business environment**	**32.0**	**96**	
1.3.1	Policy stability for doing business†	45.8	70	●
1.3.2	Entrepreneurship policies and culture† ⏲	18.2	80	
Human capital and research		**17.3**	**119**	◇
2.1	**Education**	**33.9**	**121**	◇
2.1.1	Expenditure on education, % GDP	3.4	96	
2.1.2	Government funding/pupil, secondary, % GDP/cap	13.4	75	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science	359.7	80	
2.1.5	Pupil–teacher ratio, secondary ⏲	15.4	84	
2.2	**Tertiary education**	**n/a**	**[n/a]**	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**0.8**	**106**	
2.3.1	Researchers, FTE/mn pop. ⏲	133.2	88	◇
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.1	99	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**45.9**	**58**	●
3.1	**Information and communication technology (ICT)**	**65.3**	**92**	
3.1.1	ICT access*	68.4	98	◇
3.1.2	ICT use*	67.1	95	
3.1.3	Government online service*	60.4	79	
3.2	**General infrastructure**	**29.6**	**83**	
3.2.1	Electricity output, GWh/mn pop. ⏲	6,505.9	31	●◆
3.2.2	Logistics performance*	27.3	76	
3.2.3	Gross capital formation, % GDP	23.0	78	
3.3	**Ecological sustainability**	**42.7**	**13**	●◆
3.3.1	GDP/unit of energy use	12.6	50	●
3.3.2	Low-carbon energy use, %	81.4	2	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.4	96	
Market sophistication		**25.6**	**111**	
4.1	**Credit**	**15.2**	**103**	
4.1.1	Finance for startups and scaleups† ⏲	12.0	91	◇
4.1.2	Domestic credit to private sector, % GDP	52.6	60	●
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**0.7**	**119**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	123	○◇
4.2.3	Late-stage VC deal count, % global VC	0.0	102	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	82	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	101	
4.3	**Trade, diversification and market scale**	**60.9**	**94**	
4.3.1	Applied tariff rate, weighted avg., %	3.3	80	
4.3.2	Domestic industry diversification	62.3	95	◇
4.3.3	Domestic market scale, bn PPP$	127.4	88	

		Score/ Value	Rank	
Business sophistication		**23.1**	**104**	
5.1	**Knowledge workers**	**28.6**	**103**	
5.1.1	Knowledge-intensive employment, %	20.2	78	
5.1.2	Females employed w/advanced degrees, % ⏲	9.5	76	
5.1.3	Youth demographic dividend, %	45.0	45	●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	0.8	91	◇
5.2	**Innovation linkages**	**11.3**	**125**	◇
5.2.1	Public research–industry co-publications, %	1.2	79	
5.2.2	University–industry R&D collaboration†	8.9	130	◇
5.2.3	University industry and international engagement, top 5*	10.9	91	
5.2.4	State of cluster development†	25.0	118	
5.2.5	Patent families/bn PPP$ GDP	0.0	79	
5.3	**Knowledge absorption**	**29.4**	**57**	●
5.3.1	Intellectual property payments, % total trade	0.1	115	◇
5.3.2	High-tech imports, % total trade	22.0	5	●◆
5.3.3	ICT services imports, % total trade	0.0	139	○◇
5.3.4	FDI net inflows, % GDP	1.3	104	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**9.3**	**122**	◇
6.1	**Knowledge creation**	**2.3**	**126**	
6.1.1	Patents by origin/bn PPP$ GDP ⏲	0.1	120	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.1	57	
6.1.4	Scientific and technical articles/bn PPP$ GDP	1.8	130	◇
6.1.5	Citable documents H-index	3.5	120	
6.2	**Knowledge impact**	**14.5**	**123**	◇
6.2.1	Labor productivity growth, %	1.3	51	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	111	
6.2.4	High-tech manufacturing, %	1.7	111	○◇
6.3	**Knowledge diffusion**	**11.1**	**98**	
6.3.1	Intellectual property receipts, % total trade	0.0	127	○◇
6.3.2	Production and export complexity	39.0	89	
6.3.3	High-tech exports, % total trade	0.9	81	
6.3.4	ICT services exports, % total trade	0.1	138	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	3.9	64	●
Creative outputs		**15.5**	**93**	
7.1	**Intangible assets**	**20.5**	**79**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	119.0	4	●◆
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.1	116	
7.2	**Creative goods and services**	**0.5**	**[132]**	
7.2.1	Cultural and creative services exports, % total trade	0.0	120	○
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	101	
7.3	**Online creativity**	**20.6**	**97**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.9	88	
7.3.2	GitHub commits/mn pop. 15–69	3.1	96	
7.3.3	Mobile app creation/bn PPP$ GDP	56.8	91	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Peru

GII 2025 rank

80

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
91	**72**	**Upper middle**	**LCN**	**34.2**	**605.6**	**17,775**

		Score/ Value	Rank	
Institutions		**39.8**	**93**	
1.1	**Institutional environment**	**45.5**	**88**	
1.1.1	Operational stability for businesses*	60.0	73	
1.1.2	Government effectiveness*	31.0	100	
1.2	**Regulatory environment**	**46.3**	**75**	
1.2.1	Regulatory quality*	53.5	59	
1.2.2	Rule of law*	39.2	103	
1.3	**Business environment**	**27.5**	**107**	
1.3.1	Policy stability for doing business†	31.2	100	
1.3.2	Entrepreneurship policies and culture†	23.9	71	
Human capital and research		**39.0**	**42**	● ◆
2.1	**Education**	**45.7**	**87**	
2.1.1	Expenditure on education, % GDP	4.2	66	
2.1.2	Government funding/pupil, secondary, % GDP/cap	16.1	64	
2.1.3	School life expectancy, years	14.8	56	
2.1.4	PISA scales in reading, maths and science	402.4	62	
2.1.5	Pupil–teacher ratio, secondary	14.6	76	
2.2	**Tertiary education**	**52.7**	**8**	● ◆
2.2.1	Tertiary enrolment, % gross	71.2	44	
2.2.2	Graduates in science and engineering, %	29.6	23	●
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**18.4**	**49**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.2	93	○
2.3.3	Global corporate R&D investors, top 3, mn USD	37.4	43	●
2.3.4	QS university ranking, top 3*	15.3	62	
Infrastructure		**41.9**	**68**	
3.1	**Information and communication technology (ICT)**	**73.8**	**75**	
3.1.1	ICT access*	63.6	104	◇
3.1.2	ICT use*	77.3	72	
3.1.3	Government online service*	80.5	40	●
3.2	**General infrastructure**	**23.0**	**97**	
3.2.1	Electricity output, GWh/mn pop.	1,755.7	89	
3.2.2	Logistics performance*	40.9	60	
3.2.3	Gross capital formation, % GDP	18.5	111	○
3.3	**Ecological sustainability**	**29.0**	**42**	●
3.3.1	GDP/unit of energy use	15.2	34	●
3.3.2	Low-carbon energy use, %	25.1	50	
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.8	34	●
Market sophistication		**40.5**	**51**	
4.1	**Credit**	**37.7**	**40**	●
4.1.1	Finance for startups and scaleups†	36.5	66	
4.1.2	Domestic credit to private sector, % GDP	45.6	74	
4.1.3	Loans from microfinance institutions, % GDP	5.8	5	● ◆
4.2	**Investment**	**3.7**	**79**	
4.2.1	Market capitalization, % GDP	35.5	44	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	92	
4.2.3	Late-stage VC deal count, % global VC	0.0	64	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	84	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	86	
4.3	**Trade, diversification and market scale**	**80.3**	**28**	●
4.3.1	Applied tariff rate, weighted avg., %	0.6	7	●
4.3.2	Domestic industry diversification	84.8	57	
4.3.3	Domestic market scale, bn PPP$	605.6	46	

		Score/ Value	Rank	
Business sophistication		**21.3**	**120**	○
5.1	**Knowledge workers**	**22.9**	**125**	○ ◇
5.1.1	Knowledge-intensive employment, %	15.8	86	
5.1.2	Females employed w/advanced degrees, %	7.6	85	
5.1.3	Youth demographic dividend, %	40.1	62	
5.1.4	GERD performed by business, % GDP	0.0	71	○
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**12.9**	**119**	○
5.2.1	Public research–industry co-publications, %	0.9	96	
5.2.2	University–industry R&D collaboration†	18.8	112	○
5.2.3	University industry and international engagement, top 5*	7.8	96	○
5.2.4	State of cluster development†	29.2	110	○
5.2.5	Patent families/bn PPP$ GDP	0.0	70	
5.3	**Knowledge absorption**	**28.1**	**66**	
5.3.1	Intellectual property payments, % total trade	0.8	49	
5.3.2	High-tech imports, % total trade	7.5	80	
5.3.3	ICT services imports, % total trade	2.1	38	●
5.3.4	FDI net inflows, % GDP	3.1	57	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**13.7**	**95**	
6.1	**Knowledge creation**	**12.6**	**74**	
6.1.1	Patents by origin/bn PPP$ GDP	0.3	84	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	67	
6.1.3	Utility models by origin/bn PPP$ GDP	1.1	15	●
6.1.4	Scientific and technical articles/bn PPP$ GDP	4.4	111	○
6.1.5	Citable documents H-index	14.4	60	
6.2	**Knowledge impact**	**18.2**	**107**	
6.2.1	Labor productivity growth, %	0.0	99	
6.2.2	Unicorn valuation, % GDP	0.0	53	○ ◇
6.2.3	Software spending, % GDP	0.2	66	
6.2.4	High-tech manufacturing, %	11.3	82	
6.3	**Knowledge diffusion**	**10.3**	**105**	
6.3.1	Intellectual property receipts, % total trade	0.1	79	
6.3.2	Production and export complexity	29.5	110	○ ◇
6.3.3	High-tech exports, % total trade	0.4	100	
6.3.4	ICT services exports, % total trade	0.2	127	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.9	51	
Creative outputs		**19.2**	**79**	
7.1	**Intangible assets**	**24.4**	**68**	
7.1.1	Intangible asset intensity, top 15, %	37.9	61	
7.1.2	Trademarks by origin/bn PPP$ GDP	52.1	29	●
7.1.3	Global brand value, top 5,000, % GDP	0.5	66	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.2	105	
7.2	**Creative goods and services**	**4.6**	**102**	
7.2.1	Cultural and creative services exports, % total trade	0.1	88	
7.2.2	National feature films/mn pop. 15–69	1.2	69	
7.2.3	Entertainment and media market/th pop. 15–69	7.0	43	
7.2.4	Creative goods exports, % total trade	0.2	80	
7.3	**Online creativity**	**23.4**	**79**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	3.5	72	
7.3.2	GitHub commits/mn pop. 15–69	7.3	66	
7.3.3	Mobile app creation/bn PPP$ GDP	59.5	87	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Philippines

50

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
49	59	Lower middle	SEAO	115.8	1,367.0	12,080

		Score/ Value	Rank	
Institutions		**51.9**	**61**	◆
1.1	**Institutional environment**	**53.4**	**72**	◆
1.1.1	Operational stability for businesses*	60.0	73	
1.1.2	Government effectiveness*	46.8	62	◆
1.2	**Regulatory environment**	**46.3**	**76**	◆
1.2.1	Regulatory quality*	50.5	65	◆
1.2.2	Rule of law*	42.1	91	
1.3	**Business environment**	**56.1**	**45**	
1.3.1	Policy stability for doing business†	62.8	39	◆
1.3.2	Entrepreneurship policies and culture† ⏲	49.4	31	
Human capital and research		**24.7**	**90**	
2.1	**Education**	**32.8**	**124**	○
2.1.1	Expenditure on education, % GDP	3.6	92	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years ⏲	12.3	95	
2.1.4	PISA scales in reading, maths and science	352.5	83	○
2.1.5	Pupil–teacher ratio, secondary ⏲	26.3	118	○
2.2	**Tertiary education**	**33.3**	**58**	◆
2.2.1	Tertiary enrolment, % gross	44.2	79	◆
2.2.2	Graduates in science and engineering, %	22.6	66	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**8.2**	**69**	
2.3.1	Researchers, FTE/mn pop. ⏲	170.2	86	○
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.3	74	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	26.0	49	◆
Infrastructure		**42.4**	**65**	◆
3.1	**Information and communication technology (ICT)**	**77.5**	**63**	◆
3.1.1	ICT access*	86.3	65	◆
3.1.2	ICT use*	69.7	89	
3.1.3	Government online service*	76.6	49	◆
3.2	**General infrastructure**	**31.7**	**76**	
3.2.1	Electricity output, GWh/mn pop. ⏲	965.0	99	○
3.2.2	Logistics performance*	54.5	42	◆
3.2.3	Gross capital formation, % GDP	23.7	67	
3.3	**Ecological sustainability**	**18.1**	**81**	
3.3.1	GDP/unit of energy use	15.6	31	
3.3.2	Low-carbon energy use, %	11.1	89	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.8	75	
Market sophistication		**40.0**	**53**	◆
4.1	**Credit**	**31.6**	**62**	
4.1.1	Finance for startups and scaleups† ⏲	78.0	13	
4.1.2	Domestic credit to private sector, % GDP	48.3	69	
4.1.3	Loans from microfinance institutions, % GDP	0.0	60	○
4.2	**Investment**	**6.6**	**63**	
4.2.1	Market capitalization, % GDP	68.9	26	◆
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	87	
4.2.3	Late-stage VC deal count, % global VC	0.0	50	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	69	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	78	
4.3	**Trade, diversification and market scale**	**81.7**	**22**	●◆
4.3.1	Applied tariff rate, weighted avg., %	1.7	60	◆
4.3.2	Domestic industry diversification	89.5	41	
4.3.3	Domestic market scale, bn PPP$	1,367.0	29	●◆

		Score/ Value	Rank	
Business sophistication		**36.4**	**40**	◆
5.1	**Knowledge workers**	**33.7**	**76**	
5.1.1	Knowledge-intensive employment, % ⏲	14.2	88	
5.1.2	Females employed w/advanced degrees, % ⏲	13.7	59	◆
5.1.3	Youth demographic dividend, %	46.1	43	
5.1.4	GERD performed by business, % GDP ⏲	0.1	64	
5.1.5	GERD financed by business, % ⏲	38.0	50	
5.2	**Innovation linkages**	**32.3**	**49**	◆
5.2.1	Public research–industry co-publications, %	2.1	40	◆
5.2.2	University–industry R&D collaboration†	57.6	23	●◆
5.2.3	University industry and international engagement, top 5*	7.8	96	○◇
5.2.4	State of cluster development†	74.2	27	●◆
5.2.5	Patent families/bn PPP$ GDP	0.0	82	
5.3	**Knowledge absorption**	**43.3**	**15**	●◆
5.3.1	Intellectual property payments, % total trade	0.5	74	
5.3.2	High-tech imports, % total trade	23.3	4	●◆
5.3.3	ICT services imports, % total trade	1.5	64	
5.3.4	FDI net inflows, % GDP	2.5	71	
5.3.5	Research talent, % in businesses ⏲	51.8	23	
Knowledge and technology outputs		**29.6**	**38**	◆
6.1	**Knowledge creation**	**15.0**	**66**	
6.1.1	Patents by origin/bn PPP$ GDP	0.6	68	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	89	
6.1.3	Utility models by origin/bn PPP$ GDP	1.6	7	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	1.8	128	○
6.1.5	Citable documents H-index	14.9	56	
6.2	**Knowledge impact**	**30.1**	**50**	
6.2.1	Labor productivity growth, %	0.3	90	
6.2.2	Unicorn valuation, % GDP	0.2	50	
6.2.3	Software spending, % GDP	0.3	50	
6.2.4	High-tech manufacturing, %	41.2	20	●◆
6.3	**Knowledge diffusion**	**43.8**	**22**	●◆
6.3.1	Intellectual property receipts, % total trade	0.0	95	
6.3.2	Production and export complexity	66.6	34	◆
6.3.3	High-tech exports, % total trade	29.5	1	●◆
6.3.4	ICT services exports, % total trade	5.6	20	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	3.1	72	
Creative outputs		**26.5**	**61**	◆
7.1	**Intangible assets**	**33.7**	**51**	◆
7.1.1	Intangible asset intensity, top 15, %	59.8	35	
7.1.2	Trademarks by origin/bn PPP$ GDP	29.1	66	
7.1.3	Global brand value, top 5,000, % GDP	5.4	33	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.7	73	
7.2	**Creative goods and services**	**14.2**	**62**	
7.2.1	Cultural and creative services exports, % total trade	0.1	100	○
7.2.2	National feature films/mn pop. 15–69	1.8	61	
7.2.3	Entertainment and media market/th pop. 15–69	4.3	46	◆
7.2.4	Creative goods exports, % total trade	3.1	16	●◆
7.3	**Online creativity**	**24.5**	**70**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.8	106	○
7.3.2	GitHub commits/mn pop. 15–69	5.0	80	
7.3.3	Mobile app creation/bn PPP$ GDP	67.7	59	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Poland

GII 2025 rank

39

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
36	**45**	**High**	**EUR**	**38.5**	**1,890.7**	**51,629**

		Score/ Value	Rank	
Institutions		**49.7**	**68**	◇
1.1	**Institutional environment**	**60.7**	**50**	
1.1.1	Operational stability for businesses*	68.0	47	
1.1.2	Government effectiveness*	53.4	49	
1.2	**Regulatory environment**	**64.1**	**40**	
1.2.1	Regulatory quality*	64.7	35	
1.2.2	Rule of law*	63.4	43	
1.3	**Business environment**	**24.2**	**113**	○◇
1.3.1	Policy stability for doing business†	27.5	109	○◇
1.3.2	Entrepreneurship policies and culture†	20.9	73	○◇
Human capital and research		**38.6**	**43**	
2.1	**Education**	**60.9**	**37**	
2.1.1	Expenditure on education, % GDP	4.6	53	◴
2.1.2	Government funding/pupil, secondary, % GDP/cap	19.7	47	
2.1.3	School life expectancy, years	17.0	21	●
2.1.4	PISA scales in reading, maths and science	492.3	14	●
2.1.5	Pupil–teacher ratio, secondary	10.1	35	
2.2	**Tertiary education**	**30.9**	**65**	
2.2.1	Tertiary enrolment, % gross	76.9	30	
2.2.2	Graduates in science and engineering, %	19.4	87	○
2.2.3	Tertiary inbound mobility, %	6.6	47	
2.3	**Research and development (R&D)**	**23.8**	**44**	
2.3.1	Researchers, FTE/mn pop.	3,881.1	28	
2.3.2	Gross expenditure on R&D, % GDP	1.6	26	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	33.5	42	
Infrastructure		**48.1**	**51**	
3.1	**Information and communication technology (ICT)**	**88.2**	**33**	
3.1.1	ICT access*	96.1	35	
3.1.2	ICT use*	92.2	15	●
3.1.3	Government online service*	76.4	50	
3.2	**General infrastructure**	**36.4**	**53**	
3.2.1	Electricity output, GWh/mn pop.	4,378.5	51	
3.2.2	Logistics performance*	68.2	25	
3.2.3	Gross capital formation, % GDP	19.2	108	○◇
3.3	**Ecological sustainability**	**19.6**	**73**	
3.3.1	GDP/unit of energy use	13.8	42	
3.3.2	Low-carbon energy use, %	10.9	91	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.9	51	
Market sophistication		**37.7**	**64**	
4.1	**Credit**	**20.4**	**89**	◇
4.1.1	Finance for startups and scaleups†	47.6	51	
4.1.2	Domestic credit to private sector, % GDP	34.8	85	◇
4.1.3	Loans from microfinance institutions, % GDP	0.2	54	○
4.2	**Investment**	**6.9**	**60**	
4.2.1	Market capitalization, % GDP	26.4	54	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	52	
4.2.3	Late-stage VC deal count, % global VC	0.1	24	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	61	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	51	
4.3	**Trade, diversification and market scale**	**85.7**	**11**	●
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	96.0	11	●
4.3.3	Domestic market scale, bn PPP$	1,890.7	20	●

		Score/ Value	Rank	
Business sophistication		**39.5**	**32**	
5.1	**Knowledge workers**	**50.7**	**28**	
5.1.1	Knowledge-intensive employment, %	44.6	23	●
5.1.2	Females employed w/advanced degrees, %	25.4	19	●
5.1.3	Youth demographic dividend, %	24.4	124	○
5.1.4	GERD performed by business, % GDP	1.0	26	
5.1.5	GERD financed by business, %	54.8	21	
5.2	**Innovation linkages**	**27.6**	**59**	
5.2.1	Public research–industry co-publications, %	1.9	48	
5.2.2	University–industry R&D collaboration†	35.1	68	
5.2.3	University industry and international engagement, top 5*	29.7	57	◇
5.2.4	State of cluster development†	48.4	62	
5.2.5	Patent families/bn PPP$ GDP	0.3	40	
5.3	**Knowledge absorption**	**40.1**	**27**	
5.3.1	Intellectual property payments, % total trade	1.0	36	
5.3.2	High-tech imports, % total trade	8.9	53	
5.3.3	ICT services imports, % total trade	2.4	29	
5.3.4	FDI net inflows, % GDP	5.2	29	
5.3.5	Research talent, % in businesses	56.4	18	
Knowledge and technology outputs		**28.5**	**42**	
6.1	**Knowledge creation**	**24.6**	**41**	
6.1.1	Patents by origin/bn PPP$ GDP	2.6	24	●
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	42	
6.1.3	Utility models by origin/bn PPP$ GDP	0.4	33	
6.1.4	Scientific and technical articles/bn PPP$ GDP	17.3	40	
6.1.5	Citable documents H-index	37.0	26	●
6.2	**Knowledge impact**	**29.1**	**52**	
6.2.1	Labor productivity growth, %	1.9	31	◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.3	53	
6.2.4	High-tech manufacturing, %	30.0	41	
6.3	**Knowledge diffusion**	**31.7**	**38**	
6.3.1	Intellectual property receipts, % total trade	0.3	38	
6.3.2	Production and export complexity	71.8	27	
6.3.3	High-tech exports, % total trade	7.1	32	
6.3.4	ICT services exports, % total trade	3.7	36	
6.3.5	ISO 9001 quality/bn PPP$ GDP	6.4	39	
Creative outputs		**37.0**	**33**	
7.1	**Intangible assets**	**40.1**	**32**	
7.1.1	Intangible asset intensity, top 15, %	61.7	32	
7.1.2	Trademarks by origin/bn PPP$ GDP	27.5	73	
7.1.3	Global brand value, top 5,000, % GDP	4.4	35	
7.1.4	Industrial designs by origin/bn PPP$ GDP	3.3	24	●
7.2	**Creative goods and services**	**23.5**	**49**	
7.2.1	Cultural and creative services exports, % total trade	1.1	24	
7.2.2	National feature films/mn pop. 15–69	2.0	58	
7.2.3	Entertainment and media market/th pop. 15–69	11.2	33	◇
7.2.4	Creative goods exports, % total trade	3.7	13	●◆
7.3	**Online creativity**	**44.2**	**33**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	19.8	36	
7.3.2	GitHub commits/mn pop. 15–69	41.4	26	
7.3.3	Mobile app creation/bn PPP$ GDP	71.5	33	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Portugal

31

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
28	27	High	EUR	10.4	508.5	49,237

			Score/ Value	Rank	
Institutions			**62.1**	**38**	
1.1	**Institutional environment**		**70.3**	**30**	
1.1.1	Operational stability for businesses*		73.3	38	
1.1.2	Government effectiveness*		67.3	31	
1.2	**Regulatory environment**		**71.2**	**32**	
1.2.1	Regulatory quality*		64.2	37	
1.2.2	Rule of law*		78.2	26	
1.3	**Business environment**		**44.9**	**67**	○
1.3.1	Policy stability for doing business†		41.2	78	○
1.3.2	Entrepreneurship policies and culture†	⏲	48.7	36	
Human capital and research			**50.8**	**21**	
2.1	**Education**		**65.1**	**18**	
2.1.1	Expenditure on education, % GDP	⏲	4.3	61	○
2.1.2	Government funding/pupil, secondary, % GDP/cap		29.3	11	●◆
2.1.3	School life expectancy, years	⏲	17.5	16	●
2.1.4	PISA scales in reading, maths and science		477.6	27	
2.1.5	Pupil–teacher ratio, secondary	⏲	8.1	12	●◆
2.2	**Tertiary education**		**44.0**	**22**	
2.2.1	Tertiary enrolment, % gross	⏲	75.6	37	
2.2.2	Graduates in science and engineering, %		27.9	31	
2.2.3	Tertiary inbound mobility, %	⏲	12.0	22	
2.3	**Research and development (R&D)**		**43.3**	**24**	
2.3.1	Researchers, FTE/mn pop.		5,940.7	13	●
2.3.2	Gross expenditure on R&D, % GDP		1.7	23	
2.3.3	Global corporate R&D investors, top 3, mn USD		52.3	31	
2.3.4	QS university ranking, top 3*		37.5	38	
Infrastructure			**51.8**	**42**	
3.1	**Information and communication technology (ICT)**		**84.1**	**47**	
3.1.1	ICT access*		97.1	28	
3.1.2	ICT use*		80.9	53	
3.1.3	Government online service*		74.5	54	
3.2	**General infrastructure**		**34.2**	**66**	○
3.2.1	Electricity output, GWh/mn pop.		4,469.0	47	
3.2.2	Logistics performance*		59.1	37	
3.2.3	Gross capital formation, % GDP		19.9	103	○
3.3	**Ecological sustainability**		**37.0**	**26**	
3.3.1	GDP/unit of energy use		18.6	17	
3.3.2	Low-carbon energy use, %		34.7	28	
3.3.3	ISO 14001 environment/bn PPP$ GDP		3.2	29	
Market sophistication			**48.7**	**26**	
4.1	**Credit**		**49.7**	**28**	
4.1.1	Finance for startups and scaleups†	⏲	69.1	21	
4.1.2	Domestic credit to private sector, % GDP		81.1	35	
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**13.4**	**41**	
4.2.1	Market capitalization, % GDP	⏲	29.2	50	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.2	34	
4.2.3	Late-stage VC deal count, % global VC		0.1	34	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.5	27	
4.2.5	VC investor co-participation/bn PPP$ GDP		0.2	30	
4.3	**Trade, diversification and market scale**		**82.9**	**20**	
4.3.1	Applied tariff rate, weighted avg., %		1.3	24	
4.3.2	Domestic industry diversification		100.0	1	●◆
4.3.3	Domestic market scale, bn PPP$		508.5	50	

			Score/ Value	Rank	
Business sophistication			**38.7**	**34**	
5.1	**Knowledge workers**		**46.4**	**32**	
5.1.1	Knowledge-intensive employment, %		40.7	33	
5.1.2	Females employed w/advanced degrees, %		20.4	33	
5.1.3	Youth demographic dividend, %		23.1	134	○
5.1.4	GERD performed by business, % GDP		1.1	23	
5.1.5	GERD financed by business, %		56.6	17	
5.2	**Innovation linkages**		**36.6**	**38**	
5.2.1	Public research–industry co-publications, %		1.8	55	
5.2.2	University–industry R&D collaboration†		44.2	45	
5.2.3	University industry and international engagement, top 5*		55.5	32	
5.2.4	State of cluster development†		53.7	54	
5.2.5	Patent families/bn PPP$ GDP		0.7	32	
5.3	**Knowledge absorption**		**33.2**	**44**	
5.3.1	Intellectual property payments, % total trade		0.7	55	
5.3.2	High-tech imports, % total trade		8.9	54	
5.3.3	ICT services imports, % total trade		1.4	68	○
5.3.4	FDI net inflows, % GDP		4.0	39	
5.3.5	Research talent, % in businesses		45.4	32	
Knowledge and technology outputs			**30.5**	**36**	
6.1	**Knowledge creation**		**30.0**	**32**	
6.1.1	Patents by origin/bn PPP$ GDP		2.2	26	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.5	33	
6.1.3	Utility models by origin/bn PPP$ GDP		0.1	55	○
6.1.4	Scientific and technical articles/bn PPP$ GDP		32.6	11	●◆
6.1.5	Citable documents H-index		34.4	29	
6.2	**Knowledge impact**		**31.8**	**48**	
6.2.1	Labor productivity growth, %		0.6	81	○
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.6	10	●◆
6.2.4	High-tech manufacturing, %		26.3	47	○
6.3	**Knowledge diffusion**		**29.6**	**45**	
6.3.1	Intellectual property receipts, % total trade		0.1	55	
6.3.2	Production and export complexity		63.8	39	
6.3.3	High-tech exports, % total trade		3.2	51	
6.3.4	ICT services exports, % total trade		3.4	41	
6.3.5	ISO 9001 quality/bn PPP$ GDP		12.8	17	●
Creative outputs			**44.1**	**25**	
7.1	**Intangible assets**		**46.9**	**21**	
7.1.1	Intangible asset intensity, top 15, %		61.9	31	
7.1.2	Trademarks by origin/bn PPP$ GDP		74.4	16	●◆
7.1.3	Global brand value, top 5,000, % GDP		5.4	32	
7.1.4	Industrial designs by origin/bn PPP$ GDP		3.3	25	
7.2	**Creative goods and services**		**25.0**	**46**	
7.2.1	Cultural and creative services exports, % total trade		0.8	40	
7.2.2	National feature films/mn pop. 15–69		7.2	24	
7.2.3	Entertainment and media market/th pop. 15–69		30.3	22	
7.2.4	Creative goods exports, % total trade		1.4	36	
7.3	**Online creativity**		**57.6**	**26**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		55.9	16	●
7.3.2	GitHub commits/mn pop. 15–69		46.6	25	
7.3.3	Mobile app creation/bn PPP$ GDP		70.4	43	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Qatar

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
67	34	High	NAWA	3.0	356.0	115,075

		Score/ Value	Rank	
Institutions		**74.3**	**17**	●
1.1	**Institutional environment**	**76.9**	**20**	
1.1.1	Operational stability for businesses*	81.3	18	●
1.1.2	Government effectiveness*	72.5	22	
1.2	**Regulatory environment**	**72.1**	**28**	
1.2.1	Regulatory quality*	69.3	31	
1.2.2	Rule of law*	74.9	29	
1.3	**Business environment**	**73.8**	**13**	●◆
1.3.1	Policy stability for doing business†	78.8	8	●◆
1.3.2	Entrepreneurship policies and culture†	68.9	15	◆
Human capital and research		**38.1**	**44**	
2.1	**Education**	**49.3**	**74**	◇
2.1.1	Expenditure on education, % GDP	3.2	103	◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	13.1	82	◇
2.1.4	PISA scales in reading, maths and science	421.9	51	◇
2.1.5	Pupil–teacher ratio, secondary	12.6	58	
2.2	**Tertiary education**	**51.1**	**10**	●
2.2.1	Tertiary enrolment, % gross	35.1	88	◇
2.2.2	Graduates in science and engineering, %	20.1	78	
2.2.3	Tertiary inbound mobility, %	40.5	1	●◆
2.3	**Research and development (R&D)**	**13.8**	**55**	
2.3.1	Researchers, FTE/mn pop.	947.8	54	◇
2.3.2	Gross expenditure on R&D, % GDP	0.7	53	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	35.5	39	
Infrastructure		**58.2**	**14**	●
3.1	**Information and communication technology (ICT)**	**89.0**	**28**	
3.1.1	ICT access*	99.9	7	●
3.1.2	ICT use*	95.4	6	●◆
3.1.3	Government online service*	71.8	58	
3.2	**General infrastructure**	**73.7**	**1**	●◆
3.2.1	Electricity output, GWh/mn pop.	20,304.8	4	●◆
3.2.2	Logistics performance*	63.6	33	
3.2.3	Gross capital formation, % GDP	n/a	n/a	
3.3	**Ecological sustainability**	**11.8**	**107**	◇
3.3.1	GDP/unit of energy use	5.7	115	◇
3.3.2	Low-carbon energy use, %	0.6	129	○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	3.1	30	
Market sophistication		**41.0**	**48**	
4.1	**Credit**	**52.6**	**25**	
4.1.1	Finance for startups and scaleups†	59.6	34	
4.1.2	Domestic credit to private sector, % GDP	118.1	17	●
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**8.0**	**53**	
4.2.1	Market capitalization, % GDP	96.1	19	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	113	○◇
4.2.3	Late-stage VC deal count, % global VC	0.0	93	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	68	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	74	◇
4.3	**Trade, diversification and market scale**	**62.3**	**86**	
4.3.1	Applied tariff rate, weighted avg., %	3.6	83	
4.3.2	Domestic industry diversification	58.9	99	◇
4.3.3	Domestic market scale, bn PPP$	356.0	60	

		Score/ Value	Rank	
Business sophistication		**25.6**	**90**	◇
5.1	**Knowledge workers**	**9.2**	**[139]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	24.8	121	
5.1.4	GERD performed by business, % GDP	0.1	62	◇
5.1.5	GERD financed by business, %	9.3	73	◇
5.2	**Innovation linkages**	**49.4**	**24**	
5.2.1	Public research–industry co-publications, %	1.7	60	
5.2.2	University–industry R&D collaboration†	65.4	10	●
5.2.3	University industry and international engagement, top 5*	78.7	18	
5.2.4	State of cluster development†	85.7	12	●◆
5.2.5	Patent families/bn PPP$ GDP	0.0	69	
5.3	**Knowledge absorption**	**18.3**	**117**	◇
5.3.1	Intellectual property payments, % total trade	0.0	131	
5.3.2	High-tech imports, % total trade	5.4	114	
5.3.3	ICT services imports, % total trade	1.7	54	
5.3.4	FDI net inflows, % GDP	−0.3	127	○
5.3.5	Research talent, % in businesses	16.1	54	◇
Knowledge and technology outputs		**16.9**	**83**	◇
6.1	**Knowledge creation**	**9.1**	**88**	◇
6.1.1	Patents by origin/bn PPP$ GDP	0.2	102	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	81	◇
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	8.4	80	◇
6.1.5	Citable documents H-index	14.4	60	
6.2	**Knowledge impact**	**27.9**	**61**	
6.2.1	Labor productivity growth, %	−0.2	104	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.3	39	
6.2.4	High-tech manufacturing, %	38.4	24	
6.3	**Knowledge diffusion**	**13.7**	**88**	◇
6.3.1	Intellectual property receipts, % total trade	0.0	127	
6.3.2	Production and export complexity	41.5	82	◇
6.3.3	High-tech exports, % total trade	0.4	101	◇
6.3.4	ICT services exports, % total trade	1.4	78	
6.3.5	ISO 9001 quality/bn PPP$ GDP	4.8	55	
Creative outputs		**26.5**	**60**	
7.1	**Intangible assets**	**38.1**	**41**	
7.1.1	Intangible asset intensity, top 15, %	37.7	62	
7.1.2	Trademarks by origin/bn PPP$ GDP	3.7	128	○◇
7.1.3	Global brand value, top 5,000, % GDP	10.3	15	●
7.1.4	Industrial designs by origin/bn PPP$ GDP	n/a	n/a	
7.2	**Creative goods and services**	**6.9**	**84**	◇
7.2.1	Cultural and creative services exports, % total trade	0.1	91	
7.2.2	National feature films/mn pop. 15–69	0.4	86	○◇
7.2.3	Entertainment and media market/th pop. 15–69	23.0	26	
7.2.4	Creative goods exports, % total trade	0.0	135	○
7.3	**Online creativity**	**23.0**	**85**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	3.4	73	◇
7.3.2	GitHub commits/mn pop. 15–69	4.5	85	◇
7.3.3	Mobile app creation/bn PPP$ GDP	61.0	81	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Republic of Korea

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
6	4	High	SEAO	51.7	3,258.4	62,960

		Score/ Value	Rank	
Institutions		**72.5**	**20**	
1.1	**Institutional environment**	**79.1**	**18**	
1.1.1	Operational stability for businesses*	80.7	20	
1.1.2	Government effectiveness*	77.6	17	
1.2	**Regulatory environment**	**77.6**	**24**	
1.2.1	Regulatory quality*	72.6	26	
1.2.2	Rule of law*	82.6	23	
1.3	**Business environment**	**60.8**	**34**	
1.3.1	Policy stability for doing business†	53.7	58	○◇
1.3.2	Entrepreneurship policies and culture†	67.9	16	◆
Human capital and research		**67.0**	**1**	●◆
2.1	**Education**	**71.0**	**5**	◆
2.1.1	Expenditure on education, % GDP	4.9	44	
2.1.2	Government funding/pupil, secondary, % GDP/cap	38.2	2	●◆
2.1.3	School life expectancy, years	16.6	28	
2.1.4	PISA scales in reading, maths and science	523.5	4	
2.1.5	Pupil–teacher ratio, secondary	11.5	47	
2.2	**Tertiary education**	**46.0**	**19**	
2.2.1	Tertiary enrolment, % gross	102.8	7	◆
2.2.2	Graduates in science and engineering, %	30.4	20	
2.2.3	Tertiary inbound mobility, %	4.4	57	○
2.3	**Research and development (R&D)**	**84.0**	**1**	●◆
2.3.1	Researchers, FTE/mn pop.	9,480.3	2	●◆
2.3.2	Gross expenditure on R&D, % GDP	5.0	2	●◆
2.3.3	Global corporate R&D investors, top 3, mn USD	87.8	4	
2.3.4	QS university ranking, top 3*	78.8	9	
Infrastructure		**63.6**	**7**	
3.1	**Information and communication technology (ICT)**	**96.2**	**5**	◆
3.1.1	ICT access*	99.4	10	
3.1.2	ICT use*	89.3	24	
3.1.3	Government online service*	100.0	1	●◆
3.2	**General infrastructure**	**62.5**	**10**	
3.2.1	Electricity output, GWh/mn pop.	11,623.1	12	
3.2.2	Logistics performance*	77.3	16	
3.2.3	Gross capital formation, % GDP	32.2	19	◆
3.3	**Ecological sustainability**	**32.0**	**38**	
3.3.1	GDP/unit of energy use	8.4	93	○
3.3.2	Low-carbon energy use, %	17.5	74	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	7.0	11	◆
Market sophistication		**61.9**	**5**	
4.1	**Credit**	**69.6**	**5**	◆
4.1.1	Finance for startups and scaleups†	69.4	20	
4.1.2	Domestic credit to private sector, % GDP	176.1	5	◆
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**37.3**	**14**	
4.2.1	Market capitalization, % GDP	117.5	11	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.6	13	
4.2.3	Late-stage VC deal count, % global VC	1.1	6	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.7	18	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.5	13	
4.3	**Trade, diversification and market scale**	**78.9**	**35**	
4.3.1	Applied tariff rate, weighted avg., %	4.4	92	○◇
4.3.2	Domestic industry diversification	94.5	23	
4.3.3	Domestic market scale, bn PPP$	3,258.4	14	

		Score/ Value	Rank	
Business sophistication		**61.2**	**4**	◆
5.1	**Knowledge workers**	**66.6**	**5**	◆
5.1.1	Knowledge-intensive employment, %	41.4	30	
5.1.2	Females employed w/advanced degrees, %	23.1	23	
5.1.3	Youth demographic dividend, %	19.9	138	○◇
5.1.4	GERD performed by business, % GDP	3.9	1	●◆
5.1.5	GERD financed by business, %	76.1	4	◆
5.2	**Innovation linkages**	**68.6**	**5**	
5.2.1	Public research–industry co-publications, %	7.0	5	◆
5.2.2	University–industry R&D collaboration†	57.5	24	
5.2.3	University industry and international engagement, top 5*	79.3	17	
5.2.4	State of cluster development†	70.1	33	
5.2.5	Patent families/bn PPP$ GDP	12.1	3	●◆
5.3	**Knowledge absorption**	**48.4**	**9**	
5.3.1	Intellectual property payments, % total trade	1.5	22	
5.3.2	High-tech imports, % total trade	17.7	12	◆
5.3.3	ICT services imports, % total trade	1.2	82	○◇
5.3.4	FDI net inflows, % GDP	1.2	108	○
5.3.5	Research talent, % in businesses	81.9	1	●◆
Knowledge and technology outputs		**51.8**	**9**	
6.1	**Knowledge creation**	**61.6**	**4**	◆
6.1.1	Patents by origin/bn PPP$ GDP	61.6	1	●◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	6.6	3	●◆
6.1.3	Utility models by origin/bn PPP$ GDP	0.8	23	
6.1.4	Scientific and technical articles/bn PPP$ GDP	21.2	30	
6.1.5	Citable documents H-index	47.7	16	
6.2	**Knowledge impact**	**42.8**	**19**	
6.2.1	Labor productivity growth, %	1.0	65	○
6.2.2	Unicorn valuation, % GDP	1.6	27	
6.2.3	Software spending, % GDP	0.3	51	
6.2.4	High-tech manufacturing, %	57.0	4	
6.3	**Knowledge diffusion**	**51.1**	**11**	
6.3.1	Intellectual property receipts, % total trade	1.1	18	
6.3.2	Production and export complexity	96.4	2	●◆
6.3.3	High-tech exports, % total trade	19.7	7	◆
6.3.4	ICT services exports, % total trade	1.8	66	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	12.5	20	◆
Creative outputs		**57.7**	**4**	◆
7.1	**Intangible assets**	**75.6**	**2**	●◆
7.1.1	Intangible asset intensity, top 15, %	70.4	15	
7.1.2	Trademarks by origin/bn PPP$ GDP	85.3	10	
7.1.3	Global brand value, top 5,000, % GDP	17.8	6	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	16.5	3	●◆
7.2	**Creative goods and services**	**32.6**	**22**	
7.2.1	Cultural and creative services exports, % total trade	1.0	28	
7.2.2	National feature films/mn pop. 15–69	5.3	32	
7.2.3	Entertainment and media market/th pop. 15–69	47.4	15	
7.2.4	Creative goods exports, % total trade	2.7	22	
7.3	**Online creativity**	**46.8**	**32**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	8.7	49	◇
7.3.2	GitHub commits/mn pop. 15–69	57.1	20	
7.3.3	Mobile app creation/bn PPP$ GDP	74.7	19	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Republic of Moldova

GII 2025 rank **74**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
62	89	Upper middle	EUR	3.0	45.4	18,524

		Score/ Value	Rank	
Institutions		**40.9**	**91**	
1.1	**Institutional environment**	**47.2**	**84**	
1.1.1	Operational stability for businesses*	55.3	88	
1.1.2	Government effectiveness*	39.0	81	
1.2	**Regulatory environment**	**48.9**	**69**	
1.2.1	Regulatory quality*	49.2	70	
1.2.2	Rule of law*	48.5	74	
1.3	**Business environment**	**26.7**	**[109]**	
1.3.1	Policy stability for doing business† ⏲	26.7	111	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**30.9**	**69**	
2.1	**Education**	**56.6**	**51**	
2.1.1	Expenditure on education, % GDP	6.6	9	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	22.9	31	●
2.1.3	School life expectancy, years	14.8	57	
2.1.4	PISA scales in reading, maths and science	414.0	53	
2.1.5	Pupil–teacher ratio, secondary	11.5	48	
2.2	**Tertiary education**	**33.6**	**56**	
2.2.1	Tertiary enrolment, % gross ⏲	68.1	46	
2.2.2	Graduates in science and engineering, %	23.4	54	
2.2.3	Tertiary inbound mobility, %	7.0	44	
2.3	**Research and development (R&D)**	**2.6**	**92**	
2.3.1	Researchers, FTE/mn pop.	717.4	63	
2.3.2	Gross expenditure on R&D, % GDP	0.2	85	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**35.0**	**95**	
3.1	**Information and communication technology (ICT)**	**74.6**	**74**	
3.1.1	ICT access*	77.9	88	
3.1.2	ICT use*	78.8	63	
3.1.3	Government online service*	67.1	69	
3.2	**General infrastructure**	**22.1**	**102**	
3.2.1	Electricity output, GWh/mn pop.	2,052.8	80	
3.2.2	Logistics performance*	18.2	90	○
3.2.3	Gross capital formation, % GDP	24.7	49	
3.3	**Ecological sustainability**	**8.3**	**120**	○◇
3.3.1	GDP/unit of energy use	8.8	88	
3.3.2	Low-carbon energy use, %	3.8	116	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.4	94	
Market sophistication		**31.8**	**88**	
4.1	**Credit**	**28.0**	**71**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	25.8	107	
4.1.3	Loans from microfinance institutions, % GDP	4.6	7	●◆
4.2	**Investment**	**1.2**	**[110]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	94	
4.2.3	Late-stage VC deal count, % global VC	0.0	106	○
4.2.4	VC investors, deal count/bn PPP$ GDP	n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification and market scale**	**66.3**	**80**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	23	●
4.3.2	Domestic industry diversification	73.2	77	
4.3.3	Domestic market scale, bn PPP$	45.4	123	○◇

		Score/ Value	Rank	
Business sophistication		**18.3**	**131**	○◇
5.1	**Knowledge workers**	**22.2**	**126**	○◇
5.1.1	Knowledge-intensive employment, % ⏲	19.0	81	
5.1.2	Females employed w/advanced degrees, % ⏲	11.9	65	
5.1.3	Youth demographic dividend, %	30.9	83	
5.1.4	GERD performed by business, % GDP ⏲	0.0	73	
5.1.5	GERD financed by business, % ⏲	15.5	70	
5.2	**Innovation linkages**	**11.0**	**128**	○◇
5.2.1	Public research–industry co-publications, %	0.6	116	○
5.2.2	University–industry R&D collaboration† ⏲	18.6	113	○
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development† ⏲	19.3	127	○◇
5.2.5	Patent families/bn PPP$ GDP	0.1	58	
5.3	**Knowledge absorption**	**21.8**	**94**	
5.3.1	Intellectual property payments, % total trade	0.6	62	
5.3.2	High-tech imports, % total trade	8.1	66	
5.3.3	ICT services imports, % total trade	1.3	74	
5.3.4	FDI net inflows, % GDP	3.0	58	
5.3.5	Research talent, % in businesses ⏲	6.2	67	
Knowledge and technology outputs		**20.9**	**67**	
6.1	**Knowledge creation**	**20.8**	**51**	
6.1.1	Patents by origin/bn PPP$ GDP	0.7	64	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	73	
6.1.3	Utility models by origin/bn PPP$ GDP	2.5	4	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	5.5	102	
6.1.5	Citable documents H-index	5.0	100	
6.2	**Knowledge impact**	**17.7**	**109**	
6.2.1	Labor productivity growth, %	0.8	72	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	99	
6.2.4	High-tech manufacturing, %	13.2	80	
6.3	**Knowledge diffusion**	**24.4**	**52**	
6.3.1	Intellectual property receipts, % total trade	0.0	87	
6.3.2	Production and export complexity	50.6	59	
6.3.3	High-tech exports, % total trade	0.9	80	
6.3.4	ICT services exports, % total trade	8.1	8	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.2	86	
Creative outputs		**25.7**	**63**	
7.1	**Intangible assets**	**29.3**	**62**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	85.0	11	●
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	3.4	23	●
7.2	**Creative goods and services**	**12.2**	**[66]**	
7.2.1	Cultural and creative services exports, % total trade	1.0	31	●◆
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.2	77	
7.3	**Online creativity**	**32.1**	**51**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	4.0	67	
7.3.2	GitHub commits/mn pop. 15–69	16.1	49	
7.3.3	Mobile app creation/bn PPP$ GDP	76.4	16	●◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Romania

49

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
48	57	High	EUR	19.0	894.2	47,204

		Score/ Value	Rank	
Institutions		**43.4**	**85**	◇
1.1	**Institutional environment**	**49.1**	**80**	◇
1.1.1	Operational stability for businesses*	57.3	79	◇
1.1.2	Government effectiveness*	40.8	80	◇
1.2	**Regulatory environment**	**58.5**	**52**	
1.2.1	Regulatory quality*	54.1	56	◇
1.2.2	Rule of law*	62.9	45	
1.3	**Business environment**	**22.8**	**118**	○◇
1.3.1	Policy stability for doing business†	26.1	113	○◇
1.3.2	Entrepreneurship policies and culture†	19.4	76	○◇
Human capital and research		**30.2**	**72**	◇
2.1	**Education**	**47.2**	**80**	◇
2.1.1	Expenditure on education, % GDP	3.3	98	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	18.5	50	
2.1.3	School life expectancy, years	13.8	72	◇
2.1.4	PISA scales in reading, maths and science	427.9	47	◇
2.1.5	Pupil–teacher ratio, secondary	11.4	46	
2.2	**Tertiary education**	**36.1**	**44**	
2.2.1	Tertiary enrolment, % gross	55.2	64	
2.2.2	Graduates in science and engineering, %	28.4	29	
2.2.3	Tertiary inbound mobility, %	6.7	45	
2.3	**Research and development (R&D)**	**7.3**	**70**	◇
2.3.1	Researchers, FTE/mn pop.	1,088.6	51	◇
2.3.2	Gross expenditure on R&D, % GDP	0.5	64	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	10.7	70	◇
Infrastructure		**54.4**	**31**	
3.1	**Information and communication technology (ICT)**	**76.6**	**67**	◇
3.1.1	ICT access*	90.6	54	◇
3.1.2	ICT use*	80.6	55	
3.1.3	Government online service*	58.5	81	◇
3.2	**General infrastructure**	**34.8**	**62**	
3.2.1	Electricity output, GWh/mn pop.	3,061.2	67	
3.2.2	Logistics performance*	50.0	50	
3.2.3	Gross capital formation, % GDP	25.4	45	
3.3	**Ecological sustainability**	**51.7**	**4**	●◆
3.3.1	GDP/unit of energy use	19.1	15	●
3.3.2	Low-carbon energy use, %	28.5	41	
3.3.3	ISO 14001 environment/bn PPP$ GDP	9.2	4	●◆
Market sophistication		**37.9**	**62**	
4.1	**Credit**	**27.4**	**73**	
4.1.1	Finance for startups and scaleups†	42.5	59	◇
4.1.2	Domestic credit to private sector, % GDP	23.1	112	○◇
4.1.3	Loans from microfinance institutions, % GDP	3.2	13	●
4.2	**Investment**	**3.0**	**86**	◇
4.2.1	Market capitalization, % GDP	10.4	74	○◇
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	76	◇
4.2.3	Late-stage VC deal count, % global VC	0.0	48	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	74	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	72	◇
4.3	**Trade, diversification and market scale**	**83.2**	**18**	●
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	95.5	17	●
4.3.3	Domestic market scale, bn PPP$	894.2	33	

		Score/ Value	Rank	
Business sophistication		**31.2**	**59**	
5.1	**Knowledge workers**	**35.3**	**71**	
5.1.1	Knowledge-intensive employment, %	27.7	52	◇
5.1.2	Females employed w/advanced degrees, %	13.1	62	◇
5.1.3	Youth demographic dividend, %	26.7	108	○
5.1.4	GERD performed by business, % GDP	0.3	47	
5.1.5	GERD financed by business, %	56.2	19	●
5.2	**Innovation linkages**	**21.5**	**84**	◇
5.2.1	Public research–industry co-publications, %	2.1	42	
5.2.2	University–industry R&D collaboration†	31.4	77	◇
5.2.3	University industry and international engagement, top 5*	16.6	75	○◇
5.2.4	State of cluster development†	37.4	90	◇
5.2.5	Patent families/bn PPP$ GDP	0.0	71	
5.3	**Knowledge absorption**	**36.6**	**34**	
5.3.1	Intellectual property payments, % total trade	0.8	52	
5.3.2	High-tech imports, % total trade	11.7	27	●
5.3.3	ICT services imports, % total trade	3.1	20	●
5.3.4	FDI net inflows, % GDP	3.5	50	
5.3.5	Research talent, % in businesses	34.4	38	
Knowledge and technology outputs		**28.7**	**40**	
6.1	**Knowledge creation**	**12.6**	**73**	◇
6.1.1	Patents by origin/bn PPP$ GDP	1.0	56	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	62	◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	60	○
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.5	63	◇
6.1.5	Citable documents H-index	20.1	43	
6.2	**Knowledge impact**	**30.6**	**49**	
6.2.1	Labor productivity growth, %	1.8	34	◆
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	64	
6.2.4	High-tech manufacturing, %	37.1	28	
6.3	**Knowledge diffusion**	**43.0**	**23**	●
6.3.1	Intellectual property receipts, % total trade	0.1	71	
6.3.2	Production and export complexity	77.5	19	●
6.3.3	High-tech exports, % total trade	6.9	34	
6.3.4	ICT services exports, % total trade	7.6	10	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	16.3	10	●◆
Creative outputs		**29.5**	**52**	
7.1	**Intangible assets**	**33.5**	**52**	
7.1.1	Intangible asset intensity, top 15, %	56.8	40	
7.1.2	Trademarks by origin/bn PPP$ GDP	45.9	39	
7.1.3	Global brand value, top 5,000, % GDP	1.7	49	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.3	50	
7.2	**Creative goods and services**	**18.4**	**56**	
7.2.1	Cultural and creative services exports, % total trade	2.0	15	●
7.2.2	National feature films/mn pop. 15–69	2.7	48	
7.2.3	Entertainment and media market/th pop. 15–69	7.5	40	◇
7.2.4	Creative goods exports, % total trade	0.8	50	
7.3	**Online creativity**	**32.7**	**50**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	9.7	46	
7.3.2	GitHub commits/mn pop. 15–69	19.6	46	
7.3.3	Mobile app creation/bn PPP$ GDP	68.9	53	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Russian Federation

GII 2025 rank **60**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
55	73	High	EUR	144.8	6,909.4	47,299

		Score/ Value	Rank	
Institutions		**23.3**	**131**	○◇
1.1	**Institutional environment**	**19.1**	**133**	○◇
1.1.1	Operational stability for businesses*	12.7	137	○◇
1.1.2	Government effectiveness*	25.6	112	◇
1.2	**Regulatory environment**	**22.1**	**132**	○◇
1.2.1	Regulatory quality*	20.9	131	○◇
1.2.2	Rule of law*	23.4	131	○◇
1.3	**Business environment**	**28.5**	**105**	◇
1.3.1	Policy stability for doing business†	36.8	88	◇
1.3.2	Entrepreneurship policies and culture†	20.3	74	◇
Human capital and research		**47.2**	**28**	
2.1	**Education**	**63.6**	**20**	●
2.1.1	Expenditure on education, % GDP	4.1	73	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	14.9	54	
2.1.4	PISA scales in reading, maths and science	481.3	24	
2.1.5	Pupil–teacher ratio, secondary	8.1	9	●◆
2.2	**Tertiary education**	**45.5**	**21**	●
2.2.1	Tertiary enrolment, % gross	93.7	13	●
2.2.2	Graduates in science and engineering, %	31.4	14	●◆
2.2.3	Tertiary inbound mobility, %	4.8	53	
2.3	**Research and development (R&D)**	**32.4**	**35**	
2.3.1	Researchers, FTE/mn pop.	2,683.9	34	
2.3.2	Gross expenditure on R&D, % GDP	0.9	43	
2.3.3	Global corporate R&D investors, top 3, mn USD	44.0	40	
2.3.4	QS university ranking, top 3*	45.3	28	
Infrastructure		**40.4**	**76**	◇
3.1	**Information and communication technology (ICT)**	**82.3**	**53**	
3.1.1	ICT access*	86.0	67	◇
3.1.2	ICT use*	87.9	27	
3.1.3	Government online service*	73.1	56	
3.2	**General infrastructure**	**31.6**	**77**	◇
3.2.1	Electricity output, GWh/mn pop.	8,004.6	18	●
3.2.2	Logistics performance*	22.7	82	◇
3.2.3	Gross capital formation, % GDP	24.5	55	
3.3	**Ecological sustainability**	**7.3**	**125**	◇
3.3.1	GDP/unit of energy use	4.8	120	○◇
3.3.2	Low-carbon energy use, %	12.5	86	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.1	136	○◇
Market sophistication		**34.6**	**76**	◇
4.1	**Credit**	**18.8**	**97**	◇
4.1.1	Finance for startups and scaleups†	34.0	71	◇
4.1.2	Domestic credit to private sector, % GDP	54.2	59	
4.1.3	Loans from microfinance institutions, % GDP	0.3	51	
4.2	**Investment**	**3.3**	**81**	◇
4.2.1	Market capitalization, % GDP	38.5	42	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	121	○◇
4.2.3	Late-stage VC deal count, % global VC	0.1	40	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	105	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	107	○◇
4.3	**Trade, diversification and market scale**	**81.6**	**23**	●
4.3.1	Applied tariff rate, weighted avg., %	4.0	87	◇
4.3.2	Domestic industry diversification	92.3	29	
4.3.3	Domestic market scale, bn PPP$	6,909.4	4	●◆

		Score/ Value	Rank	
Business sophistication		**35.0**	**46**	
5.1	**Knowledge workers**	**40.9**	**52**	
5.1.1	Knowledge-intensive employment, %	45.8	21	●
5.1.2	Females employed w/advanced degrees, %	20.3	36	
5.1.3	Youth demographic dividend, %	27.9	102	
5.1.4	GERD performed by business, % GDP	0.6	36	
5.1.5	GERD financed by business, %	29.2	60	
5.2	**Innovation linkages**	**32.9**	**47**	
5.2.1	Public research–industry co-publications, %	1.5	65	
5.2.2	University–industry R&D collaboration†	33.8	73	
5.2.3	University industry and international engagement, top 5*	66.3	29	
5.2.4	State of cluster development†	48.2	64	
5.2.5	Patent families/bn PPP$ GDP	0.1	57	
5.3	**Knowledge absorption**	**31.3**	**52**	
5.3.1	Intellectual property payments, % total trade	1.1	34	
5.3.2	High-tech imports, % total trade	9.6	47	
5.3.3	ICT services imports, % total trade	0.9	97	
5.3.4	FDI net inflows, % GDP	−0.0	125	○
5.3.5	Research talent, % in businesses	46.5	29	
Knowledge and technology outputs		**21.8**	**62**	
6.1	**Knowledge creation**	**25.9**	**37**	
6.1.1	Patents by origin/bn PPP$ GDP	3.2	20	●
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	59	
6.1.3	Utility models by origin/bn PPP$ GDP	1.5	9	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	5.1	107	◇
6.1.5	Citable documents H-index	37.7	25	●
6.2	**Knowledge impact**	**26.9**	**62**	
6.2.1	Labor productivity growth, %	1.5	47	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.3	49	
6.2.4	High-tech manufacturing, %	25.2	51	
6.3	**Knowledge diffusion**	**12.7**	**92**	◇
6.3.1	Intellectual property receipts, % total trade	0.2	47	
6.3.2	Production and export complexity	40.8	84	◇
6.3.3	High-tech exports, % total trade	2.4	56	
6.3.4	ICT services exports, % total trade	0.7	99	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.3	135	○◇
Creative outputs		**27.0**	**55**	
7.1	**Intangible assets**	**35.0**	**49**	
7.1.1	Intangible asset intensity, top 15, %	45.7	53	
7.1.2	Trademarks by origin/bn PPP$ GDP	77.6	14	●◆
7.1.3	Global brand value, top 5,000, % GDP	1.9	46	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.2	58	
7.2	**Creative goods and services**	**6.6**	**86**	◇
7.2.1	Cultural and creative services exports, % total trade	0.4	66	
7.2.2	National feature films/mn pop. 15–69	1.2	68	◇
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.4	70	
7.3	**Online creativity**	**31.4**	**52**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	11.2	43	
7.3.2	GitHub commits/mn pop. 15–69	12.8	54	◇
7.3.3	Mobile app creation/bn PPP$ GDP	70.2	44	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

Rwanda

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
116	86	Low	SSA	14.3	51.9	3,747

		Score/ Value	Rank	
Institutions		**66.3**	**35**	●◆
1.1	**Institutional environment**	**60.3**	**51**	◆
1.1.1	Operational stability for businesses*	68.0	47	◆
1.1.2	Government effectiveness*	52.6	52	◆
1.2	**Regulatory environment**	**53.4**	**61**	◆
1.2.1	Regulatory quality*	49.6	68	◆
1.2.2	Rule of law*	57.2	59	◆
1.3	**Business environment**	**85.2**	**[4]**	
1.3.1	Policy stability for doing business†	85.2	5	●◆
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**26.6**	**83**	◆
2.1	**Education**	**49.3**	**73**	◆
2.1.1	Expenditure on education, % GDP	4.7	52	
2.1.2	Government funding/pupil, secondary, % GDP/cap	30.3	10	●◆
2.1.3	School life expectancy, years	12.6	90	◆
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	24.4	112	
2.2	**Tertiary education**	**27.1**	**78**	◆
2.2.1	Tertiary enrolment, % gross	8.9	123	○
2.2.2	Graduates in science and engineering, %	28.8	26	●◆
2.2.3	Tertiary inbound mobility, %	6.6	46	◆
2.3	**Research and development (R&D)**	**3.4**	**87**	◆
2.3.1	Researchers, FTE/mn pop.	133.1	89	◆
2.3.2	Gross expenditure on R&D, % GDP	0.8	47	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**30.8**	**108**	◆
3.1	**Information and communication technology (ICT)**	**56.0**	**107**	◆
3.1.1	ICT access*	46.3	120	
3.1.2	ICT use*	43.2	115	◆
3.1.3	Government online service*	78.4	43	●◆
3.2	**General infrastructure**	**24.4**	**96**	
3.2.1	Electricity output, GWh/mn pop.	79.8	127	○
3.2.2	Logistics performance*	31.8	71	◆
3.2.3	Gross capital formation, % GDP	25.2	47	●
3.3	**Ecological sustainability**	**11.9**	**106**	
3.3.1	GDP/unit of energy use	6.1	111	
3.3.2	Low-carbon energy use, %	19.2	65	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	103	
Market sophistication		**16.3**	**131**	○
4.1	**Credit**	**8.8**	**118**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	22.7	113	
4.1.3	Loans from microfinance institutions, % GDP	1.1	32	
4.2	**Investment**	**6.5**	**64**	
4.2.1	Market capitalization, % GDP	30.8	47	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.2	35	●◆
4.2.3	Late-stage VC deal count, % global VC	0.0	68	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	80	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	84	
4.3	**Trade, diversification and market scale**	**33.6**	**129**	○
4.3.1	Applied tariff rate, weighted avg., %	11.6	133	○◇
4.3.2	Domestic industry diversification	54.2	103	
4.3.3	Domestic market scale, bn PPP$	51.9	120	

		Score/ Value	Rank	
Business sophistication		**22.1**	**114**	
5.1	**Knowledge workers**	**21.2**	**129**	○◇
5.1.1	Knowledge-intensive employment, %	9.5	101	◆
5.1.2	Females employed w/advanced degrees, %	3.7	97	◆
5.1.3	Youth demographic dividend, %	57.8	24	●◇
5.1.4	GERD performed by business, % GDP	0.0	72	
5.1.5	GERD financed by business, %	0.6	92	
5.2	**Innovation linkages**	**28.8**	**55**	◆
5.2.1	Public research–industry co-publications, %	2.4	34	●◆
5.2.2	University–industry R&D collaboration†	41.4	50	◆
5.2.3	University industry and international engagement, top 5*	17.3	73	
5.2.4	State of cluster development†	60.3	43	●◆
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**16.4**	**130**	○
5.3.1	Intellectual property payments, % total trade	0.0	126	
5.3.2	High-tech imports, % total trade	8.0	69	
5.3.3	ICT services imports, % total trade	0.5	117	
5.3.4	FDI net inflows, % GDP	2.5	73	
5.3.5	Research talent, % in businesses	5.6	69	
Knowledge and technology outputs		**11.9**	**106**	
6.1	**Knowledge creation**	**7.6**	**95**	
6.1.1	Patents by origin/bn PPP$ GDP	0.3	94	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	42	
6.1.4	Scientific and technical articles/bn PPP$ GDP	11.7	59	
6.1.5	Citable documents H-index	3.9	118	
6.2	**Knowledge impact**	**18.5**	**103**	
6.2.1	Labor productivity growth, %	2.0	27	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	107	
6.2.4	High-tech manufacturing, %	8.2	93	
6.3	**Knowledge diffusion**	**9.6**	**109**	
6.3.1	Intellectual property receipts, % total trade	0.0	104	
6.3.2	Production and export complexity	36.8	92	
6.3.3	High-tech exports, % total trade	0.5	95	◆
6.3.4	ICT services exports, % total trade	0.7	97	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.0	111	
Creative outputs		**7.7**	**120**	
7.1	**Intangible assets**	**6.5**	**113**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	29.5	64	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.2	109	
7.2	**Creative goods and services**	**1.7**	**[116]**	
7.2.1	Cultural and creative services exports, % total trade	0.0	111	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.2	79	◆
7.3	**Online creativity**	**16.2**	**113**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.2	127	
7.3.2	GitHub commits/mn pop. 15–69	4.3	88	◆
7.3.3	Mobile app creation/bn PPP$ GDP	44.1	114	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

Saudi Arabia

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
61	31	High	NAWA	34.0	2,112.9	63,118

		Score/ Value	Rank	
Institutions		**69.0**	**26**	
1.1	**Institutional environment**	**67.0**	**38**	
1.1.1	Operational stability for businesses*	71.3	43	
1.1.2	Government effectiveness*	62.6	34	
1.2	**Regulatory environment**	**60.5**	**47**	
1.2.1	Regulatory quality*	58.7	48	
1.2.2	Rule of law*	62.3	48	
1.3	**Business environment**	**79.5**	**5**	●◆
1.3.1	Policy stability for doing business†	77.1	12	●◆
1.3.2	Entrepreneurship policies and culture†	81.8	5	●◆
Human capital and research		**42.8**	**35**	
2.1	**Education**	**56.3**	**53**	
2.1.1	Expenditure on education, % GDP	5.1	35	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	16.9	22	
2.1.4	PISA scales in reading, maths and science	387.2	68	○◇
2.1.5	Pupil–teacher ratio, secondary	14.4	71	◇
2.2	**Tertiary education**	**37.4**	**40**	
2.2.1	Tertiary enrolment, % gross	73.7	40	
2.2.2	Graduates in science and engineering, %	28.1	30	
2.2.3	Tertiary inbound mobility, %	4.1	60	
2.3	**Research and development (R&D)**	**34.6**	**32**	
2.3.1	Researchers, FTE/mn pop.	1,120.6	50	◇
2.3.2	Gross expenditure on R&D, % GDP	0.6	63	
2.3.3	Global corporate R&D investors, top 3, mn USD	64.8	18	●
2.3.4	QS university ranking, top 3*	53.9	19	
Infrastructure		**53.0**	**36**	
3.1	**Information and communication technology (ICT)**	**98.2**	**2**	●◆
3.1.1	ICT access*	95.9	38	
3.1.2	ICT use*	100.0	1	●◆
3.1.3	Government online service*	98.8	4	●◆
3.2	**General infrastructure**	**52.8**	**16**	●
3.2.1	Electricity output, GWh/mn pop.	11,503.4	13	●
3.2.2	Logistics performance*	59.1	37	
3.2.3	Gross capital formation, % GDP	28.7	28	◆
3.3	**Ecological sustainability**	**7.9**	**123**	○◇
3.3.1	GDP/unit of energy use	7.6	97	
3.3.2	Low-carbon energy use, %	0.5	132	○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.1	67	
Market sophistication		**46.7**	**31**	
4.1	**Credit**	**54.0**	**23**	
4.1.1	Finance for startups and scaleups†	89.8	4	●◆
4.1.2	Domestic credit to private sector, % GDP	52.0	62	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**23.1**	**27**	
4.2.1	Market capitalization, % GDP	291.5	1	●◆
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	75	◇
4.2.3	Late-stage VC deal count, % global VC	0.1	39	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	66	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	59	
4.3	**Trade, diversification and market scale**	**62.9**	**83**	
4.3.1	Applied tariff rate, weighted avg., %	5.3	99	◇
4.3.2	Domestic industry diversification	57.7	100	○◇
4.3.3	Domestic market scale, bn PPP$	2,112.9	18	●

		Score/ Value	Rank	
Business sophistication		**32.3**	**52**	
5.1	**Knowledge workers**	**32.0**	**[88]**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	n/a	n/a	
5.1.3	Youth demographic dividend, %	38.6	63	◆
5.1.4	GERD performed by business, % GDP	0.2	56	◇
5.1.5	GERD financed by business, %	39.4	47	
5.2	**Innovation linkages**	**46.0**	**28**	
5.2.1	Public research–industry co-publications, %	0.7	106	○◇
5.2.2	University–industry R&D collaboration†	53.0	34	
5.2.3	University industry and international engagement, top 5*	73.2	21	
5.2.4	State of cluster development†	92.9	3	●◆
5.2.5	Patent families/bn PPP$ GDP	0.3	42	
5.3	**Knowledge absorption**	**18.8**	**112**	○◇
5.3.1	Intellectual property payments, % total trade	0.4	77	
5.3.2	High-tech imports, % total trade	7.5	81	
5.3.3	ICT services imports, % total trade	0.8	100	
5.3.4	FDI net inflows, % GDP	2.6	67	
5.3.5	Research talent, % in businesses	6.0	68	○◇
Knowledge and technology outputs		**19.9**	**74**	◇
6.1	**Knowledge creation**	**25.5**	**39**	
6.1.1	Patents by origin/bn PPP$ GDP	1.6	35	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	49	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	21.1	31	
6.1.5	Citable documents H-index	28.3	36	
6.2	**Knowledge impact**	**18.3**	**105**	◇
6.2.1	Labor productivity growth, %	−2.8	132	○◇
6.2.2	Unicorn valuation, % GDP	0.1	52	
6.2.3	Software spending, % GDP	0.3	46	
6.2.4	High-tech manufacturing, %	26.9	46	
6.3	**Knowledge diffusion**	**15.8**	**81**	◇
6.3.1	Intellectual property receipts, % total trade	0.1	63	
6.3.2	Production and export complexity	58.5	43	
6.3.3	High-tech exports, % total trade	1.4	71	
6.3.4	ICT services exports, % total trade	0.5	106	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.4	80	
Creative outputs		**26.9**	**57**	
7.1	**Intangible assets**	**37.6**	**43**	
7.1.1	Intangible asset intensity, top 15, %	65.4	24	
7.1.2	Trademarks by origin/bn PPP$ GDP	14.4	104	○◇
7.1.3	Global brand value, top 5,000, % GDP	9.9	16	●
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.5	82	
7.2	**Creative goods and services**	**8.9**	**73**	◇
7.2.1	Cultural and creative services exports, % total trade	0.0	105	○◇
7.2.2	National feature films/mn pop. 15–69	0.9	74	○◇
7.2.3	Entertainment and media market/th pop. 15–69	22.9	27	
7.2.4	Creative goods exports, % total trade	0.6	59	
7.3	**Online creativity**	**23.4**	**80**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.9	87	◇
7.3.2	GitHub commits/mn pop. 15–69	3.4	94	◇
7.3.3	Mobile app creation/bn PPP$ GDP	64.9	69	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Senegal

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
97	82	Lower middle	SSA	18.5	94.4	5,056

			Score/ Value	Rank	
Institutions			**49.0**	**71**	
1.1	**Institutional environment**		**53.1**	**73**	◆
1.1.1	Operational stability for businesses*		61.3	70	◆
1.1.2	Government effectiveness*		44.8	67	◆
1.2	**Regulatory environment**		**42.2**	**88**	
1.2.1	Regulatory quality*		38.8	93	
1.2.2	Rule of law*		45.6	82	
1.3	**Business environment**		**51.6**	**56**	
1.3.1	Policy stability for doing business†		52.7	59	
1.3.2	Entrepreneurship policies and culture†	⏲	50.5	28	
Human capital and research			**22.6**	**97**	
2.1	**Education**		**49.0**	**77**	
2.1.1	Expenditure on education, % GDP		6.2	15	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap		31.3	9	●◆
2.1.3	School life expectancy, years		9.1	117	○◇
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary		23.0	109	
2.2	**Tertiary education**		**15.1**	**109**	
2.2.1	Tertiary enrolment, % gross		16.1	107	
2.2.2	Graduates in science and engineering, %		n/a	n/a	
2.2.3	Tertiary inbound mobility, %		9.0	34	●◆
2.3	**Research and development (R&D)**		**3.6**	**85**	
2.3.1	Researchers, FTE/mn pop.	⏲	572.4	70	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.6	62	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**38.8**	**79**	
3.1	**Information and communication technology (ICT)**		**55.0**	**109**	
3.1.1	ICT access*		67.5	100	
3.1.2	ICT use*		60.4	103	
3.1.3	Government online service*		37.2	110	
3.2	**General infrastructure**		**50.8**	**20**	●◆
3.2.1	Electricity output, GWh/mn pop.	⏲	435.9	116	○
3.2.2	Logistics performance*		n/a	n/a	
3.2.3	Gross capital formation, % GDP		44.6	1	●◆
3.3	**Ecological sustainability**		**10.4**	**113**	
3.3.1	GDP/unit of energy use		11.1	65	
3.3.2	Low-carbon energy use, %		5.0	112	
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.3	102	
Market sophistication			**31.5**	**90**	
4.1	**Credit**		**32.7**	**57**	
4.1.1	Finance for startups and scaleups†	⏲	45.7	56	
4.1.2	Domestic credit to private sector, % GDP		31.3	94	
4.1.3	Loans from microfinance institutions, % GDP		4.0	9	●
4.2	**Investment**		**9.9**	**48**	◆
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.2	32	●◆
4.2.3	Late-stage VC deal count, % global VC		0.0	60	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.2	46	◆
4.2.5	VC investor co-participation/bn PPP$ GDP		0.1	40	◆
4.3	**Trade, diversification and market scale**		**51.9**	**108**	
4.3.1	Applied tariff rate, weighted avg., %		8.3	121	
4.3.2	Domestic industry diversification	⏲	77.2	71	
4.3.3	Domestic market scale, bn PPP$		94.4	95	

			Score/ Value	Rank	
Business sophistication			**22.2**	**112**	
5.1	**Knowledge workers**		**24.0**	**121**	
5.1.1	Knowledge-intensive employment, %	⏲	5.2	111	○◇
5.1.2	Females employed w/advanced degrees, %	⏲	2.0	109	○
5.1.3	Youth demographic dividend, %		58.4	22	●
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %	⏲	2.1	83	
5.2	**Innovation linkages**		**16.1**	**104**	
5.2.1	Public research–industry co-publications, %		0.3	133	○◇
5.2.2	University–industry R&D collaboration†		32.1	76	
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†		31.0	107	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**26.5**	**70**	
5.3.1	Intellectual property payments, % total trade	⏲	0.1	114	
5.3.2	High-tech imports, % total trade		5.2	117	
5.3.3	ICT services imports, % total trade	⏲	1.2	77	
5.3.4	FDI net inflows, % GDP		11.8	8	●◆
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**19.7**	**77**	
6.1	**Knowledge creation**		**4.6**	**119**	
6.1.1	Patents by origin/bn PPP$ GDP		0.2	96	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	103	
6.1.3	Utility models by origin/bn PPP$ GDP	⏲	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP		6.1	98	
6.1.5	Citable documents H-index		5.8	96	
6.2	**Knowledge impact**		**43.8**	**17**	●◆
6.2.1	Labor productivity growth, %		1.2	53	
6.2.2	Unicorn valuation, % GDP		4.5	10	●◆
6.2.3	Software spending, % GDP		0.2	65	
6.2.4	High-tech manufacturing, %	⏲	22.1	56	
6.3	**Knowledge diffusion**		**10.9**	**100**	
6.3.1	Intellectual property receipts, % total trade	⏲	0.1	67	
6.3.2	Production and export complexity		33.7	99	
6.3.3	High-tech exports, % total trade		0.2	112	
6.3.4	ICT services exports, % total trade	⏲	1.7	68	
6.3.5	ISO 9001 quality/bn PPP$ GDP		1.2	107	
Creative outputs			**10.0**	**111**	
7.1	**Intangible assets**		**5.9**	**114**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		4.8	123	○
7.1.3	Global brand value, top 5,000, % GDP		1.6	51	
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.3	97	
7.2	**Creative goods and services**		**9.8**	**[71]**	
7.2.1	Cultural and creative services exports, % total trade	⏲	0.9	37	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.0	120	
7.3	**Online creativity**		**18.3**	**107**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.6	109	
7.3.2	GitHub commits/mn pop. 15–69		1.1	116	
7.3.3	Mobile app creation/bn PPP$ GDP		53.3	100	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Serbia

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
57	**56**	**Upper middle**	**EUR**	**6.7**	**191.6**	**29,039**

		Score/ Value	Rank	
Institutions		**48.1**	**73**	
1.1	**Institutional environment**	**52.6**	**74**	
1.1.1	Operational stability for businesses*	62.0	69	
1.1.2	Government effectiveness*	43.3	72	
1.2	**Regulatory environment**	**50.2**	**66**	
1.2.1	Regulatory quality*	49.9	67	
1.2.2	Rule of law*	50.4	66	
1.3	**Business environment**	**41.4**	**73**	
1.3.1	Policy stability for doing business†	41.4	77	
1.3.2	Entrepreneurship policies and culture†	41.4	47	
Human capital and research		**37.5**	**49**	
2.1	**Education**	**58.0**	**44**	
2.1.1	Expenditure on education, % GDP	3.2	101 ○	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.0	52	
2.1.4	PISA scales in reading, maths and science	442.6	42	
2.1.5	Pupil–teacher ratio, secondary	7.5	3 ●◆	
2.2	**Tertiary education**	**43.7**	**23** ◆	
2.2.1	Tertiary enrolment, % gross	73.2	41	
2.2.2	Graduates in science and engineering, %	33.7	10 ●◆	
2.2.3	Tertiary inbound mobility, %	4.6	55	
2.3	**Research and development (R&D)**	**10.9**	**60**	
2.3.1	Researchers, FTE/mn pop.	2,515.4	38 ◆	
2.3.2	Gross expenditure on R&D, % GDP	0.9	44	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44 ○◇	
2.3.4	QS university ranking, top 3*	5.8	77	
Infrastructure		**52.8**	**39** ◆	
3.1	**Information and communication technology (ICT)**	**83.7**	**49**	
3.1.1	ICT access*	86.5	64	
3.1.2	ICT use*	82.1	49	
3.1.3	Government online service*	82.4	36	
3.2	**General infrastructure**	**30.7**	**80**	
3.2.1	Electricity output, GWh/mn pop.	5,889.6	35 ◆	
3.2.2	Logistics performance*	31.8	71	
3.2.3	Gross capital formation, % GDP	23.5	71	
3.3	**Ecological sustainability**	**43.9**	**9** ●◆	
3.3.1	GDP/unit of energy use	8.6	92	
3.3.2	Low-carbon energy use, %	18.6	69	
3.3.3	ISO 14001 environment/bn PPP$ GDP	11.0	2 ●◆	
Market sophistication		**34.6**	**77**	
4.1	**Credit**	**24.0**	**81**	
4.1.1	Finance for startups and scaleups†	37.7	63	
4.1.2	Domestic credit to private sector, % GDP	33.0	89	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**2.2**	**[97]**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	107 ○	
4.2.3	Late-stage VC deal count, % global VC	n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	83	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	73	
4.3	**Trade, diversification and market scale**	**77.5**	**40**	
4.3.1	Applied tariff rate, weighted avg., %	1.6	58	
4.3.2	Domestic industry diversification	95.5	16 ●	
4.3.3	Domestic market scale, bn PPP$	191.6	77	

		Score/ Value	Rank	
Business sophistication		**24.2**	**98**	
5.1	**Knowledge workers**	**24.8**	**118** ○	
5.1.1	Knowledge-intensive employment, %	31.8	46 ◆	
5.1.2	Females employed w/advanced degrees, %	17.0	46	
5.1.3	Youth demographic dividend, %	24.5	123 ○◇	
5.1.4	GERD performed by business, % GDP	0.4	45	
5.1.5	GERD financed by business, %	0.9	88 ○◇	
5.2	**Innovation linkages**	**19.6**	**93**	
5.2.1	Public research–industry co-publications, %	1.1	84	
5.2.2	University–industry R&D collaboration†	27.2	93	
5.2.3	University industry and international engagement, top 5*	17.5	72	
5.2.4	State of cluster development†	41.5	83	
5.2.5	Patent families/bn PPP$ GDP	0.1	54	
5.3	**Knowledge absorption**	**28.2**	**65**	
5.3.1	Intellectual property payments, % total trade	1.4	23	
5.3.2	High-tech imports, % total trade	6.7	92	
5.3.3	ICT services imports, % total trade	1.9	41	
5.3.4	FDI net inflows, % GDP	6.6	21 ●	
5.3.5	Research talent, % in businesses	11.0	63 ○	
Knowledge and technology outputs		**30.8**	**35** ◆	
6.1	**Knowledge creation**	**22.4**	**46**	
6.1.1	Patents by origin/bn PPP$ GDP	0.7	63	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	44	
6.1.3	Utility models by origin/bn PPP$ GDP	0.4	34	
6.1.4	Scientific and technical articles/bn PPP$ GDP	30.3	14 ●◆	
6.1.5	Citable documents H-index	16.6	50	
6.2	**Knowledge impact**	**26.1**	**65**	
6.2.1	Labor productivity growth, %	3.4	13 ●◆	
6.2.2	Unicorn valuation, % GDP	0.0	53 ○◇	
6.2.3	Software spending, % GDP	0.0	120 ○	
6.2.4	High-tech manufacturing, %	23.3	55	
6.3	**Knowledge diffusion**	**43.9**	**21** ●◆	
6.3.1	Intellectual property receipts, % total trade	0.4	32 ◆	
6.3.2	Production and export complexity	65.4	35 ◆	
6.3.3	High-tech exports, % total trade	3.1	52	
6.3.4	ICT services exports, % total trade	8.0	9 ●◆	
6.3.5	ISO 9001 quality/bn PPP$ GDP	19.9	4 ●◆	
Creative outputs		**17.3**	**87**	
7.1	**Intangible assets**	**5.9**	**115** ○◇	
7.1.1	Intangible asset intensity, top 15, %	−371.3	78 ○◇	
7.1.2	Trademarks by origin/bn PPP$ GDP	24.2	79	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81 ○◇	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.5	84	
7.2	**Creative goods and services**	**22.7**	**50**	
7.2.1	Cultural and creative services exports, % total trade	2.3	12 ●◆	
7.2.2	National feature films/mn pop. 15–69	2.5	53	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.5	61	
7.3	**Online creativity**	**34.8**	**42**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	6.3	56	
7.3.2	GitHub commits/mn pop. 15–69	26.4	38 ◆	
7.3.3	Mobile app creation/bn PPP$ GDP	71.7	32	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Seychelles

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
90	64	High	SSA	0.1	4.1	41,078

		Score/ Value	Rank	
Institutions		**63.4**	**37**	
1.1	**Institutional environment**	**68.5**	**35**	
1.1.1	Operational stability for businesses*	78.7	23	●
1.1.2	Government effectiveness*	58.4	44	
1.2	**Regulatory environment**	**57.2**	**55**	◇
1.2.1	Regulatory quality*	51.6	62	◇
1.2.2	Rule of law*	62.8	46	
1.3	**Business environment**	**64.4**	**[27]**	
1.3.1	Policy stability for doing business†	64.4	38	
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**23.9**	**94**	◇
2.1	**Education**	**49.7**	**71**	◇
2.1.1	Expenditure on education, % GDP	4.5	57	
2.1.2	Government funding/pupil, secondary, % GDP/cap	13.9	70	◇
2.1.3	School life expectancy, years	13.4	78	◇
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	11.2	44	
2.2	**Tertiary education**	**20.9**	**93**	◇
2.2.1	Tertiary enrolment, % gross	14.0	111	◇
2.2.2	Graduates in science and engineering, %	27.2	34	
2.2.3	Tertiary inbound mobility, %	0.0	117	○◇
2.3	**Research and development (R&D)**	**1.0**	**104**	◇
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.2	87	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**37.1**	**88**	◇
3.1	**Information and communication technology (ICT)**	**66.1**	**91**	◇
3.1.1	ICT access*	88.2	58	◇
3.1.2	ICT use*	74.8	78	◇
3.1.3	Government online service*	35.5	111	◇
3.2	**General infrastructure**	**38.6**	**[48]**	
3.2.1	Electricity output, GWh/mn pop.	n/a	n/a	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	24.3	59	
3.3	**Ecological sustainability**	**6.5**	**129**	○◇
3.3.1	GDP/unit of energy use	n/a	n/a	
3.3.2	Low-carbon energy use, %	2.0	123	◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.3	63	
Market sophistication		**38.8**	**58**	
4.1	**Credit**	**6.8**	**[125]**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	24.5	109	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**65.3**	**1**	●◆
4.2.1	Market capitalization, % GDP	76.3	23	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	5.5	1	●◆
4.2.3	Late-stage VC deal count, % global VC	0.0	77	
4.2.4	VC investors, deal count/bn PPP$ GDP	29.2	1	●◆
4.2.5	VC investor co-participation/bn PPP$ GDP	4.5	1	●◆
4.3	**Trade, diversification and market scale**	**44.2**	**119**	◇
4.3.1	Applied tariff rate, weighted avg., %	1.5	53	
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	4.1	139	○◇

		Score/ Value	Rank	
Business sophistication		**25.7**	**89**	◇
5.1	**Knowledge workers**	**25.0**	**117**	◇
5.1.1	Knowledge-intensive employment, %	34.7	42	
5.1.2	Females employed w/advanced degrees, %	5.7	92	◇
5.1.3	Youth demographic dividend, %	32.4	79	
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	2.0	84	
5.2	**Innovation linkages**	**32.6**	**48**	
5.2.1	Public research–industry co-publications, %	2.2	38	
5.2.2	University–industry R&D collaboration†	34.2	72	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	57.3	46	
5.2.5	Patent families/bn PPP$ GDP	1.0	26	●
5.3	**Knowledge absorption**	**19.5**	**110**	◇
5.3.1	Intellectual property payments, % total trade	0.2	106	◇
5.3.2	High-tech imports, % total trade	3.2	131	○◇
5.3.3	ICT services imports, % total trade	0.1	138	○◇
5.3.4	FDI net inflows, % GDP	9.3	12	●
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**7.8**	**133**	○◇
6.1	**Knowledge creation**	**15.8**	**62**	
6.1.1	Patents by origin/bn PPP$ GDP	0.3	93	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.7	27	●
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	15.7	43	
6.1.5	Citable documents H-index	1.6	132	○◇
6.2	**Knowledge impact**	**3.6**	**[139]**	
6.2.1	Labor productivity growth, %	n/a	n/a	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	91	◇
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**4.0**	**132**	○◇
6.3.1	Intellectual property receipts, % total trade	0.1	72	
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade	0.1	124	○◇
6.3.4	ICT services exports, % total trade	0.4	113	
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.8	75	
Creative outputs		**25.3**	**[64]**	
7.1	**Intangible assets**	**4.7**	**[122]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	18.9	90	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.0	130	○◇
7.2	**Creative goods and services**	**0.5**	**[133]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	116	
7.3	**Online creativity**	**91.5**	**2**	●◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69	100.0	1	●◆
7.3.2	GitHub commits/mn pop. 15–69	86.1	5	●◆
7.3.3	Mobile app creation/bn PPP$ GDP	88.3	2	●◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Singapore

GII 2025 rank **5**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
9	1	High	SEAO	5.8	880.0	148,186

		Score/ Value	Rank
Institutions		**98.7**	**1** ●◆
1.1	**Institutional environment**	**98.7**	**1** ●◆
1.1.1	Operational stability for businesses*	97.3	2 ●◆
1.1.2	Government effectiveness*	100.0	1 ●◆
1.2	**Regulatory environment**	**97.4**	**1** ●◆
1.2.1	Regulatory quality*	100.0	1 ●◆
1.2.2	Rule of law*	94.8	5
1.3	**Business environment**	**100.0**	**[1]**
1.3.1	Policy stability for doing business†	100.0	1 ●◆
1.3.2	Entrepreneurship policies and culture†	n/a	n/a
Human capital and research		**63.3**	**2** ●◆
2.1	**Education**	**57.4**	**50** ◇
2.1.1	Expenditure on education, % GDP	2.2	126 ○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.2	58 ○◇
2.1.3	School life expectancy, years ⏲	16.7	26
2.1.4	PISA scales in reading, maths and science	559.6	2 ●◆
2.1.5	Pupil–teacher ratio, secondary	14.5	74 ○◇
2.2	**Tertiary education**	**70.9**	**2** ●◆
2.2.1	Tertiary enrolment, % gross ⏲	98.0	10
2.2.2	Graduates in science and engineering, %	35.9	5 ◆
2.2.3	Tertiary inbound mobility, %	n/a	n/a
2.3	**Research and development (R&D)**	**61.6**	**12**
2.3.1	Researchers, FTE/mn pop. ⏲	8,621.4	4 ◆
2.3.2	Gross expenditure on R&D, % GDP ⏲	1.8	19
2.3.3	Global corporate R&D investors, top 3, mn USD	63.1	21
2.3.4	QS university ranking, top 3*	71.4	13
Infrastructure		**57.2**	**19**
3.1	**Information and communication technology (ICT)**	**96.5**	**4** ◆
3.1.1	ICT access*	99.8	8
3.1.2	ICT use*	91.6	17
3.1.3	Government online service*	98.0	6 ◆
3.2	**General infrastructure**	**57.4**	**11**
3.2.1	Electricity output, GWh/mn pop.	10,024.7	15
3.2.2	Logistics performance*	100.0	1 ●◆
3.2.3	Gross capital formation, % GDP	21.8	88 ○
3.3	**Ecological sustainability**	**17.7**	**84** ○◇
3.3.1	GDP/unit of energy use	16.0	28
3.3.2	Low-carbon energy use, %	0.5	130 ○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.0	47
Market sophistication		**61.5**	**6**
4.1	**Credit**	**50.3**	**[26]**
4.1.1	Finance for startups and scaleups†	n/a	n/a
4.1.2	Domestic credit to private sector, % GDP ⏲	129.1	11
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a
4.2	**Investment**	**58.6**	**3** ●◆
4.2.1	Market capitalization, % GDP	154.6	7
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	1.0	5 ◆
4.2.3	Late-stage VC deal count, % global VC	0.4	15
4.2.4	VC investors, deal count/bn PPP$ GDP	3.1	3 ●◆
4.2.5	VC investor co-participation/bn PPP$ GDP	1.3	1 ●◆
4.3	**Trade, diversification and market scale**	**75.7**	**49**
4.3.1	Applied tariff rate, weighted avg., %	0.0	2 ●◆
4.3.2	Domestic industry diversification	62.9	92 ○◇
4.3.3	Domestic market scale, bn PPP$	880.0	34

		Score/ Value	Rank
Business sophistication		**63.0**	**3** ●◆
5.1	**Knowledge workers**	**61.6**	**9**
5.1.1	Knowledge-intensive employment, % ⏲	60.6	2 ●◆
5.1.2	Females employed w/advanced degrees, % ⏲	30.9	2 ●◆
5.1.3	Youth demographic dividend, %	25.6	116 ○
5.1.4	GERD performed by business, % GDP ⏲	1.2	20
5.1.5	GERD financed by business, %	59.2	13
5.2	**Innovation linkages**	**63.8**	**12**
5.2.1	Public research–industry co-publications, %	3.8	22
5.2.2	University–industry R&D collaboration†	67.9	7
5.2.3	University industry and international engagement, top 5*	99.1	3 ●◆
5.2.4	State of cluster development†	82.7	15
5.2.5	Patent families/bn PPP$ GDP	2.5	15
5.3	**Knowledge absorption**	**63.7**	**1** ●◆
5.3.1	Intellectual property payments, % total trade	2.3	12
5.3.2	High-tech imports, % total trade	21.9	6 ◆
5.3.3	ICT services imports, % total trade	3.4	13
5.3.4	FDI net inflows, % GDP	32.1	1 ●◆
5.3.5	Research talent, % in businesses ⏲	54.2	22
Knowledge and technology outputs		**53.1**	**7**
6.1	**Knowledge creation**	**35.2**	**27** ◇
6.1.1	Patents by origin/bn PPP$ GDP	1.9	29
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.2	19
6.1.3	Utility models by origin/bn PPP$ GDP	-	-
6.1.4	Scientific and technical articles/bn PPP$ GDP	18.6	36
6.1.5	Citable documents H-index	41.1	22
6.2	**Knowledge impact**	**68.9**	**2** ●◆
6.2.1	Labor productivity growth, %	1.9	33
6.2.2	Unicorn valuation, % GDP	16.4	1 ●◆
6.2.3	Software spending, % GDP	0.2	69 ◇
6.2.4	High-tech manufacturing, %	79.6	1 ●◆
6.3	**Knowledge diffusion**	**55.2**	**4**
6.3.1	Intellectual property receipts, % total trade	1.7	14
6.3.2	Production and export complexity	93.4	4 ◆
6.3.3	High-tech exports, % total trade	25.9	4 ◆
6.3.4	ICT services exports, % total trade	3.3	42
6.3.5	ISO 9001 quality/bn PPP$ GDP	5.8	45
Creative outputs		**49.2**	**15**
7.1	**Intangible assets**	**39.9**	**33**
7.1.1	Intangible asset intensity, top 15, %	50.3	47 ○◇
7.1.2	Trademarks by origin/bn PPP$ GDP	15.9	99 ○
7.1.3	Global brand value, top 5,000, % GDP	13.8	10
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.6	80 ○◇
7.2	**Creative goods and services**	**48.7**	**6** ◆
7.2.1	Cultural and creative services exports, % total trade	5.9	1 ●◆
7.2.2	National feature films/mn pop. 15–69	2.6	50
7.2.3	Entertainment and media market/th pop. 15–69	41.9	20
7.2.4	Creative goods exports, % total trade	3.0	18
7.3	**Online creativity**	**68.2**	**12**
7.3.1	Top-level domains (TLDs)/th pop. 15–69	20.3	35 ◇
7.3.2	GitHub commits/mn pop. 15–69	100.0	1 ●◆
7.3.3	Mobile app creation/bn PPP$ GDP	84.4	5 ◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Slovakia

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
45	51	High	EUR	5.5	247.5	45,632

		Score/ Value	Rank	
Institutions		**47.9**	**74**	◇
1.1	**Institutional environment**	**62.0**	**48**	
1.1.1	Operational stability for businesses*	75.3	35	
1.1.2	Government effectiveness*	48.7	60	◇
1.2	**Regulatory environment**	**63.8**	**42**	
1.2.1	Regulatory quality*	60.6	45	
1.2.2	Rule of law*	66.9	40	
1.3	**Business environment**	**17.9**	**128**	○◇
1.3.1	Policy stability for doing business†	24.9	115	○◇
1.3.2	Entrepreneurship policies and culture†	10.9	87	○◇
Human capital and research		**35.5**	**52**	
2.1	**Education**	**55.8**	**54**	
2.1.1	Expenditure on education, % GDP	4.5	55	
2.1.2	Government funding/pupil, secondary, % GDP/cap	23.6	27	
2.1.3	School life expectancy, years	15.2	49	
2.1.4	PISA scales in reading, maths and science	457.7	40	
2.1.5	Pupil–teacher ratio, secondary	12.6	59	
2.2	**Tertiary education**	**35.3**	**47**	
2.2.1	Tertiary enrolment, % gross	53.4	69	
2.2.2	Graduates in science and engineering, %	21.4	72	
2.2.3	Tertiary inbound mobility, %	15.2	15	●
2.3	**Research and development (R&D)**	**15.4**	**52**	
2.3.1	Researchers, FTE/mn pop.	3,563.3	31	
2.3.2	Gross expenditure on R&D, % GDP	1.0	39	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	11.0	67	
Infrastructure		**52.8**	**37**	
3.1	**Information and communication technology (ICT)**	**79.7**	**59**	
3.1.1	ICT access*	94.3	46	
3.1.2	ICT use*	79.8	59	
3.1.3	Government online service*	65.1	73	
3.2	**General infrastructure**	**35.0**	**60**	
3.2.1	Electricity output, GWh/mn pop.	5,303.8	42	
3.2.2	Logistics performance*	54.5	42	
3.2.3	Gross capital formation, % GDP	21.0	98	○
3.3	**Ecological sustainability**	**43.7**	**10**	●◆
3.3.1	GDP/unit of energy use	10.9	67	
3.3.2	Low-carbon energy use, %	34.5	29	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	7.9	7	●◆
Market sophistication		**38.7**	**60**	
4.1	**Credit**	**35.8**	**44**	
4.1.1	Finance for startups and scaleups†	49.3	48	
4.1.2	Domestic credit to private sector, % GDP	61.8	50	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**6.8**	**61**	◇
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	47	
4.2.3	Late-stage VC deal count, % global VC	0.0	53	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	55	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	42	
4.3	**Trade, diversification and market scale**	**73.3**	**58**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	78.2	69	
4.3.3	Domestic market scale, bn PPP$	247.5	73	

		Score/ Value	Rank	
Business sophistication		**31.3**	**57**	
5.1	**Knowledge workers**	**41.2**	**51**	
5.1.1	Knowledge-intensive employment, %	40.2	34	
5.1.2	Females employed w/advanced degrees, %	18.4	42	
5.1.3	Youth demographic dividend, %	25.5	118	○
5.1.4	GERD performed by business, % GDP	0.6	37	
5.1.5	GERD financed by business, %	47.1	33	
5.2	**Innovation linkages**	**22.3**	**80**	◇
5.2.1	Public research–industry co-publications, %	2.1	44	
5.2.2	University–industry R&D collaboration†	27.7	92	○◇
5.2.3	University industry and international engagement, top 5*	18.0	70	○◇
5.2.4	State of cluster development†	41.1	85	◇
5.2.5	Patent families/bn PPP$ GDP	0.2	43	
5.3	**Knowledge absorption**	**30.4**	**54**	
5.3.1	Intellectual property payments, % total trade	0.7	58	
5.3.2	High-tech imports, % total trade	12.3	20	●
5.3.3	ICT services imports, % total trade	1.1	87	
5.3.4	FDI net inflows, % GDP	2.1	87	○
5.3.5	Research talent, % in businesses	33.3	40	
Knowledge and technology outputs		**32.7**	**31**	
6.1	**Knowledge creation**	**24.2**	**43**	
6.1.1	Patents by origin/bn PPP$ GDP	1.2	45	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.3	37	
6.1.3	Utility models by origin/bn PPP$ GDP	1.3	13	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	17.6	38	
6.1.5	Citable documents H-index	16.4	52	
6.2	**Knowledge impact**	**37.8**	**27**	●
6.2.1	Labor productivity growth, %	1.5	46	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.3	32	
6.2.4	High-tech manufacturing, %	55.2	8	●◆
6.3	**Knowledge diffusion**	**36.0**	**32**	
6.3.1	Intellectual property receipts, % total trade	0.1	81	
6.3.2	Production and export complexity	81.3	16	●
6.3.3	High-tech exports, % total trade	8.7	25	●
6.3.4	ICT services exports, % total trade	1.8	65	
6.3.5	ISO 9001 quality/bn PPP$ GDP	16.0	13	●◆
Creative outputs		**26.9**	**56**	
7.1	**Intangible assets**	**17.7**	**82**	◇
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	47.0	35	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.6	43	
7.2	**Creative goods and services**	**34.6**	**20**	●
7.2.1	Cultural and creative services exports, % total trade	0.4	71	
7.2.2	National feature films/mn pop. 15–69	6.8	25	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	4.8	11	●◆
7.3	**Online creativity**	**37.7**	**38**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	22.4	33	
7.3.2	GitHub commits/mn pop. 15–69	21.0	43	
7.3.3	Mobile app creation/bn PPP$ GDP	69.8	47	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Slovenia

GII 2025 rank

35

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
38	**32**	**High**	**EUR**	**2.1**	**118.0**	**55,684**

		Score/ Value	Rank	
Institutions		**58.5**	**48**	
1.1	**Institutional environment**	**73.6**	**26**	
1.1.1	Operational stability for businesses*	78.7	23	
1.1.2	Government effectiveness*	68.6	29	
1.2	**Regulatory environment**	**70.5**	**33**	
1.2.1	Regulatory quality*	63.6	38	
1.2.2	Rule of law*	77.5	28	
1.3	**Business environment**	**31.2**	**97**	○◇
1.3.1	Policy stability for doing business†	30.1	103	○◇
1.3.2	Entrepreneurship policies and culture†	32.3	56	
Human capital and research		**48.1**	**26**	
2.1	**Education**	**61.5**	**34**	
2.1.1	Expenditure on education, % GDP	5.7	21	◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	24.3	23	
2.1.3	School life expectancy, years	17.4	18	●
2.1.4	PISA scales in reading, maths and science	484.3	21	
2.1.5	Pupil–teacher ratio, secondary	17.2	94	○◇
2.2	**Tertiary education**	**45.6**	**20**	●
2.2.1	Tertiary enrolment, % gross	80.1	23	
2.2.2	Graduates in science and engineering, %	29.5	24	
2.2.3	Tertiary inbound mobility, %	10.6	25	
2.3	**Research and development (R&D)**	**37.2**	**28**	
2.3.1	Researchers, FTE/mn pop.	5,617.9	15	●
2.3.2	Gross expenditure on R&D, % GDP	2.1	17	●
2.3.3	Global corporate R&D investors, top 3, mn USD	50.2	34	
2.3.4	QS university ranking, top 3*	11.3	66	
Infrastructure		**57.1**	**20**	●
3.1	**Information and communication technology (ICT)**	**88.4**	**32**	
3.1.1	ICT access*	96.8	31	
3.1.2	ICT use*	84.8	36	
3.1.3	Government online service*	83.6	32	
3.2	**General infrastructure**	**40.0**	**43**	
3.2.1	Electricity output, GWh/mn pop.	7,405.7	24	
3.2.2	Logistics performance*	54.5	42	
3.2.3	Gross capital formation, % GDP	23.1	76	
3.3	**Ecological sustainability**	**43.0**	**12**	●
3.3.1	GDP/unit of energy use	13.5	45	
3.3.2	Low-carbon energy use, %	42.1	21	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	5.8	16	●
Market sophistication		**37.8**	**63**	
4.1	**Credit**	**32.0**	**60**	
4.1.1	Finance for startups and scaleups†	52.3	43	
4.1.2	Domestic credit to private sector, % GDP	36.4	83	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**4.7**	**74**	◇
4.2.1	Market capitalization, % GDP	15.7	69	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	66	
4.2.3	Late-stage VC deal count, % global VC	0.0	72	○
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	51	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	54	
4.3	**Trade, diversification and market scale**	**76.7**	**43**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	95.6	14	●
4.3.3	Domestic market scale, bn PPP$	118.0	91	○

		Score/ Value	Rank	
Business sophistication		**38.2**	**36**	
5.1	**Knowledge workers**	**47.8**	**31**	
5.1.1	Knowledge-intensive employment, %	41.6	29	
5.1.2	Females employed w/advanced degrees, %	22.9	25	
5.1.3	Youth demographic dividend, %	24.4	126	○
5.1.4	GERD performed by business, % GDP	1.5	16	
5.1.5	GERD financed by business, %	44.1	38	
5.2	**Innovation linkages**	**31.9**	**50**	
5.2.1	Public research–industry co-publications, %	2.7	30	
5.2.2	University–industry R&D collaboration†	45.2	41	
5.2.3	University industry and international engagement, top 5*	32.5	52	◇
5.2.4	State of cluster development†	38.9	89	○◇
5.2.5	Patent families/bn PPP$ GDP	1.0	27	
5.3	**Knowledge absorption**	**34.7**	**39**	
5.3.1	Intellectual property payments, % total trade	0.5	70	
5.3.2	High-tech imports, % total trade	8.7	57	
5.3.3	ICT services imports, % total trade	1.5	65	
5.3.4	FDI net inflows, % GDP	3.1	56	
5.3.5	Research talent, % in businesses	56.2	19	
Knowledge and technology outputs		**35.1**	**27**	
6.1	**Knowledge creation**	**39.6**	**23**	
6.1.1	Patents by origin/bn PPP$ GDP	2.6	25	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.9	24	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	38.2	7	●◆
6.1.5	Citable documents H-index	19.3	45	
6.2	**Knowledge impact**	**25.0**	**69**	
6.2.1	Labor productivity growth, %	1.1	62	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.1	95	○◇
6.2.4	High-tech manufacturing, %	34.0	34	
6.3	**Knowledge diffusion**	**40.9**	**25**	
6.3.1	Intellectual property receipts, % total trade	0.3	40	
6.3.2	Production and export complexity	86.3	8	●
6.3.3	High-tech exports, % total trade	7.9	28	
6.3.4	ICT services exports, % total trade	2.0	62	
6.3.5	ISO 9001 quality/bn PPP$ GDP	19.3	5	●◆
Creative outputs		**29.4**	**53**	
7.1	**Intangible assets**	**21.6**	**74**	
7.1.1	Intangible asset intensity, top 15, %	–17.0	75	○◇
7.1.2	Trademarks by origin/bn PPP$ GDP	43.4	42	
7.1.3	Global brand value, top 5,000, % GDP	0.8	61	
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.2	36	
7.2	**Creative goods and services**	**26.0**	**44**	
7.2.1	Cultural and creative services exports, % total trade	0.8	41	
7.2.2	National feature films/mn pop. 15–69	8.1	20	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	1.7	28	
7.3	**Online creativity**	**48.4**	**29**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	29.1	27	
7.3.2	GitHub commits/mn pop. 15–69	39.1	29	
7.3.3	Mobile app creation/bn PPP$ GDP	77.0	15	●

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

South Africa

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
60	68	Upper middle	SSA	64.0	993.7	15,723

		Score/ Value	Rank	
Institutions		**38.2**	**97**	
1.1	**Institutional environment**	**41.7**	**95**	
1.1.1	Operational stability for businesses*	46.7	103	○
1.1.2	Government effectiveness*	36.8	89	
1.2	**Regulatory environment**	**48.0**	**72**	
1.2.1	Regulatory quality*	41.6	86	
1.2.2	Rule of law*	54.3	62	
1.3	**Business environment**	**24.9**	**111**	○
1.3.1	Policy stability for doing business†	33.6	98	
1.3.2	Entrepreneurship policies and culture†	16.3	83	○
Human capital and research		**29.4**	**75**	
2.1	**Education**	**49.1**	**76**	
2.1.1	Expenditure on education, % GDP	6.7	8	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	21.7	38	
2.1.3	School life expectancy, years	13.9	70	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	29.6	123	○◇
2.2	**Tertiary education**	**14.9**	**110**	○◇
2.2.1	Tertiary enrolment, % gross	23.7	99	○◇
2.2.2	Graduates in science and engineering, %	17.7	96	○
2.2.3	Tertiary inbound mobility, %	2.5	75	
2.3	**Research and development (R&D)**	**24.3**	**43**	
2.3.1	Researchers, FTE/mn pop.	462.4	77	
2.3.2	Gross expenditure on R&D, % GDP	0.6	58	
2.3.3	Global corporate R&D investors, top 3, mn USD	40.3	42	◆
2.3.4	QS university ranking, top 3*	42.8	32	◆
Infrastructure		**42.0**	**67**	
3.1	**Information and communication technology (ICT)**	**83.4**	**50**	
3.1.1	ICT access*	84.4	70	
3.1.2	ICT use*	79.2	61	
3.1.3	Government online service*	86.4	24	●◆
3.2	**General infrastructure**	**33.1**	**70**	
3.2.1	Electricity output, GWh/mn pop.	3,643.6	60	
3.2.2	Logistics performance*	72.7	18	●◆
3.2.3	Gross capital formation, % GDP	15.5	125	○◇
3.3	**Ecological sustainability**	**9.7**	**114**	○
3.3.1	GDP/unit of energy use	6.4	106	○◇
3.3.2	Low-carbon energy use, %	5.5	110	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.4	62	
Market sophistication		**41.3**	**44**	
4.1	**Credit**	**29.3**	**67**	
4.1.1	Finance for startups and scaleups†	40.6	61	
4.1.2	Domestic credit to private sector, % GDP	91.0	27	●◆
4.1.3	Loans from microfinance institutions, % GDP	1.2	27	
4.2	**Investment**	**25.7**	**22**	●◆
4.2.1	Market capitalization, % GDP	290.2	4	●◆
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	50	◆
4.2.3	Late-stage VC deal count, % global VC	0.1	32	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	47	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	44	
4.3	**Trade, diversification and market scale**	**68.8**	**68**	
4.3.1	Applied tariff rate, weighted avg., %	4.6	93	
4.3.2	Domestic industry diversification	76.8	72	
4.3.3	Domestic market scale, bn PPP$	993.7	32	

		Score/ Value	Rank	
Business sophistication		**33.2**	**48**	
5.1	**Knowledge workers**	**31.9**	**91**	
5.1.1	Knowledge-intensive employment, %	24.0	61	
5.1.2	Females employed w/advanced degrees, %	11.2	68	
5.1.3	Youth demographic dividend, %	42.0	54	
5.1.4	GERD performed by business, % GDP	0.2	54	
5.1.5	GERD financed by business, %	28.7	62	
5.2	**Innovation linkages**	**36.1**	**40**	◆
5.2.1	Public research–industry co-publications, %	1.3	71	
5.2.2	University–industry R&D collaboration†	44.1	46	
5.2.3	University industry and international engagement, top 5*	70.3	24	●◆
5.2.4	State of cluster development†	50.7	59	
5.2.5	Patent families/bn PPP$ GDP	0.1	47	
5.3	**Knowledge absorption**	**31.5**	**49**	
5.3.1	Intellectual property payments, % total trade	1.2	29	●
5.3.2	High-tech imports, % total trade	9.8	45	
5.3.3	ICT services imports, % total trade	3.2	18	●◆
5.3.4	FDI net inflows, % GDP	4.3	35	
5.3.5	Research talent, % in businesses	11.3	61	○
Knowledge and technology outputs		**20.5**	**71**	
6.1	**Knowledge creation**	**19.7**	**55**	
6.1.1	Patents by origin/bn PPP$ GDP	0.4	75	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	46	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	14.6	48	
6.1.5	Citable documents H-index	32.5	31	●◆
6.2	**Knowledge impact**	**25.3**	**67**	
6.2.1	Labor productivity growth, %	−0.0	100	
6.2.2	Unicorn valuation, % GDP	0.7	39	
6.2.3	Software spending, % GDP	0.3	35	
6.2.4	High-tech manufacturing, %	17.5	69	
6.3	**Knowledge diffusion**	**16.5**	**77**	
6.3.1	Intellectual property receipts, % total trade	0.1	52	
6.3.2	Production and export complexity	44.1	74	
6.3.3	High-tech exports, % total trade	1.9	64	
6.3.4	ICT services exports, % total trade	1.1	84	
6.3.5	ISO 9001 quality/bn PPP$ GDP	5.3	49	
Creative outputs		**26.4**	**62**	
7.1	**Intangible assets**	**37.3**	**45**	
7.1.1	Intangible asset intensity, top 15, %	62.2	30	
7.1.2	Trademarks by origin/bn PPP$ GDP	23.4	81	
7.1.3	Global brand value, top 5,000, % GDP	8.4	23	●◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.7	71	
7.2	**Creative goods and services**	**6.6**	**87**	
7.2.1	Cultural and creative services exports, % total trade	0.3	74	
7.2.2	National feature films/mn pop. 15–69	0.3	88	○
7.2.3	Entertainment and media market/th pop. 15–69	7.4	41	
7.2.4	Creative goods exports, % total trade	0.8	53	
7.3	**Online creativity**	**24.4**	**71**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	6.7	54	
7.3.2	GitHub commits/mn pop. 15–69	4.2	89	
7.3.3	Mobile app creation/bn PPP$ GDP	62.4	75	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Spain

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
24	**29**	**High**	**EUR**	**47.9**	**2,665.2**	**55,089**

		Score/ Value	Rank	
Institutions		**54.6**	**53**	
1.1	**Institutional environment**	**64.1**	**43**	
1.1.1	Operational stability for businesses*	66.7	53	
1.1.2	Government effectiveness*	61.5	36	
1.2	**Regulatory environment**	**67.5**	**36**	
1.2.1	Regulatory quality*	62.7	39	
1.2.2	Rule of law*	72.2	32	
1.3	**Business environment**	**32.1**	**94**	○ ◇
1.3.1	Policy stability for doing business†	33.9	95	○ ◇
1.3.2	Entrepreneurship policies and culture†	30.3	59	○
Human capital and research		**46.6**	**30**	
2.1	**Education**	**60.6**	**39**	
2.1.1	Expenditure on education, % GDP	4.3	62	
2.1.2	Government funding/pupil, secondary, % GDP/cap	21.7	39	
2.1.3	School life expectancy, years	17.7	15	●
2.1.4	PISA scales in reading, maths and science	477.3	28	
2.1.5	Pupil–teacher ratio, secondary	10.8	42	
2.2	**Tertiary education**	**34.5**	**51**	
2.2.1	Tertiary enrolment, % gross	93.7	12	●
2.2.2	Graduates in science and engineering, %	21.3	74	○
2.2.3	Tertiary inbound mobility, %	4.3	58	○
2.3	**Research and development (R&D)**	**44.9**	**22**	
2.3.1	Researchers, FTE/mn pop.	3,640.3	30	
2.3.2	Gross expenditure on R&D, % GDP	1.5	28	
2.3.3	Global corporate R&D investors, top 3, mn USD	69.5	14	●
2.3.4	QS university ranking, top 3*	51.5	23	
Infrastructure		**59.5**	**11**	●
3.1	**Information and communication technology (ICT)**	**90.8**	**20**	
3.1.1	ICT access*	98.6	19	
3.1.2	ICT use*	85.1	34	
3.1.3	Government online service*	88.6	22	
3.2	**General infrastructure**	**45.1**	**32**	
3.2.1	Electricity output, GWh/mn pop.	5,794.5	38	
3.2.2	Logistics performance*	81.8	13	
3.2.3	Gross capital formation, % GDP	21.4	95	○
3.3	**Ecological sustainability**	**42.7**	**14**	●
3.3.1	GDP/unit of energy use	16.6	25	
3.3.2	Low-carbon energy use, %	32.9	34	
3.3.3	ISO 14001 environment/bn PPP$ GDP	6.1	14	●
Market sophistication		**46.1**	**33**	
4.1	**Credit**	**35.8**	**45**	
4.1.1	Finance for startups and scaleups†	42.4	60	○ ◇
4.1.2	Domestic credit to private sector, % GDP	78.3	36	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**16.6**	**37**	
4.2.1	Market capitalization, % GDP	52.6	36	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	31	
4.2.3	Late-stage VC deal count, % global VC	0.5	10	●
4.2.4	VC investors, deal count/bn PPP$ GDP	0.3	36	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.2	35	
4.3	**Trade, diversification and market scale**	**85.9**	**10**	●
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	
4.3.2	Domestic industry diversification	93.1	26	
4.3.3	Domestic market scale, bn PPP$	2,665.2	15	●

		Score/ Value	Rank	
Business sophistication		**40.4**	**30**	
5.1	**Knowledge workers**	**45.2**	**36**	
5.1.1	Knowledge-intensive employment, %	36.3	41	
5.1.2	Females employed w/advanced degrees, %	24.9	20	
5.1.3	Youth demographic dividend, %	23.3	132	○
5.1.4	GERD performed by business, % GDP	0.8	30	
5.1.5	GERD financed by business, %	49.3	28	
5.2	**Innovation linkages**	**41.4**	**29**	
5.2.1	Public research–industry co-publications, %	2.8	28	
5.2.2	University–industry R&D collaboration†	34.5	70	○
5.2.3	University industry and international engagement, top 5*	70.2	25	
5.2.4	State of cluster development†	64.3	41	
5.2.5	Patent families/bn PPP$ GDP	0.5	34	
5.3	**Knowledge absorption**	**34.4**	**40**	
5.3.1	Intellectual property payments, % total trade	1.1	31	
5.3.2	High-tech imports, % total trade	8.2	65	○
5.3.3	ICT services imports, % total trade	2.1	37	
5.3.4	FDI net inflows, % GDP	3.9	43	
5.3.5	Research talent, % in businesses	40.7	35	
Knowledge and technology outputs		**36.6**	**23**	
6.1	**Knowledge creation**	**36.6**	**26**	
6.1.1	Patents by origin/bn PPP$ GDP	1.3	44	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.6	28	
6.1.3	Utility models by origin/bn PPP$ GDP	1.0	16	◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	23.7	25	
6.1.5	Citable documents H-index	62.7	12	● ◆
6.2	**Knowledge impact**	**36.5**	**28**	
6.2.1	Labor productivity growth, %	0.1	98	○
6.2.2	Unicorn valuation, % GDP	0.4	44	
6.2.3	Software spending, % GDP	0.7	2	● ◆
6.2.4	High-tech manufacturing, %	32.8	36	
6.3	**Knowledge diffusion**	**36.6**	**30**	
6.3.1	Intellectual property receipts, % total trade	0.8	21	
6.3.2	Production and export complexity	67.3	32	
6.3.3	High-tech exports, % total trade	5.1	42	
6.3.4	ICT services exports, % total trade	3.8	32	
6.3.5	ISO 9001 quality/bn PPP$ GDP	12.6	19	
Creative outputs		**43.0**	**26**	
7.1	**Intangible assets**	**50.4**	**16**	●
7.1.1	Intangible asset intensity, top 15, %	60.9	33	
7.1.2	Trademarks by origin/bn PPP$ GDP	37.7	48	
7.1.3	Global brand value, top 5,000, % GDP	7.8	26	
7.1.4	Industrial designs by origin/bn PPP$ GDP	7.5	11	● ◆
7.2	**Creative goods and services**	**27.0**	**43**	
7.2.1	Cultural and creative services exports, % total trade	1.0	33	
7.2.2	National feature films/mn pop. 15–69	10.6	7	●
7.2.3	Entertainment and media market/th pop. 15–69	27.3	24	
7.2.4	Creative goods exports, % total trade	0.8	52	
7.3	**Online creativity**	**44.0**	**34**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	24.9	31	
7.3.2	GitHub commits/mn pop. 15–69	35.9	32	
7.3.3	Mobile app creation/bn PPP$ GDP	71.1	37	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Sri Lanka

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
86	103	Lower middle	CSA	23.1	NA	NA

			Score/ Value	Rank	
Institutions			**34.6**	**105**	
1.1	**Institutional environment**		**38.8**	**102**	
1.1.1	Operational stability for businesses*		40.7	113	
1.1.2	Government effectiveness*		36.9	88	
1.2	**Regulatory environment**		**42.5**	**86**	
1.2.1	Regulatory quality*		35.0	101	
1.2.2	Rule of law*		50.0	68	◆
1.3	**Business environment**		**22.5**	**[119]**	
1.3.1	Policy stability for doing business†		22.5	121	○
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**19.2**	**109**	
2.1	**Education**		**34.1**	**120**	○
2.1.1	Expenditure on education, % GDP		1.8	131	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	⏲	6.3	92	○
2.1.3	School life expectancy, years		12.9	87	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary		16.3	89	
2.2	**Tertiary education**		**22.0**	**92**	
2.2.1	Tertiary enrolment, % gross		26.4	94	
2.2.2	Graduates in science and engineering, %		25.4	41	●
2.2.3	Tertiary inbound mobility, %		0.5	99	
2.3	**Research and development (R&D)**		**1.6**	**95**	
2.3.1	Researchers, FTE/mn pop.	⏲	94.5	91	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.1	102	○
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		4.0	78	
Infrastructure			**42.4**	**66**	◆
3.1	**Information and communication technology (ICT)**		**59.8**	**100**	
3.1.1	ICT access*		65.5	103	
3.1.2	ICT use*		68.0	92	
3.1.3	Government online service*		45.8	98	
3.2	**General infrastructure**		**33.0**	**71**	
3.2.1	Electricity output, GWh/mn pop.	⏲	747.5	106	
3.2.2	Logistics performance*		31.8	71	
3.2.3	Gross capital formation, % GDP	⏲	32.7	16	●
3.3	**Ecological sustainability**		**34.4**	**31**	●◆
3.3.1	GDP/unit of energy use		25.3	6	●◆
3.3.2	Low-carbon energy use, %		22.4	60	●
3.3.3	ISO 14001 environment/bn PPP$ GDP		2.0	46	●◆
Market sophistication			**26.9**	**109**	
4.1	**Credit**		**16.2**	**[100]**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	⏲	47.0	73	
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**2.1**	**99**	
4.2.1	Market capitalization, % GDP		21.3	59	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.0	111	○
4.2.3	Late-stage VC deal count, % global VC		0.0	85	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.0	100	○
4.2.5	VC investor co-participation/bn PPP$ GDP		0.0	100	○
4.3	**Trade, diversification and market scale**		**62.3**	**85**	
4.3.1	Applied tariff rate, weighted avg., %		5.5	101	
4.3.2	Domestic industry diversification	⏲	75.3	74	
4.3.3	Domestic market scale, bn PPP$	⏲	314.8	61	●

			Score/ Value	Rank	
Business sophistication			**21.1**	**121**	○
5.1	**Knowledge workers**		**26.1**	**111**	
5.1.1	Knowledge-intensive employment, %	⏲	20.0	79	
5.1.2	Females employed w/advanced degrees, %	⏲	4.2	96	
5.1.3	Youth demographic dividend, %		36.9	67	◇
5.1.4	GERD performed by business, % GDP	⏲	0.1	68	
5.1.5	GERD financed by business, %	⏲	40.3	44	
5.2	**Innovation linkages**		**16.0**	**106**	
5.2.1	Public research–industry co-publications, %		1.2	76	
5.2.2	University–industry R&D collaboration†		29.8	82	
5.2.3	University industry and international engagement, top 5*		5.0	100	○◇
5.2.4	State of cluster development†		33.6	98	
5.2.5	Patent families/bn PPP$ GDP		0.0	72	
5.3	**Knowledge absorption**		**21.1**	**101**	
5.3.1	Intellectual property payments, % total trade		0.3	93	
5.3.2	High-tech imports, % total trade		6.2	100	
5.3.3	ICT services imports, % total trade		1.4	73	
5.3.4	FDI net inflows, % GDP		0.9	112	
5.3.5	Research talent, % in businesses	⏲	20.0	52	
Knowledge and technology outputs			**15.7**	**89**	
6.1	**Knowledge creation**		**8.1**	**93**	
6.1.1	Patents by origin/bn PPP$ GDP		0.6	71	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.1	69	
6.1.3	Utility models by origin/bn PPP$ GDP		-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP		4.4	110	
6.1.5	Citable documents H-index		11.2	72	
6.2	**Knowledge impact**		**19.2**	**98**	
6.2.1	Labor productivity growth, %		−1.0	121	○
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.4	24	●◆
6.2.4	High-tech manufacturing, %	⏲	9.4	90	
6.3	**Knowledge diffusion**		**19.8**	**62**	
6.3.1	Intellectual property receipts, % total trade		0.0	89	
6.3.2	Production and export complexity		43.9	77	
6.3.3	High-tech exports, % total trade		0.7	88	
6.3.4	ICT services exports, % total trade		5.1	24	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP		4.1	62	
Creative outputs			**18.2**	**84**	
7.1	**Intangible assets**		**20.6**	**78**	
7.1.1	Intangible asset intensity, top 15, %		31.9	66	
7.1.2	Trademarks by origin/bn PPP$ GDP		25.0	78	
7.1.3	Global brand value, top 5,000, % GDP		0.2	80	
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.4	91	
7.2	**Creative goods and services**		**7.8**	**[78]**	
7.2.1	Cultural and creative services exports, % total trade		n/a	n/a	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.6	58	●
7.3	**Online creativity**		**24.0**	**76**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.9	105	
7.3.2	GitHub commits/mn pop. 15–69		14.5	51	●◆
7.3.3	Mobile app creation/bn PPP$ GDP	⏲	56.5	92	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Sweden

GII 2025 rank **2**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
2	3	High	EUR	10.6	763.6	71,731

		Score/ Value	Rank	
Institutions		**76.5**	**12**	
1.1	**Institutional environment**	**83.2**	**12**	
1.1.1	Operational stability for businesses*	84.0	12	
1.1.2	Government effectiveness*	82.4	10	
1.2	**Regulatory environment**	**88.8**	**11**	
1.2.1	Regulatory quality*	86.4	10	
1.2.2	Rule of law*	91.2	12	
1.3	**Business environment**	**57.4**	**42**	
1.3.1	Policy stability for doing business†	72.9	19	
1.3.2	Entrepreneurship policies and culture†	42.0	45	○
Human capital and research		**61.8**	**3**	● ◆
2.1	**Education**	**68.2**	**12**	
2.1.1	Expenditure on education, % GDP	7.1	4	● ◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	22.6	33	○
2.1.3	School life expectancy, years	18.5	12	
2.1.4	PISA scales in reading, maths and science	487.4	18	
2.1.5	Pupil–teacher ratio, secondary	12.7	61	○
2.2	**Tertiary education**	**42.2**	**27**	
2.2.1	Tertiary enrolment, % gross	81.4	19	
2.2.2	Graduates in science and engineering, %	28.7	28	
2.2.3	Tertiary inbound mobility, %	7.3	40	
2.3	**Research and development (R&D)**	**75.0**	**3**	● ◆
2.3.1	Researchers, FTE/mn pop.	10,413.0	1	● ◆
2.3.2	Gross expenditure on R&D, % GDP	3.6	3	●
2.3.3	Global corporate R&D investors, top 3, mn USD	78.3	10	
2.3.4	QS university ranking, top 3*	65.1	14	
Infrastructure		**67.4**	**4**	● ◆
3.1	**Information and communication technology (ICT)**	**91.5**	**16**	
3.1.1	ICT access*	95.7	41	
3.1.2	ICT use*	92.7	14	
3.1.3	Government online service*	86.0	27	
3.2	**General infrastructure**	**64.7**	**6**	◆
3.2.1	Electricity output, GWh/mn pop.	15,727.7	7	◆
3.2.2	Logistics performance*	86.4	7	
3.2.3	Gross capital formation, % GDP	25.8	41	
3.3	**Ecological sustainability**	**46.0**	**7**	◆
3.3.1	GDP/unit of energy use	12.4	52	○
3.3.2	Low-carbon energy use, %	71.2	3	● ◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	3.1	31	
Market sophistication		**59.5**	**9**	
4.1	**Credit**	**59.8**	**10**	
4.1.1	Finance for startups and scaleups†	69.8	19	
4.1.2	Domestic credit to private sector, % GDP	127.8	12	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**35.9**	**15**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.7	9	
4.2.3	Late-stage VC deal count, % global VC	0.5	14	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.8	16	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.5	15	
4.3	**Trade, diversification and market scale**	**82.7**	**21**	
4.3.1	Applied tariff rate, weighted avg., %	1.3	24	○
4.3.2	Domestic industry diversification	95.5	15	
4.3.3	Domestic market scale, bn PPP$	763.6	40	

		Score/ Value	Rank	
Business sophistication		**65.2**	**2**	● ◆
5.1	**Knowledge workers**	**68.9**	**4**	● ◆
5.1.1	Knowledge-intensive employment, %	58.0	3	●
5.1.2	Females employed w/advanced degrees, %	29.4	6	
5.1.3	Youth demographic dividend, %	28.4	98	○
5.1.4	GERD performed by business, % GDP	2.7	5	
5.1.5	GERD financed by business, %	60.7	11	
5.2	**Innovation linkages**	**67.4**	**8**	
5.2.1	Public research–industry co-publications, %	5.4	12	
5.2.2	University–industry R&D collaboration†	66.5	8	
5.2.3	University industry and international engagement, top 5*	87.5	12	
5.2.4	State of cluster development†	78.5	21	
5.2.5	Patent families/bn PPP$ GDP	6.4	6	◆
5.3	**Knowledge absorption**	**59.4**	**2**	● ◆
5.3.1	Intellectual property payments, % total trade	4.6	5	● ◆
5.3.2	High-tech imports, % total trade	8.9	52	○
5.3.3	ICT services imports, % total trade	5.1	5	● ◆
5.3.4	FDI net inflows, % GDP	7.2	19	
5.3.5	Research talent, % in businesses	76.4	4	◆
Knowledge and technology outputs		**58.1**	**4**	● ◆
6.1	**Knowledge creation**	**67.4**	**3**	● ◆
6.1.1	Patents by origin/bn PPP$ GDP	9.5	9	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	4.3	4	● ◆
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	37.2	10	◆
6.1.5	Citable documents H-index	59.1	13	
6.2	**Knowledge impact**	**56.5**	**5**	●
6.2.1	Labor productivity growth, %	0.4	87	○
6.2.2	Unicorn valuation, % GDP	4.6	9	◆
6.2.3	Software spending, % GDP	0.7	4	●
6.2.4	High-tech manufacturing, %	37.9	27	
6.3	**Knowledge diffusion**	**50.3**	**13**	
6.3.1	Intellectual property receipts, % total trade	3.0	6	
6.3.2	Production and export complexity	84.4	10	
6.3.3	High-tech exports, % total trade	8.8	24	
6.3.4	ICT services exports, % total trade	7.1	12	
6.3.5	ISO 9001 quality/bn PPP$ GDP	3.5	69	○
Creative outputs		**60.1**	**2**	● ◆
7.1	**Intangible assets**	**58.8**	**7**	
7.1.1	Intangible asset intensity, top 15, %	77.9	9	
7.1.2	Trademarks by origin/bn PPP$ GDP	29.2	65	○
7.1.3	Global brand value, top 5,000, % GDP	19.0	2	● ◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.5	33	
7.2	**Creative goods and services**	**49.1**	**5**	● ◆
7.2.1	Cultural and creative services exports, % total trade	3.8	5	◆
7.2.2	National feature films/mn pop. 15–69	8.3	18	
7.2.3	Entertainment and media market/th pop. 15–69	54.0	10	
7.2.4	Creative goods exports, % total trade	1.5	32	
7.3	**Online creativity**	**73.6**	**6**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	57.3	15	
7.3.2	GitHub commits/mn pop. 15–69	85.2	6	
7.3.3	Mobile app creation/bn PPP$ GDP	78.4	10	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Switzerland

1

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
1	2	High	EUR	8.9	851.1	95,837

		Score/ Value	Rank
Institutions		**85.5**	**3** ●◆
1.1	**Institutional environment**	**91.1**	**2** ●◆
1.1.1	Operational stability for businesses*	86.7	8
1.1.2	Government effectiveness*	95.5	2 ●◆
1.2	**Regulatory environment**	**90.8**	**6**
1.2.1	Regulatory quality*	86.6	9
1.2.2	Rule of law*	95.0	4
1.3	**Business environment**	**74.5**	**12**
1.3.1	Policy stability for doing business†	87.9	3 ●◆
1.3.2	Entrepreneurship policies and culture†	61.0	18
Human capital and research		**60.1**	**6**
2.1	**Education**	**63.9**	**19**
2.1.1	Expenditure on education, % GDP	5.1	34
2.1.2	Government funding/pupil, secondary, % GDP/cap	23.1	30 ○
2.1.3	School life expectancy, years	16.7	27
2.1.4	PISA scales in reading, maths and science	497.9	9
2.1.5	Pupil–teacher ratio, secondary ⏲	9.5	28
2.2	**Tertiary education**	**47.2**	**16**
2.2.1	Tertiary enrolment, % gross	74.0	39
2.2.2	Graduates in science and engineering, %	25.2	43 ○
2.2.3	Tertiary inbound mobility, %	19.7	10
2.3	**Research and development (R&D)**	**69.1**	**4**
2.3.1	Researchers, FTE/mn pop. ⏲	5,996.9	12
2.3.2	Gross expenditure on R&D, % GDP ⏲	3.3	7
2.3.3	Global corporate R&D investors, top 3, mn USD	86.5	5
2.3.4	QS university ranking, top 3*	80.5	7
Infrastructure		**65.2**	**5** ◆
3.1	**Information and communication technology (ICT)**	**88.5**	**30**
3.1.1	ICT access*	100.0	1 ●
3.1.2	ICT use*	84.8	37
3.1.3	Government online service*	80.8	38
3.2	**General infrastructure**	**54.7**	**12**
3.2.1	Electricity output, GWh/mn pop.	7,860.5	19
3.2.2	Logistics performance*	90.9	3 ●◆
3.2.3	Gross capital formation, % GDP	25.0	48 ○
3.3	**Ecological sustainability**	**52.5**	**3** ●◆
3.3.1	GDP/unit of energy use	27.8	5 ◆
3.3.2	Low-carbon energy use, %	55.7	10 ◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.9	33
Market sophistication		**67.1**	**3** ●◆
4.1	**Credit**	**74.0**	**4** ◆
4.1.1	Finance for startups and scaleups†	80.6	10
4.1.2	Domestic credit to private sector, % GDP ⏲	170.4	6
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a
4.2	**Investment**	**47.1**	**7**
4.2.1	Market capitalization, % GDP	259.9	5 ◆
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.6	11
4.2.3	Late-stage VC deal count, % global VC	0.4	17
4.2.4	VC investors, deal count/bn PPP$ GDP	1.4	11
4.2.5	VC investor co-participation/bn PPP$ GDP	0.5	14
4.3	**Trade, diversification and market scale**	**80.2**	**29**
4.3.1	Applied tariff rate, weighted avg., %	0.8	12
4.3.2	Domestic industry diversification ⏲	82.8	59 ○
4.3.3	Domestic market scale, bn PPP$	851.1	36

		Score/ Value	Rank
Business sophistication		**59.5**	**5**
5.1	**Knowledge workers**	**59.9**	**11**
5.1.1	Knowledge-intensive employment, %	52.0	8
5.1.2	Females employed w/advanced degrees, %	21.8	28
5.1.3	Youth demographic dividend, %	24.9	119 ○
5.1.4	GERD performed by business, % GDP ⏲	2.3	8
5.1.5	GERD financed by business, % ⏲	65.9	6
5.2	**Innovation linkages**	**80.6**	**1** ●◆
5.2.1	Public research–industry co-publications, %	8.3	3 ●◆
5.2.2	University–industry R&D collaboration†	76.4	2 ●◆
5.2.3	University industry and international engagement, top 5*	97.2	5
5.2.4	State of cluster development†	87.0	10
5.2.5	Patent families/bn PPP$ GDP	8.3	4 ◆
5.3	**Knowledge absorption**	**37.9**	**30**
5.3.1	Intellectual property payments, % total trade	5.5	4 ◆
5.3.2	High-tech imports, % total trade	7.6	77 ○
5.3.3	ICT services imports, % total trade	3.2	15
5.3.4	FDI net inflows, % GDP	−9.1	136 ○◇
5.3.5	Research talent, % in businesses ⏲	48.7	26
Knowledge and technology outputs		**60.1**	**2** ●◆
6.1	**Knowledge creation**	**69.7**	**2** ●◆
6.1.1	Patents by origin/bn PPP$ GDP	13.1	5
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	3.5	7
6.1.3	Utility models by origin/bn PPP$ GDP	-	-
6.1.4	Scientific and technical articles/bn PPP$ GDP	38.2	8 ◆
6.1.5	Citable documents H-index	66.0	10
6.2	**Knowledge impact**	**51.4**	**8**
6.2.1	Labor productivity growth, %	0.8	75 ○
6.2.2	Unicorn valuation, % GDP	0.9	38
6.2.3	Software spending, % GDP	0.7	6
6.2.4	High-tech manufacturing, % ⏲	71.5	2 ●◆
6.3	**Knowledge diffusion**	**59.2**	**2** ●◆
6.3.1	Intellectual property receipts, % total trade	5.4	1 ●◆
6.3.2	Production and export complexity	95.5	3 ●◆
6.3.3	High-tech exports, % total trade	14.3	11
6.3.4	ICT services exports, % total trade	3.1	45 ○
6.3.5	ISO 9001 quality/bn PPP$ GDP	8.8	28
Creative outputs		**68.8**	**1** ●◆
7.1	**Intangible assets**	**64.5**	**4** ◆
7.1.1	Intangible asset intensity, top 15, %	81.5	7
7.1.2	Trademarks by origin/bn PPP$ GDP	48.8	31
7.1.3	Global brand value, top 5,000, % GDP	18.8	3 ●◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	4.1	19
7.2	**Creative goods and services**	**54.7**	**3** ●◆
7.2.1	Cultural and creative services exports, % total trade	0.7	47 ○
7.2.2	National feature films/mn pop. 15–69	17.4	4 ◆
7.2.3	Entertainment and media market/th pop. 15–69	84.5	2 ●◆
7.2.4	Creative goods exports, % total trade	2.9	21
7.3	**Online creativity**	**91.5**	**1** ●◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69	100.0	1 ●◆
7.3.2	GitHub commits/mn pop. 15–69	100.0	1 ●◆
7.3.3	Mobile app creation/bn PPP$ GDP	74.6	20

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Tajikistan

GII 2025 rank

108

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
104	105	Lower middle	CSA	10.6	56.4	5,533

			Score/ Value	Rank	
Institutions			**35.3**	**102**	
1.1	**Institutional environment**		**31.4**	**117**	
1.1.1	Operational stability for businesses*		38.7	118	
1.1.2	Government effectiveness*		24.1	116	
1.2	**Regulatory environment**		**20.4**	**134**	◇
1.2.1	Regulatory quality*		19.6	133	◇
1.2.2	Rule of law*		21.2	136	○◇
1.3	**Business environment**		**54.3**	**[51]**	
1.3.1	Policy stability for doing business†	⏲	54.3	57	●
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**22.4**	**98**	
2.1	**Education**		**46.3**	**[83]**	
2.1.1	Expenditure on education, % GDP		5.4	25	●
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years		11.6	100	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary		n/a	n/a	
2.2	**Tertiary education**		**20.6**	**94**	
2.2.1	Tertiary enrolment, % gross		35.6	87	
2.2.2	Graduates in science and engineering, %	⏲	22.0	69	
2.2.3	Tertiary inbound mobility, %	⏲	0.8	92	
2.3	**Research and development (R&D)**		**0.4**	**112**	
2.3.1	Researchers, FTE/mn pop.		n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.1	104	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**33.0**	**99**	
3.1	**Information and communication technology (ICT)**		**46.6**	**116**	
3.1.1	ICT access*		59.6	109	
3.1.2	ICT use*		n/a	n/a	
3.1.3	Government online service*		33.5	118	
3.2	**General infrastructure**		**17.9**	**118**	
3.2.1	Electricity output, GWh/mn pop.	⏲	2,159.8	78	
3.2.2	Logistics performance*		18.2	90	
3.2.3	Gross capital formation, % GDP		20.4	101	
3.3	**Ecological sustainability**		**34.4**	**32**	●◆
3.3.1	GDP/unit of energy use		10.8	69	
3.3.2	Low-carbon energy use, %		67.1	5	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.0	139	○◇
Market sophistication			**25.9**	**110**	
4.1	**Credit**		**14.6**	**104**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		12.4	128	
4.1.3	Loans from microfinance institutions, % GDP	⏲	2.6	18	●
4.2	**Investment**		**1.8**	**[102]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.0	81	
4.2.3	Late-stage VC deal count, % global VC		0.0	98	
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**61.5**	**89**	
4.3.1	Applied tariff rate, weighted avg., %	⏲	2.4	72	●◆
4.3.2	Domestic industry diversification		65.5	84	
4.3.3	Domestic market scale, bn PPP$		56.4	115	

			Score/ Value	Rank	
Business sophistication			**23.3**	**102**	
5.1	**Knowledge workers**		**42.3**	**[48]**	
5.1.1	Knowledge-intensive employment, %	⏲	23.3	64	
5.1.2	Females employed w/advanced degrees, %	⏲	7.3	88	
5.1.3	Youth demographic dividend, %		52.9	29	●
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**11.1**	**127**	
5.2.1	Public research–industry co-publications, %		0.3	135	○◇
5.2.2	University–industry R&D collaboration†	⏲	22.5	106	
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†	⏲	21.2	124	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**16.4**	**129**	
5.3.1	Intellectual property payments, % total trade		0.0	129	◇
5.3.2	High-tech imports, % total trade		7.2	86	
5.3.3	ICT services imports, % total trade		0.3	128	
5.3.4	FDI net inflows, % GDP		1.2	105	
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**17.5**	**81**	
6.1	**Knowledge creation**		**23.1**	**45**	●◆
6.1.1	Patents by origin/bn PPP$ GDP	⏲	0.4	77	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	86	
6.1.3	Utility models by origin/bn PPP$ GDP	⏲	3.4	1	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP		2.8	123	
6.1.5	Citable documents H-index		1.3	133	
6.2	**Knowledge impact**		**23.5**	**75**	
6.2.1	Labor productivity growth, %		4.7	3	●◆
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.1	108	
6.2.4	High-tech manufacturing, %		4.3	103	◇
6.3	**Knowledge diffusion**		**6.0**	**128**	
6.3.1	Intellectual property receipts, % total trade		0.0	125	
6.3.2	Production and export complexity		26.1	118	
6.3.3	High-tech exports, % total trade		0.9	84	
6.3.4	ICT services exports, % total trade		0.2	129	
6.3.5	ISO 9001 quality/bn PPP$ GDP		0.0	139	○◇
Creative outputs			**7.2**	**124**	
7.1	**Intangible assets**		**2.2**	**132**	◇
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	⏲	13.6	106	
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	⏲	0.0	130	
7.2	**Creative goods and services**		**0.9**	**[126]**	
7.2.1	Cultural and creative services exports, % total trade		0.0	104	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.1	104	
7.3	**Online creativity**		**23.4**	**82**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.3	119	
7.3.2	GitHub commits/mn pop. 15–69		0.7	122	
7.3.3	Mobile app creation/bn PPP$ GDP		69.1	51	●

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Thailand

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
43	46	Upper middle	SEAO	71.7	1,771.5	25,212

		Score/ Value	Rank	
Institutions		**47.5**	**76**	
1.1	**Institutional environment**	**56.3**	**62**	
1.1.1	Operational stability for businesses*	65.3	58	
1.1.2	Government effectiveness*	47.3	61	
1.2	**Regulatory environment**	**54.3**	**58**	
1.2.1	Regulatory quality*	50.4	66	
1.2.2	Rule of law*	58.2	57	◆
1.3	**Business environment**	**32.0**	**95**	
1.3.1	Policy stability for doing business†	35.6	91	
1.3.2	Entrepreneurship policies and culture†	28.5	65	
Human capital and research		**34.9**	**53**	
2.1	**Education**	**44.0**	**91**	
2.1.1	Expenditure on education, % GDP	2.5	121	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.9	38	
2.1.4	PISA scales in reading, maths and science	394.0	67	○
2.1.5	Pupil–teacher ratio, secondary	20.4	105	○◇
2.2	**Tertiary education**	**32.2**	**62**	
2.2.1	Tertiary enrolment, % gross	46.2	75	
2.2.2	Graduates in science and engineering, %	30.1	22	◆
2.2.3	Tertiary inbound mobility, %	2.0	77	
2.3	**Research and development (R&D)**	**28.5**	**36**	◆
2.3.1	Researchers, FTE/mn pop.	1,863.1	43	◆
2.3.2	Gross expenditure on R&D, % GDP	1.2	35	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	44.9	36	◆
2.3.4	QS university ranking, top 3*	33.0	43	
Infrastructure		**45.8**	**59**	
3.1	**Information and communication technology (ICT)**	**84.1**	**48**	
3.1.1	ICT access*	94.1	47	◆
3.1.2	ICT use*	86.8	29	
3.1.3	Government online service*	71.3	62	
3.2	**General infrastructure**	**37.4**	**51**	
3.2.1	Electricity output, GWh/mn pop.	2,618.1	74	
3.2.2	Logistics performance*	63.6	33	◆
3.2.3	Gross capital formation, % GDP	24.1	62	
3.3	**Ecological sustainability**	**15.9**	**93**	
3.3.1	GDP/unit of energy use	9.2	85	
3.3.2	Low-carbon energy use, %	6.2	107	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.7	35	
Market sophistication		**48.0**	**27**	◆
4.1	**Credit**	**54.5**	**22**	●◆
4.1.1	Finance for startups and scaleups†	48.3	49	
4.1.2	Domestic credit to private sector, % GDP	154.3	7	●◆
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**9.4**	**50**	
4.2.1	Market capitalization, % GDP	116.3	13	●
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	101	○
4.2.3	Late-stage VC deal count, % global VC	0.0	46	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	81	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	83	
4.3	**Trade, diversification and market scale**	**80.0**	**30**	
4.3.1	Applied tariff rate, weighted avg., %	3.2	79	
4.3.2	Domestic industry diversification	94.3	24	
4.3.3	Domestic market scale, bn PPP$	1,771.5	21	●

		Score/ Value	Rank	
Business sophistication		**36.4**	**42**	◆
5.1	**Knowledge workers**	**38.4**	**60**	
5.1.1	Knowledge-intensive employment, %	13.7	90	◇
5.1.2	Females employed w/advanced degrees, %	11.1	70	
5.1.3	Youth demographic dividend, %	26.9	107	○◇
5.1.4	GERD performed by business, % GDP	0.8	31	
5.1.5	GERD financed by business, %	80.8	1	●◆
5.2	**Innovation linkages**	**27.9**	**57**	
5.2.1	Public research–industry co-publications, %	1.2	74	
5.2.2	University–industry R&D collaboration†	41.8	49	
5.2.3	University industry and international engagement, top 5*	39.8	47	
5.2.4	State of cluster development†	44.4	71	
5.2.5	Patent families/bn PPP$ GDP	0.1	55	
5.3	**Knowledge absorption**	**42.9**	**18**	●◆
5.3.1	Intellectual property payments, % total trade	1.8	16	●◆
5.3.2	High-tech imports, % total trade	18.5	10	●◆
5.3.3	ICT services imports, % total trade	0.3	129	○◇
5.3.4	FDI net inflows, % GDP	2.2	80	
5.3.5	Research talent, % in businesses	60.8	14	
Knowledge and technology outputs		**27.7**	**44**	
6.1	**Knowledge creation**	**22.1**	**48**	
6.1.1	Patents by origin/bn PPP$ GDP	0.4	74	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	64	
6.1.3	Utility models by origin/bn PPP$ GDP	2.1	5	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	7.5	86	
6.1.5	Citable documents H-index	21.7	41	
6.2	**Knowledge impact**	**28.8**	**56**	
6.2.1	Labor productivity growth, %	−0.6	111	○◇
6.2.2	Unicorn valuation, % GDP	0.6	42	
6.2.3	Software spending, % GDP	0.3	38	
6.2.4	High-tech manufacturing, %	34.7	32	
6.3	**Knowledge diffusion**	**32.1**	**37**	◆
6.3.1	Intellectual property receipts, % total trade	0.1	62	
6.3.2	Production and export complexity	73.0	25	◆
6.3.3	High-tech exports, % total trade	16.5	8	●◆
6.3.4	ICT services exports, % total trade	0.1	133	○
6.3.5	ISO 9001 quality/bn PPP$ GDP	7.8	34	
Creative outputs		**34.0**	**39**	◆
7.1	**Intangible assets**	**41.9**	**27**	
7.1.1	Intangible asset intensity, top 15, %	66.0	20	
7.1.2	Trademarks by origin/bn PPP$ GDP	20.0	88	
7.1.3	Global brand value, top 5,000, % GDP	7.8	25	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.4	34	
7.2	**Creative goods and services**	**27.4**	**41**	◆
7.2.1	Cultural and creative services exports, % total trade	0.0	107	○
7.2.2	National feature films/mn pop. 15–69	1.1	70	
7.2.3	Entertainment and media market/th pop. 15–69	8.9	38	◆
7.2.4	Creative goods exports, % total trade	7.1	7	●◆
7.3	**Online creativity**	**24.6**	**69**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	2.9	76	
7.3.2	GitHub commits/mn pop. 15–69	5.2	79	
7.3.3	Mobile app creation/bn PPP$ GDP	65.8	66	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Togo

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
107	123	Low	SSA	9.5	30.6	3,290

			Score/ Value	Rank	
Institutions			**34.5**	**106**	
1.1	**Institutional environment**		**39.1**	**100**	
1.1.1	Operational stability for businesses*		49.3	98	
1.1.2	Government effectiveness*		28.9	105	
1.2	**Regulatory environment**		**37.4**	**102**	
1.2.1	Regulatory quality*		35.4	99	
1.2.2	Rule of law*		39.4	101	
1.3	**Business environment**		**27.0**	**[108]**	
1.3.1	Policy stability for doing business†		n/a	n/a	
1.3.2	Entrepreneurship policies and culture†	⏲	27.0	67	
Human capital and research			**19.5**	**[107]**	
2.1	**Education**		**51.0**	**[69]**	
2.1.1	Expenditure on education, % GDP		4.1	69	●
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years	⏲	12.3	94	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary		17.8	96	
2.2	**Tertiary education**		**7.4**	**[121]**	
2.2.1	Tertiary enrolment, % gross	⏲	14.9	109	◆
2.2.2	Graduates in science and engineering, %		n/a	n/a	
2.2.3	Tertiary inbound mobility, %		n/a	n/a	
2.3	**Research and development (R&D)**		**0.1**	**120**	
2.3.1	Researchers, FTE/mn pop.		41.4	98	
2.3.2	Gross expenditure on R&D, % GDP		n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**22.5**	**129**	
3.1	**Information and communication technology (ICT)**		**39.2**	**124**	
3.1.1	ICT access*		61.1	106	◆
3.1.2	ICT use*		23.0	121	
3.1.3	Government online service*		33.5	119	
3.2	**General infrastructure**		**22.2**	**100**	
3.2.1	Electricity output, GWh/mn pop.	⏲	92.7	125	○
3.2.2	Logistics performance*		18.2	90	
3.2.3	Gross capital formation, % GDP		27.5	36	●
3.3	**Ecological sustainability**		**6.1**	**132**	○
3.3.1	GDP/unit of energy use		5.0	119	
3.3.2	Low-carbon energy use, %		5.9	109	◇
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.5	88	●
Market sophistication			**28.7**	**97**	◆
4.1	**Credit**		**31.5**	**63**	●◆
4.1.1	Finance for startups and scaleups†	⏲	21.8	86	
4.1.2	Domestic credit to private sector, % GDP		27.9	103	
4.1.3	Loans from microfinance institutions, % GDP		6.1	4	●◆
4.2	**Investment**		**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**25.9**	**137**	○◇
4.3.1	Applied tariff rate, weighted avg., %		10.2	128	◇
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		30.6	132	○

			Score/ Value	Rank	
Business sophistication			**16.7**	**[136]**	
5.1	**Knowledge workers**		**31.7**	**[92]**	
5.1.1	Knowledge-intensive employment, %	⏲	6.7	109	
5.1.2	Females employed w/advanced degrees, %	⏲	1.5	114	
5.1.3	Youth demographic dividend, %		58.8	21	●◇
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**3.0**	**[136]**	
5.2.1	Public research–industry co-publications, %		0.8	103	
5.2.2	University–industry R&D collaboration†		n/a	n/a	
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†		n/a	n/a	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**15.3**	**132**	○◇
5.3.1	Intellectual property payments, % total trade	⏲	0.0	131	○◇
5.3.2	High-tech imports, % total trade		5.8	106	
5.3.3	ICT services imports, % total trade	⏲	0.9	93	
5.3.4	FDI net inflows, % GDP		−1.1	130	
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**11.9**	**105**	
6.1	**Knowledge creation**		**5.3**	**113**	
6.1.1	Patents by origin/bn PPP$ GDP		0.7	65	●◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP	⏲	0.0	75	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP		6.7	92	
6.1.5	Citable documents H-index		1.3	133	○◇
6.2	**Knowledge impact**		**22.3**	**82**	●
6.2.1	Labor productivity growth, %		2.1	25	●
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.1	100	◆
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**8.1**	**117**	
6.3.1	Intellectual property receipts, % total trade	⏲	0.0	124	
6.3.2	Production and export complexity		24.1	121	◇
6.3.3	High-tech exports, % total trade		0.2	114	
6.3.4	ICT services exports, % total trade	⏲	1.7	67	●
6.3.5	ISO 9001 quality/bn PPP$ GDP		1.0	112	
Creative outputs			**11.6**	**105**	
7.1	**Intangible assets**		**4.9**	**121**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		5.2	120	
7.1.3	Global brand value, top 5,000, % GDP		1.5	53	●◆
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.2	107	
7.2	**Creative goods and services**		**17.0**	**[58]**	
7.2.1	Cultural and creative services exports, % total trade		1.5	18	●◆
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.1	106	
7.3	**Online creativity**		**19.4**	**99**	◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.4	114	◆
7.3.2	GitHub commits/mn pop. 15–69		0.9	121	
7.3.3	Mobile app creation/bn PPP$ GDP		57.0	90	◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Trinidad and Tobago

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
125	98	High	LCN	1.5	50.0	34,987

			Score/ Value	Rank	
Institutions			**46.0**	**80**	◇
1.1	**Institutional environment**		**53.7**	**69**	● ◇
1.1.1	Operational stability for businesses*		65.3	58	●
1.1.2	Government effectiveness*		42.0	76	● ◇
1.2	**Regulatory environment**		**44.5**	**82**	◇
1.2.1	Regulatory quality*		43.7	80	◇
1.2.2	Rule of law*		45.4	83	◇
1.3	**Business environment**		**39.9**	**[78]**	
1.3.1	Policy stability for doing business†	⏲	39.9	81	
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**29.8**	**74**	● ◇
2.1	**Education**		**41.2**	**99**	◇
2.1.1	Expenditure on education, % GDP		2.9	113	◇
2.1.2	Government funding/pupil, secondary, % GDP/cap		13.3	76	◇
2.1.3	School life expectancy, years		n/a	n/a	
2.1.4	PISA scales in reading, maths and science	⏲	423.0	50	
2.1.5	Pupil–teacher ratio, secondary		12.0	56	●
2.2	**Tertiary education**		**46.9**	**[17]**	
2.2.1	Tertiary enrolment, % gross		n/a	n/a	
2.2.2	Graduates in science and engineering, %		24.4	46	●
2.2.3	Tertiary inbound mobility, %		n/a	n/a	
2.3	**Research and development (R&D)**		**1.3**	**97**	◇
2.3.1	Researchers, FTE/mn pop.	⏲	492.7	74	◇
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.0	110	○ ◇
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○ ◇
2.3.4	QS university ranking, top 3*		0.0	80	○ ◇
Infrastructure			**30.0**	**110**	◇
3.1	**Information and communication technology (ICT)**		**67.0**	**87**	◇
3.1.1	ICT access*		80.5	85	◇
3.1.2	ICT use*		68.6	91	◇
3.1.3	Government online service*		51.9	89	◇
3.2	**General infrastructure**		**21.8**	**103**	◇
3.2.1	Electricity output, GWh/mn pop.	⏲	6,202.6	33	●
3.2.2	Logistics performance*		18.2	90	◇
3.2.3	Gross capital formation, % GDP		n/a	n/a	
3.3	**Ecological sustainability**		**1.1**	**139**	○ ◇
3.3.1	GDP/unit of energy use		2.2	129	○ ◇
3.3.2	Low-carbon energy use, %		0.0	139	○ ◇
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.4	93	◇
Market sophistication			**28.5**	**[98]**	
4.1	**Credit**		**13.9**	**[107]**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		41.6	78	
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		**n/a**	**[n/a]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		n/a	n/a	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**43.1**	**120**	◇
4.3.1	Applied tariff rate, weighted avg., %		6.5	108	◇
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		50.0	121	◇

			Score/ Value	Rank	
Business sophistication			**17.0**	**135**	○ ◇
5.1	**Knowledge workers**		**24.3**	**120**	◇
5.1.1	Knowledge-intensive employment, %	⏲	30.7	49	● ◇
5.1.2	Females employed w/advanced degrees, %	⏲	14.6	54	● ◇
5.1.3	Youth demographic dividend, %		30.0	90	
5.1.4	GERD performed by business, % GDP	⏲	0.0	81	◇
5.1.5	GERD financed by business, %	⏲	4.6	79	◇
5.2	**Innovation linkages**		**16.0**	**107**	◇
5.2.1	Public research–industry co-publications, %		1.2	78	● ◇
5.2.2	University–industry R&D collaboration†	⏲	16.3	122	◇
5.2.3	University industry and international engagement, top 5*		n/a	n/a	
5.2.4	State of cluster development†	⏲	36.6	92	◇
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○ ◇
5.3	**Knowledge absorption**		**10.7**	**139**	○ ◇
5.3.1	Intellectual property payments, % total trade		0.2	97	
5.3.2	High-tech imports, % total trade		5.1	119	
5.3.3	ICT services imports, % total trade		0.7	105	◇
5.3.4	FDI net inflows, % GDP		−4.2	132	○ ◇
5.3.5	Research talent, % in businesses	⏲	1.4	79	◇
Knowledge and technology outputs			**10.2**	**121**	◇
6.1	**Knowledge creation**		**2.6**	**125**	◇
6.1.1	Patents by origin/bn PPP$ GDP		0.0	128	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	109	○ ◇
6.1.3	Utility models by origin/bn PPP$ GDP	⏲	0.0	68	
6.1.4	Scientific and technical articles/bn PPP$ GDP		4.0	113	◇
6.1.5	Citable documents H-index		4.4	113	◇
6.2	**Knowledge impact**		**16.4**	**115**	◇
6.2.1	Labor productivity growth, %		−0.6	112	
6.2.2	Unicorn valuation, % GDP		0.0	53	○ ◇
6.2.3	Software spending, % GDP		0.2	76	●
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**11.6**	**95**	◇
6.3.1	Intellectual property receipts, % total trade		0.0	92	◇
6.3.2	Production and export complexity		43.7	78	◇
6.3.3	High-tech exports, % total trade		0.9	79	◇
6.3.4	ICT services exports, % total trade		0.6	100	
6.3.5	ISO 9001 quality/bn PPP$ GDP		1.7	94	◇
Creative outputs			**6.3**	**127**	◇
7.1	**Intangible assets**		**5.2**	**119**	◇
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		18.4	91	
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○ ◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	⏲	0.2	102	◇
7.2	**Creative goods and services**		**2.1**	**[110]**	
7.2.1	Cultural and creative services exports, % total trade		0.0	110	◇
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.3	74	●
7.3	**Online creativity**		**12.6**	**125**	◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69		2.4	82	◇
7.3.2	GitHub commits/mn pop. 15–69		4.8	83	◇
7.3.3	Mobile app creation/bn PPP$ GDP		30.5	126	○ ◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Tunisia

GII 2025 rank **76**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
58	96	Lower middle	NAWA	12.3	176.9	14,338

		Score/ Value	Rank	
Institutions		**33.3**	**111**	
1.1	**Institutional environment**	**39.2**	**99**	
1.1.1	Operational stability for businesses*	42.7	111	
1.1.2	Government effectiveness*	35.7	91	
1.2	**Regulatory environment**	**40.7**	**93**	
1.2.1	Regulatory quality*	32.5	108	
1.2.2	Rule of law*	48.9	73	◆
1.3	**Business environment**	**20.2**	**124**	○◇
1.3.1	Policy stability for doing business†	25.1	114	
1.3.2	Entrepreneurship policies and culture† ⏲	15.3	84	○◇
Human capital and research		**36.8**	**50**	◆
2.1	**Education**	**63.6**	**22**	●◆
2.1.1	Expenditure on education, % GDP	6.7	7	●◆
2.1.2	Government funding/pupil, secondary, % GDP/cap ⏲	51.1	1	
2.1.3	School life expectancy, years ⏲	14.3	64	
2.1.4	PISA scales in reading, maths and science ⏲	371.4	74	
2.1.5	Pupil–teacher ratio, secondary ⏲	14.6	77	
2.2	**Tertiary education**	**39.7**	**33**	●◆
2.2.1	Tertiary enrolment, % gross	38.1	84	
2.2.2	Graduates in science and engineering, %	37.9	2	●◆
2.2.3	Tertiary inbound mobility, %	3.1	66	
2.3	**Research and development (R&D)**	**7.0**	**71**	
2.3.1	Researchers, FTE/mn pop. ⏲	1,703.9	45	◆
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.7	49	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**28.3**	**116**	
3.1	**Information and communication technology (ICT)**	**66.1**	**90**	
3.1.1	ICT access*	71.6	95	
3.1.2	ICT use*	75.6	75	◆
3.1.3	Government online service*	51.3	91	
3.2	**General infrastructure**	**4.9**	**138**	○◇
3.2.1	Electricity output, GWh/mn pop.	1,708.7	91	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	12.6	132	○◇
3.3	**Ecological sustainability**	**13.7**	**101**	
3.3.1	GDP/unit of energy use	11.7	61	
3.3.2	Low-carbon energy use, %	2.0	125	○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.8	54	◆
Market sophistication		**32.3**	**84**	
4.1	**Credit**	**24.7**	**78**	
4.1.1	Finance for startups and scaleups† ⏲	30.9	78	◇
4.1.2	Domestic credit to private sector, % GDP ⏲	81.7	33	
4.1.3	Loans from microfinance institutions, % GDP	1.2	28	
4.2	**Investment**	**3.9**	**77**	
4.2.1	Market capitalization, % GDP	18.3	65	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	63	
4.2.3	Late-stage VC deal count, % global VC	0.0	78	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	72	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	64	
4.3	**Trade, diversification and market scale**	**68.3**	**72**	
4.3.1	Applied tariff rate, weighted avg., % ⏲	3.1	78	
4.3.2	Domestic industry diversification ⏲	80.0	66	
4.3.3	Domestic market scale, bn PPP$	176.9	80	

		Score/ Value	Rank	
Business sophistication		**20.9**	**123**	○
5.1	**Knowledge workers**	**30.9**	**97**	
5.1.1	Knowledge-intensive employment, % ⏲	20.5	77	
5.1.2	Females employed w/advanced degrees, % ⏲	10.0	74	◆
5.1.3	Youth demographic dividend, %	37.5	66	◇
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, % ⏲	18.9	67	
5.2	**Innovation linkages**	**14.4**	**117**	
5.2.1	Public research–industry co-publications, %	0.3	136	○◇
5.2.2	University–industry R&D collaboration†	21.1	109	
5.2.3	University industry and international engagement, top 5*	22.6	66	
5.2.4	State of cluster development†	27.5	114	
5.2.5	Patent families/bn PPP$ GDP	0.0	78	
5.3	**Knowledge absorption**	**17.4**	**123**	○
5.3.1	Intellectual property payments, % total trade ⏲	0.1	109	
5.3.2	High-tech imports, % total trade	8.8	56	
5.3.3	ICT services imports, % total trade ⏲	0.7	102	
5.3.4	FDI net inflows, % GDP	1.4	101	
5.3.5	Research talent, % in businesses ⏲	5.2	70	
Knowledge and technology outputs		**23.3**	**56**	◆
6.1	**Knowledge creation**	**22.2**	**47**	◆
6.1.1	Patents by origin/bn PPP$ GDP	0.9	59	◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.1	63	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	28.0	17	●◆
6.1.5	Citable documents H-index	12.0	68	
6.2	**Knowledge impact**	**24.3**	**71**	
6.2.1	Labor productivity growth, %	0.5	82	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.3	40	●◆
6.2.4	High-tech manufacturing, % ⏲	21.9	57	
6.3	**Knowledge diffusion**	**23.5**	**54**	◆
6.3.1	Intellectual property receipts, % total trade ⏲	0.1	53	
6.3.2	Production and export complexity	55.6	47	◆
6.3.3	High-tech exports, % total trade	5.9	38	●
6.3.4	ICT services exports, % total trade ⏲	2.2	59	
6.3.5	ISO 9001 quality/bn PPP$ GDP	5.9	44	●◆
Creative outputs		**24.0**	**66**	◆
7.1	**Intangible assets**	**33.0**	**53**	◆
7.1.1	Intangible asset intensity, top 15, %	36.4	64	
7.1.2	Trademarks by origin/bn PPP$ GDP	31.3	61	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	4.6	15	●◆
7.2	**Creative goods and services**	**8.5**	**76**	
7.2.1	Cultural and creative services exports, % total trade ⏲	0.4	70	
7.2.2	National feature films/mn pop. 15–69	0.9	73	
7.2.3	Entertainment and media market/th pop. 15–69	1.2	59	○
7.2.4	Creative goods exports, % total trade	1.5	33	●
7.3	**Online creativity**	**21.5**	**90**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	2.6	81	◆
7.3.2	GitHub commits/mn pop. 15–69	9.1	58	◆
7.3.3	Mobile app creation/bn PPP$ GDP	53.0	101	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Türkiye

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
35	49	Upper middle	NAWA	87.5	3,456.8	40,283

		Score/ Value	Rank	
Institutions		**37.0**	**100**	○
1.1	**Institutional environment**	**41.8**	**94**	○
1.1.1	Operational stability for businesses*	46.7	103	○
1.1.2	Government effectiveness*	37.0	87	
1.2	**Regulatory environment**	**40.6**	**94**	○
1.2.1	Regulatory quality*	41.4	87	
1.2.2	Rule of law*	39.8	100	○
1.3	**Business environment**	**28.6**	**104**	○
1.3.1	Policy stability for doing business†	27.1	110	○
1.3.2	Entrepreneurship policies and culture† ⏲	30.1	60	
Human capital and research		**41.2**	**38**	◆
2.1	**Education**	**52.1**	**65**	
2.1.1	Expenditure on education, % GDP	3.1	108	○
2.1.2	Government funding/pupil, secondary, % GDP/cap	10.5	83	○
2.1.3	School life expectancy, years ⏲	19.8	3	●◆
2.1.4	PISA scales in reading, maths and science	461.7	38	◆
2.1.5	Pupil–teacher ratio, secondary ⏲	15.5	85	○
2.2	**Tertiary education**	**37.2**	**42**	
2.2.1	Tertiary enrolment, % gross ⏲	127.6	2	●◆
2.2.2	Graduates in science and engineering, %	18.5	92	○
2.2.3	Tertiary inbound mobility, % ⏲	2.9	70	
2.3	**Research and development (R&D)**	**34.1**	**33**	◆
2.3.1	Researchers, FTE/mn pop.	2,701.8	33	◆
2.3.2	Gross expenditure on R&D, % GDP	1.4	31	◆
2.3.3	Global corporate R&D investors, top 3, mn USD	53.9	30	◆
2.3.4	QS university ranking, top 3*	34.4	40	
Infrastructure		**51.7**	**44**	◆
3.1	**Information and communication technology (ICT)**	**87.0**	**38**	◆
3.1.1	ICT access*	91.1	52	
3.1.2	ICT use*	79.2	62	
3.1.3	Government online service*	90.7	13	●◆
3.2	**General infrastructure**	**43.7**	**36**	◆
3.2.1	Electricity output, GWh/mn pop.	3,824.0	57	
3.2.2	Logistics performance*	59.1	37	◆
3.2.3	Gross capital formation, % GDP	30.2	24	
3.3	**Ecological sustainability**	**24.3**	**54**	
3.3.1	GDP/unit of energy use	18.5	18	●◆
3.3.2	Low-carbon energy use, %	18.8	67	
3.3.3	ISO 14001 environment/bn PPP$ GDP	1.0	68	
Market sophistication		**41.9**	**41**	
4.1	**Credit**	**37.4**	**41**	
4.1.1	Finance for startups and scaleups† ⏲	57.5	37	
4.1.2	Domestic credit to private sector, % GDP	49.6	65	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**5.2**	**69**	
4.2.1	Market capitalization, % GDP	28.7	51	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	70	
4.2.3	Late-stage VC deal count, % global VC	0.1	26	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.1	73	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	61	
4.3	**Trade, diversification and market scale**	**82.9**	**19**	●◆
4.3.1	Applied tariff rate, weighted avg., %	3.5	81	
4.3.2	Domestic industry diversification	98.4	6	●◆
4.3.3	Domestic market scale, bn PPP$	3,456.8	12	●◆

		Score/ Value	Rank	
Business sophistication		**36.4**	**41**	◆
5.1	**Knowledge workers**	**39.9**	**55**	
5.1.1	Knowledge-intensive employment, %	24.6	60	
5.1.2	Females employed w/advanced degrees, %	12.7	64	
5.1.3	Youth demographic dividend, %	35.4	70	
5.1.4	GERD performed by business, % GDP	0.9	27	◆
5.1.5	GERD financed by business, %	52.6	23	◆
5.2	**Innovation linkages**	**33.4**	**44**	
5.2.1	Public research–industry co-publications, %	1.4	67	
5.2.2	University–industry R&D collaboration†	29.4	86	
5.2.3	University industry and international engagement, top 5*	69.3	26	◆
5.2.4	State of cluster development†	48.1	65	
5.2.5	Patent families/bn PPP$ GDP	0.3	39	
5.3	**Knowledge absorption**	**36.0**	**36**	◆
5.3.1	Intellectual property payments, % total trade	0.9	43	
5.3.2	High-tech imports, % total trade	8.8	55	
5.3.3	ICT services imports, % total trade	1.1	84	
5.3.4	FDI net inflows, % GDP	1.4	103	○
5.3.5	Research talent, % in businesses	64.0	7	●◆
Knowledge and technology outputs		**26.4**	**48**	
6.1	**Knowledge creation**	**27.4**	**35**	◆
6.1.1	Patents by origin/bn PPP$ GDP	2.8	21	◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.6	32	◆
6.1.3	Utility models by origin/bn PPP$ GDP	1.0	17	
6.1.4	Scientific and technical articles/bn PPP$ GDP	13.0	54	
6.1.5	Citable documents H-index	29.8	33	◆
6.2	**Knowledge impact**	**33.6**	**44**	
6.2.1	Labor productivity growth, %	2.3	22	
6.2.2	Unicorn valuation, % GDP	0.3	47	
6.2.3	Software spending, % GDP	0.4	28	◆
6.2.4	High-tech manufacturing, %	30.3	39	
6.3	**Knowledge diffusion**	**18.1**	**71**	
6.3.1	Intellectual property receipts, % total trade	0.1	56	
6.3.2	Production and export complexity	62.4	41	
6.3.3	High-tech exports, % total trade	2.2	58	
6.3.4	ICT services exports, % total trade	0.9	87	
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.5	77	
Creative outputs		**39.2**	**30**	◆
7.1	**Intangible assets**	**56.7**	**10**	●◆
7.1.1	Intangible asset intensity, top 15, %	60.1	34	
7.1.2	Trademarks by origin/bn PPP$ GDP	111.7	6	●◆
7.1.3	Global brand value, top 5,000, % GDP	0.8	62	
7.1.4	Industrial designs by origin/bn PPP$ GDP	16.0	4	●◆
7.2	**Creative goods and services**	**13.6**	**64**	
7.2.1	Cultural and creative services exports, % total trade	0.1	93	○
7.2.2	National feature films/mn pop. 15–69	2.3	56	
7.2.3	Entertainment and media market/th pop. 15–69	2.4	51	○◇
7.2.4	Creative goods exports, % total trade	2.9	20	●
7.3	**Online creativity**	**29.7**	**55**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	9.0	48	
7.3.2	GitHub commits/mn pop. 15–69	6.3	71	
7.3.3	Mobile app creation/bn PPP$ GDP	73.9	23	◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Uganda

GII 2025 rank

124

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
121	117	Low	SSA	50.0	170.6	3,642

			Score/ Value	Rank	
Institutions			**42.9**	**87**	
1.1	**Institutional environment**		**35.4**	**109**	
1.1.1	Operational stability for businesses*		41.3	112	
1.1.2	Government effectiveness*		29.6	103	
1.2	**Regulatory environment**		**37.8**	**100**	
1.2.1	Regulatory quality*		34.8	102	
1.2.2	Rule of law*		40.7	96	
1.3	**Business environment**		**55.6**	**[48]**	
1.3.1	Policy stability for doing business†	⏲	55.6	53	●
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**12.9**	**[131]**	
2.1	**Education**		**36.1**	**[117]**	
2.1.1	Expenditure on education, % GDP	⏲	2.6	120	◇
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years	⏲	9.4	115	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	⏲	20.5	106	
2.2	**Tertiary education**		**1.3**	**[132]**	
2.2.1	Tertiary enrolment, % gross	⏲	4.8	129	
2.2.2	Graduates in science and engineering, %		n/a	n/a	
2.2.3	Tertiary inbound mobility, %		n/a	n/a	
2.3	**Research and development (R&D)**		**1.2**	**101**	
2.3.1	Researchers, FTE/mn pop.		12.4	108	○◇
2.3.2	Gross expenditure on R&D, % GDP		0.3	75	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**25.4**	**125**	
3.1	**Information and communication technology (ICT)**		**39.2**	**123**	
3.1.1	ICT access*		42.9	126	
3.1.2	ICT use*		22.1	122	
3.1.3	Government online service*		52.7	88	◆
3.2	**General infrastructure**		**17.1**	**119**	
3.2.1	Electricity output, GWh/mn pop.	⏲	122.3	124	
3.2.2	Logistics performance*		n/a	n/a	
3.2.3	Gross capital formation, % GDP		22.7	80	
3.3	**Ecological sustainability**		**20.0**	**69**	●
3.3.1	GDP/unit of energy use		5.1	117	
3.3.2	Low-carbon energy use, %		37.4	27	●
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.9	73	●◆
Market sophistication			**19.1**	**123**	
4.1	**Credit**		**2.8**	**133**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		14.8	123	
4.1.3	Loans from microfinance institutions, % GDP		0.3	52	
4.2	**Investment**		**2.8**	**89**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.1	48	●
4.2.3	Late-stage VC deal count, % global VC		0.0	63	◆
4.2.4	VC investors, deal count/bn PPP$ GDP		0.0	114	○
4.2.5	VC investor co-participation/bn PPP$ GDP		0.0	113	○
4.3	**Trade, diversification and market scale**		**51.6**	**111**	◆
4.3.1	Applied tariff rate, weighted avg., %	⏲	5.8	104	
4.3.2	Domestic industry diversification		n/a	n/a	
4.3.3	Domestic market scale, bn PPP$		170.6	81	◆

			Score/ Value	Rank	
Business sophistication			**25.8**	**88**	
5.1	**Knowledge workers**		**36.5**	**[64]**	
5.1.1	Knowledge-intensive employment, %	⏲	4.5	115	
5.1.2	Females employed w/advanced degrees, %	⏲	3.3	100	◆
5.1.3	Youth demographic dividend, %		64.6	3	●
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**20.3**	**91**	
5.2.1	Public research–industry co-publications, %		1.3	72	●
5.2.2	University–industry R&D collaboration†	⏲	29.1	88	
5.2.3	University industry and international engagement, top 5*		24.3	63	◆
5.2.4	State of cluster development†	⏲	35.9	93	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**20.6**	**104**	
5.3.1	Intellectual property payments, % total trade		0.0	131	○◇
5.3.2	High-tech imports, % total trade		7.8	75	●
5.3.3	ICT services imports, % total trade		0.4	123	
5.3.4	FDI net inflows, % GDP		5.6	25	●
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**10.4**	**118**	
6.1	**Knowledge creation**		**8.3**	**92**	
6.1.1	Patents by origin/bn PPP$ GDP		0.2	99	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP		0.1	48	
6.1.4	Scientific and technical articles/bn PPP$ GDP		11.7	60	●
6.1.5	Citable documents H-index		10.0	77	◆
6.2	**Knowledge impact**		**12.4**	**128**	
6.2.1	Labor productivity growth, %		−0.6	113	
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.0	134	○◇
6.2.4	High-tech manufacturing, %		n/a	n/a	
6.3	**Knowledge diffusion**		**10.6**	**102**	
6.3.1	Intellectual property receipts, % total trade		0.1	54	●◆
6.3.2	Production and export complexity		36.0	94	
6.3.3	High-tech exports, % total trade		0.2	120	
6.3.4	ICT services exports, % total trade		0.5	107	
6.3.5	ISO 9001 quality/bn PPP$ GDP		2.0	89	◆
Creative outputs			**7.4**	**121**	
7.1	**Intangible assets**		**5.8**	**117**	
7.1.1	Intangible asset intensity, top 15, %		n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP		13.7	105	
7.1.3	Global brand value, top 5,000, % GDP		0.4	70	
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.3	94	
7.2	**Creative goods and services**		**0.7**	**[128]**	
7.2.1	Cultural and creative services exports, % total trade	⏲	0.0	108	
7.2.2	National feature films/mn pop. 15–69		n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade		0.1	110	
7.3	**Online creativity**		**17.5**	**109**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		0.2	126	
7.3.2	GitHub commits/mn pop. 15–69		1.1	115	
7.3.3	Mobile app creation/bn PPP$ GDP		51.2	103	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Ukraine

66

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
54	80	Upper middle	EUR	37.9	655.6	19,603

		Score/ Value	Rank	
Institutions		**34.1**	**108**	
1.1	**Institutional environment**	**31.8**	**115**	◇
1.1.1	Operational stability for businesses*	29.3	126	○◇
1.1.2	Government effectiveness*	34.3	94	
1.2	**Regulatory environment**	**35.6**	**106**	
1.2.1	Regulatory quality*	40.6	88	
1.2.2	Rule of law*	30.7	117	◇
1.3	**Business environment**	**34.9**	**89**	
1.3.1	Policy stability for doing business†	37.2	87	
1.3.2	Entrepreneurship policies and culture†	32.7	55	
Human capital and research		**32.5**	**65**	
2.1	**Education**	**57.6**	**48**	
2.1.1	Expenditure on education, % GDP	5.9	18	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	25.9	16	●◆
2.1.3	School life expectancy, years	13.3	80	
2.1.4	PISA scales in reading, maths and science	439.5	43	
2.1.5	Pupil–teacher ratio, secondary	9.4	25	
2.2	**Tertiary education**	**33.1**	**59**	
2.2.1	Tertiary enrolment, % gross	75.9	36	
2.2.2	Graduates in science and engineering, %	24.1	50	
2.2.3	Tertiary inbound mobility, %	3.5	63	
2.3	**Research and development (R&D)**	**6.9**	**72**	
2.3.1	Researchers, FTE/mn pop.	586.1	68	
2.3.2	Gross expenditure on R&D, % GDP	0.3	73	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	16.9	58	
Infrastructure		**40.7**	**75**	
3.1	**Information and communication technology (ICT)**	**89.9**	**23**	●◆
3.1.1	ICT access*	81.5	82	
3.1.2	ICT use*	n/a	n/a	
3.1.3	Government online service*	98.2	5	●◆
3.2	**General infrastructure**	**16.0**	**122**	◇
3.2.1	Electricity output, GWh/mn pop.	2,663.3	73	
3.2.2	Logistics performance*	27.3	76	
3.2.3	Gross capital formation, % GDP	14.8	126	○◇
3.3	**Ecological sustainability**	**16.2**	**91**	
3.3.1	GDP/unit of energy use	5.6	116	○◇
3.3.2	Low-carbon energy use, %	29.9	38	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.5	89	
Market sophistication		**32.3**	**85**	
4.1	**Credit**	**16.7**	**98**	
4.1.1	Finance for startups and scaleups†	43.2	58	
4.1.2	Domestic credit to private sector, % GDP	23.3	110	
4.1.3	Loans from microfinance institutions, % GDP	0.1	59	○
4.2	**Investment**	**2.8**	**88**	
4.2.1	Market capitalization, % GDP	4.3	79	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	91	
4.2.3	Late-stage VC deal count, % global VC	0.0	70	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	54	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	60	
4.3	**Trade, diversification and market scale**	**77.3**	**41**	
4.3.1	Applied tariff rate, weighted avg., %	1.6	55	
4.3.2	Domestic industry diversification	82.6	61	
4.3.3	Domestic market scale, bn PPP$	655.6	44	

		Score/ Value	Rank	
Business sophistication		**31.4**	**56**	
5.1	**Knowledge workers**	**41.9**	**50**	◆
5.1.1	Knowledge-intensive employment, %	37.9	38	◆
5.1.2	Females employed w/advanced degrees, %	30.0	4	●◆
5.1.3	Youth demographic dividend, %	24.4	125	○◇
5.1.4	GERD performed by business, % GDP	0.3	51	
5.1.5	GERD financed by business, %	30.5	59	
5.2	**Innovation linkages**	**24.1**	**72**	
5.2.1	Public research–industry co-publications, %	2.7	29	◆
5.2.2	University–industry R&D collaboration†	31.2	79	
5.2.3	University industry and international engagement, top 5*	9.9	94	○
5.2.4	State of cluster development†	50.2	60	
5.2.5	Patent families/bn PPP$ GDP	0.1	64	
5.3	**Knowledge absorption**	**28.2**	**64**	
5.3.1	Intellectual property payments, % total trade	0.7	61	
5.3.2	High-tech imports, % total trade	10.2	37	
5.3.3	ICT services imports, % total trade	1.4	72	
5.3.4	FDI net inflows, % GDP	2.2	81	
5.3.5	Research talent, % in businesses	27.3	49	
Knowledge and technology outputs		**26.5**	**47**	
6.1	**Knowledge creation**	**31.8**	**30**	◆
6.1.1	Patents by origin/bn PPP$ GDP	1.6	33	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	51	
6.1.3	Utility models by origin/bn PPP$ GDP	5.5	1	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	6.7	95	
6.1.5	Citable documents H-index	16.5	51	
6.2	**Knowledge impact**	**18.7**	**101**	
6.2.1	Labor productivity growth, %	−2.4	130	○◇
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.4	25	●◆
6.2.4	High-tech manufacturing, %	18.3	67	
6.3	**Knowledge diffusion**	**28.9**	**47**	
6.3.1	Intellectual property receipts, % total trade	0.1	66	
6.3.2	Production and export complexity	55.8	46	
6.3.3	High-tech exports, % total trade	1.2	73	
6.3.4	ICT services exports, % total trade	10.0	5	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	2.3	85	
Creative outputs		**23.9**	**67**	
7.1	**Intangible assets**	**28.4**	**63**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	62.0	22	●
7.1.3	Global brand value, top 5,000, % GDP	0.4	71	
7.1.4	Industrial designs by origin/bn PPP$ GDP	4.5	16	●◆
7.2	**Creative goods and services**	**5.0**	**95**	
7.2.1	Cultural and creative services exports, % total trade	0.5	58	
7.2.2	National feature films/mn pop. 15–69	0.6	78	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	93	
7.3	**Online creativity**	**33.6**	**47**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	5.4	59	
7.3.2	GitHub commits/mn pop. 15–69	20.2	44	◆
7.3.3	Mobile app creation/bn PPP$ GDP	75.3	18	●◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

United Arab Emirates

GII 2025 rank **30**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
47	14	High	NAWA	11.0	849.8	77,251

		Score/ Value	Rank	
Institutions		**81.8**	**7**	●◆
1.1	**Institutional environment**	**80.6**	**16**	
1.1.1	Operational stability for businesses*	78.7	23	
1.1.2	Government effectiveness*	82.5	9	
1.2	**Regulatory environment**	**72.2**	**27**	
1.2.1	Regulatory quality*	70.8	30	
1.2.2	Rule of law*	73.7	31	
1.3	**Business environment**	**92.6**	**2**	●◆
1.3.1	Policy stability for doing business†	85.1	6	●◆
1.3.2	Entrepreneurship policies and culture†	100.0	1	●◆
Human capital and research		**54.7**	**17**	
2.1	**Education**	**54.3**	**59**	
2.1.1	Expenditure on education, % GDP	3.9	83	○
2.1.2	Government funding/pupil, secondary, % GDP/cap	23.3	29	
2.1.3	School life expectancy, years	15.6	43	
2.1.4	PISA scales in reading, maths and science	426.8	48	◇
2.1.5	Pupil–teacher ratio, secondary	8.9	18	
2.2	**Tertiary education**	**73.4**	**1**	●◆
2.2.1	Tertiary enrolment, % gross	61.3	51	
2.2.2	Graduates in science and engineering, %	36.2	4	●◆
2.2.3	Tertiary inbound mobility, %	69.7	1	●◆
2.3	**Research and development (R&D)**	**36.3**	**29**	
2.3.1	Researchers, FTE/mn pop.	2,606.8	35	
2.3.2	Gross expenditure on R&D, % GDP	1.5	27	
2.3.3	Global corporate R&D investors, top 3, mn USD	56.2	29	
2.3.4	QS university ranking, top 3*	40.7	34	
Infrastructure		**61.1**	**9**	
3.1	**Information and communication technology (ICT)**	**95.0**	**8**	
3.1.1	ICT access*	99.9	6	●
3.1.2	ICT use*	95.2	7	●◆
3.1.3	Government online service*	89.9	16	
3.2	**General infrastructure**	**67.2**	**5**	●◆
3.2.1	Electricity output, GWh/mn pop.	16,466.1	6	●◆
3.2.2	Logistics performance*	86.4	7	◆
3.2.3	Gross capital formation, % GDP	27.2	38	
3.3	**Ecological sustainability**	**21.1**	**66**	
3.3.1	GDP/unit of energy use	8.6	91	○
3.3.2	Low-carbon energy use, %	8.2	100	○
3.3.3	ISO 14001 environment/bn PPP$ GDP	4.4	20	
Market sophistication		**54.0**	**19**	
4.1	**Credit**	**58.3**	**13**	
4.1.1	Finance for startups and scaleups†	92.3	3	●◆
4.1.2	Domestic credit to private sector, % GDP	66.6	44	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**26.9**	**20**	
4.2.1	Market capitalization, % GDP	130.6	9	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.3	26	
4.2.3	Late-stage VC deal count, % global VC	0.1	31	
4.2.4	VC investors, deal count/bn PPP$ GDP	1.2	12	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.3	22	
4.3	**Trade, diversification and market scale**	**76.9**	**42**	
4.3.1	Applied tariff rate, weighted avg., %	2.5	74	
4.3.2	Domestic industry diversification	86.2	52	
4.3.3	Domestic market scale, bn PPP$	849.8	37	

		Score/ Value	Rank	
Business sophistication		**42.0**	**28**	
5.1	**Knowledge workers**	**33.3**	**80**	
5.1.1	Knowledge-intensive employment, %	33.9	45	
5.1.2	Females employed w/advanced degrees, %	13.2	61	◇
5.1.3	Youth demographic dividend, %	28.7	97	○
5.1.4	GERD performed by business, % GDP	0.8	32	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**47.2**	**27**	
5.2.1	Public research–industry co-publications, %	1.4	68	
5.2.2	University–industry R&D collaboration†	59.0	21	
5.2.3	University industry and international engagement, top 5*	71.9	22	
5.2.4	State of cluster development†	89.6	6	●◆
5.2.5	Patent families/bn PPP$ GDP	0.1	53	
5.3	**Knowledge absorption**	**45.5**	**12**	
5.3.1	Intellectual property payments, % total trade	0.7	60	
5.3.2	High-tech imports, % total trade	16.1	13	◆
5.3.3	ICT services imports, % total trade	0.9	95	○
5.3.4	FDI net inflows, % GDP	5.2	30	
5.3.5	Research talent, % in businesses	77.9	3	●◆
Knowledge and technology outputs		**23.0**	**57**	
6.1	**Knowledge creation**	**9.9**	**83**	◇
6.1.1	Patents by origin/bn PPP$ GDP	0.3	83	◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.2	53	
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	74	○◇
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.2	68	◇
6.1.5	Citable documents H-index	15.9	54	
6.2	**Knowledge impact**	**28.4**	**57**	
6.2.1	Labor productivity growth, %	−0.2	102	○
6.2.2	Unicorn valuation, % GDP	1.3	31	
6.2.3	Software spending, % GDP	0.3	34	
6.2.4	High-tech manufacturing, %	20.2	64	
6.3	**Knowledge diffusion**	**30.7**	**39**	
6.3.1	Intellectual property receipts, % total trade	0.8	20	
6.3.2	Production and export complexity	49.3	61	◇
6.3.3	High-tech exports, % total trade	10.4	18	
6.3.4	ICT services exports, % total trade	1.7	69	
6.3.5	ISO 9001 quality/bn PPP$ GDP	8.1	32	
Creative outputs		**36.1**	**35**	
7.1	**Intangible assets**	**41.1**	**30**	
7.1.1	Intangible asset intensity, top 15, %	63.2	27	
7.1.2	Trademarks by origin/bn PPP$ GDP	13.6	107	○◇
7.1.3	Global brand value, top 5,000, % GDP	15.5	7	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.1	115	○◇
7.2	**Creative goods and services**	**28.4**	**38**	
7.2.1	Cultural and creative services exports, % total trade	0.4	68	
7.2.2	National feature films/mn pop. 15–69	1.2	67	○◇
7.2.3	Entertainment and media market/th pop. 15–69	22.6	28	
7.2.4	Creative goods exports, % total trade	5.7	10	◆
7.3	**Online creativity**	**34.0**	**44**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	10.2	45	
7.3.2	GitHub commits/mn pop. 15–69	14.3	52	◇
7.3.3	Mobile app creation/bn PPP$ GDP	77.5	14	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

United Kingdom

6

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
4	10	High	EUR	69.1	4,282.2	62,574

		Score/ Value	Rank	
Institutions		**69.3**	**25**	
1.1	**Institutional environment**	**69.5**	**33**	◇
1.1.1	Operational stability for businesses*	67.3	52	◇
1.1.2	Government effectiveness*	71.6	24	
1.2	**Regulatory environment**	**84.2**	**17**	
1.2.1	Regulatory quality*	82.2	14	
1.2.2	Rule of law*	86.2	18	
1.3	**Business environment**	**54.2**	**52**	
1.3.1	Policy stability for doing business†	66.1	32	
1.3.2	Entrepreneurship policies and culture†	42.4	44	○
Human capital and research		**59.4**	**7**	●
2.1	**Education**	**62.2**	**29**	
2.1.1	Expenditure on education, % GDP	4.9	42	
2.1.2	Government funding/pupil, secondary, % GDP/cap	25.3	18	
2.1.3	School life expectancy, years	17.8	14	
2.1.4	PISA scales in reading, maths and science	494.3	13	
2.1.5	Pupil–teacher ratio, secondary	16.3	90	○◇
2.2	**Tertiary education**	**47.9**	**15**	
2.2.1	Tertiary enrolment, % gross	79.7	25	
2.2.2	Graduates in science and engineering, %	23.3	57	○
2.2.3	Tertiary inbound mobility, %	21.6	7	
2.3	**Research and development (R&D)**	**68.3**	**5**	●
2.3.1	Researchers, FTE/mn pop.	4,763.5	25	
2.3.2	Gross expenditure on R&D, % GDP	2.8	12	
2.3.3	Global corporate R&D investors, top 3, mn USD	83.5	7	●
2.3.4	QS university ranking, top 3*	99.7	2	●◆
Infrastructure		**56.6**	**23**	
3.1	**Information and communication technology (ICT)**	**94.0**	**10**	
3.1.1	ICT access*	98.6	18	
3.1.2	ICT use*	89.1	25	
3.1.3	Government online service*	94.4	7	●
3.2	**General infrastructure**	**36.3**	**56**	◇
3.2.1	Electricity output, GWh/mn pop.	4,151.9	54	○
3.2.2	Logistics performance*	72.7	18	
3.2.3	Gross capital formation, % GDP	17.9	113	○◇
3.3	**Ecological sustainability**	**39.5**	**20**	
3.3.1	GDP/unit of energy use	20.7	11	
3.3.2	Low-carbon energy use, %	24.5	51	
3.3.3	ISO 14001 environment/bn PPP$ GDP	4.9	19	
Market sophistication		**63.8**	**4**	●
4.1	**Credit**	**52.9**	**24**	
4.1.1	Finance for startups and scaleups†	59.6	32	
4.1.2	Domestic credit to private sector, % GDP	119.4	16	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**47.7**	**6**	●
4.2.1	Market capitalization, % GDP	110.1	15	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.8	6	●
4.2.3	Late-stage VC deal count, % global VC	2.8	3	●◆
4.2.4	VC investors, deal count/bn PPP$ GDP	1.1	13	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.5	12	
4.3	**Trade, diversification and market scale**	**90.7**	**3**	●◆
4.3.1	Applied tariff rate, weighted avg., %	0.8	11	
4.3.2	Domestic industry diversification	98.6	3	●
4.3.3	Domestic market scale, bn PPP$	4,282.2	10	

		Score/ Value	Rank	
Business sophistication		**53.0**	**17**	
5.1	**Knowledge workers**	**59.4**	**13**	
5.1.1	Knowledge-intensive employment, %	55.2	4	●
5.1.2	Females employed w/advanced degrees, %	21.8	27	
5.1.3	Youth demographic dividend, %	28.8	94	○
5.1.4	GERD performed by business, % GDP	1.8	13	
5.1.5	GERD financed by business, %	61.9	10	
5.2	**Innovation linkages**	**64.3**	**11**	
5.2.1	Public research–industry co-publications, %	5.4	11	
5.2.2	University–industry R&D collaboration†	65.0	12	
5.2.3	University industry and international engagement, top 5*	95.0	7	
5.2.4	State of cluster development†	79.5	17	
5.2.5	Patent families/bn PPP$ GDP	1.7	18	
5.3	**Knowledge absorption**	**35.2**	**37**	◇
5.3.1	Intellectual property payments, % total trade	1.8	15	
5.3.2	High-tech imports, % total trade	11.3	29	
5.3.3	ICT services imports, % total trade	1.8	51	
5.3.4	FDI net inflows, % GDP	−0.3	128	○
5.3.5	Research talent, % in businesses	41.8	34	○◇
Knowledge and technology outputs		**56.0**	**5**	●◆
6.1	**Knowledge creation**	**60.0**	**5**	●
6.1.1	Patents by origin/bn PPP$ GDP	4.2	16	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.5	15	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	28.4	16	
6.1.5	Citable documents H-index	100.0	1	●◆
6.2	**Knowledge impact**	**57.1**	**4**	●
6.2.1	Labor productivity growth, %	0.5	83	○
6.2.2	Unicorn valuation, % GDP	5.1	7	●◆
6.2.3	Software spending, % GDP	0.6	17	
6.2.4	High-tech manufacturing, %	39.8	23	
6.3	**Knowledge diffusion**	**50.7**	**12**	
6.3.1	Intellectual property receipts, % total trade	2.7	7	●
6.3.2	Production and export complexity	85.5	9	
6.3.3	High-tech exports, % total trade	8.4	26	
6.3.4	ICT services exports, % total trade	4.6	28	
6.3.5	ISO 9001 quality/bn PPP$ GDP	10.9	22	
Creative outputs		**59.7**	**3**	●◆
7.1	**Intangible assets**	**63.8**	**5**	●
7.1.1	Intangible asset intensity, top 15, %	84.3	5	◆
7.1.2	Trademarks by origin/bn PPP$ GDP	46.5	36	
7.1.3	Global brand value, top 5,000, % GDP	13.8	11	
7.1.4	Industrial designs by origin/bn PPP$ GDP	8.6	7	◆
7.2	**Creative goods and services**	**45.4**	**10**	
7.2.1	Cultural and creative services exports, % total trade	3.5	6	●◆
7.2.2	National feature films/mn pop. 15–69	3.6	42	○
7.2.3	Entertainment and media market/th pop. 15–69	65.5	6	
7.2.4	Creative goods exports, % total trade	1.7	30	
7.3	**Online creativity**	**65.8**	**15**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	68.2	11	
7.3.2	GitHub commits/mn pop. 15–69	55.7	21	
7.3.3	Mobile app creation/bn PPP$ GDP	73.4	27	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

United Republic of Tanzania

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
124	114	Lower middle	SSA	68.6	269.7	4,134

		Score/ Value	Rank	
Institutions		**46.5**	**79**	●
1.1	**Institutional environment**	**41.9**	**93**	
1.1.1	Operational stability for businesses*	52.0	93	
1.1.2	Government effectiveness*	31.9	97	
1.2	**Regulatory environment**	**38.2**	**99**	
1.2.1	Regulatory quality*	33.2	105	
1.2.2	Rule of law*	43.2	89	
1.3	**Business environment**	**59.3**	**[37]**	
1.3.1	Policy stability for doing business†	59.3	48	●
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**13.6**	**[128]**	
2.1	**Education**	**35.7**	**[118]**	
2.1.1	Expenditure on education, % GDP	3.2	107	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years ⏲	9.4	116	◇
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary ⏲	23.4	110	
2.2	**Tertiary education**	**5.0**	**126**	◇
2.2.1	Tertiary enrolment, % gross	4.0	132	○◇
2.2.2	Graduates in science and engineering, %	13.7	109	◇
2.2.3	Tertiary inbound mobility, %	0.4	103	
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**29.8**	**111**	
3.1	**Information and communication technology (ICT)**	**40.8**	**120**	
3.1.1	ICT access*	48.7	118	
3.1.2	ICT use*	36.3	119	◇
3.1.3	Government online service*	37.3	109	
3.2	**General infrastructure**	**40.4**	**42**	●◆
3.2.1	Electricity output, GWh/mn pop.	163.0	122	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	38.1	8	●◆
3.3	**Ecological sustainability**	**8.1**	**122**	◇
3.3.1	GDP/unit of energy use	6.7	104	
3.3.2	Low-carbon energy use, %	9.1	96	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.3	114	
Market sophistication		**18.4**	**125**	
4.1	**Credit**	**2.4**	**135**	◇
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	16.4	121	
4.1.3	Loans from microfinance institutions, % GDP ⏲	0.1	57	
4.2	**Investment**	**1.1**	**113**	
4.2.1	Market capitalization, % GDP	9.4	76	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	103	
4.2.3	Late-stage VC deal count, % global VC	0.0	76	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	112	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	115	○◇
4.3	**Trade, diversification and market scale**	**51.7**	**110**	
4.3.1	Applied tariff rate, weighted avg., %	8.5	122	
4.3.2	Domestic industry diversification ⏲	68.5	79	
4.3.3	Domestic market scale, bn PPP$	269.7	67	●

		Score/ Value	Rank	
Business sophistication		**24.5**	**97**	
5.1	**Knowledge workers**	**30.9**	**[95]**	
5.1.1	Knowledge-intensive employment, % ⏲	3.1	120	○◇
5.1.2	Females employed w/advanced degrees, % ⏲	0.1	125	○◇
5.1.3	Youth demographic dividend, %	62.5	7	●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**24.4**	**69**	●
5.2.1	Public research–industry co-publications, %	1.0	92	
5.2.2	University–industry R&D collaboration†	44.8	42	●◆
5.2.3	University industry and international engagement, top 5*	13.1	87	
5.2.4	State of cluster development†	55.6	50	●
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**18.2**	**118**	
5.3.1	Intellectual property payments, % total trade ⏲	0.0	122	
5.3.2	High-tech imports, % total trade	8.6	61	●
5.3.3	ICT services imports, % total trade ⏲	0.3	131	
5.3.4	FDI net inflows, % GDP	1.9	92	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**10.4**	**119**	
6.1	**Knowledge creation**	**4.4**	**120**	
6.1.1	Patents by origin/bn PPP$ GDP ⏲	0.0	133	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	109	○◇
6.1.3	Utility models by origin/bn PPP$ GDP ⏲	0.0	73	
6.1.4	Scientific and technical articles/bn PPP$ GDP	6.2	97	
6.1.5	Citable documents H-index	9.6	80	●
6.2	**Knowledge impact**	**16.1**	**116**	
6.2.1	Labor productivity growth, %	1.5	44	●
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	135	○◇
6.2.4	High-tech manufacturing, % ⏲	6.9	96	
6.3	**Knowledge diffusion**	**10.6**	**101**	
6.3.1	Intellectual property receipts, % total trade	0.6	30	●◆
6.3.2	Production and export complexity	26.4	115	
6.3.3	High-tech exports, % total trade	0.3	105	
6.3.4	ICT services exports, % total trade ⏲	0.3	120	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.5	123	
Creative outputs		**6.4**	**[126]**	
7.1	**Intangible assets**	**5.1**	**[120]**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP ⏲	10.4	111	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	n/a	n/a	
7.2	**Creative goods and services**	**1.1**	**[123]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	99	
7.3	**Online creativity**	**14.0**	**120**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.2	125	
7.3.2	GitHub commits/mn pop. 15–69	0.5	126	
7.3.3	Mobile app creation/bn PPP$ GDP	41.3	118	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

United States of America

3

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
3	6	High	NAC	345.4	29,167.8	86,601

		Score/ Value	Rank	
Institutions		**74.3**	**16**	
1.1	**Institutional environment**	**75.8**	**22**	
1.1.1	Operational stability for businesses*	78.7	23	
1.1.2	Government effectiveness*	73.0	21	
1.2	**Regulatory environment**	**81.7**	**20**	
1.2.1	Regulatory quality*	78.9	18	
1.2.2	Rule of law*	84.5	19	
1.3	**Business environment**	**65.5**	**25**	
1.3.1	Policy stability for doing business†	75.5	16	
1.3.2	Entrepreneurship policies and culture†	55.5	22	
Human capital and research		**55.8**	**13**	
2.1	**Education**	**60.3**	**40**	
2.1.1	Expenditure on education, % GDP	5.4	27	
2.1.2	Government funding/pupil, secondary, % GDP/cap	23.4	28	
2.1.3	School life expectancy, years	15.9	37	
2.1.4	PISA scales in reading, maths and science	489.4	17	
2.1.5	Pupil–teacher ratio, secondary	14.5	75	○◇
2.2	**Tertiary education**	**31.4**	**63**	◇
2.2.1	Tertiary enrolment, % gross	79.4	26	
2.2.2	Graduates in science and engineering, %	20.4	77	○
2.2.3	Tertiary inbound mobility, %	5.3	50	
2.3	**Research and development (R&D)**	**75.7**	**2**	●◆
2.3.1	Researchers, FTE/mn pop.	5,041.5	23	
2.3.2	Gross expenditure on R&D, % GDP	3.4	4	
2.3.3	Global corporate R&D investors, top 3, mn USD	100.0	1	●◆
2.3.4	QS university ranking, top 3*	100.0	1	●◆
Infrastructure		**54.3**	**32**	
3.1	**Information and communication technology (ICT)**	**94.5**	**9**	
3.1.1	ICT access*	99.5	9	
3.1.2	ICT use*	94.3	9	◆
3.1.3	Government online service*	89.6	17	
3.2	**General infrastructure**	**54.1**	**13**	
3.2.1	Electricity output, GWh/mn pop.	13,177.3	10	
3.2.2	Logistics performance*	77.3	16	
3.2.3	Gross capital formation, % GDP	21.8	90	○
3.3	**Ecological sustainability**	**14.3**	**98**	○◇
3.3.1	GDP/unit of energy use	10.1	74	○
3.3.2	Low-carbon energy use, %	17.5	76	
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.2	120	○◇
Market sophistication		**75.0**	**1**	●◆
4.1	**Credit**	**75.2**	**3**	●◆
4.1.1	Finance for startups and scaleups†	74.1	16	
4.1.2	Domestic credit to private sector, % GDP	192.0	4	◆
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**55.3**	**4**	◆
4.2.1	Market capitalization, % GDP	184.9	6	◆
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.6	12	
4.2.3	Late-stage VC deal count, % global VC	11.4	1	●◆
4.2.4	VC investors, deal count/bn PPP$ GDP	0.6	20	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.5	16	
4.3	**Trade, diversification and market scale**	**94.6**	**1**	●◆
4.3.1	Applied tariff rate, weighted avg., %	1.2	19	
4.3.2	Domestic industry diversification	95.0	21	
4.3.3	Domestic market scale, bn PPP$	29,167.8	2	●◆

		Score/ Value	Rank	
Business sophistication		**65.9**	**1**	●◆
5.1	**Knowledge workers**	**69.9**	**3**	●◆
5.1.1	Knowledge-intensive employment, %	52.3	7	
5.1.2	Females employed w/advanced degrees, %	28.7	10	
5.1.3	Youth demographic dividend, %	30.3	87	○
5.1.4	GERD performed by business, % GDP	2.7	4	
5.1.5	GERD financed by business, %	69.6	5	◆
5.2	**Innovation linkages**	**77.0**	**2**	●◆
5.2.1	Public research–industry co-publications, %	8.5	2	●◆
5.2.2	University–industry R&D collaboration†	72.7	4	
5.2.3	University industry and international engagement, top 5*	95.5	6	
5.2.4	State of cluster development†	92.2	5	◆
5.2.5	Patent families/bn PPP$ GDP	2.9	13	
5.3	**Knowledge absorption**	**50.9**	**7**	
5.3.1	Intellectual property payments, % total trade	1.6	20	
5.3.2	High-tech imports, % total trade	19.3	9	◆
5.3.3	ICT services imports, % total trade	1.8	52	
5.3.4	FDI net inflows, % GDP	1.6	97	○
5.3.5	Research talent, % in businesses	79.5	2	●◆
Knowledge and technology outputs		**60.0**	**3**	●◆
6.1	**Knowledge creation**	**57.0**	**7**	
6.1.1	Patents by origin/bn PPP$ GDP	9.9	8	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	1.8	14	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	11.8	58	◇
6.1.5	Citable documents H-index	100.0	1	●◆
6.2	**Knowledge impact**	**78.7**	**1**	●◆
6.2.1	Labor productivity growth, %	1.8	37	
6.2.2	Unicorn valuation, % GDP	8.5	1	●◆
6.2.3	Software spending, % GDP	1.3	1	●◆
6.2.4	High-tech manufacturing, %	45.3	17	
6.3	**Knowledge diffusion**	**44.3**	**20**	
6.3.1	Intellectual property receipts, % total trade	4.1	4	◆
6.3.2	Production and export complexity	82.0	13	
6.3.3	High-tech exports, % total trade	10.0	19	
6.3.4	ICT services exports, % total trade	2.1	61	
6.3.5	ISO 9001 quality/bn PPP$ GDP	1.1	109	○◇
Creative outputs		**56.6**	**5**	
7.1	**Intangible assets**	**56.2**	**11**	
7.1.1	Intangible asset intensity, top 15, %	89.8	1	●◆
7.1.2	Trademarks by origin/bn PPP$ GDP	17.2	93	○
7.1.3	Global brand value, top 5,000, % GDP	21.1	1	●◆
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.7	72	◇
7.2	**Creative goods and services**	**45.8**	**9**	
7.2.1	Cultural and creative services exports, % total trade	1.8	17	
7.2.2	National feature films/mn pop. 15–69	2.1	57	○
7.2.3	Entertainment and media market/th pop. 15–69	100.0	1	●◆
7.2.4	Creative goods exports, % total trade	2.6	23	
7.3	**Online creativity**	**68.2**	**11**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	68.9	9	
7.3.2	GitHub commits/mn pop. 15–69	61.7	17	
7.3.3	Mobile app creation/bn PPP$ GDP	74.1	22	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Uruguay

GII 2025 rank **68**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
76	61	High	LCN	3.4	123.2	34,440

		Score/ Value	Rank	
Institutions		**67.5**	**31**	●
1.1	**Institutional environment**	**73.0**	**28**	●
1.1.1	Operational stability for businesses*	82.0	16	●
1.1.2	Government effectiveness*	64.0	33	
1.2	**Regulatory environment**	**66.0**	**38**	
1.2.1	Regulatory quality*	62.3	41	
1.2.2	Rule of law*	69.7	35	
1.3	**Business environment**	**63.4**	**30**	●
1.3.1	Policy stability for doing business†	86.1	4	●◆
1.3.2	Entrepreneurship policies and culture†	40.7	48	
Human capital and research		**24.2**	**93**	◇
2.1	**Education**	**41.6**	**97**	◇
2.1.1	Expenditure on education, % GDP	3.6	93	
2.1.2	Government funding/pupil, secondary, % GDP/cap	13.7	74	◇
2.1.3	School life expectancy, years ⏲	17.5	17	●
2.1.4	PISA scales in reading, maths and science	424.8	49	◇
2.1.5	Pupil–teacher ratio, secondary	n/a	n/a	
2.2	**Tertiary education**	**22.1**	**91**	◇
2.2.1	Tertiary enrolment, % gross ⏲	76.4	32	
2.2.2	Graduates in science and engineering, %	14.5	108	○◇
2.2.3	Tertiary inbound mobility, % ⏲	2.3	76	
2.3	**Research and development (R&D)**	**8.8**	**68**	◇
2.3.1	Researchers, FTE/mn pop.	902.4	56	◇
2.3.2	Gross expenditure on R&D, % GDP ⏲	0.6	57	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	16.8	60	
Infrastructure		**50.6**	**46**	
3.1	**Information and communication technology (ICT)**	**87.4**	**36**	
3.1.1	ICT access*	93.7	48	
3.1.2	ICT use*	82.5	46	
3.1.3	Government online service*	85.9	28	●
3.2	**General infrastructure**	**24.8**	**94**	◇
3.2.1	Electricity output, GWh/mn pop.	3,766.1	58	
3.2.2	Logistics performance*	40.9	60	◇
3.2.3	Gross capital formation, % GDP	17.5	114	○◇
3.3	**Ecological sustainability**	**39.6**	**19**	●
3.3.1	GDP/unit of energy use	14.6	35	
3.3.2	Low-carbon energy use, %	51.4	12	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	2.9	32	●
Market sophistication		**27.6**	**103**	◇
4.1	**Credit**	**19.9**	**92**	◇
4.1.1	Finance for startups and scaleups†	31.2	77	○◇
4.1.2	Domestic credit to private sector, % GDP	28.9	102	◇
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**4.8**	**72**	◇
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	59	
4.2.3	Late-stage VC deal count, % global VC	0.0	87	○
4.2.4	VC investors, deal count/bn PPP$ GDP	0.2	50	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.1	55	
4.3	**Trade, diversification and market scale**	**58.1**	**97**	◇
4.3.1	Applied tariff rate, weighted avg., %	4.8	94	◇
4.3.2	Domestic industry diversification	66.3	82	◇
4.3.3	Domestic market scale, bn PPP$	123.2	90	

		Score/ Value	Rank	
Business sophistication		**22.1**	**115**	○◇
5.1	**Knowledge workers**	**21.2**	**130**	○◇
5.1.1	Knowledge-intensive employment, % ⏲	24.8	58	◇
5.1.2	Females employed w/advanced degrees, % ⏲	9.4	78	◇
5.1.3	Youth demographic dividend, %	31.9	80	
5.1.4	GERD performed by business, % GDP ⏲	0.3	49	
5.1.5	GERD financed by business, % ⏲	4.2	80	○◇
5.2	**Innovation linkages**	**21.9**	**82**	◇
5.2.1	Public research–industry co-publications, %	0.7	107	◇
5.2.2	University–industry R&D collaboration†	36.0	65	
5.2.3	University industry and international engagement, top 5*	n/a	n/a	
5.2.4	State of cluster development†	44.2	72	
5.2.5	Patent families/bn PPP$ GDP	0.1	56	
5.3	**Knowledge absorption**	**23.2**	**83**	◇
5.3.1	Intellectual property payments, % total trade	1.0	40	
5.3.2	High-tech imports, % total trade	7.0	87	
5.3.3	ICT services imports, % total trade	1.8	49	
5.3.4	FDI net inflows, % GDP	4.6	32	●
5.3.5	Research talent, % in businesses ⏲	2.1	77	○◇
Knowledge and technology outputs		**20.0**	**73**	◇
6.1	**Knowledge creation**	**9.3**	**86**	◇
6.1.1	Patents by origin/bn PPP$ GDP	0.1	108	○◇
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	45	
6.1.4	Scientific and technical articles/bn PPP$ GDP	9.8	72	◇
6.1.5	Citable documents H-index	10.2	76	
6.2	**Knowledge impact**	**21.1**	**89**	
6.2.1	Labor productivity growth, %	0.6	79	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.2	62	
6.2.4	High-tech manufacturing, %	15.8	72	◇
6.3	**Knowledge diffusion**	**29.6**	**43**	
6.3.1	Intellectual property receipts, % total trade	0.3	37	
6.3.2	Production and export complexity	51.0	56	
6.3.3	High-tech exports, % total trade	1.0	78	◇
6.3.4	ICT services exports, % total trade	6.1	16	●
6.3.5	ISO 9001 quality/bn PPP$ GDP	10.5	24	●
Creative outputs		**18.6**	**81**	◇
7.1	**Intangible assets**	**12.3**	**94**	◇
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	43.3	43	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP ⏲	0.7	74	
7.2	**Creative goods and services**	**16.1**	**59**	
7.2.1	Cultural and creative services exports, % total trade	1.1	26	●
7.2.2	National feature films/mn pop. 15–69	5.1	35	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.1	102	
7.3	**Online creativity**	**33.5**	**48**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	10.8	44	
7.3.2	GitHub commits/mn pop. 15–69	18.4	47	
7.3.3	Mobile app creation/bn PPP$ GDP	71.4	34	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Uzbekistan

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
92	69	Lower middle	CSA	36.4	428.2	11,596

		Score/ Value	Rank	
Institutions		**51.9**	**62**	◆
1.1	**Institutional environment**	**46.7**	**85**	
1.1.1	Operational stability for businesses*	57.3	79	
1.1.2	Government effectiveness*	36.1	90	
1.2	**Regulatory environment**	**32.7**	**110**	
1.2.1	Regulatory quality*	33.4	104	
1.2.2	Rule of law*	32.0	113	
1.3	**Business environment**	**76.2**	**9**	●◆
1.3.1	Policy stability for doing business†	59.7	46	
1.3.2	Entrepreneurship policies and culture†	92.8	3	●◆
Human capital and research		**27.4**	**81**	
2.1	**Education**	**41.1**	**101**	
2.1.1	Expenditure on education, % GDP	5.5	24	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	13.8	72	
2.1.3	School life expectancy, years	12.6	91	
2.1.4	PISA scales in reading, maths and science	351.4	84	○
2.1.5	Pupil–teacher ratio, secondary	12.7	62	◆
2.2	**Tertiary education**	**36.0**	**45**	◆
2.2.1	Tertiary enrolment, % gross	56.2	61	◆
2.2.2	Graduates in science and engineering, %	32.8	13	●◆
2.2.3	Tertiary inbound mobility, %	0.7	95	
2.3	**Research and development (R&D)**	**5.0**	**78**	
2.3.1	Researchers, FTE/mn pop.	542.1	71	
2.3.2	Gross expenditure on R&D, % GDP	0.1	98	○
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	13.1	64	
Infrastructure		**41.8**	**69**	◆
3.1	**Information and communication technology (ICT)**	**76.1**	**68**	◆
3.1.1	ICT access*	84.5	69	◆
3.1.2	ICT use*	72.2	84	
3.1.3	Government online service*	71.7	59	◆
3.2	**General infrastructure**	**32.8**	**73**	
3.2.1	Electricity output, GWh/mn pop.	2,083.3	79	
3.2.2	Logistics performance*	22.7	82	
3.2.3	Gross capital formation, % GDP	33.7	12	●
3.3	**Ecological sustainability**	**16.6**	**89**	
3.3.1	GDP/unit of energy use	6.2	107	○◇
3.3.2	Low-carbon energy use, %	3.2	118	○◇
3.3.3	ISO 14001 environment/bn PPP$ GDP	4.2	23	●◆
Market sophistication		**35.0**	**74**	
4.1	**Credit**	**34.8**	**48**	
4.1.1	Finance for startups and scaleups†	89.0	6	●◆
4.1.2	Domestic credit to private sector, % GDP	34.7	86	
4.1.3	Loans from microfinance institutions, % GDP	0.4	50	
4.2	**Investment**	**1.3**	**107**	○
4.2.1	Market capitalization, % GDP	7.3	78	○
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	108	○
4.2.3	Late-stage VC deal count, % global VC	0.0	89	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	96	○
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	87	
4.3	**Trade, diversification and market scale**	**68.9**	**66**	
4.3.1	Applied tariff rate, weighted avg., %	5.2	98	
4.3.2	Domestic industry diversification	90.0	39	
4.3.3	Domestic market scale, bn PPP$	428.2	55	

		Score/ Value	Rank	
Business sophistication		**27.1**	**77**	
5.1	**Knowledge workers**	**34.1**	**73**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Females employed w/advanced degrees, %	8.1	83	
5.1.3	Youth demographic dividend, %	45.8	44	
5.1.4	GERD performed by business, % GDP	0.1	65	
5.1.5	GERD financed by business, %	42.4	41	◆
5.2	**Innovation linkages**	**23.0**	**78**	
5.2.1	Public research–industry co-publications, %	0.9	95	
5.2.2	University–industry R&D collaboration†	33.5	75	
5.2.3	University industry and international engagement, top 5*	13.5	85	
5.2.4	State of cluster development†	60.1	44	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**24.1**	**81**	
5.3.1	Intellectual property payments, % total trade	0.3	83	
5.3.2	High-tech imports, % total trade	13.1	18	●
5.3.3	ICT services imports, % total trade	0.7	104	
5.3.4	FDI net inflows, % GDP	2.7	66	
5.3.5	Research talent, % in businesses	12.9	58	
Knowledge and technology outputs		**20.9**	**68**	
6.1	**Knowledge creation**	**13.5**	**69**	
6.1.1	Patents by origin/bn PPP$ GDP	1.3	43	◆
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	100	
6.1.3	Utility models by origin/bn PPP$ GDP	1.2	14	●◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	4.0	112	
6.1.5	Citable documents H-index	4.6	112	
6.2	**Knowledge impact**	**33.3**	**46**	
6.2.1	Labor productivity growth, %	4.4	6	●◆
6.2.2	Unicorn valuation, % GDP	0.9	36	●
6.2.3	Software spending, % GDP	0.0	114	
6.2.4	High-tech manufacturing, %	25.3	50	
6.3	**Knowledge diffusion**	**16.0**	**78**	
6.3.1	Intellectual property receipts, % total trade	0.0	90	
6.3.2	Production and export complexity	47.8	65	
6.3.3	High-tech exports, % total trade	0.8	85	
6.3.4	ICT services exports, % total trade	1.3	81	
6.3.5	ISO 9001 quality/bn PPP$ GDP	5.5	48	◆
Creative outputs		**11.8**	**104**	
7.1	**Intangible assets**	**9.5**	**104**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	28.9	69	
7.1.3	Global brand value, top 5,000, % GDP	0.2	77	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.5	83	
7.2	**Creative goods and services**	**5.0**	**96**	
7.2.1	Cultural and creative services exports, % total trade	0.2	83	
7.2.2	National feature films/mn pop. 15–69	0.6	77	○
7.2.3	Entertainment and media market/th pop. 15–69	3.3	50	◆
7.2.4	Creative goods exports, % total trade	0.7	54	
7.3	**Online creativity**	**23.3**	**83**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.0	103	
7.3.2	GitHub commits/mn pop. 15–69	3.0	99	
7.3.3	Mobile app creation/bn PPP$ GDP	65.9	65	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

GII 2025 rank

Venezuela (Bolivarian Republic of) 136

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
130	136	-	LCN	28.4	222.4	8,404

		Score/ Value	Rank	
Institutions		**1.9**	**139**	○◇
1.1	**Institutional environment**	**1.9**	**139**	○◇
1.1.1	Operational stability for businesses*	0.0	139	○◇
1.1.2	Government effectiveness*	3.8	138	○◇
1.2	**Regulatory environment**	**0.0**	**139**	○◇
1.2.1	Regulatory quality*	0.0	139	○◇
1.2.2	Rule of law*	0.0	139	○◇
1.3	**Business environment**	**3.7**	**134**	◇
1.3.1	Policy stability for doing business†	5.1	133	◇
1.3.2	Entrepreneurship policies and culture†	2.4	91	◇
Human capital and research		**48.7**	**[25]**	
2.1	**Education**	**91.3**	**[1]**	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	9.5	27	●
2.2	**Tertiary education**	**n/a**	**[n/a]**	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**6.1**	**74**	
2.3.1	Researchers, FTE/mn pop.	180.0	85	
2.3.2	Gross expenditure on R&D, % GDP	0.7	52	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	11.9	65	●
Infrastructure		**11.7**	**138**	○◇
3.1	**Information and communication technology (ICT)**	**16.6**	**137**	◇
3.1.1	ICT access*	n/a	n/a	
3.1.2	ICT use*	10.6	127	◇
3.1.3	Government online service*	22.7	127	◇
3.2	**General infrastructure**	**7.0**	**136**	◇
3.2.1	Electricity output, GWh/mn pop.	2,912.4	68	
3.2.2	Logistics performance*	9.1	107	◇
3.2.3	Gross capital formation, % GDP	11.6	133	
3.3	**Ecological sustainability**	**11.3**	**109**	
3.3.1	GDP/unit of energy use	3.9	126	◇
3.3.2	Low-carbon energy use, %	24.2	52	●
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.1	133	
Market sophistication		**14.1**	**135**	◇
4.1	**Credit**	**0.0**	**[139]**	
4.1.1	Finance for startups and scaleups†	0.0	93	○◇
4.1.2	Domestic credit to private sector, % GDP	n/a	n/a	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**0.6**	**121**	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.0	114	
4.2.3	Late-stage VC deal count, % global VC	0.0	107	○◇
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	104	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	106	
4.3	**Trade, diversification and market scale**	**41.6**	**122**	◇
4.3.1	Applied tariff rate, weighted avg., %	8.7	123	
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	222.4	75	

		Score/ Value	Rank	
Business sophistication		**22.9**	**[105]**	
5.1	**Knowledge workers**	**45.8**	**[33]**	
5.1.1	Knowledge-intensive employment, %	19.7	80	
5.1.2	Females employed w/advanced degrees, %	18.4	41	
5.1.3	Youth demographic dividend, %	43.0	49	●
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**10.1**	**130**	◇
5.2.1	Public research–industry co-publications, %	0.8	101	
5.2.2	University–industry R&D collaboration†	19.3	110	
5.2.3	University industry and international engagement, top 5*	14.6	79	
5.2.4	State of cluster development†	9.9	132	◇
5.2.5	Patent families/bn PPP$ GDP	0.0	88	
5.3	**Knowledge absorption**	**12.8**	**[137]**	
5.3.1	Intellectual property payments, % total trade	1.1	32	●
5.3.2	High-tech imports, % total trade	n/a	n/a	
5.3.3	ICT services imports, % total trade	1.2	81	
5.3.4	FDI net inflows, % GDP	n/a	n/a	
5.3.5	Research talent, % in businesses	0.8	80	
Knowledge and technology outputs		**6.6**	**137**	◇
6.1	**Knowledge creation**	**5.7**	**108**	
6.1.1	Patents by origin/bn PPP$ GDP	0.0	125	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	39	●
6.1.4	Scientific and technical articles/bn PPP$ GDP	2.0	127	◇
6.1.5	Citable documents H-index	12.0	67	●
6.2	**Knowledge impact**	**6.4**	**136**	◇
6.2.1	Labor productivity growth, %	−2.8	133	◇
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	117	
6.2.4	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**7.5**	**121**	◇
6.3.1	Intellectual property receipts, % total trade	0.0	94	
6.3.2	Production and export complexity	26.1	119	◇
6.3.3	High-tech exports, % total trade	n/a	n/a	
6.3.4	ICT services exports, % total trade	0.2	131	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.5	122	
Creative outputs		**8.7**	**115**	◇
7.1	**Intangible assets**	**6.8**	**111**	◇
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	37.2	49	●
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.1	118	
7.2	**Creative goods and services**	**2.6**	**[108]**	
7.2.1	Cultural and creative services exports, % total trade	0.0	113	
7.2.2	National feature films/mn pop. 15–69	1.0	72	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	n/a	n/a	
7.3	**Online creativity**	**18.5**	**105**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69	1.3	98	
7.3.2	GitHub commits/mn pop. 15–69	2.8	101	
7.3.3	Mobile app creation/bn PPP$ GDP	51.3	102	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Viet Nam

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
37	50	Lower middle	SEAO	101.0	1,631.8	16,193

			Score/ Value	Rank	
Institutions			**53.5**	**59**	◆
1.1	**Institutional environment**		**56.4**	**61**	◆
1.1.1	Operational stability for businesses*		66.7	53	◆
1.1.2	Government effectiveness*		46.2	66	◆
1.2	**Regulatory environment**		**44.0**	**83**	
1.2.1	Regulatory quality*		37.9	95	
1.2.2	Rule of law*		50.2	67	◆
1.3	**Business environment**		**59.9**	**36**	
1.3.1	Policy stability for doing business†		66.7	28	◆
1.3.2	Entrepreneurship policies and culture†	⏲	53.1	24	
Human capital and research			**30.5**	**70**	◆
2.1	**Education**		**49.4**	**72**	
2.1.1	Expenditure on education, % GDP	⏲	2.9	116	○
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years	⏲	14.4	63	◆
2.1.4	PISA scales in reading, maths and science		467.9	36	◆
2.1.5	Pupil–teacher ratio, secondary		21.4	107	○
2.2	**Tertiary education**		**22.6**	**88**	
2.2.1	Tertiary enrolment, % gross	⏲	44.8	78	◆
2.2.2	Graduates in science and engineering, %	⏲	22.7	65	
2.2.3	Tertiary inbound mobility, %	⏲	0.3	108	○
2.3	**Research and development (R&D)**		**19.4**	**47**	◆
2.3.1	Researchers, FTE/mn pop.	⏲	767.9	60	
2.3.2	Gross expenditure on R&D, % GDP	⏲	0.4	66	
2.3.3	Global corporate R&D investors, top 3, mn USD		44.3	37	◆
2.3.4	QS university ranking, top 3*		19.2	53	◆
Infrastructure			**46.8**	**56**	◆
3.1	**Information and communication technology (ICT)**		**76.0**	**69**	◆
3.1.1	ICT access*		82.6	77	◆
3.1.2	ICT use*		80.7	54	◆
3.1.3	Government online service*		64.9	74	◆
3.2	**General infrastructure**		**42.9**	**38**	◆
3.2.1	Electricity output, GWh/mn pop.	⏲	2,815.2	71	◆
3.2.2	Logistics performance*		54.5	42	◆
3.2.3	Gross capital formation, % GDP		32.3	18	●
3.3	**Ecological sustainability**		**21.3**	**63**	
3.3.1	GDP/unit of energy use		10.3	73	
3.3.2	Low-carbon energy use, %		23.0	58	
3.3.3	ISO 14001 environment/bn PPP$ GDP		1.9	52	◆
Market sophistication			**41.6**	**43**	◆
4.1	**Credit**		**32.5**	**59**	
4.1.1	Finance for startups and scaleups†	⏲	47.6	50	
4.1.2	Domestic credit to private sector, % GDP	⏲	125.9	15	●◆
4.1.3	Loans from microfinance institutions, % GDP		0.1	58	○
4.2	**Investment**		**6.8**	**62**	
4.2.1	Market capitalization, % GDP		57.1	34	◆
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP		0.1	72	
4.2.3	Late-stage VC deal count, % global VC		0.1	42	
4.2.4	VC investors, deal count/bn PPP$ GDP		0.1	60	
4.2.5	VC investor co-participation/bn PPP$ GDP		0.0	69	
4.3	**Trade, diversification and market scale**		**85.6**	**13**	●◆
4.3.1	Applied tariff rate, weighted avg., %	⏲	1.2	20	●◆
4.3.2	Domestic industry diversification		95.6	13	●◆
4.3.3	Domestic market scale, bn PPP$		1,631.8	24	◆

			Score/ Value	Rank	
Business sophistication			**35.7**	**45**	◆
5.1	**Knowledge workers**		**33.4**	**79**	
5.1.1	Knowledge-intensive employment, %	⏲	10.6	100	○
5.1.2	Females employed w/advanced degrees, %	⏲	8.2	81	
5.1.3	Youth demographic dividend, %		36.6	68	◇
5.1.4	GERD performed by business, % GDP	⏲	0.4	44	
5.1.5	GERD financed by business, %	⏲	64.1	8	●◆
5.2	**Innovation linkages**		**35.2**	**41**	◆
5.2.1	Public research–industry co-publications, %		1.9	51	◆
5.2.2	University–industry R&D collaboration†		54.9	31	◆
5.2.3	University industry and international engagement, top 5*		25.4	61	
5.2.4	State of cluster development†		75.7	25	◆
5.2.5	Patent families/bn PPP$ GDP		0.0	66	
5.3	**Knowledge absorption**		**38.6**	**29**	◆
5.3.1	Intellectual property payments, % total trade		0.4	75	
5.3.2	High-tech imports, % total trade	⏲	29.4	1	●◆
5.3.3	ICT services imports, % total trade	⏲	0.2	133	○
5.3.4	FDI net inflows, % GDP		4.3	34	
5.3.5	Research talent, % in businesses	⏲	24.1	51	
Knowledge and technology outputs			**28.9**	**39**	◆
6.1	**Knowledge creation**		**10.0**	**80**	
6.1.1	Patents by origin/bn PPP$ GDP		0.7	66	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	74	
6.1.3	Utility models by origin/bn PPP$ GDP		0.4	32	
6.1.4	Scientific and technical articles/bn PPP$ GDP		5.3	105	○
6.1.5	Citable documents H-index		14.9	57	
6.2	**Knowledge impact**		**42.2**	**21**	◆
6.2.1	Labor productivity growth, %		4.6	4	●◆
6.2.2	Unicorn valuation, % GDP		1.0	34	
6.2.3	Software spending, % GDP		0.2	56	
6.2.4	High-tech manufacturing, %		38.1	26	◆
6.3	**Knowledge diffusion**		**34.4**	**35**	◆
6.3.1	Intellectual property receipts, % total trade		0.0	112	○
6.3.2	Production and export complexity		53.1	52	◆
6.3.3	High-tech exports, % total trade	⏲	36.1	1	●◆
6.3.4	ICT services exports, % total trade	⏲	0.6	103	
6.3.5	ISO 9001 quality/bn PPP$ GDP		4.3	58	◆
Creative outputs			**36.2**	**34**	◆
7.1	**Intangible assets**		**38.2**	**40**	◆
7.1.1	Intangible asset intensity, top 15, %		45.0	54	
7.1.2	Trademarks by origin/bn PPP$ GDP		54.7	27	◆
7.1.3	Global brand value, top 5,000, % GDP		6.5	29	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP		1.3	51	
7.2	**Creative goods and services**		**34.7**	**19**	●◆
7.2.1	Cultural and creative services exports, % total trade		0.1	95	○
7.2.2	National feature films/mn pop. 15–69		0.3	87	○
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade	⏲	8.8	1	●◆
7.3	**Online creativity**		**34.0**	**45**	◆
7.3.1	Top-level domains (TLDs)/th pop. 15–69		2.8	77	◆
7.3.2	GitHub commits/mn pop. 15–69		16.1	48	◆
7.3.3	Mobile app creation/bn PPP$ GDP		83.0	7	●◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Zambia

GII 2025 rank

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
128	90	Lower middle	SSA	21.3	88.6	4,190

		Score/ Value	Rank	
Institutions		**49.1**	**69**	
1.1	**Institutional environment**	**37.8**	**105**	
1.1.1	Operational stability for businesses*	48.7	101	
1.1.2	Government effectiveness*	26.9	109	
1.2	**Regulatory environment**	**37.3**	**103**	
1.2.1	Regulatory quality*	35.3	100	
1.2.2	Rule of law*	39.4	102	
1.3	**Business environment**	**72.1**	**[15]**	
1.3.1	Policy stability for doing business†	72.1	21	●◆
1.3.2	Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research		**20.6**	**[103]**	
2.1	**Education**	**41.2**	**[100]**	
2.1.1	Expenditure on education, % GDP	4.1	72	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary	n/a	n/a	
2.2	**Tertiary education**	**n/a**	**[n/a]**	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	44	○◇
2.3.4	QS university ranking, top 3*	0.0	80	○◇
Infrastructure		**36.2**	**91**	
3.1	**Information and communication technology (ICT)**	**52.2**	**111**	
3.1.1	ICT access*	55.9	111	
3.1.2	ICT use*	61.2	101	
3.1.3	Government online service*	39.3	107	
3.2	**General infrastructure**	**30.0**	**82**	
3.2.1	Electricity output, GWh/mn pop.	945.6	100	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	30.1	25	●
3.3	**Ecological sustainability**	**26.6**	**49**	●◆
3.3.1	GDP/unit of energy use	4.2	125	○◇
3.3.2	Low-carbon energy use, %	60.9	8	●◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	0.2	123	
Market sophistication		**21.8**	**116**	
4.1	**Credit**	**9.3**	**116**	
4.1.1	Finance for startups and scaleups†	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP ⏲	13.0	126	○
4.1.3	Loans from microfinance institutions, % GDP ⏲	1.6	23	●
4.2	**Investment**	**3.8**	**78**	
4.2.1	Market capitalization, % GDP	15.7	68	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	0.1	54	●
4.2.3	Late-stage VC deal count, % global VC	0.0	78	
4.2.4	VC investors, deal count/bn PPP$ GDP	0.0	89	
4.2.5	VC investor co-participation/bn PPP$ GDP	0.0	71	
4.3	**Trade, diversification and market scale**	**52.4**	**106**	
4.3.1	Applied tariff rate, weighted avg., %	6.5	109	
4.3.2	Domestic industry diversification ⏲	65.3	85	
4.3.3	Domestic market scale, bn PPP$	88.6	96	

		Score/ Value	Rank	
Business sophistication		**28.5**	**66**	
5.1	**Knowledge workers**	**39.2**	**[56]**	
5.1.1	Knowledge-intensive employment, % ⏲	11.3	98	
5.1.2	Females employed w/advanced degrees, % ⏲	4.4	95	
5.1.3	Youth demographic dividend, %	61.7	11	●◆
5.1.4	GERD performed by business, % GDP	n/a	n/a	
5.1.5	GERD financed by business, %	n/a	n/a	
5.2	**Innovation linkages**	**30.0**	**53**	●◆
5.2.1	Public research–industry co-publications, %	2.3	36	●◆
5.2.2	University–industry R&D collaboration†	42.9	47	●
5.2.3	University industry and international engagement, top 5*	16.6	75	
5.2.4	State of cluster development†	67.0	37	●◆
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○◇
5.3	**Knowledge absorption**	**16.2**	**131**	○
5.3.1	Intellectual property payments, % total trade	0.2	96	
5.3.2	High-tech imports, % total trade	5.2	118	
5.3.3	ICT services imports, % total trade	0.5	120	
5.3.4	FDI net inflows, % GDP	0.6	115	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**8.6**	**125**	
6.1	**Knowledge creation**	**5.5**	**111**	
6.1.1	Patents by origin/bn PPP$ GDP	0.1	122	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP	0.0	95	
6.1.3	Utility models by origin/bn PPP$ GDP	-	-	
6.1.4	Scientific and technical articles/bn PPP$ GDP	7.2	88	
6.1.5	Citable documents H-index	5.9	95	
6.2	**Knowledge impact**	**13.5**	**127**	
6.2.1	Labor productivity growth, %	−0.2	103	
6.2.2	Unicorn valuation, % GDP	0.0	53	○◇
6.2.3	Software spending, % GDP	0.0	121	◇
6.2.4	High-tech manufacturing, % ⏲	10.1	87	
6.3	**Knowledge diffusion**	**6.9**	**127**	
6.3.1	Intellectual property receipts, % total trade	0.0	127	○◇
6.3.2	Production and export complexity	30.7	108	
6.3.3	High-tech exports, % total trade	0.2	117	
6.3.4	ICT services exports, % total trade	0.2	123	
6.3.5	ISO 9001 quality/bn PPP$ GDP	0.4	130	○
Creative outputs		**7.2**	**123**	
7.1	**Intangible assets**	**14.0**	**88**	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	15.9	98	
7.1.3	Global brand value, top 5,000, % GDP	0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	2.0	38	●◆
7.2	**Creative goods and services**	**0.6**	**[131]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	0.0	114	
7.3	**Online creativity**	**0.3**	**136**	○◇
7.3.1	Top-level domains (TLDs)/th pop. 15–69	0.1	131	○
7.3.2	GitHub commits/mn pop. 15–69	0.5	123	
7.3.3	Mobile app creation/bn PPP$ GDP	n/a	n/a	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Zimbabwe

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Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
100	137	Lower middle	SSA	16.6	86.2	5,071

			Score/ Value	Rank	
Institutions			**18.8**	**132**	◇
1.1	**Institutional environment**		**14.5**	**136**	○◇
1.1.1	Operational stability for businesses*		14.7	136	○◇
1.1.2	Government effectiveness*		14.3	134	◇
1.2	**Regulatory environment**		**18.5**	**135**	○◇
1.2.1	Regulatory quality*		15.9	135	○◇
1.2.2	Rule of law*		21.2	135	○◇
1.3	**Business environment**		**23.4**	**[116]**	
1.3.1	Policy stability for doing business†		23.4	119	
1.3.2	Entrepreneurship policies and culture†		n/a	n/a	
Human capital and research			**8.1**	**[137]**	
2.1	**Education**		**0.4**	**[139]**	
2.1.1	Expenditure on education, % GDP		0.4	135	○◇
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a	
2.1.3	School life expectancy, years		n/a	n/a	
2.1.4	PISA scales in reading, maths and science		n/a	n/a	
2.1.5	Pupil–teacher ratio, secondary		n/a	n/a	
2.2	**Tertiary education**		**23.8**	**86**	
2.2.1	Tertiary enrolment, % gross	⏲	10.7	116	
2.2.2	Graduates in science and engineering, %	⏲	30.2	21	
2.2.3	Tertiary inbound mobility, %	⏲	0.5	101	
2.3	**Research and development (R&D)**		**0.0**	**[124]**	
2.3.1	Researchers, FTE/mn pop.		n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP		n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	44	○◇
2.3.4	QS university ranking, top 3*		0.0	80	○◇
Infrastructure			**21.6**	**132**	◇
3.1	**Information and communication technology (ICT)**		**40.1**	**121**	
3.1.1	ICT access*		44.7	122	◇
3.1.2	ICT use*		46.5	114	
3.1.3	Government online service*		29.0	120	
3.2	**General infrastructure**		**10.1**	**131**	◇
3.2.1	Electricity output, GWh/mn pop.	⏲	533.7	113	
3.2.2	Logistics performance*		18.2	90	
3.2.3	Gross capital formation, % GDP		n/a	n/a	
3.3	**Ecological sustainability**		**14.7**	**97**	
3.3.1	GDP/unit of energy use		6.1	108	◇
3.3.2	Low-carbon energy use, %		21.8	61	●
3.3.3	ISO 14001 environment/bn PPP$ GDP		0.9	71	●
Market sophistication			**13.1**	**136**	○◇
4.1	**Credit**		**3.2**	**132**	
4.1.1	Finance for startups and scaleups†		n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP		8.3	134	○
4.1.3	Loans from microfinance institutions, % GDP		0.6	44	
4.2	**Investment**		**1.6**	**[105]**	
4.2.1	Market capitalization, % GDP		n/a	n/a	
4.2.2	Venture capital (VC) received, deal count/bn PPP$ GDP	⏲	0.0	105	
4.2.3	Late-stage VC deal count, % global VC		n/a	n/a	
4.2.4	VC investors, deal count/bn PPP$ GDP		n/a	n/a	
4.2.5	VC investor co-participation/bn PPP$ GDP		n/a	n/a	
4.3	**Trade, diversification and market scale**		**34.4**	**128**	◇
4.3.1	Applied tariff rate, weighted avg., %		47.5	138	○◇
4.3.2	Domestic industry diversification	⏲	61.3	97	
4.3.3	Domestic market scale, bn PPP$		86.2	97	

			Score/ Value	Rank	
Business sophistication			**27.4**	**74**	●
5.1	**Knowledge workers**		**43.4**	**[42]**	
5.1.1	Knowledge-intensive employment, %	⏲	9.0	103	
5.1.2	Females employed w/advanced degrees, %	⏲	9.5	77	◆
5.1.3	Youth demographic dividend, %		61.6	12	●◆
5.1.4	GERD performed by business, % GDP		n/a	n/a	
5.1.5	GERD financed by business, %		n/a	n/a	
5.2	**Innovation linkages**		**18.3**	**94**	
5.2.1	Public research–industry co-publications, %		1.6	61	●◆
5.2.2	University–industry R&D collaboration†		31.2	78	●
5.2.3	University industry and international engagement, top 5*		13.2	86	
5.2.4	State of cluster development†		31.0	106	
5.2.5	Patent families/bn PPP$ GDP		0.0	100	○◇
5.3	**Knowledge absorption**		**20.4**	**106**	
5.3.1	Intellectual property payments, % total trade	⏲	0.0	120	
5.3.2	High-tech imports, % total trade		8.0	70	●
5.3.3	ICT services imports, % total trade	⏲	1.3	75	●
5.3.4	FDI net inflows, % GDP		1.2	109	
5.3.5	Research talent, % in businesses		n/a	n/a	
Knowledge and technology outputs			**10.7**	**116**	
6.1	**Knowledge creation**		**6.1**	**107**	
6.1.1	Patents by origin/bn PPP$ GDP		0.4	81	
6.1.2	PCT patents by inventor origin/bn PPP$ GDP		0.0	107	
6.1.3	Utility models by origin/bn PPP$ GDP		0.1	53	
6.1.4	Scientific and technical articles/bn PPP$ GDP		6.7	93	
6.1.5	Citable documents H-index		7.1	90	
6.2	**Knowledge impact**		**16.8**	**112**	
6.2.1	Labor productivity growth, %		1.0	66	●
6.2.2	Unicorn valuation, % GDP		0.0	53	○◇
6.2.3	Software spending, % GDP		0.1	92	
6.2.4	High-tech manufacturing, %	⏲	8.3	92	
6.3	**Knowledge diffusion**		**9.2**	**112**	
6.3.1	Intellectual property receipts, % total trade	⏲	0.0	83	
6.3.2	Production and export complexity		29.0	112	
6.3.3	High-tech exports, % total trade		0.1	121	
6.3.4	ICT services exports, % total trade	⏲	0.9	92	
6.3.5	ISO 9001 quality/bn PPP$ GDP		2.5	78	●
Creative outputs			**15.2**	**95**	
7.1	**Intangible assets**		**21.2**	**76**	●
7.1.1	Intangible asset intensity, top 15, %	⏲	46.5	52	
7.1.2	Trademarks by origin/bn PPP$ GDP		13.5	108	
7.1.3	Global brand value, top 5,000, % GDP		0.0	81	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.3	96	
7.2	**Creative goods and services**		**2.1**	**[112]**	
7.2.1	Cultural and creative services exports, % total trade		n/a	n/a	
7.2.2	National feature films/mn pop. 15–69		0.5	79	
7.2.3	Entertainment and media market/th pop. 15–69		n/a	n/a	
7.2.4	Creative goods exports, % total trade	⏲	0.1	91	
7.3	**Online creativity**		**16.4**	**111**	
7.3.1	Top-level domains (TLDs)/th pop. 15–69		1.0	101	
7.3.2	GitHub commits/mn pop. 15–69		1.0	117	
7.3.3	Mobile app creation/bn PPP$ GDP		47.1	109	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ⏲ indicates that the economy's data are older than the base year; Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Appendix I – Conceptual and measurement framework of the Global Innovation Index

Rationale and origins

The Global Innovation Index (GII) was created in 2007 by Prof. Soumitra Dutta (then at INSEAD), designed to establish comprehensive metrics and methodologies for capturing the broad range of innovations across economies. Since 2011, the GII has been elaborated in partnership with the World Intellectual Property Organization (WIPO), until in 2021 WIPO became the sole publisher of the GII, in partnership with the Portulans Institute headed by Prof. Dutta.

From its inception, the GII has been driven by multiple factors. Innovation serves as a fundamental engine for economic advancement and competitive advantage both across mature and emerging economies. Governments worldwide have increasingly come to regard innovation as the cornerstone of their growth frameworks. Yet, the conceptual boundaries of innovation have expanded significantly beyond the traditional confines of research and development (R&D) laboratories and academic publications. Today's innovation landscape encompasses a broader, more interconnected spectrum that integrates social transformation, business model evolution, social innovation and technological advancement. Furthermore, acknowledging and showcasing the achievement of innovation in developing markets plays a vital role in motivating individuals, particularly emerging entrepreneurs and the next wave of innovators.

Currently in its 18th iteration, the GII fosters an ecosystem in which innovation elements undergo continuous assessment and refinement. It serves as an essential instrument for policymakers, while maintaining an extensive repository of granular metrics that provides a comprehensive information source for enhancing innovation strategies.

Quantifying innovation outcomes and their broader implications continues to present significant methodological challenges. Consequently, substantial focus is directed toward evaluating the foundational conditions and infrastructure that enable innovation, alongside the measurement of the results.

To address the question of measurement, in 2024, WIPO launched the GII–iLens Innovation Data Lab series to explore new metrics to complement the GII, addressing gaps in innovation measurement through the piloting of new indicators and the testing of emerging data sources in priority areas, including innovation finance, startup ecosystems, deep science applications, and innovation linkages. The GII iLens workshops explore new big data sources enabled by artificial intelligence and advanced data tools that are particularly valuable when traditional statistics are delayed or unavailable.

In addition, since end of 2022, monthly GII Innovation Insight blogs explore particular innovation indicators in depth.

While the final output appears in the form of a comparative ranking system, the GII's fundamental purpose centers on advancing a "pathway" toward more precise measurement techniques, deeper innovation comprehension, and the identification of specific policies, best practice, and those mechanisms that enhance innovation. The comprehensive data framework, spanning index, sub-index and individual indicator levels, enable performance tracking across time periods and facilitate benchmarking against economies within similar regional contexts or income classifications.

Defining innovation in the GII

The GII embraces an expansive conceptualization of innovation, rooted in the foundational framework established by the *Oslo Manual*, developed jointly by Eurostat and the Organisation for Economic Co-operation and Development (OECD). The *Oslo Manual*'s fourth iteration in 2018 presented a refined and more encompassing definition of innovation: "An innovation is a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)."(OECD and Eurostat, 2018)

This revision of the *Oslo Manual* simultaneously introduced comprehensive definitions relevant to business innovation and various categories of innovative enterprises. Within this framework, innovation manifests as enhanced outcomes achieved through novel goods and services, or integrated combinations thereof. The GII increasingly recognizes that innovation measurement must account for hybrid models that blur traditional boundaries between products and services, particularly within the digital economy where platform-based innovations create entirely new value ecosystems.

The understanding and conceptualization of innovation has undergone substantial transformation over recent decades. Previously, economists and policymakers concentrated primarily on R&D-driven technological product innovation, predominantly developed internally within manufacturing sectors. This innovation paradigm was characterized by highly skilled workforces operating within R&D-intensive organizations. The underlying process was understood as closed, internally focused, and geographically contained. Technological advances were necessarily "revolutionary" in nature and occurred at the "global knowledge frontier." This perspective inherently suggested a division between leading and trailing economies, with low- and middle-income nations relegated to a "catch-up" role.

Innovation capability is increasingly understood as the capacity to leverage novel technological combinations, encompassing incremental advancement and "innovation without research" paradigms. Non-R&D innovative investment represents a crucial element in realizing the benefits of technological innovation. The rise of frugal innovation and reverse innovation models demonstrates how resource-constrained environments can generate breakthrough solutions that subsequently influence global markets, challenging traditional innovation hierarchies. Growing attention focuses on understanding innovation evolution in low- and middle-income economies, accompanied by recognition that incremental innovation forms can significantly impact development, and that innovation flourishes within the informal economies of developing nations (Kraemer-Mbula and Wunsch-Vincent, 2016).

The innovation process itself has experienced a profound transformation. Investment in innovation-related activities and intangible assets has escalated consistently across firm, national, and global dimensions, incorporating novel innovation actors from beyond high-income economies, as well as non-profit participants. Knowledge production structures have become more intricate, collaborative, and geographically distributed than ever before.

From its inception, the GII has prioritized the comprehensive coverage of creativity and creative outputs, adopting an integrated perspective that transcends the traditional decompartmentalized approach that separates innovation from creativity. The GII editorial team instead maintains that innovation and creativity represent complementary aspects of a unified phenomenon.

The emergence of AI-powered innovation tools and digital collaboration platforms has fundamentally altered the speed and scale at which creative ideas can be tested, refined, and implemented, requiring new measurement approaches that capture both human creativity and machine-augmented innovation processes.

A fundamental challenge involves identifying metrics that accurately capture innovation as it manifests in today's world. Direct official measures quantifying innovation outputs remain exceptionally limited. For instance, no official statistics exist documenting the volume of innovative activity – characterized as the quantity of new products, processes, or other innovations – for any specific innovation actor, much less for entire countries. Most

measurement approaches also fail to adequately capture innovation outputs from a broader spectrum of innovation actors, including users, public and service sectors, or informal mechanisms that frequently drive innovation within developing economies.

The GII strives to enhance innovation measurement in order to provide more a comprehensive representation of innovation ecosystems globally. It continuously explores novel metrics, so as to best reflect innovation's evolving nature and the expanding landscape of new big data innovation indicators.

Interest in applying GII frameworks and indicators to develop complementary sub-national innovation indices continues to grow among WIPO member states.[1] WIPO has supported these initiatives since 2022 through efforts aimed at improving the measurement and understanding of sub-national innovation activity (WIPO, 2024).

The GII conceptual framework

The GII's conceptual framework centers on dual sub-indices of equal importance for capturing comprehensive innovation ecosystems: the Innovation Input Sub-Index and the Innovation Output Sub-Index. This design yields three calculated measures:

- **Innovation Input Sub-Index**: Five core pillars represent those economic factors that foster and enable innovative activities. The conceptual foundation holds that current innovation investments – including endeavors to advance scientific capacity, innovation infrastructure, human capital formation, and supportive innovation environments – create the necessary conditions for future innovation outputs.
- **Innovation Output Sub-Index**: Innovation outputs manifest from innovative activities across economic systems. Despite containing only two pillars, the Output Sub-Index maintains equal influence with the Input Sub-Index in overall GII score determination. This structure means innovation output elements and indicators receive disproportionately higher weighting versus innovation inputs.
- **Overall GII score**: Refers to the average of the Input and Output Sub-Indices, from which the GII economy rankings are produced.

This year's conceptual framework includes 78 different indicators, demonstrating a continuous evolution in addressing emerging innovation measurement challenges (see Economy profiles section for the complete Framework of the Global Innovation Index 2025). The seven aforementioned pillars (five input, two output) each contains three sub-pillars, with individual indicators comprising each sub-pillar. Sub-pillar values are derived from the weighted averaging of indicator scores, normalized to generate 0–100 scale results. Pillar scores emerge through the weighted averaging of constituent sub-pillar values.

WIPO's sole editorial responsibility since 2021 has required the development of an advanced data infrastructure as part of comprehensive GII modernization efforts, targeting improved data quality, enhanced quality control processes, and strengthened model robustness and replicability (Appendix Box 1). This infrastructure enables the integration of non-traditional data sources and real-time analytics capabilities in support of a gradual transition from static annual assessment and ranking toward a more dynamic innovation monitoring system.

1 See Box1 in the main results and two events: "WIPO General Assemblies 2024 – Side Event Global Innovation Index: Measuring and Promoting Sub-national Innovation Performance: The Role of Regional Innovation Indices", July 12, 2024, and "Workshop – Global Innovation Index Sharing of Experiences in the Creation & Implementation of Regional Innovation Indices", June 7, 2022.

Appendix Box 1 Building a robust data infrastructure for the Global Innovation Index

To facilitate and permit a comprehensive workflow for the GII model, from data storage to GII calculations, a robust data infrastructure was developed in 2021 and has been progressively improved upon ever since. The data infrastructure comprises five parts.

Data storage – the GII database: All GII data are stored, maintained and managed in the GII database. The database stores all collected data in a structured manner for every WIPO member state (not only the ranked GII economies) and for all indicators. It also stores data on outlier analysis (generated by the data quality checks undertaken by the GII team after data collection). As of 2024, the database has expanded to also include country level and global aggregate data related to the Global Innovation Tracker. In addition, the micro-level data – often related to companies – used in the aggregation of certain GII indicators (e.g., Global corporate R&D investors, Unicorn companies' valuation, companies' Intangible asset intensity, Global brand value, top universities, etc.) has been further expanded and standardized.

Code repository – the GII repository of collaborative codes: The GII repository of collaborative codes is on GitHub. The GII repository contains several repositories in statistical programming language R (R-codes), which are linked to diverse elements of the GII workflow and the GII report, thus enabling data collection, data calculation and the data quality control of all GII indicators. Since 2024, the repository also includes updates for the Global Innovation Tracker – including for trend calculations at the country level.

Data governance – the GII data quality and audit controls: Assuring data quality control is at the center of GII methodology and processes. Each collected indicator undergoes a rigorous quality control and audit process annually. Several data tests and analyses are performed on all collected indicators, including the analysis of means, identification of outliers based on mean and z-scores for both unscaled and scaled data, analysis of rank changes, analysis of missing data and analysis of outdated data. Following these analyses, the GII team goes back to the data providers for any necessary clarification and, when required, the data providers themselves correct the data at source. This process is further reinforced by an annual independent statistical audit from the European Commission's Joint Research Centre (JRC), which validates the statistical soundness of the GII framework (see Appendix II for more details). These comprehensive quality assurance measures uphold the highest standards of data integrity essential for the GII.

Model calculation – the GII R-package for the calculation of the GII model: The GII R-package – called GII2 – is a custom-built package of tools created using R to calculate the GII model and analyze its results. The structure of the tailor-made GII R-package follows the general COIN R-package developed by the European Commission Joint Research Centre (JRC) and follows the steps in the OECD/JRC *Handbook on Constructing Composite Indicators*.

Supporting tools – the GII Innovation Ecosystems and Data Explorer, and Monitoring reports: Since 2024, emphasis has been given to the visualization and improved presentation of the GII data and results through the new GII Innovation Ecosystems and Data Explorer. In collaboration with OneTandem, the data explorer lets users dynamically generate GII economy briefs, profiles and country comparisons seamlessly, and to look into the time series of all GII indicators, including into individual data and micro-data on intangible assets, top universities, the most valuable brands and others. In 2024, data on Cluster Ranking, including individual Cluster briefs, were added to the website. Since 2025, regional briefs have also been available highlighting the innovation performance of economies across the world's major regions. These regional briefs provide comparative data on science and technology investment, economy rankings, and key trends in leading innovation indicators. The Data Explorer is also available in Spanish and optimized for use on mobile devices.

In addition, *The GII Economy Monitoring Board* is a specialized report designed to track and improve data reporting from non-GII economies (available upon formal request). It summarizes the current reporting status of economies not yet included in the GII, identifying specific indicators that are either missing or outdated, while documenting the various data

sources used. This report serves as a basis for targeted engagement with economies to improve their data coverage, enabling the GII team to facilitate connections between official government sectors and relevant data providers. The primary purpose is to help economies to improve their data coverage, so as to potentially qualify for inclusion in the GII.

This infrastructure enables a complete workflow linking data storage and data quality control with data analysis (GII rankings and the GII report) and stakeholder engagement in a fully integrated way, thereby increasing the overall robustness of the GII data and model.

Finally, the GII team continues exploring and improving the measurement of innovation through the GII–iLens Innovation Data Lab (Box 1, Results section). By experimenting with data and novel data-driven approaches, the Data Lab series aims to develop new, actionable innovation metrics by piloting indicators in underexplored but policy-relevant areas like venture capital, startups, and deep science. It leverages big data and advanced analytical tools to address measurement gaps and inform future editions of the GII.

Adjustments to the GII model in 2025

Appendix Table 1 summarizes the adjustments made to the GII 2025 framework. The methodology has changed for two indicators (3.1.1 and 6.1.2). In addition, there are four new indicators, and four indicators have been dropped from the framework. Due to the addition and removal of these indicators, the numbering of four remaining indicators has been adjusted, but without altering their methodology. Lastly, the name of two indicators and their numbering has been modified following a change in data provider (4.2.2 and 4.2.4).

Appendix Table 1 Changes to the GII 2025 framework

GII 2024	Adjustment	GII 2025
3.1.1 ICT access*	Methodology changed	3.1.1 ICT access*
3.1.4 E-participation*	Removed	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	Data provider and indicator name changed, new indicator numbering	4.2.4 VC investors, deal count/bn PPP$ GDP
4.2.3 VC recipients, deals/bn PPP$ GDP	Data provider and indicator name changed, new indicator numbering	4.2.2 Venture capital (VC) received, deal count/bn PPP$ GDP
4.2.4 VC received, value, % GDP	Removed	
	New indicator	4.2.3 Late-stage VC deal count, % global VC
	New indicator	4.2.5 VC investor co-participation/bn PPP$ GDP
5.1.2 Firms offering formal training, %	Removed	
	New indicator numbering	5.1.2 Females employed w/advanced degrees, %
	New indicator	5.1.3 Youth demographic dividend, %
5.1.3 GERD performed by business, % GDP	New indicator numbering	5.1.4 GERD performed by business, % GDP
5.1.4 GERD financed by business, %	New indicator numbering	5.1.5 GERD financed by business, %
	New indicator	5.2.3 University industry and international engagement, top 5*
5.2.3 State of cluster development†	New indicator numbering	5.2.4 State of cluster development†
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	Removed	
6.1.2 PCT patents by origin/bn PPP$ GDP	Indicator name changed, methodology changed	6.1.2 PCT patents by inventor origin/bn PPP$ GDP

Notes: Refer to Appendix III: Sources and definitions for a detailed explanation of terminology and acronyms.
Source: Global Innovation Index 2025, WIPO.

Data limitations and treatment

This year, the GII model includes 139 economies, representing 93.6 percent of the world's population and 98 percent of the world's GDP in purchasing power parity current international dollars (PPP$).

The timeliest possible indicators are used for the GII 2025: from the non-missing data, 5.2 percent are from 2025, 33.6 percent are from 2024, 40 percent are from 2023, 11.4 percent are from 2022, 4 percent are from 2021, 1.4 percent are from 2020, and the small remainder of 4.4 percent are from earlier years.[2]

The GII 2025 model includes 78 indicators, which fall into three categories:

- quantitative/objective/hard data (63 indicators);
- composite indicators/index data (10 indicators); and
- survey/qualitative/subjective/soft data (5 indicators).

This year, for an economy to feature in the GII 2025, the minimum data coverage requirement is at least 35 indicators in the Innovation Input Sub-Index (66 percent) and 15 indicators in the Innovation Output Sub-Index (66 percent), with scores for at least two sub-pillars per pillar. Since GII 2024, indicator 6.1.3 – Utility models by origin/bn PPP$ GDP has been excluded from the minimum data coverage (DMC) requirement. In the GII 2025, 139 economies had sufficient data available to be included in the Index. A total of 110 economies did not make it into the GII 2025 due to a lack of available data. For each economy, only the most recent yearly data were considered. As a rule, the GII indicators consider data from as far back as 2015.

Missing values

For the sake of transparency and the replicability of results, missing values are not estimated; instead, they are indicated with "n/a" and are not considered in the sub-pillar score. In other words, missing indicators do not translate into a zero for the country in question; the indicator is simply not taken into consideration in the aggregation process.

That said, the audit undertaken by the European Commission's Competence Centre on Composite Indicators and Scoreboards at the Joint Research Centre (JRC-COIN) (see Appendix II) assesses the robustness of the GII modeling choices (no imputation of missing data, fixed predefined weights and arithmetic averages) by imputing missing data, applying random sets of perturbed weights and using geometric averages. Since 2012, based on this assessment, a confidence interval has been provided for each ranking in the GII, as well as for the Input and Output Sub-Indices (Appendix II).

Treatment of series with outliers

Potentially problematic indicators with outliers that could polarize results and unduly bias the rankings were treated according to the rules listed below, as per the recommendations of the JRC-COIN. Only hard data indicators were treated (34 out of 63).

First rule: selection

Indicators were classified as problematic if they had:

- an absolute value of skewness greater than 2.25; and

2 The GII is calculated based on 9,631 data points out of a possible 10,842 (139 economies multiplied by 78 indicators), implying that 11.2 percent of data points are missing. The GII 2025 data include the data year used for each indicator and economy, downloadable at www.wipo.int/global_innovation_index/en/2025. If an indicator for an economy is missing, it is marked as "n/a" in the economy profiles and "–" for cases where the indicator is not treated as missing.

– kurtosis greater than 3.5.[3]

Second rule: treatment

Indicators with between one and five outliers (23 cases) were winsorized; the values distorting the indicator distribution were assigned the next highest value, up to the level where skewness and/or kurtosis had the values specified above.[4]

Indicators with five or more outliers, and for which skewness or kurtosis did not fall within the ranges specified above, were transformed using natural logarithms after multiplication by a given factor *f*.[5] Since only "goods" were affected (i.e., indicators for which higher values indicate better outcomes, as opposed to "bads"), the following formula was used:

$$\ln\left[\frac{(\max \times f - 1)\,(\textit{economy value} - \min)}{\max - \min} + 1\right]$$

where "min" and "max" are the minimum and maximum indicator sample values, respectively.

Normalization

The 78 indicators were then normalized into the [0, 100] range, with higher scores representing better outcomes. Normalization was undertaken according to the min–max method, where the "min" and "max" values were the minimum and maximum indicator sample values, respectively. Following the recommendation of the JRC-COIN, all indicators, including index and survey data, were normalized to a 0–100 range. Such normalization ensures that all indicators share the same range, facilitating their individual contribution to the overall index score.

Weights

In 2012, the JRC-COIN and GII team made a joint decision that scaling coefficients of 0.5 or 1.0 should be used instead of importance coefficients. This decision aimed to achieve balanced sub-pillar and pillar scores by considering the underlying components. In other words, the goal was to ensure that indicators and sub-pillars contribute a similar amount of variance to their respective sub-pillars/pillars.

To prevent multicollinearity during the aggregation process, any indicators within a sub-index that exhibited a high correlation, exceeding an absolute correlation of 0.95, were assigned a weight of 0.5. In 2025, there were no indicators that received a 0.5 weight, and thus all indicators had a weight of 1. Additionally, two sub-pillars – 7.2 Creative goods and services and 7.3 Online creativity – were also assigned a weight of 0.5.

Strengths and weaknesses

Strengths and weaknesses are calculated for all economies covered in the GII and are presented in the individual economy profiles (see the explanatory section Economy profiles) and in the GII Economy briefs available through the GII Innovation Ecosystems and Data Explorer. In simple terms, strengths and weaknesses are the top- and bottom-ranked indicators for each country.

3 Based on Groeneveld and Meeden (1984), which sets the criteria of absolute skewness above 1 and kurtosis above 3.5. The skewness criterion was relaxed to accommodate the small sample under consideration (139 economies).
4 The indicators treated using winsorization are: 2.1.5, 4.3.1, 5.1.4, 5.3.2, 5.3.3, 6.1.5 and 7.3.2 (one outlier); 2.2.3, 3.2.1, 4.1.3, 4.2.1, 6.1.3, 6.3.3 and 7.2.2 (two outliers); 4.2.2, 6.3.4 and 7.2.1 (three outliers); 4.2.5, 7.2.4 and 7.3.1 (four outliers); and 6.2.2 (five outliers). Finally, indicator 5.3.4 was winsorized from the bottom of the distribution, on one outlier and 7.1.1 on two outlier observations.
5 Indicators 2.3.3, 4.2.3, 4.2.4, 4.3.3, 5.2.5, 5.3.1, 6.1.1, 6.1.2, 6.3.1, 7.1.4 and 7.3.3 were treated using log-transformation (factor *f* of 1).

In addition, income group strengths and weaknesses are also provided, which are the respective high- and low-performing indicators within income groups.

The methodology for the calculation of strengths and weaknesses is as follows:

- The scores of each indicator are converted to percentile ranks.
- Strengths are defined as those indicators of an economy that have a percentile rank greater than or equal to the 10th percentile rank (across the indicators of that economy). This can result in more than 10 strengths in the event of tied results.
- Weaknesses are defined in an equivalent manner for the bottom 10 indicators.
- If a country has an indicator that ranks equal to or lower than three, it is automatically a strength, regardless of the percentile rank.
- Importantly, although the cut-off value used to define the strengths (i.e., the 10th highest percentile rank) is calculated using only indicator percentile ranks, it is also applied to sub-pillars and pillars.
- In addition, for pillars and sub-pillars that do not meet the Data Minimum Coverage (DMC) criteria, strengths and weaknesses are not signaled. Pillars and sub-pillars that do not meet the DMC are presented in brackets in the economy profiles.
- Income group strengths and weaknesses are like the overall strengths and weaknesses, but defined within income groups and use means and standard deviations. The methodology for calculation is as follows:

    - For a given economy, income group strengths are those scores that are above the income group average plus the standard deviation within the group.
    - For that economy, weaknesses are those scores that are below the income group average minus the standard deviation within the group.
    - The only exceptions to the income group strengths and weaknesses are the top 25 high-income economies, where these strengths and weaknesses are computed within the top 25 group only.
    - As the only non-high-income economy in the top 25, China's income group strengths and weaknesses are computed relative to the non-top 25 group.

- Since, occasionally, the low threshold for weaknesses is below zero, any score of zero is automatically marked as a weakness.
- Finally, as of 2023 and following the recommendation of the audit by the WIPO Internal Oversight Section,[6] strengths and weaknesses are reset, or not signaled, where the data year for a given indicator is older than the indicator mode minus five years. In practice, for the GII 2025, this means that for indicators with a data year mode of 2024, the data year of an economy must be 2019 or later to qualify as a strength or weakness.

Caveats on the year-to-year comparison of rankings

The GII compares the performance of national innovation systems across economies and presents the changes in economy rankings over time.

It is important to note that scores and rankings are not directly comparable between one year and another. Each ranking reflects the relative position of a particular economy based on the conceptual framework, the data coverage and the sample of economies of that specific GII iteration and reflects changes in the underlying indicators at source and in data availability.

Several factors influence the year-on-year rankings of an economy:

- the actual performance of the economy in question;

6 IOD Ref: IA 2022-03, April 14, 2023: https://www.wipo.int/documents/d/about-wipo/docs-en-oversight-iaod-audit-audit-gii.pdf.

- adjustments made to the GII framework (changes in indicator composition and measurement revisions);
- data updates, the treatment of outliers and missing values; and
- the inclusion or exclusion of economies in the sample.

Additionally, the following characteristics complicate the time-series analysis based on simple GII rankings or scores:

- **Missing values:** The GII produces relative index scores, which means that a missing value for one economy affects the index score of other economies. Because the number of missing values decreases every year, this problem reduces overtime.
- **Reference year:** The data underlying the GII do not refer to a single year but to several years, depending on the latest available year for any given indicator. In addition, the reference years for different indicators are not the same for each economy, due to measures to limit the number of missing data points.
- **Scaling factors:** Most GII indicators are scaled using either GDP or population, with the intention of enabling cross-economy comparability. However, this implies that year-on-year changes in individual indicators may be driven either by the variable (numerator) or by its scaling factor (denominator).
- **Consistent data collection:** Measuring the change in year-on-year performance relies on the consistent collection of data over time. Changes in the definition of indicators or in the data collection process could create movements within the rankings unrelated to performance.

A detailed study at the economy level based on the GII database and the economy profiles over time, coupled with analytical work on the ground, including that of innovation actors and decision-makers, yields the best results in terms of monitoring an economy's innovation performance, as well as identifying possible avenues for improvement.

Appendix II - Joint Research Centre (JRC) statistical audit of the 2025 Global Innovation Index

This statistical audit was conducted by **Jaime Lagüera González**, **Panagiotis Ravanos**, **Michaela Saisana**, **Oscar Smallenbroek**, **Alberto Guidi** and **Alexandre Canario Borrega**, European Commission, JRC, Ispra, Italy.

Robust and reliable monitoring frameworks are the highways to better policymaking. As much as in other socio-economic fields, understanding and modeling innovation at both national and global levels is crucial for identifying emerging trends and informing future strategies, but it also presents conceptual and practical challenges. These include, for example, those related to data quality and methodological choices. Addressing these challenges is essential for ensuring that policymakers have access to robust and actionable information to drive their way towards effective innovation policies. The 18th edition of Global Innovation Index (GII) 2025 addresses these issues by organizing data from 139 economies across 78 indicators into a structured framework of 21 sub-pillars, seven pillars, two sub-indices, and an overall index. This appendix delves into the practical challenges of constructing the GII, examining the statistical robustness of the conceptual framework and the robustness of the calculations and assumptions used to determine the final rankings.

Statistical soundness should be regarded as a necessary but not sufficient condition for a sound GII, since the correlations underpinning the majority of the statistical analyses carried out herein need not "necessarily represent the real influence of the individual indicators on the phenomenon being measured" (OECD/EC JRC, 2008: 26). Therefore, developing the GII requires a continuous dialogue between statistical rigor and conceptual understanding, ensuring that theory and empirical data complement each other.

The European Commission's Competence Centre on Composite Indicators and Scoreboards (CC-COIN) at the Joint Research Centre (JRC) in Ispra, Italy, has been invited to audit the GII for a 15th consecutive year. As in previous editions, the present JRC-COIN audit focuses on the statistical soundness of the multilevel structure of the index, as well as on the impact of key modeling assumptions on the results.[1] The independent statistical assessment of the GII provided by the JRC-CC-COIN guarantees the transparency and reliability of the index for both policymakers and other stakeholders, thus facilitating more accurate priority setting and policy formulation in the field of innovation.

As in the previous GII reports, the JRC-CC-COIN analysis complements the economy rankings of the GII, the Innovation Input Sub-Index and the Innovation Output Sub-Index with confidence intervals, in order to allow a better appreciation of the robustness of these rankings to the choice of computation methodology. The JRC-CC-COIN analysis also includes an assessment of the added value of the GII and it supplements the GII scores with a measure of the "distance to the performance frontier" of innovation through the use of data envelopment analysis.

1 The JRC analysis was based on the recommendations of the OECD/EC JRC (see Organisation for Economic Co-operation and Development/European Commission, Joint Research Centre. 2008. *Handbook on Constructing Composite Indicators: Methodology and User Guide)* and on more recent research from the JRC. The JRC audits on composite indicators are conducted at the request of the index developers and are available at: https://knowledge4policy.ec.europa.eu/composite-indicators_en and https://composite-indicators.jrc.ec.europa.eu. .

Box 1 Conceptual and statistical coherence in the GII 2025 framework

Step 1 Conceptual consistency

- compatibility with existing literature on innovation and pillar definition
- use of scaling factors per indicator to present a fair picture of economy differences (e.g., GDP, population)

Step 2 Data checks

- check for data timeliness (94 percent of available data refer to 2021 or a later year)
- inclusion requirements per economy (availability of ≥66 percent for the Input and the Output Sub-Indices separately and data availability for at least two sub-pillars per pillar)
- check for reporting errors (interquartile range)
- outlier identification (skewness and kurtosis) and treatment (winsorization or logarithmic transformation)
- direct contact with data providers

Step 3 Statistical coherence

- treatment of pairs of highly collinear variables as a single indicator
- assessment of grouping of indicators into sub-pillars, pillars, sub-indices and the GII
- use of weights as scaling coefficients to ensure statistical coherence
- assessment of arithmetic average assumption
- assessment of potential redundancy of information in the overall GII

Step 4 Qualitative review

- internal qualitative review (by WIPO in partnership with the Portulans Institute, the GII Corporate and Academic Network partners, as well as the GII Advisory Board members)
- a one-off qualitative audit (by the WIPO Internal Oversight Section)[2]
- external qualitative review (by JRC-COIN and international experts)

Source: European Commission, Joint Research Centre, 2025.

Conceptual and statistical coherence within the GII framework

The GII model was assessed by the JRC-COIN in June 2025. Suggestions for fine-tuning certain aspects were taken into account in the final computation of the rankings during an iterative process with the JRC-COIN aiming to set the foundations for a balanced index. This four-step process is outlined in Box 1.

Step 1: Conceptual consistency

A total of 78 indicators were selected for their relevance to specific innovation pillars, based on a literature review, expert opinion, economy coverage and timeliness. To present a fair picture of economy differences, indicators were scaled either at source or by the GII team, as appropriate and where needed. For example, Venture capital deals received, deal count (indicator 4.2.2) is expressed as number of deals per billion PPP$ GDP, while Government funding per pupil at

2 Available at: https://www.wipo.int/documents/d/about-wipo/docs-en-oversight-iaod-audit-audit-gii.pdf, IOD Ref: IA 2022-03, April 14, 2023.

secondary level (indicator 2.1.2) is expressed as a percentage of GDP per capita. As of 2023 and on the advice of JRC-COIN, the GII developers normalize all 78 indicators to a 0–100 range which facilitates their individual contributions to the overall index score.

The 2025 edition of the GII includes some changes to the indicators.

- The methodology for calculating some indicators has changed. In particular, the definition of indicator 3.1.1 ICT Access now includes a component on the availability of 5G connectivity, in addition to 3G and 4G/LTE connectivity. Also, 6.1.2 PCT patents is now counted by origin of the inventor rather than by origin of the first-named applicant. This methodology for counting patents is also followed by other innovation monitoring frameworks such as the European Innovation Scoreboard (see, e.g., European Commission, 2024).
- The source for all four Venture capital (VC) indicators used in the index (indicators 4.2.2, 4.2.3, 4.2.4 and 4.2.5) has changed. The developers have opted for using the Pitchbook database to improve data coverage, particularly for middle and low-income economies.
- As a result of the change in data source, indicator 4.2.5 (corresponding to the former 5.2.4 Joint venture/strategic alliance deals) has been transferred to pillar 4 Market sophistication from pillar 5 Business sophistication and also changed methodology, now reflecting VC deals that include co-investors by companies. Its transfer to pillar 4 is justified by the grater conceptual fit to sub-pillar 4.2-Investments, where other VC indicators are also present.
- In sub-pillar 3.1 Information and communication technologies (ICTs) former indicator 3.1.4 (E-participation) has been dropped. This indicator is part of the UNDESA Online Service Index, which features already in the GII as indicator 3.1.3 Government's online service. The rationale for dropping E-participation was to reduce the possibility of double counting of information, as the E-participation component has a weight of 35% of the Online Service Index.
- Indicator 5.2.3 University industry and international engagement has been introduced to sub-pillar 5.2. Innovation linkages, featuring the international and industry linkages of top universities in the country.
- Finally, in sub-pillar 5.1 Knowledge workers, indicator 5.1.3 Youth demographic dividend replaces the former Firms offering formal training, based on concerns about the timeliness and future data availability of the latter.

The above changes highlight the developers' commitment to rigorously monitoring, evaluating, and refining both the theoretical framework and the data sources underpinning the index. This continuous improvement process ensures that the index delivers a reliable, accurate and timely assessment of innovation performance, empowering policymakers with reliable insights to drive evidence-based decision-making.

Step 2: Data checks

The data used for each economy were those most recently released within the period 2015 to 2025 94 percent of the available data refer to 2021 or a later year. With regards to the inclusion of countries in the GII, the 2025 edition follows the criteria adopted in 2016,[3] according to which economies are only included if (i) data availability is at least 66 percent within each of the two sub-indices (i.e. 35 out of 53 variables within the Input Sub-Index and 17 out of the 25 variables in the Output Sub-Index) and (ii) at least two of the three sub-pillars in each pillar can be computed. These criteria aim to ensure that economy scores for the GII and for the two Input and Output Sub-Indices are not overly sensitive to missing values (as was the case for the Output Sub-Index scores of several economies in previous editions). In the current edition of the Index, six additional countries fulfill these criteria compared to the previous iteration (Congo, Guinea, Lesotho, Malawi, Seychelles and Venezuela) increasing the number of economies in this version by six (from 133 in 2024 to 139 in 2025).

In practice, data availability for all economies included in the GII 2025 is quite satisfactory: At least 80% of data is available for 79% of the economies covered (equivalent to 110 economies out of 139), while 82% of the considered indicators are available for at least 75% of the 139 economies covered. This highlights the significant efforts conducted by the GII in promoting

3 These criteria were adopted following a JRC-COIN recommendation based on previous GII audits.

continuous data monitoring and collection in the realm of innovation-related variables. There are only two indicators for which the share of missing data is relatively high (4.1.3 Loans from microfinance institutions and 7.2.3 Entertainment and media market, for which data are available for 47% and 45% of the 139 countries respectively).

Potentially problematic indicators that could bias the overall results were identified on the basis of two measures related to the shape of the data distributions: skewness and kurtosis. In 2011, a joint decision by the GII team and the JRC-COIN determined that values would be treated if an indicator had absolute skewness greater than 2.0 and kurtosis greater than 3.5.[4] In 2017, having analyzed data in the GIIs compiled between 2011 and 2017, less stringent criteria were adopted. An indicator was only treated if the absolute skewness was greater than 2.25 and kurtosis greater than 3.5. Such indicators were treated either by winsorization or by natural logarithm (in cases of more than five outliers; see Appendix I). In 2018, exceptional behavior by foreign direct investment (FDI) net outflows (indicator 6.3.4 at the time) was observed (Annex 3, JRC Audit, GII 2018) and, from 2018 onward, it was recommended that the GII rule for the treatment of outliers be amended as follows:

- for indicators with absolute skewness greater than 2.25 and kurtosis greater than 3.5, apply either winsorization or the natural logarithm (in cases of more than five outliers);
- for indicators with absolute skewness less than 2.25 and kurtosis greater than 10.0, produce scatterplots to identify potentially problematic values that need to be considered as outliers and treated accordingly.

For a total of 23 indicators, one up to 5 values were winsorised, while for an additional 11 indicators (2.3.3 Global corporate R&D investors, 4.2.3 Late-stage VC deal count, 4.2.4 VC investors, 4.3.3 Domestic market scale, 5.2.5. Patent families, 5.3.1 Intellectual property payments, 6.1.1 Patents by origin, 6.1.2 PCT patents by inventor origin, 6.3.1 Intellectual property receipts, 7.1.4 Industrial designs by origin, and 7.3.3 Mobile app creation) the natural logarithm was applied. For three of these five indicators (4.2.4 VC investors, 4.2.3 Late-stage VC deal count, and 5.2.5. Patent families) the values of skewness and kurtosis did not abide by the set thresholds after applying the natural logarithm transformation.

Compared to the previous edition of the GII in 2024, there were six additional indicators that needed a natural logarithm treatment (11 versus five last year). The JRC guidelines for data treatment are governed by the principle of least intervention in the distribution of the data and put forth winsorisation as a first treatment followed by natural logarithm transformation. To reduce the indicators treated by the latter, the JRC would like to suggest increasing the number of maximum winsorised data points for the GII indicators by two from to five to seven. This corresponds to the upper 5% (7/139) of the distribution with 139 countries, that is to say, values are trimmed up to the 95% percentile if needed. Tests conducted by the JRC indicate that increasing the number of winsorized points would eliminate the need to apply the natural logarithm to 8 of the 11 indicators. For the remaining three indicators (4.2.3 Late-stage VC deal count, 4.2.4 VC investors, and 5.2.5. Patent families) the logarithmic transformation would bring skewness and kurtosis values within the recommended thresholds.

Step 3: Statistical coherence

Weights as scaling coefficients

The JRC-COIN and the GII team jointly decided in 2012 that weights of 0.5 or 1.0 were to be used as scaling coefficients and not importance coefficients, with the aim of arriving at sub-pillar and pillar scores that were balanced in their underlying components (i.e., that indicators and sub-pillars can explain a similar amount of variance in their respective sub-pillars/pillars). Becker *et al.* (2017) and Paruolo *et al.* (2013) show that, in weighted arithmetic averages, the ratio of two nominal weights gives the rate of substitutability between two indicators, and hence can be used to reveal the relative importance of individual indicators. This importance can then be

4 Groeneveld and Meeden (1984) set the criteria for absolute skewness above 1 and for kurtosis above 3.5. The skewness criterion was relaxed in the GII case after ad hoc tests were conducted in the GII 2008–GII 2018 series range. See Groeneveld, R.A. and G. Meeden (1984). Measuring skewness and kurtosis.*The Statistician.*, 33(4), 391–399.

compared with *ex-post* measures of a variable's importance, such as the non-linear Pearson correlation ratio.

As a result of this analysis, two sub-pillars are also given a weight of 0.5, namely 7.2 Creative goods and services and 7.3 Online creativity.

Despite this weighting adjustment, two indicators (5.3.4 FDI net inflows and 6.2.1 Labor productivity growth) were found to be non-influential in this year's GII framework, meaning that they could not explain at least 9 percent of economies' overall variation in the respective sub-pillar scores.[5] These two indicators also remain statistically non-influential at both the sub-index and the index level, while there are four additional indicators (2.2.2 Graduates in science and engineering, 3.2.3 Gross capital formation, 3.3.2 Low-carbon energy use, 4.1.3 Loans from microfinance institutions) which are not sufficiently correlated with the Input Sub-Index level. This means that, at least for 5.3.4 FDI net inflows and 6.2.1 Labor productivity growth, there is evidence of a weak relationship between a country's level of innovation and its FDI net inflows or Labor productivity growth.

As previously noted, a weak statistical relationship does not imply that an indicator is conceptually unsuitable. Rather, it reflects the amount of information (or variability) that the indicator contributes to the overall index. Specifically, the weak correlation between the FDI net inflows and Labour productivity indicators and the GII indicates only a limited relationship, without suggesting any causality or its absence. The JRC-COIN encourages the developers to carefully monitor the statistical fit of these indicators in future editions of the index and to thoughtfully assess their impact on economies most affected by their inclusion in the framework.

Building on this analysis, the indicator 5.1.3, Youth demographic dividend, warrants some special attention. The indicator's statistical fit with the remaining GII variables is rather particular: It shows a statistically significant negative correlation (< –0.4) with all other indicators within the sub-pillar 5.1 Knowledge Workers, as well as with the GII index, with which it has a negative correlation coefficient of –0.76. Similarly weak correlations are observed with many other indicators across the GII framework—62 out of 77 indicators show a negative correlation below -0.3 with this measure.

Importantly, this indicator has a pronounced regional impact, as it tends to favor African countries by effectively providing a “bonus” that reflects their unique demographic advantage. The youthful populations in many African economies position them with significant potential for innovation and economic growth in the years ahead, driven by their expanding human capital. This regional dimension highlights the indicator’s role in capturing forward-looking innovation capacity that may not be fully reflected by other measures in the index. While the JRC-COIN acknowledges the conceptual importance and future-oriented nature of the Youth Demographic Dividend, these comments are strictly statistical. The strong negative correlations observed can reduce the framework’s ability to effectively differentiate and rank countries and increase sensitivity to weighting choices. Therefore, the JRC-COIN encourages the developers to further delve into the insights that stem from including the Youth Demographic Dividend indicator in the GII framework and to carefully consider retaining the indicator as a critical contextual component in future index editions—particularly for its value in highlighting the innovation potential of regions with youthful demographic profiles, such as Africa.

The remaining 71 indicators out of the 78 in total were found to be sufficiently influential - in the statistical sense- in the GII framework.

Principal component analysis and reliability item analysis

Principal component analysis (PCA) was used to assess the extent to which the conceptual framework is confirmed by statistical approaches. PCA results confirm the presence of a single latent dimension in each of the seven pillars (one component with an eigenvalue greater

5 An indicator can explain 9 percent of the economy's variation in the GII sub-pillar scores if the Pearson correlation coefficient between the two series is 0.3.

than 1.0) that captures between approximately 61 percent (pillar 3: Infrastructure) and up to 81 percent (pillar 1: Institutions) of the total variance in the three underlying sub-pillars. Furthermore, results confirm the expectation that in the majority of the cases, the sub-pillars are more closely correlated with their own pillar than with any other pillar and that all correlation coefficients are close to or greater than 0.70 (Appendix Table 2).

The five input pillars share a single statistical dimension that summarizes 80 percent of the total variance and the five loadings (correlation coefficients) of these pillars are very similar to each other. This similarity suggests that the five pillars make a roughly equal contribution to the variation of the Innovation Input Sub-Index scores, as envisaged by the development team. Consequently, the reliability of the Input Sub-Index, measured by Cronbach's alpha value, is very high at 0.93 – well above the 0.70 threshold for a reliable aggregate (Nunally, 1978).

The two output pillars – Knowledge and technology outputs and Creative outputs – are strongly correlated with each other (0.88); they are also both strongly correlated with the Innovation Output Sub-Index (0.96 and 0.97).

Finally, the two sub-indices are equally important in the overall GII. The GII is built as a simple arithmetic average of the Input Sub-Index and the Output Sub-Index. In fact, the Pearson correlation coefficients of the two sub-indices with the GII (around 0.97 in both cases), and the correlation between themselves (0.90), suggests that they are effectively placed on an equal footing.

Concluding remarks

Overall, the analysis herein confirms that the GII framework is statistically sound. In fact, the vast majority of indicators (71 out of the 78) are found to be sufficiently influential -in a statistical sense- in the GII framework. This result signals the efforts over the past eighteen years that the GII team has put into the preparation of this monitoring framework to identify the multiple determinants of a county's innovation capacity and potential and the best available data sources to measure them.

The following issues are worth of further consideration.

For two of the 78 indicators (5.3.4 FDI net inflows and 6.2.1 Labor productivity growth) the statistical fit with the Index was found to be weak – that is, each of these two indicators explains less than 9 percent of economies' variation in their respective sub-pillar scores.[6] This is however partially balanced thanks to their strong conceptual fit to the GII framework. The JRC-COIN recommends further monitoring of the statistical fit of these two indicators in future editions of the index.

In addition, special attention should be given to indicator 5.1.3 Youth Demographic Dividend, given the negative correlation fit with other indicators within the index. The Youth Demographic Dividend indicator notably favors African countries by capturing their unique demographic advantage and future innovation potential driven by youthful populations. While this forward-looking measure is conceptually important, its strong negative correlations may undermine the framework's ability to reliably differentiate and rank countries. Therefore, the JRC-COIN recommends including it as a valuable contextual element rather than as a core part of the monitoring framework in future index editions.

6 An indicator can explain 9 percent of the economy's variation in the GII sub-pillar scores if the Pearson correlation coefficient between the two series is 0.3.

Appendix Table 2 Statistical coherence in the GII: correlations between sub-pillars and pillars

	Pillars						
Sub-pillar	Institutions	Human capital and research	Infrastructure	Market sophistication	Business sophistication	Knowledge and technology outputs	Creative outputs
1.1 Institutional environment	0.95	0.69	0.82	0.75	0.69	0.64	0.72
1.2 Regulatory environment	0.93	0.74	0.82	0.77	0.77	0.72	0.78
1.3 Business environment	0.81	0.31	0.4	0.4	0.45	0.3	0.31
2.1 Education	0.46	0.81	0.58	0.58	0.54	0.55	0.58
2.2 Tertiary education	0.56	0.83	0.69	0.66	0.54	0.59	0.64
2.3 Research and development (R&D)	0.65	0.89	0.73	0.81	0.9	0.88	0.86
3.1 Information and communication technology (ICT)	0.7	0.74	0.9	0.77	0.61	0.69	0.76
3.2 General infrastructure	0.66	0.62	0.77	0.62	0.58	0.56	0.58
3.3 Ecological sustainability	0.36	0.41	0.64	0.43	0.45	0.52	0.5
4.1 Credit	0.61	0.7	0.64	0.86	0.62	0.65	0.67
4.2 Investment	0.68	0.64	0.57	0.74	0.72	0.65	0.73
4.3 Trade, diversification, and market scale	0.45	0.66	0.73	0.78	0.56	0.69	0.68
5.1 Knowledge workers	0.38	0.59	0.39	0.46	0.81	0.64	0.57
5.2 Innovation linkages	0.8	0.8	0.74	0.79	0.9	0.82	0.82
5.3 Knowledge absorption	0.56	0.65	0.65	0.65	0.83	0.76	0.75
6.1 Knowledge creation	0.57	0.81	0.67	0.73	0.85	0.9	0.82
6.2 Knowledge impact	0.52	0.65	0.63	0.67	0.72	0.85	0.72
6.3 Knowledge diffusion	0.55	0.71	0.73	0.7	0.74	0.9	0.78
7.1 Intangible assets	0.5	0.72	0.67	0.7	0.72	0.76	0.9
7.2 Creative goods and services	0.63	0.67	0.69	0.71	0.71	0.75	0.79
7.3 Online creativity	0.67	0.77	0.73	0.74	0.74	0.74	0.82

Source: European Commission, Joint Research Centre, 2025.

Added value of the GII

High statistical association between the components of a composite index could be interpreted by some as a sign of redundancy of information within the composite index. For the case of the GII, the Input and Output Sub-Indices correlate strongly with each other and with the overall GII, while the five pillars in the Input Sub-Index have a very high statistical reliability. However, the tests conducted by the JRC-COIN confirm that this high statistical reliability does not result in redundancy of information. In particular, a country's GII ranking differs from that in any of the seven pillars by 10 positions or more at least 47 percent (up to 76 percent) of the 139 economies included in the GII 2025 (Appendix Table 3). This serves as a demonstration of the added value of the GII ranking, which helps to highlight other aspects of innovation within individual countries that are not immediately apparent from analysis of the seven pillars individually. It also highlights the usefulness of taking due account of the information contained in each of the GII pillars, sub-pillars and indicators individually. By doing so, economy-specific strengths and bottlenecks in terms of innovation can be identified and serve as a basis for evidence-based policymaking.

Appendix Table 3 Distribution of differences between pillar and GII rankings

	Innovation Input Sub-Index					Innovation Output Sub-Index	
Rank differences (positions)	Institutions (%)	Human capital and research (%)	Infrastructure (%)	Market sophistication (%)	Business sophistication (%)	Knowledge and technology outputs (%)	Creative outputs (%)
More than 30	23.7	8.6	6.5	9.4	19.4	7.2	4.3
20–29	20.9	18.7	18.0	14.4	10.1	10.1	7.2
10–19	31.7	25.9	34.5	30.2	23.7	29.5	34.5
10 or more*	76.3	54.0	59.7	54.0	53.2	48.9	46.8
5–9	10.8	26.6	18.7	13.7	14.4	20.9	23.0
Less than 5	12.9	19.4	21.6	32.4	32.4	30.2	30.2
Same rank	0.0	1.4	1.4	3.6	4.3	3.6	4.3
Total**	100	100	100	100	100	100	100
Spearman rank correlation coefficient with the GII	0.78	0.88	0.91	0.88	0.81	0.92	0.94

Notes: * This row is the sum of the previous three rows. ** This row is the sum of all white rows.
Source: European Commission, Joint Research Centre, 2025.

Step 4: Qualitative review

Lastly, JRC-COIN evaluated the GII results – in particular, the overall economy classifications and relative performances in terms of the Innovation Input or Output Sub-Indices – with the aim to verify that the overall results are robust with respect to the modeling assumptions made during the construction of the GII. Robustness is a powerful characteristic for a composite index as it verifies its reliability as a monitoring framework of the underlying phenomenon that is being measured. Overall, the results in this section verify the robustness of GII with respect to modeling assumptions and its reliability as a monitoring framework for innovation performance. Notwithstanding these positive results, the structure of the GII model is, and has to remain, open to future improvements which may be needed as better data, more comprehensive surveys and assessments, and new, relevant research studies become available.

The impact of modeling assumptions on the GII results

An important part of the GII statistical audit is to check the effect of varying assumptions within plausible ranges. Modeling assumptions with a direct impact on GII scores and rankings relate to:

- the underlying structure selected for the index based on pillars;
- the choice of individual variables to be used as indicators;
- decisions regarding whether (and how) to impute missing data;
- decisions regarding whether (and how) to treat outliers;
- the selection of the normalization formula to be used;
- the choice of aggregation weights for indicators and their aggregates; and
- the aggregation rule to be used at each different level of the index structure.

The rationale for the choices made by the GII developers regarding each of these issues is well-grounded: for instance, expert opinion coupled with statistical analysis informs the selection of the individual indicators; common practice and easier interpretation suggest the use of a minimum–maximum normalization approach in the [0–100] range; statistical analysis guides the treatment of outliers; while simplicity and parsimony criteria advocate for the developers' choice for not imputing missing data. The uncertainty that naturally stems from the above-mentioned modeling choices is accounted for in the robustness assessment carried out by the JRC-COIN. In particular, the methodology applied allows for the joint and simultaneous analysis of the impact of such choices on the aggregate scores. The analysis carried out by JRC-COIN supplements the GII 2025 individual economy rankings with confidence intervals, to better appreciate the robustness of these ranks to the modeling choices.

As suggested by the relevant literature on composite indicators (Saisana *et al.*, 2005; Saisana *et al.*, 2011; Vertesy, 2016; Vertesy and Deiss, 2016; Montalto *et al.*, 2019) the robustness assessment is based on Monte Carlo simulation and multi-modeling approaches, applied to the "error-free" data where potential outliers, errors and typos have already been corrected at a preliminary stage. In particular, the three key modeling issues considered in the assessment of the GII were the treatment of missing data, the aggregation formula and weights applied to the pillar level.

The Monte Carlo simulation comprised 5,000 runs of different sets of weights for the seven GII pillars. Weights were assigned to the pillars based on random perturbations centered on the reference values. The ranges of simulated weights were defined by considering both the need for a wide enough interval to allow for meaningful robustness checks and the need to respect the underlying principle of the GII that the Input and the Output Sub-Indices should be placed on an equal footing. As a result of these considerations, the limit values of uncertainty for the five input pillars are between 10 and 30 percent, whereas the limit values for the two output pillars are between 40 and 60 percent (Appendix Table 4).

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Appendix Table 4 Uncertainty parameters: missing values, aggregation and weights

	Reference	**Alternative(s)**
I. Uncertainty in the treatment of missing values	No estimation of missing data	Expectation–maximization (EM)
		k-nearest neighbour imputation (kNN, k= 10)
II. Uncertainty in the aggregation formula at pillar level	Arithmetic average	Weighted generalised mean (p = 0, 0.25, 0.5)
III. Uncertainty intervals for the GII pillar weights		
Pillar	Reference value for the weight	Distribution assigned for robustness analysis
Institutions	0.2	U[0.1,0.3]
Human capital and research	0.2	U[0.1,0.3]
Infrastructure	0.2	U[0.1,0.3]
Market sophistication	0.2	U[0.1,0.3]
Business sophistication	0.2	U[0.1,0.3]
Knowledge and technology outputs	0.5	U[0.4,0.6]
Creative outputs	0.5	U[0.4,0.6]

Source: European Commission, Joint Research Centre, 2025.

For transparency and replicability purposes, the GII team has always opted not to estimate missing data. In the cases where missing data exist, the score of the aggregate containing the missing value is based on the other elements of the aggregate for which values are observed. This "no imputation" choice is common in similar contexts and is usually selected to improve transparency and avoid any methodological black box in the imputation of data. Technically, this constitutes a form of "shadow" imputation (for example, in an arithmetic average it is equivalent to replacing the missing value with the arithmetic average of the elements for which values are observed). Hence, the available data (indicators) in the incomplete pillar may dominate, sometimes biasing the ranks up or down. To test the impact of not imputing missing values, the JRC-COIN estimated missing data using two different data imputation approaches: (a) the expectation–maximization (EM) algorithm and (b) the nearest neighbor (k-NN) approach (using the 10 nearest neighbors). Both these were applied within each GII pillar and then compared to the no-imputation approach (see Appendix Table 6).[7]

Regarding the aggregation formula, decision-theory practitioners challenge the use of simple arithmetic averages because of their fully compensatory nature, where a country's high comparative advantage on a few indicators can compensate for its comparative disadvantage on many other indicators (Munda, 2008). To assess the impact of this modeling choice, the JRC-COIN explored various scenarios of the weighted generalized mean[8] as an alternative to the arithmetic average. These scenarios allow less compensability, rewarding economies with balanced profiles and encouraging them to improve in the GII pillars in which they perform poorly, rather than just excelling in any GII pillar.[9]

Six models were tested based on the combination of no imputation versus EM or k-NN imputation and arithmetic versus geometric average, with the geometric average being the variation of the generalized mean that allows the least compensability among those tested. A random combination of these choices plus a random set of perturbed weights were used in a total of 5,000 simulations for the GII and each of the two sub-indices (see Appendix Table 4 for a summary of the uncertainties considered).

Uncertainty analysis results

The main results of the robustness analysis are shown in Appendix Figure 1, with median ranks and 90 percent confidence intervals computed across the 5,000 Monte Carlo simulations for the GII and the two sub-indices. Economies are in ascending order (best to worst performing) according to their reference rank (black line), with the dot representing the median rank over the simulations.

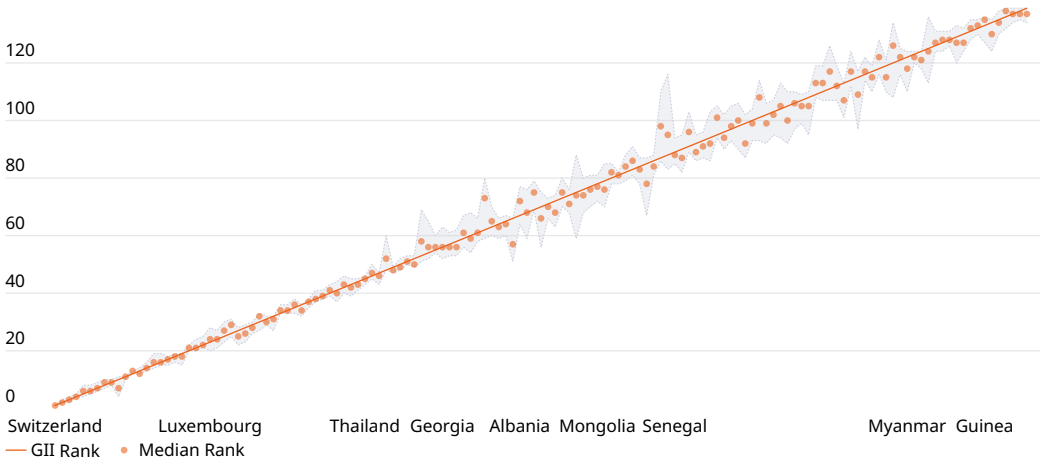
7 The expectation–maximization (EM) algorithm (Little and Rubin, 2002; Schneider, 2001) is an iterative procedure that finds the maximum likelihood estimates of the parameter vector by repeating two steps: (a) The expectation step (E-step): given a set of parameter estimates, such as a mean vector and covariance matrix for a multivariate normal distribution, the E-step calculates the conditional expectation of the complete-data log likelihood, given the observed data and the parameter estimates. (b) The maximization step (M-step): given a complete-data log likelihood, the M-step finds the parameter estimates to maximize the complete-data log likelihood from the E-step. The two steps are iterated until the iterations converge. The k-nearest neighbor approach replaces a missing value for a country A with the average of the values observed for the same indicator in k (which in this case equal to five) other sample countries which are identified as country A's "nearest neighbors", in the sense that their performance in the other indicators is similar to that of country A. This involves 2 steps: (a) estimating measure of distance between country A and all other sample countries (e.g., the Euclidean distance) based on the indicators for which country A has observed data and selecting the k countries with the smaller distance to country A, and (b) obtaining the average of the indicator values for the selected countries and using it to fill the missing value for country A.

8 The various scenarios for the generalized mean involve using different exponent values: 0, 0.25, and 0.5, allowing for compensability. In the geometric average (exponent value = 0), pillars are multiplied as opposed to summed in the arithmetic average. Pillar weights appear as exponents in the multiplication. All pillar scores were greater than zero, hence there was no reason to rescale them to avoid zero values that would have led to zero geometric averages.

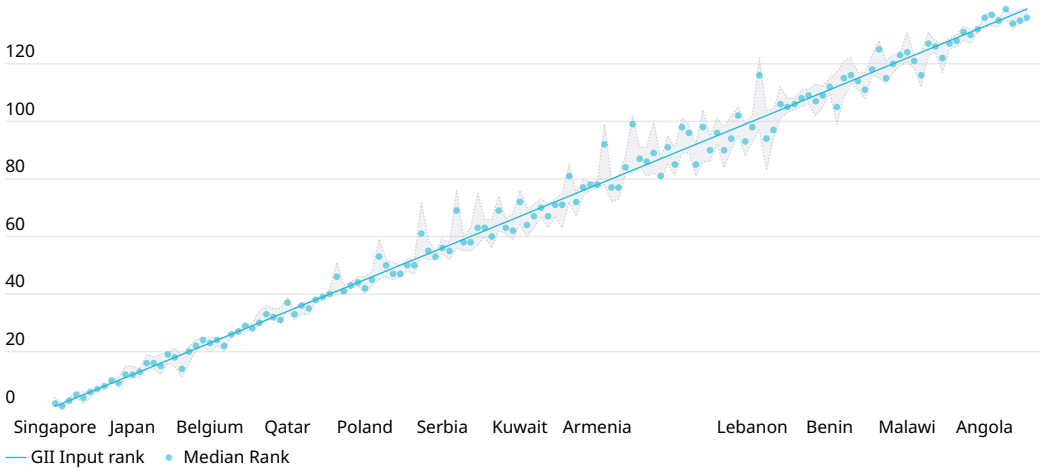
9 In the geometric average, pillars are multiplied as opposed to summed in the arithmetic average. Pillar weights appear as exponents in the multiplication. All pillar scores were greater than zero, hence there was no reason to rescale them to avoid zero values that would have led to zero geometric averages.

Appendix Figure 1 Robustness analysis of the GII, Input and Output Sub-Indices

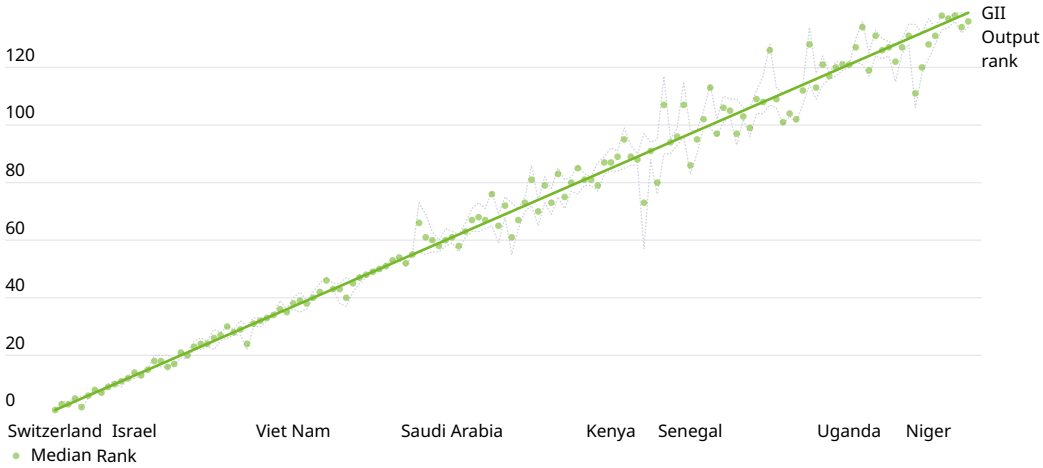
(a) GII rank vs. median rank, 90 percent confidence intervals



(b) Input rank vs. median rank, 90 percent confidence intervals



(c) Output rank vs. median rank, 90 percent confidence intervals



Notes: Median ranks and intervals are calculated over 5,000 simulated scenarios combining simulated weights, imputation (based on EM or k-NN) versus no imputation of missing values, and various scenarios of the generalized mean versus arithmetic average at the pillar level. The Spearman rank correlation between the median rank and the GII 2025 rank is 0.997; between the median rank and the Innovation Input 2025 rank is 0.995; and between the median rank and the Innovation Output 2025 rank is 0.992.

Source: European Commission, Joint Research Centre, 2025.

All published GII 2025 ranks lie within the simulated 90 percent confidence intervals and for most economies these intervals are sufficiently narrow to allow meaningful inferences to be drawn: For 85 of the 139 economies the width of the 90% GII rank confidence interval is less than 10 positions in rank, while this holds for 103 of the 139 economies in the case of the Input Sub-Index and for 107 in the case of the Output Sub-Index. However, it is also true that a few economies experience significant changes in rank with variations in weights and aggregation formula and when imputing missing data. Seven economies – Bahrain, Seychelles, Botswana, Brunei Darussalam, Ghana, Madagascar and Malawi – have 90 percent confidence interval widths of more than 20 positions (21, 29, 24, 33, 21, 26 and 23 positions, respectively). Consequently, their rankings (62nd, 75th, 87th, 88th, 101th, 120th and 125th) in the GII classification should be interpreted cautiously and not taken at face value. However, this is a remarkable improvement compared to GII versions up to 2016, when more than 40 economies had confidence interval widths of more than 20 positions. The improvement in the confidence that can be placed in the GII 2025 ranking is the direct result of the decision to adopt a more stringent criterion for an economy's inclusion since 2016, which now requires at least 66 percent data availability within each of the two sub-indices.

In a similar fashion, some caution is also warranted with regards to the ranking of three economies (Cabo Verde, Bolivia and Belarus) for the Input Sub-Index, for which the 90 percent confidence interval has a width of more than 20 positions (21, 25 and 21 respectively). A similar degree of caution is needed in the Output Sub-Index for four economies – Seychelles, Ghana, Côte d'Ivoire and Malawi – which have 90 percent confidence interval widths of more than 20 positions (up to 40 for Seychelles). The higher data availability in the Output Sub-Index in the latest GII editions has contributed to reducing the number of countries with very wide intervals compared to previous editions (e.g., the GII 2019 edition in which there were 13 countries with confidence intervals wider than 20 positions).

Although the rankings for a few economies in the GII or in the two sub-indices appear to be sensitive to methodological choices, the published rankings for the vast majority of the 139 countries included in the 2025 GII can be considered as representative of the plurality of scenarios simulated in this audit. Taking the median rank as the benchmark for an economy's expected rank in the realm of the GII's unavoidable methodological uncertainties, 73 percent of the economies are found to shift fewer than three positions with respect to the median rank in the GII; the percentage for the Input and the Output Sub-Indices is similarly large (at 64 and 59 percent respectively).

In order to offer full transparency and complete information, Appendix Table 5 reports the GII 2025 Index and Input and Output Sub-Indices' economy ranks together with the simulated 90 percent confidence intervals to allow a better appreciation of the robustness of the results to the choice of weights and aggregation formula and the impact of estimating missing data (where applicable).

Appendix Table 5 GII 2025 and Input/Output Sub-Indices: rankings and 90 percent confidence intervals

	GII 2025		Input Sub-Index		Output Sub-Index	
	Rank	Interval	Rank	Interval	Rank	Interval
Switzerland	1	1, 1	2	1, 2	1	1, 1
Sweden	2	2, 3	3	2, 4	2	2, 4
United States	3	2, 4	6	4, 6	3	3, 4
Republic of Korea	4	4, 5	4	4, 6	6	5, 6
Singapore	5	4, 8	1	1, 4	9	9, 10
United Kingdom	6	5, 8	10	9, 11	4	4, 5
Finland	7	6, 9	5	2, 6	10	10, 11
Netherlands (Kingdom of the)	8	7, 10	9	9, 10	7	7, 8
Denmark	9	8, 10	7	7, 7	11	9, 11
China	10	4, 11	19	11, 19	5	2, 6
Germany	11	10, 11	15	14, 18	8	7, 8
Japan	12	12, 13	12	11, 15	14	13, 14
France	13	12, 14	18	15, 21	12	12, 13
Israel	14	13, 16	25	20, 25	13	12, 14
Hong Kong, China	15	14, 19	8	8, 8	22	22, 25
Estonia	16	15, 19	24	22, 25	15	15, 15
Canada	17	15, 18	13	11, 14	20	19, 21
Ireland	18	16, 19	21	20, 24	17	16, 20
Austria	19	15, 19	17	16, 20	21	19, 21
Norway	20	20, 22	11	10, 15	26	25, 28
Belgium	21	20, 24	23	20, 25	23	22, 26
Australia	22	21, 25	16	12, 19	27	26, 30
Luxembourg	23	20, 28	26	25, 26	25	22, 29
Iceland	24	21, 27	20	16, 22	29	27, 32
Cyprus	25	23, 30	36	33, 37	16	16, 20
New Zealand	26	25, 31	22	22, 25	34	34, 34
Malta	27	22, 28	35	31, 35	18	16, 20
Italy	28	23, 29	37	33, 37	19	17, 19
Spain	29	26, 30	29	28, 30	24	23, 25
United Arab Emirates	30	27, 33	14	14, 19	47	45, 48
Portugal	31	29, 32	27	27, 28	28	27, 29
Czech Republic	32	27, 32	33	30, 35	30	22, 30
Lithuania	33	33, 36	28	27, 29	40	40, 42
Malaysia	34	33, 36	30	29, 34	39	36, 39
Slovenia	35	33, 38	32	31, 35	38	35, 42
Hungary	36	32, 36	38	37, 39	33	32, 33
Bulgaria	37	35, 38	44	43, 46	31	30, 33
India	38	37, 41	52	47, 52	32	30, 33
Poland	39	38, 41	45	40, 46	36	35, 36
Croatia	40	39, 43	40	40, 42	41	41, 45
Latvia	41	37, 44	39	38, 39	44	38, 45
Greece	42	40, 46	42	40, 43	42	42, 47
Türkiye	43	39, 45	49	45, 51	35	35, 39
Viet Nam	44	41, 45	50	46, 50	37	36, 40
Thailand	45	43, 46	46	43, 48	43	43, 45
Saudi Arabia	46	45, 50	31	31, 36	61	59, 63
Slovakia	47	43, 47	51	48, 52	45	37, 47
Qatar	48	48, 60	34	34, 39	67	65, 77
Romania	49	47, 49	57	52, 58	48	47, 48
Philippines	50	48, 52	59	55, 60	49	49, 50

Appendix Table 5 continued

	GII 2025		Input Sub-Index		Output Sub-Index	
	Rank	Interval	Rank	Interval	Rank	Interval
Chile	51	50, 53	43	42, 44	63	61, 66
Brazil	52	49, 53	63	56, 66	50	49, 50
Mauritius	53	51, 69	54	52, 59	56	56, 73
Serbia	54	52, 65	56	54, 59	57	55, 69
Indonesia	55	54, 60	60	55, 63	59	56, 60
Georgia	56	52, 63	48	46, 52	71	64, 71
Morocco	57	53, 61	77	76, 79	51	51, 52
Mexico	58	53, 62	81	73, 81	52	52, 53
Armenia	59	56, 67	78	77, 79	53	53, 54
Russian Federation	60	54, 68	73	63, 75	55	55, 56
South Africa	61	58, 66	68	60, 70	60	58, 64
Bahrain	62	59, 80	41	40, 51	94	90, 95
North Macedonia	63	60, 70	65	61, 66	65	63, 73
Montenegro	64	59, 66	62	60, 66	68	59, 69
Jordan	65	60, 67	66	59, 68	66	64, 71
Ukraine	66	51, 66	80	72, 80	54	51, 54
Albania	67	64, 77	53	53, 72	82	79, 82
Uruguay	68	59, 76	61	57, 75	76	69, 78
Oman	69	69, 79	55	52, 55	89	86, 90
Iran (Islamic Republic of)	70	56, 75	109	102, 113	46	42, 46
Colombia	71	66, 73	71	63, 71	72	70, 75
Costa Rica	72	63, 74	70	67, 73	74	65, 74
Kuwait	73	70, 80	67	64, 76	79	77, 82
Republic of Moldova	74	68, 76	89	81, 91	62	56, 62
Seychelles	75	59, 88	64	62, 74	90	57, 97
Tunisia	76	68, 80	96	84, 98	58	56, 63
Argentina	77	70, 81	92	81, 92	64	63, 71
Mongolia	78	72, 81	87	80, 87	69	68, 75
Uzbekistan	79	70, 85	69	63, 71	92	76, 95
Peru	80	78, 85	72	67, 73	91	88, 94
Kazakhstan	81	78, 82	75	67, 75	84	83, 89
Panama	82	79, 88	85	81, 91	77	75, 85
Jamaica	83	81, 91	95	92, 101	73	72, 86
Barbados	84	78, 87	91	89, 99	78	71, 81
Belarus	85	67, 87	102	83, 104	70	55, 73
Egypt	86	81, 88	94	86, 95	81	79, 83
Botswana	87	86, 110	58	56, 76	115	114, 134
Brunei Darussalam	88	83, 116	47	45, 59	134	128, 134
Senegal	89	85, 94	82	82, 88	97	83, 98
Lebanon	90	82, 95	100	93, 102	83	77, 87
Namibia	91	89, 103	74	72, 85	110	106, 113
Bosnia and Herzegovina	92	86, 95	99	88, 99	88	86, 93
Sri Lanka	93	87, 96	103	94, 104	86	84, 91
Azerbaijan	94	86, 103	76	74, 80	112	103, 112
Cabo Verde	95	94, 105	79	78, 99	113	101, 113
Kyrgyzstan	96	90, 102	93	86, 104	98	90, 98
Dominican Republic	97	93, 105	84	84, 91	102	101, 110
El Salvador	98	90, 106	106	104, 108	87	85, 99
Pakistan	99	87, 102	124	112, 124	75	73, 82
Cambodia	100	93, 104	88	85, 95	105	102, 106

Appendix Table 5 continued

	GII 2025		Input Sub-Index		Output Sub-Index	
	Rank	Interval	Rank	Interval	Rank	Interval
Cambodia	100	93, 104	88	85, 95	105	102, 106
Ghana	101	93, 114	108	106, 111	93	90, 117
Kenya	102	92, 106	116	108, 117	85	84, 92
Paraguay	103	95, 107	97	90, 102	103	103, 109
Rwanda	104	94, 113	86	82, 100	116	109, 118
Nigeria	105	92, 110	127	117, 127	80	76, 86
Bangladesh	106	97, 110	115	111, 117	95	93, 99
Nepal	107	99, 109	107	105, 111	101	96, 102
Tajikistan	108	95, 110	105	103, 108	104	93, 109
Lao People's Democratic Republic	109	108, 119	83	82, 102	129	125, 130
Côte d'Ivoire	110	107, 119	104	101, 112	109	107, 128
Bolivia (Plurinational State of)	111	107, 126	101	97, 122	117	114, 124
Zambia	112	107, 119	90	89, 101	128	115, 128
Ecuador	113	101, 113	110	105, 112	106	96, 106
Trinidad and Tobago	114	112, 124	98	95, 105	125	124, 133
Algeria	115	97, 117	112	99, 117	111	100, 111
Cameroon	116	114, 122	113	108, 121	118	116, 118
Togo	117	110, 119	123	118, 123	107	104, 112
Benin	118	116, 128	111	110, 115	122	122, 130
Honduras	119	110, 121	119	113, 121	114	107, 114
Madagascar	120	108, 134	135	133, 136	96	96, 115
United Republic of Tanzania	121	116, 125	114	113, 122	124	117, 125
Myanmar	122	110, 124	131	127, 132	99	99, 105
Guatemala	123	120, 124	120	117, 123	120	119, 122
Uganda	124	118, 124	117	116, 123	121	120, 121
Malawi	125	113, 136	122	121, 131	131	106, 135
Burkina Faso	126	124, 131	130	128, 133	119	117, 122
Burundi	127	124, 131	125	123, 131	127	124, 129
Mozambique	128	126, 131	129	126, 130	126	123, 130
Zimbabwe	129	120, 133	137	132, 137	100	99, 114
Nicaragua	130	124, 132	126	124, 128	132	118, 132
Mauritania	131	128, 135	121	119, 124	136	134, 137
Lesotho	132	130, 135	118	115, 128	139	134, 139
Guinea	133	127, 136	132	131, 132	123	121, 136
Ethiopia	134	124, 135	138	134, 139	108	104, 117
Mali	135	130, 138	128	125, 129	138	132, 139
Venezuela (Bolivarian Republic of)	136	132, 139	136	136, 139	130	128, 135
Congo	137	134, 139	134	133, 138	135	133, 138
Angola	138	135, 139	133	133, 137	137	136, 139
Niger	139	134, 139	139	135, 139	133	123, 137

Notes: Median ranks and intervals are calculated over 5,000 simulated scenarios combining simulated weights, imputation (based on EM or k-NN) versus no imputation of missing values, and various scenarios of the generalized mean versus arithmetic average at the pillar level.

Source: European Commission, Joint Research Centre, 2025.

Sensitivity analysis results

Complementary to the uncertainty analysis, sensitivity analysis has been used to identify which of the modeling assumptions have the greatest impact on certain country rankings. Appendix Table 6 summarizes the impact of changes in the imputation method (EM or k-NN imputation) and/or the aggregation formula (geometric aggregation), keeping the aggregation weights fixed at their reference values (as in the nominal GII). Similar to the results of previous audits, neither the GII nor the Input or Output Sub-Indices are found to be heavily influenced by the imputation of missing data, or by the aggregation formula. Regarding the GII index, there is only one economy (Botswana) that shifts rank by more than 20 positions when a combination of a different aggregation and imputation method is used (EM or k-NN). A similar case can be observed for Ghana and the Output Sub-Index. The choice of the imputation method appears to also be crucial for the ranking of two other countries in the case of the Output Sub-Index, namely Ghana and Côte d'Ivoire. For these countries, missing data account for 16 and 8 percent of the Output Sub-Index indicators.

Overall, the analysis carried out by JRC-COIN verifies that the rankings of the 2025 GII are reliable and, for most economies, the simulated 90 percent confidence intervals are narrow enough to allow meaningful inferences to be drawn for their relative performance. There are a few economies that appear to be sensitive to the way missing values are treated, most of which have a rather large share of missing data. It is however suggested that the readers of the GII 2025 report consider an economy's ranking in the GII 2025 and in the Input and Output Sub-Indices not only at face value, but also within the 90 percent confidence intervals, in order to better appreciate the degree to which an economy's rank depends on modeling choices.

These confidence intervals also have to be taken into account when comparing economy rank changes from one year to the next at the GII or Innovation sub-index level in order to avoid drawing erroneous conclusions about an economy's rise or fall in the overall classifications. Since 2016, following the JRC-COIN recommendation in past GII audits, the developers' decision to apply the 66 percent indicator coverage threshold separately to the Input and Output Sub-Indices in the GII has led to a net increase in the reliability of economy rankings for both the GII and the two sub-indices. Furthermore, the adoption in 2017 of less stringent criteria for skewness and kurtosis (greater than 2.25 in absolute value and greater than 3.5, respectively) has not introduced any bias into the estimates.

Appendix Table 6 Sensitivity analysis: impact of modeling choices on countries with the most sensitive rankings

Index or Sub-Index	Uncertainty tested (pillar level only)	Spearman rank correlation between the two series	Number of countries that: improve by more than 20 positions	improve between 10 and 20 positions	deteriorate by more than 20 positions	deteriorate between 10 and 20 positions
GII	Geometric vs. arithmetic average	0.994	0	2	1*	2
	EM imputation vs. no imputation of missing data	0.994	1	3	0	1
	k-NN imputation vs. no imputation of missing data	0.995	0	2	0	3
	Geometric average and EM imputation vs. arithmetic average and no imputation of missing data	0.991	1	4	1**	1
	Geometric average and k-NN imputation vs. arithmetic average and no imputation of missing data	0.992	0	4	1**	3
Input Sub-Index	Geometric vs. arithmetic average	0.997	0	0	0	2
	EM imputation vs. no imputation of missing data	0.997	0	1	0	1
	k-NN imputation vs. no imputation of missing data	0.993	0	3	0	6
	Geometric average and EM imputation vs. arithmetic average and no imputation of missing data	0.995	0	3	0	1
	Geometric average and k-NN imputation vs. arithmetic average and no imputation of missing data	0.989	0	7	0	6
Output Sub-Index	Geometric vs. arithmetic average	0.999	0	0	0	0
	EM imputation vs. no imputation of missing data	0.981	2	11	2	4
	k-NN imputation vs. no imputation of missing data	0.986	2	9	1***	5
	Geometric average and EM imputation vs. arithmetic average and no imputation of missing data	0.982	4	12	1****	8
	Geometric average and k-NN imputation vs. arithmetic average and no imputation of missing data	0.986	1	9	1***	8

*BRN ** BWA *** GHA **** CIV

Notes: EM is the expectation–maximization algorithm and k-NN is the k-nearest neighbor approach. * Brunei.Darussalam ** Botswana. *** Ghana. **** Côte d'Ivoire.

Source: European Commission, Joint Research Centre, 2025.

Best-practice frontier in the GII by data envelopment analysis

Can economies' multifaceted innovation performance be benchmarked fairly without applying a fixed and uniform set of weights that might be unfair to a particular economy?

Innovation policies at the national level must strike a balance between global trends and each country's unique context, strategies, and challenges. Evaluating multidimensional innovation performance by applying a common set of weights to all economies could hinder the acceptance of an innovation index, as the chosen weighting scheme might be perceived as unfair to specific economies, as it does not reflect their national priorities or the distinct challenges they encounter compared to others. A notable advantage of data envelopment analysis (DEA), as applied in real world decision-making contexts, is its determination of endogenous weights that optimize each decision-making unit's overall score, given a set of other observations. In the absence of a global consensus or strategy on innovation activity priorities, and with numerous national innovation strategies influenced by diverse country-specific factors, this approach presents a reasonable alternative to using uniform weights across economies.

In this section we relax the assumption of fixed pillar weights common to all economies by allowing economy-specific weights that maximize an economy's global innovation score to be determined endogenously by means of the Benefit-of-the-Doubt (BoD) model, a tailored DEA model that is suitable for the case of composite indicators construction.

A key question that arises from the GII approach is the following: Can we compare economies' innovation performance across multiple dimensions without applying a fixed set of weights that

might be unfair to some? The original question posed by the DEA literature was how to measure each unit's relative efficiency in production compared to a sample of peers, given observations on input and output quantities and, often, no reliable information on prices (Charnes and Cooper, 1985). A notable difference between the original DEA approach and the one of the BoD model that is used here is that no differentiation between inputs and outputs is made (Cherchye *et al.*, 2008 ; Melyn and Moesen, 1991). Thus, along the lines of Cook *et al.*, 2014 the BoD model evaluates countries with respect to a best-practice frontier formed by the countries with the relatively best achievements in the considered Pillars, rather than an efficiency frontier formed by the countries that transform inputs to outputs in the most efficient way. To estimate DEA-BoD-based distance to the best-practice frontier scores, we consider the $m = 7$ pillars in the GII 2025 for $n = 139$ economies, with $y$ij the value of pillar j in economy i. The objective is to combine the pillar scores per economy into a single number, calculated as the weighted average of the m pillars, where wj represents the weight of the j-th pillar. In the absence of reliable information about the true weights, the weights that maximize the DEA-BoD-based scores are endogenously determined. This gives the following linear programming problem for each economy i:

$$Y_i = \max_{wij} \frac{\sum_{j=1}^{7} y_{ij} w_{ij}}{\max_{y_c \in \{\text{dataset}\}} \sum_{j=1}^{7} y_{ij} w_{ij}}$$

(*bounding constraint*), subject to $w$ij ≥ 0, where, $j = 1,\ldots,7$, $i = 1,\ldots,139$ (*non-negativity constraint*). In this linear programming problem, the weights are non-negative and an economy's score is between 0 (worst) and 1 (best). The programming problem used to calculate the DEA-BoD socres in this audit included also the restrictions: 0.2 ≥ ($w$ij*$y$ij)/Σ($w$ij*$y$ij) ≥ 0.05, $j = 1,\ldots,7$ (*contribution restrictions*).

In theory, each economy is free to decide on the relative *weight* of each innovation pillar, such as to achieve the best possible score, allowing for a better reflection of its unique innovation strategy. In practice, the DEA-BoD method assigns a higher (lower) *weight* to those pillars in which an economy is relatively strong (weak). Reasonable constraints are applied to the weights to preclude the possibility of an economy achieving a perfect score by assigning a zero weight to weak pillars: for each economy, no pillar can contribute less than 5% or more than 20% to an economy's total score. The DEA-BoD score is then calculated as a weighted average of the seven innovation pillar scores, using the economy-specific weights determined by the DEA-BoD method. This score is compared to the best performance among all other economies using the same weights. The DEA-BoD score can be interpreted as a measure of the "distance to the best-practice frontier."

Appendix Table 7 presents pie shares and DEA scores for the top 25 economies in the GII 2025 alongside their respective GII 2025 rankings. All pie shares are in accordance with the starting point of granting leeway to each economy when assigning shares, while not violating the (relative) upper and lower bounds. In this year, Switzerland is the only economy to obtain a perfect DEA-BoD score of 1.00 – Sweden's score is 0.997 – indicating that it defines the best-practice frontier (in the 2024 GII, Sweden and Singapore were frontier economies as well). Sweden, Singapore, the United States (0.99), the Republic of Korea (0.97) and Finland (0.95) follow in terms of relative performance. The scores of these countries indicate that they are very close to the best-practice frontier: a proportional improvement of their pillar scores by 1%, 3% or 5% would make them frontier economies as well.

The seven pillars contribute differently to the performance scores of the top 25 economies, mirroring the varied priorities in their national innovation strategies. These differences also highlight each economy's strengths in specific GII pillars compared to others, revealing their comparative advantages. For instance, Ireland and Australia obtain the same performance score (0.87) but Australia relies less on the Output pillars to do so (each of them is allocated a 5% of the DEA score), while Ireland allocates 20% of its score to the Business sophistication pillar and 10% to the Knowledge and technology outputs pillar. In a similar fashion, Denmark and the United

Kingdom receive roughly the same score (0.93 and 0.92 respectively), but their pillars contribute differently to it: both countries allocate 20% – the maximum possible – of their score to Human capital and research and Business sophistication, in which both are very well-performing. However, the United Kingdom allocates another 20% on the Knowledge and technology outputs pillar (versus 5% for Ireland), and less than Ireland on the Institutions and Infrastructure Input pillars (5% and 10% respectively, while Ireland allocates 20% on both. Appendix Figure 2 shows how close the DEA-BoD scores and the GII 2025 scores are for all the 139 economies (Pearson correlation of 0.995).[10]

Appendix Table 7 Pie shares (absolute terms) and efficiency scores for the top 25 GII 2025 economies

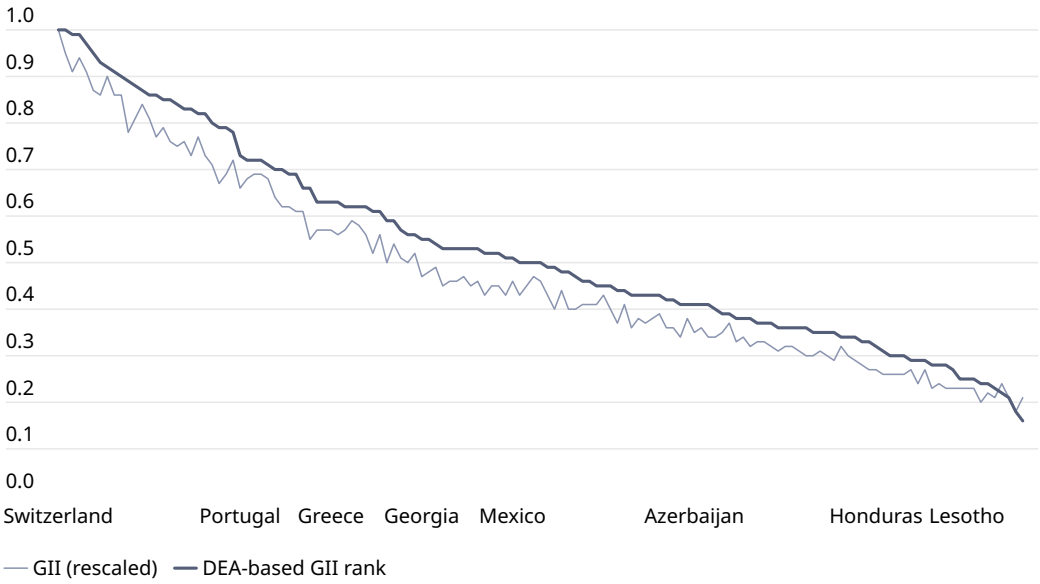
	Input pillars							Output pillars		
	Institutions	Human capital and research	Infrastructure	Market sophistication	Business sophistication	Knowledge and technology outputs	Creative outputs	Best-practice frontier score (DEA)	Best-practice frontier rank (DEA)	GII rank
Switzerland	0.20	0.05	0.20	0.20	0.05	0.10	0.20	1.00	1	1
Sweden	0.10	0.20	0.20	0.05	0.20	0.20	0.05	1.00	2	2
Singapore	0.20	0.20	0.05	0.20	0.20	0.10	0.05	0.99	3	5
United States of America	0.10	0.20	0.05	0.20	0.20	0.20	0.05	0.99	4	3
Republic of Korea	0.05	0.20	0.20	0.20	0.20	0.10	0.05	0.97	5	4
Finland	0.20	0.20	0.20	0.05	0.20	0.10	0.05	0.95	6	7
Denmark	0.20	0.20	0.20	0.10	0.20	0.05	0.05	0.93	7	9
United Kingdom	0.05	0.20	0.10	0.20	0.20	0.20	0.05	0.92	8	6
China	0.05	0.20	0.20	0.10	0.20	0.20	0.05	0.91	9	10
Netherlands (Kingdom of the)	0.20	0.20	0.05	0.20	0.20	0.10	0.05	0.90	10	8
Hong Kong, China	0.20	0.20	0.20	0.20	0.10	0.05	0.05	0.89	11	15
Japan	0.10	0.20	0.20	0.20	0.20	0.05	0.05	0.88	12	12
Germany	0.10	0.20	0.20	0.05	0.20	0.20	0.05	0.87	13	11
France	0.05	0.20	0.20	0.20	0.20	0.05	0.10	0.86	14	13
Canada	0.20	0.20	0.20	0.20	0.10	0.05	0.05	0.86	15	17
Israel	0.05	0.20	0.10	0.20	0.20	0.20	0.05	0.85	16	14
Austria	0.20	0.20	0.20	0.10	0.20	0.05	0.05	0.85	17	19
Norway	0.20	0.20	0.20	0.10	0.20	0.05	0.05	0.84	18	20
Ireland	0.20	0.20	0.20	0.05	0.20	0.10	0.05	0.83	19	18
Australia	0.20	0.20	0.20	0.20	0.10	0.05	0.05	0.83	20	22
Estonia	0.20	0.05	0.20	0.20	0.20	0.05	0.10	0.82	21	16
Belgium	0.20	0.20	0.10	0.20	0.20	0.05	0.05	0.82	22	21
Iceland	0.20	0.20	0.20	0.10	0.20	0.05	0.05	0.80	23	24
United Arab Emirates	0.20	0.20	0.20	0.20	0.10	0.05	0.05	0.79	24	30
New Zealand	0.20	0.20	0.20	0.10	0.20	0.05	0.05	0.79	25	26

Notes: Pie shares are in absolute terms, bounded by 0.05 and 0.20 for all seven innovation pillars. In the GII 2025 ranking, however, each of the five input pillars has a fixed weight of 0.10 while each of the two output pillars has a fixed weight of 0.25. Darker colors represent a higher contribution by those pillars to the overall DEA score, as a result of a country's stronger performance in those pillars, which may help to provide evidence for economy-specific strategies. Countries are ordered according to the DEA-BoD ranking. For countries with a DEA-BoD score equal to 1, there usually exist multiple alternative sets of pillar weights resulting in the same score (i.e., 1). The pillar shares depicted in this table for Switzerland were derived based on one of these alternative sets of weights. Different sets of pillar weights for Switzerland may arise from the use of different software for solving the DEA linear program, all of which, however, correspond to a DEA-BoD efficient frontier score of 1.

Source: European Commission, Joint Research Centre, 2025.

10 This closeness between the DEA-BoD and the GII scores is, to some extent, a result of the contribution restrictions introduced into the DEA-BoD model. These restrictions are necessary to avoid countries putting zero weights to certain Pillars and to allow for a reasonable leeway for countries to perturb weights around the nominal GII weights. For two countries (Malawi and Venezuela) the DEA-BoD score is lower than the (rescaled) GII score because the restrictions appended in the DEA-BoD model to restrict the contribution of each of the seven pillars to no less than 5 percent and no more than 20 percent result in the country selecting a set of aggregation weights that is less favorable compared to the nominal GII weights. For Malawi, this is mostly due to the Knowledge and technology outputs Pillar, which has a share of 20% in the nominal GII while in the DEA recalculation it gets a 10% share. For Venezuela, this is mostly due to the Human capital and research Pillar, which makes up 35.5% of the country's nominal GII, while in the BoD recalculation its share is 20% due to the upper bound restriction.

Appendix Figure 2 GII 2025 scores and DEA "distance to the best-practice frontier" scores



Notes: For comparison purposes, the GII scores were rescaled by dividing them by the result of the best performer in the overall GII 2025 (Switzerland).

Source: European Commission, Joint Research Centre, 2025.

Conclusion

The JRC-COIN analysis affirms that the multilevel structure of the GII 2025, encompassing 78 indicators, 21 sub-pillars, seven pillars, and two sub-indices, is statistically robust and well-balanced. Each sub-pillar contributes similarly to the variation within its respective pillar, ensuring a coherent and reliable framework. The continuous refinements by the development team have strengthened the GII's statistical integrity, with most indicators effectively distinguishing between economies' performances at the sub-pillar level or lower.

The decision not to impute missing values, which is common in comparable contexts and justified on the grounds of transparency and replicability, can at times have an undesirable impact on some economies' scores, with the additional negative side-effect that it might encourage economies not to report low data values. The GII team's adoption, in 2016, of a more stringent data coverage threshold (at least 66 percent data availability for each of the input- and output-related indicators) has notably improved confidence in the economy ranking for the GII and the two sub-indices. In addition, the notable increase of included countries by six (compared to previous GII editions) highlights the fruitfulness of encouraging continuous data collection and monitoring by the developers. The results of the analysis carried out by JRC-CC-COIN suggest that the developer's decision not to impute missing values has a notable impact in the rankings of only a very small set of countries and only for the case of the Input or the Output Sub-Indices. Notably, only four or five countries exhibit a change in their rank by more than 20 positions when alternative imputation methods are used in the GII 2025.

Additionally, the GII team's decision, in 2012, to use weights as scaling coefficients during index development constitutes a significant departure from the traditional, yet erroneous, vision of weights as a reflection of indicators' importance in a weighted average. It is hoped that such an approach will be adopted by other developers of composite indicators to avoid situations where bias sneaks in when least expected.

The JRC-COIN analysis also confirmed that the strong correlations between GII components do not lead to information redundancy. For a significant portion of the 139 economies in the GII 2025 (more than 47% and up to 76%), the GII ranking and the rankings of individual pillars differ by 10 positions or more. This demonstrates the added value of the GII in highlighting diverse aspects of innovation and the importance of examining both the overall ranking and individual pillars, sub-pillars, and indicators to identify economy-specific strengths and bottlenecks.

All published GII 2025 rankings lie within the simulated 90 percent confidence intervals that take into consideration the unavoidable uncertainties inherent in an estimation of missing data, the weights (fixed vs. simulated) and the aggregation formula allowing various levels of compensability between the arithmetic and the geometric average at the pillar level. For the majority of economies, such intervals are narrow enough for meaningful inferences to be drawn: the intervals comprise 10 or fewer positions for 90 out of the 139 considered economies. The GII rankings of five economies– Qatar, Madagascar, the Islamic Republic of Iran, Barbados and Brunei Darussalam – should however be interpreted with some caution, as they appear to be highly sensitive to the methodological choices. The Input and Output Sub-Indices have the same modest degree of sensitivity to the methodological choices relating to the imputation method, weights or aggregation formula. Economy ranks, either in the GII 2025 or in the two sub-indices, can be considered to be representative of the many possible scenarios: 81 percent of the economies shift fewer than three positions with respect to the median rank within the GII, 78 percent within the Input Sub-Index and 76 percent within the Output Sub-Index.

All things considered, the JRC-COIN audit findings confirm that the GII 2025 meets international quality standards for statistical soundness, indicating that it is a reliable benchmarking tool for innovation practices globally. The GII is a well-maintained highway towards better policymaking in the field of innovation.

The "distance to the best-practice frontier" measure, derived from data envelopment analysis, offers a suitable alternative approach to benchmarking innovation performance without imposing a fixed and common set of weights to the benchmarked countries. The recalculated DEA-based GII is very closely correlated with the nominal GII rankings, and at the same time it allows economies to highlight their relative strengths and potential national priorities more effectively.

The GII should be viewed as an ongoing effort to capture the complexity of innovation, continuously adapting to improvements in data availability and theoretical advances. It represents a transparent and mature attempt to inform and improve innovation policies worldwide over its 18-year history of refinement. The GII should not be viewed as the ultimate and definitive ranking of economies but rather a dynamic framework that evolves to better reflect the richness of innovation. This ongoing process ensures that policymakers have access to the most accurate and actionable information to drive evidence-based innovation strategies.

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Appendix III - Sources and definitions

This appendix complements the economy profiles and the online data tables by providing the title, description, definition and source for each of the 78 indicators included in the Global Innovation Index (GII) this year.

For all 139 economies in the GII in 2025, the most recent values, within the period 2014 to 2025, were used for each indicator.

The year provided next to the indicator description (directly below the indicator title) corresponds to the year when data were most frequently available for economies. When more than one year is considered, the period used is indicated at the end of the indicator's source in parentheses.

Of the 78 indicators, 63 variables are hard data, 10 are composite indicators, marked with an asterisk (*), and five are survey questions from the World Economic Forum's Executive Opinion Survey (three) and from the Global Entrepreneurship Monitor's National Expert Survey (NES) (two), marked with a dagger (†). Instances marked with (ª) are indicators where higher scores indicate poorer outcomes, commonly known as "bads." Appendix I presents more details on the computation.

Some indicators are scaled during computation to make them comparable across economies. Indicators are scaled either in relation to other comparable indicators or through division by gross domestic product (GDP) in current US dollars, purchasing power parity GDP in international dollars (PPP$ GDP), population, total trade, etc. In all cases, the scaling factor used was the value that corresponded to the same year of the indicator.

1. Institutions

1.1 Institutional environment

1.1.1 Operational stability for businesses*

Political, legal, operational or security risk index*ª | 2024

Index that measures the likelihood and severity of political, legal, operational or security risks affecting business operations. Scores are annualized, standardized and aggregated for end Q1, Q2, Q3 and Q4.

Source: S&P Global, Market Intelligence, Country Risk Dataset (www.marketplace.spglobal.com/en/datasets/country-risk-(255)). Data year: 2024.

1.1.2 Government effectiveness*

Government effectiveness index* | 2023

Index that reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Scores are standardized.

Source: World Bank, Worldwide Governance Indicators (www.govindicators.org). Data year: 2023.

1.2 Regulatory environment

1.2.1 Regulatory quality*

Regulatory quality index* | 2023

Index that reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private-sector development. Scores are standardized.

Source: World Bank, Worldwide Governance Indicators (www.govindicators.org). Data year: 2023.

1.2.2 Rule of law*

Rule of law index* | 2023

Index that reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence. Scores are standardized.

Source: World Bank, Worldwide Governance Indicators (www.govindicators.org). Data year: 2023.

1.3 Business environment

1.3.1 Policy stability for doing business†

The extent to which governments ensure a stable policy environment for doing business† | 2024

Average answer to the survey question: In your country, to what extent does the government ensure a stable policy environment for doing business? [1 = not at all; 7 = to a great extent].

Source: World Economic Forum, Executive Opinion Survey 2023: "Government ensuring policy stability" indicator (EOSQ434) (www.weforum.org). Data years: 2015–2024.

1.3.2 Entrepreneurship policies and culture†

Entrepreneurship policies and culture index† | 2024

Average perception scores (five-year average) of experts on entrepreneurial policies and entrepreneurial culture (items B, C and I3 and I4 of the GEM National Expert Survey). Experts in different fields (purposive sampling, minimum 36 experts per year) assess conditions for entrepreneurship in their country via statements (0= completely false; 10 = completely true). Country participation in GEM varies and therefore the number of experts and years on which this item is based differs according to the country. To be eligible for inclusion in this indicator, countries must have participated in the GEM survey starting from 2016 onwards. Participation in surveys conducted before 2016 will result in exclusion from this indicator.

Source: Global Entrepreneurship Monitor (GEM), National Expert Survey (NES) (www.gemconsortium.org/wiki/1142). Data years: 2015–2024.

2. Human capital and research

2.1 Education

2.1.1 Expenditure on education, % GDP

Government expenditure on education (% of GDP) | 2023

Total general (local, regional and central) government expenditure on education (current, capital and transfers), expressed as a percentage of GDP. It includes expenditure funded by transfers from international sources to government.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org). Data years: 2015–2024.

2.1.2 Government funding/pupil, secondary, % GDP/cap

Government funding per secondary pupil (% of GDP per capita) | 2021

Average total (current, capital and transfers) general government expenditure per student, at secondary level, expressed as a percentage of GDP per capita.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org). Data years: 2015–2023.

2.1.3 School life expectancy, years

School life expectancy, primary to tertiary education, both sexes (years) | 2023

Total number of years that a person of school entrance age can expect to spend within the primary to tertiary levels of education. For a child of a given age, the school life expectancy is calculated as the sum of the age-specific enrolment rates for primary to tertiary levels of education. The part of the enrolment that is not distributed by age is divided by the school-age population for the primary to tertiary level of education in which they are enrolled and multiplied by the duration of that level of education. The result is then added to the sum of the age-specific enrolment rates. A relatively high value indicates a greater probability of children spending more years in education and a higher overall retention rate within the education system. It must be noted that the expected number of years does not necessarily coincide with the expected number of grades of education completed due to grade repetition.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org). Data years: 2015–2024.

2.1.4 PISA scales in reading, maths and science

PISA scales in reading, mathematics and science | 2022

PISA is the OECD's (Organisation for Economic Co-operation and Development) Programme for International Student Assessment. PISA measures 15-year-olds' ability to use their reading, mathematics and science knowledge skills. Results from PISA indicate the quality and equity of learning outcomes attained around the world. The 2022 PISA survey is the eighth round of the triennial assessment. The indicator is built using the average of the reading, mathematics and science scores for each country. PISA scores are set in relation to the variation in results observed across all test participants in a country. There is, theoretically, no minimum or maximum score in PISA; rather, the results are scaled to fit approximately normal distributions, with means around 500 score points and standard deviations around 100 score points. China did not participate in the 2022 PISA Survey. As a result, China's scores correspond to their 2018 PISA

results and are only based on the provinces/municipalities of Beijing, Shanghai, Jiangsu and Zhejiang. The 2022 scores for Azerbaijan correspond only to the capital Baku.

Source: OECD Programme for International Student Assessment (PISA) (www.oecd.org/pisa). Data years: 2015–2022.

2.1.5 Pupil–teacher ratio, secondary

Pupil–teacher ratio, secondary[a] | 2023

The number of pupils enrolled in secondary school divided by the number of secondary school teachers (regardless of their teaching assignment). Where the data are missing for the secondary education level as a whole, the ratios for upper-secondary are reported; if these are also missing, the ratios for lower-secondary are reported instead. A high pupil–teacher ratio suggests that each teacher has to be responsible for a large number of pupils. In other words, the higher the pupil teacher ratio, the lower the relative access of pupils to teachers

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org). Data years: 2015–2024.

2.2 Tertiary education

2.2.1 Tertiary enrolment, % gross

School enrolment, tertiary (% gross) | 2023

The ratio of total tertiary enrolment, regardless of age, to the population of the age group that officially corresponds to the tertiary level of education. Tertiary education, whether or not at an advanced research qualification level, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level. The school enrolment ratio can exceed 100 percent due to grade repetition and the inclusion of under-aged and over-aged students, who are early or late entrants.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org). Data years: 2015–2024.

2.2.2 Graduates in science and engineering, %

Graduates from science, technology, engineering and mathematics programs (% of total tertiary graduates) | 2022

The share of all tertiary-level graduates in natural sciences, mathematics, statistics, information and technology, manufacturing, engineering and construction as a percentage of all tertiary-level graduates.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org); Eurostat database (https://ec.europa.eu/eurostat/data/database); and OECD, Education at a Glance (https://data-explorer.oecd.org). Data years: 2015–2024.

2.2.3 Tertiary inbound mobility, %

Tertiary inbound mobility rate (%) | 2023

The number of students from abroad studying in a given country as a percentage of the total tertiary-level enrolment in that country.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org). Data years: 2015–2024.

2.3 Research and development (R&D)

2.3.1 Researchers, FTE/mn pop.

Researchers, full-time equivalent (FTE) (per million population) | 2023

Researchers in R&D are professionals engaged in the conception or creation of new knowledge. They conduct research and improve or develop concepts, theories, models, techniques, instrumentation, software or operational methods.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org); Eurostat database (https://ec.europa.eu/eurostat/data/database); OECD, Main Science and Technology Indicators (MSTI) database (https://data-explorer.oecd.org); and Ibero-American and Inter-American Network of Science and Technology Indicators (RICYT) (www.ricyt.org/en). Data years: 2015–2023.

2.3.2 Gross expenditure on R&D, % GDP

Gross expenditure on R&D (% of GDP) | 2023

Gross expenditure on R&D (GERD) is the total domestic intramural expenditure on R&D during a given period as a percentage of GDP. "Intramural R&D expenditure" is all expenditure for R&D performed within a statistical unit or sector of the economy during a specific period, regardless of the source of funding.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org); Eurostat database (https://ec.europa.eu/eurostat/data/database); OECD, Main Science and Technology Indicators (MSTI) database (https://data-explorer.oecd.org); and Ibero-American and Inter-American Network of Science and Technology Indicators (RICYT) (www.ricyt.org/en). Data years: 2015–2024.

2.3.3 Global corporate R&D investors, top 3, mn USD

Average expenditure of a country's top three global companies on R&D, million USD | 2024

Average expenditure on R&D of the top three global companies. If a country has fewer than three global companies listed, the figure is either the average of the two companies or the total for a single company. Data is based on the 2024 EU Industrial R&D Investment Scoreboard. For countries not represented in the Scoreboard, companies from Orbis with R&D expenditure above USD 50 million were identified and used to complement the dataset. A score of 0 is given to countries with no listed companies in the Scoreboard and no companies in Orbis meeting the threshold. The data include economies outside the European Union (EU).

Source: The 2024 EU Industrial R&D Investment Scoreboard (https://iri.jrc.ec.europa.eu/scoreboard/2024-eu-industrial-rd-investment-scoreboard); and Orbis database (https://www.moodys.com/web/en/us/capabilities/company-reference-data/orbis.html). Data year: 2024.

2.3.4 QS university ranking, top 3*

Average score of the top three universities according to the QS world university ranking* | 2024

Average score of the top three universities per country. If fewer than three universities are listed in the QS ranking of the global top 1,000 universities, the sum of the scores of the listed universities is divided by three, thus implying a score of zero for the non listed universities. The 2025 ranking corresponds to data published in June 2024. Note: the 2024 QS release included a large methodological enhancement, with the addition of three new metrics: Sustainability, Employment Outcomes and International Research Network.

Source: QS Quacquarelli Symonds Ltd, QS World University Rankings, Top Universities (https://www.topuniversities.com/world-university-rankings/2024). Data year: 2024.

3. Infrastructure

3.1 Information and communication technology (ICT)

3.1.1 ICT access*

ICT access index* | 2023

The ICT access index is a composite index that assigns weights to three ICT indicators (33 percent each): (1) Individuals who own a mobile cellular telephone; (2) Households with Internet access at home; and (3) Percentage of the population covered by mobile networks (at least 3G, at least LTE/WiMax, and at least 5G). The ICT indicator (3) Percentage of the population covered by mobile networks (at least 3G, at least LTE/WiMax, and at least 5G) is calculated by assigning a weight of 30 percent to Population covered by at least 3G, a weight of 50 percent to Population covered by at least LTE/WiMax, and a weight of 20 percent to Population covered by at least 5G.

Source: World Intellectual Property Organization (https://www.wipo.int); and based on International Telecommunication Union (ITU), accessed February 20th, 2025 (https://datahub.itu.int). Data years: 2021–2023.

3.1.2 ICT use*

ICT use index* | 2023

The ICT use index is a composite index that assigns weights to five ICT indicators (20 percent each): (1) Fixed-broadband Internet basket (% GNI per capita); (2) Fixed-broadband Internet traffic (GB per subscription); (3) Mobile data and voice high-consumption basket (% GNI per capita); (4) Mobile-broadband Internet traffic within the country (GB per subscription); and (5) Active mobile-broadband subscriptions per 100 people.

Source: World Intellectual Property Organization (https://www.wipo.int); and based on International Telecommunication Union (ITU), accessed February 20th, 2025 (https://datahub.itu.int). Data year: 2023.

3.1.3 Government online service*

Government online service index* | 2024

The Online Service Index (OSI) is a component of the E-Government Development Index. The OSI is a composite indicator that assesses how well governments use technology to deliver public services at the national level. It is based on a survey of national websites and e-government policies, with scores normalized to a range of 0 to 1. In the 2024 edition, the OSI is now calculated based on five weighted subindices: services provision (45%), technology (5%), institutional framework (10%), content provision (5%), and e-participation (35%), with the overall score calculated from the normalized values of each subindex.

Source: Division for Public Institutions and Digital Government (DPIDG) of the United Nations Department of Economic and Social Affairs (UNDESA), E-Government Survey 2024 (https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2024). Data year: 2024.

3.2 General infrastructure

3.2.1 Electricity output, GWh/mn pop.

Electricity output (GWh per million population) | 2023

Electricity production, measured at the terminals of all alternator sets in a station. In addition to hydropower, coal, oil, gas and nuclear power generation, this indicator covers generation by geothermal, solar, wind, tide and wave energy, as well as that from combustible renewables and waste. Production includes the output of plants that are designed to produce solely electricity

as well as the output of combined heat and power plants. Electricity output in GWh is scaled by population.

Source: International Energy Agency (IEA) World Energy Balances, 2024 edition (www.iea.org/reports/world-energy-balances-overview). Data years: 2022–2023.

3.2.2 Logistics performance*

Logistics Performance Index* | 2023

A multidimensional assessment of logistics performance, the 2023 Logistics Performance Index (LPI) ranks 139 countries, combining data on six core performance components into a single aggregate measure that includes customs performance, infrastructure quality and timeliness of shipments. The data used in the ranking come from a survey of logistics professionals who are asked questions about the foreign countries in which they operate. The LPI's six components are: (1) Customs: the efficiency of customs and border management clearance; (2) Infrastructure: the quality of trade and transport infrastructure; (3) International shipments: the ease of arranging competitively priced shipments; (4) Services quality: the competence and quality of logistics services; (5) Tracking and tracing: the ability to track and trace consignments; and (6) Timeliness: the frequency with which shipments reach consignees within scheduled or expected delivery times.

Source: World Bank, Logistics Performance Index 2023 (https://lpi.worldbank.org); and World Bank 2023, *Connecting to Compete 2023: Trade Logistics in the Global Economy – The Logistics Performance Index and its Indicators*. Data year: 2023.

3.2.3 Gross capital formation, % GDP

Gross capital formation (% of GDP, three-year average) | 2024

Gross capital formation is expressed as the ratio of total investment in current local currency to GDP in current local currency. Investment or gross capital formation is measured by the total value of the gross fixed capital formation and changes in inventories and acquisitions less disposals of valuables for a unit or sector, on the basis of the System of National Accounts (SNA) 1993.

Source: International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2017–2024.

3.3 Ecological sustainability

3.3.1 GDP/unit of energy use

GDP per total energy supply (per thousand 2015 PPP$ GDP) | 2022

Purchasing power parity gross domestic product (2015 PPP$ GDP) per total energy supply (TES). TES is made up of production + imports – exports – international marine bunkers – international aviation bunkers +/– stock changes. GDP/TES is an indicator of energy productivity.

Source: International Energy Agency (IEA), World Energy Balances, 2024 edition (www.iea.org/reports/world-energy-balances-overview). Data years: 2022–2023.

3.3.2 Low-carbon energy use, %

The share of a country's total primary energy consumption that is from low-carbon intensive sources | 2023

The low-carbon intensive energy share is calculated based on its share of a country's total primary energy consumption (expressed in petajoules). Primary energy is the energy available in raw, unprocessed natural resources that serve as inputs into the energy system. It measures total energy consumed before any significant efficiency losses due to converting it to secondary

energy (a transportable form) or final energy (delivered to the consumer). The full energy mix is considered, comprising high-carbon intensive fossil fuel sources; oil, coal, and natural gas; as well as low-carbon intensive sources; hydro, nuclear, wind, biomass, solar, geothermal, etc. The calculation of total primary energy consumed by each country factors in energy that is imported and consumed (as opposed to imported but transited to another country) and primary energy that is produced but exported abroad to be consumed elsewhere. All energy sources are expressed in petajoules. To allow low-carbon intensive primary energy sources to be compared on a consistent basis with fossil fuels, the "fossil fuel equivalency" (or full/partial substitution) methodology is used. This is because primary energy that goes into renewables such as wind and solar is not recorded. This approach converts electrical output from non-combustible renewable and nuclear energy sources into the equivalent primary energy inputs that would be needed if the same quantity of electricity was to be generated using fossil fuels. Consequently, non-fossil fuel electricity generation is divided by a "thermal efficiency factor", which is an assumed average efficiency of the global fossil-fueled power plant fleet. For 2023 data this was 41.0%. This factor changes over time as the composition of the global fossil fuel mix changes and efficiency improvements in thermal power plants are made.

Source: The Energy Institute Statistical Review (www.energyinst.org/statistical-review). Data year: 2023.

3.3.3 ISO 14001 environment/bn PPP$ GDP

ISO 14001 Environmental management systems – Number of certificates issued (per billion PPP$ GDP) | 2023

ISO 14001 specifies the requirements for an environmental management system that an organization can use to enhance its environmental performance. ISO 14001 is intended for use by an organization that is seeking to manage its environmental responsibilities in a systematic manner that contributes to the environmental pillar of sustainability. ISO 14001 helps an organization to achieve the intended outcomes of its environmental management system, providing value for the environment, the organization itself and interested parties. Consistent with the organization's environmental policy, the intended outcomes of an environmental management system include enhancement of environmental performance, fulfillment of compliance obligations and achievement of environmental objectives. ISO 14001 is applicable to any organization, regardless of size, type or nature, and applies to the environmental aspects of its activities, products and services that the organization determines it can either control or influence from a life cycle perspective. ISO 14001 does not state specific environmental performance criteria. It can be used in whole or in part to systematically improve environmental management. Claims of conformity to ISO 14001, however, are not acceptable unless all its requirements are incorporated into an organization's environmental management system and fulfilled without exclusion. The data are reported per billion PPP$ GDP.

Source: International Organization for Standardization, ISO Survey of Certifications to Management System Standards, 2023 (www.iso.org/the-iso-survey.html); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data year: 2023.

4. Market sophistication

4.1 Credit

4.1.1 Finance for startups and scaleups†

Finance for startups and scaleups† | 2024

Average perception scores (five-year average) of experts on finance for starting and growing firms (item A1 of the GEM National Expert Survey). Experts in different fields (purposive sampling, minimum 36 experts per year) assess conditions for entrepreneurship in their country via statements (0=completely false; 10 = completely true). Country participation in GEM varies and therefore the number of experts and years on which this item is based differs according to

the country. To be eligible for inclusion in this indicator, countries must have participated in the GEM survey starting from 2016 onwards. Participation in surveys conducted before 2016 will result in exclusion from this indicator.

Source: Global Entrepreneurship Monitor (GEM), National Expert Survey (NES) (www.gemconsortium.org/wiki/1142). Data years: 2015–2024.

4.1.2 Domestic credit to private sector, % GDP

Domestic credit to private sector (% of GDP) | 2023

Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of non equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries, these claims include credit to public enterprises. The financial corporations include monetary authorities and deposit money banks, as well as other financial corporations where data are available (including corporations that do not allow transferable deposits but do accept such liabilities as time and savings deposits). Examples of other financial corporations are finance and leasing companies, money lenders, insurance corporations, pension funds and foreign exchange companies.

Source: International Monetary Fund, International Financial Statistics and data files (https://data.imf.org); and World Bank and OECD GDP estimates, extracted from the World Bank's World Development Indicators database (https://databank.worldbank.org/source/world-development-indicators). Data years: 2015–2023.

4.1.3 Loans from microfinance institutions, % GDP

Loans from all microfinance institutions (% of GDP) | 2023

Outstanding loans from all microfinance institutions in a country as a percentage of its GDP.

Source: International Monetary Fund, Financial Access Survey (https://data.imf.org/?sk=E5DCAB7E-A5CA-4892-A6EA-598B5463A34C). Data years: 2019–2023.

4.2 Investment

4.2.1 Market capitalization, % GDP

Market capitalization of listed domestic companies (% of GDP, three-year average) | 2022

Market capitalization (also known as "market value") is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts and companies whose only business goal is to hold shares of other listed companies are excluded. Data are the average of the end of year values for the last three years.

Source: World Federation of Exchanges database (www.world-exchanges.org/our-work/statistics); and extracted from the World Bank's World Development Indicators database (https://databank.worldbank.org/source/world-development-indicators). Data years: 2017–2022.

4.2.2 Venture capital (VC) received, deal count/bn PPP$ GDP

Venture capital deals received by enterprises headquartered in a given economy (per billion PPP$ GDP, three-year average) | 2024

Indicator representss the total number of VC deals received by a given economy. These are transactions going to a venture or company that has its headquarters in the given economy. Investors may originate from any global region. Investors included range from individual angels, angel groups, seed and venture funds, corporate venture capital (CVC) arms, and other corporate entities. Deals associated with accelerator programs are excluded, unless the accelerator participates in follow-on rounds, in which case only those subsequent financings are

included. All equity transactions and mixed debt-and-equity deals are counted. Pure debt deals are excluded, because they fall under venture debt datasets rather than VC activity datasets. The data correspond to VC deal counts between January 1, 2022, and December 31, 2024. The data represent the three-year average of 2022–2024 deals and reported per billion PPP$ GDP.

Source: PitchBook Data, Inc (www.pitchbook.com); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2022–2024.

4.2.3 Late-stage VC deal count, % global VC

Late-stage VC deal counts received by enterprises headquartered in a given economy (% of all VC deal counts worldwide, three-year average) | 2024

This indicator represents the total number of VC late-stage deal counts going to a venture or company that has its headquarters in the given economy. Transactions encompass both Late Stage and Venture Growth rounds, according to the firm's internal stage classification system. Late-Stage VC is defined as either (1) financing for companies that are five or more years old, regardless of round label, or (2) rounds labelled Series C or later, regardless of company age. Venture Growth typically includes Series E and beyond. In cases where a round label is not available, classification is determined by factors such as company age, number of prior VC rounds, investor type, and company status. Only equity and mixed equity–debt financing are included. Full-debt financing is excluded. The data correspond to VC deals between January 1, 2022, and December 31, 2024. The data represent the three-year average of 2022–2024 deals and reported as a percentage of all VC deals worldwide at all investment stages.

Source: PitchBook Data, Inc (www.pitchbook.com). Data years: 2022–2024.

4.2.4 VC investors, deal count/bn PPP$ GDP

Venture capital deals completed by investors (per billion PPP$ GDP, three-year average) | 2024

This indicator captures the number of unique VC deals involving at least one investor headquartered in the underlying economy. To avoid duplication, if multiple investors from the same country participate in a single deal, the deal is counted only once for that country. Deals associated with accelerator programs are excluded, unless the accelerator participates in follow-on rounds, in which case only those subsequent financings are included. All equity transactions and mixed debt-and-equity deals are counted. Pure debt deals are excluded, because they fall under venture debt datasets rather than VC activity datasets. The data correspond to VC deals between January 1, 2022, and December 31, 2024. The data represent the three-year average of 2022–2024 deals and reported per billion PPP$ GDP.

Source: PitchBook Data, Inc (www.pitchbook.com); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2022–2024.

4.2.5 VC investor co-participation/bn PPP$ GDP

VC deals received by investor location (fractional counts, per billion PPP$ GDP, three-year average) | 2024

This indicator captures VC deals received by investor location, using fractional counting. For each deal, the total is divided equally among all participating investors (i.e., 1/*n* per investor, where *n* is the number of investors). The resulting fractions are aggregated by the investors' country of headquarters. This methodology ensures that the total number of deals is preserved when summing across countries with known investor locations. The data correspond to VC deals between January 1, 2022, and December 31, 2024. The data represent the three-year average of 2022–2024 deals and reported per billion PPP$ GDP.

Source: PitchBook Data, Inc (www.pitchbook.com); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2022–2024.

4.3 Trade, diversification and market scale

4.3.1 Applied tariff rate, weighted avg., %

Tariff rate, applied, weighted average, all products (%)a | 2023

The Effectively applied tariff is the minimum tariff imposed by one country to another representing the most advantageous tariff, encompassing all preferential trade agreements and most-favoured-nation (MFN) tariffs, and weighted by the import values of the product and country of origin pairings. All calculations have been conducted based on imported products at the Harmonized System (HS) subheading level. Tariffs include both ad valorem duties and ad valorem equivalents in the calculations. Any missing tariffs or Ad Valorem equivalents not calculated at the subheading level have been omitted. The European Union (27) is treated as a unified entity, thus intra-EU trade has been disregarded

Source: WTO Analytical Database (www.wto.org/english/tratop_e/tariffs_e/tariffs_e.htm). Data years: 2015–2024.

4.3.2 Domestic industry diversification

Domestic industry diversification (based on manufacturing output)a | 2022

The Herfindahl-Hirschman Index (HHI) for the domestic industry is defined as the sum of the squared shares of industries in total manufacturing output.

Source: United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database, two-digit level of the International Standard Industrial Classification (ISIC) Revision 3 (INDSTAT 2 2022), Enhancing the Quality of Industrial Policies (EQuIP) Tool 4: Diversification – Domestic and Export Dimensions, 2015 (https://stat.unido.org). Data years: 2015–2023.

4.3.3 Domestic market scale, bn PPP$

Domestic market scale as measured by GDP, bn PPP$ | 2024

The domestic market size is measured by GDP based on the PPP valuation of country GDP, in current international dollars (billions).

Source: International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2022–2024.

5. Business sophistication

5.1 Knowledge workers

5.1.1 Knowledge-intensive employment, %

Employment in knowledge-intensive services, % of workforce (15+ years old) | 2024

Sum of people in categories 1 to 3 as a percentage of total people employed, according to the International Standard Classification of Occupations (ISCO). Categories included in ISCO 08 are: 1 Managers; 2 Professionals; 3 Technicians and Associate Professionals. Where ISCO 08 data were not available, ISCO 88 data were used. Categories included in ISCO 88 are: 1 Legislators, senior officials and managers; 2 Professionals; 3 Technicians and associate professionals.

Source: International Labour Organization (ILO), ILOSTAT Database of Labour Statistics (https://ilostat.ilo.org). Data years: 2016–2024.

5.1.2 Females employed w/advanced degrees, %

Females employed with advanced degrees, % total employed (25+ years old) | 2024

The percentage of females employed with advanced degrees out of total employed. The employed comprise all persons of working age who, during a specified brief period, were in one of the following categories: (1) paid employment; or (2) self employment. Data are disaggregated by level of education, which refers to the highest level of education completed, classified according to the International Standard Classification of Education (ISCE). Data for Canada are based on Table 14 10 0020 01 of the country's Labour Force Survey estimates.

Source: International Labour Organization, ILOSTAT Database of Labour Statistics (https://ilostat.ilo.org); and Statistics Canada, Table 14-10-0020-01 Unemployment rate, participation rate and employment rate by educational attainment, annual (www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410002001). Data years: 2015–2024.

5.1.3 Youth demographic dividend, %

Youth demographic dividend (% of total population) | 2025

The Youth Demographic Dividend refers to the share of the population aged 0–24 years as a percentage of the total population. It reflects the potential economic and innovation-related advantage that a country may derive in the future from a large youth cohort. This demographic structure is referred to as a "dividend" because, if effectively educated and integrated into the labor force, young people can enhance future innovation capacity, sustain long-term economic growth, and mitigate the effects of population aging.

Source: United Nations Department of Economic and Social Affairs, Population Division, World Population Prospects 2024 (https://population.un.org/wpp). Data year: 2025.

5.1.4 GERD performed by business, % GDP

GERD performed by business enterprises (% of GDP) | 2023

Gross expenditure on R&D performed by business enterprise as a percentage of GDP. For the definition of GERD, see indicator 2.3.2.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org); Eurostat database (https://ec.europa.eu/eurostat/data/database); OECD, Main Science and Technology Indicators (MSTI) database (https://data-explorer.oecd.org); and Ibero-American and Inter-American Network of Science and Technology Indicators (RICYT) (www.ricyt.org/en). Data years: 2015–2024.

5.1.5 GERD financed by business, %

GERD financed by business enterprises (% of GERD) | 2022

Gross expenditure on R&D financed by business enterprise as a percentage of total gross expenditure on R&D. For the definition of GERD, see indicator 2.3.2.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org); Eurostat database (https://ec.europa.eu/eurostat/data/database); OECD, Main Science and Technology Indicators (MSTI) database (https://data-explorer.oecd.org); and Ibero-American and Inter-American Network of Science and Technology Indicators (RICYT) (www.ricyt.org/en). Data years: 2015–2024.

5.2 Innovation linkages

5.2.1 Public research–industry co-publications, %

Public–private co-authored research publications (% of total research publications, five-year average) | 2024

Public–private co-authored research publications as a percentage of all research publications. Research publications are limited to the following four main fields of science: Biomedical and health sciences, Life and earth sciences, Mathematics and computer science, and Physical sciences and engineering. The definition of the "private sector" includes all for profit business enterprises, covering all manufacturing and services sectors. This includes research institutes and other corporate R&D laboratories that are fully funded or owned by for profit business enterprises. Organizations in the private education sector and private healthcare sector organizations (including hospitals and clinics) are not classified as private sector.

Source: Centre for Science and Technology Studies (CWTS), Leiden University, based on Clarivate Web of Science (www.cwts.nl). Data year: 2024.

5.2.2 University–industry R&D collaboration†

The extent to which businesses and universities collaborate on R&D† | 2024

Average answer to the survey question: In your country, to what extent do businesses and universities collaborate on research and development (R&D)? [1 = not at all; 7 = to a great extent].

Source: World Economic Forum, Executive Opinion Survey 2023 (www.weforum.org). Data years: 2019–2024.

5.2.3 University industry and international engagement, top 5*

Times Higher Education (THE) ranking – University industry and international external engagement, average score of the top five universities* | 2022

Average score of the top five universities per country, based on the Times Higher Education World University Rankings. The score is calculated as the average of the International Outlook score (encompassing international staff, students, and co-authorship) and the industry score (reflecting industry income and patent citations). For countries with fewer than five universities listed in the THE World University Rankings, the score is the average of all ranked universities. The 2025 ranking corresponds to data from the academic year that ended in 2022.

Source: Times Higher Education, World University Rankings 2025 (www.timeshighereducation.com/world-university-rankings/latest/world-ranking). Data year: 2022.

5.2.4 State of cluster development†

How widespread clusters are† | 2024

Average answer to the survey question: In your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)? [1 = nonexistent; 7 = widespread in many fields].

Source: World Economic Forum, Executive Opinion Survey 2023 (www.weforum.org). Data years: 2015–2024.

5.2.5 Patent families/bn PPP$ GDP

Number of patent families filed in at least two offices (per billion PPP$ GDP) | 2021

A patent family is a set of interrelated patent applications filed in one or more countries or jurisdictions to protect the same invention. Patent families containing applications filed in at least two different offices is a subset of patent families where protection of the same invention is sought in at least two different countries. In this report, "patent families data" refers to patent families containing applications filed in at least two intellectual property (IP) offices; the data are scaled by PPP$ GDP (billions). A patent is a set of exclusive rights granted by law to applicants for inventions that are new, non-obvious and industrially applicable. A patent is valid for a limited period of time (generally 20 years) and within a defined territory. The patent system is designed to encourage innovation by providing innovators with time-limited exclusive legal rights, thus enabling them to reap the rewards of their innovative activity.

Source: World Intellectual Property Organization, Intellectual Property Statistics (www.wipo.int/ipstats); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data year: 2021.

5.3 Knowledge absorption

5.3.1 Intellectual property payments, % total trade

Charges for use of intellectual property, i.e., payments (% of total trade, three-year average) | 2023

Charges for the use of intellectual property not included elsewhere, i.e., payments (% of total trade), average of three most recent years or most recent year. Value is calculated according to the Extended Balance of Payments Services Classification EBOPS 2010 that is, code SH: Charges for the use of intellectual property not included elsewhere, as a percentage of total trade. Total trade is defined as the sum of total imports of code G goods and code SOX commercial services (excluding government goods and services not included elsewhere) plus total exports of code G goods and code SOX commercial services (excluding government goods and services not included elsewhere), divided by 2. According to the sixth edition of the International Monetary Fund's *Balance of Payments and International Investment Position Manual* , the item "Goods" covers general merchandise, net exports of goods under merchanting and non-monetary gold. The "commercial services" category is defined as being equal to "services" minus "government goods and services not included elsewhere." Receipts are between residents and non-residents for the use of proprietary rights (such as patents, trademarks, copyrights, industrial processes and designs, including trade secrets and franchises), and for licenses to reproduce or distribute (or both) intellectual property embodied in produced originals or prototypes (such as copyrights on books and manuscripts, computer software, cinematographic works and sound recordings) and related rights (such as for live performances and television, cable or satellite broadcast).

Source: Trade in Commercial Services database (https://stats.wto.org); and WTO–OECD Balanced Trade in Services (BaTiS) dataset (www.wto.org/english/res_e/statis_e/gstdh_batis_e.htm). Data years: 2015–2023.

5.3.2 High-tech imports, % total trade

High-tech imports (% of total trade) | 2023

High-technology imports as a percentage of total trade. High-technology exports and imports contain technical products with a high intensity of R&D, defined by the Eurostat classification, which is based on Standard International Trade Classification (SITC) Revision 4 and the OECD definition (see http://ec.europa.eu/eurostat/cache/metadata/Annexes/htec_esms_an5.pdf). Commodities belong to the following sectors: aerospace; computers and office machines; electronics and telecommunications; pharmacy; scientific instruments; electrical machinery; chemistry; non-electrical machinery; and armament.

Source: United Nations Comtrade Database (http://comtrade.un.org); and World Trade Organization and United Nations Conference on Trade and Development (https://stats.wto.org). Data years: 2015–2023.

5.3.3 ICT services imports, % total trade

Telecommunications, computer and information services imports (% of total trade) | 2023

Telecommunications, computer and information services imports as a percentage of total trade according to the OECD's Extended Balance of Payments Services Classification EBOPS 2010, coded SI: Telecommunications, computer, and information services. Values are based on the classification of the sixth (2009) edition of the International Monetary Fund's *Balance of Payments and International Investment Position Manual* and Balance of Payments database. For the definition of total trade, see indicator 5.3.1.

Source: World Trade Organization and United Nations Conference on Trade and Development, Trade in Commercial Services database (https://stats.wto.org). Data years: 2020–2023.

5.3.4 FDI net inflows, % GDP

Foreign direct investment (FDI) net inflows (% of GDP, three-year average) | 2023

FDI net inflow is the average of the most recent three years of net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This data series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP. Data extracted from the World Bank's World Development Indicators database.

Source: International Monetary Fund, International Financial Statistics and Balance of Payments databases (https://data.imf.org); World Bank, International Debt Statistics (www.worldbank.org/en/programs/debt-statistics); and OECD GDP estimates (https://data.oecd.org). Data years: 2022–2023.

5.3.5 Research talent, % in businesses

Researchers in business enterprise (%) | 2023

Researchers in the business enterprise sector, measured in full-time equivalence (FTE), refers to researchers as professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems, as well as in the management of these projects, broken down by the sectors in which they are employed (business enterprise, government, higher education and private non-profit organizations). In the context of R&D statistics, the business enterprise sector includes all firms, organizations and institutions whose primary activity is the market production of goods or services (other than higher education) for sale to the general public at an economically significant price, and the mainly private non-profit institutions serving them; the core of this sector is made up of private enterprises.

Source: UNESCO Institute for Statistics (UIS) online database (http://data.uis.unesco.org); Eurostat database (https://ec.europa.eu/eurostat/data/database); OECD, Main Science and Technology Indicators (MSTI) database (https://data-explorer.oecd.org); and Ibero-American and Inter-American Network of Science and Technology Indicators (RICYT) (www.ricyt.org/en). Data years: 2015–2023.

6. Knowledge and technology outputs

6.1 Knowledge creation

6.1.1 Patents by origin/bn PPP$ GDP

Number of resident patent applications filed at a given national or regional patent office (per billion PPP$ GDP) | 2023

The definition of a patent can be found in the description of indicator 5.2.5. A resident patent application refers to an application filed with an IP office for or on behalf of the first-named applicant's country of residence. For example, an application filed with the Japan Patent Office by a resident of Japan is to be considered a resident application for Japan. Similarly, an application filed with the European Patent Office (EPO) by an applicant who resides in any of the EPO member states (for example Germany) is considered to be a resident application for that member state (Germany). Data are scaled by PPP$ GDP (billions).

Source: World Intellectual Property Organization, Intellectual Property Statistics (www.wipo.int/ipstats); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2015–2023.

6.1.2 PCT patents by inventor origin/bn PPP$ GDP

Number of Patent Cooperation Treaty (PCT) applications by inventor origin (fractional counts, per billion PPP$ GDP) | 2024

This indicator measures the inventive output of economies based on the origin of inventors listed in published international patent applications filed through the WIPO-administered Patent Cooperation Treaty (PCT). Using a fractional counting method, each application is proportionally attributed to the countries of residence of all listed inventors, offering a more accurate view of inventive activity. The data cover only published PCT applications and are limited to PCT Contracting States (158 to date). Data are scaled by PPP$ GDP (billions).

Source: World Intellectual Property Organization, Intellectual Property Statistics (www.wipo.int/ipstats); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data year: 2024.

6.1.3 Utility models by origin/bn PPP$ GDP

Number of resident utility model applications filed at the national patent office (per billion PPP$ GDP) | 2023

A utility model (UM) is a special form of patent right. The terms and conditions for granting a UM are slightly different from those for patents and include a shorter term of protection and less stringent patentability requirements. A resident UM application refers to an application filed with an IP office for or on behalf of the first-named applicant's country of residence. For example, an application filed with the IP office of Germany by a resident of Germany is considered a resident application for Germany. Data are scaled by PPP$ GDP (billions).

Source: World Intellectual Property Organization, Intellectual Property Statistics (www.wipo.int/ipstats); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2018–2023.

6.1.4 Scientific and technical articles/bn PPP$ GDP

Number of scientific and technical journal articles (per billion PPP$ GDP) | 2024

The number of articles published in the fields of science and technology. This encompasses 182 different research categories belonging to research areas including engineering, chemistry, physics, environmental sciences, computer science, mathematics, biochemistry, molecular biology, oncology, agriculture, cell biology and many more. Article counts are taken from a set of

journals covered by the Science Citation Index Expanded (SCIE) and the Social Sciences Citation Index (SSCI). Articles are classified by year of publication and assigned to each economy on the basis of the institutional address(es) listed in the article.

Articles are counted on a count basis (rather than a fractional basis) – that is, for articles with collaborating institutions from multiple economies, each economy receives credit on the basis of its participating institutions. The data are reported per billion PPP$ GDP.

Source: Clarivate, Web of Science, May 2025 (https://clarivate.com/webofsciencegroup/solutions/web-of-science); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2023–2024.

6.1.5 Citable documents H-index

The H-index is the economy's number of published articles (H) that have received at least H citations | 2024

The H-index expresses the journal's number of articles (H) that have received at least H citations. It quantifies both journal scientific productivity and scientific impact, and is also applicable to scientists, journals, and so on. The H-index is tabulated from the number of citations received in subsequent years by articles published in a given year, divided by the number of articles published that year.

Source: SCImago, SJR SCImago Journal & Country Rank, retrieved April 2024 (www.scimagojr.com). Data year: 2024.

6.2 Knowledge impact

6.2.1 Labor productivity growth, %

Growth rate of GDP per person employed (%, five-year average) | 2024

Growth rate of real GDP per person employed, average of five most recent available years (2020–2024). Growth of GDP per person engaged provides a measure of labor productivity (defined as output per unit of labor input). GDP per person employed is GDP divided by total employment in the economy.

Source: The Conference Board Total Economy Database, April 2025 (www.conference-board.org/data/economydatabase). Data year: 2024.

6.2.2 Unicorn valuation, % GDP

Combined valuation of a country's unicorns (% of GDP) | 2025

Total valuation of all unicorns in a country as a percentage of GDP. A unicorn company is a private company with a valuation over USD 1 billion. The list includes unicorns as of January 2025, with 1,260 companies worldwide. For African countries, the dataset has been augmented with additional information from Africa: The Big Deal.

Source: CBInsights, Tracker – The Complete list of Unicorns Companies (www.cbinsights.com/research-unicorn-companies); Africa: The Big Deal (https://africathebigdeal.com); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data year: 2025.

6.2.3 Software spending, % GDP

Total computer software spending (% of GDP) | 2024

Computer software spending includes the total value of purchased or leased packaged software, such as operating systems, database systems, programming tools, utilities and

applications. It excludes expenditures for internal software development. The data are estimated based on software and services industry sales data. For countries where industry sales data in unavailable, the data is estimated using macro level variable and trade data. Data are reported as a percentage of GDP.

Source: S&P Global, Market Intelligence (www.marketplace.spglobal.com/en/datasets). Data year: 2024.

6.2.4 High-tech manufacturing, %

High-tech and medium-high-tech manufacturing (% of total manufacturing output) | 2022

High technology and medium-high technology (MHT) output as a percentage of total manufacturing output, on the basis of the OECD classification of Technology Intensity Definition, itself based on International Standard Industrial Classification (ISIC) Rev.4 and Rev.3.

Source: United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database INDSTAT 2 2023 and INDSTAT 4 2023 (https://stat.unido.org). Data years: 2015–2023.

6.3 Knowledge diffusion

6.3.1 Intellectual property receipts, % total trade

Charges for use of intellectual property, i.e., receipts (% total trade, three-year average) | 2023

Charges for the use of intellectual property not included elsewhere, i.e. receipts (% of total trade), average of three most recent years or most recent year. Value is calculated according to the Extended Balance of Payments Services Classification EBOPS 2010, that is, code SH: Charges for the use of intellectual property not included elsewhere, as a percentage of total trade. Receipts are between residents and non-residents for the use of proprietary rights (such as patents, trademarks, copyrights, industrial processes and designs, including trade secrets and franchises), and for licenses to reproduce or distribute (or both) intellectual property embodied in produced originals or prototypes (such as copyrights on books and manuscripts, computer software, cinematographic works and sound recordings) and related rights (such as for live performances and television, cable, or satellite broadcast). Values are based on the classification of the sixth (2009) edition of the International Monetary Fund's *Balance of Payments and International Investment Position Manual* and Balance of Payments database. For the definition of total trade, see indicator 5.3.1.

Source: Trade in Commercial Services database (https://stats.wto.org); and WTO–OECD Balanced Trade in Services (BaTiS) dataset (www.wto.org/english/res_e/statis_e/gstdh_batis_e.htm). Data years: 2015–2023.

6.3.2 Production and export complexity

The Economic Complexity Index | 2022

The Economic Complexity Index is a ranking of countries based on the diversity and complexity of their export basket. High-complexity countries are home to a range of sophisticated, specialized capabilities and are therefore able to produce a highly diversified set of complex products. Determining the economic complexity of a country is not solely dependent on a country's productive knowledge. Information about how many capabilities the country has is contained not only in the absolute number of products that it makes, but also in the ubiquity of those products (the number of countries that import those products) and in the sophistication and diversity of the products that those other countries make. Economic complexity expresses the diversity and sophistication of the productive capabilities embedded in the exports of each country.

Source: The Atlas of Economic Complexity, Growth Lab at Harvard University (https://atlas.cid.harvard.edu). Data year: 2022.

6.3.3 High-tech exports, % total trade

High-tech exports (% of total trade) | 2023

High-technology exports as a percentage of total trade. See indicator 5.3.2 for details. Data for Hong Kong, China are corrected for re-exports using data from the Trade Data Monitor.

Source: United Nations Comtrade Database (http://comtrade.un.org); World Trade Organization and United Nations Conference on Trade and Development (https://stats.wto.org); and Trade Data Monitor (www.tradedatamonitor.com). Data years: 2015–2023.

6.3.4 ICT services exports, % total trade

Telecommunications, computer and information services exports (% of total trade) | 2023

Telecommunications, computer and information services exports as a percentage of total trade according to the Extended Balance of Payments Services Classification EBOPS 2010, coded SI: Telecommunications, computer, and information services. Values are based on the classification of the sixth (2009) edition of the International Monetary Fund's *Balance of Payments and International Investment Position Manual* and Balance of Payments database. For the definition of total trade, see indicator 5.3.1.

Source: World Trade Organization and United Nations Conference on Trade and Development, Trade in Commercial Services database (https://stats.wto.org). Data years: 2020–2023.

6.3.5 ISO 9001 quality/bn PPP$ GDP

ISO 9001 Quality management systems – number of certificates issued (per billion PPP$ GDP) | 2023

ISO 9001 specifies requirements for a quality management system when an organization needs to demonstrate its ability to provide products and services that meet both customer and applicable statutory and regulatory requirements. It aims to enhance customer satisfaction through the effective application of the system, including processes for improving the system and ensuring conformity to customer and applicable statutory and regulatory requirements. All the requirements of ISO 9001 are generic and are intended to be applicable to any organization, regardless of its type or size, or the products and services it provides. The data are reported per billion PPP$ GDP.

Source: International Organization for Standardization, ISO Survey of Certifications to Management System Standards, 2023 (www.iso.org/the-iso-survey.html); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data year: 2023.

7. Creative outputs

7.1 Intangible assets

7.1.1 Intangible asset intensity, top 15, %

Intangible asset value as a percentage of the firm's total value, average of the top 15 firms | 2024

The data cover a global list of firms for which intangible asset value and total firm value are observed. Only the top 15 firms of each economy are considered, ranked by intangible assets in absolute terms (in USD). Countries with fewer than 15 firms are not considered. For each firm, the intangible asset value is divided by the firm's total value before computing the arithmetic mean across the top 15 firms for each economy.

Source: Brand Finance Global Intangible Finance Tracker (https://brandirectory.com/reports/global-intangible-finance-tracker-gift/2024). Data years: 2022–2024.

7.1.2 Trademarks by origin/bn PPP$ GDP

Number of classes in resident trademark applications issued at a given national or regional office (per billion PPP$ GDP) | 2023

A trademark is a sign used by the owner of certain products or provider of certain services to distinguish them from the products or services of other companies. A trademark can consist of words or a combination of words and other elements, such as slogans, names, logos, figures and images, letters, numbers, sounds and moving images. The procedures for registering trademarks are governed by the legislation and procedures of national and regional IP offices. Trademark rights are limited to the jurisdiction of the IP office that registers the trademark. Trademarks can be registered by filing an application at the relevant national or regional office(s) or by filing an international application through the Madrid System. A resident trademark application refers to an application filed with an IP office for or on behalf of the first-named applicant's country of residence. For example, an application filed with the Japan Patent Office by a resident of Japan is considered to be a resident application for Japan. Similarly, an application filed with the European Intellectual Property Office (EUIPO) by an applicant who resides in any of the EU member states, such as France, is considered to be a resident application for that member state (France). This indicator is based on class count – the total number of goods and services classes specified in resident trademark applications. Data are scaled by PPP$ GDP (billions).

Source: World Intellectual Property Organization, Intellectual Property Statistics (www.wipo.int/ipstats); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2015–2024.

7.1.3 Global brand value, top 5,000, % GDP

Global brand value of the top 5,000 brands (% of GDP) | 2025

Sum of global brand values, top 5,000 as a percentage of GDP. Brand Finance calculates brand value using the royalty relief methodology, which determines the value that a company would be willing to pay to license its brand if it did not own it. The methodology is compliant with industry standards set in ISO 10668. This approach involves estimating the future revenue attributable to a brand and calculating a royalty rate that would be charged for the use of the brand. Brand Finance's study is based on publicly available information on the largest brands in the world. This indicator assesses the economy's brands in the top 5,000 global brand database and produces the sum of the brand values corresponding to that economy. This sum is then scaled by GDP. A score of 0 is assigned where there are no brands in the country that make the top 5,000 ranking. A score of "n/a" is assigned where Brand Finance has been unable to determine if there are brands from the country that would rank within the top 5,000 due to data availability limitations.

Source: Brand Finance database (https://brandirectory.com); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data year: 2025.

7.1.4 Industrial designs by origin/bn PPP$ GDP

Number of designs contained in resident industrial design applications filed at a given national or regional office (per billion PPP$ GDP) | 2023

An industrial design is a set of exclusive rights granted by law to applicants to protect the ornamental or aesthetic aspect of their products. An industrial design is valid for a limited period of time and within a defined territory. A resident industrial design application refers to an application filed with the IP office for or on behalf of the applicant's country of residence. For example, an application filed with the Japan Patent Office by a resident of Japan is considered to be a resident application for Japan. Similarly, an application filed with the European Intellectual Property Office (EUIPO) by an applicant who resides in any of the EUIPO member states, such as Italy, is considered to be a resident application for that member state (Italy). This indicator is based on design count – the total number of designs contained in the resident industrial design applications. Data are scaled by PPP$ GDP (billions).

Source: World Intellectual Property Organization, Intellectual Property Statistics (www.wipo.int/ipstats); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2015–2023.

7.2 Creative goods and services

7.2.1 Cultural and creative services exports, % total trade

Cultural and creative services exports (% of total trade) | 2023

Creative services exports as a percentage of total exports according to the Extended Balance of Payments Services Classification EBOPS 2010 – that is, EBOPS code SI3: Information services; code SJ22: Advertising, market research, and public opinion polling services; code SK1: Audio-visual and related services; and code SK23: Heritage and recreational services as a percentage of total trade. Values are based on the classification of the sixth (2009) edition of the International Monetary Fund's *Balance of Payments and International Investment Position Manual* and Balance of Payments database. See indicator 5.3.1 for the full definition of total trade.

Source: World Trade Organization, Trade in Commercial Services database (https://stats.wto.org); and WTO–OECD Balanced Trade in Services (BaTiS) dataset (www.wto.org/english/res_e/statis_e/gstdh_batis_e.htm). Data years: 2020–2023.

7.2.2 National feature films/mn pop. 15–69

Number of national feature films produced (per million population, 15–69 years old) | 2023

A feature film is defined as a film with a running time of 60 minutes or longer. It includes works of fiction, animation and documentaries. It is intended for commercial exhibition in cinemas. Feature films produced exclusively for television broadcasting, as well as newsreels and advertising films, are excluded. Data are reported per million population aged 15–69 years old.

Source: OMDIA (https://omdia.tech.informa.com/products/cinema-and-movies-intelligence-service); and United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects 2025 (April 2025 update) (https://population.un.org/wpp). Data years: 2015–2023.

7.2.3 Entertainment and media market/th pop. 15–6

Global telecom and entertainment & media outlook (per thousand population, 15–69 years old) | 2024

The Global Telecom and Entertainment & Media Outlook is a comprehensive source of global analyses and five-year forecasts of consumer and advertising spending across different territories and entertainment and media segments. The figures for Algeria, Bahrain, the Islamic Republic of Iran, Jordan, Kuwait, Lebanon, Malta, Morocco, Oman, Qatar, Tunisia and Yemen were estimated from a total corresponding to Middle East and North Africa (MENA) countries using a breakdown of total GDP (current USD) for the above-mentioned countries to define referential percentages.

Source: PwC, Global Telecom and Entertainment and Media Outlook, 2024–2028 (www.pwc.com/gx/en/industries/tmt/media/outlook.html); United Nations Department of Economic and Social Affairs, Population Division, World Population Prospects 2024 (https://population.un.org/wpp); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2023–2024.

7.2.4 Creative goods exports, % total trade

Creative goods exports (% of total trade) | 2023

Total value of creative goods exports (current USD) over total trade. Creative goods exports based on the 2009 UNESCO Framework for Cultural Statistics, Table 3, International trade of

cultural goods and services defined with the Harmonized System (HS) 2007 codes; World Trade Organization and United Nations Conference on Trade and Development, Trade in Commercial Services database, itself based on the sixth (2009) edition of the International Monetary Fund's *Balance of Payments and International Investment Position Manual* and Balance of Payments database. For the definition of total trade, see indicator 5.3.1.

Source: United Nations Comtrade Database (http://comtrade.un.org); and World Trade Organization and United Nations Conference on Trade and Development (https://stats.wto.org). Data years: 2015–2023.

7.3 Online creativity

7.3.1 Top-level domains (TLDs)/th pop. 15–69

Generic top-level domains (TLDs) and country-code TLDs (per thousand population, 15–69 years old) | 2024

The sum of Generic top-level domains (TLDs) and country-code TLDs as a proportion of thousand population, 15-69 years old. A top-level domain (TLD) encompasses various categories maintained by the Internet Assigned Numbers Authority (IANA) for internet use. Generic TLDs cover five generic domains (.biz, .info, .org, .net, and .com), excluding sponsored domains such as .name or .pro, and all new generic TLDs. Country-code TLDs are assigned to specific economies, countries, or territories and represent total domain registrations within each country-code TLD, with exceptions for ccTLDs licensed for global commercial use. For confidentiality reasons, only normalized values are reported; while relative positions are preserved, magnitudes are not.

Source: ZookNIC Inc (www.zooknic.com); and United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects 2024 (https://population.un.org/wpp). Data year: 2024.

7.3.2 GitHub commits/mn pop. 15–69

GitHub commits pushes received and sent (per million population, 15–69 years old) | 2024

GitHub is the world's largest host of source code, and a commit is the term used for a change on this platform. One or more commits can be saved (or pushed) to projects (or repositories). Thus, "GitHub commit pushes received and sent" refers to the sum of the number of batched changes received and sent by publicly-available projects on GitHub within a specific economy. Automated activity resulting in non-productive commits are excluded.

Source: GitHub (https://github.com); and United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects 2024 (April 2024 update) (https://population.un.org/wpp). Data year: 2024.

7.3.3 Mobile app creation/bn PPP$ GDP

Global downloads of mobile apps (per billion PPP$ GDP, two-year average) | 2024

Global downloads of mobile apps, by origin of the headquarters of the developer/firm, scaled by PPP$ GDP (billions). Global downloads are compiled by data.ia, public data sources and the company's proprietary forecast model based on data from Google Play Store and iOS App Store in each country. Since data for China are not available for Google Play Store and only for iOS App Store, data from China are treated as missing and classified as "n/a."

Source: data.ia (a Sensor Tower Company) (www.data.ai/en); and International Monetary Fund, World Economic Outlook Database, October 2024 (www.imf.org/en/Publications/WEO/weo-database/2024/October). Data years: 2021–2024.

Appendix IV – Global Innovation Index innovation cluster methodology

Since 2016, the Global Innovation Index (GII) has sought to identify innovation clusters using a bottom-up approach. This approach disregards administrative or political borders and instead pinpoints those geographical areas where there is a high density of inventors and scientific authors. The resulting clusters often encompass several municipal districts, sub-federal states and sometimes two or more countries.

In this 2025 edition of the GII, three innovation metrics are employed in identifying WIPO's top 100 global innovation clusters:

- location of inventors listed in published patent applications;
- location of authors listed on published scientific articles;
- and – new to this edition, location of firms in receipt of venture capital (VC) investment.

For patents, this method relies on published applications under WIPO's Patent Cooperation Treaty (PCT). PCT patents offer a useful basis for analyzing patents globally. The PCT system applies a single set of procedural rules and collects information based on uniform filing standards. This reduces any potential bias that might arise from using data collected from multiple national sources. The patents selected were published over the most recent five-year period available – between 2020 and 2024 – to minimize any volatility that might occur between years.

As a second step, scientific publications from the Web of Science's Science Citation Index Expanded (SCIE) were incorporated. The SCIE provides detailed coverage of the world's most impactful academic journals. Science and technology fields were the focus of the analysis, while articles from the fields of social sciences and humanities were disregarded. In addition, scientific publications are limited solely to articles of original research. This excludes other published items, such as meeting abstracts, conference summaries or paper briefs. As with PCT filings, the most recent five-year period for which data are available was also used for the SCIE – that is, publication years 2019 to 2023.

To further enrich the understanding of innovation activity at the cluster level, this edition introduces VC deal count data. By integrating information on startups, unicorns or other commercial ventures in receipt of VC funding, and counting the number of VC deals by location, we have this year been able to expand our lens to include entrepreneurial and early-stage innovation activity. This allows the cluster ranking to reflect not only scientific and inventive outputs, but also innovation finance and startup outcomes.

For VC data, we utilized PitchBook's Data Venture Capital Database[1]. This database offers detailed deal-level VC count information and was used to identify the precise geographical location of those firms in receipt of VC investment. The data reflect the total number of VC transactions based on the company's headquarters. Investors may originate from any global region. Investors included range from individual angels, angel groups, seed and venture funds, corporate venture capital (CVC) arms, and other corporate entities. Deals associated with accelerator programs were excluded unless the accelerator participated in follow-on rounds,

1 https://pitchbook.com/venture-capital-database

in which case only those subsequent rounds of financing were included. All equity transactions and mixed debt-and-equity deals were counted. Pure debt deals were excluded, because they fall under venture debt datasets rather than VC activity datasets.

The WIPO PCT patent data set consists of approximately 1.3 million patent applications published between 2020 and 2024, containing 4.2 million inventor addresses. For the SCIE, the data set comprises 8.2 million articles published between 2019 and 2023, containing 28.5 million listed author addresses. For PitchBook VC Capital Database the data set consists of 66,755 locations between 2019 and 2023, containing 236,046 deals. The geocoding process for the addresses used in this report is as follows. PCT inventor addresses were geocoded using the Environmental Systems Research Institute (ESRI) ArcGIS World Geocoder service. In cases where the ESRI results were ambiguous or insufficiently accurate, the city name was extracted from the address string and matched against entries in the GeoNames Gazetteer database – a global dataset of approximately 48,000 geocoded cities. If the extracted city did not match any record in GeoNames, we then attempted to geocode the city name directly using the World Geocoder service.

This same city-matching approach was applied to SCIE author addresses and VC deal locations. In both datasets, the addresses were already provided in a pre-parsed format, which significantly improved our ability to match them using the GeoNames database. For SCIE and VC city names that could not be matched using GeoNames, we again attempted to geocode the city name using ESRI's World Geocoder.

Overall, 98.4% of inventor addresses were geocoded at either the city level or a more accurate level, whereas 99.7% of scientific author addresses were geocoded at the city level. For VC data, 97.1% of VC deals were geocoded at the city level or better. Appendix IV - Table 1 summarizes the geocoding results for the top 20 countries, which together account for the majority of inventor, scientific author and VC deal addresses. As this table shows, the coverage of geocoded PCT inventor addresses across all 20 countries is above 99 percent. Similarly, coverage of scientific author addresses and VC deal addresses was also high, above 99%.

Addresses were clustered by applying the density-based spatial clustering of applications with noise (DBSCAN) algorithm. This algorithm requires predefined radius and density parameters. As in previous years, a radius of 15 km and a density of 4,500 listed inventors/authors was applied. Equal weight was given to inventors and authors by expressing data points as a share of total inventor and author addresses, respectively. Given that the number of scientific articles far exceeds the number of patents, cluster identification based on the raw data points would have resulted in clusters shaped predominantly by the scientific author landscape.

The locations of VC deal counts were excluded from the initial cluster formation process because of their relatively high geographical isolation, that is to say, the greater average distances between data points, compared to PCT inventors and scientific article authors. Including the VC data during clustering risked introducing noise and distorting the resultant clusters. To address this, we instead assigned VC data to clusters *post hoc* by overlaying the finalized cluster boundaries onto the VC firm locations and allocating each VC deal to the cluster into which it geographically falls.

This clustering step resulted in an initial list of 246 clusters. After review, neighboring clusters were merged if the edge of one cluster was within 3–5 km of another and where the co-author/co-inventor relationships were higher than for any other relationship with any other cluster or non-cluster points. A total of 18 clusters met these criteria, with mergers reducing the overall number of clusters identified to 237.

The remaining 237 clusters were then ranked by first counting the number of patents, scientific articles and VC deals within a given cluster. The numbers were calculated using fractional counting, and then global shares were derived for each innovation metric. These global shares were then aggregated, using equal weights, within each cluster and then used for the overall ranking (Appendix IV - Table 2).

To produce an intensity ranking, the European Commission's Global Human Settlement Layer (GHSL) population distribution data were matched geographically to the top 100 clusters

identified in the overall ranking (Appendix IV - Table 3). Just as with inventor/author geocoded locations, these population data allowed us to define the total population of a cluster using a bottom-up approach. We chose to define a cluster's area as being the space within 0.05 degrees of each inventor/author location. Overlaying the resultant cluster polygons on top of the population data and aggregating all points which lay within each polygon gave a total population estimate for each cluster. The clusters were then ranked by dividing the total innovation share by population.

To ensure consistency following the inclusion of VC data in this year's cluster rankings, we retroactively applied the same methodological change to last year's rankings. Specifically, VC deal counts from 2018 to 2022 were geographically assigned to the cluster boundaries used in the previous edition of the GII, and the rankings recalculated accordingly. These updated rankings form the basis for the "Rank Change" indicators presented in the main section. For reference, Appendix IV - Table 2 provides the top 100 cluster rankings calculated using the previous methodology (i.e., excluding VC data), allowing users to compare how individual clusters would have ranked using only PCT patents and scientific articles as input variables.

Appendix IV - Table 1: Summary of geocoding results, 2025

	Scientific publications			PCT applications		
Country	**Number of addresses**	**City-level address accuracy (%)**	**Applications covered (%)**	**Number of addresses**	**City-level address accuracy (%)**	**Applications covered (%)**
China	7,835,799	100.0%	100.0%	1,151,574	99.9%	99.9%
United States of America	7,517,582	100.0%	100.0%	974,714	99.9%	99.9%
Japan	1,399,434	99.4%	99.8%	532,296	99.8%	99.9%
Germany	1,671,970	99.9%	99.9%	266,615	99.7%	99.7%
Republic of Korea	956,778	99.2%	99.6%	335,207	100.0%	100.0%
United Kingdom	1,668,211	99.5%	99.7%	90,148	99.8%	99.9%
France	1,199,360	99.3%	99.6%	108,885	98.8%	99.2%
Italy	1,500,143	99.9%	100.0%	48,023	99.4%	99.5%
India	1,173,303	99.3%	99.5%	53,820	99.7%	99.8%
Canada	1,066,440	100.0%	100.0%	51,086	100.0%	99.9%
Spain	1,118,462	99.6%	99.8%	28,643	99.2%	99.6%
Netherlands	602,719	99.8%	99.9%	46,296	99.8%	99.8%
Australia	1,031,680	99.9%	99.9%	21,617	99.9%	99.9%
Brazil	804,344	99.9%	99.9%	10,478	99.8%	99.8%
Switzerland	410,344	99.9%	99.9%	44,394	99.8%	99.9%
Sweden	351,437	99.9%	99.9%	45,241	99.8%	99.9%
Russian Federation	463,678	99.8%	99.9%	15,206	99.7%	99.8%
Türkiye	511,696	98.8%	98.6%	18,082	98.9%	99.3%
Israel	199,623	98.6%	99.5%	28,896	98.8%	99.1%
Poland	400,142	99.9%	100.0%	7,567	99.9%	99.9%
World Total	**28,625,102**	**99.7%**	**99.9%**	**4,271,953**	**98.4%**	**98.5%**

Notes: This table lists the top 20 countries according to combined share of patents and scientific articles. PCT inventor addresses were geocoded to the highest level of detail. Due to a much larger volume, scientific author addresses were geocoded to city level only. It was only possible to geocode VC data to city level due to data availability.

Source: WIPO Statistics Database, May 2025.

Appendix IV - Table 2: Top 100 innovation clusters, 2025

Cluster name	Rank	Economy	PCT applications	Scientific publications	Venture Capital Deals	Share of global PCT applications	Share of global scientific publications	Share of global venture capital deals	Total	Previous rank (a)	Rank change (a)	Rank old methodology (b)
Shenzhen–Hong Kong–Guangzhou	1	CN / HK	117,542	193,635	6,916	9.0%	2.4%	2.9%	14.3%	1	0	2
Tokyo–Yokohama	2	JP	135,129	115,773	5,154	10.3%	1.4%	2.2%	13.9%	2	0	1
San Jose–San Francisco	3	US	50,813	56,510	16,296	3.9%	0.7%	6.9%	11.5%	3	0	6
Beijing	4	CN	49,792	331,874	6,727	3.8%	4.1%	2.9%	10.7%	4	0	3
Seoul	5	KR	71,318	142,509	7,376	5.5%	1.7%	3.1%	10.3%	5	0	4
Shanghai–Suzhou	6	CN	42,819	206,292	8,705	3.3%	2.5%	3.7%	9.5%	6	0	5
New York City	7	US	13,705	74,833	11,283	1.1%	0.9%	4.8%	6.8%	7	0	12
London	8	GB	6,981	57,152	10,411	0.5%	0.7%	4.4%	5.7%	8	0	22
Boston–Cambridge	9	US	19,333	75,168	4,592	1.5%	0.9%	2.0%	4.4%	9	0	8
Los Angeles	10	US	11,832	42,946	5,891	0.9%	0.5%	2.5%	3.9%	10	0	18
Osaka–Kobe–Kyoto	11	JP	38,307	52,227	546	2.9%	0.6%	0.2%	3.8%	11	0	7
Paris	12	FR	16,328	60,680	4,085	1.3%	0.7%	1.7%	3.7%	12	0	11
Hangzhou	13	CN	11,128	81,181	2,804	0.9%	1.0%	1.2%	3.0%	13	0	14
San Diego	14	US	26,713	19,863	1,705	2.0%	0.2%	0.7%	3.0%	14	0	10
Nanjing	15	CN	8,242	136,094	1,266	0.6%	1.7%	0.5%	2.8%	15	0	9
Singapore	16	SG / MY	5,410	34,676	4,033	0.4%	0.4%	1.7%	2.6%	16	0	35
Washington–Baltimore	17	US	6,264	71,367	2,152	0.5%	0.9%	0.9%	2.3%	17	0	19
Wuhan	18	CN	7,526	111,269	681	0.6%	1.4%	0.3%	2.2%	19	1	13
Tel Aviv–Jerusalem	19	IL	7,160	25,233	2,974	0.6%	0.3%	1.3%	2.1%	18	-1	34
Seattle	20	US	10,884	19,386	2,084	0.8%	0.2%	0.9%	2.0%	20	0	24
Bengaluru	21	IN	4,983	16,385	2,868	0.4%	0.2%	1.2%	1.8%	21	0	52
Amsterdam–Rotterdam	22	NL	4,363	51,649	1,965	0.3%	0.6%	0.8%	1.8%	22	0	26
Philadelphia	23	US	5,752	32,432	2,135	0.4%	0.4%	0.9%	1.7%	23	0	36
Chengdu	24	CN	2,652	86,766	1,097	0.2%	1.1%	0.5%	1.7%	29	5	21
Daejeon	25	KR	14,927	26,169	570	1.1%	0.3%	0.2%	1.7%	27	2	17
Delhi	26	IN	1,140	33,681	2,736	0.1%	0.4%	1.2%	1.7%	24	-2	63
Munich	27	DE	10,925	26,987	988	0.8%	0.3%	0.4%	1.6%	30	3	23
Nagoya	28	JP	16,724	20,923	117	1.3%	0.3%	0.1%	1.6%	25	-3	15
Xi'an	29	CN	2,279	108,896	22	0.2%	1.3%	0.0%	1.5%	33	4	16
Berlin	30	DE	3,188	24,528	2,267	0.2%	0.3%	1.0%	1.5%	28	-2	57
Chicago	31	US	4,205	29,337	1,827	0.3%	0.4%	0.8%	1.5%	26	-5	41
Stockholm	32	SE	5,933	19,301	1,794	0.5%	0.2%	0.8%	1.5%	31	-1	39
Toronto	33	CA	2,763	28,193	2,023	0.2%	0.3%	0.9%	1.4%	32	-1	55
Qingdao	34	CN	8,334	53,059	267	0.6%	0.7%	0.1%	1.4%	35	1	20
Denver	35	US	3,473	21,275	1,983	0.3%	0.3%	0.8%	1.4%	34	-1	61
Sydney	36	AU	2,771	34,551	1,527	0.2%	0.4%	0.7%	1.3%	37	1	46
Austin	37	US	2,615	9,466	2,222	0.2%	0.1%	0.9%	1.3%	38	1	92
Houston	38	US	7,796	23,270	886	0.6%	0.3%	0.4%	1.3%	36	-2	31
Hefei	39	CN	4,723	48,837	686	0.4%	0.6%	0.3%	1.3%	44	5	27
Zürich	40	CH	3,994	23,855	1,426	0.3%	0.3%	0.6%	1.2%	40	0	50
Taipei–Hsinchu	41	TW*	3,803	55,822	430	0.3%	0.7%	0.2%	1.2%	39	-2	25
Copenhagen	42	DK	3,112	24,604	1,344	0.2%	0.3%	0.6%	1.1%	42	0	59
Cologne	43	DE	6,609	33,031	456	0.5%	0.4%	0.2%	1.1%	41	-2	29
Changsha	44	CN	1,520	67,213	387	0.1%	0.8%	0.2%	1.1%	50	6	28
Barcelona	45	ES	2,195	30,359	1,306	0.2%	0.4%	0.6%	1.1%	43	-2	58
Mumbai	46	IN	1,648	16,290	1,696	0.1%	0.2%	0.7%	1.1%	45	-1	88
Madrid	47	ES	1,645	39,452	1,011	0.1%	0.5%	0.4%	1.0%	47	0	49
Moscow	48	RU	1,866	59,754	363	0.1%	0.7%	0.2%	1.0%	46	-2	33
São Paulo	49	BR	684	24,349	1,587	0.1%	0.3%	0.7%	1.0%	49	0	79
Tianjin	50	CN	1,407	64,030	299	0.1%	0.8%	0.1%	1.0%	52	2	30
Minneapolis	51	US	6,655	14,327	756	0.5%	0.2%	0.3%	1.0%	48	-3	40
Melbourne	52	AU	1,903	38,040	852	0.2%	0.5%	0.4%	1.0%	51	-1	48
Raleigh	53	US	3,042	28,395	876	0.2%	0.4%	0.4%	1.0%	54	1	53
Stuttgart	54	DE	9,177	14,264	138	0.7%	0.2%	0.1%	0.9%	55	1	32
Brussels–Antwerp	55	BE	2,890	27,235	875	0.2%	0.3%	0.4%	0.9%	53	-2	56
Milan	56	IT	2,622	32,145	720	0.2%	0.4%	0.3%	0.9%	57	1	51
Chongqing	57	CN	1,545	53,070	276	0.1%	0.7%	0.1%	0.9%	60	3	37
Istanbul	58	TR	2,533	29,908	743	0.2%	0.4%	0.3%	0.9%	62	4	54
Atlanta	59	US	1,856	22,199	1,081	0.1%	0.3%	0.5%	0.9%	56	-3	70

Appendix IV - Table 2 continued

Cluster name	Rank	Economy	PCT applications	Scientific publications	Venture Capital Deals	Share of global PCT applications	Share of global scientific publications	Share of global venture capital deals	Total	Previous rank (a)	Rank change (a)	Rank old methodology (b)
Helsinki	60	FI	3,012	13,017	1,108	0.2%	0.2%	0.5%	0.9%	58	-2	73
Dallas	61	US	3,289	9,829	1,032	0.3%	0.1%	0.4%	0.8%	61	0	75
Montréal	62	CA	2,644	24,450	724	0.2%	0.3%	0.3%	0.8%	63	1	62
Tehran	63	IR	357	60,217	85	0.0%	0.7%	0.0%	0.8%	59	-4	38
Frankfurt am Main	64	DE	5,485	17,953	318	0.4%	0.2%	0.1%	0.8%	64	0	45
Eindhoven	65	NL	7,982	5,223	206	0.6%	0.1%	0.1%	0.8%	66	1	42
Vancouver	66	CA	1,685	15,479	1,041	0.1%	0.2%	0.4%	0.8%	65	-1	90
Miami	67	US	903	8,339	1,375	0.1%	0.1%	0.6%	0.8%	68	1	164
Jinan	68	CN	1,815	41,797	185	0.1%	0.5%	0.1%	0.7%	69	1	44
Cambridge	69	GB	3,142	16,443	636	0.2%	0.2%	0.3%	0.7%	67	-2	68
Harbin	70	CN	331	51,167	29	0.0%	0.6%	0.0%	0.7%	72	2	43
Dublin	71	IE	916	10,440	1,077	0.1%	0.1%	0.5%	0.7%	70	-1	153
Changchun	72	CN	1,475	42,242	49	0.1%	0.5%	0.0%	0.7%	77	5	47
Portland	73	US	2,980	6,394	689	0.2%	0.1%	0.3%	0.6%	71	-2	94
Vienna	74	AT	1,620	19,945	509	0.1%	0.2%	0.2%	0.6%	73	-1	76
Shenyang	75	CN	691	39,719	70	0.1%	0.5%	0.0%	0.6%	80	5	60
Pittsburgh	76	US	1,902	16,065	511	0.2%	0.2%	0.2%	0.6%	76	0	82
Oxford	77	GB	1,588	17,916	513	0.1%	0.2%	0.2%	0.6%	74	-3	83
Phoenix	78	US	2,000	8,885	695	0.2%	0.1%	0.3%	0.6%	75	-3	112
Mexico City	79	MX	252	20,263	672	0.0%	0.3%	0.3%	0.6%	78	-1	111
Zhengzhou	80	CN	691	36,234	125	0.1%	0.4%	0.1%	0.6%	87	7	64
Xiamen	81	CN	2,177	19,412	315	0.2%	0.2%	0.1%	0.5%	79	-2	71
Rome	82	IT	939	31,121	174	0.1%	0.4%	0.1%	0.5%	82	0	67
Cairo	83	EG	164	24,877	479	0.0%	0.3%	0.2%	0.5%	84	1	91
Chennai	84	IN	1,304	21,636	362	0.1%	0.3%	0.2%	0.5%	86	2	77
Oslo	85	NO	834	12,663	703	0.1%	0.2%	0.3%	0.5%	83	-2	135
Kuala Lumpur	86	MY	606	20,560	508	0.1%	0.3%	0.2%	0.5%	81	-5	97
Heidelberg–Mannheim	87	DE	3,937	13,150	103	0.3%	0.2%	0.0%	0.5%	85	-2	66
Dalian	88	CN	883	33,201	68	0.1%	0.4%	0.0%	0.5%	88	0	65
Warsaw	89	PL	489	22,606	434	0.0%	0.3%	0.2%	0.5%	89	0	93
Lyon	90	FR	1,980	11,793	416	0.2%	0.1%	0.2%	0.5%	91	1	98
Hamburg	91	DE	1,667	11,428	476	0.1%	0.1%	0.2%	0.5%	94	3	110
Salt Lake City	92	US	1,605	8,401	571	0.1%	0.1%	0.2%	0.5%	92	0	129
Ningbo	93	CN	1,276	14,775	431	0.1%	0.2%	0.2%	0.5%	99	6	102
Manchester	94	GB	909	11,630	576	0.1%	0.1%	0.2%	0.5%	90	-4	140
Busan	95	KR	2,232	14,207	248	0.2%	0.2%	0.1%	0.5%	95	0	81
Ann Arbor	96	US	1,206	18,947	295	0.1%	0.2%	0.1%	0.5%	93	-3	89
Göteborg	97	SE	2,088	9,979	361	0.2%	0.1%	0.2%	0.4%	96	-1	101
Macau–Zhuhai	98	CN	3,122	5,233	311	0.2%	0.1%	0.1%	0.4%	103	5	95
Ningde	99	CN	5,547	312	4	0.4%	0.0%	0.0%	0.4%	146	47	69
Zhenjiang	100	CN	1,151	24,785	85	0.1%	0.3%	0.0%	0.4%	106	6	72

Notes: (a) Previous rank represents last year's position recalculated using the current methodology, which includes VC deal count for consistent comparison. (b) Rank old methodology ranks all 237 clusters only using PCT applications and scientific publications. The codes given in the tables in this appendix are the ISO alpha-2 country codes, with the following addition: TW* = Taiwan, Province of China.

Source: WIPO Statistics Database, May 2025.

Appendix IV - Table 3: Innovation intensity ranking, 2025

Cluster name	Rank per-capita	Economy	Estimated cluster population	PCT applications per capita (a)	Scientific publications per capita (a)	Venture Capital deals per capita (a)	Total innovation intensity share per capita (a)	Rank change
San Jose–San Francisco	1	US	6,248,247.83	8,132	9,044	2,608	1.84	0
Cambridge	2	GB	496,263.81	6,331	33,133	1,282	1.43	0
Boston–Cambridge	3	US	4,256,509.66	4,542	17,660	1,079	1.02	0
Ningde	4	CN	425,620.67	13,032	733	9	1.01	n.a.
Oxford	5	GB	571,650.30	2,778	31,340	897	0.98	-1
Seattle	6	US	2,511,877.85	4,333	7,718	830	0.78	-1
San Diego	7	US	3,919,023.10	6,816	5,068	435	0.77	-1
Ann Arbor	8	US	635,676.64	1,897	29,806	464	0.71	1
Helsinki	9	FI	1,232,383.09	2,444	10,563	899	0.7	-2
Eindhoven	10	NL	1,111,011.48	7,184	4,701	185	0.68	-2
Stockholm	11	SE	2,160,556.25	2,746	8,933	830	0.67	-1
Copenhagen	12	DK	1,692,957.72	1,838	14,533	794	0.66	-1
Austin	13	US	1,955,797.52	1,337	4,840	1,136	0.64	0
Zürich	14	CH	1,953,492.70	2,045	12,211	730	0.62	0
Daejeon	15	KR	2,773,465.80	5,382	9,436	206	0.61	0
Munich	16	DE	2,800,189.73	3,902	9,637	353	0.57	0
Raleigh	17	US	1,709,143.68	1,780	16,614	513	0.56	0
Beijing	18	CN	19,486,947.46	2,555	17,031	345	0.55	1
London	19	GB	10,396,705.70	671	5,497	1,001	0.54	-1
Göteborg	20	SE	838,021.98	2,492	11,908	431	0.52	0
Oslo	21	NO	1,056,409.41	790	11,987	665	0.49	0
Denver	22	US	3,075,670.63	1,129	6,917	645	0.44	0
Dublin	23	IE	1,495,531.30	612	6,981	720	0.44	0
New York City	24	US	16,074,273.77	853	4,655	702	0.42	1
Hangzhou	25	CN	7,456,224.75	1,492	10,888	376	0.41	-1
Pittsburgh	26	US	1,384,918.85	1,373	11,600	369	0.4	0
Vancouver	27	CA	1,944,373.36	867	7,961	535	0.39	0
Seoul	28	KR	26,424,210.11	2,699	5,393	279	0.39	1
Tokyo–Yokohama	29	JP	36,451,951.57	3,707	3,176	141	0.38	-1
Minneapolis	30	US	2,752,769.79	2,418	5,205	275	0.36	0
Berlin	31	DE	4,229,668.35	754	5,799	536	0.36	0
Philadelphia	32	US	5,109,494.71	1,126	6,347	418	0.34	5
Singapore	33	SG / MY	7,650,616.35	707	4,532	527	0.33	0
Paris	34	FR	11,225,080.70	1,455	5,406	364	0.33	-2
Salt Lake City	35	US	1,414,163.14	1,135	5,940	404	0.33	-1
Nanjing	36	CN	8,690,287.55	948	15,660	146	0.33	5
Los Angeles	37	US	12,247,130.21	966	3,507	481	0.32	-1
Sydney	38	AU	4,048,792.71	684	8,534	377	0.32	2
Washington, DC–Baltimore	39	US	7,212,369.87	868	9,895	298	0.31	-1
Toronto	40	CA	4,512,246.49	612	6,248	448	0.31	-1
Atlanta	41	US	2,863,866.25	648	7,751	377	0.3	-6
Tel Aviv–Jerusalem	42	IL	7,240,817.35	989	3,485	411	0.29	0
Stuttgart	43	DE	3,214,479.86	2,855	4,438	43	0.29	0
Qingdao	44	CN	4,871,537.33	1,711	10,892	55	0.29	2
Shenzhen–Hong Kong–Guangzhou	45	CN / HK	51,288,932.65	2,292	3,775	135	0.28	0
Chicago	46	US	5,332,435.38	789	5,502	343	0.27	7
Portland	47	US	2,233,662.13	1,334	2,863	308	0.27	-3
Changsha	48	CN	4,118,018.85	369	16,322	94	0.27	3
Wuhan	49	CN	8,684,892.70	867	12,812	78	0.26	1
Amsterdam–Rotterdam	50	NL	7,044,257.27	619	7,332	279	0.26	-1
Lyon	51	FR	1,858,873.50	1,065	6,344	224	0.25	-4
Heidelberg–Mannheim	52	DE	1,992,753.58	1,976	6,599	52	0.25	-4
Vienna	53	AT	2,407,600.96	673	8,284	211	0.24	1
Osaka–Kobe–Kyoto	54	JP	15,862,110.81	2,415	3,293	34	0.24	-2
Miami	55	US	3,171,993.11	285	2,629	433	0.24	3
Montréal	56	CA	3,521,489.37	751	6,943	206	0.23	1
Xi'an	57	CN	6,604,074.03	345	16,489	3	0.23	5
Hefei	58	CN	5,652,964.67	836	8,639	121	0.22	10
Chengdu	59	CN	7,940,147.05	334	10,928	138	0.22	6
Brussels–Antwerp	60	BE	4,252,729.62	679	6,404	206	0.22	-4
Melbourne	61	AU	4,480,432.08	425	8,490	190	0.22	-1

Appendix IV - Table 3 continued

Cluster name	Rank per-capita	Economy	Estimated cluster population	PCT applications per capita (a)	Scientific publications per capita (a)	Venture Capital deals per capita (a)	Total innovation intensity share per capita (a)	Rank change
Barcelona	62	ES	5,046,828.55	435	6,016	259	0.22	-3
Shanghai–Suzhou	63	CN	43,830,568.78	977	4,707	199	0.22	0
Houston	64	US	6,134,627.65	1,271	3,793	144	0.2	-3
Frankfurt am Main	65	DE	3,815,260.56	1,438	4,706	83	0.2	-1
Milan	66	IT	4,520,264.34	580	7,111	159	0.2	0
Dallas	67	US	4,130,858.76	796	2,379	250	0.2	0
Warsaw	68	PL	2,572,714.59	190	8,787	169	0.19	1
Hamburg	69	DE	2,451,331.75	680	4,662	194	0.19	1
Phoenix	70	US	3,099,793.73	645	2,866	224	0.18	1
Changchun	71	CN	3,626,034.80	407	11,650	14	0.18	5
Nagoya	72	JP	9,211,842.03	1,816	2,271	13	0.17	0
Jinan	73	CN	4,292,780.29	423	9,737	43	0.17	2
Madrid	74	ES	6,449,334.88	255	6,117	157	0.16	0
Manchester	75	GB	2,905,416.09	313	4,003	198	0.16	-2
Rome	76	IT	3,478,659.59	270	8,946	50	0.15	2
Xiamen	77	CN	3,628,548.05	600	5,350	87	0.15	0
Harbin	78	CN	4,552,654.94	73	11,239	6	0.15	2
Zhenjiang	79	CN	3,047,417.01	378	8,133	28	0.14	n.a.
Dalian	80	CN	3,583,566.25	246	9,265	19	0.14	-1
Macau–Zhuhai	81	CN	3,366,722.88	927	1,554	92	0.13	n.a.
Tianjin	82	CN	8,272,762.68	170	7,740	36	0.12	0
Bengaluru	83	IN	14,833,479.23	336	1,105	193	0.12	-2
Cologne	84	DE	9,595,974.92	689	3,442	48	0.11	-1
Tehran	85	IR	7,282,051.37	49	8,269	12	0.11	-1
Busan	86	KR	4,179,895.22	534	3,399	59	0.11	-1
Ningbo	87	CN	4,360,726.21	293	3,388	99	0.11	1
Chongqing	88	CN	8,591,895.68	180	6,177	32	0.1	-1
Taipei–Hsinchu	89	TW*	11,341,154.02	335	4,922	38	0.1	-3
Zhengzhou	90	CN	5,398,921.38	128	6,711	23	0.1	-1
Shenyang	91	CN	6,239,081.75	111	6,366	11	0.09	-1
Moscow	92	RU	14,072,800.44	133	4,246	26	0.07	-1
Istanbul	93	TR	12,723,342.63	199	2,351	58	0.07	-1
Kuala Lumpur	94	MY	8,548,180.04	71	2,405	59	0.06	-1
Delhi	95	IN	28,813,871.96	40	1,169	95	0.06	-1
São Paulo	96	BR	18,665,880.25	37	1,304	85	0.05	-1
Mumbai	97	IN	21,212,338.78	78	768	80	0.05	-1
Chennai	98	IN	10,989,169.91	119	1,969	33	0.05	-1
Mexico City	99	MX	17,022,358.82	15	1,190	39	0.03	0
Cairo	100	EG	22,307,142.06 t	7	1,115	21	0.02	0

Note: (a) Per capita figures refer to 1,000,000 of population. (b) The rank change is based on the new methodology (i.e. incorporating VC deal count into the previous year's ranking). n.a. indicates not applicable. The codes given in the tables in this appendix are the ISO alpha-2 country codes, with the following addition: TW* = Taiwan, Province of China.

Source: WIPO Statistics Database, May 2025.

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