

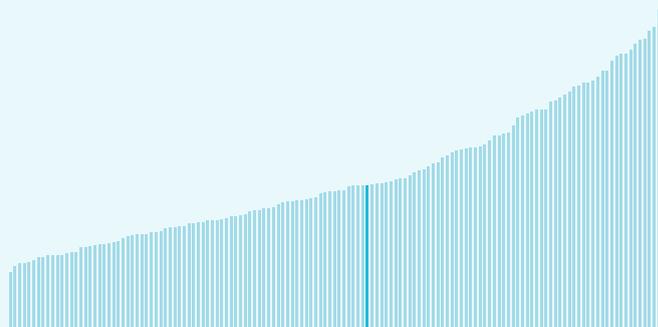
# Global Innovation Index 2025



## North Macedonia ranking in the Global Innovation Index 2025

North Macedonia ranks **63rd** among the 139 economies featured in the GII 2025.

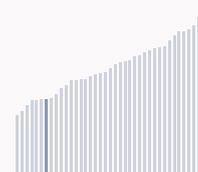
The Global Innovation Index (GII) ranks world economies according to their innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.



North Macedonia ranks 13th among the 36 Upper middle-income group economies.



North Macedonia ranks 33rd among the 39 economies in Europe.



### North Macedonia GII Ranking (2020-2025)

The table shows the rankings of North Macedonia over the past six years. Data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings. The statistical confidence interval for the ranking of North Macedonia in the GII 2025 is between ranks 60 and 70.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	57th	46th	63rd
2021	59th	40th	69th
2022	66th	60th	77th
2023	54th	49th	58th
2024	58th	60th	63rd
2025	63rd	65th	65th

North Macedonia performs the same in innovation outputs as in innovation inputs in 2025.

This year North Macedonia ranks 65th in innovation inputs. This position is lower than last year.

North Macedonia ranks 65th in innovation outputs. This position is lower than last year.

North Macedonia has no clusters in the world's top innovation clusters of the Global Innovation Index.

# Global Innovation Index 2025



## > Global Innovation Tracker

The Global Innovation Tracker 2025 shows what is the current state of innovation in North Macedonia, how rapidly is technology being embraced and what are the resulting societal impacts.



For North Macedonia, 4 indicators have improved in the short-term and 5 indicators have worsened.

### Science and innovation investment

	Scientific publications	R&D investments	Venture capital deal numbers	International patent filings
Short term	▼ -1.7 % 2023 - 2024	▲ 1 % 2022 - 2023	▼ -50 % 2023 - 2024	▲ 20 % 2023 - 2024
Long term (annual growth)	▲ 2.9 % 2014 - 2024	▲ 0.5 % 2013 - 2023	n/a	▲ 4.1 % 2014 - 2024

### Technology adoption

	Safe sanitation	Connectivity		Robots	Electric vehicles
		Fixed broadband	5G		
Short term	▼ -0.3% 2023 - 2024	▲ 3.7% 2022 - 2023	n/a	n/a	n/a
Long term (annual growth)	▼ -0.4% 2014 - 2024	▲ 4.7% 2013 - 2023	n/a	n/a	n/a
Penetration	12.1 per 100 inhabitants in 2024	29.2 per 100 inhabitants in 2023	66.2 per 100 inhabitants in 2023	n/a	n/a

### Socioeconomic impact

	Labor productivity	Life expectancy	Temperature change
Short term	▼ -1.6 % 2023 - 2024	▲ 1 % 2022 - 2023	+ 3 °C 2024
Long term (annual growth)	▲ 2.7 % 2014 - 2024	▲ 0.2 % 2013 - 2023	+ 1.3 °C 2014
Level	60,348 USD in 2024	77.4 years in 2023	n/a

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the countries. from 1951–1980. Figures are rounded.

# Global Innovation Index 2025



## Expected vs. Observed Innovation Performance

The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.



Relative to GDP North Macedonia performs at expectations for its level of development.

### > Innovation overperformers relative to their economic development



# Global Innovation Index 2025



## Effectively translating innovation investments into innovation outputs

The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.



North Macedonia produces less innovation outputs relative to its level of innovation investments.

### > Relationship between innovation inputs and outputs



# Global Innovation Index 2025



## Overview of North Macedonia's rankings in the seven areas of the GII in 2025

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for North Macedonia are those that rank above the GII (shown in blue) and the weakest are those that rank below.



### Highest Rankings

North Macedonia ranks highest in Knowledge and technology outputs (52nd) and Infrastructure outputs (53rd).



### Lowest Rankings

North Macedonia ranks lowest in Business sophistication (80th), Institutions, Creative outputs (78th) and Human capital and research (71st).

\* Institutions, Creative outputs



The full WIPO Intellectual Property Statistics profile for North Macedonia can be found on <https://www.wipo.int/edocs/statistics-country-profile/en/mk.pdf>

# Global Innovation Index 2025



## Benchmark of North Macedonia against other economy groupings for each of the seven areas of the GII Index



### Upper middle-income economies

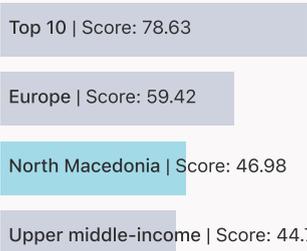
North Macedonia performs above the Upper middle-income group average in Institutions, Human capital and research, Infrastructure, Market sophistication, Knowledge and technology outputs.



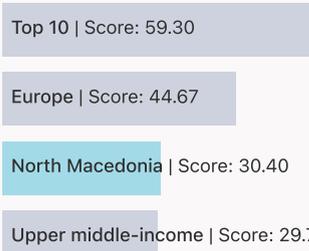
### Europe

North Macedonia performs below the regional average in all pillars.

#### Institutions



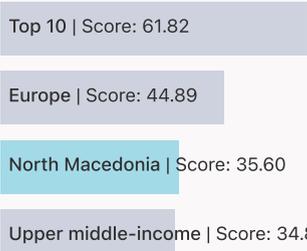
#### Human capital and research



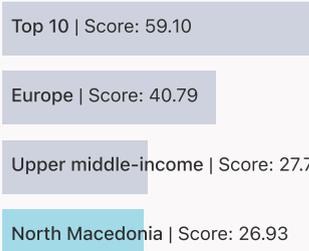
#### Infrastructure



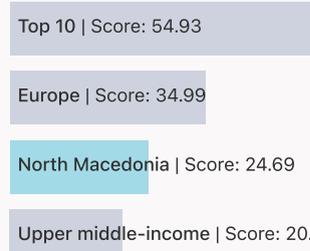
#### Market sophistication



#### Business sophistication



#### Knowledge and technology outputs



#### Creative outputs



# Global Innovation Index 2025



## Innovation strengths and weaknesses in North Macedonia

The table below gives an overview of the indicator strengths and weaknesses of North Macedonia in the GII 2025.



North Macedonia's best-ranked innovation strengths are **Pupil–teacher ratio, secondary** (rank 7), **ISO 14001 environment/bn PPP\$ GDP** (rank 8) and **High-tech manufacturing, %** (rank 10).

### Strengths

Rank	Code	Indicator name
7	2.1.5	Pupil–teacher ratio, secondary
8	3.3.3	ISO 14001 environment/bn PPP\$ GDP
10	6.2.4	High-tech manufacturing, %
11	7.2.2	National feature films/mn pop. 15–69
16	6.2.1	Labor productivity growth, %
20	7.2.1	Cultural and creative services exports, % total trade
21	6.3.5	ISO 9001 quality/bn PPP\$ GDP
23	6.3.4	ICT services exports, % total trade
26	5.3.1	Intellectual property payments, % total trade
31	5.3.4	FDI net inflows, % GDP

### Weaknesses

Rank	Code	Indicator name
122	4.3.3	Domestic market scale, bn PPP\$
101	4.2.4	VC investors, deal count/bn PPP\$ GDP
100	5.2.5	Patent families/bn PPP\$ GDP
99	4.2.5	VC investor co-participation/bn PPP\$ GDP
91	4.2.3	Late-stage VC deal count, % global VC
81	7.1.3	Global brand value, top 5,000, % GDP
80	2.3.4	QS university ranking, top 3*
76	7.1.1	Intangible asset intensity, top 15, %
53	6.2.2	Unicorn valuation, % GDP
44	2.3.3	Global corporate R&D investors, top 3, mn USD

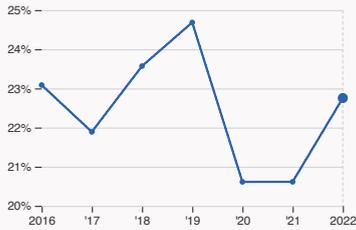
# Global Innovation Index 2025



## North Macedonia's innovation system

As far as practicable, the plots below present unscaled indicator data.

### > Innovation inputs in North Macedonia



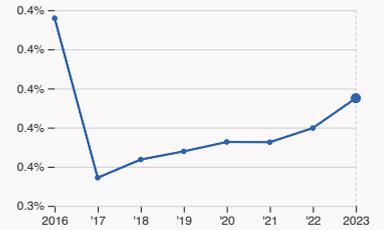
#### 2.2.2 Graduates in science and engineering

was equal to 22.75 % of total graduates in 2022, up by 2.14 percentage points from the year prior – and equivalent to an indicator rank of 64.



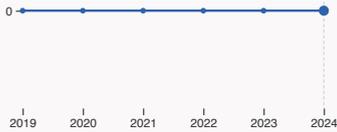
#### 2.3.1 Researchers

was equal to 922.47 FTE per million population in 2023, up by 26.21% from the year prior – and equivalent to an indicator rank of 55.



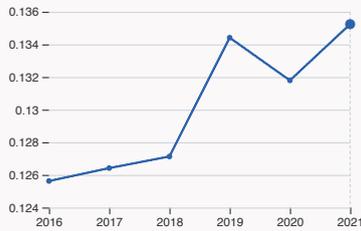
#### 2.3.2 Gross expenditure on R&D

was equal to 0.4 % GDP in 2023, up by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 67.



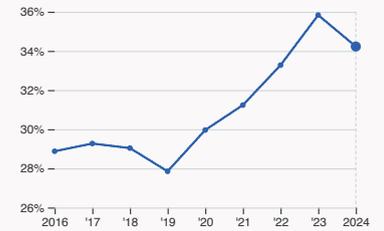
#### 2.3.4 QS university ranking

The country does not have any universities in the QS world universities ranking in 2024.



#### 4.3.2 Domestic industry diversification

was equal to an index score of 0.135 in 2021, up by 2.62% from the year prior – and equivalent to an indicator rank of 54.



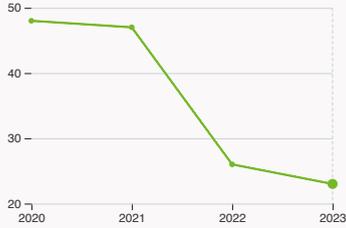
#### 5.1.1 Knowledge-intensive employment

was equal to 34.23 % of total workforce in 2024, down by 1.61 percentage points from the year prior – and equivalent to an indicator rank of 43.

# Global Innovation Index 2025



## > Innovation outputs in North Macedonia



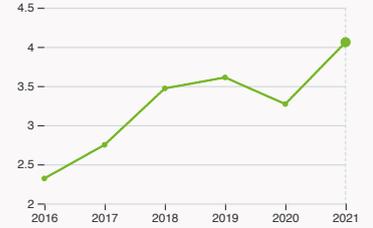
### 6.1.1 Patents by origin

was equal to 23 patents in 2023, down by 11.54% from the year prior – and equivalent to an indicator rank of 73.



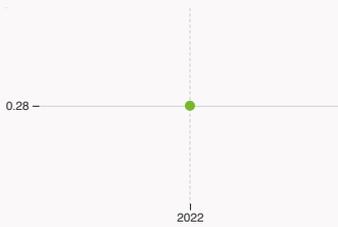
### 6.2.2 Unicorn valuation

The country does not have unicorns in 2025.



### 6.2.4 High-tech manufacturing

was equal to 4.06 high-tech manufacturing output in billion USD in 2021, up by 24.16% from the year prior – and equivalent to an indicator rank of 10.



### 6.3.2 Production and export complexity

was equal to a score of 0.28 in 2022 – and equivalent to an indicator rank of 48.



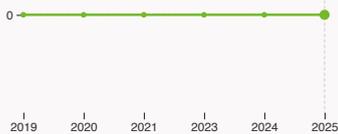
### 6.3.3 High-tech exports

was equal to 390.06 million USD in 2023, up by 33.79% from the year prior – and equivalent to an indicator rank of 49.



### 7.1.1 Intangible asset intensity, top 15

was equal to -26.72 % for the top 15 companies in 2022, down by 3.94 percentage points from the year prior – and equivalent to an indicator rank of 76.



### 7.1.3 Global brand value, top 5,000

The country does not have any brands that make the top 5,000 ranking in 2025.



### 7.2.2 National feature films

was equal to 12 films in 2023, up by 9.09% from the year prior – and equivalent to an indicator rank of 11.



### 7.3.3 Mobile app creation

was equal to 4.91 million global downloads of mobile apps in 2024, down by 59.39% from the year prior – and equivalent to an indicator rank of 67.

# Global Innovation Index 2025



## North Macedonia's innovation top performers

Data not available for 2.3.3 Global corporate R&D investors, 2.3.4 QS university ranking of top universities, 6.2.2 Top Unicorn Companies and 7.1.3 Global brand value, top 5,000.

Disclaimer: This section contains only the top performers per country. For the complete list, please visit the [GII Innovation Ecosystems and Data Explorer website](#).

### 5.2.3 University industry and international engagement, top 5 universities

Rank	University	Score
1	SAINTS CYRIL AND METHODIUS UNIVERSITY IN SKOPJE	36.70

Source: Times Higher Education (THE), World University Rankings 2025.

Note: Rank corresponds to within economy ranks. 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). The 2025 ranking corresponds to data from the academic year that ended in 2022.

### 7.1.1 Top 15 intangible-asset intensive companies in North Macedonia

Rank	Firm	Intensity, %
1	ALKALOID AD SKOPJE	49.80
2	MERMEREN KOMBINAT AD PRILEP	76.70
3	KOMERCIJALNA BANKA AD SKOPJE	27.25

Source: Brand Finance (<https://brandirectory.com/reports/gift-2024>).

Note: Brand Finance only provides within economy ranks.

# North Macedonia

63

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
65	65	Upper middle	Europe	1.8	49.3	26,911.8
			Score / Value Rank			
<b>Institutions</b>			47 78	<b>Business sophistication</b> 26.9 80		
<b>1.1 Institutional environment</b>			54.2 68	<b>5.1 Knowledge workers</b> 32.1 87		
1.1.1 Operational stability for businesses*			66.7 53	5.1.1 Knowledge-intensive employment, % 34.2 43 ◆		
1.1.2 Government effectiveness*			41.8 77	5.1.2 Females employed w/advanced degrees, % 17.6 44		
<b>1.2 Regulatory environment</b>			52.4 63	5.1.3 Youth demographic dividend, % 28 101 ◇		
1.2.1 Regulatory quality*			56.6 52	5.1.4 GERD performed by business, % GDP 0.1 59		
1.2.2 Rule of law*			48.2 78	5.1.5 GERD financed by business, % 25.9 63		
<b>1.3 Business environment</b>			34.3 90	<b>5.2 Innovation linkages</b> 17.4 102		
1.3.1 Policy stability for doing business†			34.9 93	5.2.1 Public research–industry co-publications, % 1 88		
1.3.2 Entrepreneurship policies and culture†			33.7 53	5.2.2 University–industry R&D collaboration† 28.7 89		
<b>Human capital and research</b>			30.4 71	5.2.3 University industry & international engagement, top 5* 14.2 80		
<b>2.1 Education</b>			56.4 [52]	5.2.4 State of cluster development† 34.9 95		
2.1.1 Expenditure on education, % GDP			n/a n/a	5.2.5 Patent families/bn PPP\$ GDP 0 100 ○ ◇		
2.1.2 Government funding/pupil, secondary, % GDP/cap			n/a n/a	<b>5.3 Knowledge absorption</b> 31.3 51		
2.1.3 School life expectancy, years			14.8 58	5.3.1 Intellectual property payments, % total trade 1.4 26 ●		
2.1.4 PISA scales in reading, maths and science			375.7 73	5.3.2 High-tech imports, % total trade 7.9 73		
2.1.5 Pupil–teacher ratio, secondary			8 7 ◆◆	5.3.3 ICT services imports, % total trade 1.6 58		
<b>2.2 Tertiary education</b>			31.1 64	5.3.4 FDI net inflows, % GDP 5.1 31 ●		
2.2.1 Tertiary enrolment, % gross			53.2 71	5.3.5 Research talent, % in businesses 27.9 48		
2.2.2 Graduates in science and engineering, %			22.8 64	<b>Knowledge and technology outputs</b> 24.7 52		
2.2.3 Tertiary inbound mobility, %			8.4 38 ◆	<b>6.1 Knowledge creation</b> 9.5 85		
<b>2.3 Research and development (R&amp;D)</b>			3.7 83	6.1.1 Patents by origin/bn PPP\$ GDP 0.5 73		
2.3.1 Researchers, FTE/mn pop.			922.5 55	6.1.2 PCT patents by inventor origin/bn PPP\$ GDP 0.09 61		
2.3.2 Gross expenditure on R&D, % GDP			0.4 67	6.1.3 Utility models by origin/bn PPP\$ GDP - -		
2.3.3 Global corporate R&D investors, top 3, mn USD			0 44 ○ ◇	6.1.4 Scientific and technical articles/bn PPP\$ GDP 9.2 74		
2.3.4 QS university ranking, top 3*			0 80 ○ ◇	6.1.5 Citable documents H-index 6.6 92		
<b>Infrastructure</b>			47.5 53	<b>6.2 Knowledge impact</b> 35 36 ◆		
<b>3.1 Information and communication technologies (ICTs)</b>			75.2 72	6.2.1 Labor productivity growth, % 2.9 16 ●		
3.1.1 ICT access*			90.2 55	6.2.2 Unicorn valuation, % GDP 0 53 ○ ◇		
3.1.2 ICT use*			75.9 74	6.2.3 Software spending, % GDP 0.1 85		
3.1.3 Government's online service*			59.6 80	6.2.4 High-tech manufacturing, % 49.4 10 ◆◆		
<b>3.2 General infrastructure</b>			29.5 84	<b>6.3 Knowledge diffusion</b> 29.6 44		
3.2.1 Electricity output, GWh/mn pop.			3,331.7 62	6.3.1 Intellectual property receipts, % total trade 0.1 51		
3.2.2 Logistics performance*			45.5 56	6.3.2 Production and export complexity 55 48		
3.2.3 Gross capital formation, % GDP			n/a n/a	6.3.3 High-tech exports, % total trade 3.3 49		
<b>3.3 Ecological sustainability</b>			37.8 24 ◆	6.3.4 ICT services exports, % total trade 5.1 23 ●		
3.3.1 GDP/unit of energy use			12.4 53	6.3.5 ISO 9001 quality/bn PPP\$ GDP 11.2 21 ●		
3.3.2 Low-carbon energy use, %			17.5 75	<b>Creative outputs</b> 19.5 78		
3.3.3 ISO 14001 environment/bn PPP\$ GDP			7.8 8 ◆◆	<b>7.1 Intangible assets</b> 12.2 96		
<b>Market sophistication</b>			35.6 69	7.1.1 Intangible asset intensity, top 15, % -26.7 76 ○ ◇		
<b>4.1 Credit</b>			34.7 49	7.1.2 Trademarks by origin/bn PPP\$ GDP 33.3 56		
4.1.1 Finance for startups and scaleups†			50.9 47	7.1.3 Global brand value, top 5,000, % GDP 0 81 ○ ◇		
4.1.2 Domestic credit to private sector, % GDP			52.3 61	7.1.4 Industrial designs by origin/bn PPP\$ GDP 0.6 81		
4.1.3 Loans from microfinance institutions, % GDP			n/a n/a	<b>7.2 Creative goods and services</b> 24.8 47		
<b>4.2 Investment</b>			1.9 100	7.2.1 Cultural and creative services exports, % total trade 1.4 20 ◆◆		
4.2.1 Market capitalization, % GDP			n/a n/a	7.2.2 National feature films/mn pop. 15–69 9.1 11 ◆◆		
4.2.2 Venture capital (VC) received, deal count/bn PPP\$ GDP			0.07 67	7.2.3 Entertainment and media market/th pop. 15–69 n/a n/a		
4.2.3 Late-stage VC deal count, % global VC			0.004 91 ○	7.2.4 Creative goods exports, % total trade 0.1 87		
4.2.4 VC investors, deal count/bn PPP\$ GDP			0.02 101 ○	<b>7.3 Online creativity</b> 28.9 57		
4.2.5 VC investor co-participation/bn PPP\$ GDP			0.01 99 ○	7.3.1 Top-level domains (TLDs)/th pop. 15–69 8.6 50		
<b>4.3 Trade, diversification and market scale</b>			70.3 63	7.3.2 GitHub commits/mn pop. 15–69 12.3 56		
4.3.1 Applied tariff rate, weighted avg., %			1.5 52	7.3.3 Mobile app creation/bn PPP\$ GDP 65.7 67		
4.3.2 Domestic industry diversification			85.9 54			
4.3.3 Domestic market scale, bn PPP\$			49.3 122 ○ ◇			

NOTES: ● indicates a strength ○ a weakness ◆ an income group strength ◇ an income group weakness \* an index † a survey question ● that the economy's data is outdated. Square brackets [ ] indicate 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.

# Global Innovation Index 2025



## Data Availability

The following tables list indicators that are either missing or outdated for North Macedonia.



North Macedonia has missing data for six indicators and outdated data for eleven indicators.

### Missing data for North Macedonia

Code	Indicator name	Economy year	Model year*	Source
2.1.1	Expenditure on education, % GDP	n/a	2023	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2021	UNESCO Institute for Statistics
3.2.3	Gross capital formation, % GDP	n/a	2024	International Monetary Fund
4.1.3	Loans from microfinance institutions, % GDP	n/a	2023	International Monetary Fund, Financial Access Survey (FAS)
4.2.1	Market capitalization, % GDP	n/a	2022	World Federation of Exchanges; World Bank
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2024	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

\*Model year corresponds to the most frequent data year (the year that appears most often across all economies in the GII).

### Outdated data for North Macedonia

Code	Indicator name	Economy year	Model year*	Source
1.3.2	Entrepreneurship policies and culture <sup>†</sup>	2019	2024	Global Entrepreneurship Monitor
2.1.3	School life expectancy, years	2022	2023	UNESCO Institute for Statistics
2.1.5	Pupil–teacher ratio, secondary	2022	2023	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2022	2023	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2022	2023	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups <sup>†</sup>	2019	2024	Global Entrepreneurship Monitor
4.3.2	Domestic industry diversification	2021	2022	United Nations Industrial Development Organization (UNIDO)
5.1.4	GERD performed by business, % GDP	2022	2023	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	2022	2023	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.2.4	High-tech manufacturing, %	2021	2022	United Nations Industrial Development Organization (UNIDO)

# Global Innovation Index 2025



Code	Indicator name	Economy year	Model year*	Source
7.1.1	Intangible asset intensity, top 15, %	2022	2024	Brand Finance

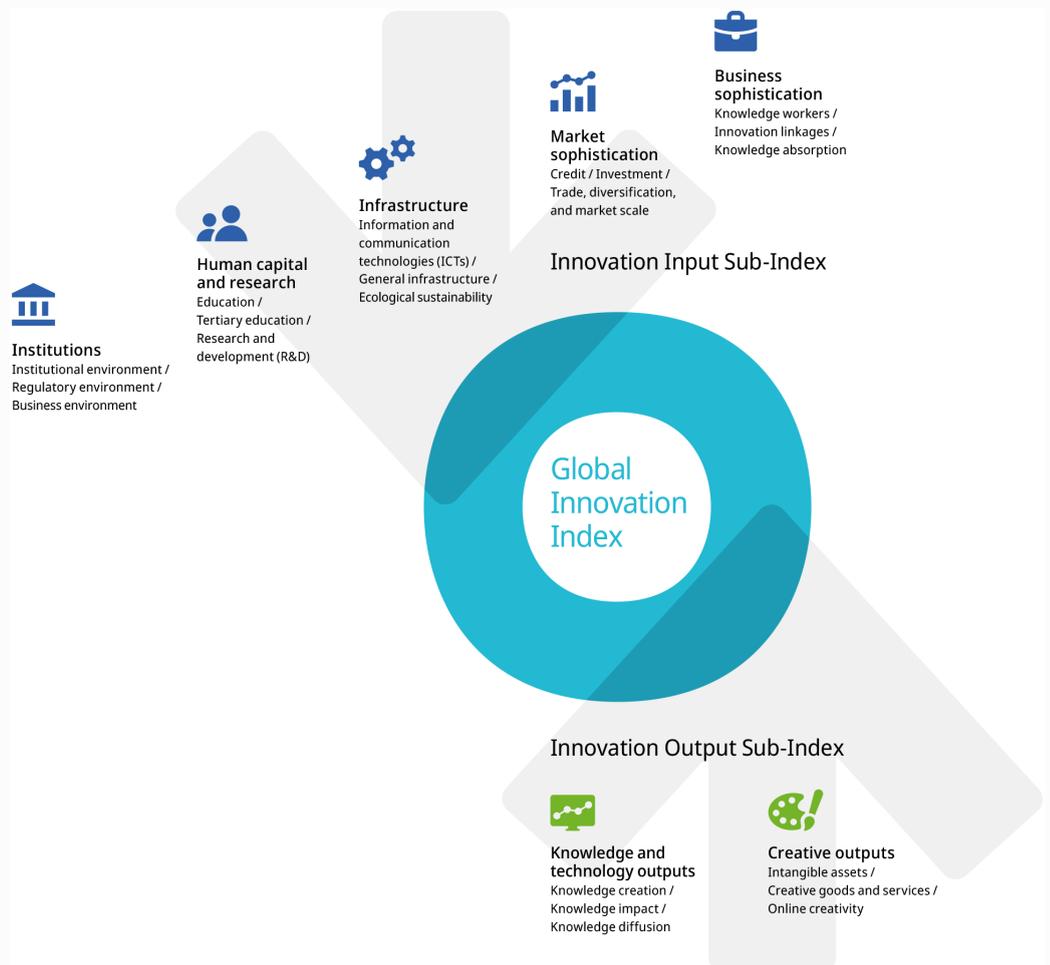
\*Model year corresponds to the most frequent data year (the year that appears most often across all economies in the GII).

# Global Innovation Index 2025



## About the Global Innovation Index

- The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.
- Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich analysis referencing around 140 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a “tool for action” for economies that incorporate the GII into their innovation agendas.



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that include institutions, human capital and research infrastructure, credit, investment, linkages, the creation, absorption and diffusion of knowledge and creative outputs.

The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars.