Global Innovation Index 2025

Germany ranking in the Global Innovation Index 2025

Germany ranks 11th 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.

Germany ranks 10th among the 54 High-income group economies.

Germany ranks 7th among the 39 economies in Europe.

Germany GII Ranking (2020-2025)

The table shows the rankings of Germany 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 Germany in the GII 2025 is between ranks 10 and 11.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	9th	14th	7th
2021	10th	14th	8th
2022	8th	12th	7th
2023	8th	13th	6th
2024	9th	13th	6th
2025	11th	15th	8th

Germany performs better in innovation outputs than innovation inputs in 2025.

This year Germany ranks 15th in innovation inputs. This position is lower than last year.

Germany ranks 8th in innovation outputs. This position is lower than last year.

Germany has 7 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 Germany, how rapidly is technology being embraced and what are the resulting societal impacts.

For Germany, 7 indicators have improved in the short-term and 4 indicators have worsened.

Science and innovation investment

	Scientific publications	R&D investments	Venture capital deal numbers	International patent filings
Short term	▲ 0.4 % 2023 - 2024	▲ 0.8 % 2022 - 2023	▼ -10.6 % 2023 - 2024	▼ -1.3 % 2023 - 2024
Long term (annual growth)	▲ 1.3 % 2014 - 2024	▲ 2.3 % 2013 - 2023	▼ -0.9 % 2020 - 2024	▼ -0.7 % 2014 - 2024

Technology adoption

	Safe sanitation	Connectivity		Robots	Electric vehicles
		Fixed broadband	5G		
Short term	0% 2023 - 2024	▲ 2.3% 2022 - 2023	▲ 1.2% 2022 - 2023	▲ 3.4% 2022 - 2023	▲ 24% 2023 - 2024
Long term (annual growth)	0% 2014 - 2024	▲ 3% 2013 - 2023	n/a	▲ 4.9% 2013 - 2023	▲ 61.7% 2014 - 2024
Penetration	96.8 per 100 inhabitants in 2024	45.4 per 100 inhabitants in 2023	95.9 per 100 inhabitants in 2023	n/a	6.5 per 100 cars in 2024

Socioeconomic impact

	Labor productivity	Life expectancy	Temperature change
Short term	▼ -0.1 % 2023 - 2024	▲ 1 % 2022 - 2023	+ 3 °C 2024
Long term (annual growth)	▲ 0.6 % 2014 - 2024	▲ 0.1 % 2013 - 2023	+ 2.5 °C 2014
Level	124,391 USD in 2024	81.4 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.

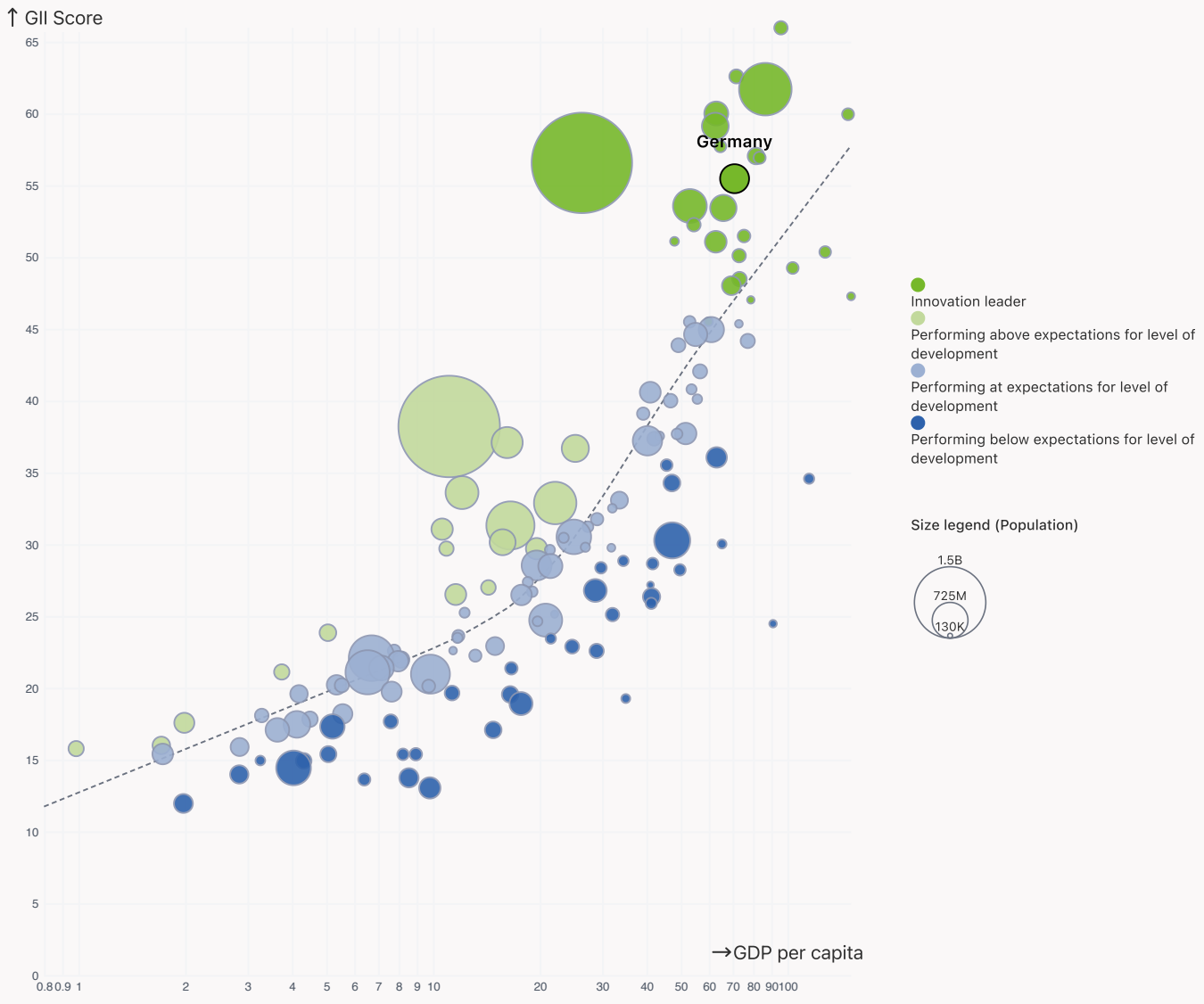
Global Innovation Index 2025

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.

Germany is an Innovation leader, ranking in the top 25 of the GII.

> Innovation overperformers relative to their economic development



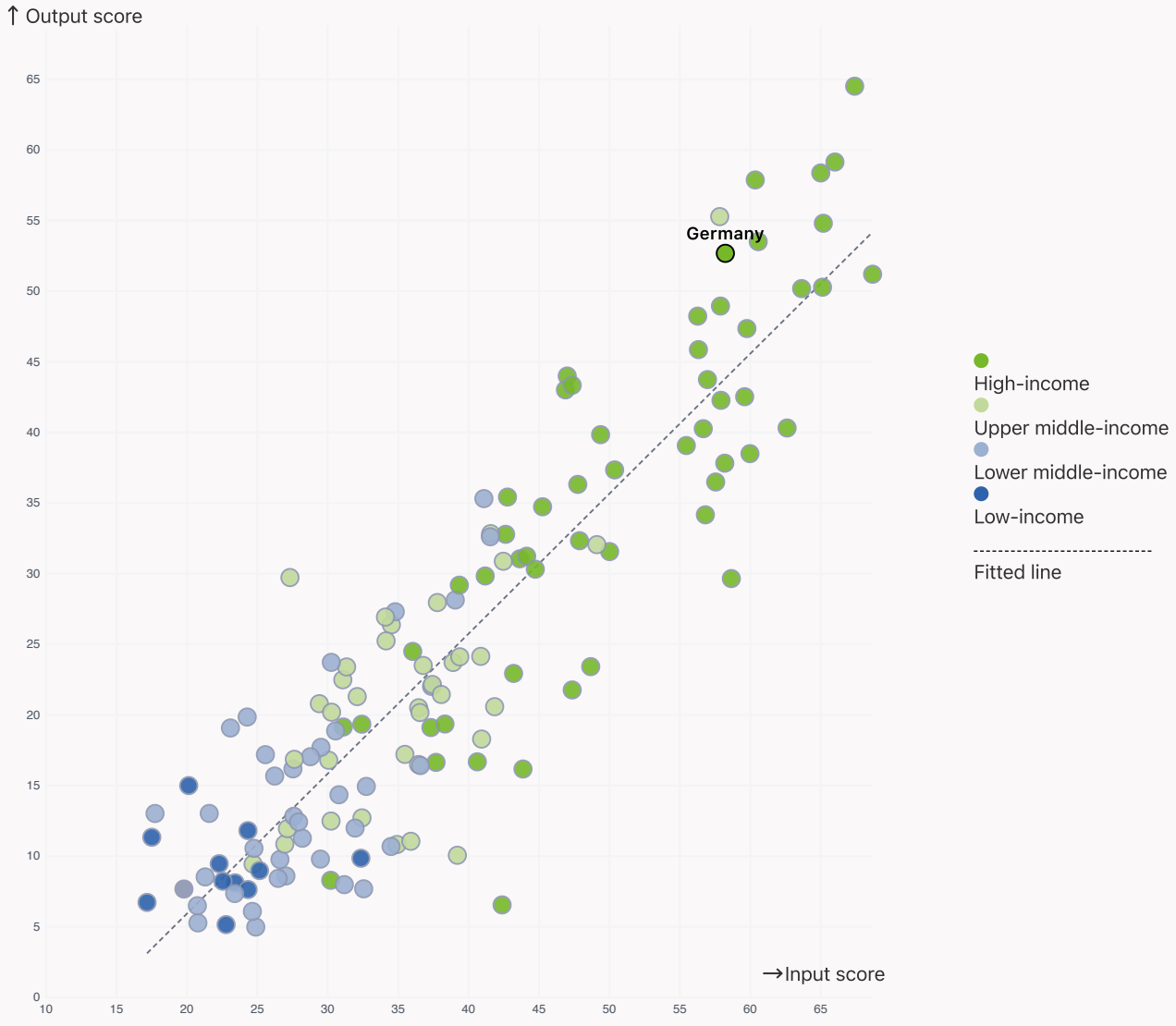
Global Innovation Index 2025

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.

Germany produces more innovation outputs relative to its level of innovation investments.

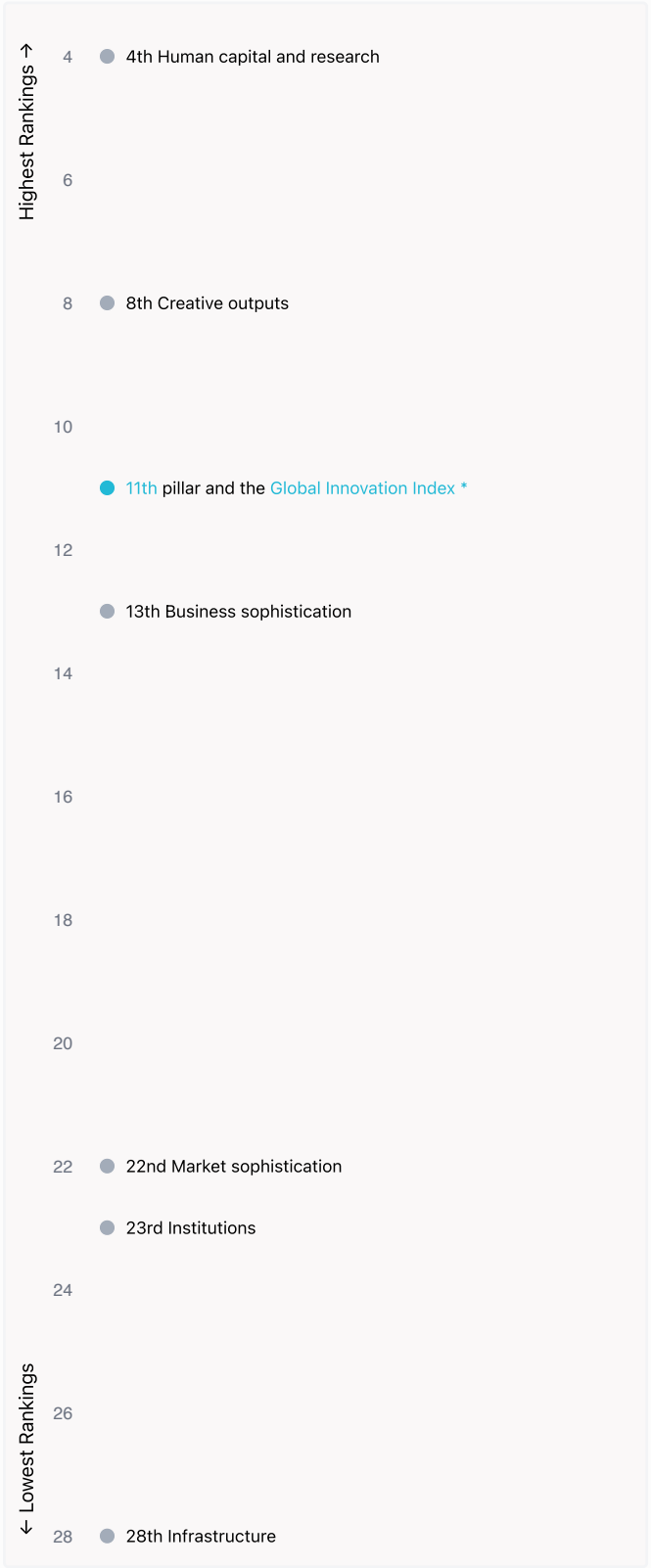
> Relationship between innovation inputs and outputs



Global Innovation Index 2025

Overview of Germany'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 Germany are those that rank above the GII (shown in blue) and the weakest are those that rank below.



Highest Rankings

Germany ranks highest in Human capital and research (4th), Creative outputs (8th) and Knowledge and technology outputs (11th).

Lowest Rankings

Germany ranks lowest in Infrastructure (28th), Institutions (23rd) and Market sophistication (22nd).

* Knowledge and technology outputs

The full WIPO Intellectual Property Statistics profile for Germany can be found on https://www.wipo.int/edocs/statistics-country-profile/en/de.pdf

Global Innovation Index 2025

Benchmark of Germany against other economy groupings for each of the seven areas of the GII Index

The charts shows the relative position of Germany (blue bar) against other economy groupings (grey bars)

High-income economies

Germany performs above the High-income group average in all pillars.

Europe

Germany performs above the regional average in all pillars.

Institutions

- Top 10 | Score: 78.63
- Germany | Score: 70.21
- High-income | Score: 65.99
- Europe | Score: 59.42

Human capital and research

- Germany | Score: 61.04
- Top 10 | Score: 59.30
- High-income | Score: 45.45
- Europe | Score: 44.67

Infrastructure

- Top 10 | Score: 61.36
- Germany | Score: 54.90
- High-income | Score: 54.18
- Europe | Score: 54.13

Market sophistication

- Top 10 | Score: 61.82
- Germany | Score: 50.82
- High-income | Score: 47.12
- Europe | Score: 44.89

Business sophistication

- Top 10 | Score: 59.10
- Germany | Score: 54.48
- High-income | Score: 42.22
- Europe | Score: 40.79

Knowledge and technology outputs

- Top 10 | Score: 54.93
- Germany | Score: 49.64
- Europe | Score: 34.99
- High-income | Score: 33.94

Creative outputs

- Top 10 | Score: 55.98
- Germany | Score: 55.60
- High-income | Score: 38.68
- Europe | Score: 38.66

Global Innovation Index 2025

Innovation strengths and weaknesses in Germany

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

Germany's best-ranked innovation strengths are **Global corporate R&D investors, top 3, mn USD** (rank 2), **Citable documents H-index** (rank 3) and **Logistics performance*** (rank 3).

Strengths

Rank	Code	Indicator name
2	2.3.3	Global corporate R&D investors, top 3, mn USD
3	6.1.5	Citable documents H-index
3	3.2.2	Logistics performance*
5	6.3.2	Production and export complexity
5	6.2.4	High-tech manufacturing
6	4.3.3	Domestic market scale, bn PPP$
6	5.2.1	Public research–industry co-publications, %
6	2.2.2	Graduates in science and engineering, %
7	6.1.1	Patents by origin/bn PPP$ GDP
8	6.3.1	Intellectual property receipts, % total trade
8	7.3.1	Top-level domains (TLDs)/th pop. 15–69

Weaknesses

Rank	Code	Indicator name
131	5.1.3	Youth demographic dividend, %
106	6.2.1	Labor productivity growth, %
99	5.3.4	FDI net inflows, % GDP
89	3.2.3	Gross capital formation, % GDP
57	3.1.2	ICT use*
57	3.3.3	ISO 14001 environment/bn PPP$ GDP
56	2.1.1	Expenditure on education, % GDP
44	7.2.2	National feature films/mn pop. 15–69
41	1.3.2	Entrepreneurship policies and culture†
35	4.2.1	Market capitalization, % GDP

Global Innovation Index 2025

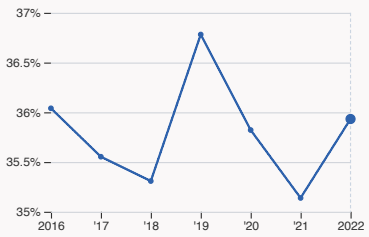
Germany's innovation system

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

Innovation inputs in Germany

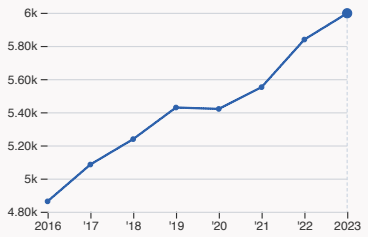
2.1.1 Expenditure on education

was equal to 4.47 % GDP in 2023, up by 0.08 percentage points from the year prior – and equivalent to an indicator rank of 56.



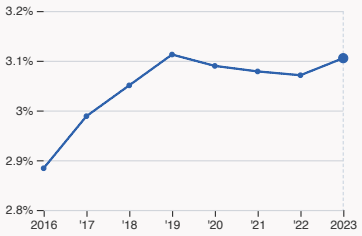
2.2.2 Graduates in science and engineering

was equal to 35.93 % of total graduates in 2022, up by 0.79 percentage points from the year prior – and equivalent to an indicator rank of 6.



2.3.1 Researchers

was equal to 5997.46 FTE per million population in 2023, up by 2.72% from the year prior – and equivalent to an indicator rank of 11.

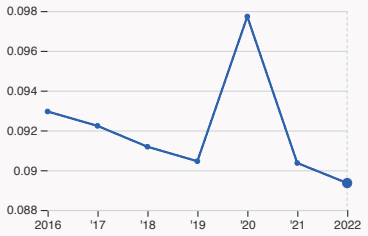


2.3.2 Gross expenditure on R&D

was equal to 3.11 % GDP in 2023, up by 0.03 percentage points from the year prior – and equivalent to an indicator rank of 9.

2.3.4 QS university ranking

was equal to an average score of 72.83 for the top three universities in 2024, up by 1.76% from the year prior – and equivalent to an indicator rank of 11.



4.3.2 Domestic industry diversification

was equal to an index score of 0.09 in 2022, down by 1.12% from the year prior – and equivalent to an indicator rank of 18.

5.1.1 Knowledge-intensive employment

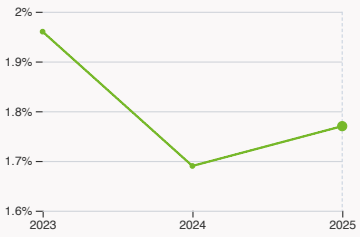
was equal to 47.69 % in 2024, up by 1.02 percentage points from the year prior – and equivalent to an indicator rank of 18.

Global Innovation Index 2025

Innovation outputs in Germany

6.1.1 Patents by origin

was equal to 63.47 thousand patents in 2023, up by 2.57% from the year prior – and equivalent to an indicator rank of 7.

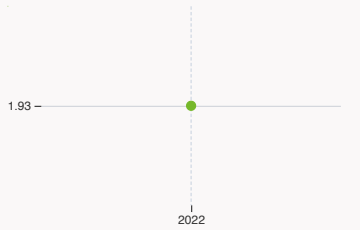


6.2.2 Unicorn valuation

was equal to 1.77 % GDP in 2025, up by 0.08 percentage points from the year prior – and equivalent to an indicator rank of 23.

6.2.4 High-tech manufacturing

was equal to 1.47 high-tech manufacturing output in trillion USD in 2022, up by 0.68% from the year prior – and equivalent to an indicator rank of 5.

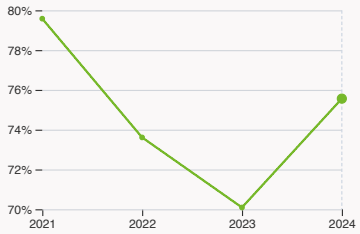


6.3.2 Production and export complexity

was equal to a score of 1.93 in 2022 – and equivalent to an indicator rank of 5.

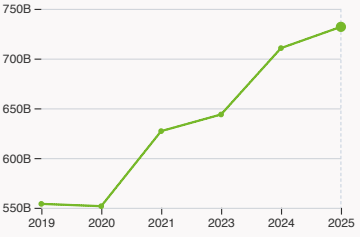
6.3.3 High-tech exports

was equal to 273.17 billion USD in 2023, up by 5% from the year prior – and equivalent to an indicator rank of 12.



7.1.1 Intangible asset intensity, top 15

was equal to 75.56 % for the top 15 companies in 2024, up by 5.47 percentage points from the year prior – and equivalent to an indicator rank of 12.

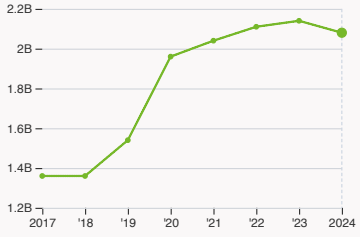


7.1.3 Global brand value, top 5,000

was equal to 731.92 billion USD for the brands in the top 5,000 in 2025, up by 3.007% from the year prior – and equivalent to an indicator rank of 9.

7.2.2 National feature films

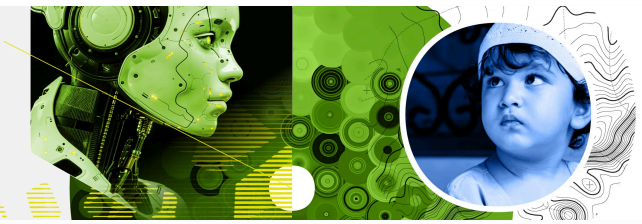
was equal to 183 films in 2023, up by 13.66% from the year prior – and equivalent to an indicator rank of 44.



7.3.3 Mobile app creation

was equal to 2.08 billion global downloads of mobile apps in 2024, down by 2.8% from the year prior – and equivalent to an indicator rank of 48.

Global Innovation Index 2025



Germany's innovation top performers

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

2.3.3 Global corporate R&D investors from Germany

Rank	Firm	Industry	R&D [mn EUR]	R&D Growth [%]	R&D Intensity [%]
1	VOLKSWAGEN	Automobiles & Parts	21,779	15	7
2	MERCEDES-BENZ	Automobiles & Parts	9,980	17	7
3	BMW	Automobiles & Parts	7,755	8	5
4	ROBERT BOSCH	Automobiles & Parts	7,564	1	8

Source: WIPO, based on European Commission's Joint Research Centre (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).
Note: Data is based on the 2024 EU Industrial R&D Investment Scoreboard from the European Commission's Joint Research Centre, which ranks the top 2,000 firms by R&D investment annually. 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.

2.3.4 QS university ranking of Germany's top universities

Rank	University	Score
28	TECHNISCHE UNIVERSITAT MUNCHEN	83.20
59	LUDWIG-MAXIMILIANS-UNIVERSITAT MUNCHEN	71.60
84	RUPRECHT-KARLS-UNIVERSITAT HEIDELBERG	63.70

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2024).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value 'x', a tie 'x=' or a range 'x-y'.

5.2.3 University industry and international engagement, top 5 universities

Rank	University	Score
1	TECHNICAL UNIVERSITY OF MUNICH	91.55
2	UNIVERSITAT HEIDELBERG	88.90
3	CONSTRUCTOR UNIVERSITY	88.80

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.

6.2.2 Top Unicorn Companies in Germany

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	CELONIS	Enterprise Tech	Munich	13
2	N26	Financial Services	Berlin	9
3	PERSONIO	Enterprise Tech	Munich	9

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: https://www.cbinsights.com/research-unicorn-companies.

7.1.1 Top 15 intangible-asset intensive companies in Germany

Rank	Firm	Intensity, %
1	SAP SE	93.64
2	DEUTSCHE TELEKOM AG	67.60
3	SIEMENS AKTIENGESELLSCHAFT	69.77

Source: Brand Finance (https://brandirectory.com/reports/gift-2024).
Note: Brand Finance only provides within economy ranks.

7.1.3 Top 5,000 companies in Germany with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	T	Telecoms	85,309.6
2	MERCEDES-BENZ	Automobiles	53,021
3	ALLIANZ GROUP	Insurance	49,782.6

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

Germany

GII 2025 rank **11**

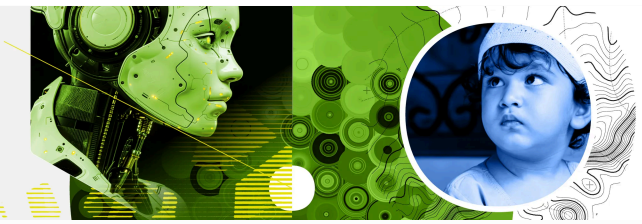
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
8	15	High	Europe	84.6	6,017.2	70,930.4

	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**	**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**	**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 technologies (ICTs)	**89.1**	**26**	
3.1.1 ICT access*	95.9	37	
3.1.2 ICT use*	80.5	57	○ ◇
3.1.3 Government's online service*	90.8	12	
3.2 General infrastructure	**48.9**	**25**	
3.2.1 Electricity output, GWh/mn pop.	6,088	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	54	
3.3.3 ISO 14001 environment/bn PPP$ GDP	1.6	57	○
Market sophistication	**50.8**	**22**	
4.1 Credit	**47**	**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 & 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	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	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	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 that the economy's data is outdated. Square brackets [ ] indicate the 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 Germany.

Germany has missing data for one indicator and outdated data for four indicators.

Missing data for Germany

Code	Indicator name	Economy year	Model year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2023	International Monetary Fund, Financial Access Survey (FAS)

Outdated data for Germany

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil–teacher ratio, secondary	2022	2023	UNESCO Institute for Statistics
4.1.2	Domestic credit to private sector, % GDP	2022	2023	International Monetary Fund; World Bank and OECD GDP estimates
5.1.5	GERD financed by business, %	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
7.2.1	Cultural and creative services exports, % total trade	2022	2023	World Trade Organization, Organisation for Economic Co-operation and Development; United Nations Conference on Trade and Development

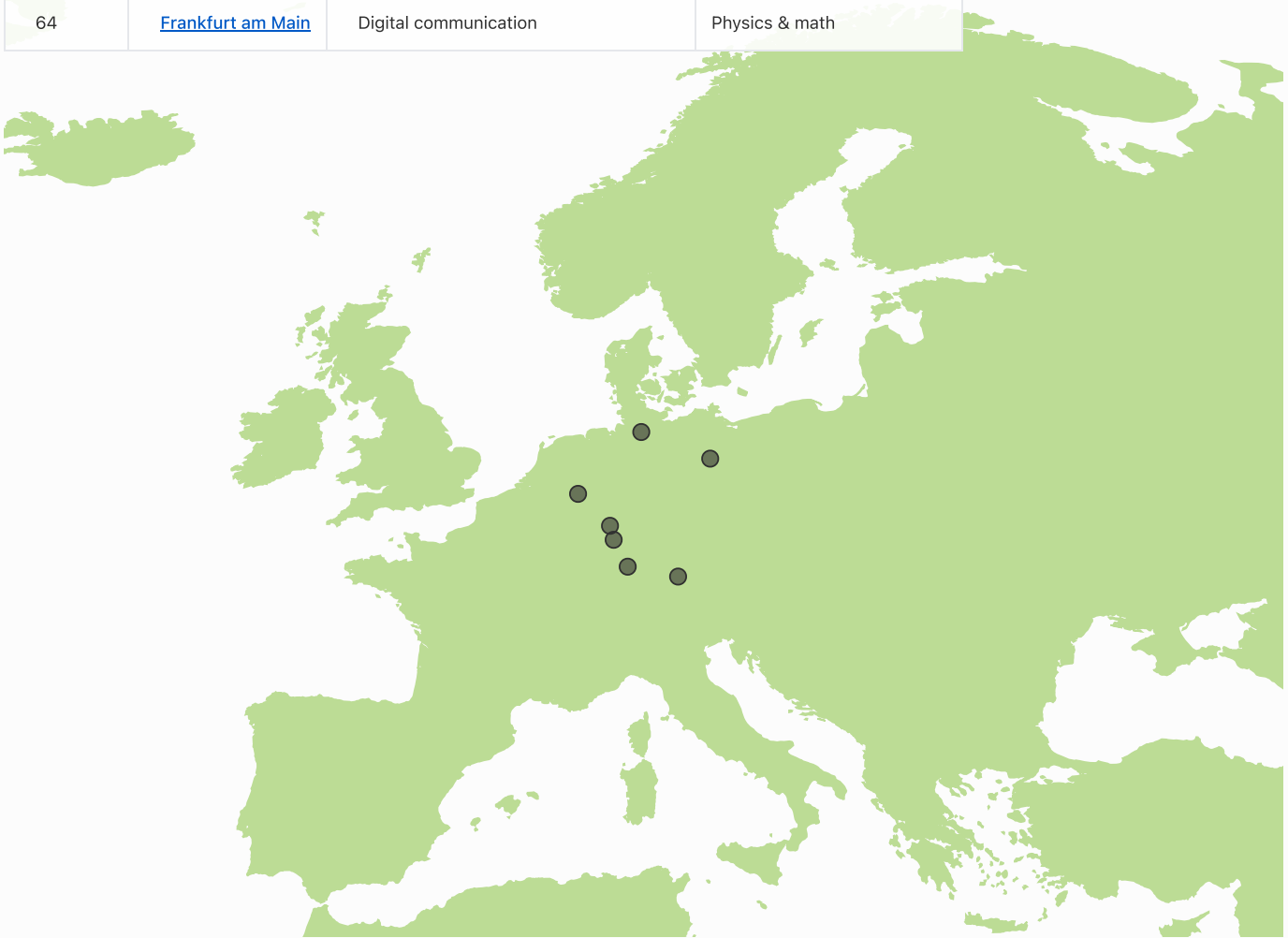
Global Innovation Index 2025

Top innovation clusters in Germany

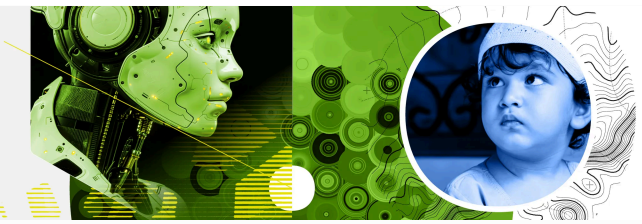
Germany has 7 clusters in the world's top innovation clusters of the Global Innovation Index

The table and map below give an overview of the top innovation clusters in Germany.

Rank	Cluster name	Top patent field	Top academic subject
27	Munich	Digital communication	Physics & math
30	Berlin	Medical technology	Technology
43	Cologne	Basic materials chemistry	Chemistry
54	Stuttgart	Electrical machinery, apparatus, energy	Chemistry
64	Frankfurt am Main	Digital communication	Physics & math

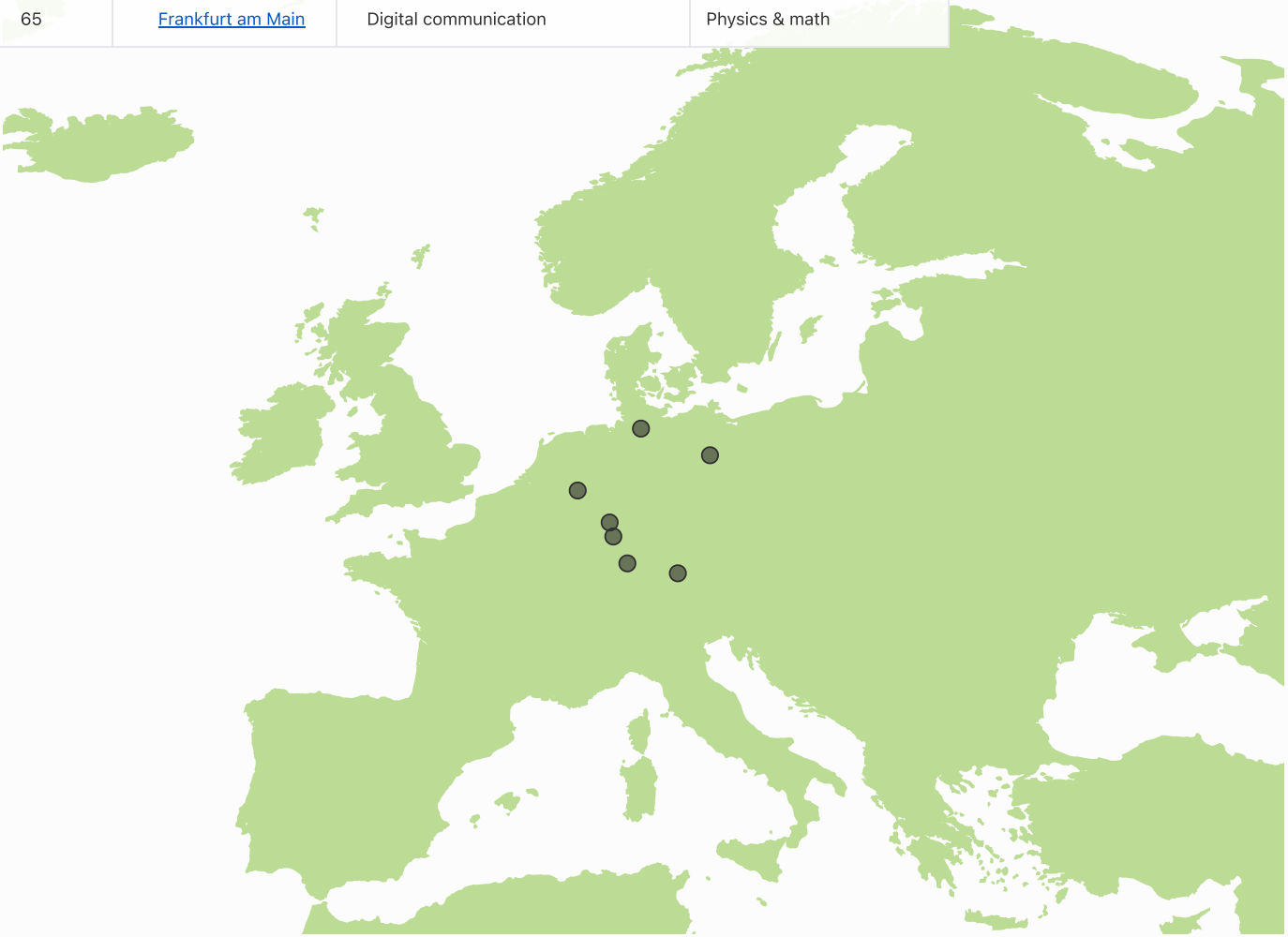


Global Innovation Index 2025



The table and map below give an overview by intensity of the top innovation clusters in Germany.

Rank	Cluster name	Top patent field	Top academic subject
16	Munich	Digital communication	Physics & math
31	Berlin	Medical technology	Technology
43	Stuttgart	Electrical machinery, apparatus, energy	Chemistry
52	Heidelberg–Mannheim	Basic materials chemistry	Clinical medicine
65	Frankfurt am Main	Digital communication	Physics & math



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.