

Global Innovation Index 2023

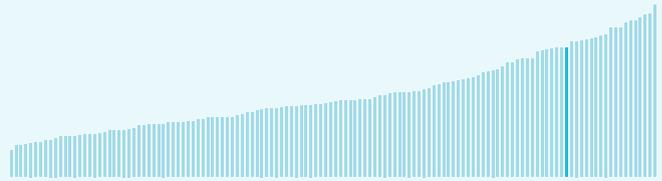


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

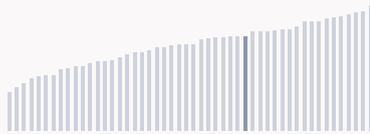
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

Norway ranking in the Global Innovation Index 2023

> Norway ranks **19th** among the 132 economies featured in the GII 2023.



> Norway ranks **18th** among the 50 high-income group economies.



> Norway ranks **11th** among the 39 economies in Europe.



> Norway GII Ranking (2020-2023)

The table shows the rankings of Norway over the past four 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 Norway in the GII 2023 is between ranks 19 and 25.

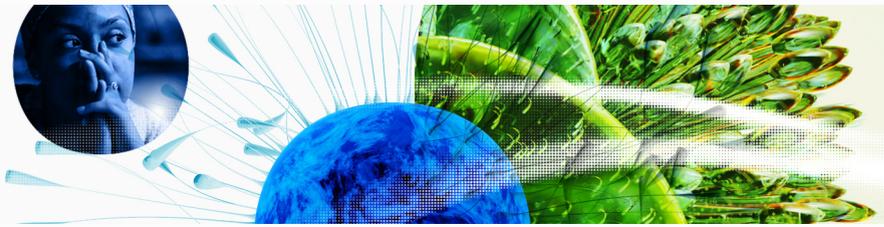
	GII Position	Innovation Inputs	Innovation Outputs
2020	20th	15th	28th
2021	20th	13th	28th
2022	22nd	14th	29th
2023	19th	15th	28th

Norway performs worse in innovation outputs than innovation inputs in 2023.

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

Norway ranks 28th in innovation outputs. This position is higher than last year.

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→ Expected vs. observed innovation performance

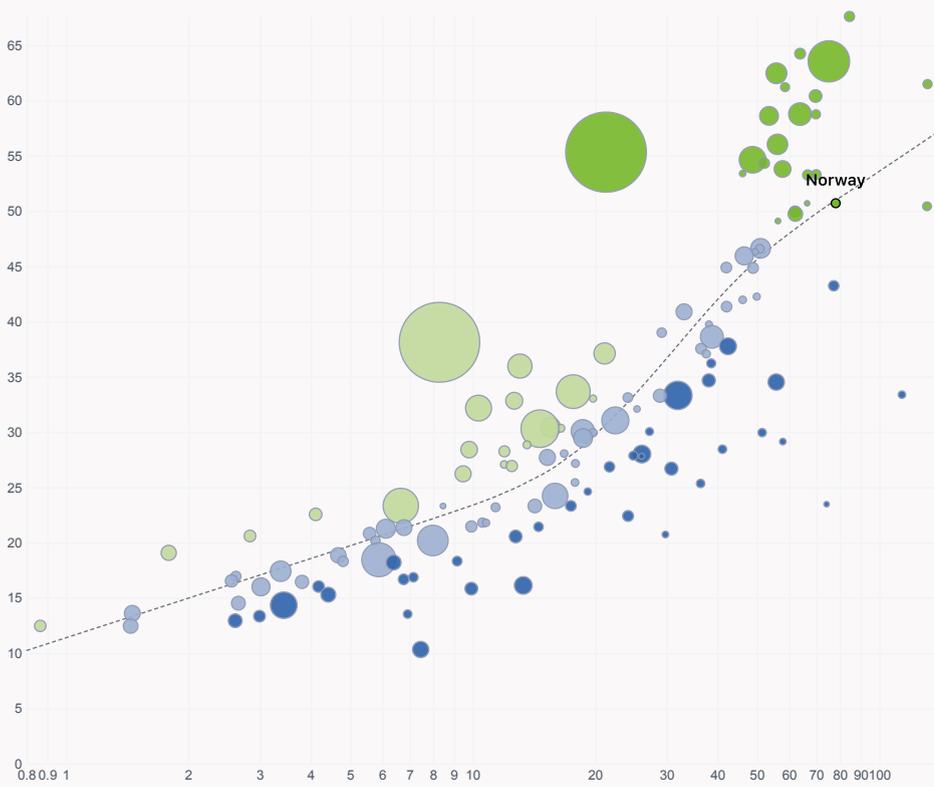
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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



> Norway is an innovation leader, ranking in the top 25 of the GII.

> Innovation overperformers relative to their economic development

↑ GII Score



- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



→ GDP per capita, PPP logarithmic scale (thousands of \$)

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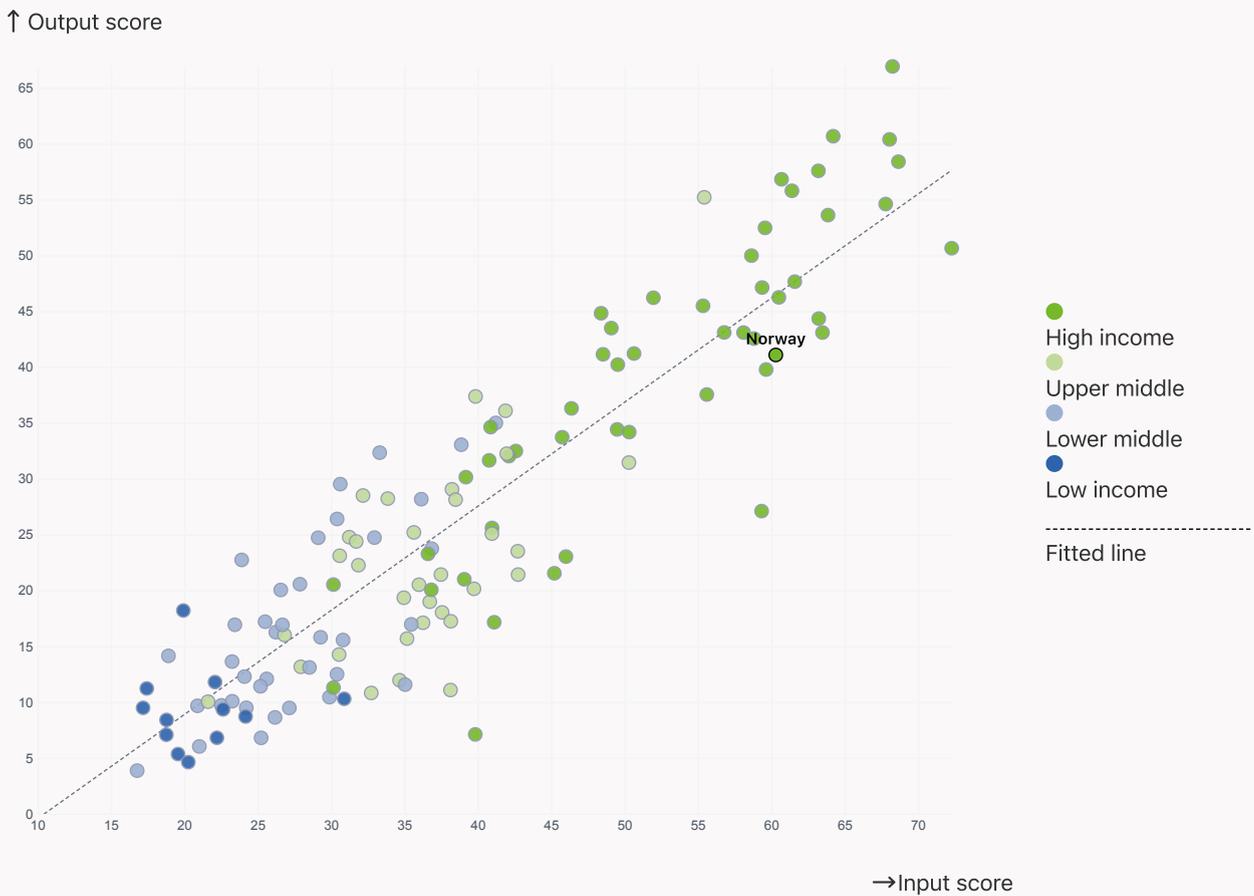
→ Effectively translating innovation investments into innovation outputs

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.



> Norway produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

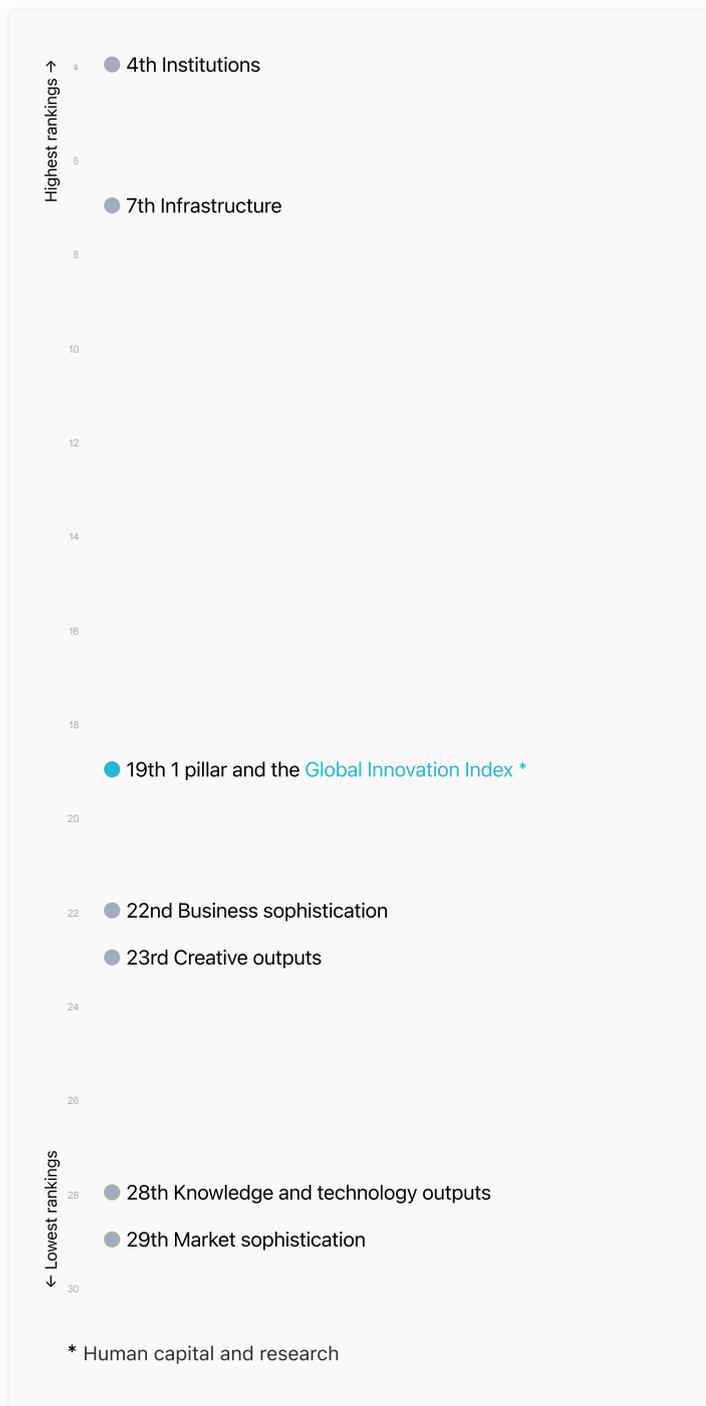


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→ Overview of Norway's rankings in the seven areas of the GII in 2023

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



> Highest rankings



Norway ranks highest in Institutions (4th), Infrastructure (7th) and Human capital and research (19th).

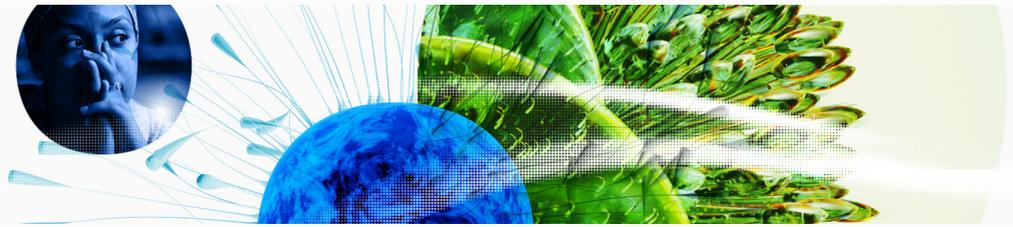
> Lowest rankings



Norway ranks lowest in Market sophistication (29th), Knowledge and technology outputs (28th) and Creative outputs (23rd).

 The full WIPO Intellectual Property Statistics profile for Norway can be found on [this link](#).

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→ Benchmark of Norway against other country groupings for each of the seven areas of the GII Index

The charts show the relative position of Norway (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> High-Income economies

Norway performs above the high-income group average in Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure, Institutions.

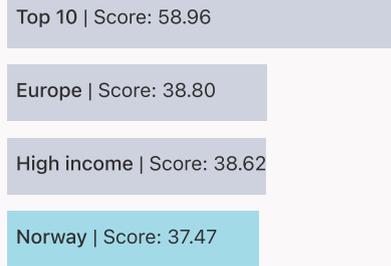


> Europe

Norway performs above the regional average in Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure, Institutions.



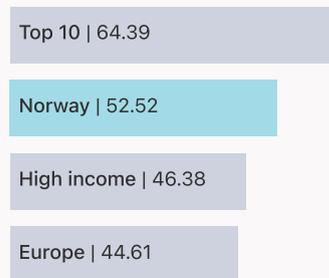
Knowledge and technology outputs



Creative outputs



Business sophistication



Market sophistication



Human capital and research



Infrastructure



Institutions





→ Innovation strengths and weaknesses in Norway

The table below gives an overview of the indicator strengths and weaknesses of Norway in the GII 2023.



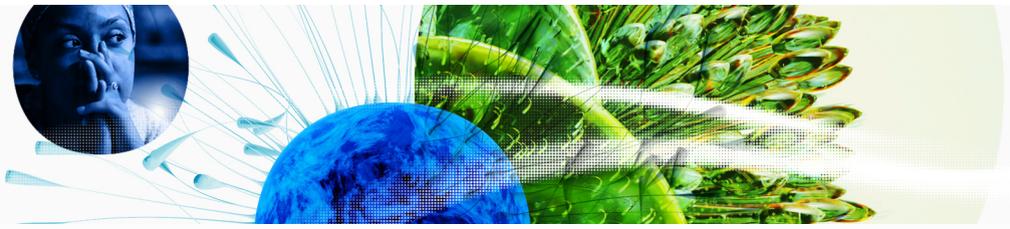
> Norway's main innovation strengths are **Electricity output, GWh/mn pop. (rank 1)**, **Rule of law (rank 2)** and **Entertainment and media market/th pop. 15-69 (rank 4)**.

Strengths

Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	3.2.1	Electricity output, GWh/mn pop.	92	6.2.1	Labor productivity growth, %
2	1.2.2	Rule of law	89	5.3.2	High-tech imports, % total trade
4	7.2.3	Entertainment and media market/th pop. 15-69	76	7.1.2	Trademarks by origin/bn PPP\$ GDP
4	2.1.1	Expenditure on education, % GDP	74	5.3.4	FDI net inflows, % GDP
5	7.3.3	GitHub commits/mn pop. 15-69	72	5.3.1	Intellectual property payments, % total trade
5	1.1.2	Government effectiveness	69	4.3.1	Applied tariff rate, weighted avg., %
5	5.1.1	Knowledge-intensive employment, %	69	6.2.4	High-tech manufacturing, %
5	1.1.1	Operational stability for businesses	67	6.3.4	ICT services exports, % total trade
6	4.1.2	Domestic credit to private sector, % GDP	64	3.2.3	Gross capital formation, % GDP
6	2.3.1	Researchers, FTE/mn pop.	64	2.2.2	Graduates in science and engineering, %
			62	4.3.2	Domestic industry diversification

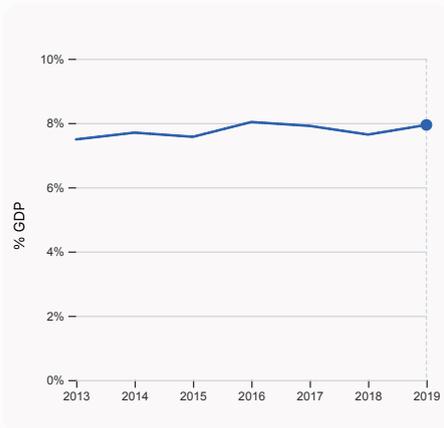
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→ Norway's innovation system

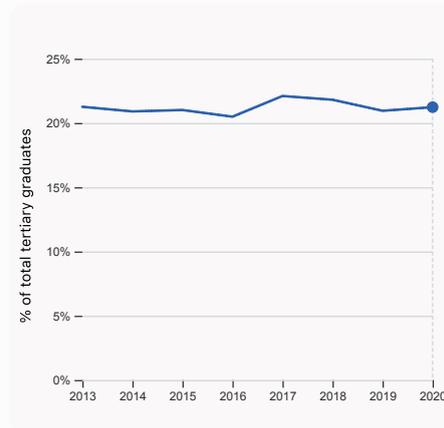
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Norway



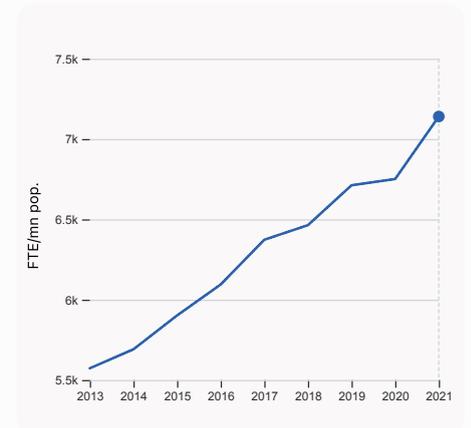
2.1.1 Expenditure on education, % GDP

was equal to 7.94% GDP in 2019, up by 0.3 percentage points from the year prior – and equivalent to an indicator rank of 4.



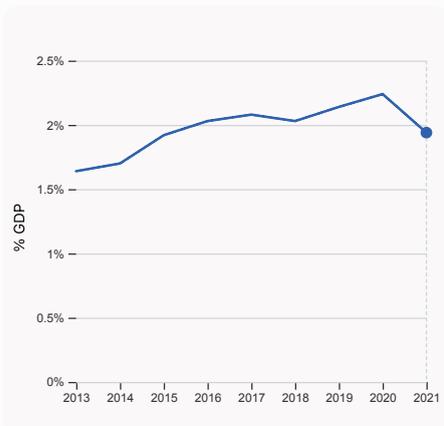
2.2.2 Graduates in science and engineering, %

was equal to 21.23% of total tertiary graduates in 2020, up by 0.28 percentage points from the year prior – and equivalent to an indicator rank of 64.



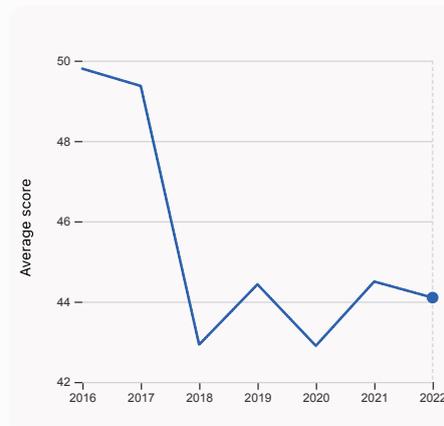
2.3.1 Researchers, FTE/mn pop.

was equal to 7,140.35 FTE/mn pop. in 2021, up by 5.76% from the year prior – and equivalent to an indicator rank of 6.



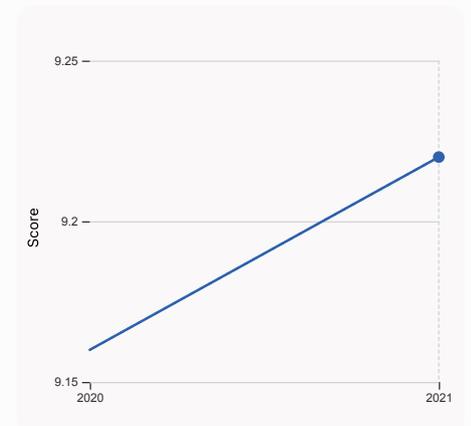
2.3.2 Gross expenditure on R&D, % GDP

was equal to 1.94% GDP in 2021, down by 0.3 percentage points from the year prior – and equivalent to an indicator rank of 20.



2.3.4 QS university ranking, top 3

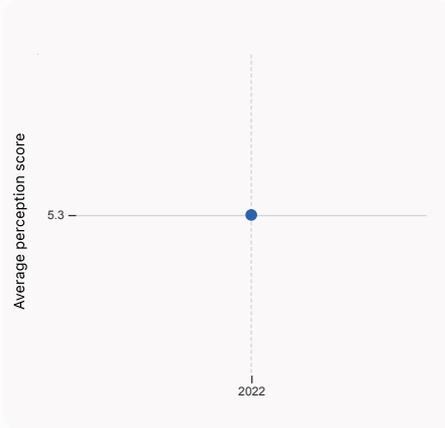
was equal to an average score of 44.1 for the top 3 universities in 2022, down by 0.9% from the year prior – and equivalent to an indicator rank of 28.



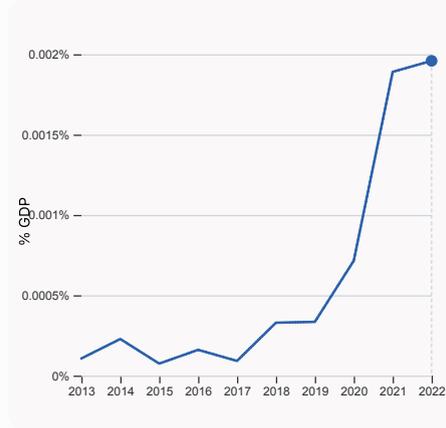
3.1.1 ICT access

was equal to a score of 9.22 in 2021, up by 0.66% from the year prior – and equivalent to an indicator rank of 32.

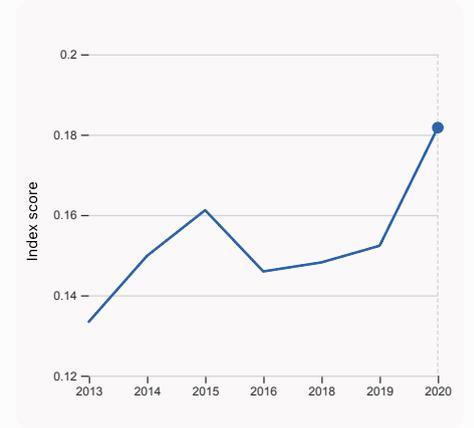
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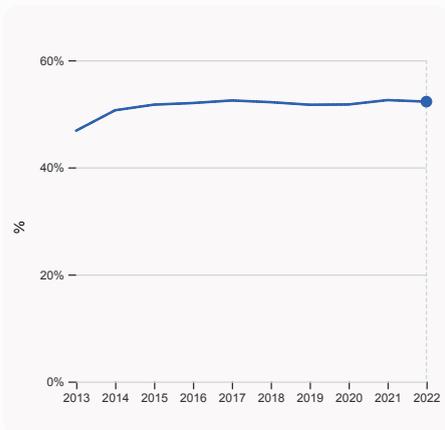
4.1.1 Finance for startups and scaleups was equal to an average perception score of 5.3 in 2022, equivalent to an indicator rank of 25.



4.2.4 VC received, value, % GDP was equal to 0.00196% GDP in 2022, up by 0.000069 percentage points from the year prior – and equivalent to an indicator rank of 39.



4.3.2 Domestic industry diversification was equal to an index score of 0.182 in 2020, up by 19.3% from the year prior – and equivalent to an indicator rank of 62.

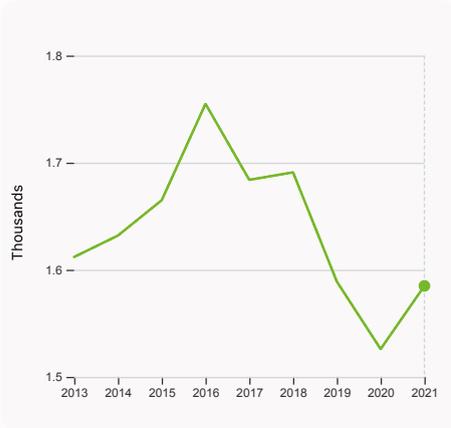


5.1.1 Knowledge-intensive employment, % was equal to 52.27% in 2022, down by 0.29 percentage points from the year prior – and equivalent to an indicator rank of 5.

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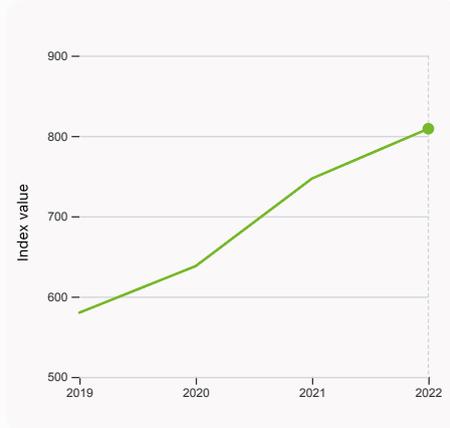


> Innovation outputs in Norway



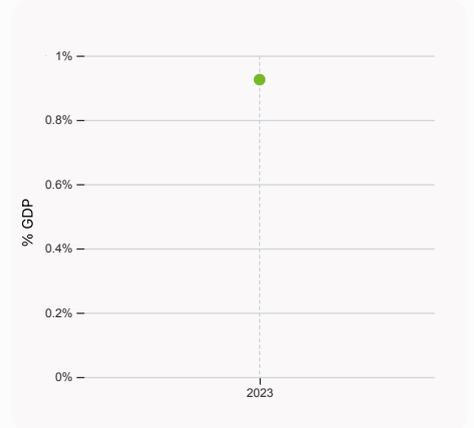
6.1.1 Patents by origin

was equal to 1.58 Thousands in 2021, up by 3.87% from the year prior – and equivalent to an indicator rank of 21.



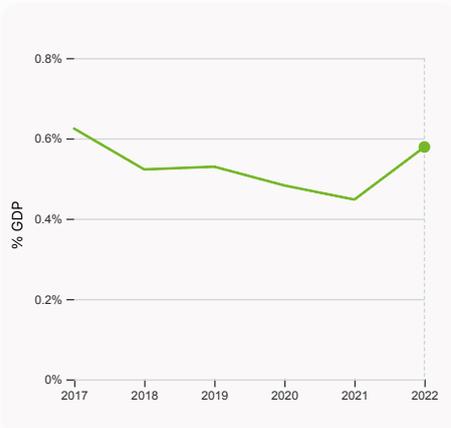
6.1.5 Citable documents H-index

was equal to an index value of 809 in 2022, up by 8.3% from the year prior – and equivalent to an indicator rank of 21.



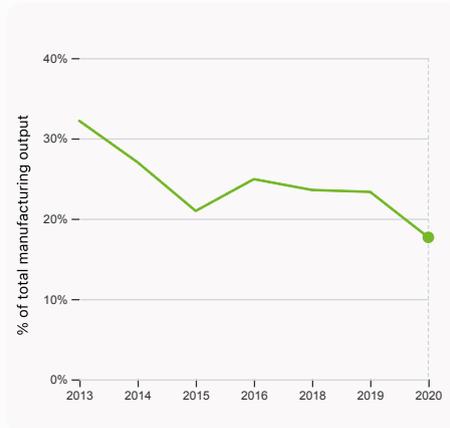
6.2.2 Unicorn valuation, % GDP

was equal to 0.925 % GDP in 2023 – and equivalent to an indicator rank of 35.



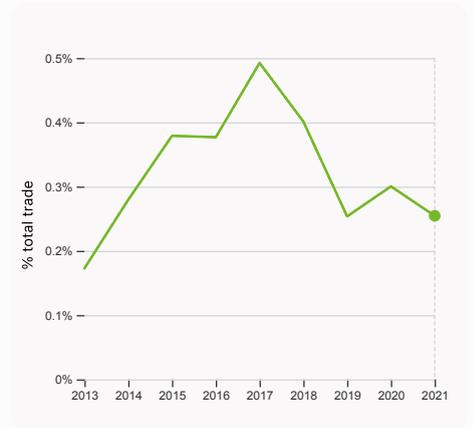
6.2.3 Software spending, % GDP

was equal to 0.579% GDP in 2022, up by 0.13 percentage points from the year prior – and equivalent to an indicator rank of 18.



6.2.4 High-tech manufacturing, %

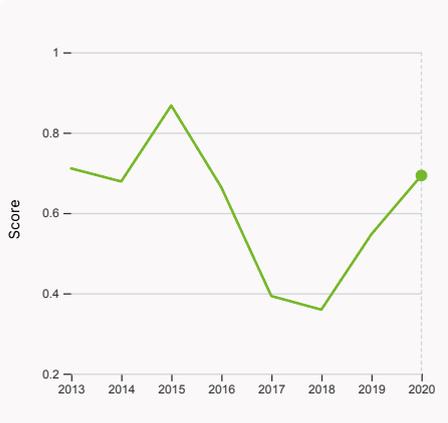
was equal to 17.68% of total manufacturing output in 2020, down by 5.66 percentage points from the year prior – and equivalent to an indicator rank of 69.



6.3.1 Intellectual property receipts, % total trade

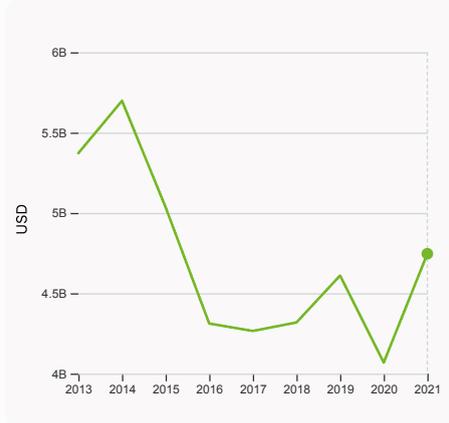
was equal to 0.255% total trade in 2021, down by 0.046 percentage points from the year prior – and equivalent to an indicator rank of 39.

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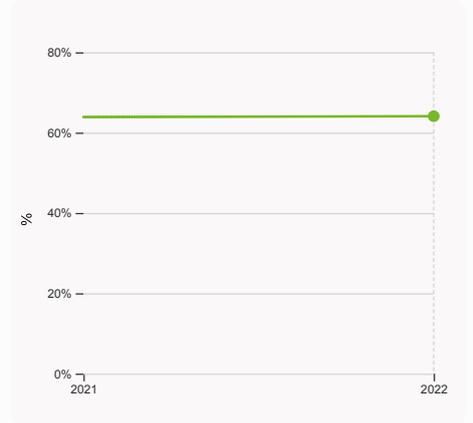
6.3.2 Production and export complexity

was equal to a score of 0.693 in 2020, up by 26.75% from the year prior – and equivalent to an indicator rank of 37.



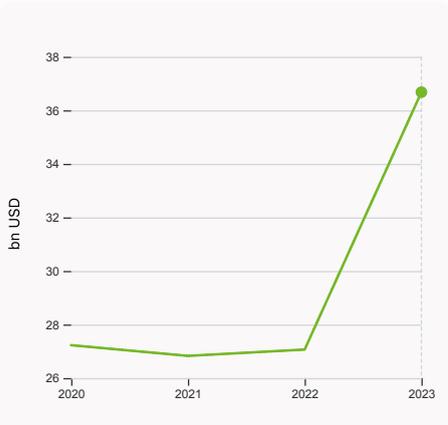
6.3.3 High-tech exports

was equal to 4,746,441,659 USD in 2021, up by 16.65% from the year prior – and equivalent to an indicator rank of 49.



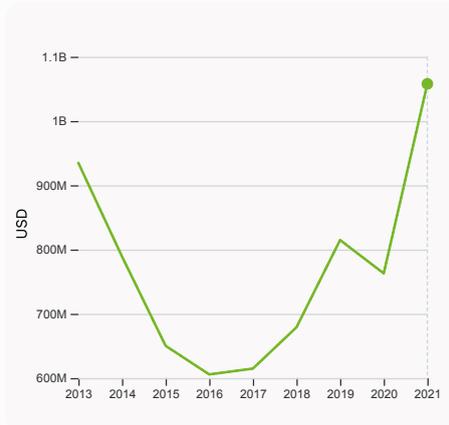
7.1.1 Intangible asset intensity, top 15, %

was equal to 64.09% in 2022, up by 0.2 percentage points from the year prior – and equivalent to an indicator rank of 31.



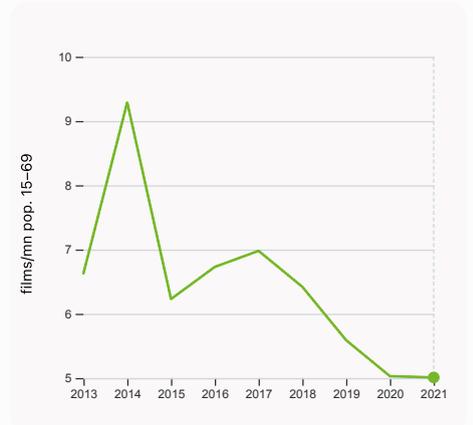
7.1.3 Global brand value, top 5,000

was equal to 36.679 bn USD in 2023, up by 35.52% from the year prior – and equivalent to an indicator rank of 28.



7.2.1 Cultural and creative services exports

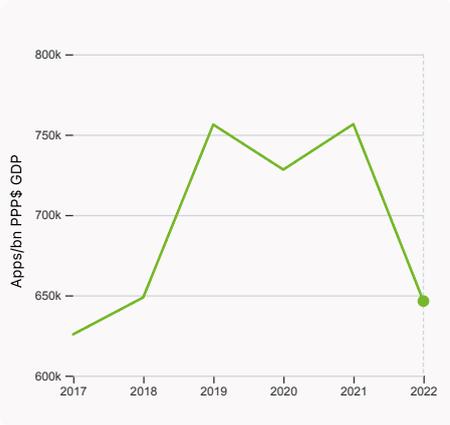
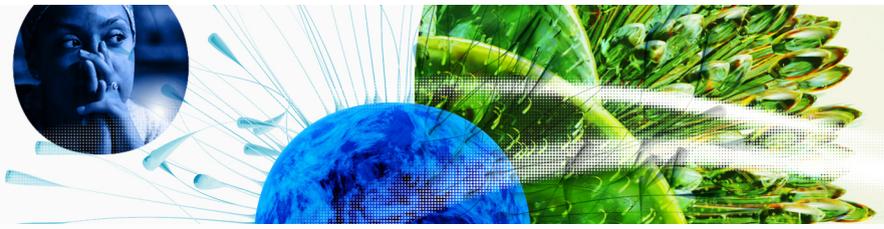
was equal to 1,057,868,000 USD in 2021, up by 38.66% from the year prior – and equivalent to an indicator rank of 48.



7.2.2 National feature films/mn pop. 15-69

was equal to 5.01 films/mn pop. 15-69 in 2021, down by 0.4% from the year prior – and equivalent to an indicator rank of 22.

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7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 646,400.64 Apps/bn PPP\$ GDP in 2022, down by 14.56% from the year prior – and equivalent to an indicator rank of 32.

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→ Norway's innovation top performers

> 2.3.3 Global corporate R&D investors from Norway

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
497	VISMA	Software & Computer Services	362	28	174
639	EQUINOR	Oil & Gas Producers	257	15	0
886	KALERA	Food Producers	178	103	7,056
925	DNB	Banks	169	-9	n/a

Source: European Commission's Joint Research Centre (<https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard>).

Note: European Commission's Joint Research Centre ranks the top 2,500 firms by R&D investment annually.

> 2.3.4 QS university ranking of Norway's top universities

Rank	University	Score
101	UNIVERSITY OF OSLO	58.70
207	UNIVERSITY OF BERGEN	42.70
352	NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY	30.90

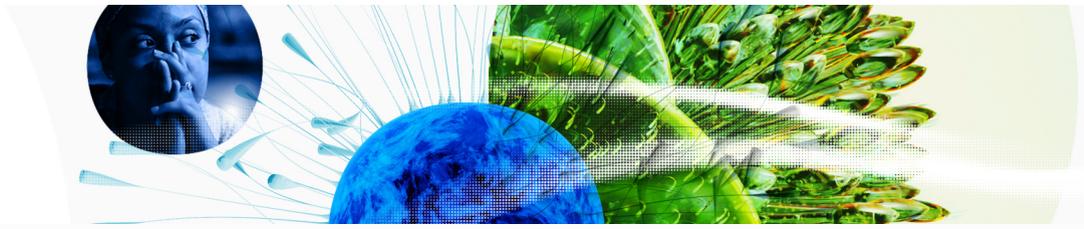
Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2023>).

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".

> 6.2.2 Top Unicorn Companies in Norway

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	COGNITE	Data management & analytics	Lysaker	2
2	GELATO	E-commerce & direct-to-consumer	Oslo	1
2	DUNE ANALYTICS	Data management & analytics	Oslo	1

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 Norway

Rank	Firm	Intensity, %
1	EQUINOR ASA	59.57
2	TELENOR ASA	56.76
3	ADEVINTA ASA	104.49

Source: Brand Finance (<https://brandirectory.com/reports/gift-2022>).

Note: Brand Finance only provides within economy ranks.

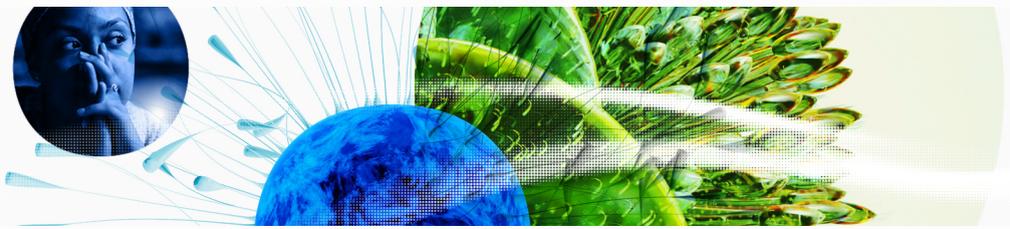
> 7.1.3 Top 5,000 companies in Norway with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	EQUINOR	Oil & Gas	13,099.4
2	TELENOR	Telecoms	4,469.1
3	DNB	Banking	3,252.1

Source: Brand Finance (<https://brandirectory.com>).

Note: Rank corresponds to within economy ranks.

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GII 2023 rank

19

Norway

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
28	15	High	EUR	5.4	425.6	78,127.6
Score / Value Rank				Score / Value Rank		
Institutions 85.1 4 ●◆				Business sophistication 52.5 22 ◇		
1.1 Institutional environment 86.8 3 ●◆				5.1 Knowledge workers 61.5 19 ●◆		
1.1.1 Operational stability for businesses* 86.1 5 ●◆				5.1.1 Knowledge-intensive employment, % 52.3 5 ●◆		
1.1.2 Government effectiveness* 87.5 5 ●◆				5.1.2 Firms offering formal training, % n/a n/a		
1.2 Regulatory environment 94.7 4 ●◆				5.1.3 GERD performed by business, % GDP 1.0 21		
1.2.1 Regulatory quality* 84.5 10				5.1.4 GERD financed by business, % 44.5 36 ◇		
1.2.2 Rule of law* 96.8 2 ●◆				5.1.5 Females employed w/advanced degrees, % 27.6 10		
1.2.3 Cost of redundancy dismissal 8.7 20				5.2 Innovation linkages 52.9 17		
1.3 Business environment 73.7 18				5.2.1 University-industry R&D collaboration+ ● 72.6 22		
1.3.1 Policies for doing business* ● 75.3 18				5.2.2 State of cluster development+ ● 75.9 17		
1.3.2 Entrepreneurship policies and culture* 72.2 14				5.2.3 GERD financed by abroad, % GDP 0.2 24		
Human capital and research 53.2 19				5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.1 14		
2.1 Education 73.4 3 ●◆				5.2.5 Patent families/bn PPP\$ GDP 1.8 21		
2.1.1 Expenditure on education, % GDP ● 7.9 4 ●◆				5.3 Knowledge absorption 43.2 35 ◇		
2.1.2 Government funding/pupil, secondary, % GDP/cap 26.6 14				5.3.1 Intellectual property payments, % total trade 0.5 72 ○◇		
2.1.3 School life expectancy, years 18.2 12				5.3.2 High-tech imports, % total trade 6.8 89 ○		
2.1.4 PISA scales in reading, maths and science 496.9 22				5.3.3 ICT services imports, % total trade 3.1 15		
2.1.5 Pupil-teacher ratio, secondary 8.7 20 ◆				5.3.4 FDI net inflows, % GDP 1.9 74 ○		
2.2 Tertiary education 33.9 54				5.3.5 Research talent, % in businesses 51.0 24		
2.2.1 Tertiary enrolment, % gross 84.4 18				Knowledge and technology outputs 37.5 28 ◇		
2.2.2 Graduates in science and engineering, % 21.2 64 ○				6.1 Knowledge creation 49.7 15		
2.2.3 Tertiary inbound mobility, % 4.4 54				6.1.1 Patents by origin/bn PPP\$ GDP 4.1 21		
2.3 Research and development (R&D) 52.4 19				6.1.2 PCT patents by origin/bn PPP\$ GDP 1.9 16		
2.3.1 Researchers, FTE/mn pop. 7,140.3 6 ●◆				6.1.3 Utility models by origin/bn PPP\$ GDP n/a n/a		
2.3.2 Gross expenditure on R&D, % GDP 1.9 20				6.1.4 Scientific and technical articles/bn PPP\$ GDP n/a n/a		
2.3.3 Global corporate R&D investors, top 3, mn US\$ 56.2 27				6.1.5 Citable documents H-index 42.6 21		
2.3.4 QS university ranking, top 3* 44.7 28				6.2 Knowledge impact 34.6 42 ◇		
Infrastructure 63.2 7 ●◆				6.2.1 Labor productivity growth, % 0.2 92 ○		
3.1 Information and communication technologies (ICTs) 82.7 29				6.2.2 Unicorn valuation, % GDP 0.9 35 ◇		
3.1.1 ICT access* 88.4 32				6.2.3 Software spending, % GDP 0.6 18		
3.1.2 ICT use* 95.9 8				6.2.4 High-tech manufacturing, % 17.7 69 ○◇		
3.1.3 Government's online service* 78.0 39 ◇				6.3 Knowledge diffusion 28.0 56 ◇		
3.1.4 E-participation* 68.6 43				6.3.1 Intellectual property receipts, % total trade 0.3 39 ◇		
3.2 General infrastructure 64.3 4 ●◆				6.3.2 Production and export complexity 67.1 37 ◇		
3.2.1 Electricity output, GWh/mn pop. 29,134.6 1 ●◆				6.3.3 High-tech exports, % total trade 2.8 49		
3.2.2 Logistics performance* 72.7 18				6.3.4 ICT services exports, % total trade 1.6 67 ○		
3.2.3 Gross capital formation, % GDP 24.2 64 ○				6.3.5 ISO 9001 quality/bn PPP\$ GDP 7.1 39		
3.3 Ecological sustainability 42.7 27				Creative outputs 44.7 23		
3.3.1 GDP/unit of energy use 11.4 55				7.1 Intangible assets 38.7 47 ◇		
3.3.2 Environmental performance* 68.5 20				7.1.1 Intangible asset intensity, top 15, % 64.1 31		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 4.2 23				7.1.2 Trademarks by origin/bn PPP\$ GDP 30.8 76 ○		
Market sophistication 47.5 29				7.1.3 Global brand value, top 5,000 7.5 28		
4.1 Credit 64.6 12				7.1.4 Industrial designs by origin/bn PPP\$ GDP 1.2 62		
4.1.1 Finance for startups and scaleups+ 65.8 25				7.2 Creative goods and services 31.5 26		
4.1.2 Domestic credit to private sector, % GDP 166.0 6 ●◆				7.2.1 Cultural and creative services exports, % total trade 0.6 48		
4.1.3 Loans from microfinance institutions, % GDP n/a n/a				7.2.2 National feature films/mn pop. 15-69 5.0 22		
4.2 Investment 19.1 37 ◇				7.2.3 Entertainment and media market/th pop. 15-69 75.7 4 ●◆		
4.2.1 Market capitalization, % GDP ● 68.8 24				7.2.4 Creative goods exports, % total trade 0.5 63		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.2 28				7.3 Online creativity 69.9 7 ●◆		
4.2.3 VC recipients, deals/bn PPP\$ GDP 0.1 34				7.3.1 Generic top-level domains (TLDs)/th pop. 15-69 57.9 13		
4.2.4 VC received, value, % GDP 0.0 39 ◇				7.3.2 Country-code TLDs/th pop. 15-69 65.5 12		
4.3 Trade, diversification, and market scale 58.9 62				7.3.3 GitHub commits/mn pop. 15-69 82.0 5 ●◆		
4.3.1 Applied tariff rate, weighted avg., % 2.8 69 ○◇				7.3.4 Mobile app creation/bn PPP\$ GDP 74.1 32		
4.3.2 Domestic industry diversification 85.8 62 ○						
4.3.3 Domestic market scale, bn PPP\$ 425.6 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; see appendices for details, including the year of the data, at <https://www.wipo.int/gii-ranking>. Square brackets [] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.



→ Data availability

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



> Norway has missing data for three indicators and outdated data for five indicators.

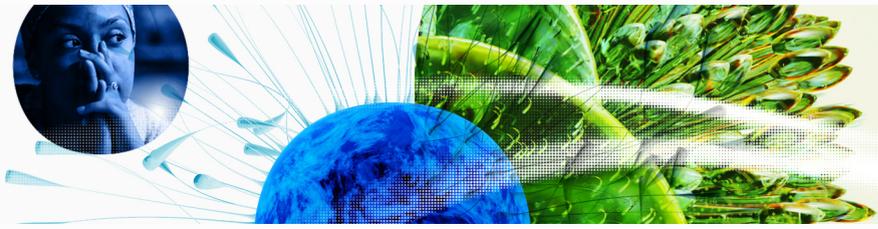
> Missing data for Norway

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	n/a	2019	World Bank Enterprise Surveys
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund

> Outdated data for Norway

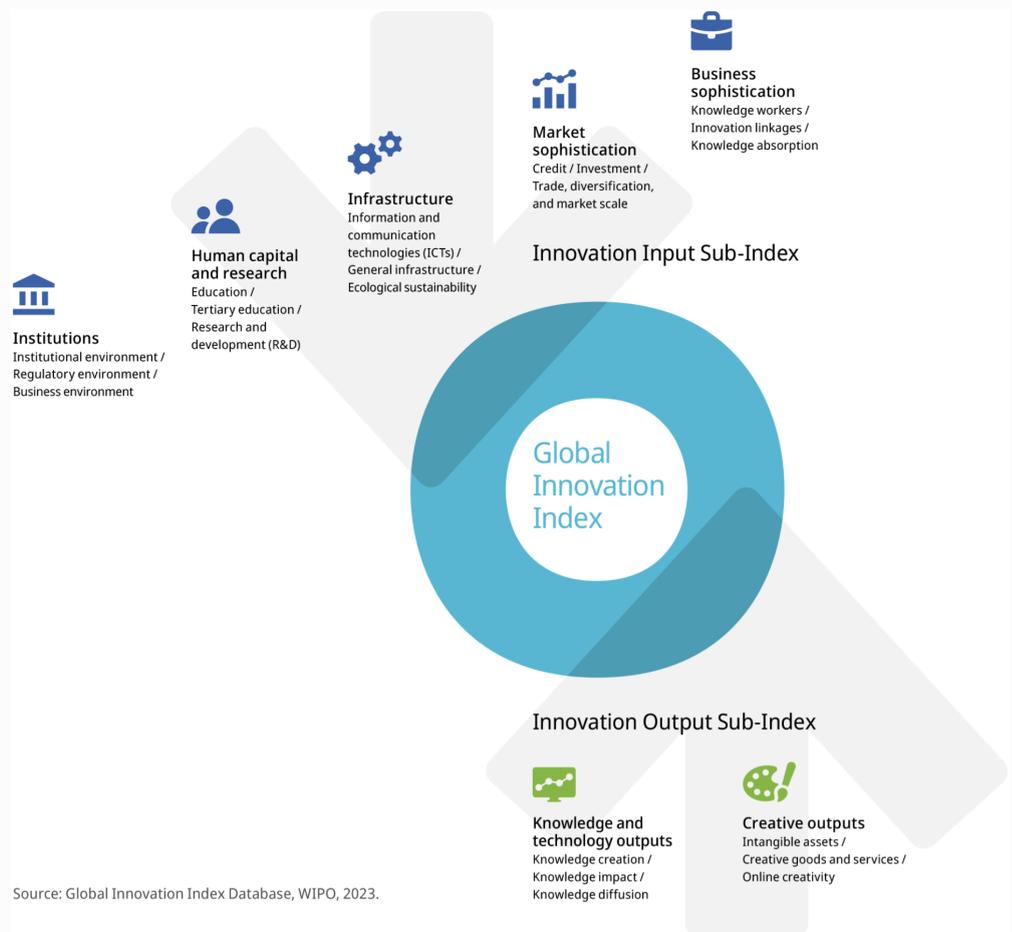
Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policies for doing business	2018	2022	World Economic Forum, Executive Opinion Survey (EOS)
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
4.2.1	Market capitalization, % GDP	2019	2020	World Federation of Exchanges; World Bank
5.2.1	University-industry R&D collaboration	2018	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.2	State of cluster development	2018	2022	World Economic Forum, Executive Opinion Survey (EOS)

Global Innovation Index 2023



→ 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 130 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.