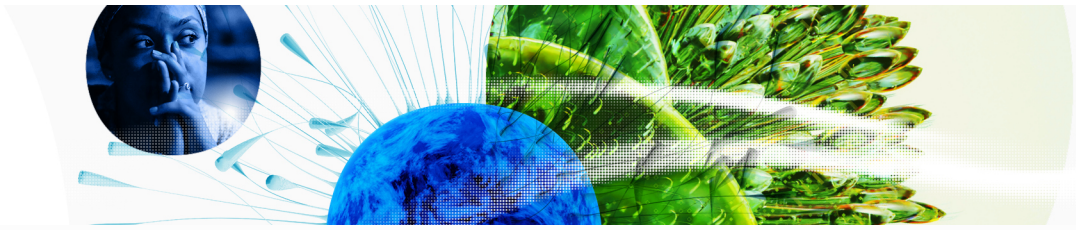
Global Innovation Index 2023



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.

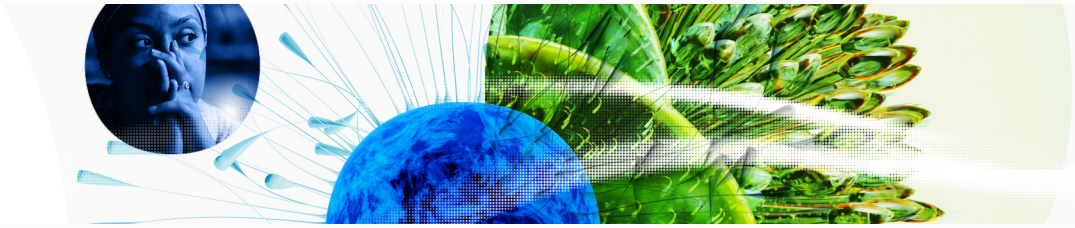
	GII Position	Innovation Inputs	Innovation Outputs
2020	20th	15th	28th
2021	20th	13th	28th
2022	22nd	14th	29th
2023	19th	15th	28th

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.

Global Innovation Index 2023

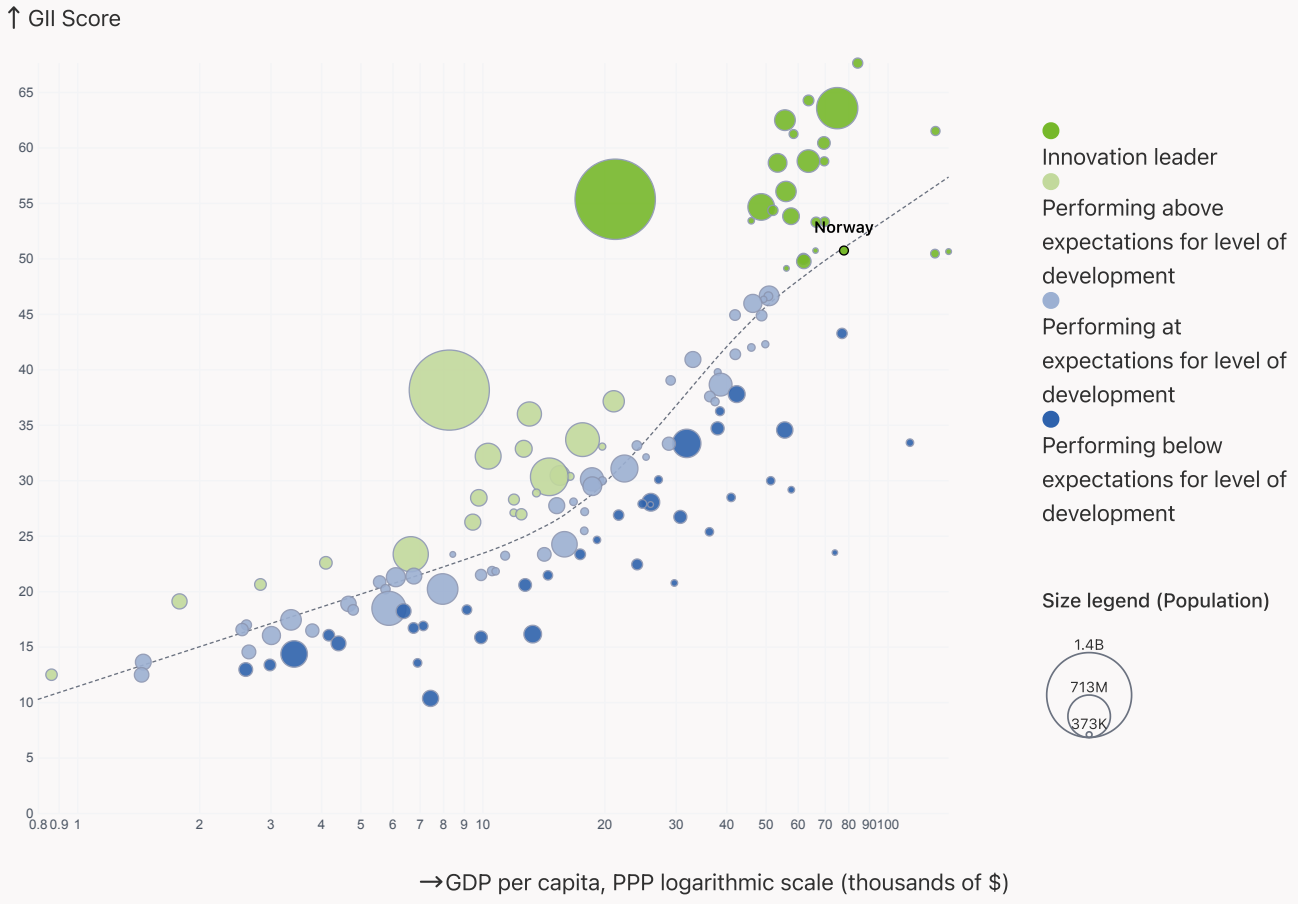


→ Expected vs. observed innovation performance

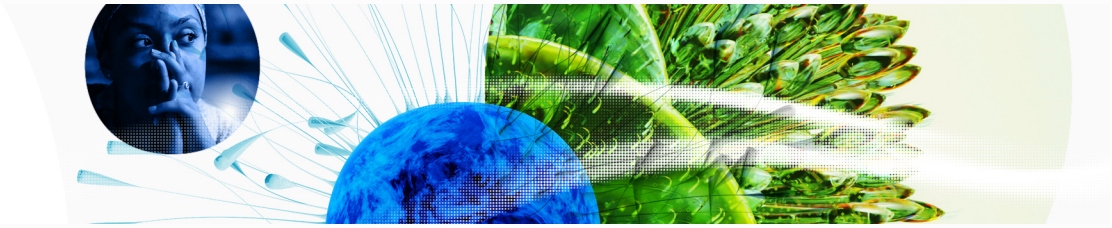
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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



Global Innovation Index 2023

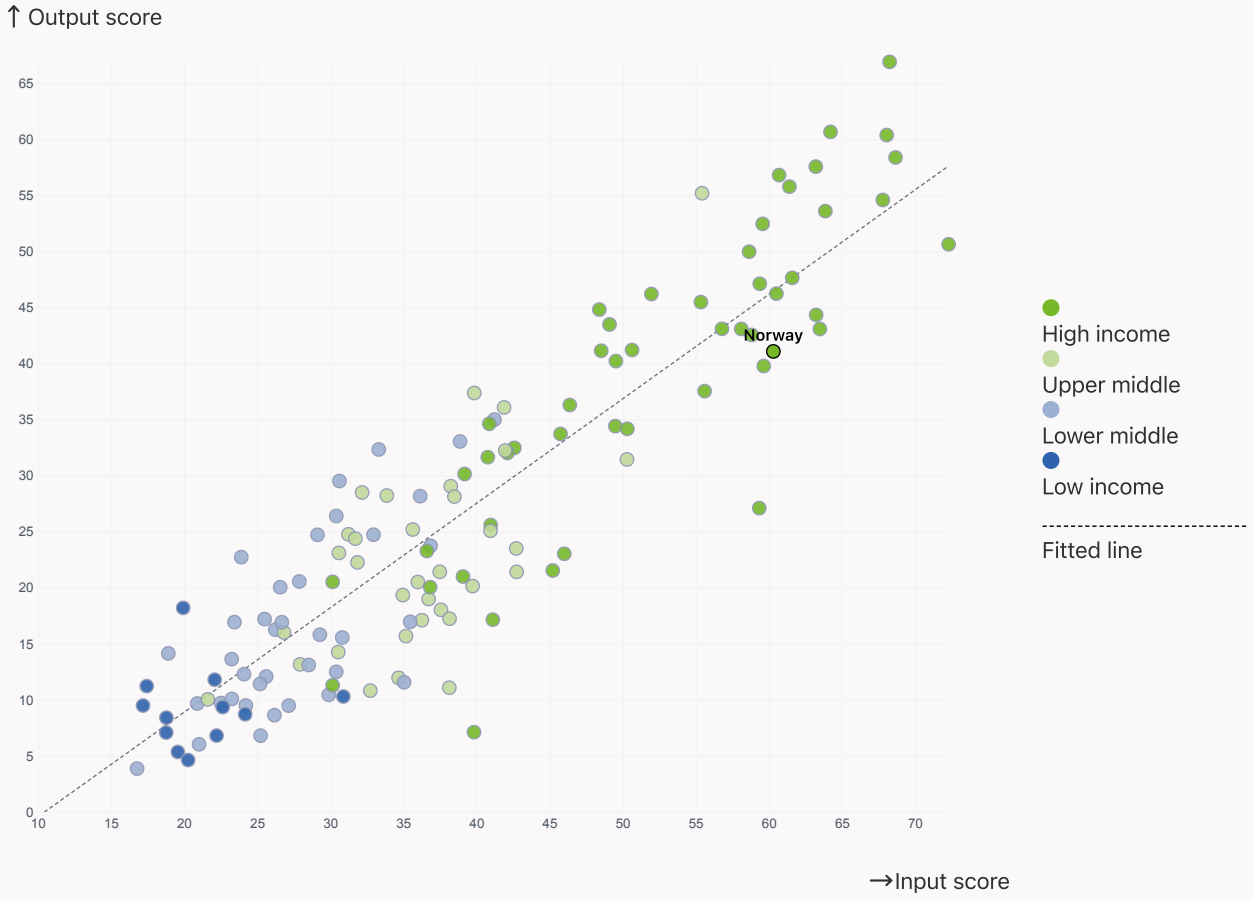


→ Effectively translating innovation investments into innovation outputs

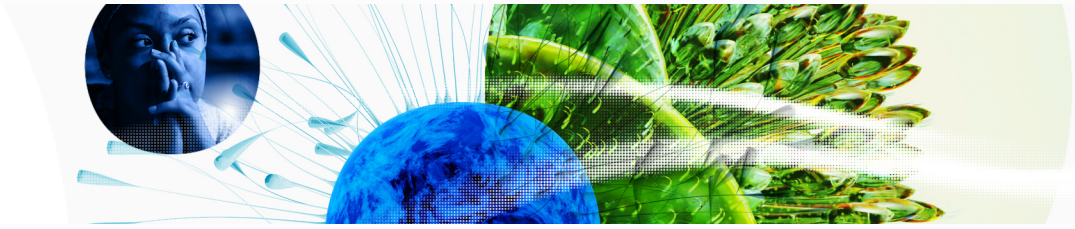
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

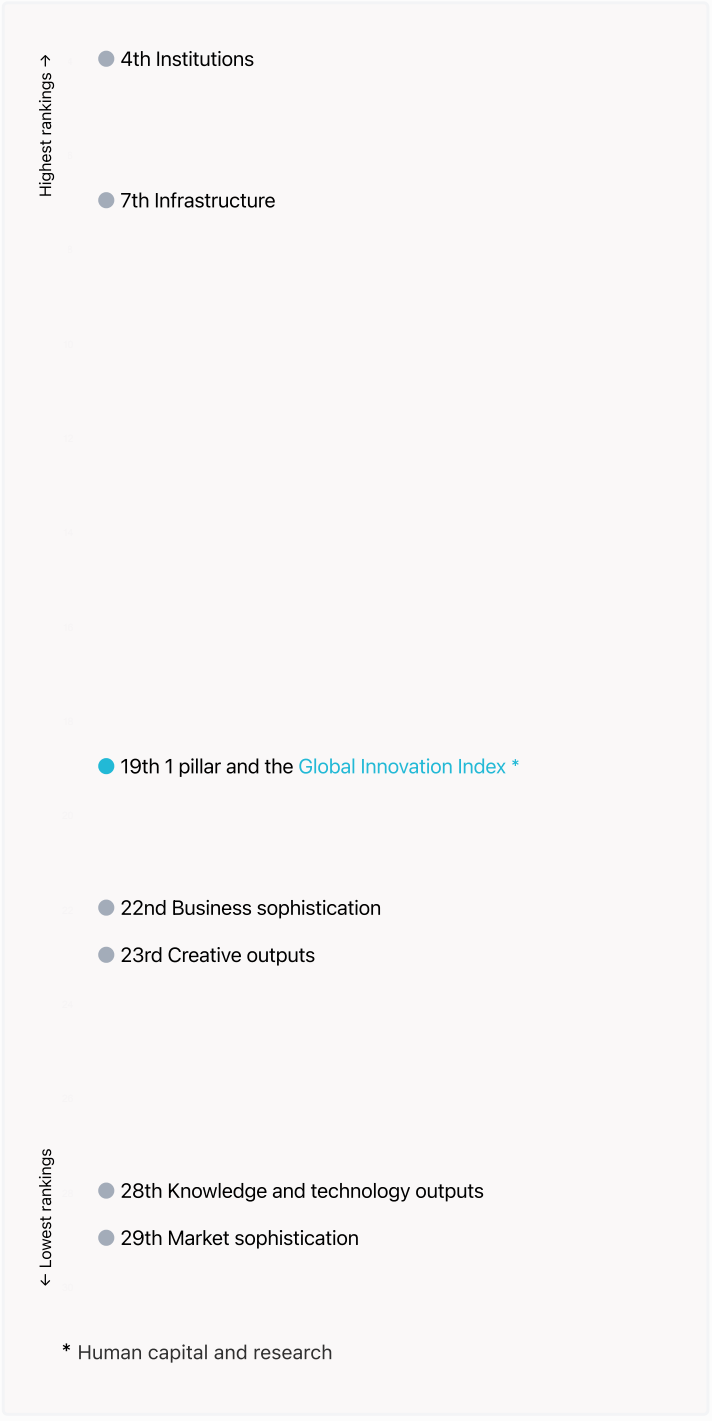


Global Innovation Index 2023



→ 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

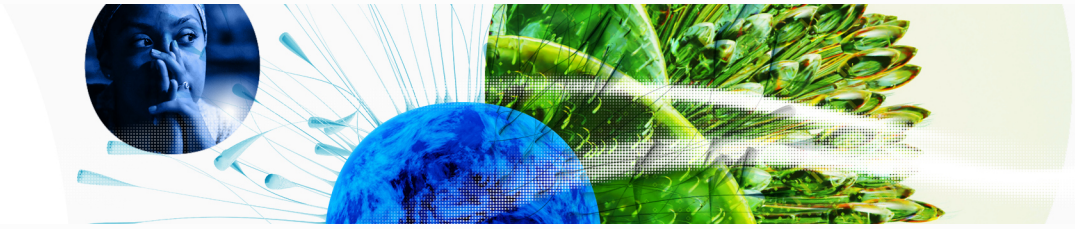
Norway ranks highest in Institutions (4th), Infrastructure (7th) and Human capital and research (19th).

> 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.

Global Innovation Index 2023



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

The charts shows 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

- Top 10 | Score: 58.96
- Europe | Score: 38.80
- High income | Score: 38.62
- Norway | Score: 37.47

Creative outputs

- Top 10 | 56.09
- Norway | 44.67
- High income | 40.27
- Europe | 39.87

Business sophistication

- Top 10 | 64.39
- Norway | 52.52
- High income | 46.38
- Europe | 44.61

Market sophistication

- Top 10 | 61.93
- Norway | 47.54
- High income | 46.42
- Europe | 43.65

Human capital and research

- Top 10 | 60.28
- Norway | 53.22
- High income | 46.30
- Europe | 44.05

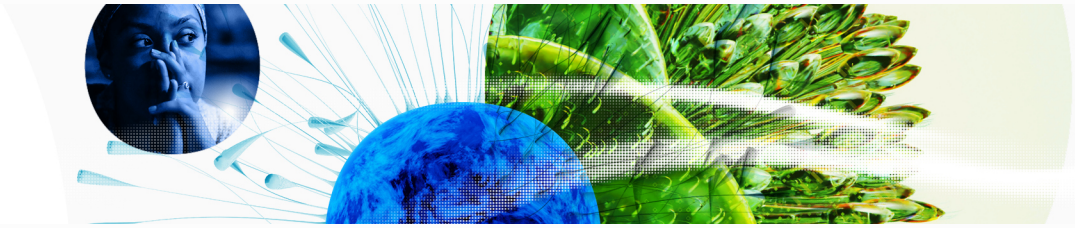
Infrastructure

- Norway | 63.23
- Top 10 | 62.83
- High income | 55.85
- Europe | 54.69

Institutions

- Norway | 85.07
- Top 10 | 79.85
- High income | 68.16
- Europe | 61.69

Global Innovation Index 2023



→ 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).

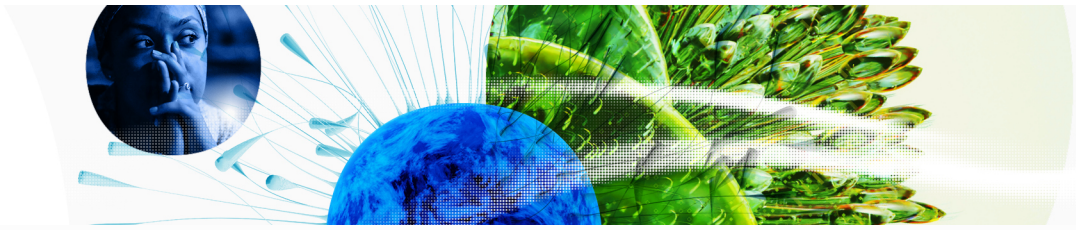
Strengths

Rank	Code	Indicator name
1	3.2.1	Electricity output, GWh/mn pop.
2	1.2.2	Rule of law
4	7.2.3	Entertainment and media market/th pop. 15-69
4	2.1.1	Expenditure on education, % GDP
5	7.3.3	GitHub commits/mn pop. 15-69
5	1.1.2	Government effectiveness
5	5.1.1	Knowledge-intensive employment, %
5	1.1.1	Operational stability for businesses
6	4.1.2	Domestic credit to private sector, % GDP
6	2.3.1	Researchers, FTE/mn pop.

Weaknesses

Rank	Code	Indicator name
92	6.2.1	Labor productivity growth, %
89	5.3.2	High-tech imports, % total trade
76	7.1.2	Trademarks by origin/bn PPP$ GDP
74	5.3.4	FDI net inflows, % GDP
72	5.3.1	Intellectual property payments, % total trade
69	4.3.1	Applied tariff rate, weighted avg., %
69	6.2.4	High-tech manufacturing, %
67	6.3.4	ICT services exports, % total trade
64	3.2.3	Gross capital formation, % GDP
64	2.2.2	Graduates in science and engineering, %
62	4.3.2	Domestic industry diversification

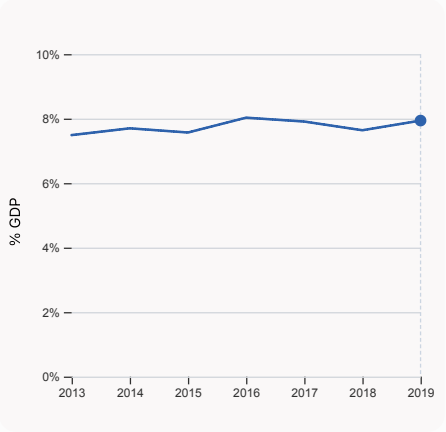
Global Innovation Index 2023



→ Norway's innovation system

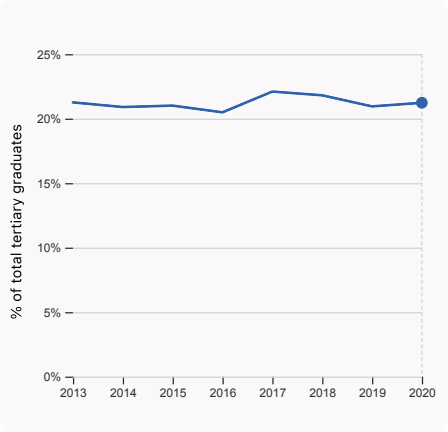
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Norway



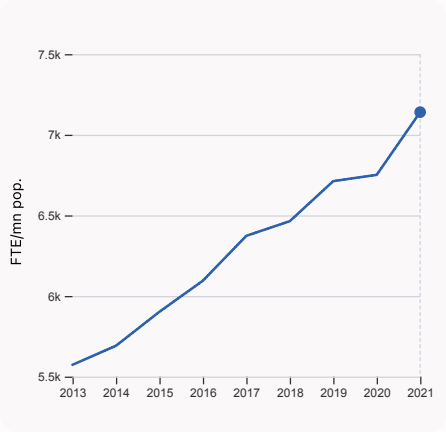
2.1.1 Expenditure on education, % GDP

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.



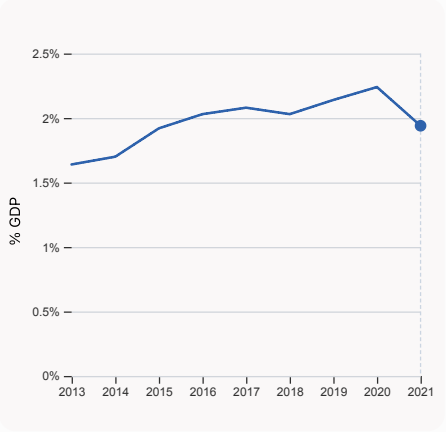
2.2.2 Graduates in science and engineering, %

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.



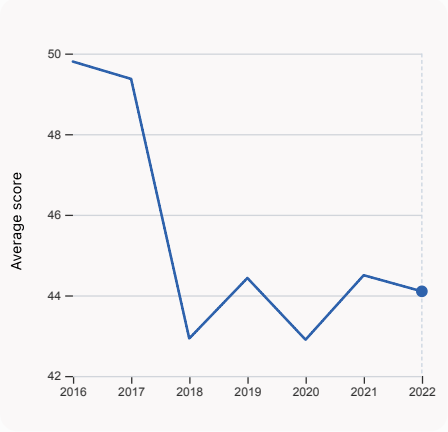
2.3.1 Researchers, FTE/mn pop.

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.



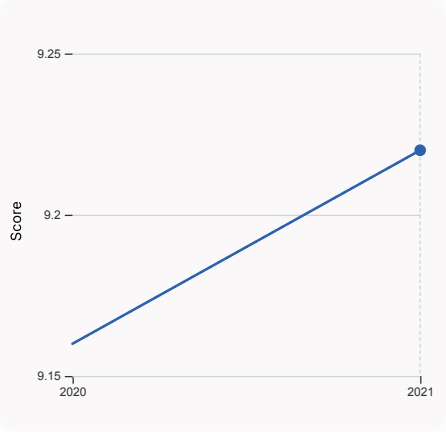
2.3.2 Gross expenditure on R&D, % GDP

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

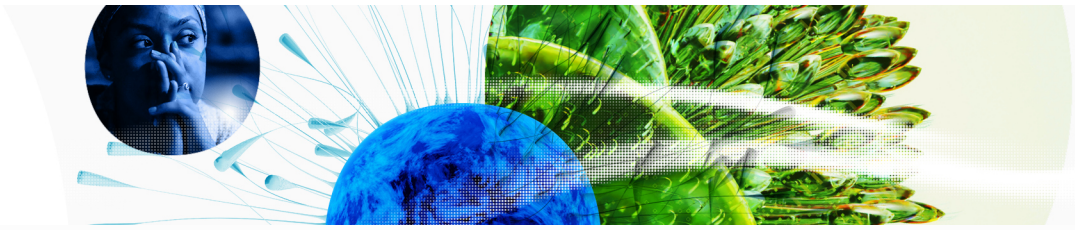
was equal to an average score of 44.1 for the top 3 universities in 2022, down by 0.9% from the year prior – and equivalent to an indicator rank of 28.

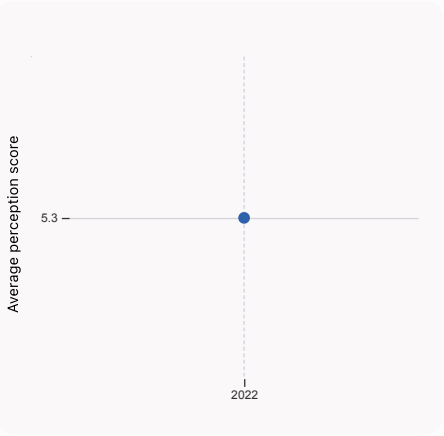


3.1.1 ICT access

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.

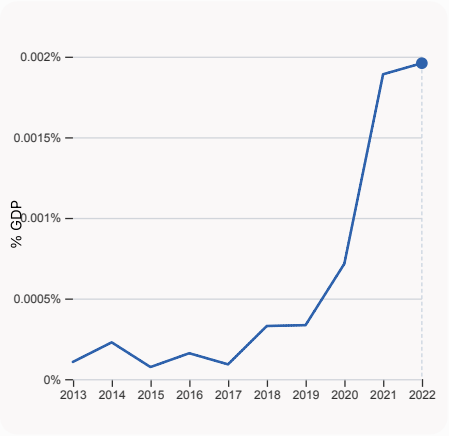
Global Innovation Index 2023





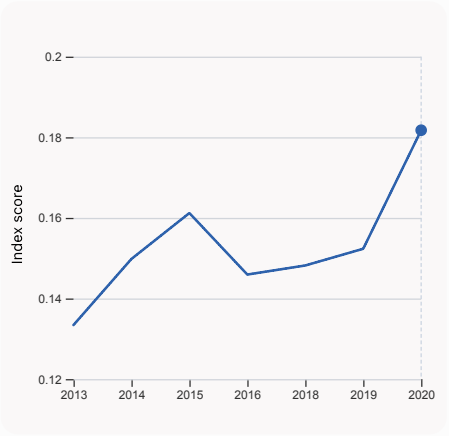
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 5.3 in 2022, equivalent to an indicator rank of 25.



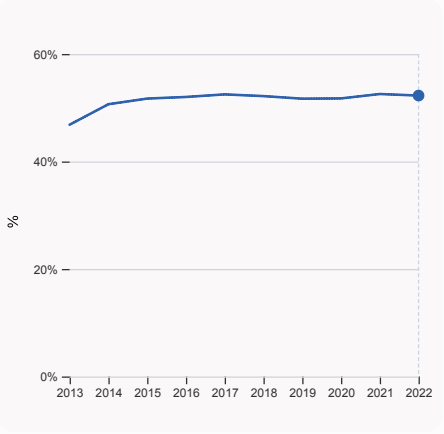
4.2.4 VC received, value, % GDP

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

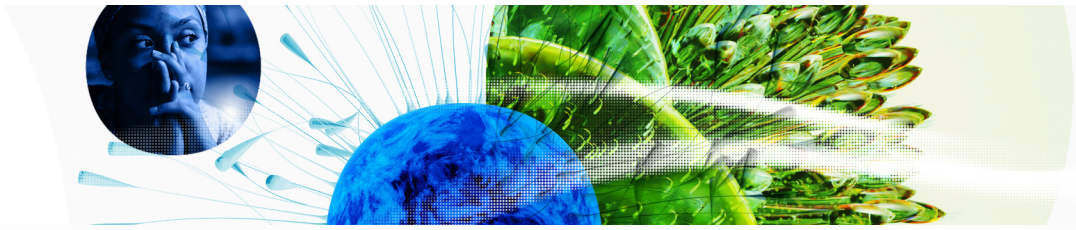
was equal to an index score of 0.182 in 2020, up by 19.3% from the year prior – and equivalent to an indicator rank of 62.



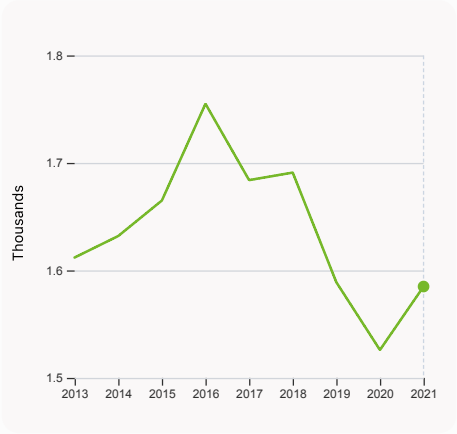
5.1.1 Knowledge-intensive employment, %

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.

Global Innovation Index 2023

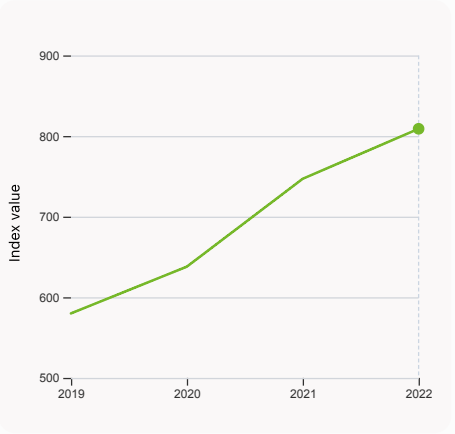


> Innovation outputs in Norway



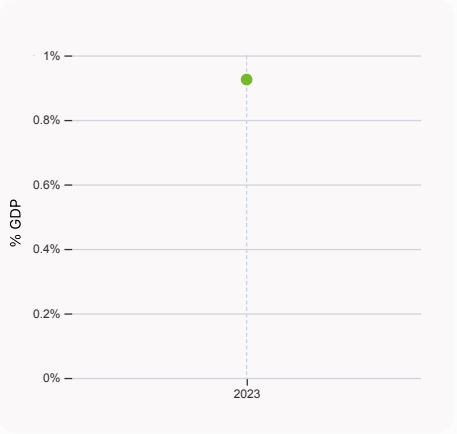
6.1.1 Patents by origin

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



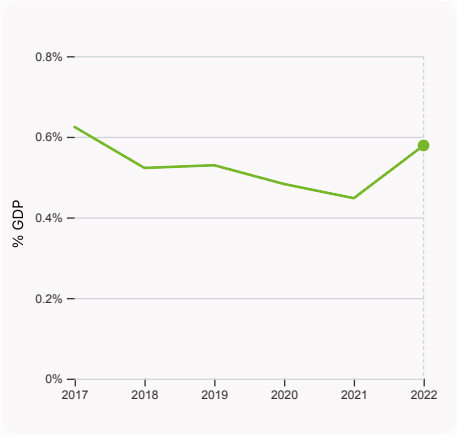
6.1.5 Citable documents H-index

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.



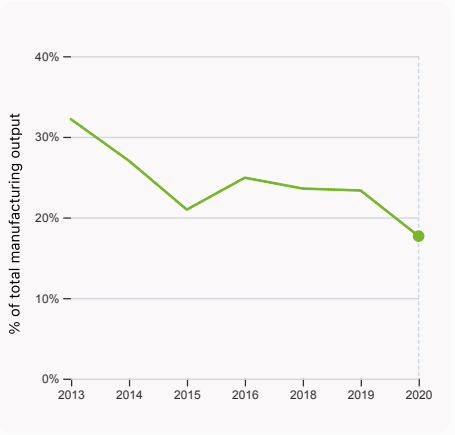
6.2.2 Unicorn valuation, % GDP

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



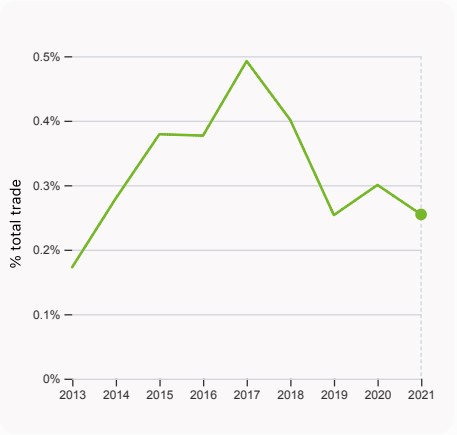
6.2.3 Software spending, % GDP

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, %

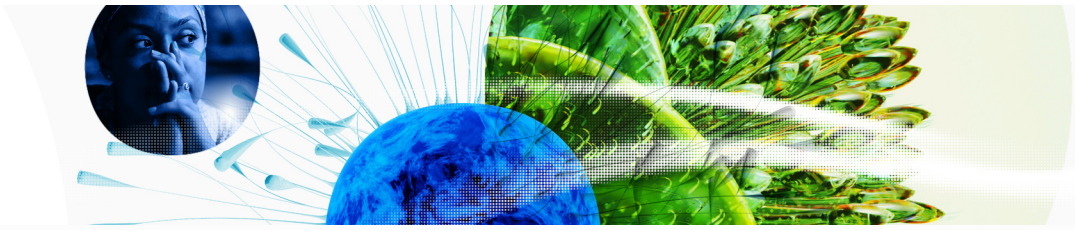
was equal to 17.68% of total manufacturing output in 2020, down by 5.66 percentage points from the year prior – and equivalent to an indicator rank of 69.

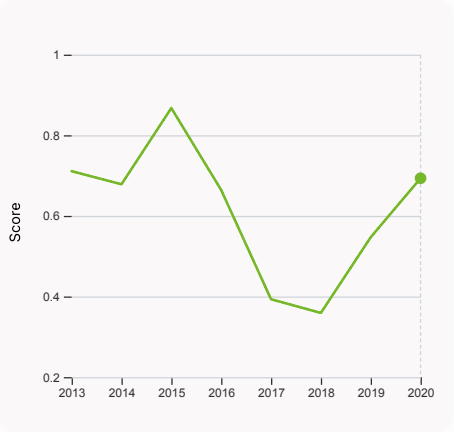


6.3.1 Intellectual property receipts, % total trade

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.

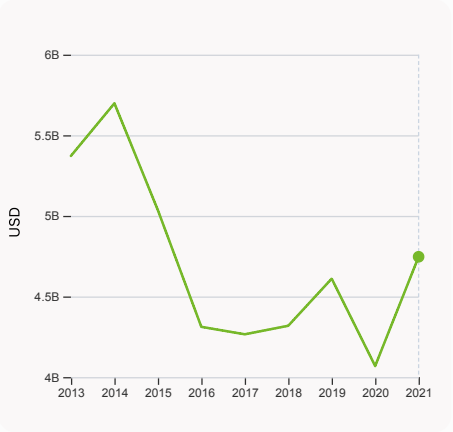
Global Innovation Index 2023





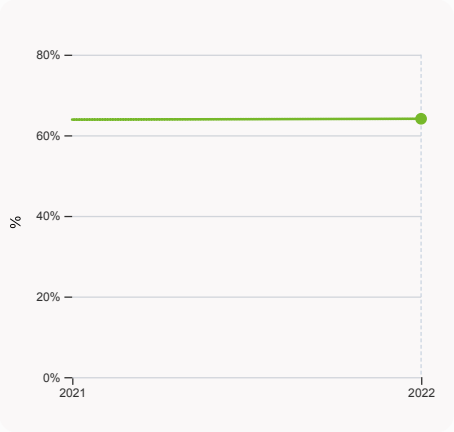
6.3.2 Production and export complexity

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.



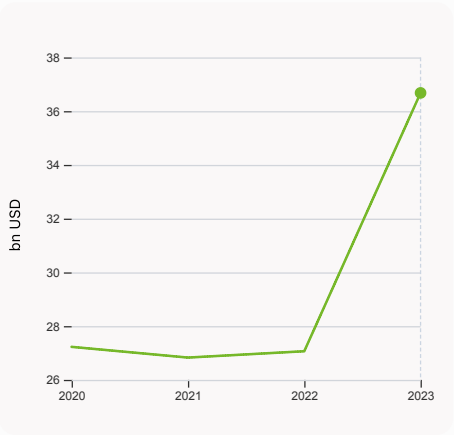
6.3.3 High-tech exports

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.



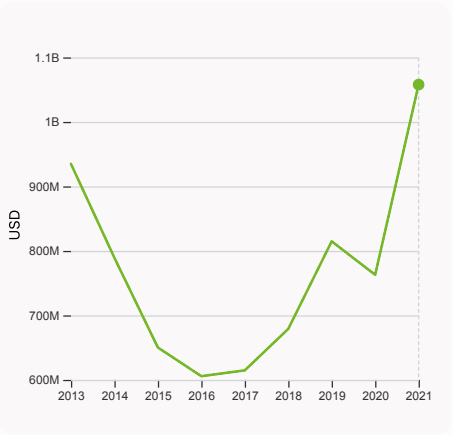
7.1.1 Intangible asset intensity, top 15, %

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.



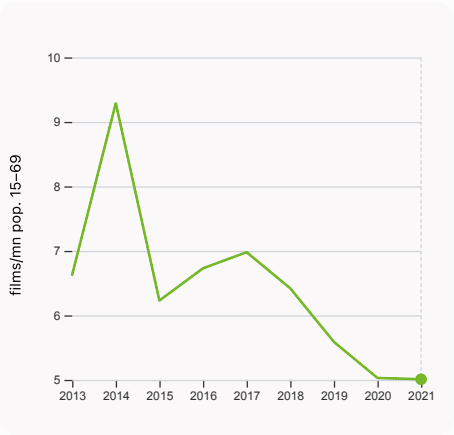
7.1.3 Global brand value, top 5,000

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

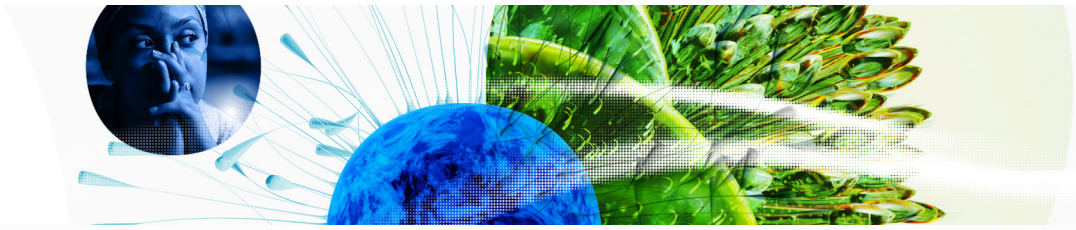
was equal to 1,057,868,000 USD in 2021, up by 38.66% from the year prior – and equivalent to an indicator rank of 48.

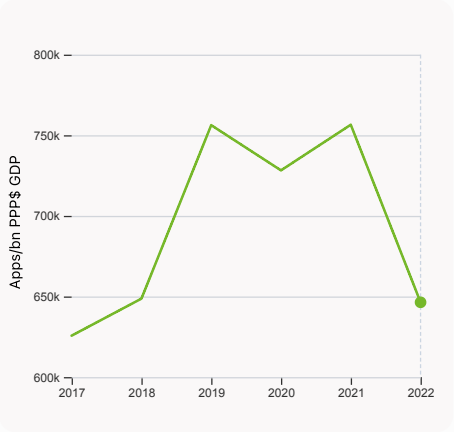


7.2.2 National feature films/mn pop. 15-69

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.

Global Innovation Index 2023

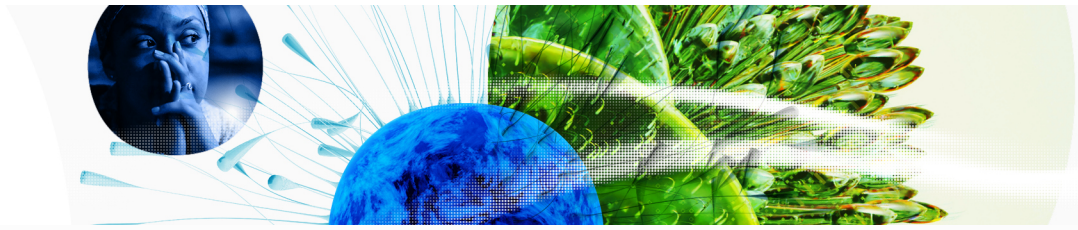




7.3.4 Mobile app creation/bn PPP$ GDP

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.

Global Innovation Index 2023



→ 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

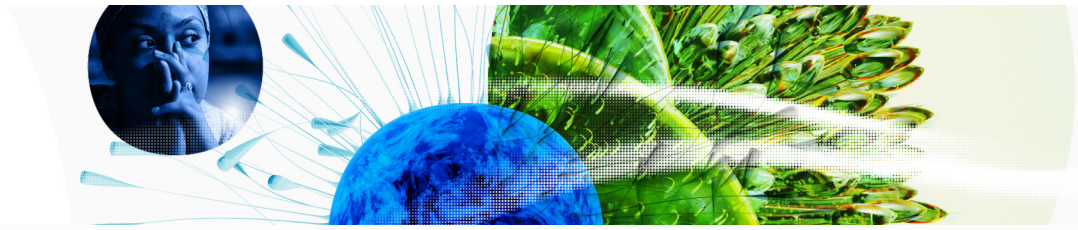
Rank	University	Score
101	UNIVERSITY OF OSLO	58.70
207	UNIVERSITY OF BERGEN	42.70
352	NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY	30.90

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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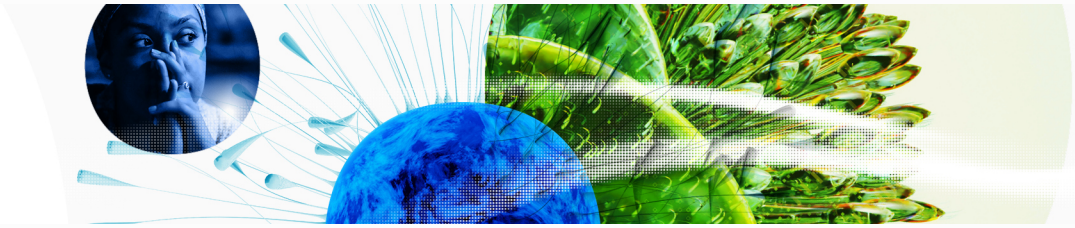

Norway

GII 2023 rank **19**

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
Institutions	**85.1**	**4**
1.1 Institutional environment	**86.8**	**3**
1.1.1 Operational stability for businesses*	86.1	5 ●
1.1.2 Government effectiveness*	87.5	5 ●
1.2 Regulatory environment	**94.7**	**4**
1.2.1 Regulatory quality*	84.5	10
1.2.2 Rule of law*	96.8	2 ●
1.2.3 Cost of redundancy dismissal	8.7	20
1.3 Business environment	**73.7**	**18**
1.3.1 Policies for doing business†	75.3	18
1.3.2 Entrepreneurship policies and culture†	72.2	14
Human capital and research	**53.2**	**19**
2.1 Education	**73.4**	**3**
2.1.1 Expenditure on education, % GDP	7.9	4 ●
2.1.2 Government funding/pupil, secondary, % GDP/cap	26.6	14
2.1.3 School life expectancy, years	18.2	12
2.1.4 PISA scales in reading, maths and science	496.9	22
2.1.5 Pupil-teacher ratio, secondary	8.7	20
2.2 Tertiary education	**33.9**	**54**
2.2.1 Tertiary enrolment, % gross	84.4	18
2.2.2 Graduates in science and engineering, %	21.2	64 ○
2.2.3 Tertiary inbound mobility, %	4.4	54
2.3 Research and development (R&D)	**52.4**	**19**
2.3.1 Researchers, FTE/mn pop.	7,140.3	6 ●
2.3.2 Gross expenditure on R&D, % GDP	1.9	20
2.3.3 Global corporate R&D investors, top 3, mn US$	56.2	27
2.3.4 QS university ranking, top 3*	44.7	28
Infrastructure	**63.2**	**7**
3.1 Information and communication technologies (ICTs)	**82.7**	**29**
3.1.1 ICT access*	88.4	32
3.1.2 ICT use*	95.9	8
3.1.3 Government's online service*	78.0	39 ◇
3.1.4 E-participation*	68.6	43
3.2 General infrastructure	**64.3**	**4**
3.2.1 Electricity output, GWh/mn pop.	29,134.6	1 ●
3.2.2 Logistics performance*	72.7	18
3.2.3 Gross capital formation, % GDP	24.2	64 ○
3.3 Ecological sustainability	**42.7**	**27**
3.3.1 GDP/unit of energy use	11.4	55
3.3.2 Environmental performance*	68.5	20
3.3.3 ISO 14001 environment/bn PPP$ GDP	4.2	23
Market sophistication	**47.5**	**29**
4.1 Credit	**64.6**	**12**
4.1.1 Finance for startups and scaleups†	65.8	25
4.1.2 Domestic credit to private sector, % GDP	166.0	6 ●
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a
4.2 Investment	**19.1**	**37** ◇
4.2.1 Market capitalization, % GDP	68.8	24
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.2	28
4.2.3 VC recipients, deals/bn PPP$ GDP	0.1	34
4.2.4 VC received, value, % GDP	0.0	39 ◇
4.3 Trade, diversification, and market scale	**58.9**	**62**
4.3.1 Applied tariff rate, weighted avg., %	2.8	69 ○ ◇
4.3.2 Domestic industry diversification	85.8	62 ○
4.3.3 Domestic market scale, bn PPP$	425.6	50

	Score / Value	Rank
Business sophistication	**52.5**	**22** ◇
5.1 Knowledge workers	**61.5**	**19**
5.1.1 Knowledge-intensive employment, %	52.3	5 ●
5.1.2 Firms offering formal training, %	n/a	n/a
5.1.3 GERD performed by business, % GDP	1.0	21
5.1.4 GERD financed by business, %	44.5	36 ◇
5.1.5 Females employed w/advanced degrees, %	27.6	10
5.2 Innovation linkages	**52.9**	**17**
5.2.1 University-industry R&D collaboration†	72.6	22
5.2.2 State of cluster development†	75.9	17
5.2.3 GERD financed by abroad, % GDP	0.2	24
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.1	14
5.2.5 Patent families/bn PPP$ GDP	1.8	21
5.3 Knowledge absorption	**43.2**	**35** ◇
5.3.1 Intellectual property payments, % total trade	0.5	72 ○ ◇
5.3.2 High-tech imports, % total trade	6.8	89 ○
5.3.3 ICT services imports, % total trade	3.1	15
5.3.4 FDI net inflows, % GDP	1.9	74 ○
5.3.5 Research talent, % in businesses	51.0	24
Knowledge and technology outputs	**37.5**	**28** ◇
6.1 Knowledge creation	**49.7**	**15**
6.1.1 Patents by origin/bn PPP$ GDP	4.1	21
6.1.2 PCT patents by origin/bn PPP$ GDP	1.9	16
6.1.3 Utility models by origin/bn PPP$ GDP	n/a	n/a
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a
6.1.5 Citable documents H-index	42.6	21
6.2 Knowledge impact	**34.6**	**42** ◇
6.2.1 Labor productivity growth, %	0.2	92 ○
6.2.2 Unicorn valuation, % GDP	0.9	35 ◇
6.2.3 Software spending, % GDP	0.6	18
6.2.4 High-tech manufacturing, %	17.7	69 ○ ◇
6.3 Knowledge diffusion	**28.0**	**56** ◇
6.3.1 Intellectual property receipts, % total trade	0.3	39 ◇
6.3.2 Production and export complexity	67.1	37 ◇
6.3.3 High-tech exports, % total trade	2.8	49
6.3.4 ICT services exports, % total trade	1.6	67 ○
6.3.5 ISO 9001 quality/bn PPP$ GDP	7.1	39
Creative outputs	**44.7**	**23**
7.1 Intangible assets	**38.7**	**47** ◇
7.1.1 Intangible asset intensity, top 15, %	64.1	31
7.1.2 Trademarks by origin/bn PPP$ GDP	30.8	76 ○
7.1.3 Global brand value, top 5,000	7.5	28
7.1.4 Industrial designs by origin/bn PPP$ GDP	1.2	62
7.2 Creative goods and services	**31.5**	**26**
7.2.1 Cultural and creative services exports, % total trade	0.6	48
7.2.2 National feature films/mn pop. 15-69	5.0	22
7.2.3 Entertainment and media market/th pop. 15-69	75.7	4 ●
7.2.4 Creative goods exports, % total trade	0.5	63
7.3 Online creativity	**69.9**	**7**
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	57.9	13
7.3.2 Country-code TLDs/th pop. 15-69	65.5	12
7.3.3 GitHub commits/mn pop. 15-69	82.0	5 ●
7.3.4 Mobile app creation/bn PPP$ GDP	74.1	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; 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.

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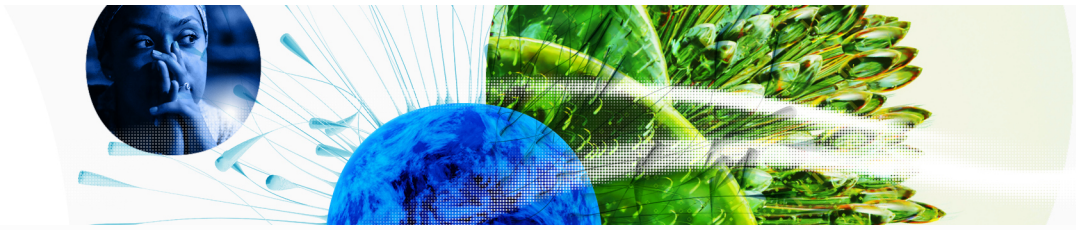

→ Data availability

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)

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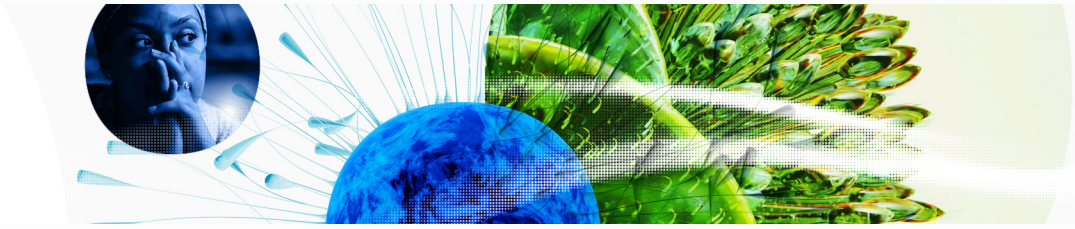

About the Global Innovation Index

- 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.

Source: Global Innovation Index Database, WIPO, 2023.

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.