Global Innovation Index 2022

NORWAY

22nd Norway ranks 22nd among the 132 economies featured in the GII 2022.

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.

The following table shows the rankings of Norway over the past three years, noting that 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 2022 is between ranks 21 and 24.

Rankings for Norway (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	20	15	28
2021	20	13	28
2022	22	14	29

- Norway performs better in innovation inputs than innovation outputs in 2022.
- This year Norway ranks 14th in innovation inputs, lower than last year but higher than 2020.
- As for innovation outputs, Norway ranks 29th. This position is lower than both 2021 and 2020.

21st Norway ranks 21st among the 48 high-income group economies.

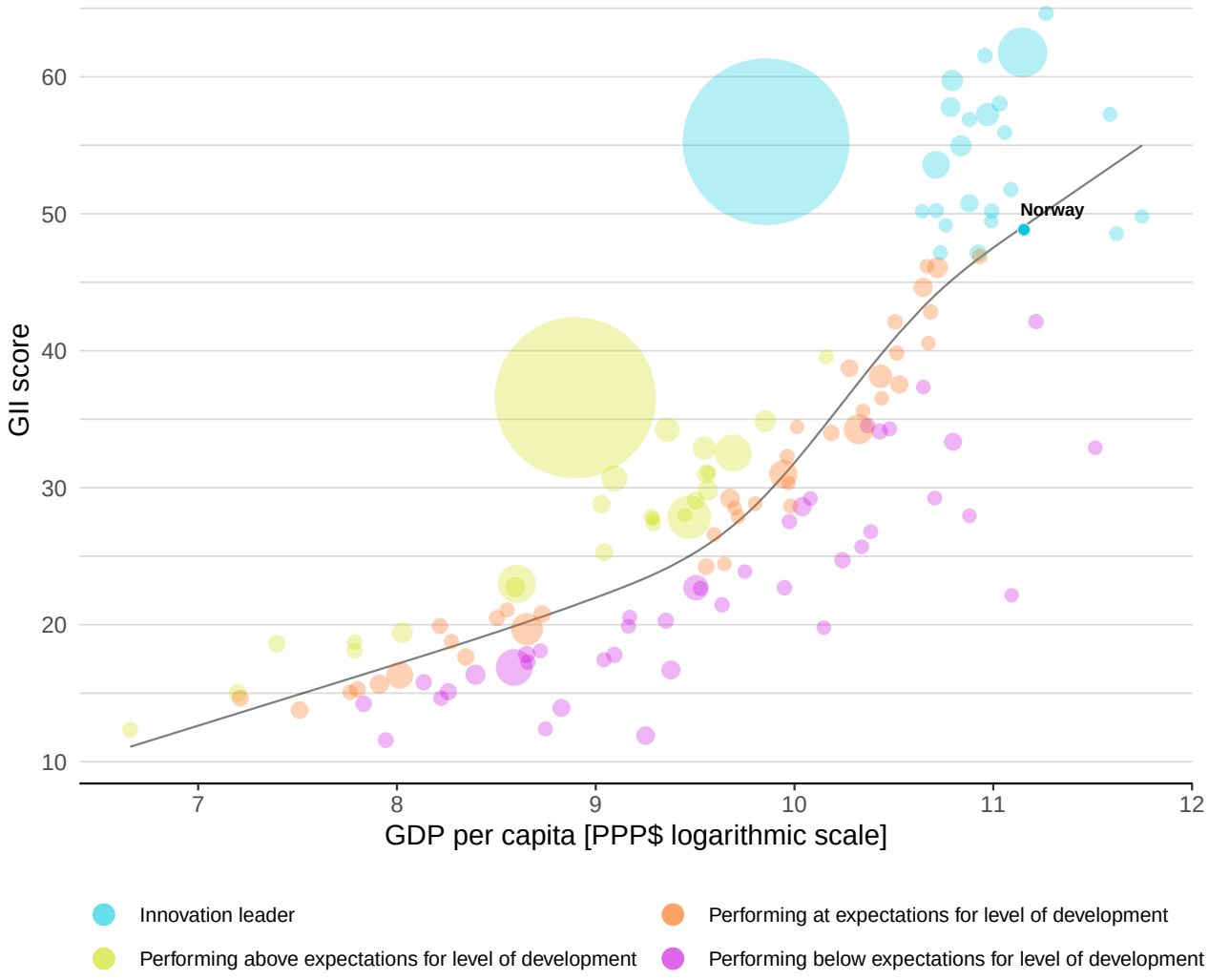
14th Norway ranks 14th among the 39 economies in Europe.

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, Norway's performance is above expectations for its level of development.

The positive relationship between innovation and development

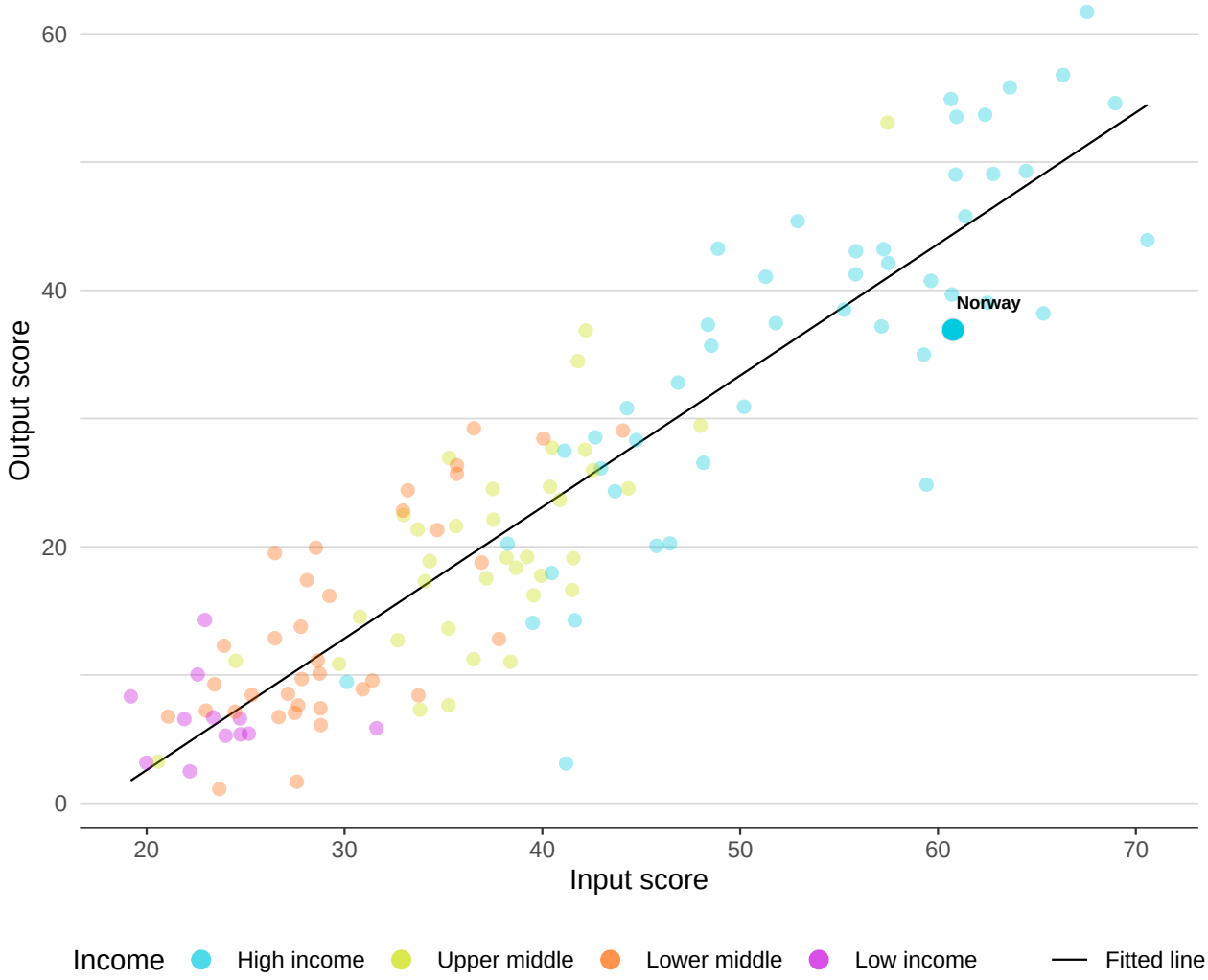


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

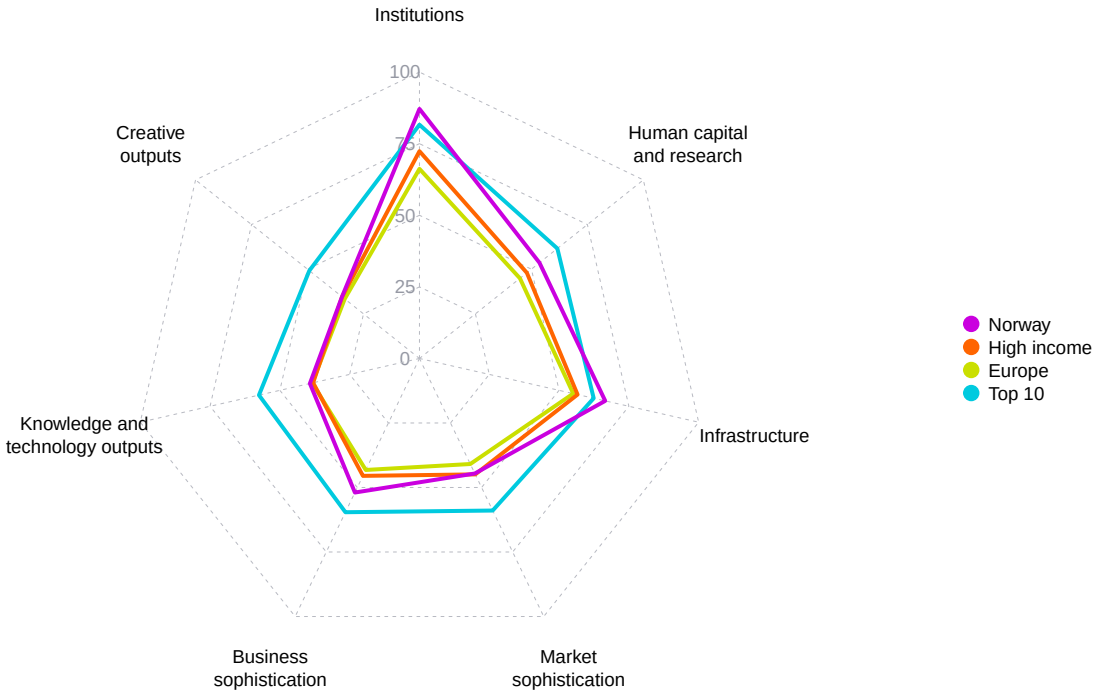
Norway produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

The seven GII pillar scores for Norway



High-income group economies

Norway performs above the high-income group average in six pillars, namely: Institutions; Human capital and research; Infrastructure; Business sophistication; Knowledge and technology outputs; and, Creative outputs.

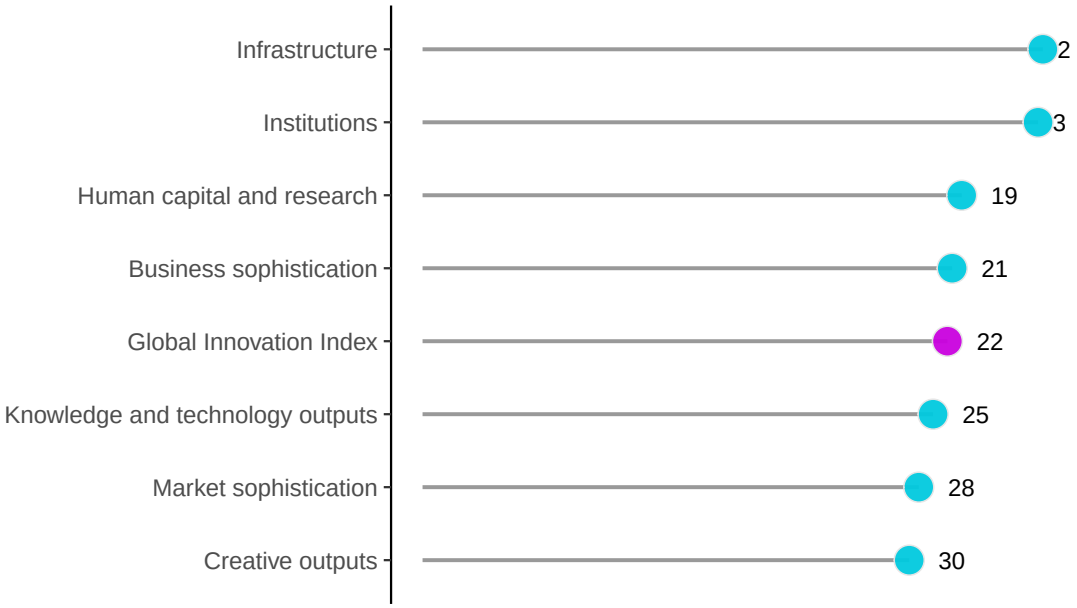
Europe

Norway performs above the regional average in all GII pillars.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Norway performs best in Infrastructure and its weakest performance is in Creative outputs.

The seven GII pillar ranks for Norway



Note: The highest possible ranking in each pillar is 1.

The full WIPO Intellectual Property Statistics profile for Norway can be found at:

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=NO.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Norway in the GII 2022.

Strengths and weaknesses for Norway

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
1.1.2	Government effectiveness	4	2.2.2	Graduates in science and engineering, %	59
1.2.2	Rule of law	2	2.2.3	Tertiary inbound mobility, %	55
2.1.1	Expenditure on education, % GDP	4	4.3.1	Applied tariff rate, weighted avg., %	70
2.3.1	Researchers, FTE/mn pop.	6	5.3.1	Intellectual property payments, % total trade	68
3.1.2	ICT use	8	5.3.2	High-tech imports, % total trade	71
3.2.1	Electricity output, GWh/mn pop.	1	5.3.4	FDI net inflows, % GDP	114
4.1.2	Domestic credit to private sector, % GDP	6	6.2.1	Labor productivity growth, %	72
5.1.1	Knowledge-intensive employment, %	4	6.3.4	ICT services exports, % total trade	61
5.3.3	ICT services imports, % total trade	7	7.1.2	Trademarks by origin/bn PPP$ GDP	74
7.3.3	GitHub commit pushes received/mn pop. 15–69	6	7.2.4	Printing and other media, % manufacturing	49

GII 2022 rank

Norway

22

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
29	14	High	EUR	5.5	378.4	69,859

		Score/ Value	Rank
Institutions		**87.1**	**3** ● ◆
1.1	**Political environment**	90.3	3 ●
1.1.1	Political and operational stability*	89.1	7
1.1.2	Government effectiveness*	91.4	4 ● ◆
1.2	**Regulatory environment**	95.6	4 ●
1.2.1	Regulatory quality*	87.3	9
1.2.2	Rule of law*	97.5	2 ● ◆
1.2.3	Cost of redundancy dismissal	8.7	20
1.3	**Business environment**	75.6	10
1.3.1	Policies for doing business† 🕘	70.7	18
1.3.2	Entrepreneurship policies and culture*	80.5	6
Human capital and research		**53.6**	**19**
2.1	**Education**	72.4	3 ● ◆
2.1.1	Expenditure on education, % GDP 🕘	7.6	4 ● ◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	25.7	19
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	8.9	18 ◆
2.2	**Tertiary education**	35.3	47
2.2.1	Tertiary enrolment, % gross	83.2	18
2.2.2	Graduates in science and engineering, %	21.2	59 ○
2.2.3	Tertiary inbound mobility, %	4.3	55 ○ ◇
2.3	**Research and development (R&D)**	53.1	20
2.3.1	Researchers, FTE/mn pop.	6,699.1	6 ●
2.3.2	Gross expenditure on R&D, % GDP	2.3	16
2.3.3	Global corporate R&D investors, top 3, mn USD	55.5	25
2.3.4	QS university ranking, top 3*	44.5	25
Infrastructure		**66.5**	**2** ● ◆
3.1	**Information and communication technologies (ICTs)**	88.9	16
3.1.1	ICT access*	91.6	33
3.1.2	ICT use*	86.0	8 ●
3.1.3	Government's online service*	87.6	19
3.1.4	E-participation*	90.5	18
3.2	**General infrastructure**	72.5	2 ● ◆
3.2.1	Electricity output, GWh/mn pop.	28,494.4	1 ● ◆
3.2.2	Logistics performance*	76.7	21
3.2.3	Gross capital formation, % GDP	28.2	30
3.3	**Ecological sustainability**	38.2	34
3.3.1	GDP/unit of energy use	11.5	55
3.3.2	Environmental performance*	59.3	20
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	4.0	25
Market sophistication		**44.6**	**28**
4.1	**Credit**	56.7	9
4.1.1	Finance for startups and scaleups*	50.0	13
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**	17.6	37 ◇
4.2.1	Market capitalization, % GDP 🕘	68.8	25
4.2.2	Venture capital investors, deals/bn PPP$ GDP	0.1	29 ◇
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	0.1	32
4.2.4	Venture capital received, value, % GDP	0.0	39 ◇
4.3	**Trade, diversification, and market scale**	59.5	56
4.3.1	Applied tariff rate, weighted avg., %	2.8	70 ○ ◇
4.3.2	Domestic industry diversification	88.3	50
4.3.3	Domestic market scale, bn PPP$	378.4	50

		Score/ Value	Rank
Business sophistication		**52.0**	**21**
5.1	**Knowledge workers**	62.7	17
5.1.1	Knowledge-intensive employment, %	52.6	4 ●
5.1.2	Firms offering formal training, %	n/a	n/a
5.1.3	GERD performed by business, % GDP	1.2	18
5.1.4	GERD financed by business, %	43.2	38 ◇
5.1.5	Females employed w/advanced degrees, %	27.2	11
5.2	**Innovation linkages**	47.9	17
5.2.1	University-industry R&D collaboration† 🕘	61.7	21
5.2.2	State of cluster development and depth† 🕘	64.6	16
5.2.3	GERD financed by abroad, % GDP	0.2	23
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.1	18
5.2.5	Patent families/bn PPP$ GDP	1.9	19
5.3	**Knowledge absorption**	45.3	26
5.3.1	Intellectual property payments, % total trade	0.5	68 ○ ◇
5.3.2	High-tech imports, % total trade	8.1	71 ○
5.3.3	ICT services imports, % total trade	4.6	7 ● ◆
5.3.4	FDI net inflows, % GDP	0.6	114 ○
5.3.5	Research talent, % in businesses	51.0	23
Knowledge and technology outputs		**39.2**	**25**
6.1	**Knowledge creation**	46.1	15
6.1.1	Patents by origin/bn PPP$ GDP	4.3	21
6.1.2	PCT patents by origin/bn PPP$ GDP	1.9	17
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a
6.1.4	Scientific and technical articles/bn PPP$ GDP	50.0	11
6.1.5	Citable documents H-index	42.1	20
6.2	**Knowledge impact**	41.5	20
6.2.1	Labor productivity growth, %	0.7	72 ○
6.2.2	New businesses/th pop. 15–64	9.4	15
6.2.3	Software spending, % GDP	0.5	15
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	7.3	36
6.2.5	High-tech manufacturing, %	37.1	33
6.3	**Knowledge diffusion**	30.2	50 ◇
6.3.1	Intellectual property receipts, % total trade	0.3	31 ◇
6.3.2	Production and export complexity	54.7	41 ◇
6.3.3	High-tech exports, % total trade	3.5	47
6.3.4	ICT services exports, % total trade	2.1	61 ○
Creative outputs		**34.6**	**30** ◇
7.1	**Intangible assets**	32.9	55 ◇
7.1.1	Intangible asset intensity, top 15, %	63.9	35
7.1.2	Trademarks by origin/bn PPP$ GDP	31.2	74 ○ ◇
7.1.3	Global brand value, top 5,000, % GDP	60.8	31
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.4	57
7.2	**Creative goods and services**	27.9	35 ◇
7.2.1	Cultural and creative services exports, % total trade	0.6	46
7.2.2	National feature films/mn pop. 15–69	5.5	20
7.2.3	Entertainment and media market/th pop. 15–69	68.7	5
7.2.4	Printing and other media, % manufacturing	1.0	49 ○
7.2.5	Creative goods exports, % total trade	0.7	55
7.3	**Online creativity**	44.7	12
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	49.6	15
7.3.2	Country-code TLDs/th pop. 15–69	62.3	12
7.3.3	GitHub commit pushes received/mn pop. 15–69	54.2	6 ●
7.3.4	Mobile app creation/bn PPP$ GDP	12.6	29

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; see appendices for details, including the year of the data, at https://www.wipo.int/global_innovation_index/en/2022. 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.

Missing data for Norway

Code	Indicator name	Economy year	Model year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2020	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	2020	World Intellectual Property Organization

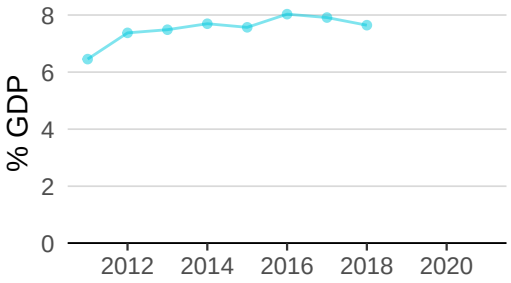
Outdated data for Norway

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

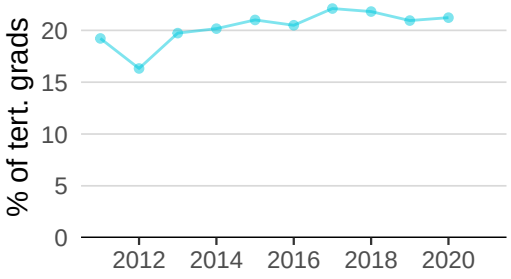
NORWAY'S INNOVATION SYSTEM

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

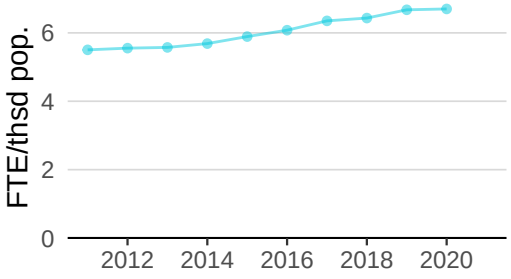
Innovation inputs



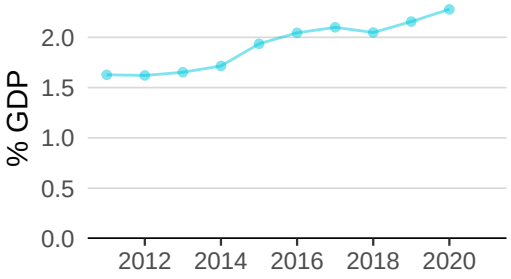
2.1.1 Expenditure on education was equal to 7.6% GDP in 2018–down by 3 percentage points from the year prior–and equivalent to an indicator rank of 4.



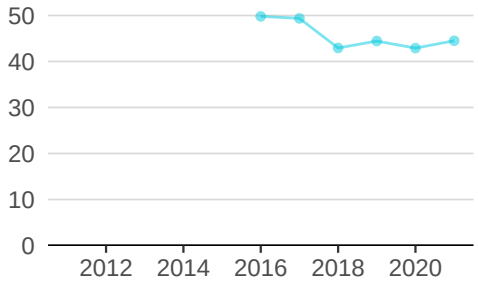
2.2.2 Graduates in science and engineering was equal to 21.2% of tert. grads in 2020–up by 1 percentage point from the year prior–and equivalent to an indicator rank of 59.



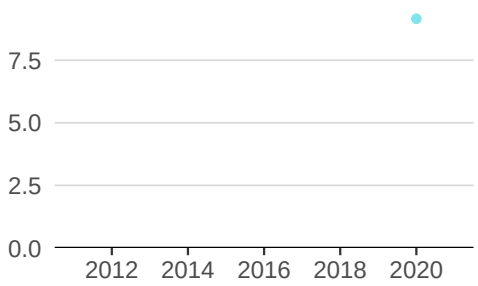
2.3.1 Researchers was equal to 6.7 FTE/thsd pop. in 2020–effectively unchanged from the year prior–and equivalent to an indicator rank of 6.



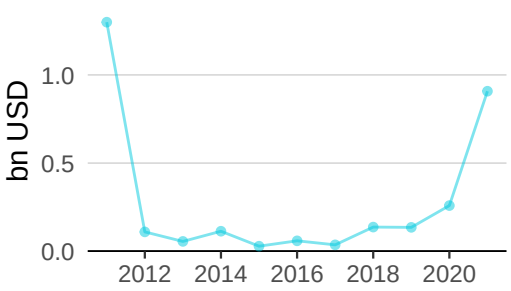
2.3.2 Gross expenditure on R&D was equal to 2.3% GDP in 2020–up by 6 percentage points from the year prior–and equivalent to an indicator rank of 16.



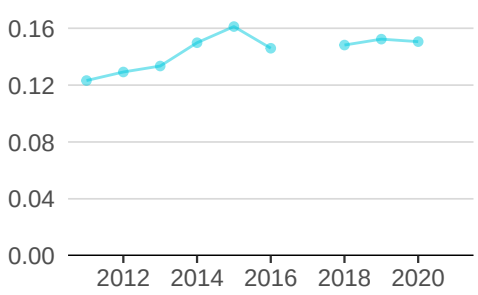
2.3.4 QS university ranking was equal to 44.5 in 2021–up by 4 percentage points from the year prior–and equivalent to an indicator rank of 25.



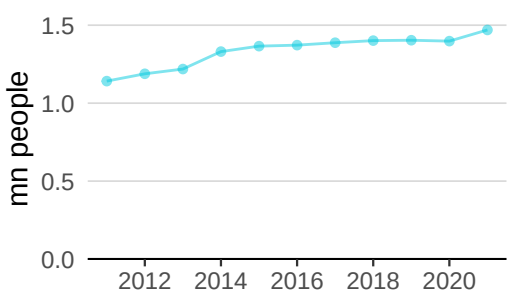
3.1.1 ICT access was equal to 9.2 in 2020 and equivalent to an indicator rank of 33.



4.2.4 Venture capital received was equal to 0.9 bn USD in 2021–up by 250 percentage points from the year prior–and equivalent to an indicator rank of 39.

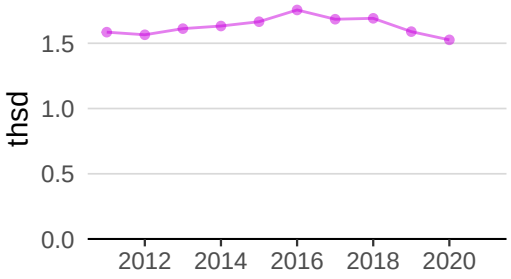


4.3.2 Domestic industry diversification was equal to 0.2 in 2020–down by 1 percentage point from the year prior–and equivalent to an indicator rank of 50.

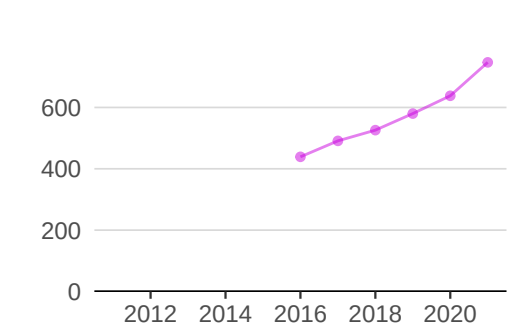


5.1.1 Knowledge-intensive employment was equal to 1.5 mn people in 2021–up by 5 percentage points from the year prior–and equivalent to an indicator rank of 4.

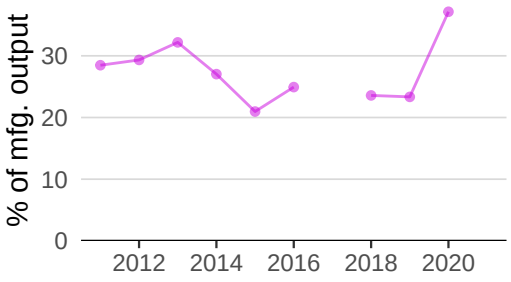
Innovation outputs



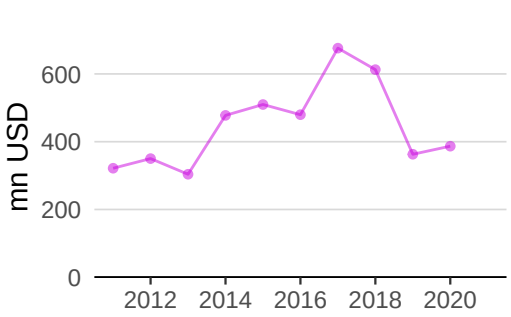
6.1.1 Patents by origin was equal to 1.5 thsd in 2020–down by 4 percentage points from the year prior–and equivalent to an indicator rank of 21.



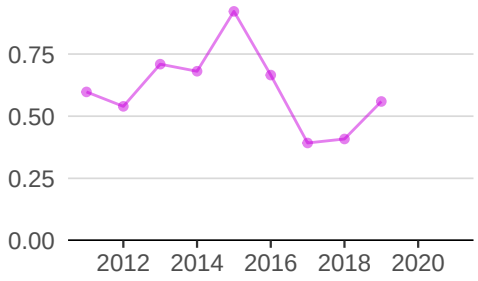
6.1.5 Citable documents H-index was equal to 747.0 in 2021–up by 17 percentage points from the year prior–and equivalent to an indicator rank of 20.



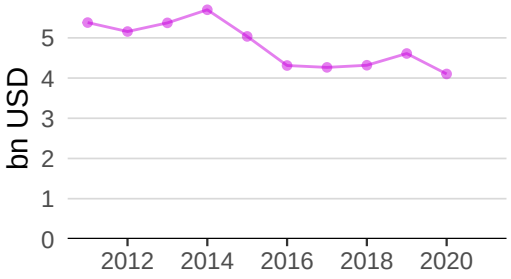
6.2.5 High-tech manufacturing was equal to 37.1% of mfg. output in 2020–up by 59 percentage points from the year prior–and equivalent to an indicator rank of 33.



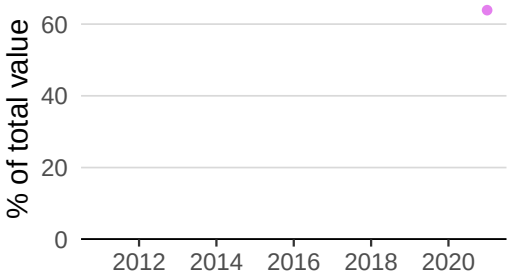
6.3.1 Intellectual property receipts was equal to 386.8 mn USD in 2020–up by 7 percentage points from the year prior–and equivalent to an indicator rank of 31.



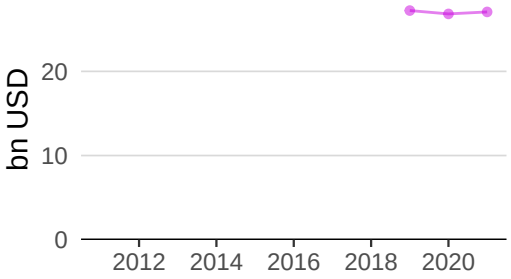
6.3.2 Production and export complexity was equal to 0.6 in 2019–up by 37 percentage points from the year prior–and equivalent to an indicator rank of 41.



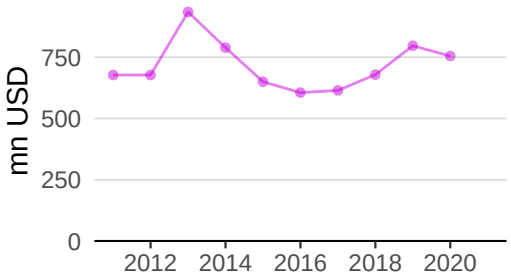
6.3.3 High-tech exports was equal to 4.1 bn USD in 2020–down by 11 percentage points from the year prior–and equivalent to an indicator rank of 47.



7.1.1 Intangible asset intensity was equal to 63.9% of total value in 2021 and equivalent to an indicator rank of 35.



7.1.3 Global brand value was equal to 27.1 bn USD in 2021–up by 1 percentage point from the year prior–and equivalent to an indicator rank of 31.



7.2.1 Cultural and creative services exports was equal to 754.8 mn USD in 2020–down by 5 percentage points from the year prior–and equivalent to an indicator rank of 46.

NORWAY'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank
		[mn EUR]	[%]	[%]	
VISMA	Software & Computer Services	270	18.8	15.1	515
EQUINOR	Oil & Gas Producers	207	-15.3	0.6	642
DNB	Banks	178	-0.4	3.3	742

Source: European Commission's Joint Research Centre (https://iri.jrc.ec.europa.eu/scoreboard/2021-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

University	Score	Rank
UNIVERSITY OF OSLO	59.0	102
UNIVERSITY OF BERGEN	44.2	199
NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY	30.3	369=

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2022).
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".

7.1.1 Intangible asset intensity, top 15

Firm	Rank
EQUINOR	1
TELENOR	2
MOWI	3

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).
Note: Brand Finance only provides within economy ranks.

7.1.3 Global brand value, top 5,000

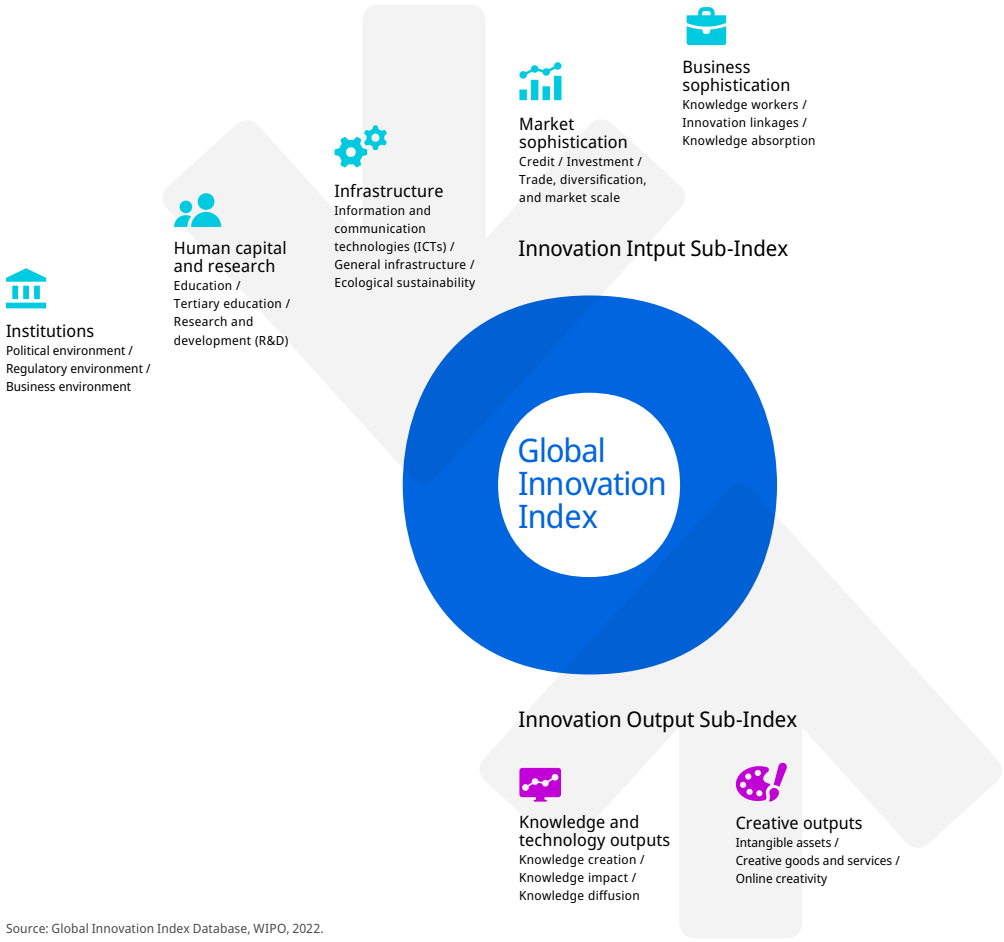
Brand	Industry	Rank
EQUINOR	Oil & Gas	1
TELENOR	Telecoms	2
DNB	Banking	3

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

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, 2022.

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.