

GLOBAL INNOVATION INDEX 2018

The Netherlands

2nd The Netherlands is ranked 2nd in the GII 2018, moving up 1 position from the previous year.

The GII indicators are grouped into innovation inputs and outputs. The following table reflects the Netherlands' rankings over time¹.

The Netherlands' ranking over time

	GII	Input	Output	Efficiency
2018	2	9	2	4
2017	3	9	2	4
2016	9	12	9	20

- Overall, the Netherlands demonstrates stability in its rankings over the last two years. Its position in innovation inputs, outputs and innovation efficiency is the same as in 2017.
- The Netherlands presents a very strong performance in innovation outputs, ranking number 2 globally and improving considerably since 2016.
- Innovation inputs have also improved since 2016, moving from the 12th to the 9th spot this year.
- The Netherlands proves to be among the most efficient countries in the world in translating its innovation inputs into more and more varied outputs. It ranks 4th in the Innovation Efficiency Ratio, gaining 16 spots from 2016. This increase is influenced by the significant improvement in innovation outputs since 2017.

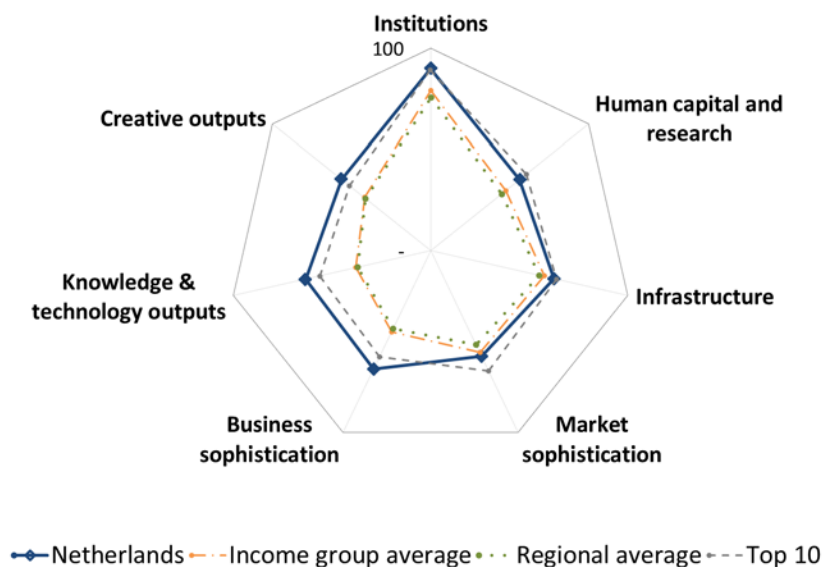
2nd The Netherlands is ranked 2nd in innovation outputs.

4th The Netherlands is the 4th most efficient economy in translating innovation inputs into outputs.

¹ Note that year-on-year comparisons of the GII ranks are imperfect and influenced by changes in the GII model and data availability.

Benchmarking the Netherlands to other high-income countries and the Europe region

The Netherlands' scores by area



High-income countries

The Netherlands ranks 2nd among the 47 high-income countries in the GII 2018. The country has high scores in 4 out of 7 GII areas – **Institutions, Business Sophistication, Knowledge & Technology Outputs, and Creative Outputs**, in which it scores above the average of the top 10 countries in the GII 2018.

Top scores in the areas *Regulatory environment, Knowledge absorption, Knowledge diffusion, and Online creativity*, are behind these high rankings.

Europe region

The Netherlands ranks 2nd among the 39 countries in Europe. Compared to other countries in Europe, it performs above-average in all 7 GII areas.

The Netherlands' innovation profile

Strengths

- The **Global Innovation Index** is highlighted as a strength for the Netherlands, as the country is the 2nd most innovative economy in the world. The Netherlands also shows strength in the **Innovation Output Sub-Index** – also ranked 2nd. The **Innovation Efficiency Ratio** is another important strength for the Netherlands, which proves to be the 4th most efficient economy in translating innovation inputs into outputs.
- The Netherlands is also strong in both the areas that capture the output side of the innovation process in the GII. It achieves remarkable results in **Knowledge & Technology Outputs** (2nd). Here it shows strength in the area *Knowledge diffusion* (2nd) and in two of its four indicators – *Intellectual property receipts* and *FDI outflows*, both ranking 1st globally.
- **Creative Outputs** ranks 3rd this year, moving up two spots from last year. Here the country exhibits strong performance in the area *Online creativity* (1st) and two of its four indicators, namely *Generic top-level domains (TLDs)* (6th) and *Country-code TLDs* (1st). Other two indicators have also strong ranks: *ICTs & business model creation* (3rd) and *ICTs & organizational model creation* (4th).
- On the **innovation input** side, a major strength for the Netherlands is **Business Sophistication** which positions 1st globally. Here the Netherlands exhibits strengths in two of its three components: the areas *Innovation linkages* (6th) and *Knowledge absorption* (1st).

At the indicator level, *University-industry research collaboration* (5th), *State of cluster development* (4th), *Intellectual property payments* (1st), and *ICT services imports* (1st) are marked as comparative strengths.

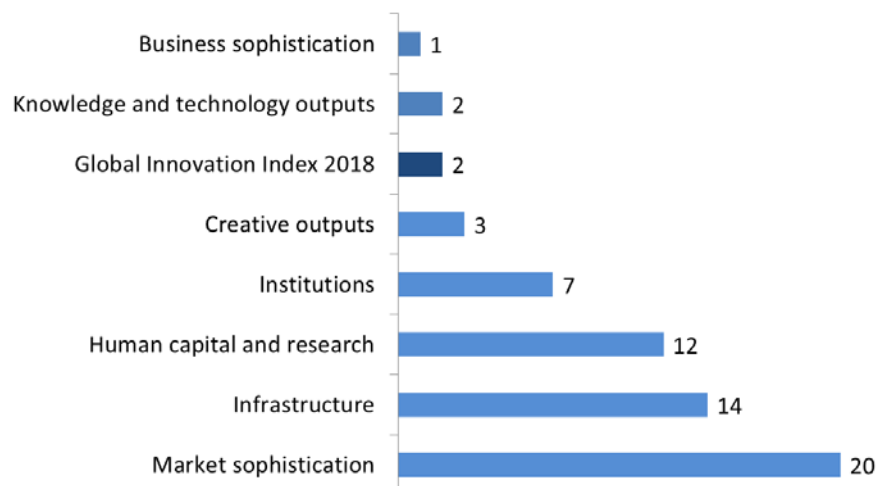
- The country also demonstrates strengths in **Institutions** (7th) and **Infrastructure** (14th). In the former, it performs strongly in the area *Business environment* (6th) and in indicator *Regulatory quality* (4th). In the latter, the area *Information and communication technologies (ICTs)* (3rd) and indicator *Logistics performance* (4th) are highlighted as strengths.

Weaknesses

- The weaknesses for the Netherlands are mostly scattered across the various **input** areas of the GII, except for the area Business Sophistication that does not present any weakness.
- In **Institutions** (7th), a weakness is found in indicator *Cost of redundancy dismissal* (61st).
- In **Human Capital & Research** (12th), the area *Tertiary education* (48th) and indicators *Pupil-teacher ratio* (63rd) and *Graduates in science & engineering* (82nd) are identified as weaknesses.
- In **Infrastructure** (14th), indicators *Gross capital formation* (79th) and *GDP per unit of energy use* (44th) present a relatively weak performance.
- In **Market Sophistication** (20th) the Netherlands demonstrates relative weaknesses in indicators *Ease of getting credit* (88th), *Ease of protecting minority investors* (61st), and *Applied tariff rate* (19th).
- On the **innovation output** side, relative weaknesses are only found in two indicators: *Productivity growth* (55th) in **Knowledge & Technology Outputs** (2nd) and *Printing & other media* (46th) in **Creative Outputs** (3rd).

The following figure presents a summary of the Netherlands' ranks in the 7 GII areas, as well as the overall rank in the GII 2018.

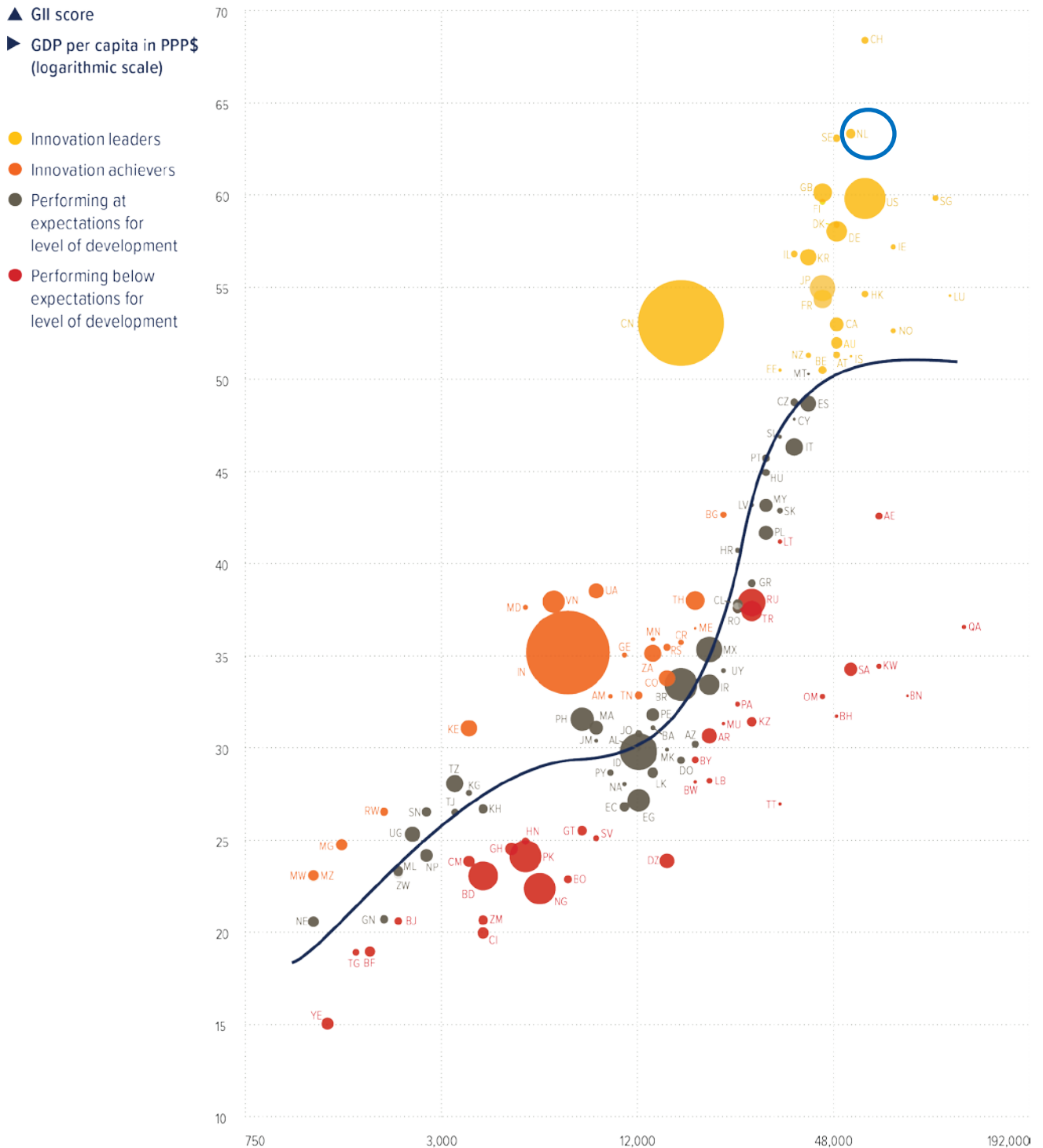
The Netherlands' rank in the GII 2018 and the 7 GII areas
 Rank 1 is the highest possible in each pillar
 Total number of countries: 126



Expected vs. Observed Innovation Performance

The GII bubble chart shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The depicted trendline gives an indication of the expected innovation performance at different levels of income. Countries located above the trendline are performing better than what would be expected based on their income level. Countries below the line are Innovation Under-performers relative to GDP.

Relative to GDP, the Netherlands performs well above its expected level of development.



Missing and Outdated Data

More and better data improves the ability of a country to understand its strengths and weaknesses and give policymakers greater capacity to plan and adapt public policies accordingly. The GII 2018 covers 126 countries that complied with the minimum indicator coverage of 35 indicators in the Innovation Input Sub-Index (66%) and 18 indicators in the Innovation Output Sub-Index (66%).

The following tables show data for the Netherlands that is not available or that is outdated.

Missing Data

Code	Indicator	Country Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2014	UNESCO Institute for Statistics
4.1.3	Microfinance gross loans, % GDP	n/a	2016	Microfinance Information Exchange, Mix Market
5.1.2	Firms offering formal training, % firms	n/a	2013	World Bank, Enterprise Surveys
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2016	WIPO, Intellectual Property Statistics

Outdated Data

Code	Indicator	Country Year	Model Year	Source
2.2.2	Graduates in science & engineering, %	2014	2016	UNESCO Institute for Statistics
6.2.5	High- & medium-high-tech manufactures, %	2014	2015	UNIDO, Industrial Statistics
7.2.1	Cultural & creative services exports, % total trade	2015	2016	WTO, Trade in Commercial Services



Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2017 rank
2 ●	9	High	EUR	4 ●	17.0	915.2	53,634.6	3

	Score/Value	Rank		Score/Value	Rank		
I	Institutions	90.0	7	B	Business sophistication	65.1	1 ●◆
1.1	Political environment.....	89.0	10	5.1	Knowledge workers.....	62.9	17
1.1.1	Political stability & safety*.....	85.2	20	5.1.1	Knowledge-intensive employment, %.....	47.2	9
1.1.2	Government effectiveness*.....	90.9	8	5.1.2	Firms offering formal training, % firms.....	n/a	n/a
1.2	Regulatory environment.....	91.7	14	5.1.3	GERD performed by business, % GDP.....	1.2	17
1.2.1	Regulatory quality*.....	94.8	4 ●	5.1.4	GERD financed by business, %.....	48.6	26
1.2.2	Rule of law*.....	95.9	7	5.1.5	Females employed w/advanced degrees, %.....	19.1	27
1.2.3	Cost of redundancy dismissal, salary weeks.....	15.8	61 ○	5.2	Innovation linkages.....	54.4	6 ●
1.3	Business environment.....	89.3	6 ●	5.2.1	University/industry research collaboration†.....	76.1	5 ●◆
1.3.1	Ease of starting a business*.....	94.3	17	5.2.2	State of cluster development†.....	73.4	4 ●◆
1.3.2	Ease of resolving insolvency*.....	84.2	8	5.2.3	GERD financed by abroad, %.....	15.5	28
				5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.1	29
				5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	4.9	10
sk	Human capital & research	56.5	12	5.3	Knowledge absorption.....	77.9	1 ●◆
2.1	Education.....	67.5	8 ◆	5.3.1	Intellectual property payments, % total trade.....	5.9	1 ●◆
2.1.1	Expenditure on education, % GDP.....	5.5	31	5.3.2	High-tech net imports, % total trade.....	12.3	20
2.1.2	Government funding/pupil, secondary, % GDP/cap.....	n/a	n/a	5.3.3	ICT services imports, % total trade.....	5.3	1 ●◆
2.1.3	School life expectancy, years.....	18.0	9	5.3.4	FDI net inflows, % GDP.....	17.5	7 ◆
2.1.4	PISA scales in reading, maths & science.....	507.9	12	5.3.5	Research talent, % in business enterprise.....	61.4	10
2.1.5	Pupil-teacher ratio, secondary.....	14.4	63 ○◇				
2.2	Tertiary education.....	36.2	48 ○	ET	Knowledge & technology outputs	63.7	2 ●◆
2.2.1	Tertiary enrolment, % gross.....	80.4	17	6.1	Knowledge creation.....	64.3	7
2.2.2	Graduates in science & engineering, % ⁽²⁾	14.1	82 ○◇	6.1.1	Patents by origin/bn PPP\$ GDP.....	10.5	10
2.2.3	Tertiary inbound mobility, %.....	10.7	15	6.1.2	PCT patents by origin/bn PPP\$ GDP.....	4.8	10
2.3	Research & development (R&D).....	65.8	12	6.1.3	Utility models by origin/bn PPP\$ GDP.....	n/a	n/a
2.3.1	Researchers, FTE/mn pop.....	4,842.7	14	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	22.8	21
2.3.2	Gross expenditure on R&D, % GDP.....	2.0	17	6.1.5	Citable documents H index.....	67.9	8
2.3.3	Global R&D companies, top 3, mn US\$.....	85.7	9	6.2	Knowledge impact.....	47.1	24
2.3.4	QS university ranking, average score top 3*.....	71.3	10	6.2.1	Growth rate of PPP\$ GDP/worker, %.....	1.1	55 ○
				6.2.2	New businesses/th pop. 15-64.....	6.1	24
✂	Infrastructure	62.4	14	6.2.3	Computer software spending, % GDP.....	0.7	9
3.1	Information & communication technologies (ICTs).....	89.2	3 ●	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	11.8	26
3.1.1	ICT access*.....	86.5	10	6.2.5	High- & medium-high-tech manufactures, % ⁽²⁾	0.3	36
3.1.2	ICT use*.....	82.8	9	6.3	Knowledge diffusion.....	79.7	2 ●◆
3.1.3	Government's online service*.....	92.8	9	6.3.1	Intellectual property receipts, % total trade.....	4.2	1 ●◆
3.1.4	E-participation*.....	94.9	5	6.3.2	High-tech net exports, % total trade.....	11.8	16
3.2	General infrastructure.....	50.5	28	6.3.3	ICT services exports, % total trade.....	6.2	9
3.2.1	Electricity output, kWh/cap.....	6,747.5	32	6.3.4	FDI net outflows, % GDP.....	25.7	1 ●◆
3.2.2	Logistics performance*.....	98.2	4 ●◆				
3.2.3	Gross capital formation, % GDP.....	20.6	79 ○	✂	Creative outputs	56.7	3 ●◆
3.3	Ecological sustainability.....	47.6	36	7.1	Intangible assets.....	57.5	17
3.3.1	GDP/unit of energy use.....	10.4	44 ○	7.1.1	Trademarks by origin/bn PPP\$ GDP.....	56.2	37
3.3.2	Environmental performance*.....	75.5	18	7.1.2	Industrial designs by origin/bn PPP\$ GDP.....	3.8	35
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....	3.1	32	7.1.3	ICTs & business model creation†.....	84.4	3 ●◆
				7.1.4	ICTs & organizational model creation†.....	81.0	4 ●◆
📈	Market sophistication	58.3	20	7.2	Creative goods & services.....	44.6	9
4.1	Credit.....	46.1	35	7.2.1	Cultural & creative services exports, % total trade ⁽²⁾	1.1	12
4.1.1	Ease of getting credit*.....	45.0	88 ○◇	7.2.2	National feature films/mn pop. 15-69.....	7.2	23
4.1.2	Domestic credit to private sector, % GDP.....	110.3	23	7.2.3	Entertainment & Media market/th pop. 15-69.....	50.2	17
4.1.3	Microfinance gross loans, % GDP.....	n/a	n/a	7.2.4	Printing & other media, % manufacturing.....	1.2	46 ○
4.2	Investment.....	51.8	29	7.2.5	Creative goods exports, % total trade.....	4.6	11 ◆
4.2.1	Ease of protecting minority investors*.....	58.3	61 ○	7.3	Online creativity.....	67.1	1 ●◆
4.2.2	Market capitalization, % GDP.....	98.5	10	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....	77.3	6 ●◆
4.2.3	Venture capital deals/bn PPP\$ GDP.....	0.1	10	7.3.2	Country-code TLDs/th pop. 15-69.....	100.0	1 ●◆
4.3	Trade, competition, & market scale.....	76.8	15	7.3.3	Wikipedia edits/mn pop. 15-69.....	86.3	10
4.3.1	Applied tariff rate, weighted mean, %.....	1.6	19 ○	7.3.4	Mobile app creation/bn PPP\$ GDP.....	33.0	27
4.3.2	Intensity of local competition†.....	82.3	6				
4.3.3	Domestic market scale, bn PPP\$.....	915.2	26				

NOTES: ● indicates a strength; ○ a weakness; ◆ a strength relative to the other top 25-ranked GII economies; ◇ a weakness relative to the other top 25; * an index; † a survey question. ⁽²⁾ indicates that the country's data are older than the base year; see Appendix II for details, including the year of the data, at <http://globalinnovationindex.org>. Square brackets indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; see page 75 of this appendix for details.