GLOBAL INNOVATION INDEX 2020

NETHERLANDS

5th The Netherlands ranks 5th among the 131 economies featured in the GII 2020.

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 the Netherlands 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 the Netherlands in the GII 2020 is between ranks 4 and 6.

Rankings of Netherlands (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	5	11	4
2019	4	11	2
2018	2	9	2

- The Netherlands performs better in innovation outputs than innovation inputs in 2020.
- This year the Netherlands ranks 11th in innovation inputs, the same as last year and lower compared to 2018.
- As for innovation outputs, the Netherlands ranks 4th. This position is lower than last year and lower compared to 2018.

5th The Netherlands ranks 5th among the 49 high-income group economies.

4th The Netherlands ranks 4th among the 39 economies in Europe.

The Netherlands ranks 5th in the GII this year, down one position since 2019. It moves down one position to 4th in Europe and to 5th in the GII rankings among high-income economies. Among the most notable gains this year are improvements in the indicators Government funding/pupil in secondary education, Tertiary enrolment, Graduates in science & engineering, and Patent families in 2+ offices.

The Netherlands ranks 9th worldwide according to the new GII indicator, Global brand value. The Netherlands hosts 77 of the top 5,000 brands with the highest brand value worldwide, including Shell, ING, Philips and Heineken.

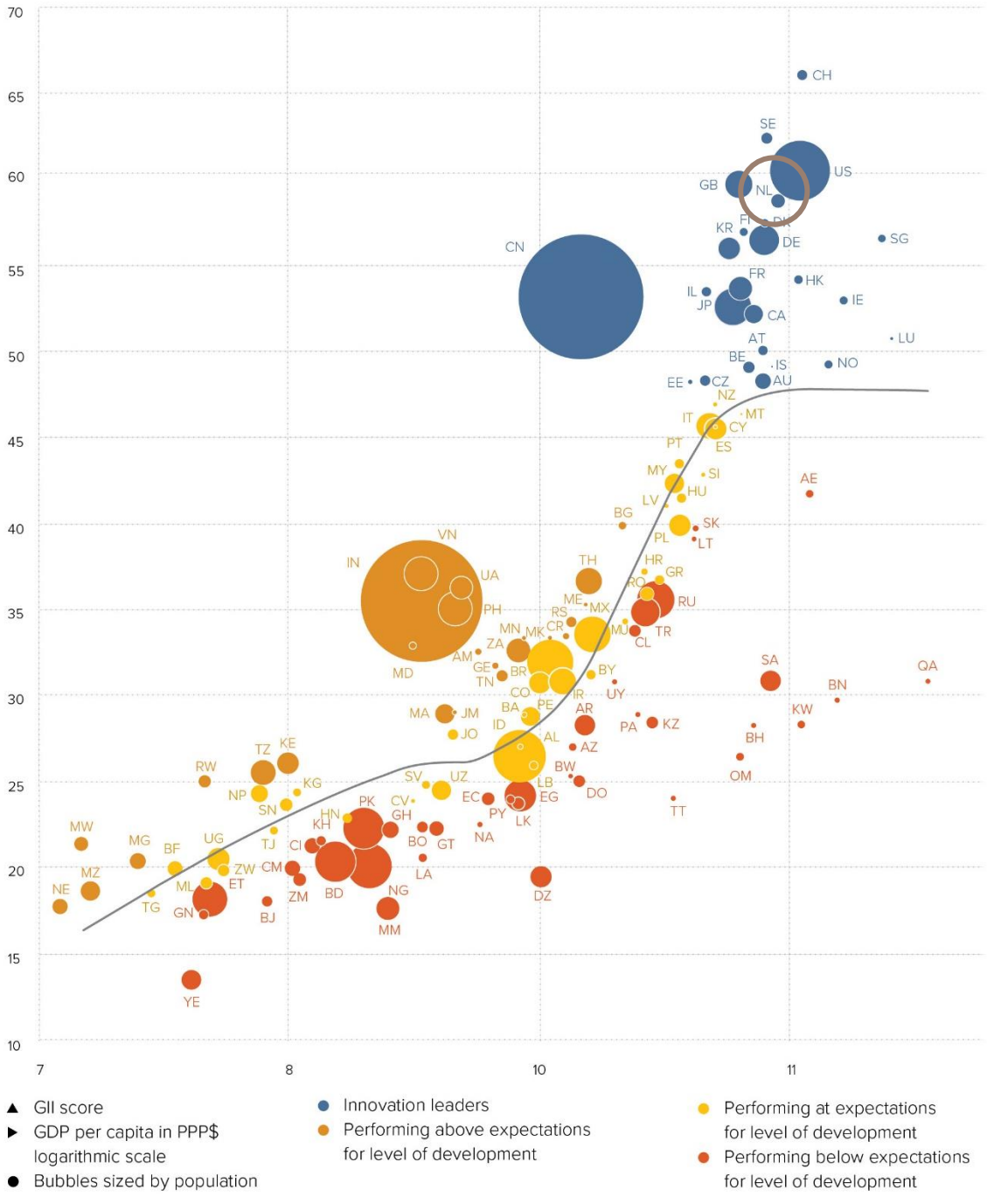
The Netherlands ranks 13th according to the quality of universities metric, with Delft University of Technology, University of Amsterdam and Eindhoven University of Technology among the top international higher education institutions. The Netherlands is also home to two of the top 100 science and technology clusters, Amsterdam-Rotterdam (18) and Eindhoven (34).

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, the Netherlands' performance is above expectations for its level of development.

The positive relationship between innovation and development



▲ GII score
▶ GDP per capita in PPP$ logarithmic scale
● Bubbles sized by population

● Innovation leaders
● Performing above expectations for level of development

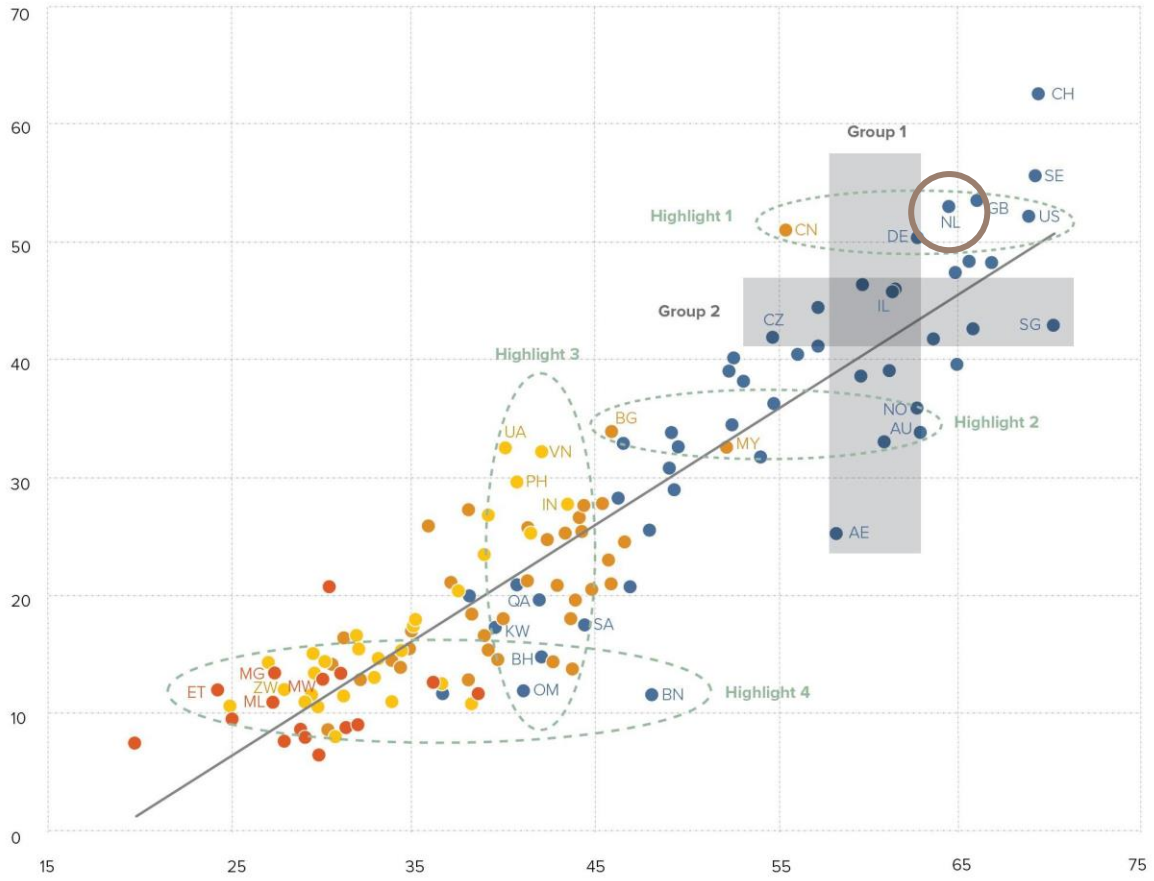
● Performing at expectations for level of development
● Performing below expectations for level of development

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.

The Netherlands produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020



▲ Output score
► Input score

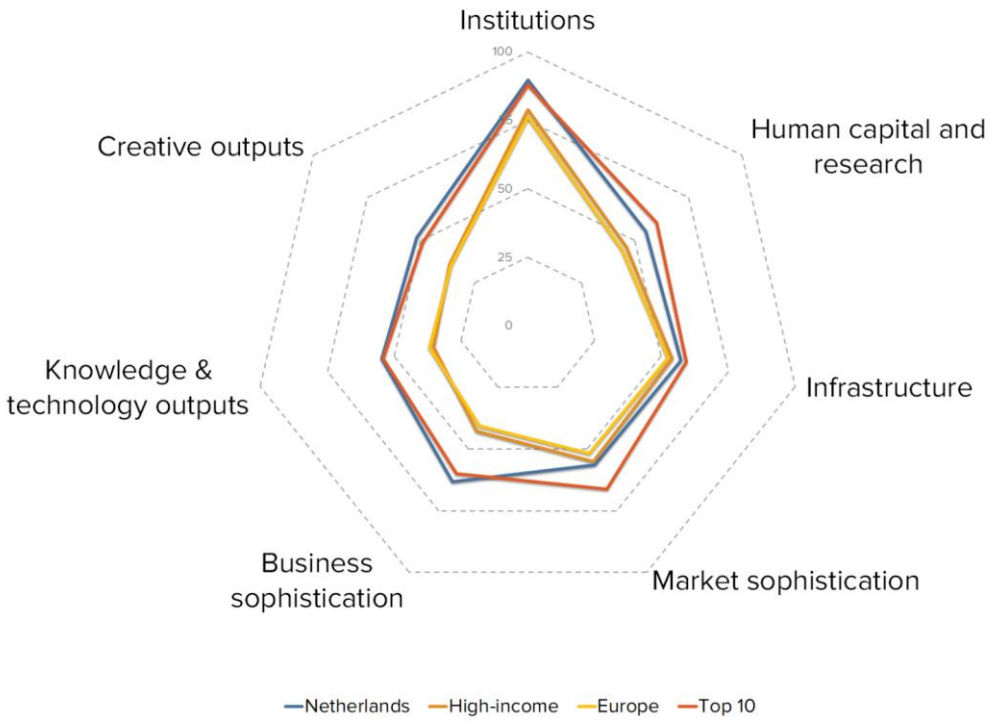
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

— Fitted values

AU	Australia	IN	India	NL	Netherlands	CH	Switzerland
BH	Bahrain	IL	Israel	NO	Norway	UA	Ukraine
BN	Brunei Darussalam	KW	Kuwait	OM	Oman	AE	United Arab Emirates
BG	Bulgaria	MG	Madagascar	PH	Philippines	GB	United Kingdom
CN	China	MW	Malawi	QA	Qatar	US	United States of America
CZ	Czech Republic	ML	Mali	SA	Saudi Arabia	VN	Viet Nam
ET	Ethiopia	MY	Malaysia	SG	Singapore	ZW	Zimbabwe
DE	Germany			SE	Sweden		

BENCHMARKING NETHERLANDS AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

Netherlands' scores in the seven GII pillars



High-income group economies

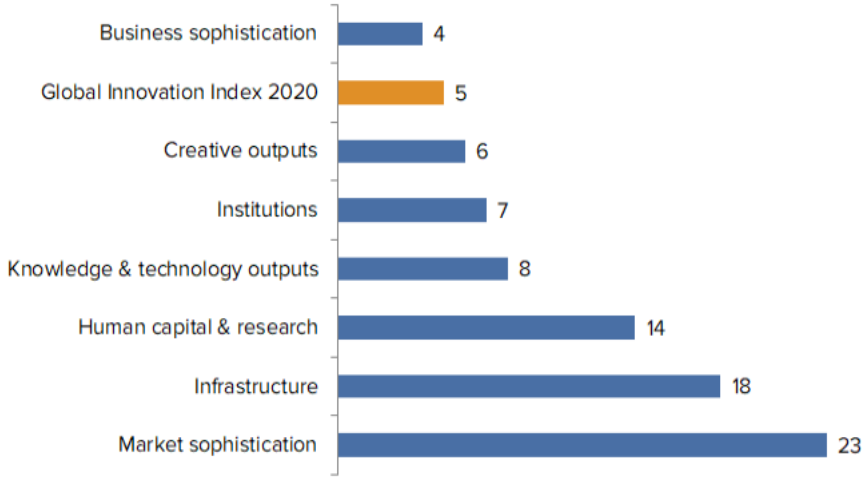
The Netherlands has high scores in all GII pillars, which are above average for the high-income group.

Europe

The Netherlands performs above the regional average in all GII pillars.

OVERVIEW OF NETHERLANDS RANKINGS IN THE SEVEN GII AREAS

The Netherlands performs best in Business sophistication and its weakest performance is in Market sophistication.



*The highest possible ranking in each pillar is 1.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of the Netherlands in the GII 2020.

Strengths

Code	Indicator name	Rank
1.2.1	Regulatory quality*	3
1.3	Business environment	5
3.1	Information & communication technologies (ICTs)	4
3.1.4	E-participation*	4
4.3.2	Intensity of local competition†	5
5	Business sophistication	4
5.2.1	University/industry research collaboration†	5
5.2.5	Patent families 2+ offices/bn PPP$ GDP	1
5.3	Knowledge absorption	1
5.3.1	Intellectual property payments, % total trade	1
6.3	Knowledge diffusion	5
6.3.1	Intellectual property receipts, % total trade	1
7.1.4	ICTs & organizational model creation†	4
7.3	Online creativity	2
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	5
7.3.2	Country-code TLDs/th pop. 15–69	1
7.3.3	Wikipedia edits/mn pop. 15–69	5

Weaknesses

Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal, salary weeks	63
2.1.5	Pupil-teacher ratio, secondary	72
2.2.2	Graduates in science & engineering, %	84
3.2.3	Gross capital formation, % GDP	87
4.1.1	Ease of getting credit*	101
4.2.1	Ease of protecting minority investors*	77
4.3.1	Applied tariff rate, weighted avg., %	22
6.2.1	Growth rate of PPP$ GDP/worker, %	85
7.1.1	Trademarks by origin/bn PPP$ GDP	49
7.2.4	Printing and other media, % manufacturing	53

STRENGTHS

GII strengths for the Netherlands are found in six of the seven GII pillars.

- Institutions (7): exhibits strengths in the sub-pillar Business environment (5) and in the indicator Regulatory quality (3).
- Infrastructure (18): demonstrates strengths in the sub-pillar Information & communication technologies (4) and in the indicator E-participation (4).
- Market sophistication (23): displays strengths in the indicator Intensity of local competition (5).
- Business sophistication (4): shows strengths in the sub-pillar Knowledge absorption (1) and in the indicators University/industry research collaboration (5), Patent families 2+ offices (1) and Intellectual property payments (1).
- Knowledge & technology outputs (8): reveals strengths in the sub-pillar Knowledge diffusion (5) and in the indicator Intellectual property receipts (1).
- Creative outputs (6): displays strengths in the sub-pillar Online creativity (2) and in the indicators ICTs & organizational model creation (4), Generic top-level domains (5), Country-code TLDs (1) and Wikipedia edits (5).

WEAKNESSES

GII weaknesses for the Netherlands are found in six of the seven GII pillars.

- Institutions (7): exhibits weaknesses in the indicator Cost of redundancy dismissal (63).
- Human capital & research (14): reveals weaknesses in the indicators Pupil-teacher ratio (72) and Graduates in science & engineering (84).
- Infrastructure (18): displays weaknesses in the indicator Gross capital formation (87).
- Market sophistication (23): shows weaknesses in the indicators Ease of getting credit (101), Ease of protecting minority investors (77) and Applied tariff rate (22).
- Knowledge & technology outputs (8): the indicator Growth rate of PPP$ GDP/worker (85) is a weakness.
- Creative outputs (6): reveals weaknesses in the indicators Trademarks by origin (49) and Printing and other media (53).

NETHERLANDS

GII 2020 rank

5

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
4	11	High	EUR	17.1	1,005.3	50,933.1	4

		Score/Value	Rank	
INSTITUTIONS		**89.7**	**7**	
1.1	**Political environment**	**90.2**	**9**	
1.1.1	Political and operational stability*	87.5	11	
1.1.2	Government effectiveness*	91.5	7	
1.2	**Regulatory environment**	**89.5**	**14**	
1.2.1	Regulatory quality*	95.0	3	●
1.2.2	Rule of law*	94.0	9	
1.2.3	Cost of redundancy dismissal, salary weeks	15.8	63	○
1.3	**Business environment**	**89.4**	**5**	●
1.3.1	Ease of starting a business*	94.3	22	
1.3.2	Ease of resolving insolvency*	84.4	7	
HUMAN CAPITAL & RESEARCH		**55.3**	**14**	
2.1	**Education**	**58.5**	**19**	
2.1.1	Expenditure on education, % GDP ⊙	5.5	23	
2.1.2	Government funding/pupil, secondary, % GDP/cap	23.1	26	
2.1.3	School life expectancy, years	18.5	10	
2.1.4	PISA scales in reading, maths, & science	502.5	15	
2.1.5	Pupil-teacher ratio, secondary ⊙	14.5	72	○ ◇
2.2	**Tertiary education**	**42.0**	**37**	
2.2.1	Tertiary enrolment, % gross	85.0	12	
2.2.2	Graduates in science & engineering, %	16.6	84	○ ◇
2.2.3	Tertiary inbound mobility, %	11.0	16	
2.3	**Research & development (R&D)**	**65.3**	**11**	
2.3.1	Researchers, FTE/mn pop	5,604.5	10	
2.3.2	Gross expenditure on R&D, % GDP	2.2	14	
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	83.0	9	
2.3.4	QS university ranking, average score top 3*	67.4	13	
INFRASTRUCTURE		**57.4**	**18**	
3.1	**Information & communication technologies (ICTs)**	**91.0**	**4**	●
3.1.1	ICT access*	86.0	9	
3.1.2	ICT use*	86.0	8	
3.1.3	Government's online service*	93.1	17	
3.1.4	E-participation*	98.9	4	●
3.2	**General infrastructure**	**38.4**	**28**	
3.2.1	Electricity output, kWh/mn pop	6,589.6	30	
3.2.2	Logistics performance*	91.5	6	
3.2.3	Gross capital formation, % GDP	21.2	87	○
3.3	**Ecological sustainability**	**42.9**	**32**	
3.3.1	GDP/unit of energy use	11.6	37	
3.3.2	Environmental performance*	75.3	11	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.2	37	
MARKET SOPHISTICATION		**56.5**	**23**	
4.1	**Credit**	**46.0**	**47**	
4.1.1	Ease of getting credit*	45.0	101	○ ◇
4.1.2	Domestic credit to private sector, % GDP	105.8	22	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	**Investment**	**46.5**	**29**	
4.2.1	Ease of protecting minority investors*	58.0	77	○ ◇
4.2.2	Market capitalization, % GDP ⊙	110.1	9	
4.2.3	Venture capital deals/bn PPP$ GDP	0.2	16	
4.3	**Trade, competition, and market scale**	**77.0**	**16**	
4.3.1	Applied tariff rate, weighted avg., %	1.7	22	○
4.3.2	Intensity of local competition+	80.5	5	●
4.3.3	Domestic market scale, bn PPP$	1,005.3	27	

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**63.4**	**4**	● ◆
5.1	**Knowledge workers**	**59.3**	**17**	
5.1.1	Knowledge-intensive employment, %	47.7	11	
5.1.2	Firms offering formal training, %	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.5	13	
5.1.4	GERD financed by business, %	51.6	26	
5.1.5	Females employed w/advanced degrees, %	20.3	28	
5.2	**Innovation linkages**	**62.6**	**7**	
5.2.1	University/industry research collaboration+	74.4	5	● ◆
5.2.2	State of cluster development+	70.4	6	
5.2.3	GERD financed by abroad, % GDP	0.3	10	
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.1	23	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	7.8	1	● ◆
5.3	**Knowledge absorption**	**68.3**	**1**	● ◆
5.3.1	Intellectual property payments, % total trade	7.9	1	● ◆
5.3.2	High-tech imports, % total trade	11.3	22	
5.3.3	ICT services imports, % total trade	2.4	19	
5.3.4	FDI net inflows, % GDP	5.4	23	
5.3.5	Research talent, % in business enterprise	70.0	7	
KNOWLEDGE & TECHNOLOGY OUTPUTS		**54.5**	**8**	
6.1	**Knowledge creation**	**65.7**	**8**	
6.1.1	Patents by origin/bn PPP$ GDP	9.5	10	
6.1.2	PCT patents by origin/bn PPP$ GDP	4.0	10	
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	22.3	22	
6.1.5	Citable documents H-index	69.1	7	
6.2	**Knowledge impact**	**35.9**	**24**	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.3	85	○
6.2.2	New businesses/th pop. 15-64	6.4	25	
6.2.3	Computer software spending, % GDP	0.0	9	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	8.1	32	
6.2.5	High- and medium-high-tech manufacturing, %	32.6	35	
6.3	**Knowledge diffusion**	**61.8**	**5**	●
6.3.1	Intellectual property receipts, % total trade	7.2	1	● ◆
6.3.2	High-tech net exports, % total trade	11.1	15	
6.3.3	ICT services exports, % total trade	3.5	23	
6.3.4	FDI net outflows, % GDP	8.2	7	
CREATIVE OUTPUTS		**51.7**	**6**	
7.1	**Intangible assets**	**47.9**	**16**	
7.1.1	Trademarks by origin/bn PPP$ GDP	49.6	49	○
7.1.2	Global brand value, top 5,000, % GDP	153.4	9	
7.1.3	Industrial designs by origin/bn PPP$ GDP	4.1	30	
7.1.4	ICTs & organizational model creation+	80.2	4	● ◆
7.2	**Creative goods and services**	**38.6**	**13**	
7.2.1	Cultural & creative services exports, % total trade	1.8	9	
7.2.2	National feature films/mn pop. 15-69	7.6	25	
7.2.3	Entertainment & Media market/th pop. 15-69	51.5	17	
7.2.4	Printing and other media, % manufacturing	1.1	53	○
7.2.5	Creative goods exports, % total trade	3.4	17	
7.3	**Online creativity**	**72.4**	**2**	● ◆
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	78.4	5	● ◆
7.3.2	Country-code TLDs/th pop. 15-69	100.0	1	● ◆
7.3.3	Wikipedia edits/mn pop. 15-69	93.4	5	● ◆
7.3.4	Mobile app creation/bn PPP$ GDP	18.1	27	

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-ranked GII economies; * an index; + a survey question. ⊙ indicates that the economy'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.

DATA AVAILABILITY

The following tables list data that are either missing or outdated for the Netherlands.

Missing data

Code	Indicator name	Country year	Model year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
5.1.2	Firms offering formal training, %	n/a	2018	World Bank
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2018	World Intellectual Property Organization

Outdated data

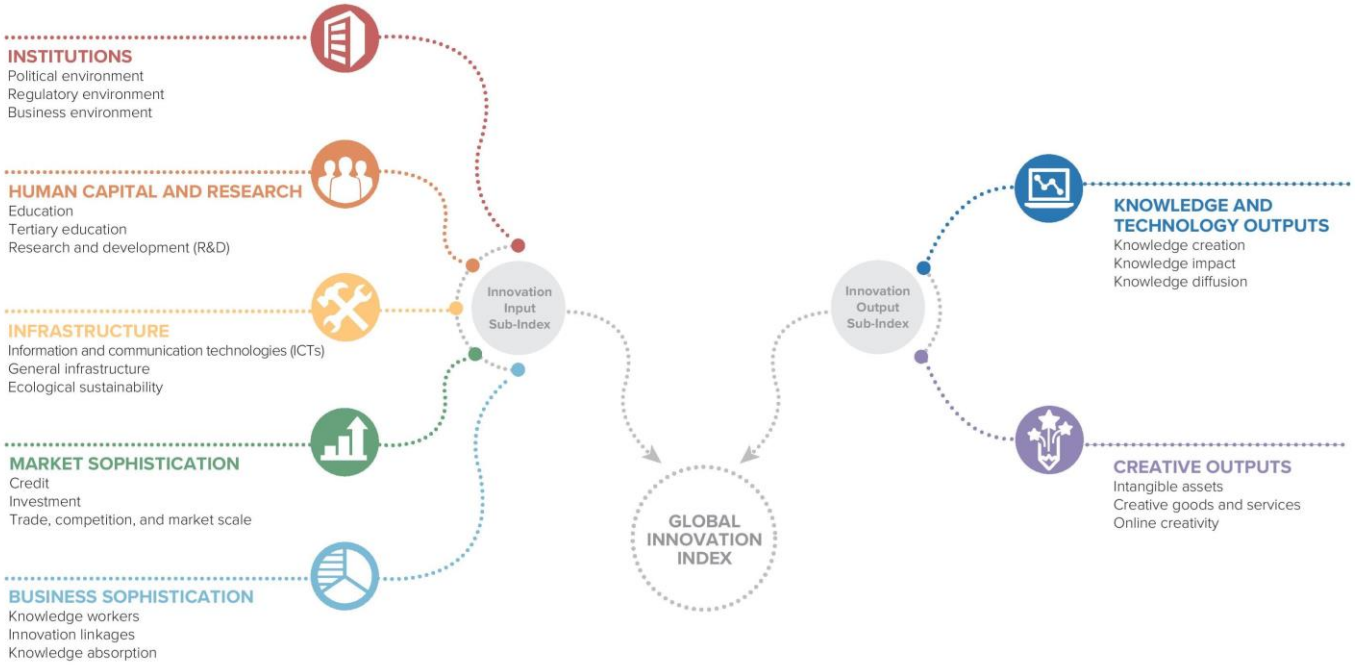
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2016	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2018	UNESCO Institute for Statistics
4.2.2	Market capitalization, % GDP	2017	2018	World Federation of Exchanges

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2020, the GII presents its 13th edition devoted to the theme *Who Will Finance Innovation?*

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.

Framework of the Global Innovation Index 2020



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.