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**.

Slovenia ranking in the Global Innovation Index 2023

> Slovenia ranks 33rd among the 132 economies featured in the GII 2023.

> Slovenia ranks 32nd among the 50 high-income group economies.

> Slovenia ranks 21st among the 39 economies in Europe.

> Slovenia GII Ranking (2020-2023)

The table shows the rankings of Slovenia 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 Slovenia in the GII 2023 is between ranks 32 and 35.

	GII Position	Innovation Inputs	Innovation Outputs
2020	32nd	29th	39th
2021	32nd	27th	36th
2022	33rd	30th	35th
2023	33rd	29th	38th

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

This year Slovenia ranks 29th in innovation inputs. This position is higher than last year.

Slovenia ranks 38th in innovation outputs. This position is lower than last year.

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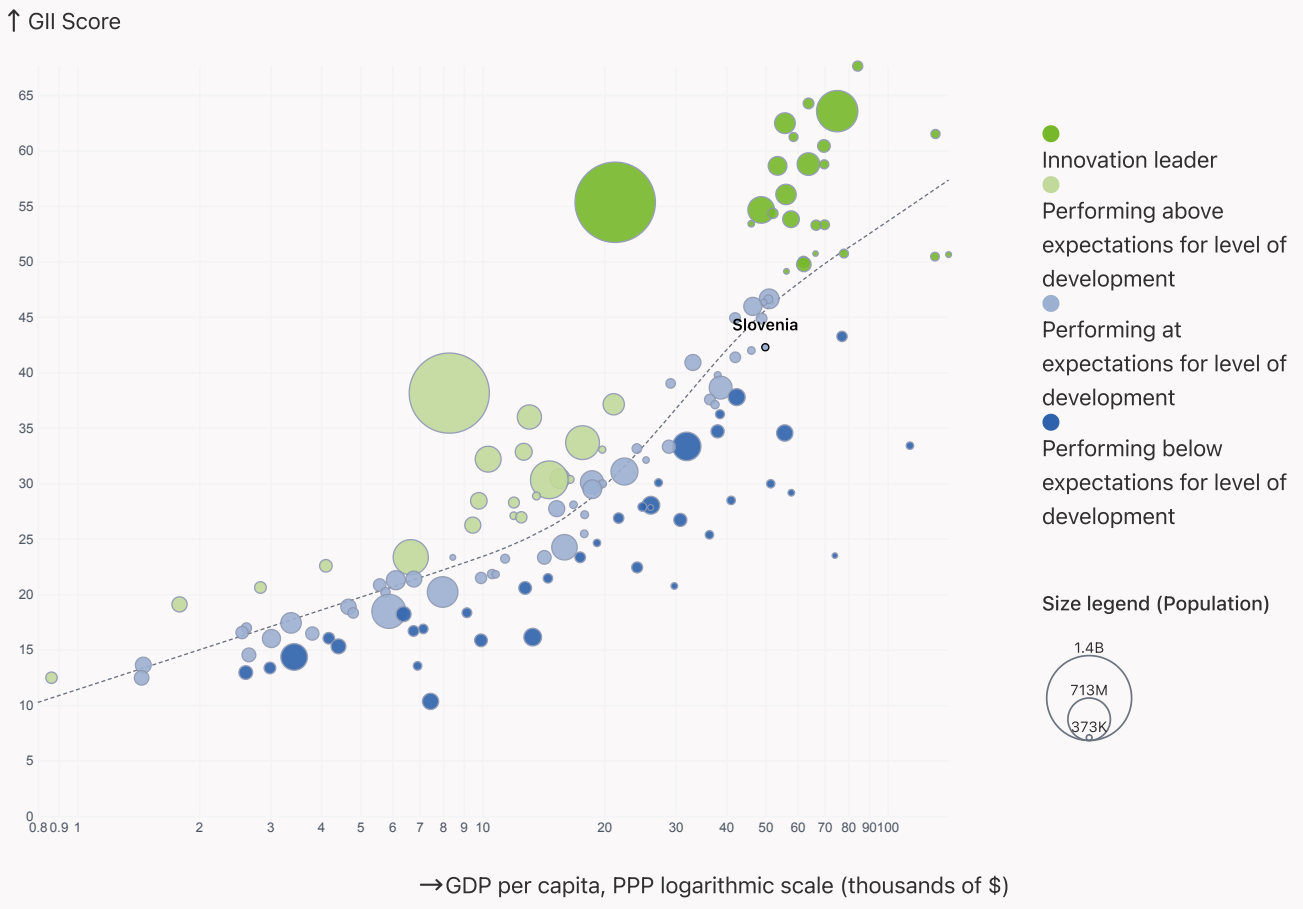
→ Expected vs. observed innovation performance

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.

> Relative to GDP, Slovenia's performance is at expectations for its level of development.

> Innovation overperformers relative to their economic development



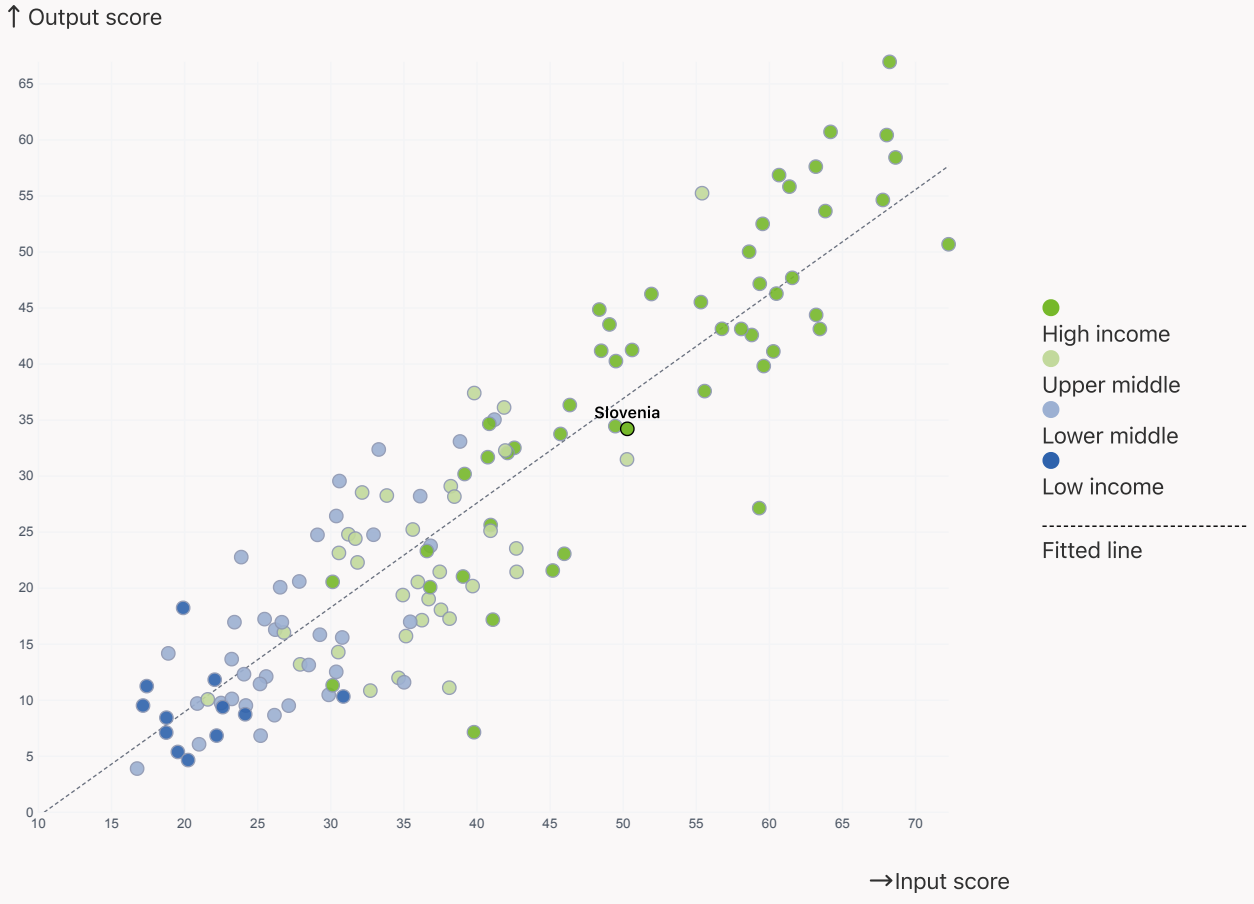
Global Innovation Index 2023

→ 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.

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

> Relationship between innovation inputs and outputs



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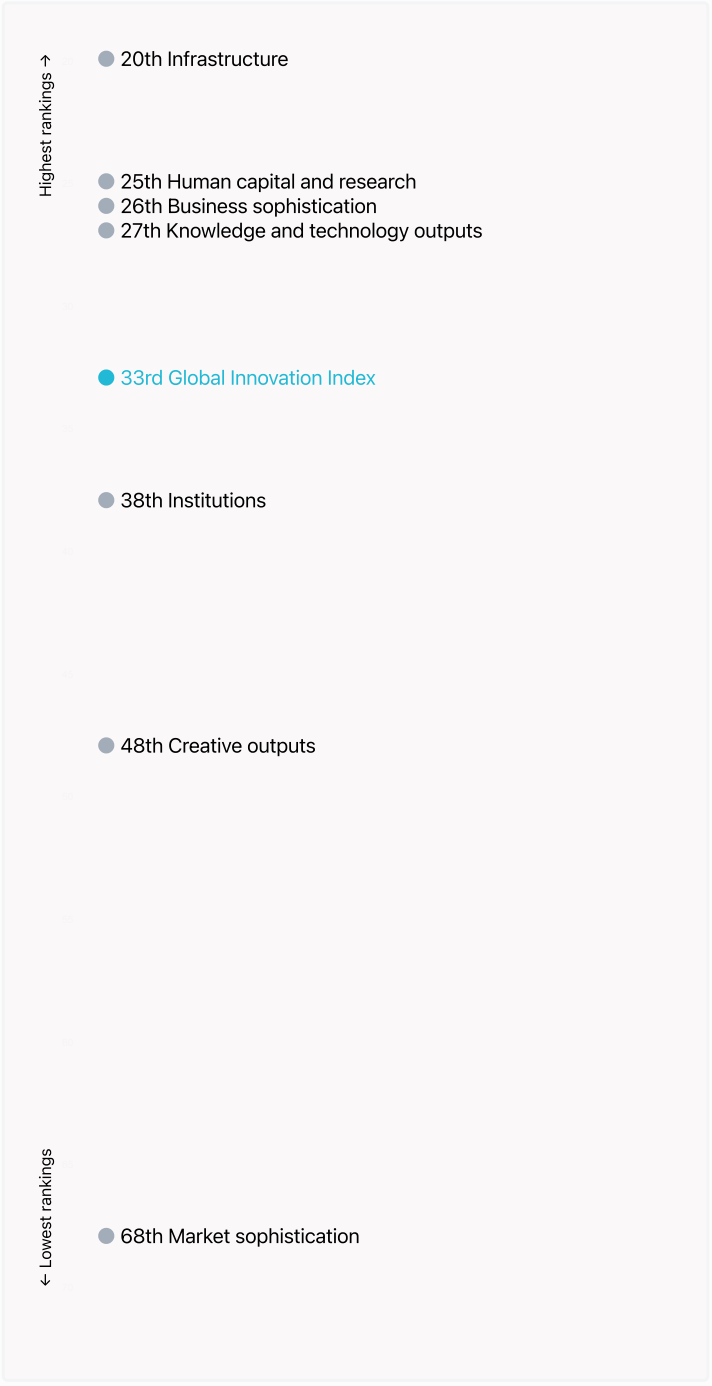
→ Overview of Slovenia's rankings in the seven areas of the GII in 2023

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



> Highest rankings

Slovenia ranks highest in Infrastructure (20th), Human capital and research (25th), Business sophistication (26th) and Knowledge and technology outputs (27th).

> Lowest rankings

Slovenia ranks lowest in Market sophistication (68th), Creative outputs (48th) and Institutions (38th).

The full WIPO Intellectual Property Statistics profile for Slovenia can be found on this link.

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

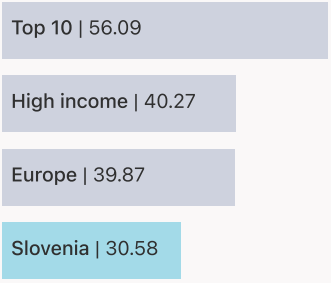
The charts shows the relative position of Slovenia (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> High-Income economies

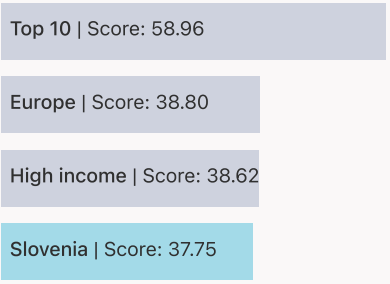
Slovenia performs below the high-income group average in Knowledge and technology outputs, Creative outputs, Market sophistication, Institutions.

> Europe

Slovenia performs below the regional average in Knowledge and technology outputs, Creative outputs, Market sophistication.

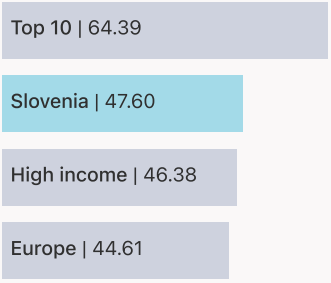


Knowledge and technology outputs

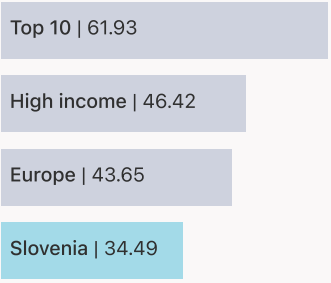


Creative outputs

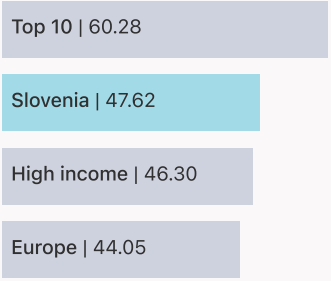
Business sophistication



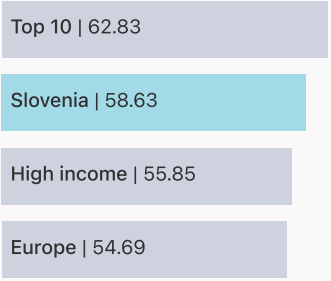
Market sophistication



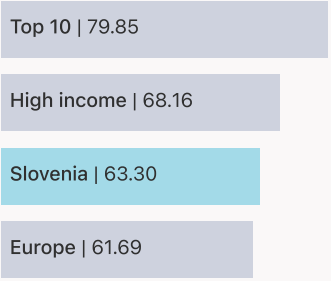
Human capital and research



Infrastructure



Institutions



Global Innovation Index 2023

→ Innovation strengths and weaknesses in Slovenia

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

> Slovenia's main innovation strengths are **GERD financed by abroad, % GDP** (rank 4), **National feature films/mn pop. 15-69** (rank 5) and **Scientific and technical articles/bn PPP$ GDP** (rank 6).

Strengths

Rank	Code	Indicator name
4	5.2.3	GERD financed by abroad, % GDP
5	7.2.2	National feature films/mn pop. 15-69
6	6.1.4	Scientific and technical articles/bn PPP$ GDP
7	3.3.2	Environmental performance
9	4.3.2	Domestic industry diversification
10	6.3.5	ISO 9001 quality/bn PPP$ GDP
11	7.3.4	Mobile app creation/bn PPP$ GDP
11	6.3.2	Production and export complexity
11	3.1.1	ICT access
15	3.3.3	ISO 14001 environment/bn PPP$ GDP

Weaknesses

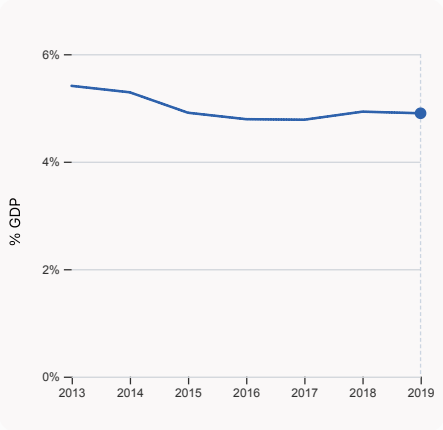
Rank	Code	Indicator name
98	5.3.2	High-tech imports, % total trade
95	6.2.3	Software spending, % GDP
87	4.3.3	Domestic market scale, bn PPP$
80	4.1.2	Domestic credit to private sector, % GDP
79	7.1.1	Intangible asset intensity, top 15, %
72	4.2.4	VC received, value, % GDP
70	4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP
65	4.2.1	Market capitalization, % GDP
54	1.3.2	Entrepreneurship policies and culture
48	6.2.2	Unicorn valuation, % GDP

Global Innovation Index 2023

→ Slovenia's innovation system

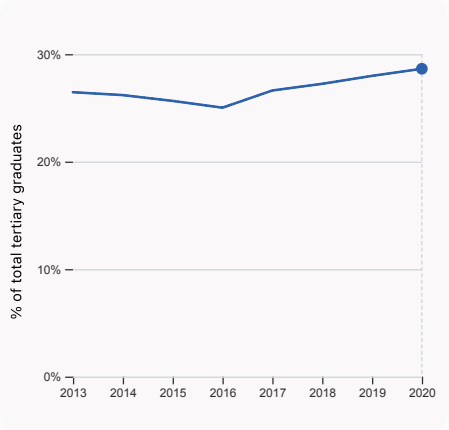
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Slovenia



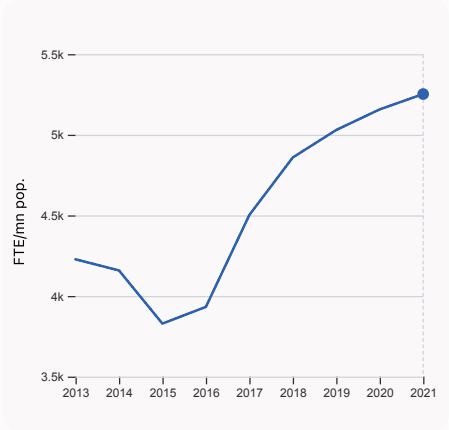
2.1.1 Expenditure on education, % GDP

was equal to 4.9% GDP in 2019, down by 0.03 percentage points from the year prior – and equivalent to an indicator rank of 43.



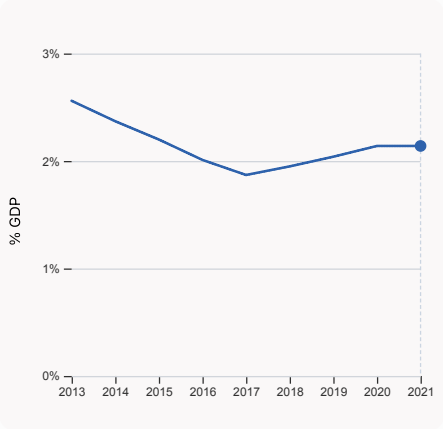
2.2.2 Graduates in science and engineering, %

was equal to 28.64% of total tertiary graduates in 2020, up by 0.66 percentage points from the year prior – and equivalent to an indicator rank of 25.



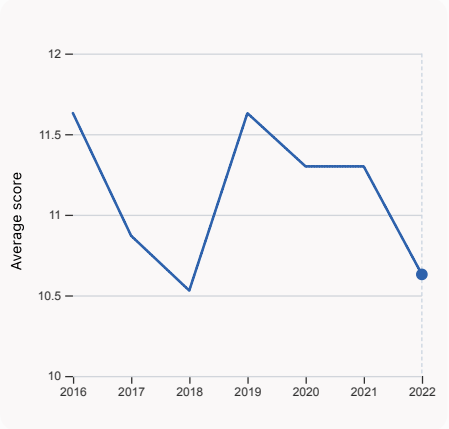
2.3.1 Researchers, FTE/mn pop.

was equal to 5,252.57 FTE/mn pop. in 2021, up by 1.85% from the year prior – and equivalent to an indicator rank of 16.



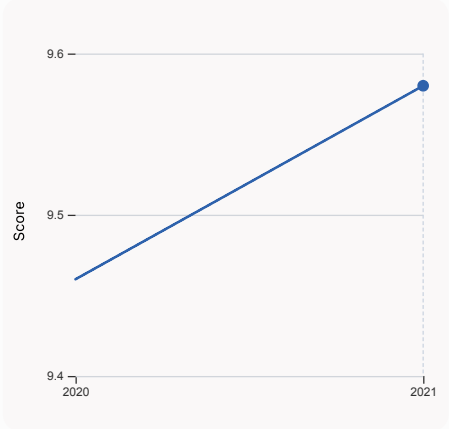
2.3.2 Gross expenditure on R&D, % GDP

was equal to 2.14% GDP in 2021, with no change from the year prior – and equivalent to an indicator rank of 18.



2.3.4 QS university ranking, top 3

was equal to an average score of 10.63 for the top 3 universities in 2022, down by 5.93% from the year prior – and equivalent to an indicator rank of 63.



3.1.1 ICT access

was equal to a score of 9.58 in 2021, up by 1.27% from the year prior – and equivalent to an indicator rank of 11.

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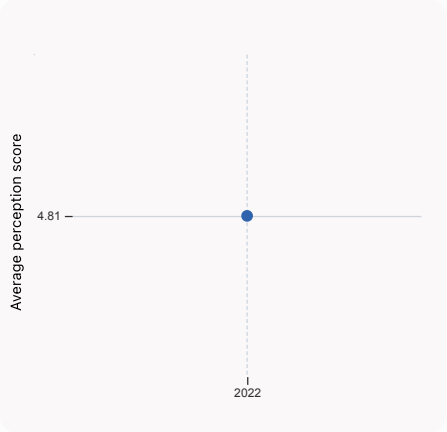
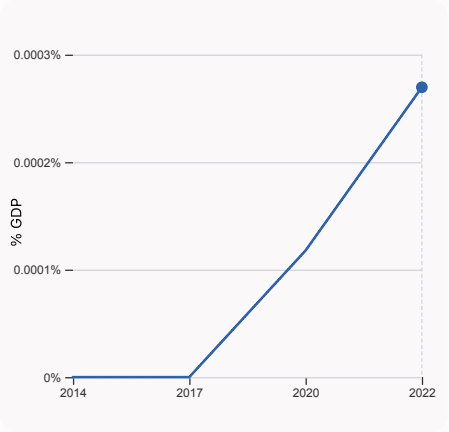


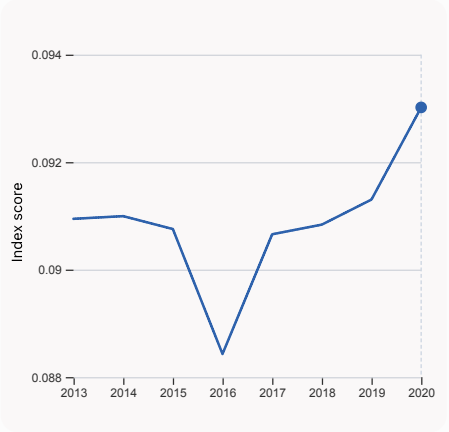
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 4.81 in 2022, equivalent to an indicator rank of 38.



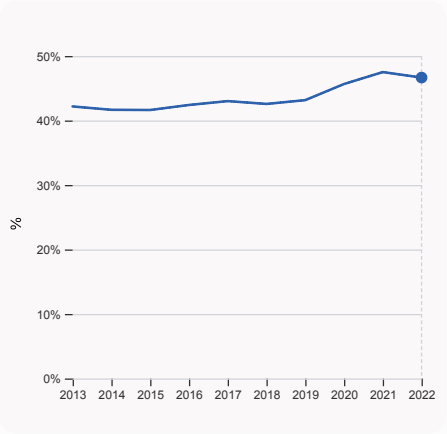
4.2.4 VC received, value, % GDP

was equal to 0.00027% GDP in 2022, up by 0.00015 percentage points from the year prior – and equivalent to an indicator rank of 72.



4.3.2 Domestic industry diversification

was equal to an index score of 0.093 in 2020, up by 1.88% from the year prior – and equivalent to an indicator rank of 9.



5.1.1 Knowledge-intensive employment, %

was equal to 46.66% in 2022, down by 0.85 percentage points from the year prior – and equivalent to an indicator rank of 18.

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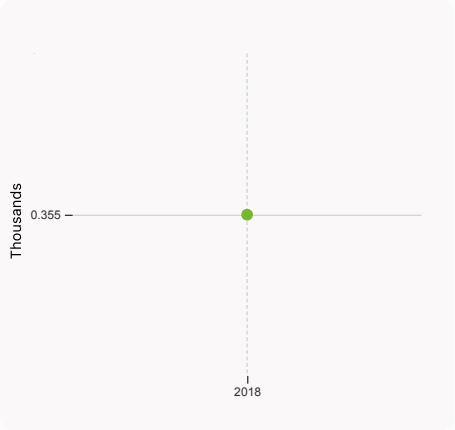
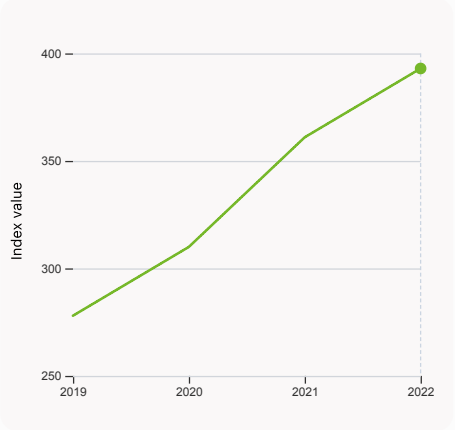
> Innovation outputs in Slovenia



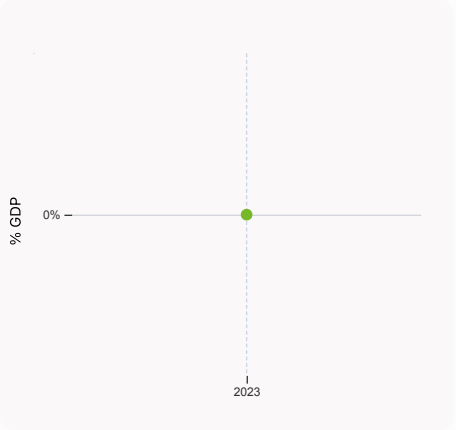
6.1.1 Patents by origin

was equal to 0.35 Thousands in 2018 – and equivalent to an indicator rank of 19.



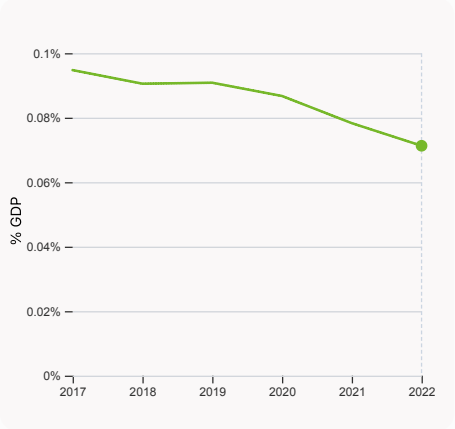
6.1.5 Citable documents H-index

was equal to an index value of 393 in 2022, up by 8.86% from the year prior – and equivalent to an indicator rank of 45.



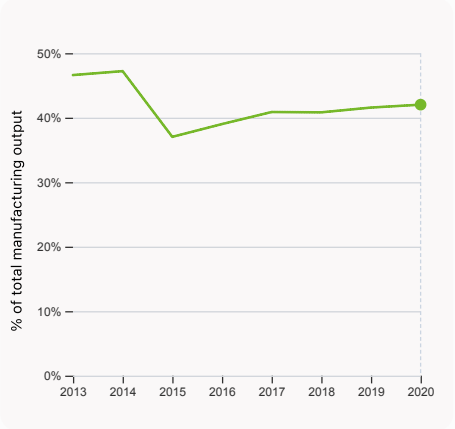
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.



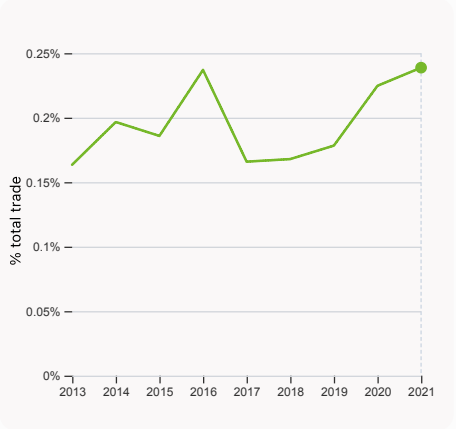
6.2.3 Software spending, % GDP

was equal to 0.071% GDP in 2022, down by 0.007 percentage points from the year prior – and equivalent to an indicator rank of 95.



6.2.4 High-tech manufacturing, %

was equal to 42.02% of total manufacturing output in 2020, up by 0.45 percentage points from the year prior – and equivalent to an indicator rank of 25.



6.3.1 Intellectual property receipts, % total trade

was equal to 0.239% total trade in 2021, up by 0.014 percentage points from the year prior – and equivalent to an indicator rank of 44.

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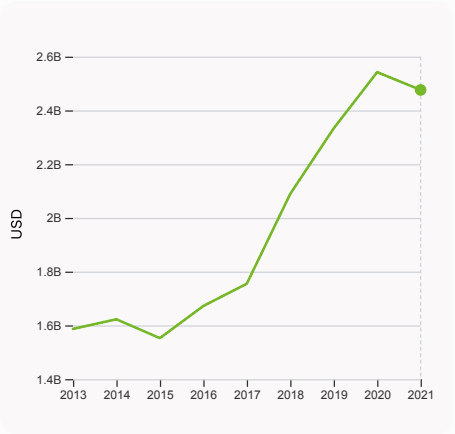
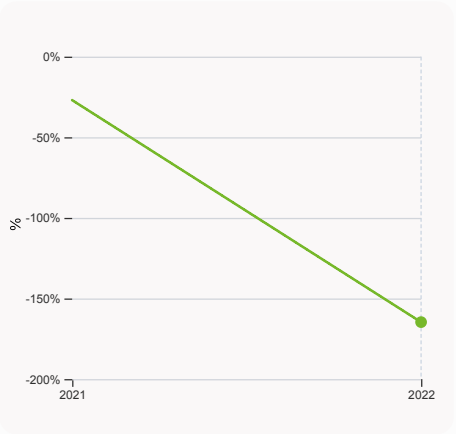
6.3.2 Production and export complexity

was equal to a score of 1.54 in 2020, down by 5.52% from the year prior – and equivalent to an indicator rank of 11.



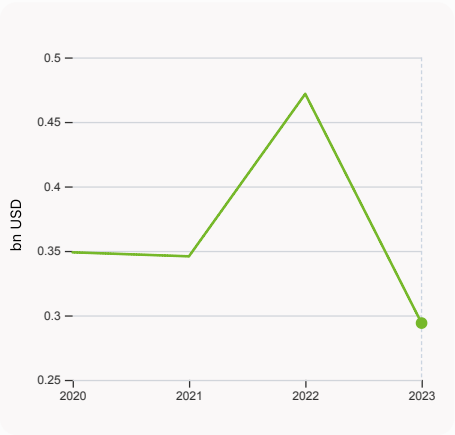
6.3.3 High-tech exports

was equal to 2,476,169,239 USD in 2021, down by 2.61% from the year prior – and equivalent to an indicator rank of 38.



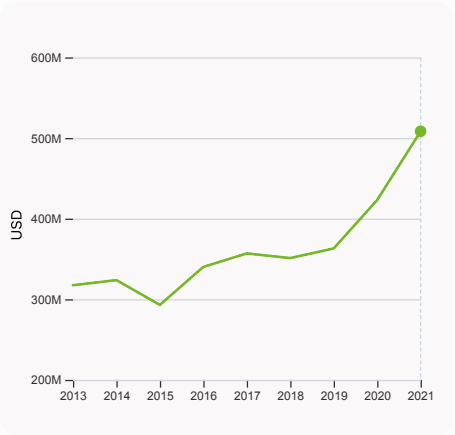
7.1.1 Intangible asset intensity, top 15, %

was equal to -164.65% in 2022, down by 137.67 percentage points from the year prior – and equivalent to an indicator rank of 79.



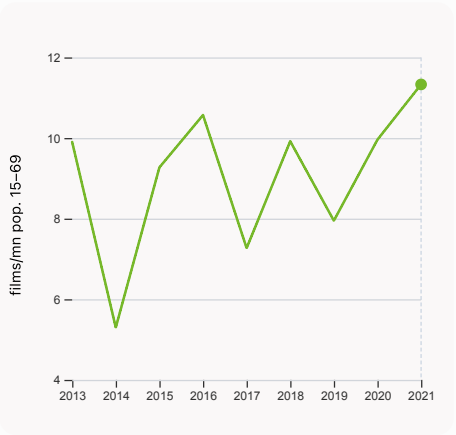
7.1.3 Global brand value, top 5,000

was equal to 0.294 bn USD in 2023, down by 37.67% from the year prior – and equivalent to an indicator rank of 64.



7.2.1 Cultural and creative services exports

was equal to 508,384,000 USD in 2021, up by 20.17% from the year prior – and equivalent to an indicator rank of 27.



7.2.2 National feature films/mn pop. 15-69

was equal to 11.33 films/mn pop. 15–69 in 2021, up by 13.76% from the year prior – and equivalent to an indicator rank of 5.

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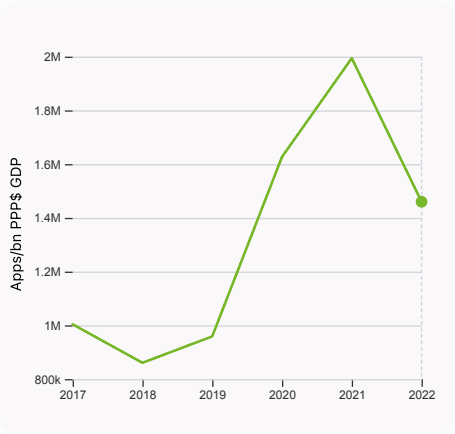

7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 1,459,974.81 Apps/bn PPP$ GDP in 2022, down by 26.79% from the year prior – and equivalent to an indicator rank of 11.

Global Innovation Index 2023

→ Slovenia's innovation top performers

> 2.3.4 QS university ranking of Slovenia’s top universities

Rank	University	Score
601-650	UNIVERSITY OF LJUBLJANA	19.60
801-1000	UNIVERSITY OF MARIBOR	12.30
1001-1200	UNIVERSITY OF PRIMORSKA	8.20

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".

> 7.1.1 Top 15 intangible-asset intensive companies in Slovenia

Rank	Firm	Intensity, %
1	KRKA DD NOVO MESTO	20.94
2	PETROL DD LJUBLJANA	21.62
3	SALUS DD	47.42

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 Slovenia with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	NLB	Banking	294.0

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

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Slovenia

GII 2023 rank
33

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
38	29	High	EUR	2.1	105.5	49,967.8

	Score / Value	Rank
Institutions	**63.3**	**38**
1.1 Institutional environment	**69.4**	**26**
1.1.1 Operational stability for businesses*	69.4	29
1.1.2 Government effectiveness*	69.3	26
1.2 Regulatory environment	**80.8**	**26**
1.2.1 Regulatory quality*	63.8	38
1.2.2 Rule of law*	69.9	27
1.2.3 Cost of redundancy dismissal	10.7	35
1.3 Business environment	**39.8**	**86**
1.3.1 Policies for doing business†	46.3	67
1.3.2 Entrepreneurship policies and culture†	33.3	54 ○
Human capital and research	**47.6**	**25**
2.1 Education	**61.2**	**29**
2.1.1 Expenditure on education, % GDP	4.9	43
2.1.2 Government funding/pupil, secondary, % GDP/cap	23.2	32
2.1.3 School life expectancy, years	17.7	15
2.1.4 PISA scales in reading, maths and science	503.7	11
2.1.5 Pupil-teacher ratio, secondary	14.1	72 ◇
2.2 Tertiary education	**43.0**	**26**
2.2.1 Tertiary enrolment, % gross	79.9	24
2.2.2 Graduates in science and engineering, %	28.6	25
2.2.3 Tertiary inbound mobility, %	7.8	33
2.3 Research and development (R&D)	**38.6**	**28**
2.3.1 Researchers, FTE/mn pop.	5,252.6	16
2.3.2 Gross expenditure on R&D, % GDP	2.1	18
2.3.3 Global corporate R&D investors, top 3, mn US$	50.9	31
2.3.4 QS university ranking, top 3*	10.8	63
Infrastructure	**58.6**	**20**
3.1 Information and communication technologies (ICTs)	**84.9**	**22**
3.1.1 ICT access*	93.9	11 ●
3.1.2 ICT use*	85.9	35
3.1.3 Government's online service*	85.3	22
3.1.4 E-participation*	74.4	25
3.2 General infrastructure	**38.2**	**35**
3.2.1 Electricity output, GWh/mn pop.	7,400.4	25
3.2.2 Logistics performance*	54.5	42
3.2.3 Gross capital formation, % GDP	25.6	48
3.3 Ecological sustainability	**52.8**	**16**
3.3.1 GDP/unit of energy use	12.2	44
3.3.2 Environmental performance*	82.0	7 ●
3.3.3 ISO 14001 environment/bn PPP$ GDP	6.0	15 ●
Market sophistication	**34.5**	**68**
4.1 Credit	**35.1**	**52**
4.1.1 Finance for startups and scaleups†	55.3	38
4.1.2 Domestic credit to private sector, % GDP	43.3	80 ○ ◇
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a
4.2 Investment	**4.8**	**79** ◇
4.2.1 Market capitalization, % GDP	14.6	65 ○
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.0	70 ○
4.2.3 VC recipients, deals/bn PPP$ GDP	0.0	53
4.2.4 VC received, value, % GDP	0.0	72 ○ ◇
4.3 Trade, diversification, and market scale	**63.6**	**38**
4.3.1 Applied tariff rate, weighted avg., %	1.5	20
4.3.2 Domestic industry diversification	98.2	9 ●
4.3.3 Domestic market scale, bn PPP$	105.5	87 ○

	Score / Value	Rank
Business sophistication	**47.6**	**26**
5.1 Knowledge workers	**60.4**	**20**
5.1.1 Knowledge-intensive employment, %	46.7	18
5.1.2 Firms offering formal training, %	44.0	26
5.1.3 GERD performed by business, % GDP	1.6	15
5.1.4 GERD financed by business, %	49.5	31
5.1.5 Females employed w/advanced degrees, %	25.7	17
5.2 Innovation linkages	**42.4**	**28**
5.2.1 University-industry R&D collaboration†	50.2	51
5.2.2 State of cluster development†	40.3	70
5.2.3 GERD financed by abroad, % GDP	0.5	4 ●
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	49
5.2.5 Patent families/bn PPP$ GDP	1.2	26
5.3 Knowledge absorption	**40.0**	**44**
5.3.1 Intellectual property payments, % total trade	0.6	63
5.3.2 High-tech imports, % total trade	6.5	98 ○
5.3.3 ICT services imports, % total trade	1.6	55
5.3.4 FDI net inflows, % GDP	2.8	55
5.3.5 Research talent, % in businesses	59.9	16
Knowledge and technology outputs	**37.7**	**27**
6.1 Knowledge creation	**42.3**	**22**
6.1.1 Patents by origin/bn PPP$ GDP	4.4	19
6.1.2 PCT patents by origin/bn PPP$ GDP	1.1	25
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	19.5	45
6.2 Knowledge impact	**29.6**	**58**
6.2.1 Labor productivity growth, %	1.6	41
6.2.2 Unicorn valuation, % GDP	0.0	48 ○ ◇
6.2.3 Software spending, % GDP	0.1	95 ○ ◇
6.2.4 High-tech manufacturing, %	42.0	25
6.3 Knowledge diffusion	**41.4**	**32**
6.3.1 Intellectual property receipts, % total trade	0.2	44
6.3.2 Production and export complexity	84.8	11 ●
6.3.3 High-tech exports, % total trade	5.0	38
6.3.4 ICT services exports, % total trade	1.8	63
6.3.5 ISO 9001 quality/bn PPP$ GDP	21.1	10 ●
Creative outputs	**30.6**	**48**
7.1 Intangible assets	**20.8**	**83** ◇
7.1.1 Intangible asset intensity, top 15, %	-164.6	79 ○ ◇
7.1.2 Trademarks by origin/bn PPP$ GDP	68.1	27
7.1.3 Global brand value, top 5,000	0.5	64
7.1.4 Industrial designs by origin/bn PPP$ GDP	2.7	37
7.2 Creative goods and services	**38.3**	**14**
7.2.1 Cultural and creative services exports, % total trade	1.0	27
7.2.2 National feature films/mn pop. 15-69	11.3	5 ●
7.2.3 Entertainment and media market/th pop. 15-69	n/a	n/a
7.2.4 Creative goods exports, % total trade	1.8	28
7.3 Online creativity	**42.3**	**29**
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	23.4	27
7.3.2 Country-code TLDs/th pop. 15-69	29.7	24
7.3.3 GitHub commits/mn pop. 15-69	37.0	27
7.3.4 Mobile app creation/bn PPP$ GDP	79.1	11 ●

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 Slovenia.

> Slovenia has missing data for three indicators and outdated data for four indicators.

> Missing data for Slovenia

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)
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
7.2.3	Entertainment and media market/th pop. 15-69	n/a	2022	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

> Outdated data for Slovenia

Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
6.1.1	Patents by origin/bn PPP$ GDP	2018	2021	World Intellectual Property Organization; International Monetary Fund
7.1.2	Trademarks by origin/bn PPP$ GDP	2018	2021	World Intellectual Property Organization; International Monetary Fund
7.1.4	Industrial designs by origin/bn PPP$ GDP	2018	2021	World Intellectual Property Organization; International Monetary Fund

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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.