

SLOVAKIA

39th

Slovakia ranks 39th 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 Slovakia 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 Slovakia in the GII 2020 is between ranks 37 and 40.

Rankings of Slovakia (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	39	43	34
2019	37	42	33
2018	36	39	36

- Slovakia performs better in innovation outputs than innovation inputs in 2020.
- This year Slovakia ranks 43rd in innovation inputs, lower than last year and lower compared to 2018.
- As for innovation outputs, Slovakia ranks 34th. This position is lower than last year and higher compared to 2018.

36th

Slovakia ranks 36th among the 49 high-income group economies.

26th

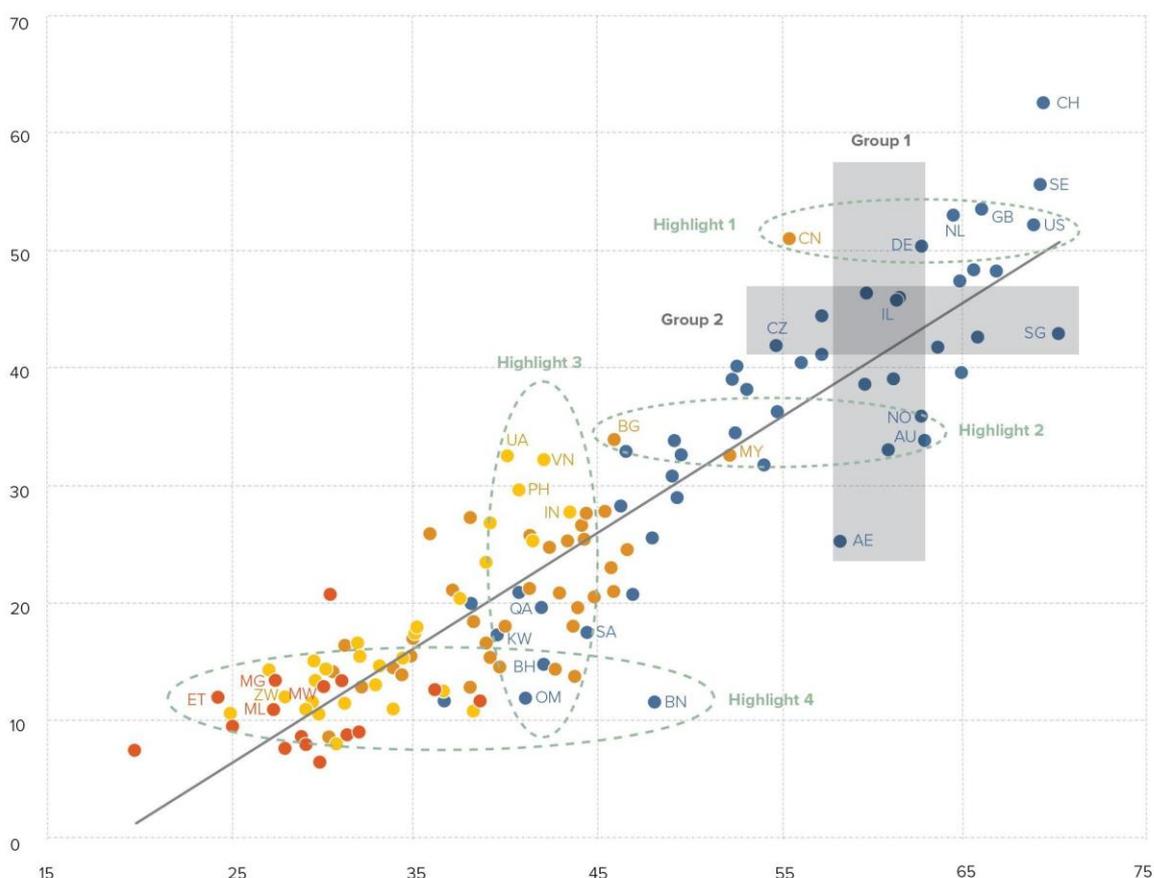
Slovakia ranks 26th among the 39 economies in Europe.

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.

Slovakia produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020

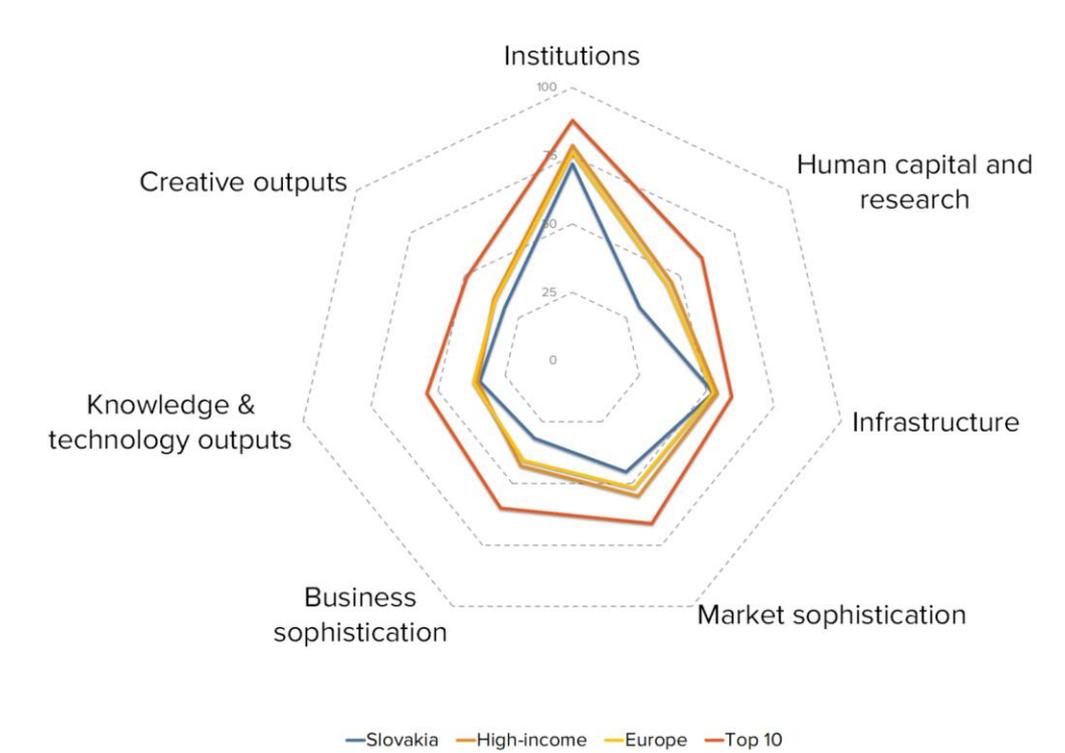


▲ Output score ● High income group ● Lower middle-income group — Fitted values
 ► Input score ● Upper middle-income group ● Low income group

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 SLOVAKIA AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

Slovakia's scores in the seven GII pillars



High-income group economies

Slovakia scores below average for its income group in all pillars.

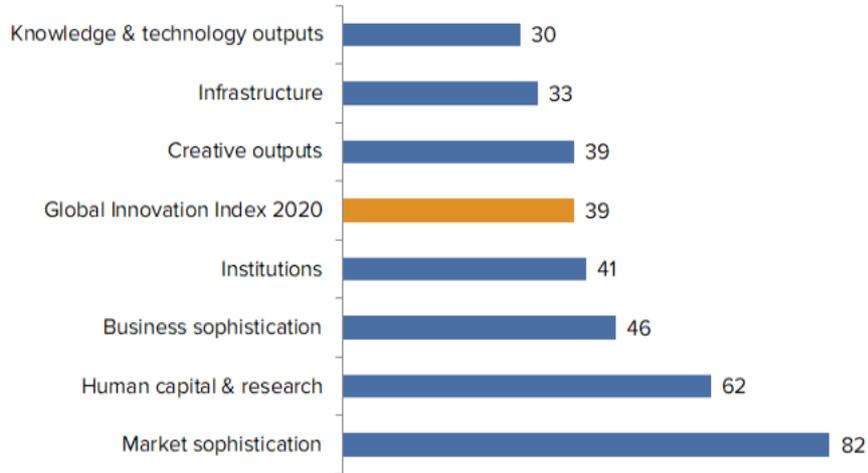
Europe

Compared to other economies in Europe, Slovakia performs:

- above average in one out of the seven GII pillars: Infrastructure; and
- below average in six out of the seven GII pillars: Institutions, Human capital & research, Market sophistication, Business sophistication, Knowledge & technology outputs and Creative outputs.

OVERVIEW OF SLOVAKIA RANKINGS IN THE SEVEN GII AREAS

Slovakia performs best in Knowledge & technology outputs 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 Slovakia in the GII 2020.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
3.3	Ecological sustainability	10	1.3.1	Ease of starting a business*	91
3.3.2	Environmental performance*	26	2.1.1	Expenditure on education, % GDP	76
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	9	2.3.3	Global R&D companies, top 3, mn US\$	42
5.3.2	High-tech imports, % total trade	19	4.2	Investment	127
6.1.3	Utility models by origin/bn PPP\$ GDP	14	4.2.1	Ease of protecting minority investors*	82
6.2	Knowledge impact	9	4.2.2	Market capitalization, % GDP	70
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	12	4.2.3	Venture capital deals/bn PPP\$ GDP	67
6.2.5	High- and medium-high-tech manufacturing, %	4	5.2.1	University/industry research collaboration†	94
6.3.2	High-tech net exports, % total trade	19	5.2.4	JV–strategic alliance deals/bn PPP\$ GDP	116
6.3.4	FDI net outflows, % GDP	28	7.1.2	Global brand value, top 5000, % GDP	74
7.2	Creative goods and services	6	7.2.4	Printing and other media, % manufacturing	87
7.2.5	Creative goods exports, % total trade	7			
7.3.2	Country-code TLDs/th pop. 15–69	22			

STRENGTHS

GII strengths for Slovakia are found in four of the seven GII pillars.

- Infrastructure (33): demonstrates strengths in the sub-pillar Ecological sustainability (10) and in the indicators Environmental performance (26) and ISO 14001 environmental certificates (9).
- Business sophistication (46): shows strengths in the indicator High-tech imports (19).
- Knowledge & technology outputs (30): reveals strengths in the sub-pillar Knowledge impact (9) and in the indicators Utility models by origin (14), ISO 9001 quality certificates (12), High- and medium-high-tech manufacturing (4), High-tech net exports (19) and FDI net outflows (28).
- Creative outputs (39): displays strengths in the sub-pillar Creative goods and services (6) and in the indicators Creative goods exports (7) and Country-code TLDs (22).

WEAKNESSES

GII weaknesses for Slovakia are found in five of the seven GII pillars.

- Institutions (41): exhibits weaknesses in the indicator Ease of starting a business (91).
- Human capital & research (62): reveals weaknesses in the indicators Expenditure on education (76) and Global R&D companies (42).
- Market sophistication (82): shows weaknesses in the sub-pillar Investment (127) and in the indicators Ease of protecting minority investors (82), Market capitalization (70) and Venture capital deals (67).
- Business sophistication (46): demonstrates weaknesses in the indicators University/industry research collaboration (94) and JV–strategic alliance deals (116).
- Creative outputs (39): displays weaknesses in the indicators Global brand value (74) and Printing and other media (87).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2019 rank
34	43	High	EUR	5.5	199.7	31,988.0	37
				Score/Value			Rank
INSTITUTIONS				72.0			41
1.1	Political environment	70.8	38	5.1	Knowledge workers	43.6	38
1.1.1	Political and operational stability*	80.4	33	5.1.1	Knowledge-intensive employment, %	32.6	42
1.1.2	Government effectiveness*	66.0	38	5.1.2	Firms offering formal training, %	43.5	23
1.2	Regulatory environment	70.2	45	5.1.3	GERD performed by business, % GDP	0.5	39
1.2.1	Regulatory quality*	63.2	37	5.1.4	GERD financed by business, %	48.8	31
1.2.2	Rule of law*	60.5	41	5.1.5	Females employed w/advanced degrees, %	14.5	48
1.2.3	Cost of redundancy dismissal, salary weeks	18.8	78	5.2	Innovation linkages	19.0	77
1.3	Business environment	75.1	51	5.2.1	University/industry research collaboration†	36.0	94
1.3.1	Ease of starting a business*	84.8	91	5.2.2	State of cluster development†	46.6	68
1.3.2	Ease of resolving insolvency*	65.5	42	5.2.3	GERD financed by abroad, % GDP	0.1	40
				5.2.4	JV-strategic alliance deals/bn PPP\$ GDP	0.0	116
				5.2.5	Patent families 2+ offices/bn PPP\$ GDP	0.3	37
HUMAN CAPITAL & RESEARCH				31.2			62
2.1	Education	44.9	69	5.3	Knowledge absorption	32.5	52
2.1.1	Expenditure on education, % GDP	3.9	76	5.3.1	Intellectual property payments, % total trade	0.8	53
2.1.2	Government funding/pupil, secondary, % GDP/cap	20.0	49	5.3.2	High-tech imports, % total trade	12.8	19
2.1.3	School life expectancy, years	14.5	61	5.3.3	ICT services imports, % total trade	0.9	76
2.1.4	PISA scales in reading, maths, & science	469.4	38	5.3.4	FDI net inflows, % GDP	4.0	37
2.1.5	Pupil-teacher ratio, secondary	11.1	44	5.3.5	Research talent, % in business enterprise	24.0	52
2.2	Tertiary education	32.2	67	5.3	Knowledge absorption	32.5	52
2.2.1	Tertiary enrolment, % gross	46.6	64	5.3.1	Intellectual property payments, % total trade	0.8	53
2.2.2	Graduates in science & engineering, %	21.2	63	5.3.2	High-tech imports, % total trade	12.8	19
2.2.3	Tertiary inbound mobility, %	6.9	35	5.3.3	ICT services imports, % total trade	0.9	76
2.3	Research & development (R&D)	16.5	47	5.3.4	FDI net inflows, % GDP	4.0	37
2.3.1	Researchers, FTE/mn pop.	2,996.0	33	5.3.5	Research talent, % in business enterprise	24.0	52
2.3.2	Gross expenditure on R&D, % GDP	0.8	43				
2.3.3	Global R&D companies, avg. exp. top 3, mn \$US	0.0	42				
2.3.4	QS university ranking, average score top 3*	13.5	59				
INFRASTRUCTURE				52.5			33
3.1	Information & communication technologies (ICTs)	74.8	48	6.1	Knowledge creation	23.0	45
3.1.1	ICT access*	73.7	47	6.1.1	Patents by origin/bn PPP\$ GDP	1.4	54
3.1.2	ICT use*	70.9	39	6.1.2	PCT patents by origin/bn PPP\$ GDP	0.2	47
3.1.3	Government's online service*	73.6	58	6.1.3	Utility models by origin/bn PPP\$ GDP	1.7	14
3.1.4	E-participation*	80.9	50	6.1.4	Scientific & technical articles/bn PPP\$ GDP	15.3	37
3.2	General infrastructure	27.0	65	6.1.5	Citable documents H-index	17.6	45
3.2.1	Electricity output, kWh/mn pop.	4,599.3	47	6.2	Knowledge impact	45.8	9
3.2.2	Logistics performance*	44.9	52	6.2.1	Growth rate of PPP\$ GDP/worker, %	1.3	58
3.2.3	Gross capital formation, % GDP	24.0	60	6.2.2	New businesses/th pop. 15-64	5.3	30
3.3	Ecological sustainability	55.8	10	6.2.3	Computer software spending, % GDP	0.0	39
3.3.1	GDP/unit of energy use	9.8	58	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	21.0	12
3.3.2	Environmental performance*	68.3	26	6.2.5	High- and medium-high-tech manufacturing, %	58.1	4
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	8.8	9	6.3	Knowledge diffusion	34.3	35
				6.3.1	Intellectual property receipts, % total trade	0.0	69
				6.3.2	High-tech net exports, % total trade	8.9	19
				6.3.3	ICT services exports, % total trade	1.7	63
				6.3.4	FDI net outflows, % GDP	2.6	28
MARKET SOPHISTICATION				45.3			82
4.1	Credit	48.1	44	7.1	Intangible assets	27.0	68
4.1.1	Ease of getting credit*	70.0	44	7.1.1	Trademarks by origin/bn PPP\$ GDP	50.4	48
4.1.2	Domestic credit to private sector, % GDP	61.5	57	7.1.2	Global brand value, top 5,000, % GDP	3.2	74
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	7.1.3	Industrial designs by origin/bn PPP\$ GDP	2.5	45
4.2	Investment	19.8	127	7.1.4	ICTs & organizational model creation†	65.0	28
4.2.1	Ease of protecting minority investors*	56.0	82	7.2	Creative goods and services	44.6	6
4.2.2	Market capitalization, % GDP	5.1	70	7.2.1	Cultural & creative services exports, % total trade	0.3	61
4.2.3	Venture capital deals/bn PPP\$ GDP	0.0	67	7.2.2	National feature films/mn pop. 15-69	6.6	35
4.3	Trade, competition, and market scale	68.0	40	7.2.3	Entertainment & Media market/th pop. 15-69	n/a	n/a
4.3.1	Applied tariff rate, weighted avg., %	1.7	22	7.2.4	Printing and other media, % manufacturing	0.5	87
4.3.2	Intensity of local competition†	73.7	35	7.2.5	Creative goods exports, % total trade	7.2	7
4.3.3	Domestic market scale, bn PPP\$	199.7	67	7.3	Online creativity	26.7	40
				7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	3.0	64
				7.3.2	Country-code TLDs/th pop. 15-69	30.3	22
				7.3.3	Wikipedia edits/mn pop. 15-69	67.9	42
				7.3.4	Mobile app creation/bn PPP\$ GDP	7.5	49

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 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 Slovakia.

Missing data

Code	Indicator name	Country year	Model year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2018	PwC

Outdated data

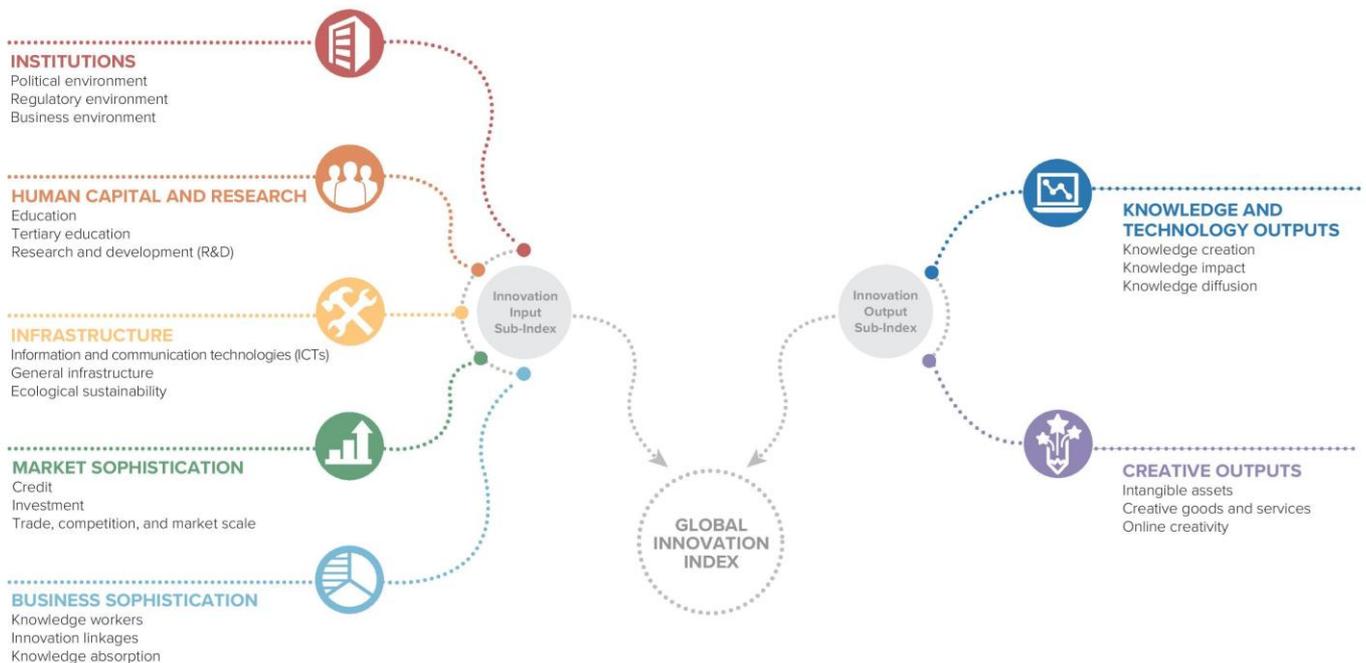
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2016	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2018	UNESCO Institute for Statistics
4.2.2	Market capitalization, % GDP	2013	2018	World Federation of Exchanges
5.1.2	Firms offering formal training, %	2012	2018	World Bank

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.

