Global Innovation Index 2021

HUNGARY

34th Hungary ranks 34th among the 132 economies featured in the GII 2021.

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 Hungary 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 Hungary in the GII 2021 is between ranks 33 and 34.

Rankings for Hungary (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	34	34	31
2020	35	37	32
2019	33	39	26

- Hungary performs better in innovation outputs than innovation inputs in 2021.
- This year Hungary ranks 34th in innovation inputs, higher than both 2020 and 2019.
- As for innovation outputs, Hungary ranks 31st. This position is higher than last year but lower than 2019.

33rd Hungary ranks 33rd among the 51 high-income group economies.

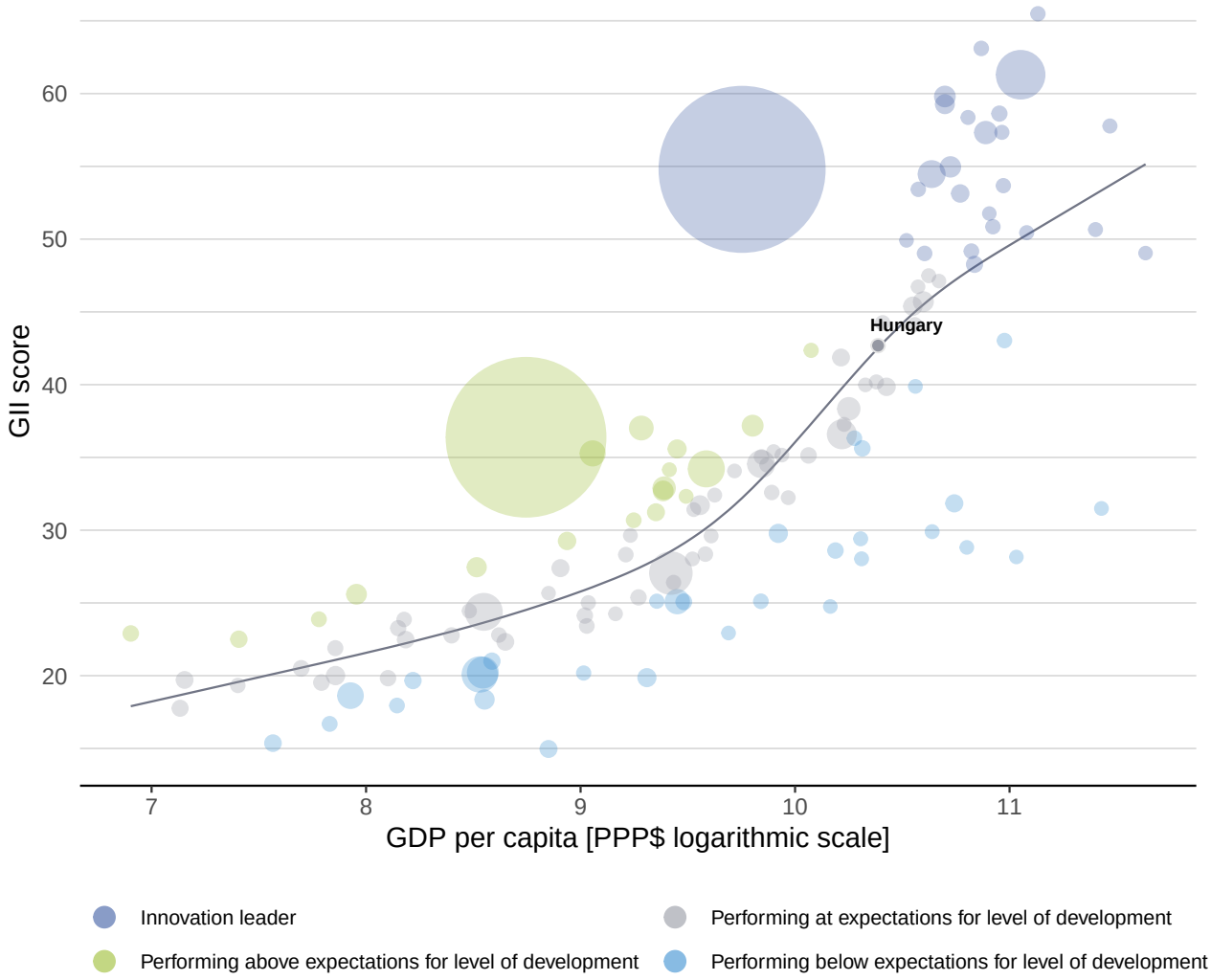
22nd Hungary ranks 22nd among the 39 economies in Europe.

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, Hungary's performance is at expectations for its level of development.

The positive relationship between innovation and development

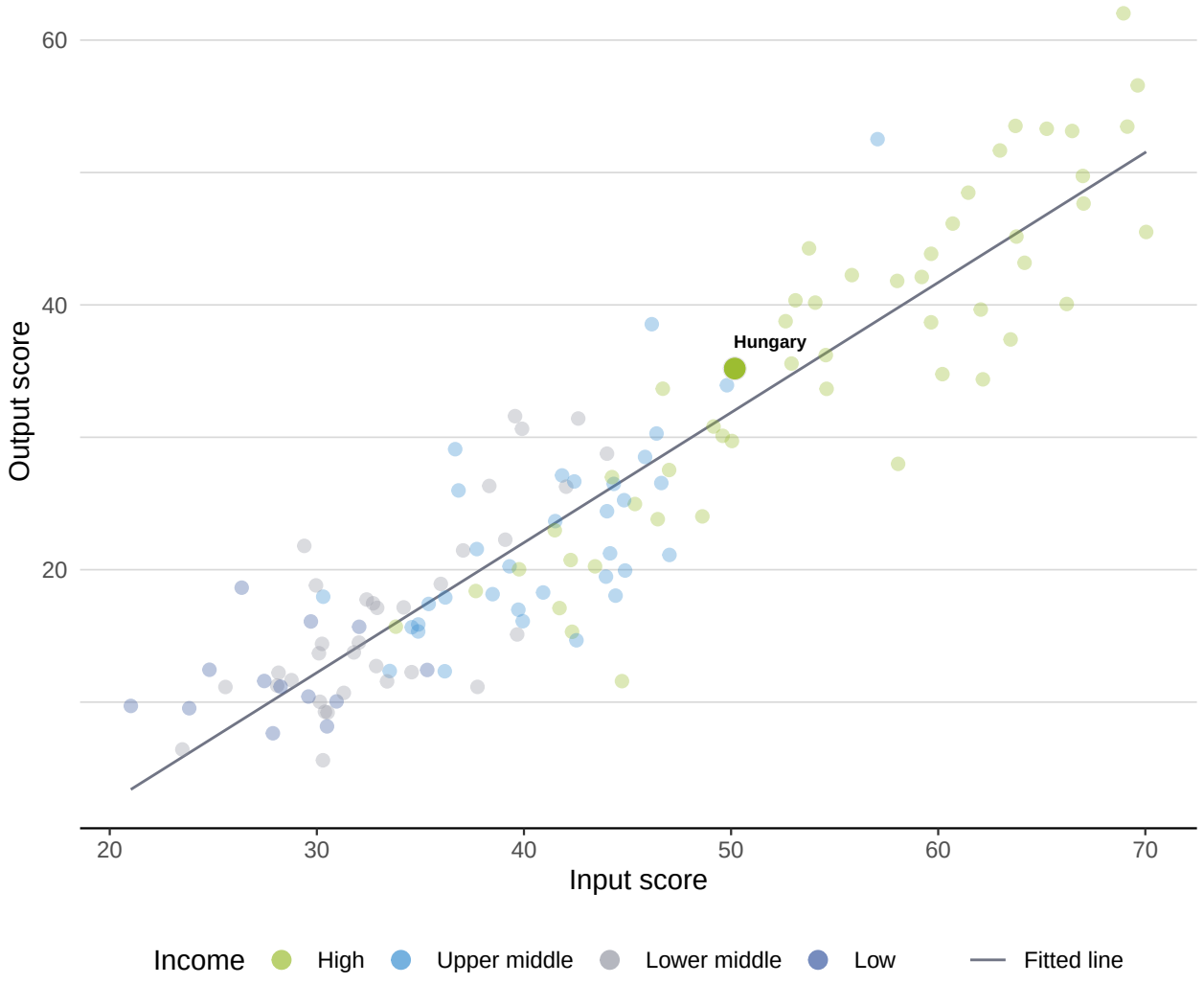


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Hungary produces more 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 Hungary

High-income group economies

Hungary performs above the high-income group average in Knowledge and technology outputs.

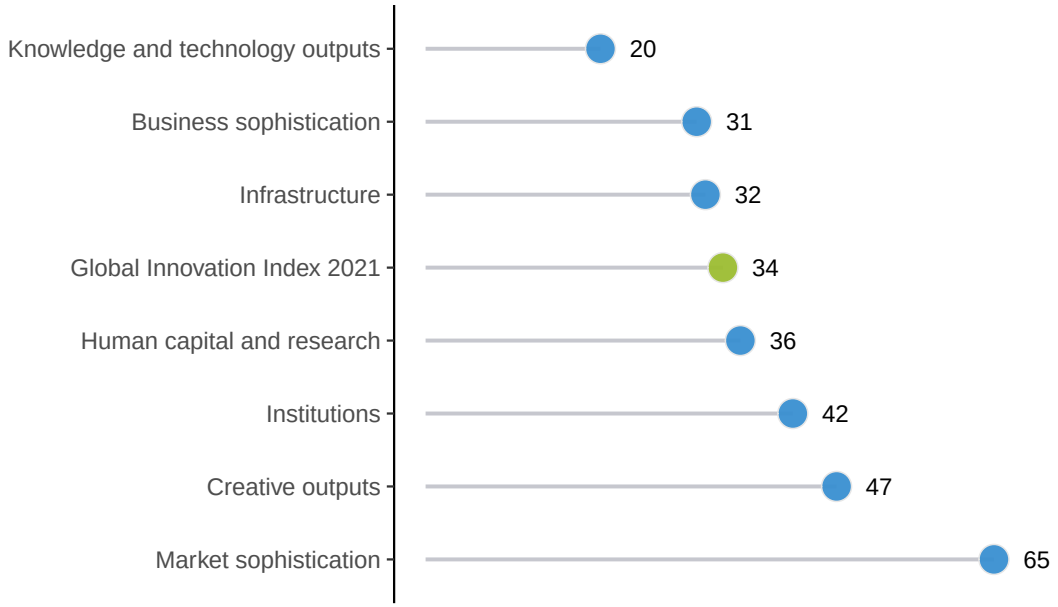
Europe

Hungary performs above the regional average in two pillars, namely: Infrastructure; and, Knowledge and technology outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Hungary performs best in Knowledge and technology outputs and its weakest performance is in Market sophistication.

The seven GII pillar ranks for Hungary



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

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Hungary in the GII 2021.

Strengths and weaknesses for Hungary

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
3.3	Ecological sustainability	19	3.1.4	E-participation	75
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	11	4.1.2	Domestic credit to private sector, % GDP	92
5.3.2	High-tech imports, % total trade	13	4.2	Investment	122
6.2	Knowledge impact	7	4.2.1	Ease of protecting minority investors	88
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	8	4.2.2	Market capitalization, % GDP	59
6.2.5	High-tech manufacturing, %	8	4.2.3	Venture capital investors, deals/bn PPP$ GDP	56
6.3.1	Intellectual property receipts, % total trade	17	4.2.4	Venture capital recipients, deals/bn PPP$ GDP	65
6.3.2	Production and export complexity	9	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	81
6.3.3	High-tech exports, % total trade	9	5.3.4	FDI net inflows, % GDP	130
7.2	Creative goods and services	12	7.1	Intangible assets	84
7.2.5	Creative goods exports, % total trade	7	7.1.1	Trademarks by origin/bn PPP$ GDP	76
7.3.2	Country-code TLDs/th pop. 15–69	19	7.2.4	Printing and other media, % manufacturing	70
7.3.3	Wikipedia edits/mn pop. 15–69	19			

Hungary

GII 2021 rank **34**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
31	34	High	EUR	9.7	316.3	32,434	35

		Score/ Value	Rank	
Institutions		**71.7**	**42**	
1.1	**Political environment**	**69.1**	**42**	
1.1.1	Political and operational stability*	83.9	13	
1.1.2	Government effectiveness*	61.7	45	◇
1.2	**Regulatory environment**	**74.4**	**38**	
1.2.1	Regulatory quality*	59.3	43	
1.2.2	Rule of law*	59.7	46	
1.2.3	Cost of redundancy dismissal	13.4	48	
1.3	**Business environment**	**71.6**	**63**	
1.3.1	Ease of starting a business*	88.2	70	
1.3.2	Ease of resolving insolvency*	55.0	61	
Human capital and research		**42.5**	**36**	
2.1	**Education**	**54.3**	**51**	
2.1.1	Expenditure on education, % GDP	4.7	53	
2.1.2	Government funding/pupil, secondary, % GDP/cap	21.1	42	
2.1.3	School life expectancy, years	15.1	49	
2.1.4	PISA scales in reading, maths and science	479.3	33	
2.1.5	Pupil-teacher ratio, secondary	10.0	29	
2.2	**Tertiary education**	**35.4**	**59**	
2.2.1	Tertiary enrolment, % gross	50.3	63	
2.2.2	Graduates in science and engineering, %	22.5	55	
2.2.3	Tertiary inbound mobility, %	11.4	17	
2.3	**Research and development (R&D)**	**37.8**	**29**	
2.3.1	Researchers, FTE/mn pop.	4,057.4	24	
2.3.2	Gross expenditure on R&D, % GDP	1.5	24	
2.3.3	Global corporate R&D investors, top 3, mn US$	51.6	28	
2.3.4	QS university ranking, top 3*	21.6	47	
Infrastructure		**52.6**	**32**	
3.1	**Information and communication technologies (ICTs)**	**72.6**	**55**	◇
3.1.1	ICT access*	79.0	39	
3.1.2	ICT use*	69.1	49	◇
3.1.3	Government's online service*	74.7	55	
3.1.4	E-participation*	67.9	75	○ ◇
3.2	**General infrastructure**	**37.4**	**35**	
3.2.1	Electricity output, GWh/mn pop.	3,495.8	59	
3.2.2	Logistics performance*	63.7	30	
3.2.3	Gross capital formation, % GDP	28.3	25	
3.3	**Ecological sustainability**	**47.6**	**19**	●
3.3.1	GDP/unit of energy use	11.6	55	
3.3.2	Environmental performance*	63.7	33	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	7.9	11	● ◆
Market sophistication		**46.6**	**65**	
4.1	**Credit**	**43.5**	**53**	
4.1.1	Ease of getting credit*	75.0	34	
4.1.2	Domestic credit to private sector, % GDP	33.5	92	○ ◇
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	**Investment**	**17.7**	**122**	○ ◇
4.2.1	Ease of protecting minority investors*	54.0	88	○ ◇
4.2.2	Market capitalization, % GDP	20.1	59	○
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	56	○
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	65	○
4.3	**Trade, diversification, and market scale**	**78.5**	**33**	
4.3.1	Applied tariff rate, weighted avg., %	1.8	25	
4.3.2	Domestic industry diversification	94.5	31	
4.3.3	Domestic market scale, bn PPP$	316.3	52	

		Score/ Value	Rank	
Business sophistication		**37.5**	**31**	
5.1	**Knowledge workers**	**44.7**	**33**	
5.1.1	Knowledge-intensive employment, %	35.1	39	
5.1.2	Firms offering formal training, %	29.3	53	
5.1.3	GERD performed by business, % GDP	1.1	21	
5.1.4	GERD financed by business, %	52.4	25	
5.1.5	Females employed w/advanced degrees, %	15.7	45	
5.2	**Innovation linkages**	**24.4**	**48**	
5.2.1	University-industry R&D collaboration†	44.1	57	
5.2.2	State of cluster development and depth†	45.6	71	
5.2.3	GERD financed by abroad, % GDP	0.2	17	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	81	○
5.2.5	Patent families/bn PPP$ GDP	0.3	34	
5.3	**Knowledge absorption**	**43.5**	**23**	
5.3.1	Intellectual property payments, % total trade	1.2	31	
5.3.2	High-tech imports, % total trade	15.0	13	● ◆
5.3.3	ICT services imports, % total trade	1.4	53	
5.3.4	FDI net inflows, % GDP	−9.8	130	○ ◇
5.3.5	Research talent, % in businesses	58.0	14	
Knowledge and technology outputs		**39.5**	**20**	
6.1	**Knowledge creation**	**23.0**	**45**	
6.1.1	Patents by origin/bn PPP$ GDP	1.6	44	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.4	36	
6.1.3	Utility models by origin/bn PPP$ GDP	0.7	29	
6.1.4	Scientific and technical articles/bn PPP$ GDP	25.7	38	
6.1.5	Citable documents H-index	29.4	33	
6.2	**Knowledge impact**	**49.8**	**7**	● ◆
6.2.1	Labor productivity growth, %	1.2	40	◆
6.2.2	New businesses/th pop. 15–64	3.7	38	
6.2.3	Software spending, % GDP	0.2	53	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	21.7	8	● ◆
6.2.5	High-tech manufacturing, %	56.7	8	● ◆
6.3	**Knowledge diffusion**	**45.7**	**20**	
6.3.1	Intellectual property receipts, % total trade	1.3	17	●
6.3.2	Production and export complexity	82.3	9	●
6.3.3	High-tech exports, % total trade	14.1	9	● ◆
6.3.4	ICT services exports, % total trade	2.1	54	
Creative outputs		**30.9**	**47**	
7.1	**Intangible assets**	**25.9**	**84**	○ ◇
7.1.1	Trademarks by origin/bn PPP$ GDP	28.3	76	○
7.1.2	Global brand value, top 5,000, % GDP	9.5	61	
7.1.3	Industrial designs by origin/bn PPP$ GDP	2.1	47	
7.1.4	ICTs and organizational model creation†	60.3	42	
7.2	**Creative goods and services**	**39.0**	**12**	●
7.2.1	Cultural and creative services exports, % total trade	0.9	35	
7.2.2	National feature films/mn pop. 15–69	5.2	43	
7.2.3	Entertainment and media market/th pop. 15–69	14.3	31	◇
7.2.4	Printing and other media, % manufacturing	0.8	70	○
7.2.5	Creative goods exports, % total trade	7.2	7	● ◆
7.3	**Online creativity**	**32.6**	**33**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	10.4	40	
7.3.2	Country-code TLDs/th pop. 15–69	34.5	19	●
7.3.3	Wikipedia edits/mn pop. 15–69	76.1	19	●
7.3.4	Mobile app creation/bn PPP$ GDP	5.8	55	

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 IV 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 Hungary.

Missing data for Hungary

Code	Indicator name	Economy year	Model year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange

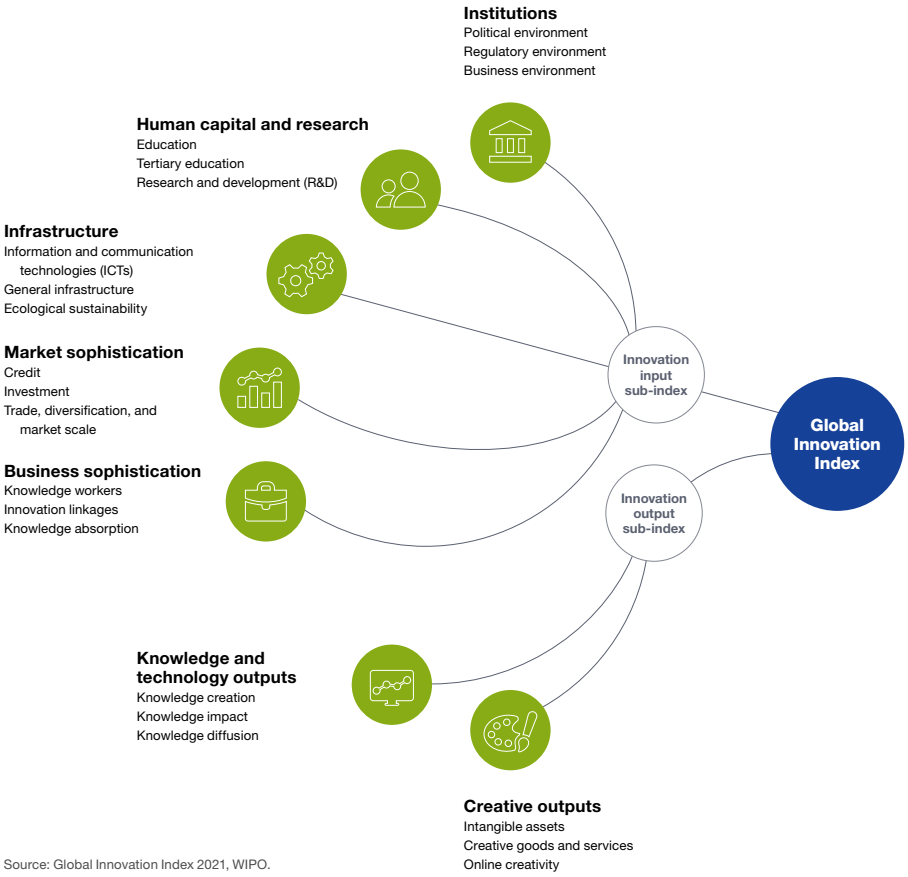
Outdated data for Hungary

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2016	2019	UNESCO Institute for Statistics

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 2021, WIPO.

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.