Global Innovation Index 2021

POLAND

40th Poland ranks 40th 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 Poland 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 Poland in the GII 2021 is between ranks 37 and 40.

Rankings for Poland (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	40	37	42
2020	38	38	40
2019	39	37	41

- Poland performs better in innovation inputs than innovation outputs in 2021.
- This year Poland ranks 37th in innovation inputs, higher than last year but the same as 2019.
- As for innovation outputs, Poland ranks 42nd. This position is lower than both 2020 and 2019.

37th Poland ranks 37th among the 51 high-income group economies.

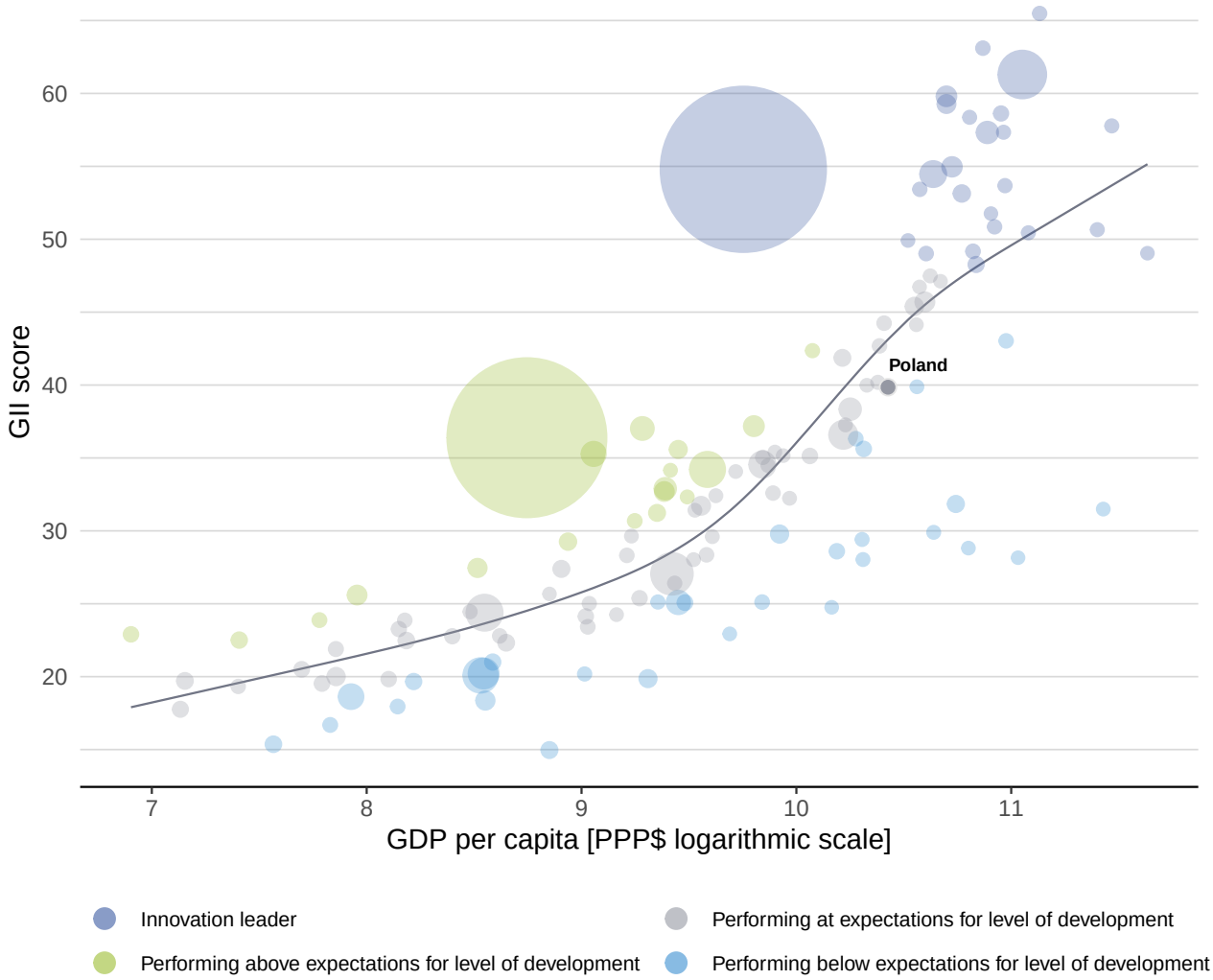
27th Poland ranks 27th among the 39 economies in Europe.

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

The positive relationship between innovation and development

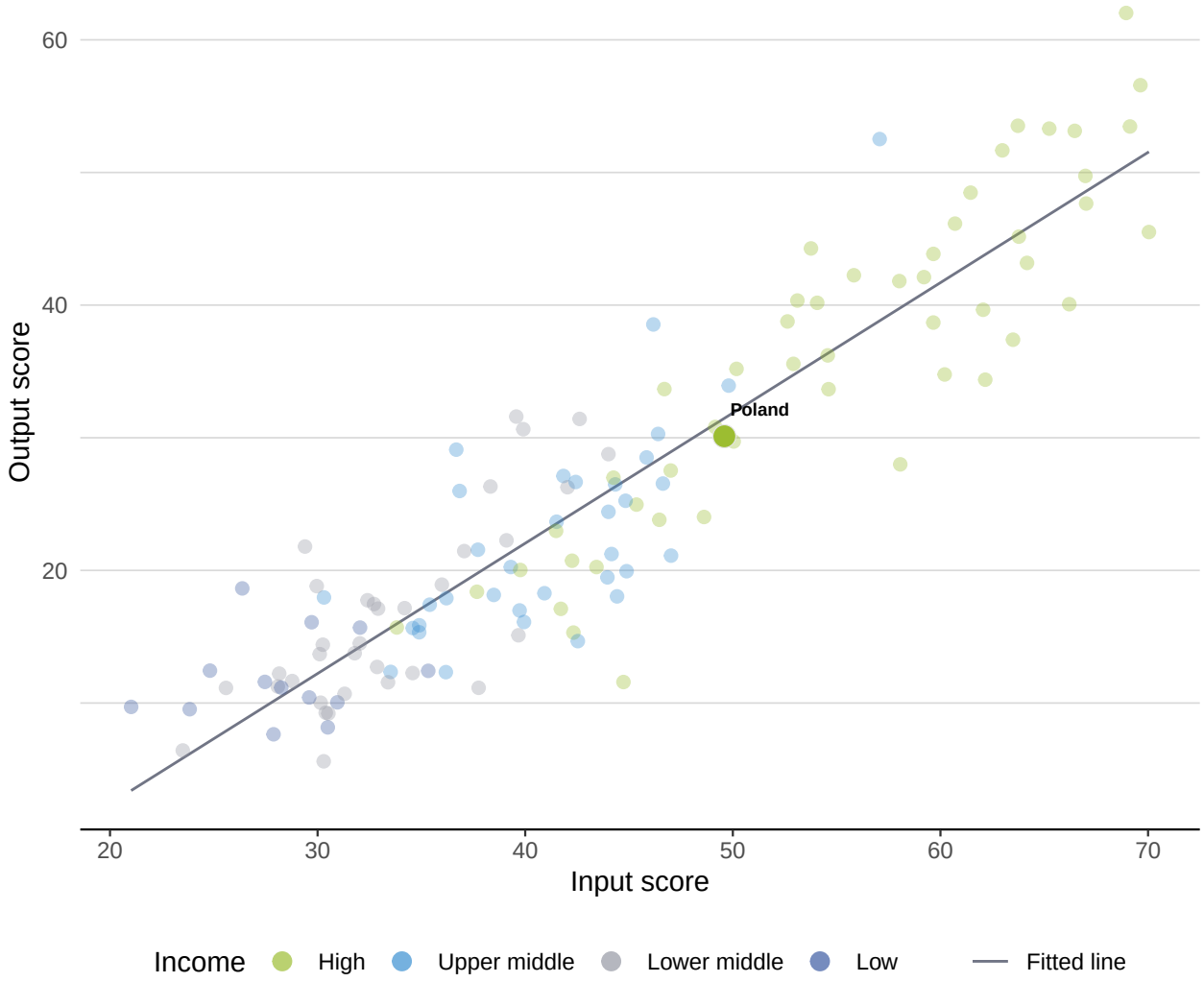


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

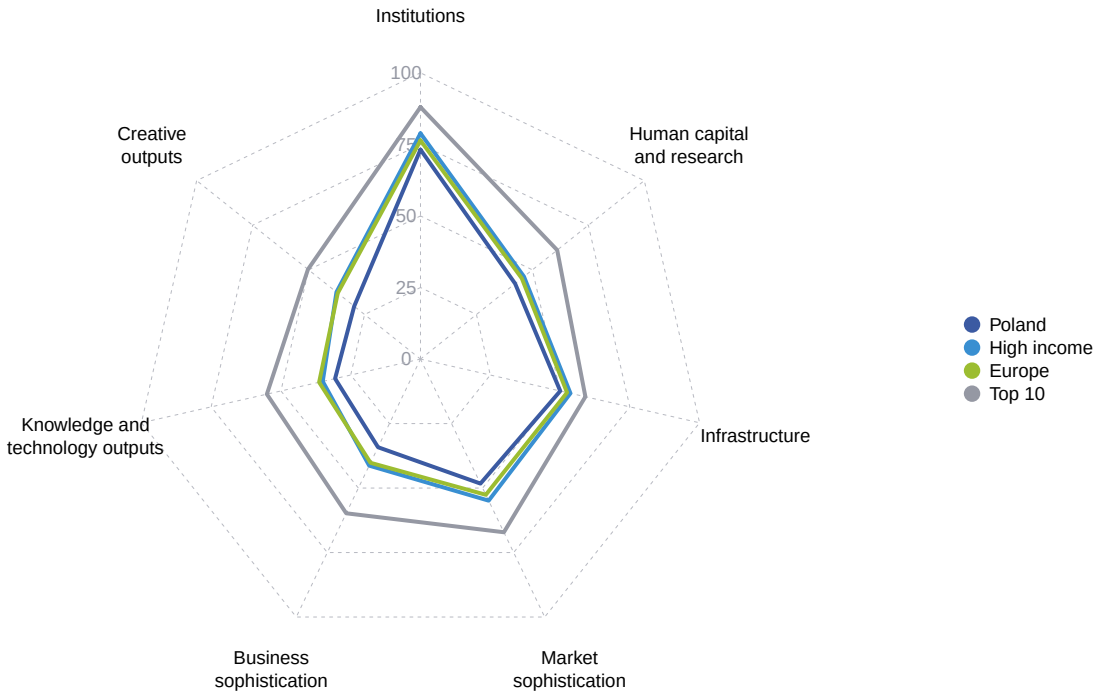
Poland produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

The seven GII pillar scores for Poland



High-income group economies

Poland performs below the high-income group average in all GII pillars.

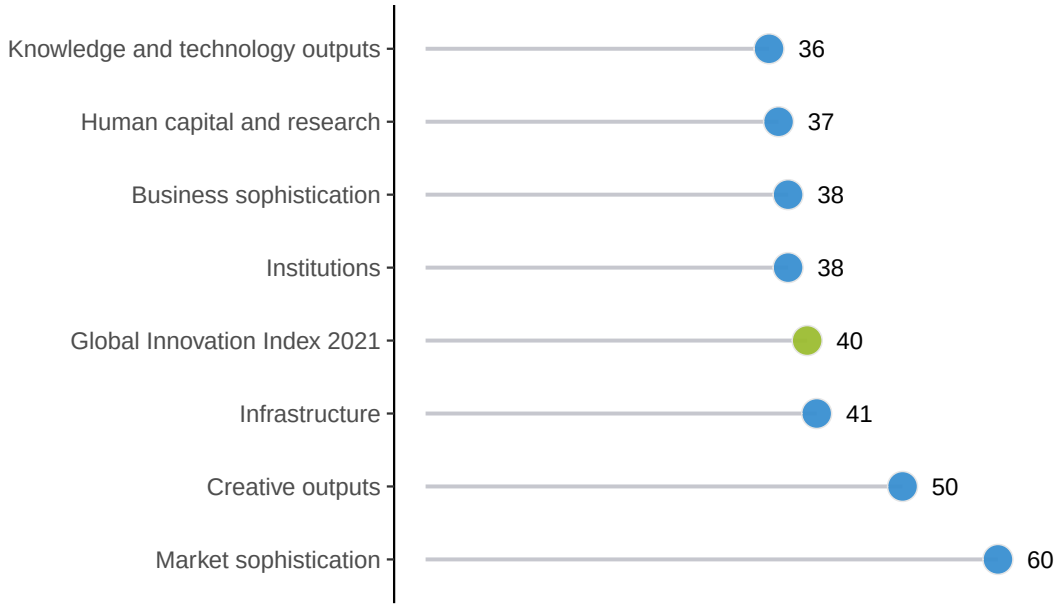
Europe

Poland performs below the regional average in all GII pillars.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

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

The seven GII pillar ranks for Poland



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 Poland in the GII 2021.

Strengths and weaknesses for Poland

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
1.3.2	Ease of resolving insolvency	23	1.2.3	Cost of redudancy dismissal	78
2.1.4	PISA scales in reading, maths and science	9	1.3.1	Ease of starting a business	99
3.1	Information and communication technologies (ICTs)	24	3.2.3	Gross capital formation, % GDP	99
3.1.3	Government's online service	22	4.1.3	Microfinance gross loans, % GDP	57
3.1.4	E-participation	9	4.2	Investment	108
4.3	Trade, diversification, and market scale	11	4.2.2	Market capitalization, % GDP	47
4.3.2	Domestic industry diversification	7	4.2.3	Venture capital investors, deals/bn PPP$ GDP	63
4.3.3	Domestic market scale, bn PPP$	20	4.2.4	Venture capital recipients, deals/bn PPP$ GDP	68
6.1.1	Patents by origin/bn PPP$ GDP	25	5.1.2	Firms offering formal training, %	72
6.2.1	Labor productivity growth, %	23	5.2.1	University-industry R&D collaboration	86
6.3.2	Production and export complexity	23	7.2.2	National feature films/mn pop. 15–69	71
7.2.5	Creative goods exports, % total trade	12			

Poland

GII 2021 rank **40**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
42	37	High	EUR	37.8	1,280.7	33,739	38

		Score/ Value	Rank
Institutions		**73.2**	**38**
1.1	**Political environment**	**68.3**	**43**
1.1.1	Political and operational stability*	76.8	37
1.1.2	Government effectiveness*	64.0	42
1.2	**Regulatory environment**	**71.5**	**47**
1.2.1	Regulatory quality*	70.0	31
1.2.2	Rule of law*	58.6	47 ◇
1.2.3	Cost of redundancy dismissal	18.8	78 ○
1.3	**Business environment**	**79.7**	**35**
1.3.1	Ease of starting a business*	82.9	99 ○ ◇
1.3.2	Ease of resolving insolvency*	76.5	23 ●
Human capital and research		**42.3**	**37**
2.1	**Education**	**57.0**	**43**
2.1.1	Expenditure on education, % GDP	4.6	56
2.1.2	Government funding/pupil, secondary, % GDP/cap	20.9	43
2.1.3	School life expectancy, years	16.0	37
2.1.4	PISA scales in reading, maths and science	512.8	9 ●
2.1.5	Pupil-teacher ratio, secondary ◴	10.5	34
2.2	**Tertiary education**	**35.1**	**60**
2.2.1	Tertiary enrolment, % gross	68.6	35
2.2.2	Graduates in science and engineering, %	21.7	63
2.2.3	Tertiary inbound mobility, %	3.6	58
2.3	**Research and development (R&D)**	**34.7**	**33**
2.3.1	Researchers, FTE/mn pop.	3,187.8	30
2.3.2	Gross expenditure on R&D, % GDP	1.3	28
2.3.3	Global corporate R&D investors, top 3, mn US$	45.4	35
2.3.4	QS university ranking, top 3*	29.1	40
Infrastructure		**50.1**	**41**
3.1	**Information and communication technologies (ICTs)**	**82.7**	**24 ●**
3.1.1	ICT access*	75.7	48
3.1.2	ICT use*	72.9	38
3.1.3	Government's online service*	85.9	22 ●
3.1.4	E-participation*	96.4	9 ● ◆
3.2	**General infrastructure**	**31.0**	**57**
3.2.1	Electricity output, GWh/mn pop.	4,253.2	52
3.2.2	Logistics performance*	69.3	27
3.2.3	Gross capital formation, % GDP	18.1	99 ○
3.3	**Ecological sustainability**	**36.5**	**40**
3.3.1	GDP/unit of energy use	11.7	54
3.3.2	Environmental performance*	60.9	37
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.9	30
Market sophistication		**48.3**	**60**
4.1	**Credit**	**38.3**	**77**
4.1.1	Ease of getting credit*	75.0	34
4.1.2	Domestic credit to private sector, % GDP	50.8	67
4.1.3	Microfinance gross loans, % GDP ◴	0.1	57 ○
4.2	**Investment**	**20.8**	**108 ○**
4.2.1	Ease of protecting minority investors*	66.0	50
4.2.2	Market capitalization, % GDP	30.3	47 ○
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	63 ○
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	68 ○
4.3	**Trade, diversification, and market scale**	**85.7**	**11 ●**
4.3.1	Applied tariff rate, weighted avg., %	1.8	25
4.3.2	Domestic industry diversification	98.6	7 ●
4.3.3	Domestic market scale, bn PPP$	1,280.7	20 ●

		Score/ Value	Rank
Business sophistication		**34.2**	**38**
5.1	**Knowledge workers**	**45.1**	**32**
5.1.1	Knowledge-intensive employment, %	39.9	27
5.1.2	Firms offering formal training, %	21.7	72 ○
5.1.3	GERD performed by business, % GDP	0.8	26
5.1.4	GERD financed by business, %	53.2	23
5.1.5	Females employed w/advanced degrees, %	21.6	27
5.2	**Innovation linkages**	**20.0**	**71 ◇**
5.2.1	University-industry R&D collaboration†	38.3	86 ○ ◇
5.2.2	State of cluster development and depth†	46.7	63
5.2.3	GERD financed by abroad, % GDP	0.1	42
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	68
5.2.5	Patent families/bn PPP$ GDP	0.3	35
5.3	**Knowledge absorption**	**37.4**	**33**
5.3.1	Intellectual property payments, % total trade	1.2	32
5.3.2	High-tech imports, % total trade	8.8	50
5.3.3	ICT services imports, % total trade	1.4	56
5.3.4	FDI net inflows, % GDP	2.6	69
5.3.5	Research talent, % in businesses	47.9	29
Knowledge and technology outputs		**30.6**	**36**
6.1	**Knowledge creation**	**27.2**	**35**
6.1.1	Patents by origin/bn PPP$ GDP	3.3	25 ●
6.1.2	PCT patents by origin/bn PPP$ GDP	0.3	42
6.1.3	Utility models by origin/bn PPP$ GDP	0.7	32
6.1.4	Scientific and technical articles/bn PPP$ GDP	27.0	34
6.1.5	Citable documents H-index	36.5	26
6.2	**Knowledge impact**	**35.3**	**41**
6.2.1	Labor productivity growth, %	2.3	23 ● ◆
6.2.2	New businesses/th pop. 15–64	1.4	70
6.2.3	Software spending, % GDP	0.2	60
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	8.8	31
6.2.5	High-tech manufacturing, %	32.6	39
6.3	**Knowledge diffusion**	**29.3**	**37**
6.3.1	Intellectual property receipts, % total trade	0.2	42
6.3.2	Production and export complexity	69.3	23 ●
6.3.3	High-tech exports, % total trade	6.3	29
6.3.4	ICT services exports, % total trade	2.8	37
Creative outputs		**29.6**	**50**
7.1	**Intangible assets**	**29.5**	**73**
7.1.1	Trademarks by origin/bn PPP$ GDP	32.0	73
7.1.2	Global brand value, top 5,000, % GDP	33.8	42
7.1.3	Industrial designs by origin/bn PPP$ GDP	n/a	n/a
7.1.4	ICTs and organizational model creation†	51.9	74 ◇
7.2	**Creative goods and services**	**29.4**	**26**
7.2.1	Cultural and creative services exports, % total trade	1.2	24
7.2.2	National feature films/mn pop. 15–69	1.8	71 ○ ◇
7.2.3	Entertainment and media market/th pop. 15–69	12.1	34 ◇
7.2.4	Printing and other media, % manufacturing	1.2	37
7.2.5	Creative goods exports, % total trade	4.5	12 ● ◆
7.3	**Online creativity**	**30.1**	**35**
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	7.1	46
7.3.2	Country-code TLDs/th pop. 15–69	26.9	26
7.3.3	Wikipedia edits/mn pop. 15–69	68.5	42
7.3.4	Mobile app creation/bn PPP$ GDP	15.5	32

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 Poland.

Missing data for Poland

Code	Indicator name	Economy year	Model year	Source
7.1.3	Industrial designs by origin/bn PPP$ GDP	n/a	2019	World Intellectual Property Organization

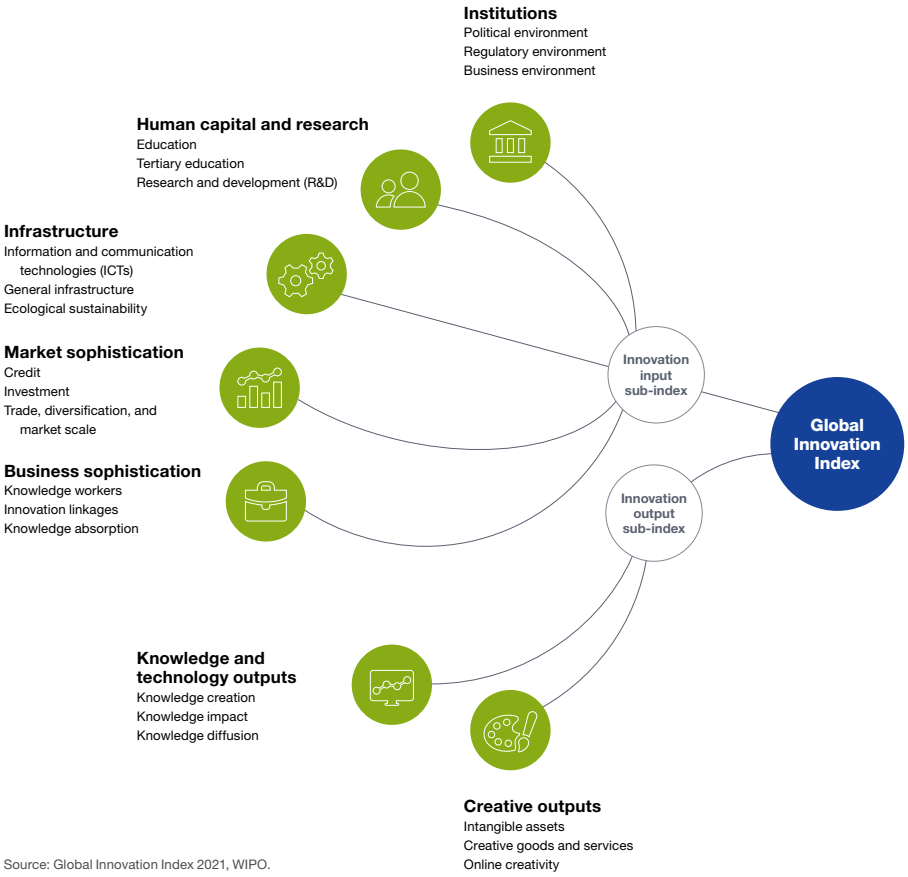
Outdated data for Poland

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2018	2019	UNESCO Institute for Statistics
4.1.3	Microfinance gross loans, % GDP	2015	2018	Microfinance Information Exchange

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.