Global Innovation Index 2021

UKRAINE

49th Ukraine ranks 49th 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 Ukraine 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 Ukraine in the GII 2021 is between ranks 43 and 53.

Rankings for Ukraine (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	49	76	37
2020	45	71	37
2019	47	82	36

- Ukraine performs better in innovation outputs than innovation inputs in 2021.
- This year Ukraine ranks 76th in innovation inputs, lower than last year but higher than 2019.
- As for innovation outputs, Ukraine ranks 37th. This position is the same as last year but lower than 2019.

3rd Ukraine ranks 3rd among the 34 lower middle-income group economies.

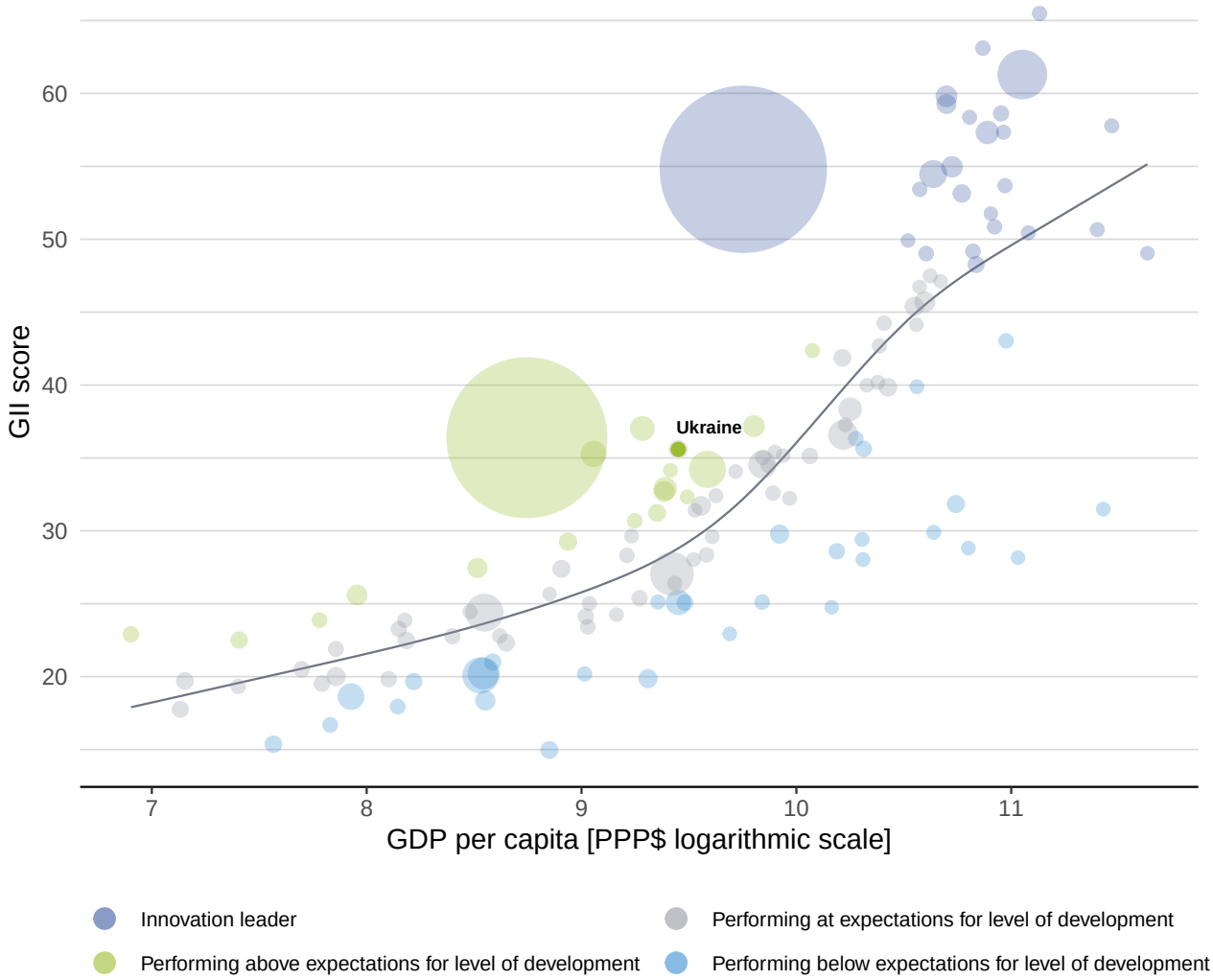
32nd Ukraine ranks 32nd among the 39 economies in Europe.

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, Ukraine's performance is above expectations for its level of development.

The positive relationship between innovation and development

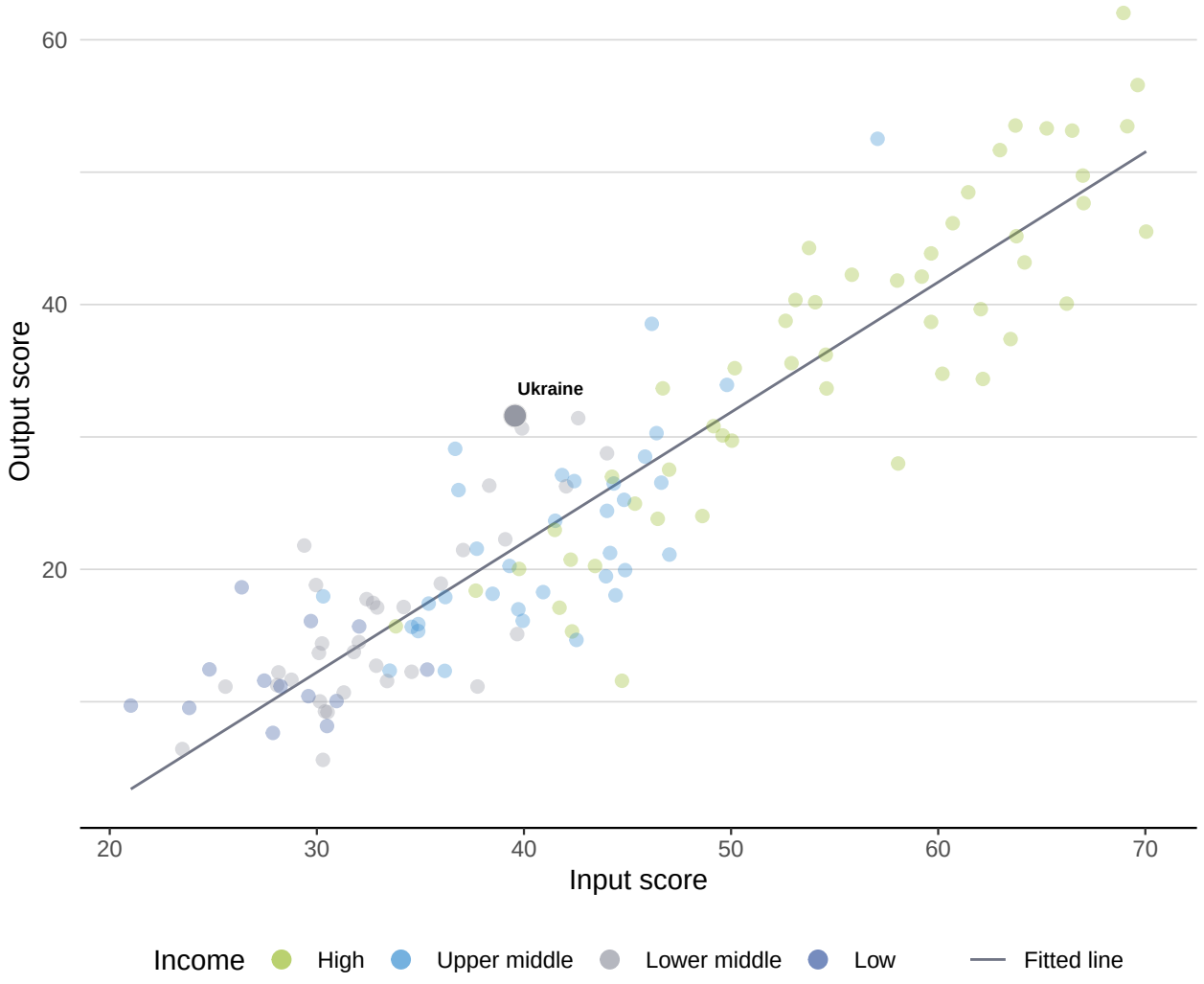


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

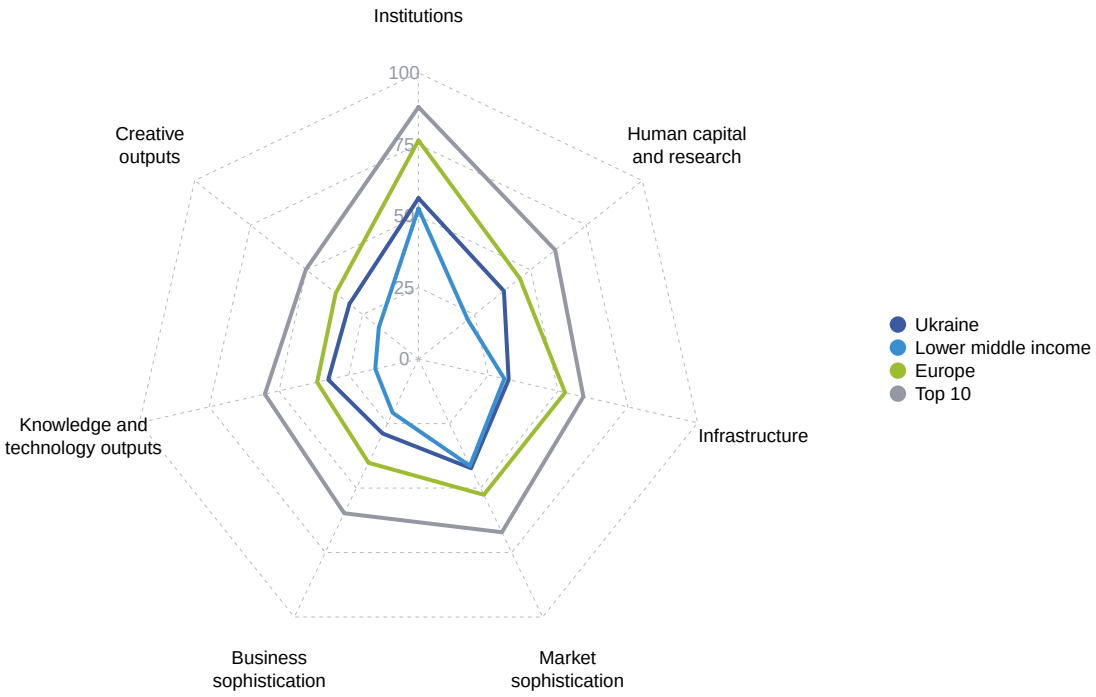
Ukraine produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER LOWER MIDDLE-INCOME GROUP ECONOMIES AND EUROPE

The seven GII pillar scores for Ukraine



Lower middle-income group economies

Ukraine performs above the lower middle-income group average in all GII pillars.

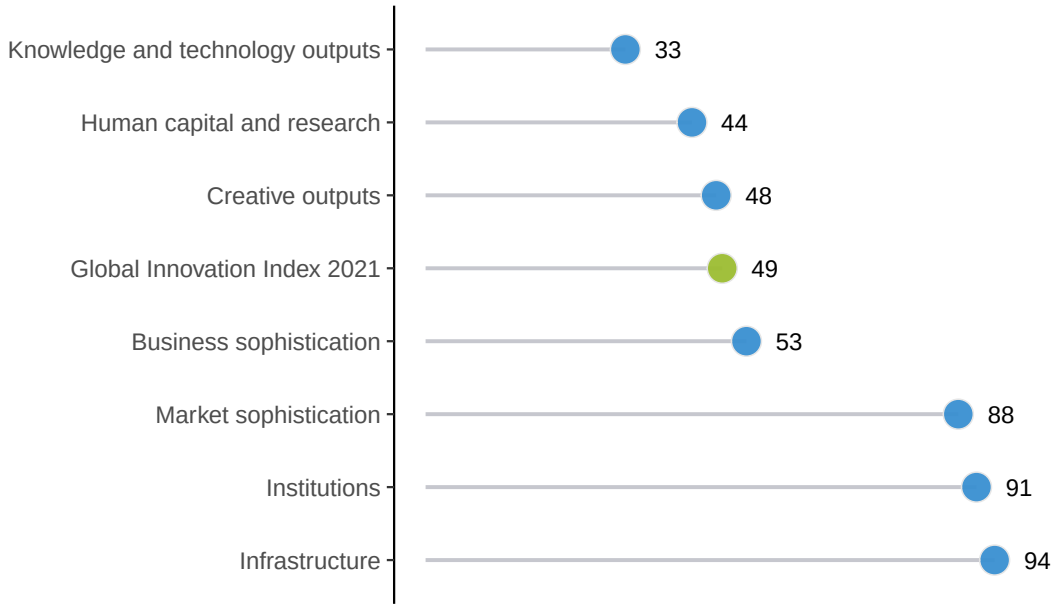
Europe

Ukraine performs below the regional average in all GII pillars.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Ukraine performs best in Knowledge and technology outputs and its weakest performance is in Infrastructure.

The seven GII pillar ranks for Ukraine



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 Ukraine in the GII 2021.

Strengths and weaknesses for Ukraine

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.1.2	Government funding/pupil, secondary, % GDP/cap	7	1.1.1	Political and operational stability	123
2.1.5	Pupil-teacher ratio, secondary	7	1.3.2	Ease of resolving insolvency	117
2.2.1	Tertiary enrolment, % gross	18	2.3.3	Global corporate R&D investors, top 3, mn US$	41
5.1.5	Females employed w/advanced degrees, %	2	3.2	General infrastructure	124
6.1.3	Utility models by origin/bn PPP$ GDP	1	3.2.3	Gross capital formation, % GDP	125
6.2.3	Software spending, % GDP	17	3.3.1	GDP/unit of energy use	120
6.3.4	ICT services exports, % total trade	9	4.1.3	Microfinance gross loans, % GDP	79
7.1.1	Trademarks by origin/bn PPP$ GDP	10	4.2	Investment	120
7.1.3	Industrial designs by origin/bn PPP$ GDP	15	4.2.2	Market capitalization, % GDP	73
7.3.4	Mobile app creation/bn PPP$ GDP	17	4.2.4	Venture capital recipients, deals/bn PPP$ GDP	93
			5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	116
			7.2.2	National feature films/mn pop. 15–69	97

Ukraine

GII 2021 rank
49

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
37	76	Lower middle	EUR	43.7	527.9	12,710	45

		Score/ Value	Rank	
Institutions		**56.2**	**91**	
1.1	**Political environment**	**46.0**	**101**	
1.1.1	Political and operational stability*	50.0	123	○ ◇
1.1.2	Government effectiveness*	44.1	90	
1.2	**Regulatory environment**	**61.3**	**78**	
1.2.1	Regulatory quality*	36.7	92	
1.2.2	Rule of law*	28.3	108	
1.2.3	Cost of redundancy dismissal	13.0	40	
1.3	**Business environment**	**61.2**	**104**	
1.3.1	Ease of starting a business*	91.1	52	
1.3.2	Ease of resolving insolvency*	31.4	117	○
Human capital and research		**38.2**	**44**	◆
2.1	**Education**	**61.3**	**23**	◆
2.1.1	Expenditure on education, % GDP	5.4	23	
2.1.2	Government funding/pupil, secondary, % GDP/cap	30.3	7	● ◆
2.1.3	School life expectancy, years	14.9	55	◆
2.1.4	PISA scales in reading, maths and science	462.7	40	
2.1.5	Pupil-teacher ratio, secondary	7.8	7	● ◆
2.2	**Tertiary education**	**42.8**	**33**	◆
2.2.1	Tertiary enrolment, % gross	82.7	18	● ◆
2.2.2	Graduates in science and engineering, %	25.1	39	
2.2.3	Tertiary inbound mobility, %	3.5	62	
2.3	**Research and development (R&D)**	**10.4**	**58**	◆
2.3.1	Researchers, FTE/mn pop.	988.1	51	◆
2.3.2	Gross expenditure on R&D, % GDP	0.5	69	
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41	○ ◇
2.3.4	QS university ranking, top 3*	20.6	51	◆
Infrastructure		**32.3**	**94**	
3.1	**Information and communication technologies (ICTs)**	**64.9**	**69**	◆
3.1.1	ICT access*	65.0	69	◆
3.1.2	ICT use*	45.5	91	
3.1.3	Government's online service*	68.2	72	
3.1.4	E-participation*	81.0	46	◆
3.2	**General infrastructure**	**12.8**	**124**	○ ◇
3.2.1	Electricity output, GWh/mn pop.	3,546.9	58	◆
3.2.2	Logistics performance*	36.4	65	
3.2.3	Gross capital formation, % GDP	6.9	125	○ ◇
3.3	**Ecological sustainability**	**19.2**	**106**	
3.3.1	GDP/unit of energy use	4.0	120	○ ◇
3.3.2	Environmental performance*	49.5	57	◆
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.6	82	
Market sophistication		**42.3**	**88**	
4.1	**Credit**	**34.3**	**90**	
4.1.1	Ease of getting credit*	75.0	34	
4.1.2	Domestic credit to private sector, % GDP	30.1	94	
4.1.3	Microfinance gross loans, % GDP	0.0	79	○
4.2	**Investment**	**17.9**	**120**	○
4.2.1	Ease of protecting minority investors*	68.0	44	
4.2.2	Market capitalization, % GDP	4.0	73	○ ◇
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	68	
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	93	○ ◇
4.3	**Trade, diversification, and market scale**	**74.8**	**44**	◆
4.3.1	Applied tariff rate, weighted avg., %	5.3	89	
4.3.2	Domestic industry diversification	89.8	51	
4.3.3	Domestic market scale, bn PPP$	527.9	39	

		Score/ Value	Rank	
Business sophistication		**28.9**	**53**	◆
5.1	**Knowledge workers**	**38.9**	**45**	◆
5.1.1	Knowledge-intensive employment, %	37.5	32	◆
5.1.2	Firms offering formal training, %	24.3	64	
5.1.3	GERD performed by business, % GDP	0.3	49	◆
5.1.4	GERD financed by business, %	30.5	59	
5.1.5	Females employed w/advanced degrees, %	30.2	2	● ◆
5.2	**Innovation linkages**	**18.0**	**84**	
5.2.1	University-industry R&D collaboration†	42.3	67	
5.2.2	State of cluster development and depth†	40.3	100	
5.2.3	GERD financed by abroad, % GDP	0.1	38	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	116	○
5.2.5	Patent families/bn PPP$ GDP	0.2	47	◆
5.3	**Knowledge absorption**	**29.7**	**59**	
5.3.1	Intellectual property payments, % total trade	0.8	46	
5.3.2	High-tech imports, % total trade	9.9	36	
5.3.3	ICT services imports, % total trade	1.0	78	
5.3.4	FDI net inflows, % GDP	3.6	36	
5.3.5	Research talent, % in businesses	27.3	45	
Knowledge and technology outputs		**32.3**	**33**	◆
6.1	**Knowledge creation**	**35.7**	**27**	◆
6.1.1	Patents by origin/bn PPP$ GDP	3.7	22	◆
6.1.2	PCT patents by origin/bn PPP$ GDP	0.3	46	◆
6.1.3	Utility models by origin/bn PPP$ GDP	14.9	1	● ◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	9.1	90	
6.1.5	Citable documents H-index	17.0	51	◆
6.2	**Knowledge impact**	**31.4**	**61**	◆
6.2.1	Labor productivity growth, %	0.7	54	
6.2.2	New businesses/th pop. 15–64	1.7	61	
6.2.3	Software spending, % GDP	0.5	17	● ◆
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.3	72	
6.2.5	High-tech manufacturing, %	18.4	65	
6.3	**Knowledge diffusion**	**29.8**	**35**	◆
6.3.1	Intellectual property receipts, % total trade	0.1	48	
6.3.2	Production and export complexity	52.4	44	◆
6.3.3	High-tech exports, % total trade	1.9	60	
6.3.4	ICT services exports, % total trade	6.3	9	● ◆
Creative outputs		**30.9**	**48**	◆
7.1	**Intangible assets**	**45.0**	**29**	◆
7.1.1	Trademarks by origin/bn PPP$ GDP	96.8	10	● ◆
7.1.2	Global brand value, top 5,000, % GDP	3.1	74	
7.1.3	Industrial designs by origin/bn PPP$ GDP	8.3	15	● ◆
7.1.4	ICTs and organizational model creation†	55.6	58	
7.2	**Creative goods and services**	**7.0**	**93**	
7.2.1	Cultural and creative services exports, % total trade	0.5	47	
7.2.2	National feature films/mn pop. 15–69	0.6	97	○
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	0.8	68	
7.2.5	Creative goods exports, % total trade	0.2	78	
7.3	**Online creativity**	**26.4**	**45**	◆
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	4.5	55	◆
7.3.2	Country-code TLDs/th pop. 15–69	5.1	55	◆
7.3.3	Wikipedia edits/mn pop. 15–69	65.0	44	◆
7.3.4	Mobile app creation/bn PPP$ GDP	29.1	17	● ◆

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 Ukraine.

Missing data for Ukraine

Code	Indicator name	Economy year	Model year	Source
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC

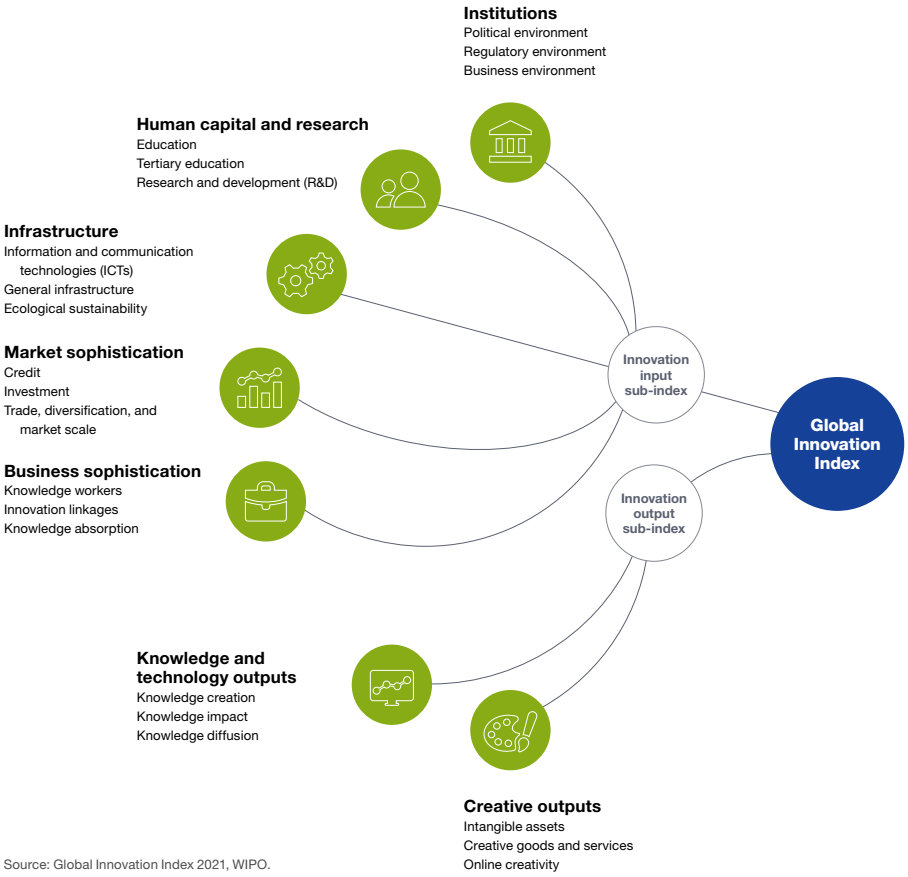
Outdated data for Ukraine

Code	Indicator name	Economy year	Model year	Source
2.1.3	School life expectancy, years	2014	2018	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2014	2018	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.1.3	Microfinance gross loans, % GDP	2015	2018	Microfinance Information Exchange
4.2.2	Market capitalization, % GDP	2018	2019	World Federation of Exchanges
5.1.3	GERD performed by business, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.3.2	High-tech imports, % total trade	2018	2019	United Nations, COMTRADE
5.3.5	Research talent, % in businesses	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.2.2	New businesses/th pop. 15–64	2017	2018	World Bank
6.3.3	High-tech exports, % total trade	2018	2019	United Nations, COMTRADE
7.2.5	Creative goods exports, % total trade	2018	2019	United Nations, COMTRADE

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.