Global Innovation Index 2021

BULGARIA

35th Bulgaria ranks 35th 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 Bulgaria 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 Bulgaria in the GII 2021 is between ranks 33 and 36.

Rankings for Bulgaria (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	35	46	27
2020	37	45	30
2019	40	45	38

- Bulgaria performs better in innovation outputs than innovation inputs in 2021.
- This year Bulgaria ranks 46th in innovation inputs, lower than both 2020 and 2019.
- As for innovation outputs, Bulgaria ranks 27th. This position is higher than both 2020 and 2019.

2nd Bulgaria ranks 2nd among the 34 upper middle-income group economies.

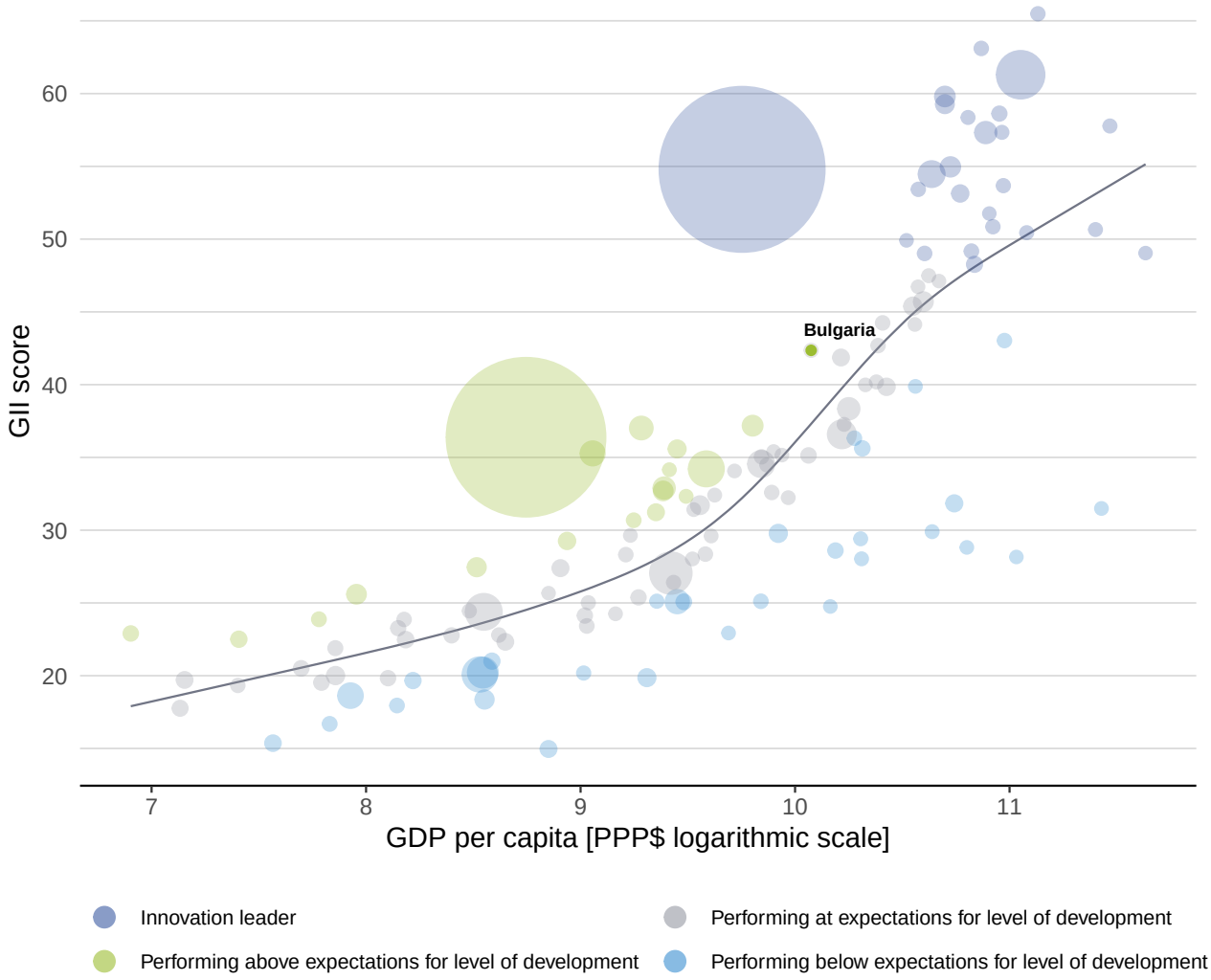
23rd Bulgaria ranks 23rd among the 39 economies in Europe.

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

The positive relationship between innovation and development

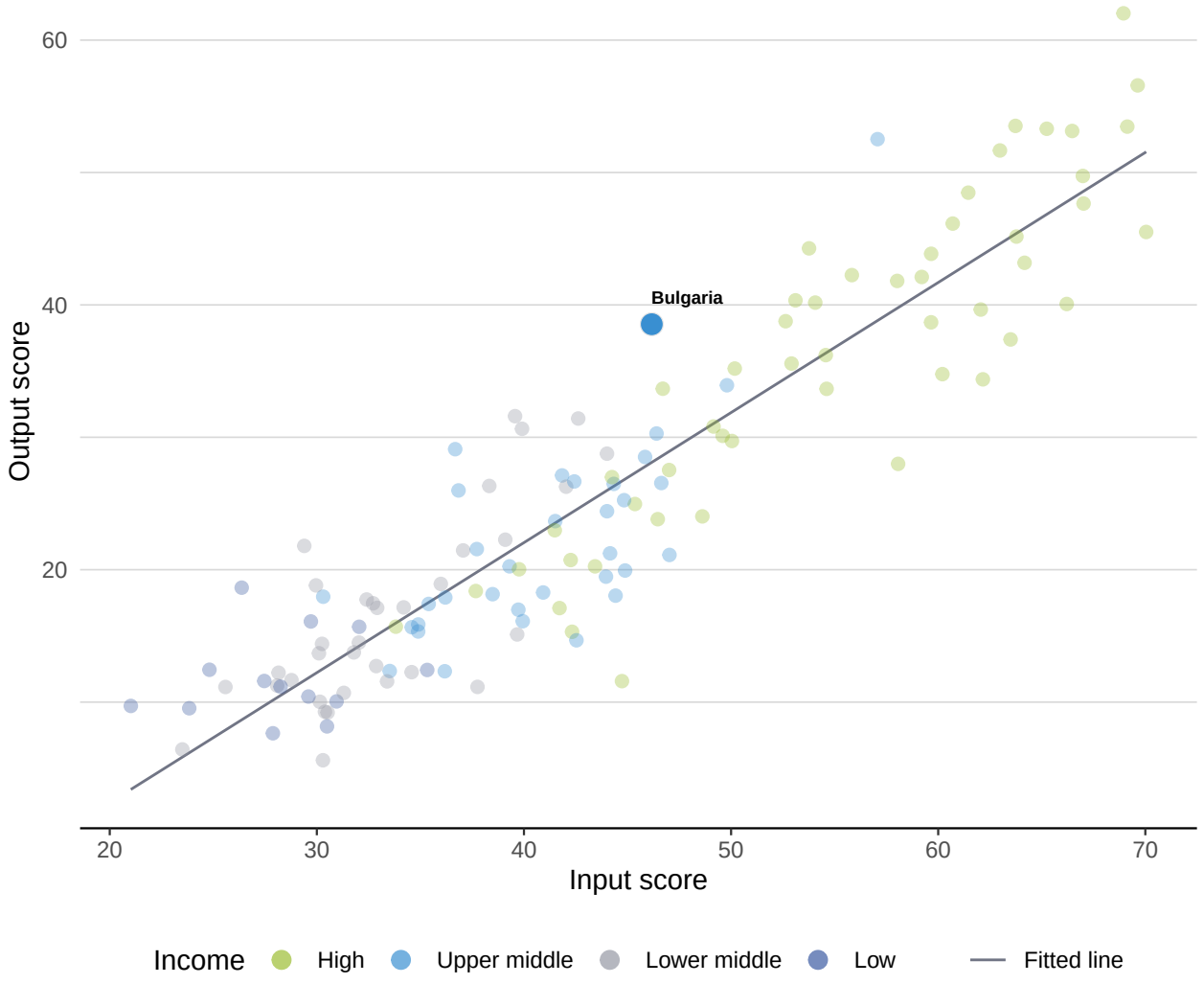


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance



BENCHMARKING AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND EUROPE

The seven GII pillar scores for Bulgaria

Upper middle-income group economies

Bulgaria performs above the upper middle-income group average in six pillars, namely: Institutions; Human capital and research; Infrastructure; Business sophistication; Knowledge and technology outputs; and, Creative outputs.

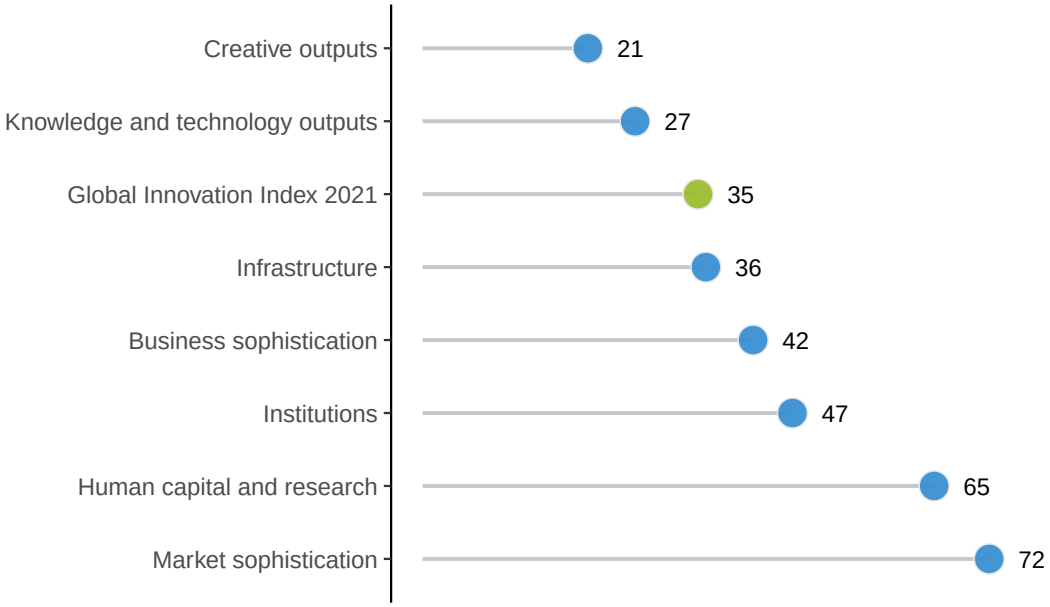
Europe

Bulgaria performs above the regional average in Creative outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Bulgaria performs best in Creative outputs and its weakest performance is in Market sophistication.

The seven GII pillar ranks for Bulgaria



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 Bulgaria in the GII 2021.

Strengths and weaknesses for Bulgaria

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
1.2.3	Cost of redudancy dismissal	16	1.3.1	Ease of starting a business	86
3.3	Ecological sustainability	15	2.1.3	School life expectancy, years	69
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2	2.1.4	PISA scales in reading, maths and science	50
4.3.2	Domestic industry diversification	15	2.2.2	Graduates in science and engineering, %	77
5.2.3	GERD financed by abroad, % GDP	13	2.3.3	Global corporate R&D investors, top 3, mn US$	41
6.1.3	Utility models by origin/bn PPP$ GDP	7	3.2.3	Gross capital formation, % GDP	97
6.2	Knowledge impact	6	3.3.1	GDP/unit of energy use	92
6.2.2	New businesses/th pop. 15–64	14	4.1	Credit	93
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1	4.1.3	Microfinance gross loans, % GDP	82
7.1	Intangible assets	7	4.2	Investment	86
7.1.1	Trademarks by origin/bn PPP$ GDP	18	4.2.2	Market capitalization, % GDP	63
7.1.3	Industrial designs by origin/bn PPP$ GDP	13	5.1.2	Firms offering formal training, %	78
7.2.1	Cultural and creative services exports, % total trade	13			

Bulgaria

GII 2021 rank **35**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
27	46	Upper middle	EUR	6.9	164.1	23,741	37

		Score/ Value	Rank	
Institutions		**69.8**	**47**	◆
1.1	**Political environment**	**62.0**	**53**	
1.1.1	Political and operational stability*	69.6	60	
1.1.2	Government effectiveness*	58.2	53	
1.2	**Regulatory environment**	**75.7**	**36**	◆
1.2.1	Regulatory quality*	57.4	46	◆
1.2.2	Rule of law*	47.7	62	
1.2.3	Cost of redundancy dismissal	8.6	16	●
1.3	**Business environment**	**71.6**	**64**	
1.3.1	Ease of starting a business*	85.4	86	○
1.3.2	Ease of resolving insolvency*	57.8	56	
Human capital and research		**31.7**	**65**	
2.1	**Education**	**47.4**	**74**	
2.1.1	Expenditure on education, % GDP	4.1	65	
2.1.2	Government funding/pupil, secondary, % GDP/cap	21.6	36	
2.1.3	School life expectancy, years	14.2	69	○
2.1.4	PISA scales in reading, maths and science	426.7	50	○
2.1.5	Pupil-teacher ratio, secondary	12.6	54	
2.2	**Tertiary education**	**34.8**	**61**	
2.2.1	Tertiary enrolment, % gross	71.5	28	
2.2.2	Graduates in science and engineering, %	19.3	77	○
2.2.3	Tertiary inbound mobility, %	6.4	38	
2.3	**Research and development (R&D)**	**12.9**	**52**	
2.3.1	Researchers, FTE/mn pop.	2,420.0	35	◆
2.3.2	Gross expenditure on R&D, % GDP	0.8	43	
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41	○ ◇
2.3.4	QS university ranking, top 3*	6.2	70	
Infrastructure		**51.7**	**36**	◆
3.1	**Information and communication technologies (ICTs)**	**77.4**	**42**	◆
3.1.1	ICT access*	71.4	57	
3.1.2	ICT use*	72.0	42	◆
3.1.3	Government's online service*	77.1	47	
3.1.4	E-participation*	89.3	23	◆
3.2	**General infrastructure**	**27.5**	**69**	
3.2.1	Electricity output, GWh/mn pop.	6,282.1	32	◆
3.2.2	Logistics performance*	45.8	51	
3.2.3	Gross capital formation, % GDP	18.7	97	○
3.3	**Ecological sustainability**	**50.2**	**15**	● ◆
3.3.1	GDP/unit of energy use	7.8	92	○
3.3.2	Environmental performance*	57.0	39	◆
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	12.2	2	● ◆
Market sophistication		**45.1**	**72**	
4.1	**Credit**	**33.7**	**93**	○
4.1.1	Ease of getting credit*	65.0	61	
4.1.2	Domestic credit to private sector, % GDP	49.8	71	
4.1.3	Microfinance gross loans, % GDP	0.0	82	○
4.2	**Investment**	**24.6**	**86**	○
4.2.1	Ease of protecting minority investors*	74.0	24	
4.2.2	Market capitalization, % GDP	14.5	63	○
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	43	
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	45	
4.3	**Trade, diversification, and market scale**	**76.9**	**38**	
4.3.1	Applied tariff rate, weighted avg., %	1.8	25	
4.3.2	Domestic industry diversification	97.1	15	●
4.3.3	Domestic market scale, bn PPP$	164.1	71	

		Score/ Value	Rank	
Business sophistication		**32.6**	**42**	
5.1	**Knowledge workers**	**36.1**	**54**	
5.1.1	Knowledge-intensive employment, %	31.1	45	
5.1.2	Firms offering formal training, %	20.0	78	○
5.1.3	GERD performed by business, % GDP	0.6	37	
5.1.4	GERD financed by business, %	43.1	36	
5.1.5	Females employed w/advanced degrees, %	18.8	34	
5.2	**Innovation linkages**	**29.1**	**36**	◆
5.2.1	University-industry R&D collaboration†	46.4	51	
5.2.2	State of cluster development and depth†	55.3	35	
5.2.3	GERD financed by abroad, % GDP	0.3	13	● ◆
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	41	◆
5.2.5	Patent families/bn PPP$ GDP	0.3	39	
5.3	**Knowledge absorption**	**32.7**	**49**	
5.3.1	Intellectual property payments, % total trade	0.5	68	
5.3.2	High-tech imports, % total trade	7.2	73	
5.3.3	ICT services imports, % total trade	1.3	59	
5.3.4	FDI net inflows, % GDP	2.9	55	
5.3.5	Research talent, % in businesses	50.1	23	◆
Knowledge and technology outputs		**36.0**	**27**	◆
6.1	**Knowledge creation**	**27.1**	**36**	
6.1.1	Patents by origin/bn PPP$ GDP	1.3	57	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.3	40	
6.1.3	Utility models by origin/bn PPP$ GDP	2.7	7	● ◆
6.1.4	Scientific and technical articles/bn PPP$ GDP	15.4	55	
6.1.5	Citable documents H-index	15.9	52	
6.2	**Knowledge impact**	**51.4**	**6**	● ◆
6.2.1	Labor productivity growth, %	1.6	33	
6.2.2	New businesses/th pop. 15–64	10.1	14	● ◆
6.2.3	Software spending, % GDP	0.2	68	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	38.0	1	● ◆
6.2.5	High-tech manufacturing, %	22.9	56	
6.3	**Knowledge diffusion**	**29.5**	**36**	
6.3.1	Intellectual property receipts, % total trade	0.2	40	◆
6.3.2	Production and export complexity	56.7	41	
6.3.3	High-tech exports, % total trade	5.0	37	
6.3.4	ICT services exports, % total trade	4.2	20	◆
Creative outputs		**41.1**	**21**	◆
7.1	**Intangible assets**	**57.9**	**7**	● ◆
7.1.1	Trademarks by origin/bn PPP$ GDP	84.8	18	● ◆
7.1.2	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.3	Industrial designs by origin/bn PPP$ GDP	8.5	13	● ◆
7.1.4	ICTs and organizational model creation†	53.7	64	
7.2	**Creative goods and services**	**21.7**	**46**	
7.2.1	Cultural and creative services exports, % total trade	1.7	13	● ◆
7.2.2	National feature films/mn pop. 15–69	4.7	45	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	1.1	43	
7.2.5	Creative goods exports, % total trade	1.0	42	
7.3	**Online creativity**	**26.8**	**43**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	23.7	24	◆
7.3.2	Country-code TLDs/th pop. 15–69	3.8	59	
7.3.3	Wikipedia edits/mn pop. 15–69	69.5	39	◆
7.3.4	Mobile app creation/bn PPP$ GDP	7.3	53	

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 Bulgaria.

Missing data for Bulgaria

Code	Indicator name	Economy year	Model year	Source
7.1.2	Global brand value, top 5,000, % GDP	n/a	2020	Brand Finance
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC

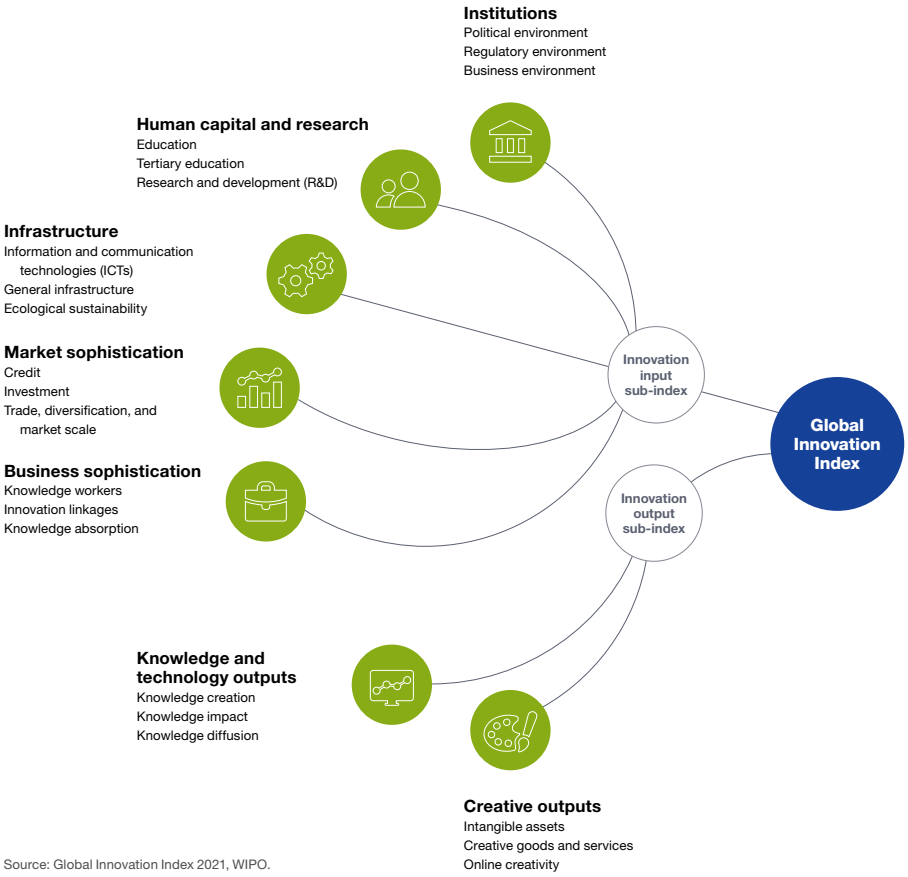
Outdated data for Bulgaria

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2018	2019	UNESCO Institute for Statistics
4.2.2	Market capitalization, % GDP	2011	2019	World Federation of Exchanges

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.