Global Innovation Index 2021

CROATIA

42nd Croatia ranks 42nd 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 Croatia 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 Croatia in the GII 2021 is between ranks 42 and 48.

Rankings for Croatia (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	42	41	48
2020	41	44	43
2019	44	46	52

- Croatia performs better in innovation inputs than innovation outputs in 2021.
- This year Croatia ranks 41st in innovation inputs, higher than both 2020 and 2019.
- As for innovation outputs, Croatia ranks 48th. This position is lower than last year but higher than 2019.

38th Croatia ranks 38th among the 51 high-income group economies.

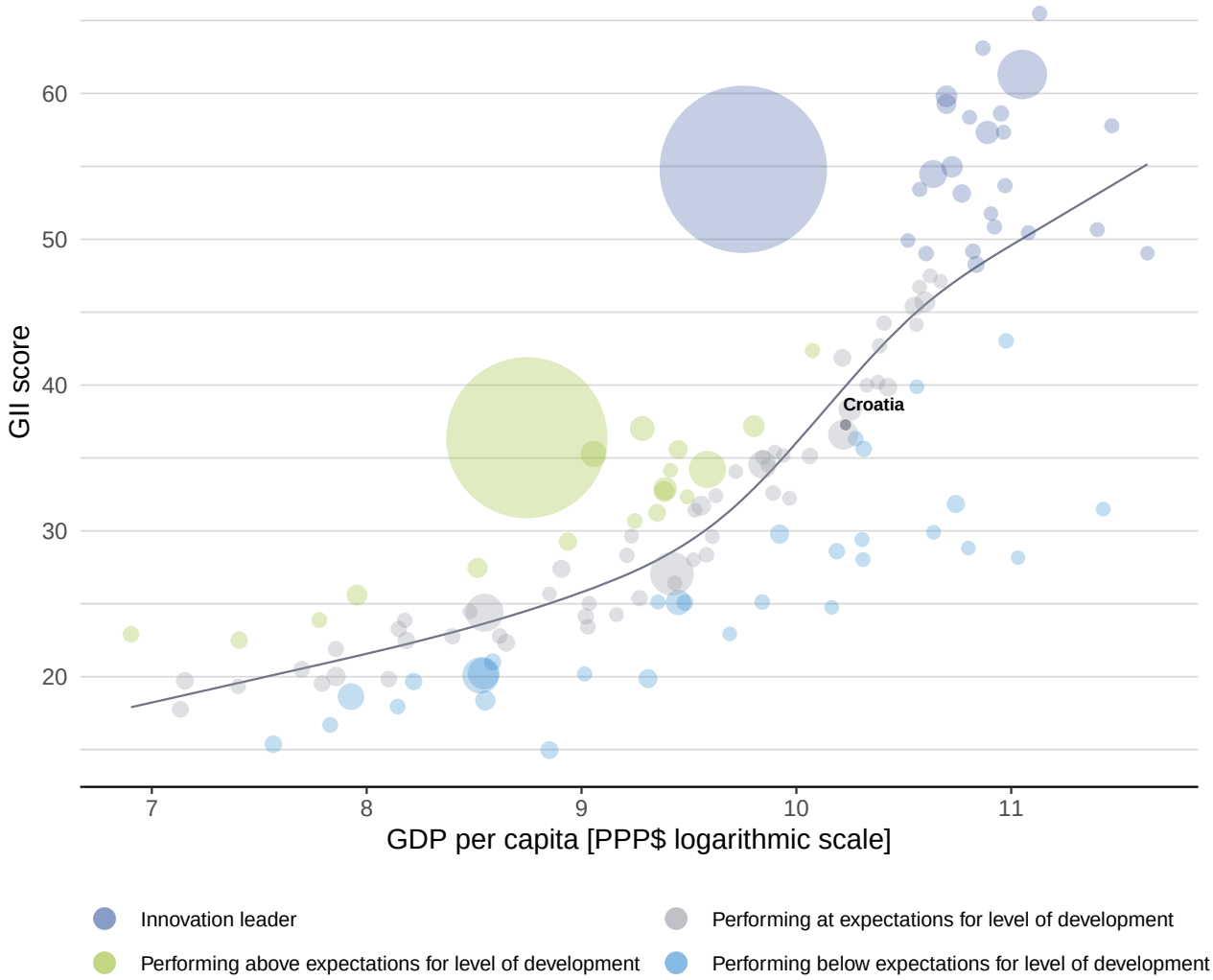
28th Croatia ranks 28th among the 39 economies in Europe.

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

The positive relationship between innovation and development

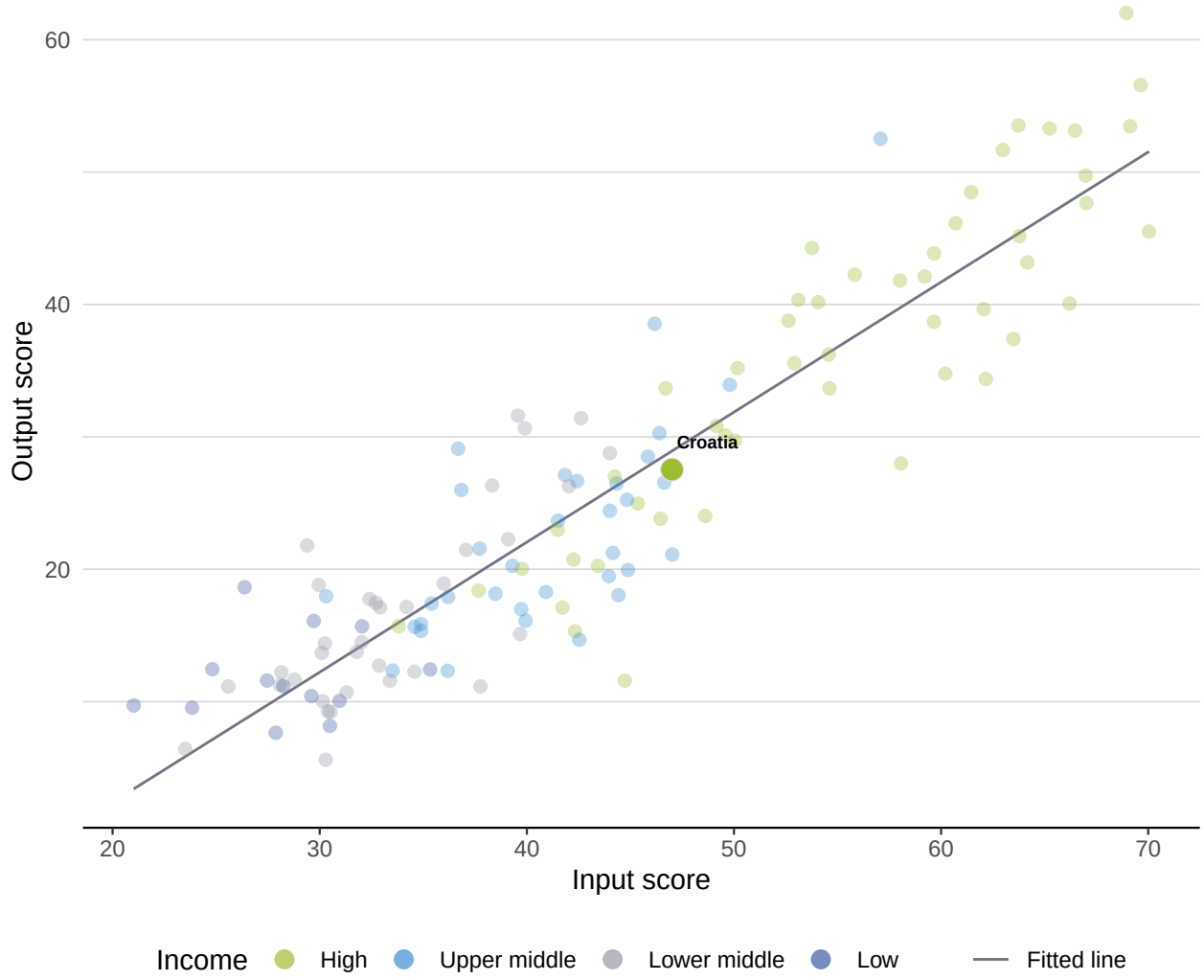


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

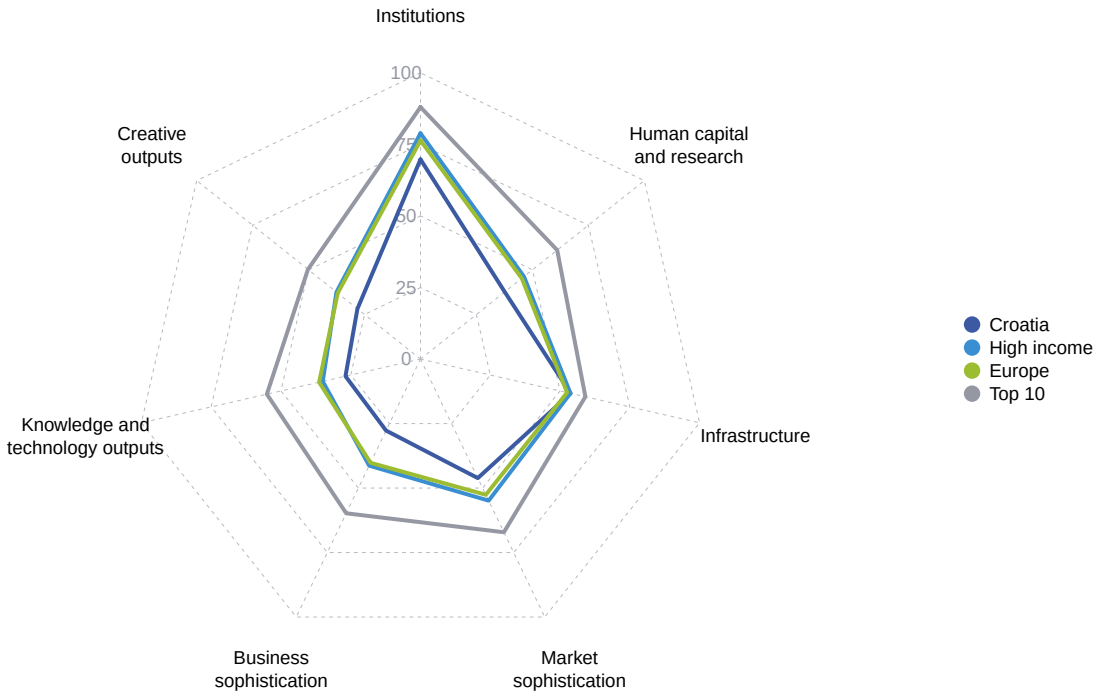
Croatia produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

The seven GII pillar scores for Croatia



High-income group economies

Croatia performs above the high-income group average in Infrastructure.

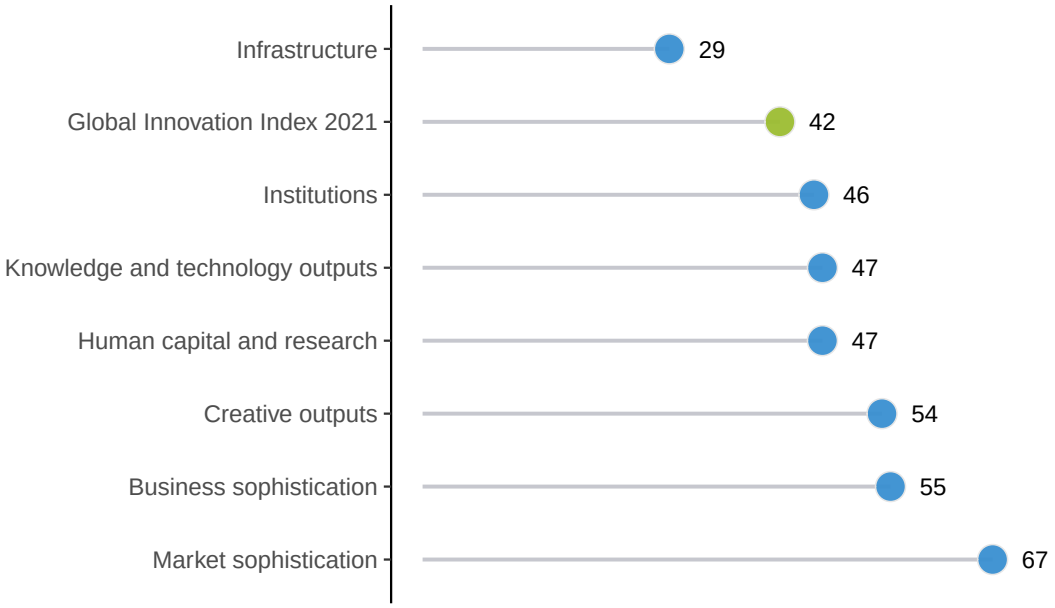
Europe

Croatia performs above the regional average in Infrastructure.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Croatia performs best in Infrastructure and its weakest performance is in Market sophistication.

The seven GII pillar ranks for Croatia



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 Croatia in the GII 2021.

Strengths and weaknesses for Croatia

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.1.5	Pupil-teacher ratio, secondary	1	1.3.1	Ease of starting a business	87
3.1.4	E-participation	23	2.3.3	Global corporate R&D investors, top 3, mn US$	41
3.3	Ecological sustainability	6	4.1.1	Ease of getting credit	94
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	6	4.2.3	Venture capital investors, deals/bn PPP$ GDP	76
4.3.2	Domestic industry diversification	23	5.2.1	University-industry R&D collaboration	113
5.2.3	GERD financed by abroad, % GDP	21	5.2.2	State of cluster development and depth	123
6.1.4	Scientific and technical articles/bn PPP$ GDP	23	5.3.2	High-tech imports, % total trade	89
6.2.2	New businesses/th pop. 15–64	28	5.3.4	FDI net inflows, % GDP	90
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	6	6.2.1	Labor productivity growth, %	108
7.2.1	Cultural and creative services exports, % total trade	15	6.2.3	Software spending, % GDP	97
7.2.4	Printing and other media, % manufacturing	5			

Croatia

GII 2021 rank **42**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
48	41	High	EUR	4.1	112.0	27,681	41

		Score/ Value	Rank	
Institutions		**69.8**	**46**	
1.1	**Political environment**	**66.6**	**45**	
1.1.1	Political and operational stability*	80.4	29	
1.1.2	Government effectiveness*	59.8	49	◇
1.2	**Regulatory environment**	**71.8**	**45**	
1.2.1	Regulatory quality*	58.9	44	
1.2.2	Rule of law*	56.4	48	◇
1.2.3	Cost of redundancy dismissal	15.1	59	
1.3	**Business environment**	**70.9**	**68**	
1.3.1	Ease of starting a business*	85.3	87	○ ◇
1.3.2	Ease of resolving insolvency*	56.5	58	
Human capital and research		**37.6**	**47**	
2.1	**Education**	**59.1**	**32**	
2.1.1	Expenditure on education, % GDP	3.9	71	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	15.2	48	
2.1.4	PISA scales in reading, maths and science	471.9	37	
2.1.5	Pupil-teacher ratio, secondary	6.4	1	● ◆
2.2	**Tertiary education**	**39.8**	**40**	
2.2.1	Tertiary enrolment, % gross	67.7	37	
2.2.2	Graduates in science and engineering, %	26.3	32	
2.2.3	Tertiary inbound mobility, %	3.0	66	
2.3	**Research and development (R&D)**	**14.0**	**50**	
2.3.1	Researchers, FTE/mn pop.	2,135.4	38	
2.3.2	Gross expenditure on R&D, % GDP	1.1	35	
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41	○ ◇
2.3.4	QS university ranking, top 3*	8.4	68	◇
Infrastructure		**53.8**	**29**	●
3.1	**Information and communication technologies (ICTs)**	**78.2**	**39**	
3.1.1	ICT access*	79.0	38	
3.1.2	ICT use*	69.3	48	◇
3.1.3	Government's online service*	75.3	52	
3.1.4	E-participation*	89.3	23	●
3.2	**General infrastructure**	**30.8**	**58**	
3.2.1	Electricity output, GWh/mn pop.	3,109.1	63	
3.2.2	Logistics performance*	49.1	48	
3.2.3	Gross capital formation, % GDP	25.2	45	
3.3	**Ecological sustainability**	**52.3**	**6**	● ◆
3.3.1	GDP/unit of energy use	12.5	43	
3.3.2	Environmental performance*	63.1	34	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	9.8	6	● ◆
Market sophistication		**46.1**	**67**	
4.1	**Credit**	**35.6**	**86**	
4.1.1	Ease of getting credit*	50.0	94	○
4.1.2	Domestic credit to private sector, % GDP	54.4	60	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	**Investment**	**28.0**	**73**	
4.2.1	Ease of protecting minority investors*	70.0	36	
4.2.2	Market capitalization, % GDP	37.1	40	
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	76	○ ◇
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification, and market scale**	**74.8**	**43**	
4.3.1	Applied tariff rate, weighted avg., %	1.8	25	
4.3.2	Domestic industry diversification	95.8	23	●
4.3.3	Domestic market scale, bn PPP$	112.0	79	

		Score/ Value	Rank	
Business sophistication		**27.7**	**55**	
5.1	**Knowledge workers**	**37.0**	**53**	
5.1.1	Knowledge-intensive employment, %	37.1	33	
5.1.2	Firms offering formal training, %	26.2	60	
5.1.3	GERD performed by business, % GDP	0.5	38	
5.1.4	GERD financed by business, %	33.2	56	
5.1.5	Females employed w/advanced degrees, %	17.6	38	
5.2	**Innovation linkages**	**18.3**	**80**	◇
5.2.1	University-industry R&D collaboration†	29.4	113	○ ◇
5.2.2	State of cluster development and depth†	30.2	123	○ ◇
5.2.3	GERD financed by abroad, % GDP	0.2	21	●
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	59	
5.2.5	Patent families/bn PPP$ GDP	0.1	53	
5.3	**Knowledge absorption**	**27.8**	**62**	
5.3.1	Intellectual property payments, % total trade	1.1	37	
5.3.2	High-tech imports, % total trade	6.4	89	○
5.3.3	ICT services imports, % total trade	1.6	46	
5.3.4	FDI net inflows, % GDP	1.6	90	○
5.3.5	Research talent, % in businesses	24.8	51	
Knowledge and technology outputs		**26.9**	**47**	
6.1	**Knowledge creation**	**22.5**	**48**	
6.1.1	Patents by origin/bn PPP$ GDP	1.8	40	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.2	52	
6.1.3	Utility models by origin/bn PPP$ GDP	0.5	37	
6.1.4	Scientific and technical articles/bn PPP$ GDP	37.4	23	●
6.1.5	Citable documents H-index	17.3	49	
6.2	**Knowledge impact**	**33.5**	**49**	
6.2.1	Labor productivity growth, %	–2.4	108	○ ◇
6.2.2	New businesses/th pop. 15–64	5.9	28	●
6.2.3	Software spending, % GDP	0.1	97	○ ◇
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	22.4	6	● ◆
6.2.5	High-tech manufacturing, %	26.2	47	
6.3	**Knowledge diffusion**	**24.7**	**48**	
6.3.1	Intellectual property receipts, % total trade	0.2	37	
6.3.2	Production and export complexity	64.0	30	
6.3.3	High-tech exports, % total trade	3.0	48	
6.3.4	ICT services exports, % total trade	3.1	34	
Creative outputs		**28.2**	**54**	
7.1	**Intangible assets**	**30.2**	**69**	
7.1.1	Trademarks by origin/bn PPP$ GDP	52.2	44	
7.1.2	Global brand value, top 5,000, % GDP	8.5	62	
7.1.3	Industrial designs by origin/bn PPP$ GDP	3.4	31	
7.1.4	ICTs and organizational model creation†	51.9	73	◇
7.2	**Creative goods and services**	**25.2**	**38**	
7.2.1	Cultural and creative services exports, % total trade	1.7	15	●
7.2.2	National feature films/mn pop. 15–69	2.0	67	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	2.7	5	● ◆
7.2.5	Creative goods exports, % total trade	0.8	51	
7.3	**Online creativity**	**27.2**	**41**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	14.8	32	
7.3.2	Country-code TLDs/th pop. 15–69	11.5	39	
7.3.3	Wikipedia edits/mn pop. 15–69	70.5	35	
7.3.4	Mobile app creation/bn PPP$ GDP	9.2	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 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 Croatia.

Missing data for Croatia

Code	Indicator name	Economy year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2017	UNESCO Institute for Statistics
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	n/a	2020	Refinitiv Eikon
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC

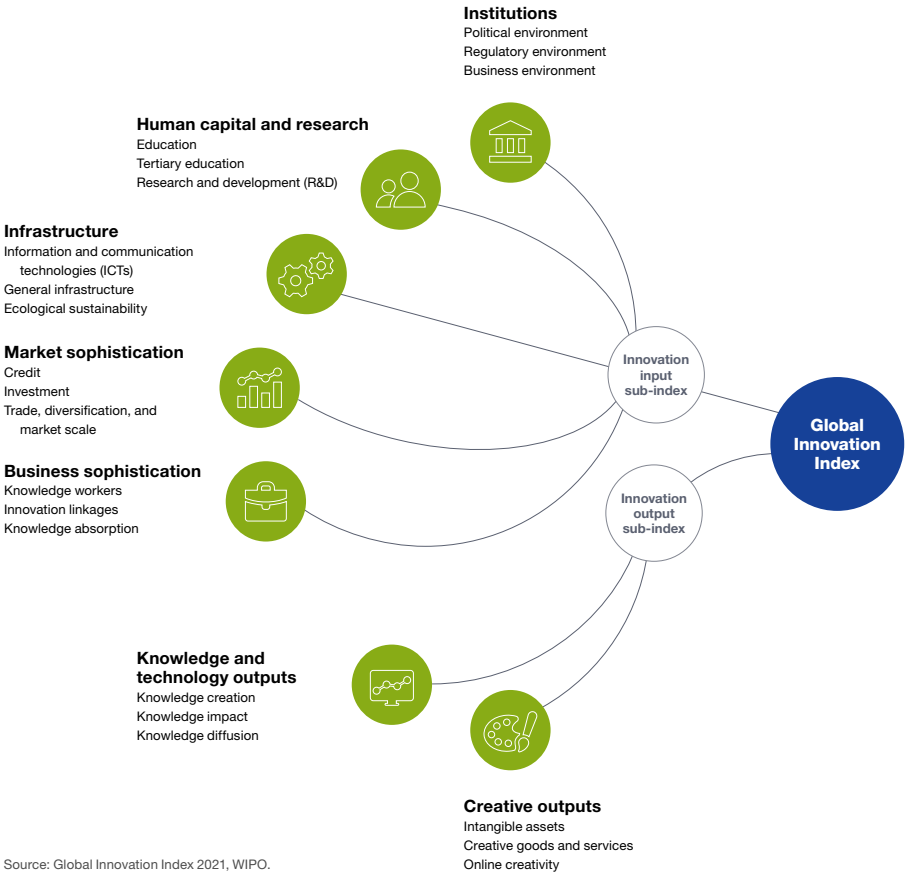
Outdated data for Croatia

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2018	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.