



CROATIA

41st

Croatia ranks 41st among the 131 economies featured in the GII 2020.

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 2020 is between ranks 41 and 48.

Rankings of Croatia (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	41	44	43
2019	44	46	52
2018	41	42	42

- Croatia performs better in innovation outputs than innovation inputs in 2020.
- This year Croatia ranks 44th in innovation inputs, higher than last year and lower compared to 2018.
- As for innovation outputs, Croatia ranks 43rd. This position is higher than last year and lower compared to 2018.

38th

Croatia ranks 38th among the 49 high-income group economies.

28th

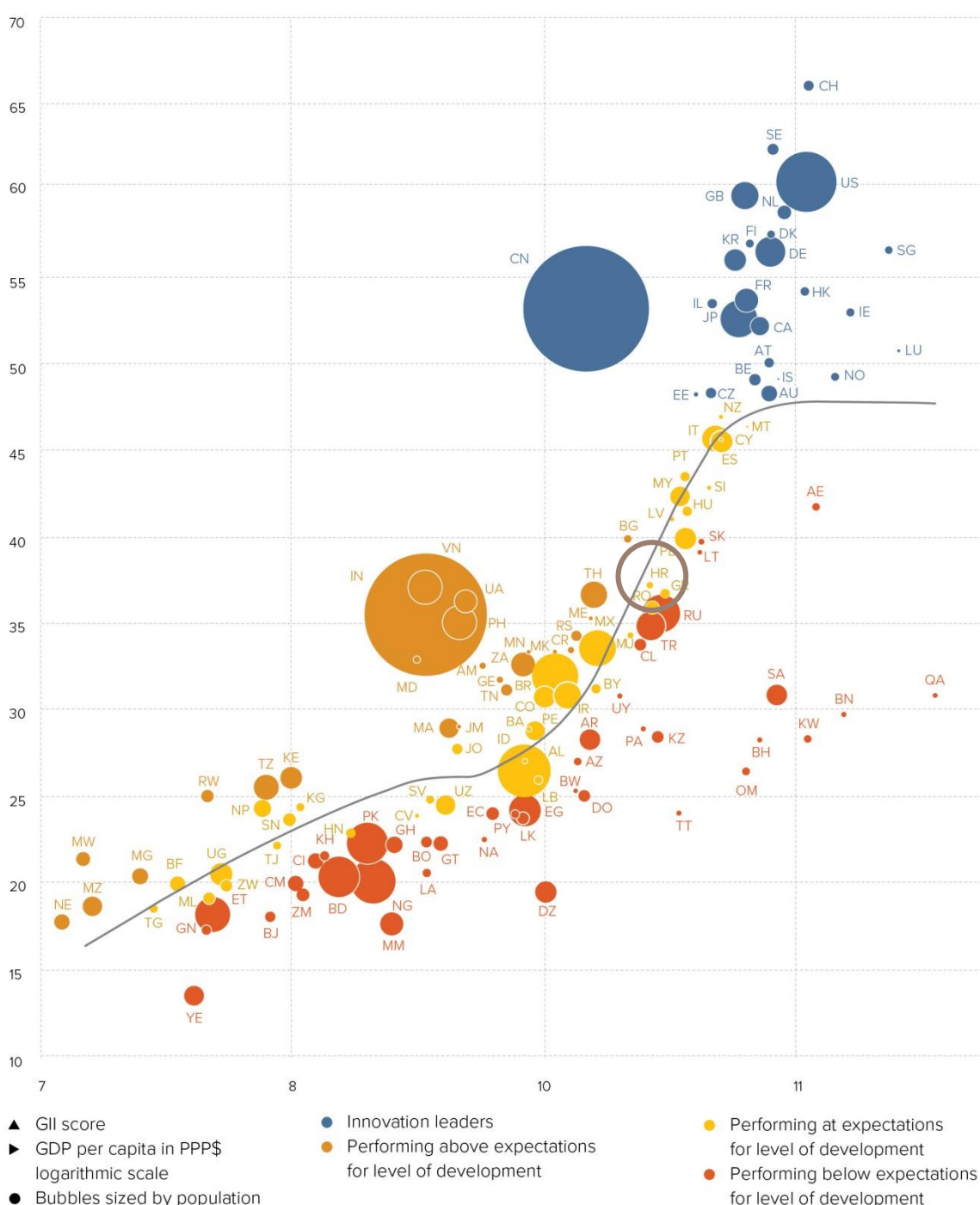
Croatia ranks 28th among the 39 economies in Europe.

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 matches expectations for its level of development.

The positive relationship between innovation and development

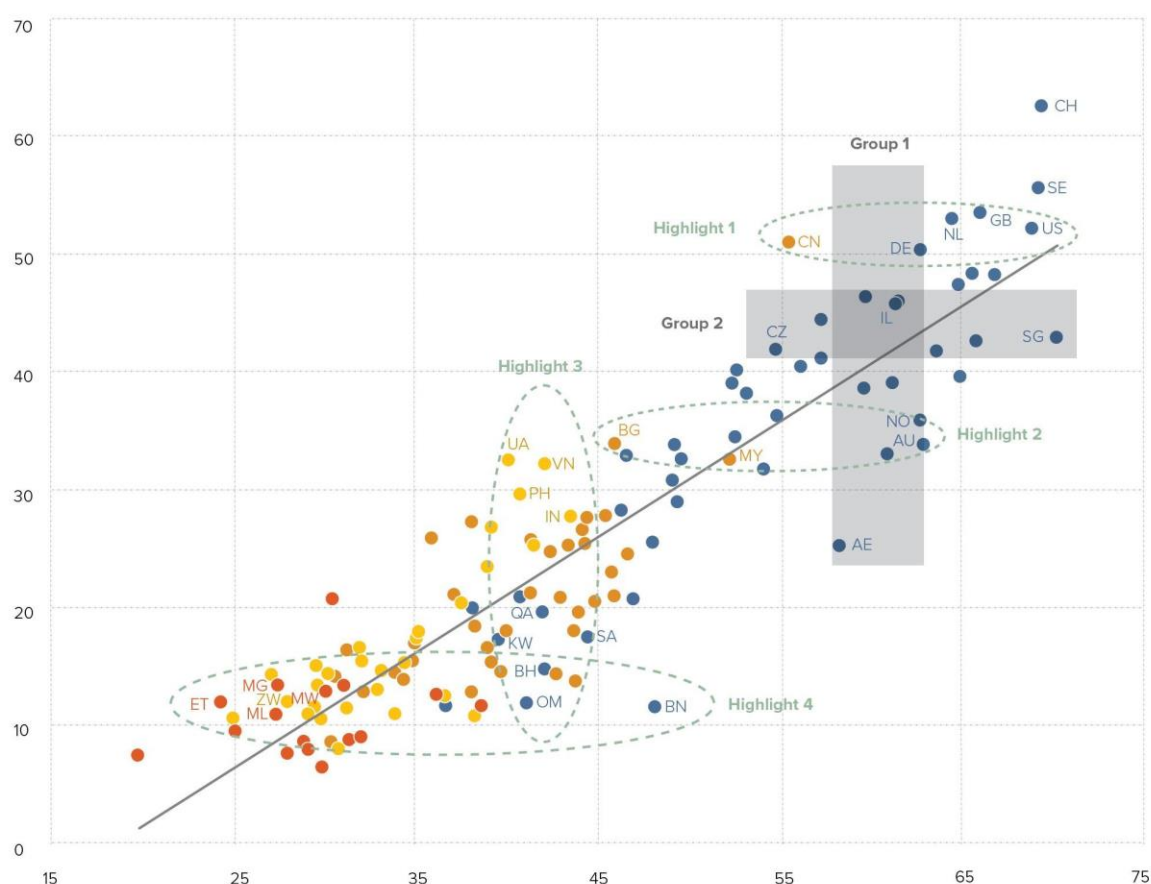


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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 more innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020



▲ Output score
► Input score

● High income group
● Upper middle-income group

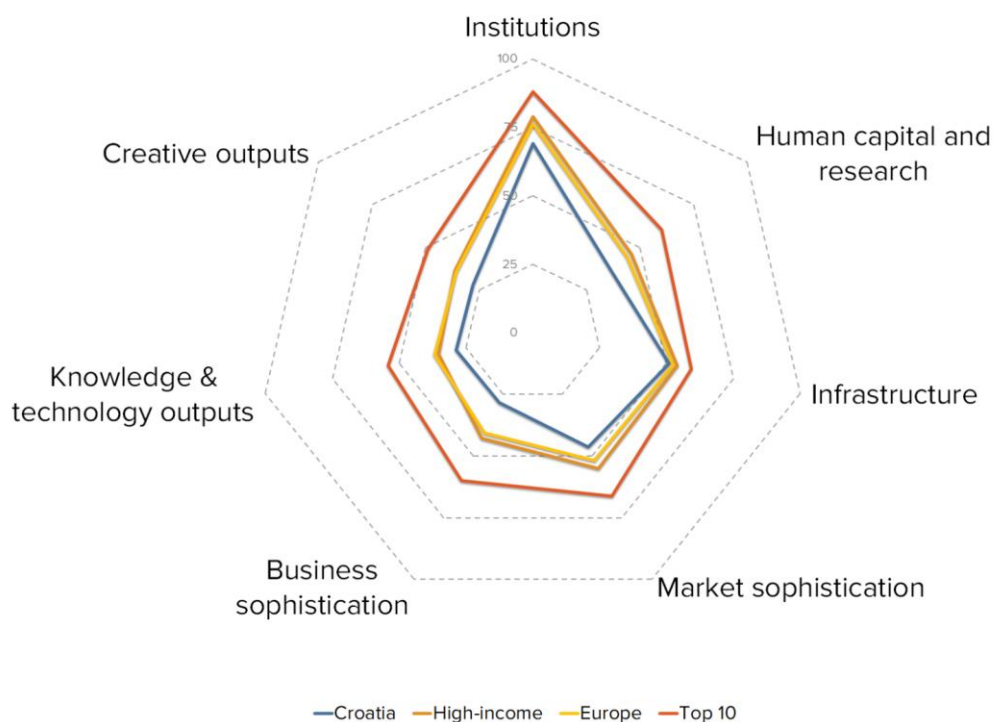
● Lower middle-income group
● Low income group

— Fitted values

AU	Australia	IN	India	NL	Netherlands	CH	Switzerland
BH	Bahrain	IL	Israel	NO	Norway	UA	Ukraine
BN	Brunei Darussalam	KW	Kuwait	OM	Oman	AE	United Arab Emirates
BG	Bulgaria	MG	Madagascar	PH	Philippines	GB	United Kingdom
CN	China	MW	Malawi	QA	Qatar	US	United States of America
CZ	Czech Republic	ML	Mali	SA	Saudi Arabia	VN	Viet Nam
ET	Ethiopia	MY	Malaysia	SG	Singapore	ZW	Zimbabwe
DE	Germany			SE	Sweden		

BENCHMARKING CROATIA AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

Croatia's scores in the seven GII pillars



High-income group economies

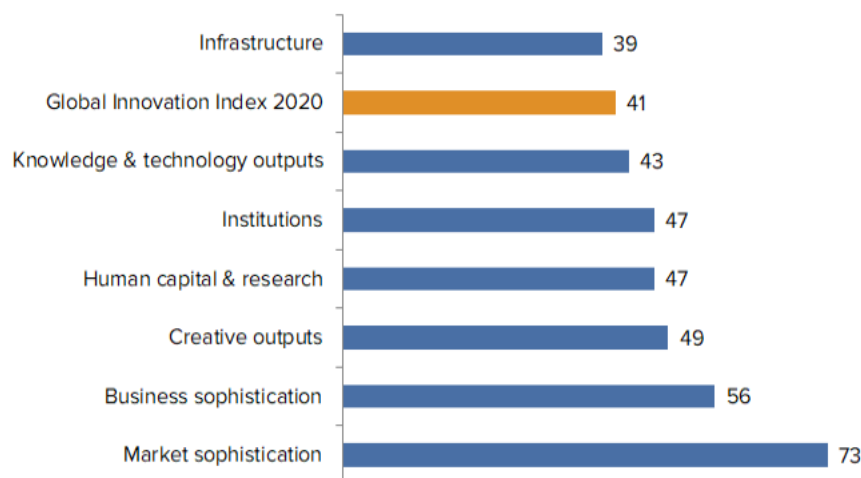
Croatia scores below average for its income group in all seven of the GII pillars.

Europe

Compared to other economies in Europe, Croatia performs below average in all seven of the GII pillars.

OVERVIEW OF CROATIA RANKINGS IN THE SEVEN GII AREAS

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



*The highest possible ranking in each pillar is 1.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Croatia in the GII 2020.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
2.1	Education	30	1.3.1	Ease of starting a business*	87
2.1.5	Pupil-teacher ratio, secondary	1	2.3.3	Global R&D companies, top 3, mn US\$	42
3.3	Ecological sustainability	7	3.2.3	Gross capital formation, % GDP	84
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	5	4.1.1	Ease of getting credit*	94
6.1.4	Scientific & technical articles/bn PPP\$ GDP	17	4.3.2	Intensity of local competition†	117
6.2.2	New businesses/th pop. 15–64	28	5.1.2	Firms offering formal training, %	59
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	10	5.2	Innovation linkages	98
6.3.3	ICT services exports, % total trade	34	5.2.1	University/industry research collaboration†	118
7.1.3	Industrial designs by origin/bn PPP\$ GDP	31	5.2.2	State of cluster development†	122
7.2.1	Cultural & creative services exports, % total trade	13	5.3.2	High-tech imports, % total trade	83
7.2.4	Printing & other media, % manufacturing	7	6.2.3	Computer software spending, % GDP	98
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	32			

STRENGTHS

GII strengths for Croatia are found in four of the seven GII pillars.

- Human capital & research (47): shows strengths in the sub-pillar Education (30) and in the indicator Pupil–teacher ratio (1).
- Infrastructure (39): demonstrates strengths in the sub-pillar Ecological sustainability (7) and in the indicator ISO 14001 environmental certificates (5).
- Knowledge & technology outputs (43): reveals strengths in the indicators Scientific & technical articles (17), New businesses (28), ISO 9001 quality certificates (10) and ICT services exports (34).
- Creative outputs (49): displays strengths in the indicators Industrial designs by origin (31), Cultural & creative services exports (13), Printing & other media (7) and Generic top-level domains (32).

WEAKNESSES

GII weaknesses for Croatia are found in six of the seven GII pillars.

- Institutions (47): exhibits weakness in the indicator Ease of starting a business (87).
- Human capital & research (47): the indicator Global R&D companies (42) reveals a weakness.
- Infrastructure (39): displays weakness in the indicator Gross capital formation (84).
- Market sophistication (73): shows weaknesses in the indicators Ease of getting credit (94) and Intensity of local competition (117).
- Business sophistication (56): demonstrates weaknesses in the sub-pillar Innovation linkages (98) and in the indicators Firms offering formal training (59), University/industry research collaboration (118), State of cluster development (122) and High-tech imports (83).
- Knowledge & technology outputs (43): displays weakness in the indicator Computer software spending (98).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2019 rank
43	44	High	EUR	4.1	112.6	24,207.9	44
Score/Value Rank				Score/Value Rank			
	INSTITUTIONS.....			69.1	47		
1.1	Political environment.....			66.4	43	◇	
1.1.1	Political and operational stability*.....			78.6	38		
1.1.2	Government effectiveness*.....			60.4	46	◇	
1.2	Regulatory environment.....			70.1	46		
1.2.1	Regulatory quality*.....			53.6	50	◇	
1.2.2	Rule of law*.....			55.1	50	◇	
1.2.3	Cost of redundancy dismissal, salary weeks.....			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 & RESEARCH.....			36.5	47		
2.1	Education.....			56.2	30	●	
2.1.1	Expenditure on education, % GDP.....			4.6	61		
2.1.2	Government funding/pupil, secondary, % GDP/cap.....			n/a	n/a		
2.1.3	School life expectancy, years.....			15.2	45		
2.1.4	PISA scales in reading, maths, & science.....			471.9	37		
2.1.5	Pupil-teacher ratio, secondary.....			6.7	1	●	◆
2.2	Tertiary education.....			41.3	39		
2.2.1	Tertiary enrolment, % gross.....			67.9	33		
2.2.2	Graduates in science & engineering, %.....			27.0	28		
2.2.3	Tertiary inbound mobility, %.....			2.9	66	◇	
2.3	Research & development (R&D).....			11.8	53	◇	
2.3.1	Researchers, FTE/mn pop.....			1,921.1	41		
2.3.2	Gross expenditure on R&D, % GDP.....			1.0	38		
2.3.3	Global R&D companies, avg. exp. top 3, mn \$US.....			0.0	42	◇	
2.3.4	QS university ranking, average score top 3*.....			5.0	69	◇	
	INFRASTRUCTURE.....			51.1	39		
3.1	Information & communication technologies (ICTs)....			72.2	52	◇	
3.1.1	ICT access*.....			77.2	35		
3.1.2	ICT use*.....			66.7	49	◇	
3.1.3	Government's online service*.....			68.1	74	◇	
3.1.4	E-participation*.....			77.0	57		
3.2	General infrastructure.....			24.5	76	◇	
3.2.1	Electricity output, kWh/mn pop.....			2,853.1	64	◇	
3.2.2	Logistics performance*.....			48.5	48		
3.2.3	Gross capital formation, % GDP.....			21.4	84	○	
3.3	Ecological sustainability.....			56.7	7	●	◆
3.3.1	GDP/unit of energy use.....			10.3	51		
3.3.2	Environmental performance*.....			63.1	34		
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....			9.6	5	●	◆
	MARKET SOPHISTICATION.....			46.4	73		
4.1	Credit.....			36.8	81		
4.1.1	Ease of getting credit*.....			50.0	94	○	
4.1.2	Domestic credit to private sector, % GDP.....			55.9	61		
4.1.3	Microfinance gross loans, % GDP.....			n/a	n/a		
4.2	Investment.....			43.6	41		
4.2.1	Ease of protecting minority investors*.....			70.0	36		
4.2.2	Market capitalization, % GDP.....			38.0	39		
4.2.3	Venture capital deals/bn PPP\$ GDP.....			n/a	n/a		
4.3	Trade, competition, and market scale.....			59.0	79	◇	
4.3.1	Applied tariff rate, weighted avg., %.....			1.7	22		
4.3.2	Intensity of local competition*.....			57.1	117	○	◇
4.3.3	Domestic market scale, bn PPP\$.....			112.6	78		

	BUSINESS SOPHISTICATION.....			28.3	56	◇
5.1	Knowledge workers.....			39.6	46	
5.1.1	Knowledge-intensive employment, %.....			37.0	33	
5.1.2	Firms offering formal training, %.....			26.2	59	○
5.1.3	GERD performed by business, % GDP.....			0.5	38	
5.1.4	GERD financed by business, %.....			42.6	41	
5.1.5	Females employed w/advanced degrees, %.....			17.6	36	
5.2	Innovation linkages.....			16.6	98	○
5.2.1	University/industry research collaboration*.....			28.3	118	○
5.2.2	State of cluster development.....			30.7	122	○
5.2.3	GERD financed by abroad, % GDP.....			0.1	41	
5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....			0.0	44	
5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....			0.2	49	
5.3	Knowledge absorption.....			28.7	63	
5.3.1	Intellectual property payments, % total trade.....			1.1	34	
5.3.2	High-tech imports, % total trade.....			6.5	83	○
5.3.3	ICT services imports, % total trade.....			1.6	41	
5.3.4	FDI net inflows, % GDP.....			3.1	48	
5.3.5	Research talent, % in business enterprise.....			22.7	53	
	KNOWLEDGE & TECHNOLOGY OUTPUTS....			28.6	43	
6.1	Knowledge creation.....			24.3	43	
6.1.1	Patents by origin/bn PPP\$ GDP.....			1.3	59	
6.1.2	PCT patents by origin/bn PPP\$ GDP.....			0.4	38	
6.1.3	Utility models by origin/bn PPP\$ GDP.....			0.6	34	
6.1.4	Scientific & technical articles/bn PPP\$ GDP.....			24.9	17	●
6.1.5	Citable documents H-index.....			17.3	48	
6.2	Knowledge impact.....			30.6	39	
6.2.1	Growth rate of PPP\$ GDP/worker, %.....			1.1	62	
6.2.2	New businesses/th pop. 15-64.....			5.9	28	●
6.2.3	Computer software spending, % GDP.....			0.0	98	○
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....			21.8	10	●
6.2.5	High- and medium-high-tech manufacturing, %.....			21.0	54	◆
6.3	Knowledge diffusion.....			30.9	42	
6.3.1	Intellectual property receipts, % total trade.....			0.2	37	
6.3.2	High-tech net exports, % total trade.....			3.3	43	
6.3.3	ICT services exports, % total trade.....			3.0	34	●
6.3.4	FDI net outflows, % GDP.....			0.4	79	
	CREATIVE OUTPUTS.....			27.9	49	
7.1	Intangible assets.....			30.9	47	
7.1.1	Trademarks by origin/bn PPP\$ GDP.....			35.1	69	
7.1.2	Global brand value, top 5,000, % GDP.....			n/a	n/a	
7.1.3	Industrial designs by origin/bn PPP\$ GDP.....			4.0	31	●
7.1.4	ICTs & organizational model creation*.....			51.9	73	◇
7.2	Creative goods and services.....			24.2	38	
7.2.1	Cultural & creative services exports, % total trade.....			1.5	13	●
7.2.2	National feature films/mn pop. 15-69.....			2.0	67	◇
7.2.3	Entertainment & Media market/th pop. 15-69.....			n/a	n/a	
7.2.4	Printing and other media, % manufacturing.....			2.6	7	●
7.2.5	Creative goods exports, % total trade.....			0.9	49	
7.3	Online creativity.....			25.5	43	
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....			14.5	32	●
7.3.2	Country-code TLDs/th pop. 15-69.....			11.2	39	
7.3.3	Wikipedia edits/mn pop. 15-69.....			69.9	40	
7.3.4	Mobile app creation/bn PPP\$ GDP.....			7.9	48	

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 II 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

Code	Indicator name	Country year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2016	UNESCO Institute for Statistics
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
4.2.3	Venture capital deals/bn PPP\$ GDP	n/a	2019	Thomson Reuters
7.1.2	Global brand value, top 5,000, % GDP	n/a	2019	Brand Finance
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2018	PwC

Outdated data

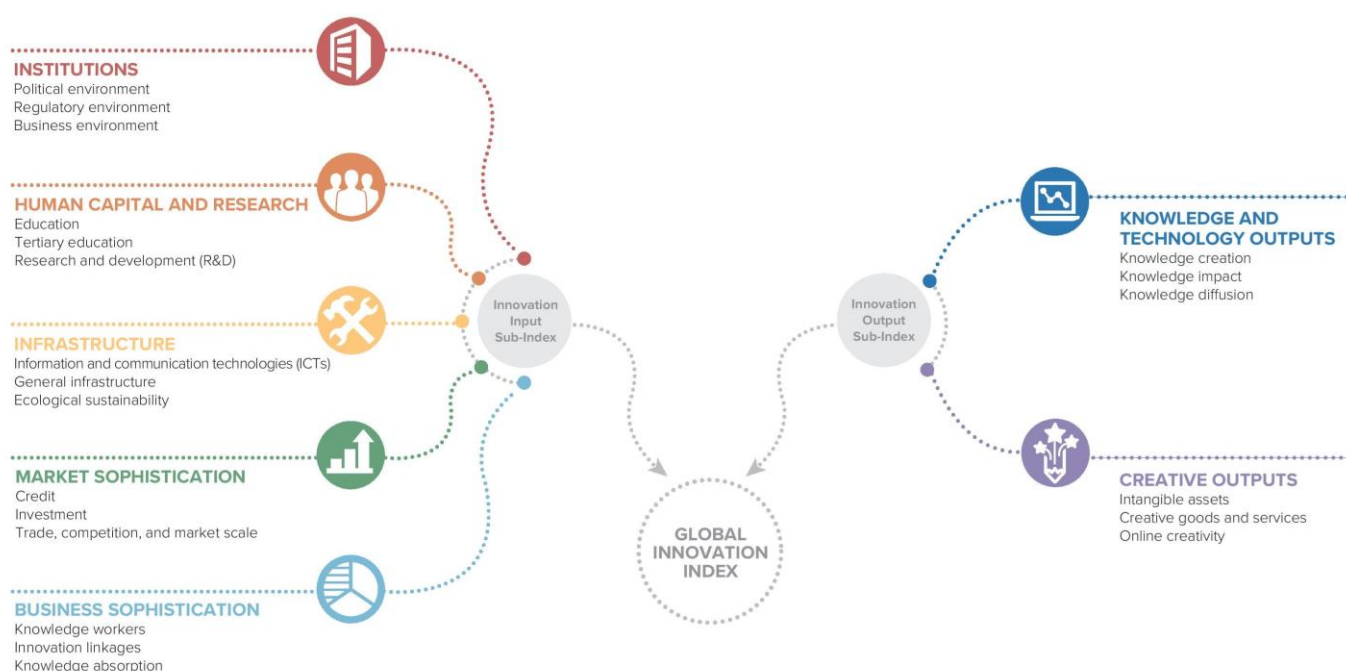
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2013	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2016	2018	UNESCO Institute for Statistics

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2020, the GII presents its 13th edition devoted to the theme *Who Will Finance Innovation?*

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.

Framework of the Global Innovation Index 2020



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.



www.globalinnovationindex.org



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