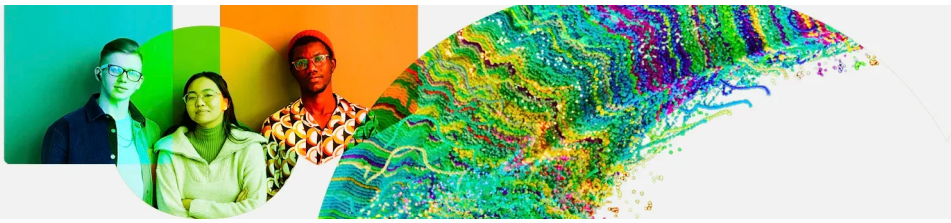
Global Innovation Index 2024



Croatia ranking in the Global Innovation Index 2024

Croatia ranks 43rd among the 133 economies featured in the GII 2024.

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.

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

Croatia ranks 27th among the 39 economies in Europe.

Croatia GII Ranking (2020-2024)

The table shows the rankings of Croatia over the past four years. 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 2024 is between ranks 41 and 45.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	41st	44th	43rd
2021	42nd	41st	48th
2022	42nd	45th	40th
2023	44th	43rd	44th
2024	43rd	42nd	40th

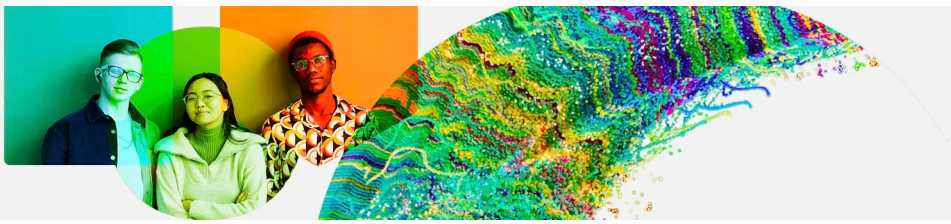
Croatia performs better in innovation outputs than innovation inputs in 2024.

This year **Croatia ranks 42nd in innovation inputs.** This position is higher than last year.

Croatia ranks 40th in innovation outputs. This position is higher than last year.

Croatia has no clusters in the top 100 S&T clusters of the Global Innovation Index.

Global Innovation Index 2024



> Global Innovation Tracker

The Global Innovation Tracker 2024 shows what is the current state of innovation in Croatia, how rapidly is technology being embraced and what are the resulting societal impacts.

For Croatia, 8 indicators have improved in the short-term and 3 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -5.7% 2022 - 2023	▲ 21% 2021 - 2022	▲ 20% 2022 - 2023	▼ -99.2% 2022 - 2023	▲ 152.6% 2022 - 2023
▲ 3.7% 2013 - 2023	▲ 9.4% 2012 - 2022	▲ 11.6% 2013 - 2023	n/a	▲ 0.9% 2013 - 2023

Technology adoption

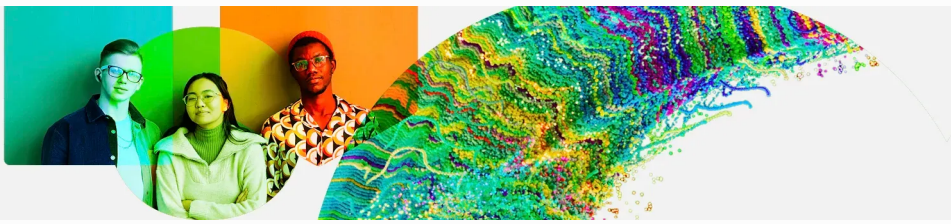
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 0.1% 2020 - 2021	▲ 4.5% 2021 - 2022	n/a	▲ 21% 2021 - 2022	n/a
0% 2011 - 2021	▲ 2.4% 2012 - 2022		▲ 17.3% 2012 - 2022	n/a
78 per 100 inhabitants in 2021	27 per 100 inhabitants in 2022	48 per 100 inhabitants in 2021		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▲ 0.9% 2022 - 2023	▲ 1.5% 2021 - 2022	▲ 2.6°C 2023
▲ 1.6% 2013 - 2023	▲ 0.1% 2012 - 2022	n/a
94,319 USD in 2023	77.6 years in 2022	

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the country from 1951–1980. Figures are rounded.

Global Innovation Index 2024

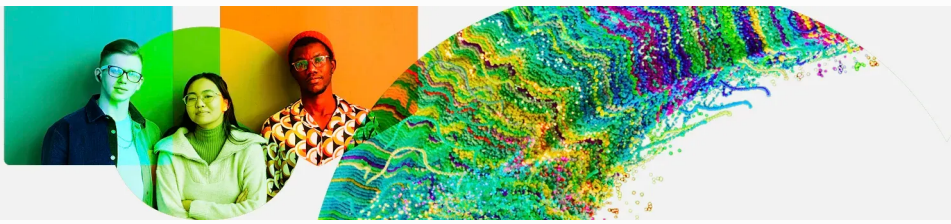


Expected vs. observed innovation performance

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 below expectations for its level of development.

> Innovation overperformers relative to their economic development



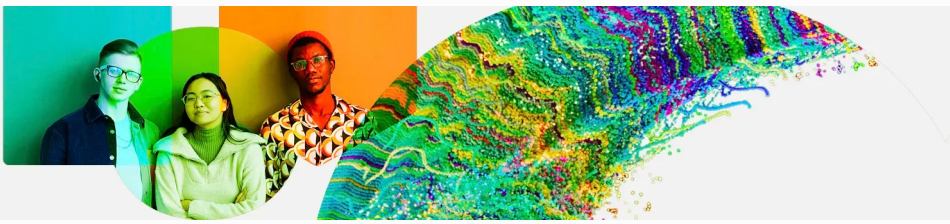
Effectively translating innovation investments into innovation outputs

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.

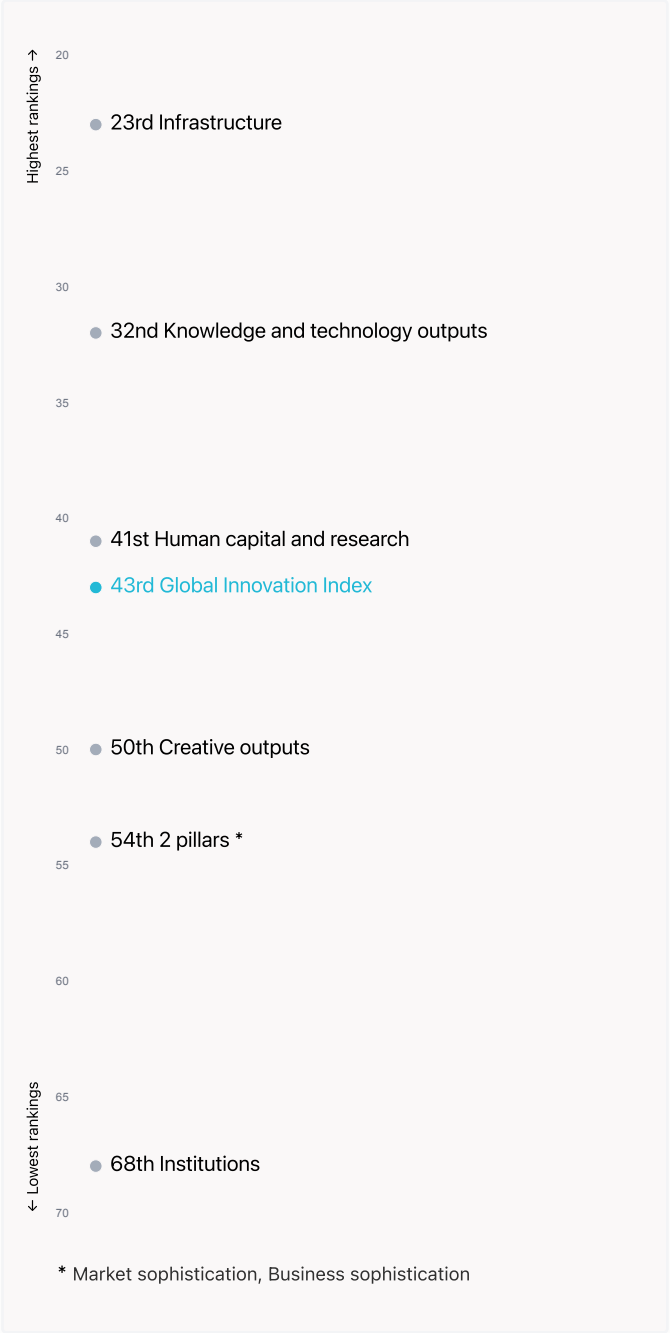
> Relationship between innovation inputs and outputs

Global Innovation Index 2024



Overview of Croatia's rankings in the seven areas of the GII in 2024

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Croatia are those that rank above the GII (shown in blue) and the weakest are those that rank below.



Highest rankings

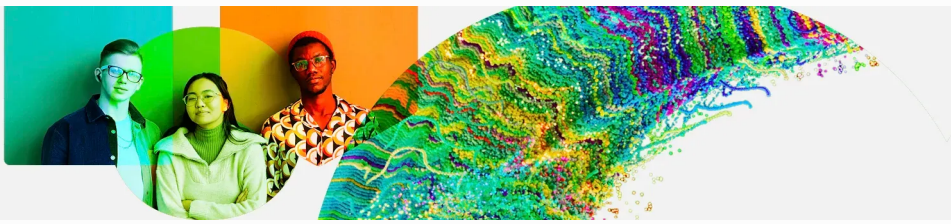
Croatia ranks highest in Infrastructure (23rd), Knowledge and technology outputs (32nd) and Human capital and research (41st).

Lowest rankings

Croatia ranks lowest in Institutions (68th), Market sophistication, Business sophistication (54th) and Creative outputs (50th).

The full WIPO Intellectual Property Statistics profile for Croatia can be found on this link.

Global Innovation Index 2024



Benchmark of Croatia against other economy groupings for each of the seven areas of the GII Index

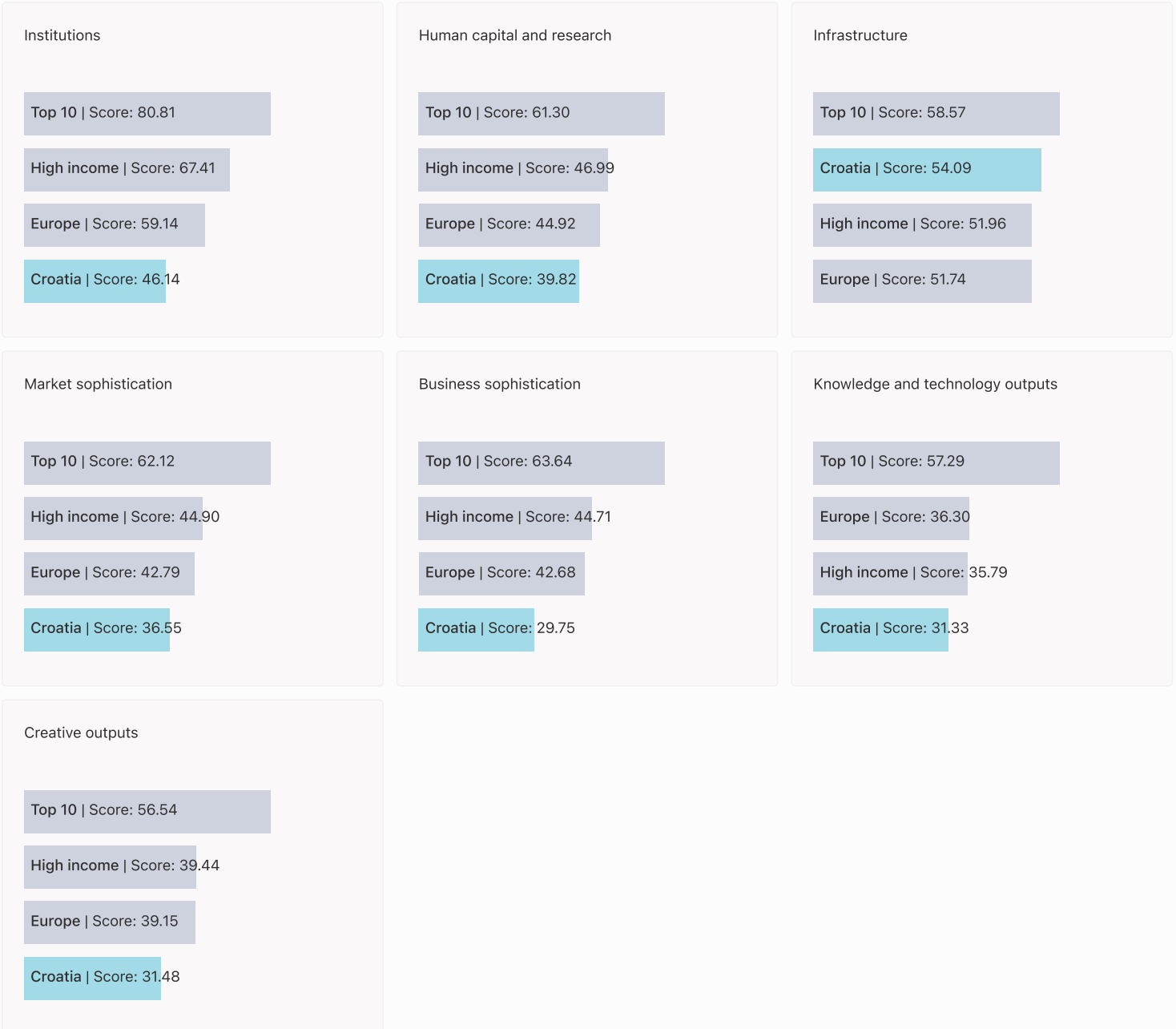
The charts shows the relative position of Croatia (blue bar) against other economy groupings (grey bars), for each of the seven areas of the GII Index.

High-Income economies

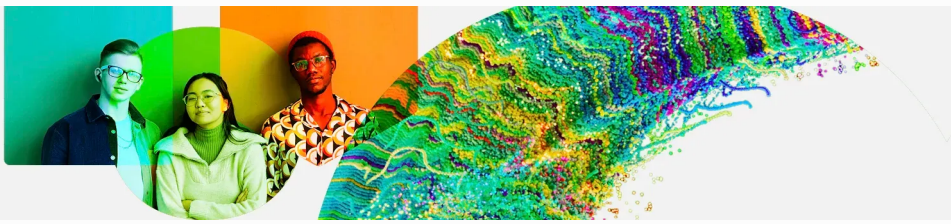
Croatia performs above the high-income group average in Infrastructure.

Europe

Croatia performs above the regional average in Infrastructure.



Global Innovation Index 2024



Innovation strengths and weaknesses in Croatia

The table below gives an overview of the indicator strengths and weaknesses of Croatia in the GII 2024.

Croatia's main innovation strengths are **Pupil–teacher ratio, secondary** (rank 1), **ISO 14001 environment/bn PPP$ GDP** (rank 7) and **ISO 9001 quality/bn PPP$ GDP** (rank 11).

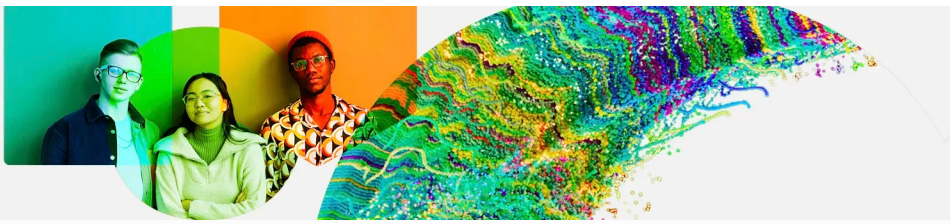
Strengths

Rank	Code	Indicator name
1	2.1.5	Pupil–teacher ratio, secondary
7	3.3.3	ISO 14001 environment/bn PPP$ GDP
11	6.3.5	ISO 9001 quality/bn PPP$ GDP
11	6.2.2	Unicorn valuation, % GDP
12	4.3.2	Domestic industry diversification
16	7.2.1	Cultural and creative services exports, % total trade
21	6.1.4	Scientific and technical articles/bn PPP$ GDP
22	3.1.2	ICT use*
23	5.2.1	Public Research-Industry co-publications, %
25	5.3.4	FDI net inflows, % GDP

Weaknesses

Rank	Code	Indicator name
126	5.2.3	State of cluster development†
116	5.2.2	University-industry R&D collaboration†
114	6.2.3	Software spending, % GDP
113	1.3.1	Policy stability for doing business†
81	1.3.2	Entrepreneurship policies and culture†
81	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP
81	4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP
72	4.2.3	VC recipients, deals/bn PPP$ GDP
68	5.1.2	Firms offering formal training, %
41	2.3.3	Global corporate R&D investors, top 3, mn USD

Global Innovation Index 2024



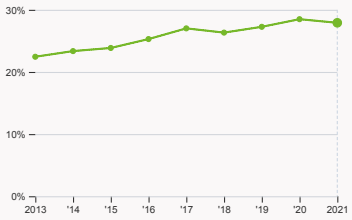
Croatia's innovation system

As far as practicable, the plots below present unscaled indicator data.

Innovation inputs in Croatia

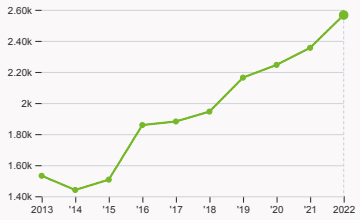
2.1.1 **Expenditure on education**

was equal to 5.2 % GDP in 2021, up by 0.77 percentage points from the year prior – and equivalent to an indicator rank of 38.



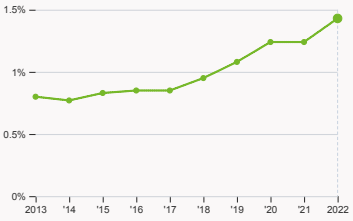
2.2.2 **Graduates in science and engineering**

was equal to 27.91 % of total graduates in 2021, down by 0.58 percentage points from the year prior – and equivalent to an indicator rank of 31.



2.3.1 **Researchers**

was equal to 2566.6 FTE per million population in 2022, up by 8.96% from the year prior – and equivalent to an indicator rank of 36.

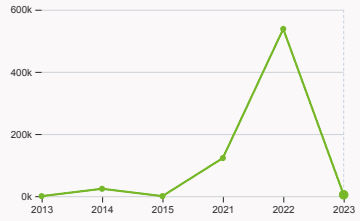


2.3.2 **Gross expenditure on R&D**

was equal to 1.43 % GDP in 2022, up by 0.19 percentage points from the year prior – and equivalent to an indicator rank of 30.

2.3.4 **QS university ranking**

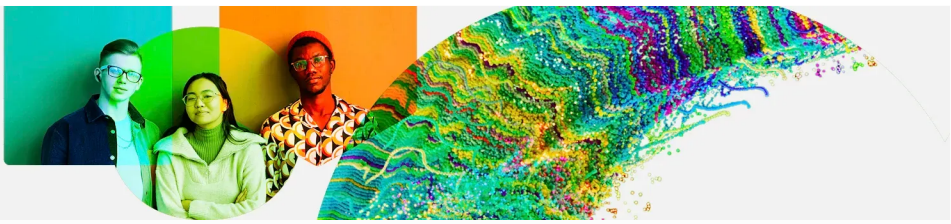
was equal to an average score of 5.23 for the top three universities in 2023, up by 15.45% from the year prior – and equivalent to an indicator rank of 72.

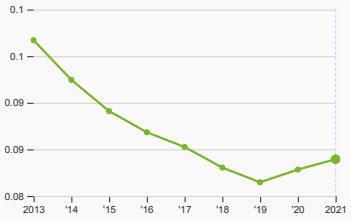


4.2.4 **VC received, value**

was equal to 4.44 thousand USD in 2023, down by 99.18% from the year prior – and equivalent to an indicator rank of 23.

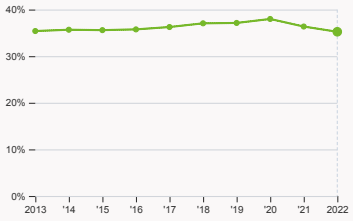
Global Innovation Index 2024





4.3.2 Domestic industry diversification

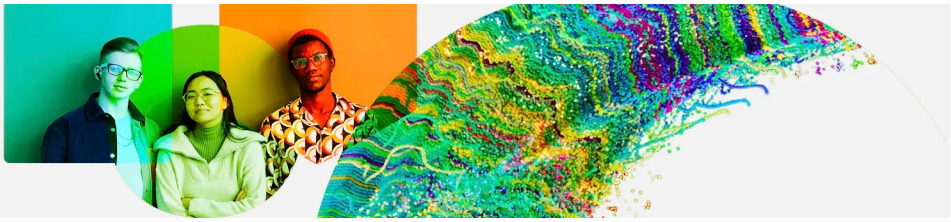
was equal to an index score of 0.08 in 2021, up by 1.35% from the year prior – and equivalent to an indicator rank of 12.



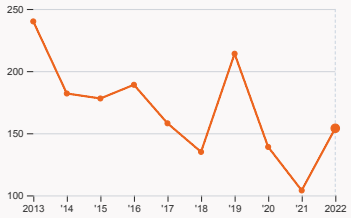
5.1.1 Knowledge-intensive employment

was equal to 35.23 % in 2022, down by 1.13 percentage points from the year prior – and equivalent to an indicator rank of 42.

Global Innovation Index 2024

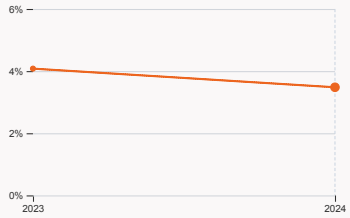


Innovation outputs in Croatia



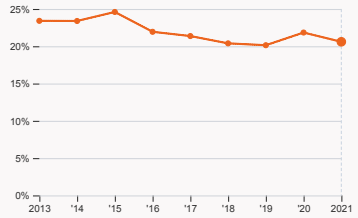
6.1.1 Patents by origin

was equal to 154 patents in 2022, up by 48.08% from the year prior – and equivalent to an indicator rank of 61.



6.2.2 Unicorn valuation

was equal to 3.48 % GDP in 2024, down by 0.6 percentage points from the year prior – and equivalent to an indicator rank of 11.

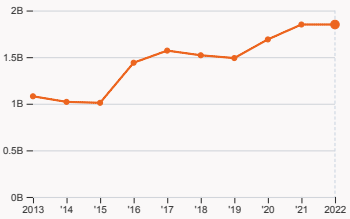


6.2.4 High-tech manufacturing

was equal to 20.6 % of total manufacturing output in 2021, down by 1.24 percentage points from the year prior – and equivalent to an indicator rank of 60.

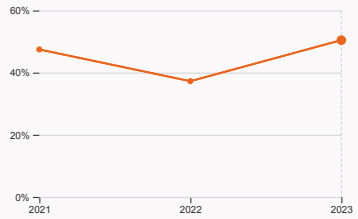
6.3.2 Production and export complexity

was equal to a score of 0.77 in 2021, up by 2.67% from the year prior – and equivalent to an indicator rank of 31.



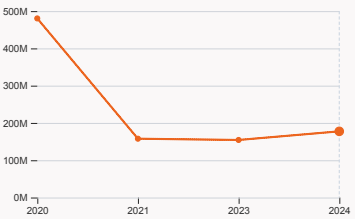
6.3.3 High-tech exports

was equal to 1.85 billion USD in 2022 with no change from the year prior – and equivalent to an indicator rank of 43.



7.1.1 Intangible asset intensity

was equal to 50.47 % for the top 15 companies in 2023, up by 13.21 percentage points from the year prior – and equivalent to an indicator rank of 47.



7.1.3 Global brand value

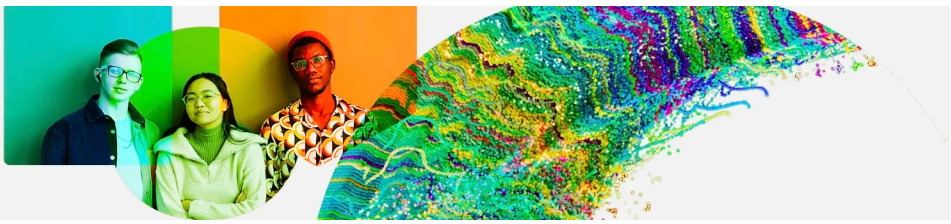
was equal to 177.45 million USD for the brands in the top 5,000 in 2024, up by 15% from the year prior – and equivalent to an indicator rank of 72.

7.2.2 National feature films

was equal to 9 films in 2022, up by 50% from the year prior – and equivalent to an indicator rank of 42.

7.3.3 Mobile app creation

was equal to 52.41 million global downloads of mobile apps in 2023, down by 10.78% from the year prior – and equivalent to an indicator rank of 55.



Croatia's innovation top performers

2.3.4 QS university ranking of Croatia's top universities

Rank	University	Score
751-760	UNIVERSITY OF ZAGREB	15.70
1201-1400	UNIVERSITY OF RIJEKA	5.50
1201-1400	THE JOSIP JURAJ STROSSMAYER UNIVERSITY OF OSIJEK	5.30

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100].
Ranks can represent a single value "x", a tie "x=" or a range "x-y".

6.2.2 Top Unicorn Companies in Croatia

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	RIMAC AUTOMOBILI	Industrials	Sveta Nedelja	2
2	INFOBIP	Enterprise Tech	Vodnjan	1

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: https://www.cbinsights.com/research-unicorn-companies

7.1.1 Top 15 intangible-asset intensive companies in Croatia

Rank	Firm	Intensity, %
1	INA-INDUSTRIJA NAFTE, D.D.	60.99
2	ATLANTIC GRUPA D.D.	60.29
3	PODRAVKA D.D.	46.70

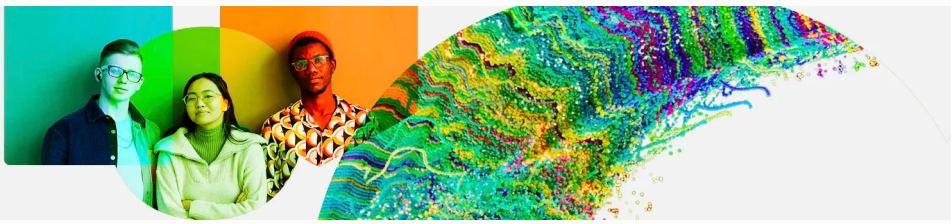
Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

7.1.3 Top 5,000 companies in Croatia with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	ZAGREBACKA BANKA	Banking	177.4

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

Global Innovation Index 2024



Croatia

GII 2024 rank **43**

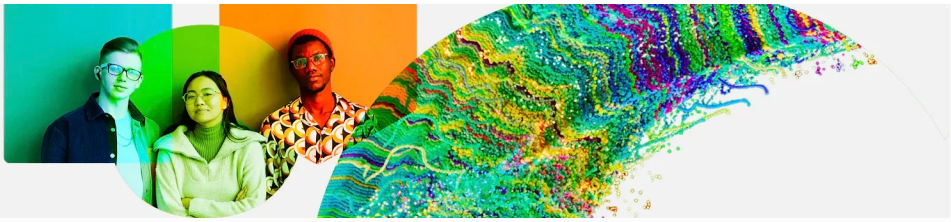
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
40	42	High	EUR	3.9	164.7	42,873

	Score / Value	Rank	
Institutions	**46.1**	**68**	◇
1.1 Institutional environment	**68.6**	**38**	
1.1.1 Operational stability for businesses*	78	29	
1.1.2 Government effectiveness*	59.2	43	
1.2 Regulatory environment	**54.7**	**47**	◇
1.2.1 Regulatory quality*	55	48	◇
1.2.2 Rule of law*	54.4	49	◇
1.3 Business environment	**15.1**	**126**	○ ◇
1.3.1 Policy stability for doing business†	24.9	113	○ ◇
1.3.2 Entrepreneurship policies and culture†	5.3	81	○ ◇
Human capital and research	**39.8**	**41**	
2.1 Education	**67.7**	**11**	● ◆
2.1.1 Expenditure on education, % GDP	5.2	38	
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3 School life expectancy, years	15.6	43	
2.1.4 PISA scales in reading, maths and science	473.8	34	
2.1.5 Pupil–teacher ratio, secondary	6.1	1	● ◆
2.2 Tertiary education	**38**	**46**	
2.2.1 Tertiary enrolment, % gross	72.3	35	
2.2.2 Graduates in science and engineering, %	27.9	31	
2.2.3 Tertiary inbound mobility, %	2.7	71	
2.3 Research and development (R&D)	**13.7**	**52**	
2.3.1 Researchers, FTE/mn pop.	2,566.6	36	
2.3.2 Gross expenditure on R&D, % GDP	1.4	30	
2.3.3 Global corporate R&D investors, top 3, mn USD	0	41	○ ◇
2.3.4 QS university ranking, top 3*	5.3	72	◇
Infrastructure	**54.1**	**23**	● ◆
3.1 Information and communication technologies (ICTs)	**83.6**	**31**	
3.1.1 ICT access*	92.9	55	
3.1.2 ICT use*	89.1	22	● ◆
3.1.3 Government's online service*	79.1	36	
3.1.4 E-participation*	73.3	29	
3.2 General infrastructure	**34.1**	**53**	
3.2.1 Electricity output, GWh/mn pop.	3,835	58	
3.2.2 Logistics performance*	54.5	42	
3.2.3 Gross capital formation, % GDP	24.7	56	
3.3 Ecological sustainability	**44.6**	**9**	● ◆
3.3.1 GDP/unit of energy use	14.3	34	
3.3.2 Low-carbon energy use, %	25.8	49	
3.3.3 ISO 14001 environment/bn PPP$ GDP	8.9	7	● ◆
Market sophistication	**36.5**	**54**	
4.1 Credit	**31.8**	**50**	
4.1.1 Finance for startups and scaleups†	47.2	48	
4.1.2 Domestic credit to private sector, % GDP	50.3	69	
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	
4.2 Investment	**14.5**	**48**	
4.2.1 Market capitalization, % GDP	32	45	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.02	81	○
4.2.3 VC recipients, deals/bn PPP$ GDP	0.03	72	○ ◇
4.2.4 VC received, value, % GDP	0.003	23	
4.3 Trade, diversification and market scale	**63.3**	**35**	
4.3.1 Applied tariff rate, weighted avg., %	1.1	21	
4.3.2 Domestic industry diversification	95.8	12	● ◆
4.3.3 Domestic market scale, bn PPP$	164.7	78	

	Score / Value	Rank	
Business sophistication	**29.8**	**54**	
5.1 Knowledge workers	**42.6**	**43**	
5.1.1 Knowledge-intensive employment, %	35.2	42	
5.1.2 Firms offering formal training, %	24.4	68	○
5.1.3 GERD performed by business, % GDP	0.8	32	
5.1.4 GERD financed by business, %	38.4	47	
5.1.5 Females employed w/advanced degrees, %	19.7	34	
5.2 Innovation linkages	**15**	**107**	○ ◇
5.2.1 Public Research-Industry co-publications, %	3.5	23	● ◆
5.2.2 University-industry R&D collaboration†	21.2	116	○ ◇
5.2.3 State of cluster development†	10.3	126	○ ◇
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.01	81	○
5.2.5 Patent families/bn PPP$ GDP	0.08	58	
5.3 Knowledge absorption	**31.6**	**53**	
5.3.1 Intellectual property payments, % total trade	1.1	34	
5.3.2 High-tech imports, % total trade	8.1	69	
5.3.3 ICT services imports, % total trade	1.6	46	
5.3.4 FDI net inflows, % GDP	4.7	25	● ◆
5.3.5 Research talent, % in businesses	31.3	43	
Knowledge and technology outputs	**31.3**	**32**	
6.1 Knowledge creation	**20.8**	**54**	
6.1.1 Patents by origin/bn PPP$ GDP	1	61	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.3	40	
6.1.3 Utility models by origin/bn PPP$ GDP	0.2	44	
6.1.4 Scientific and technical articles/bn PPP$ GDP	27.9	21	● ◆
6.1.5 Citable documents H-index	17.7	49	
6.2 Knowledge impact	**39.7**	**25**	● ◆
6.2.1 Labor productivity growth, %	2	25	◆
6.2.2 Unicorn valuation, % GDP	3.5	11	● ◆
6.2.3 Software spending, % GDP	0.04	114	○ ◇
6.2.4 High-tech manufacturing, %	20.6	60	
6.3 Knowledge diffusion	**33.5**	**34**	
6.3.1 Intellectual property receipts, % total trade	0.3	39	
6.3.2 Production and export complexity	62.5	31	
6.3.3 High-tech exports, % total trade	4.2	43	
6.3.4 ICT services exports, % total trade	3.4	32	
6.3.5 ISO 9001 quality/bn PPP$ GDP	18.7	11	● ◆
Creative outputs	**31.5**	**50**	
7.1 Intangible assets	**32.1**	**55**	
7.1.1 Intangible asset intensity, top 15, %	50.5	47	
7.1.2 Trademarks by origin/bn PPP$ GDP	32.1	62	
7.1.3 Global brand value, top 5,000, % GDP	0.2	72	◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	2.8	31	
7.2 Creative goods and services	**24.1**	**49**	
7.2.1 Cultural and creative services exports, % total trade	1.5	16	● ◆
7.2.2 National feature films/mn pop. 15–69	3.3	42	
7.2.3 Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4 Creative goods exports, % total trade	0.7	54	
7.3 Online creativity	**37.6**	**36**	
7.3.1 Top-level domains (TLDs)/th pop. 15–69	13.1	38	
7.3.2 GitHub commits/mn pop. 15–69	30	37	
7.3.3 Mobile app creation/bn PPP$ GDP	69.7	55	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, 🕓 that the economy's data is outdated. Square brackets [ ] indicate the the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Global Innovation Index 2024



Data availability

The following tables list indicators that are either missing or outdated for Croatia.

Croatia has missing data for three indicators and outdated data for eight indicators.

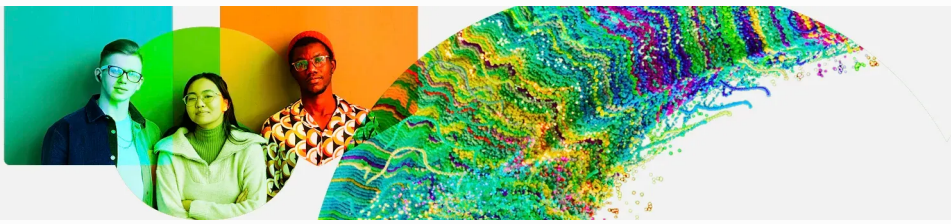
Missing data for Croatia

Code	Indicator name	Economy Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2020	UNESCO Institute for Statistics
4.1.3	Loans from microfinance institutions, % GDP	n/a	2022	International Monetary Fund, Financial Access Survey (FAS)
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2023	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

Outdated data for Croatia

Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policy stability for doing business†	2021	2023	World Economic Forum, Executive Opinion Survey (EOS)
2.1.1	Expenditure on education, % GDP	2021	2022	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2021	2022	UNESCO Institute for Statistics
2.1.5	Pupil–teacher ratio, secondary	2021	2022	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2021	2022	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2021	2022	UNESCO Institute for Statistics
5.2.2	University-industry R&D collaboration†	2021	2023	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	State of cluster development†	2021	2023	World Economic Forum, Executive Opinion Survey (EOS)

Global Innovation Index 2024



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 Database, WIPO, 2024.

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.