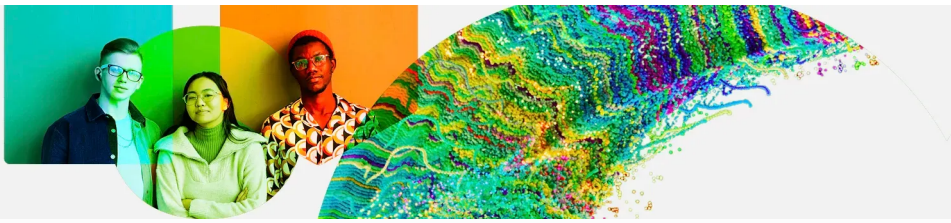
Global Innovation Index 2024



Latvia ranking in the Global Innovation Index 2024

Latvia ranks 42nd 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.

Latvia ranks 36th among the 51 high-income group economies.

Latvia ranks 26th among the 39 economies in Europe.

Latvia GII Ranking (2020-2024)

The table shows the rankings of Latvia 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 Latvia in the GII 2024 is between ranks 39 and 45.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	36th	35th	35th
2021	38th	38th	39th
2022	41st	39th	42nd
2023	37th	38th	39th
2024	42nd	38th	46th

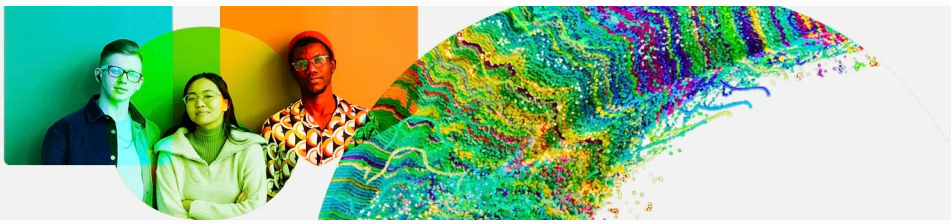
Latvia performs worse in innovation outputs than innovation inputs in 2024.

This year **Latvia ranks 38th in innovation inputs.** This position is the same as last year.

Latvia ranks 46th in innovation outputs. This position is lower than last year.

Latvia 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 Latvia, how rapidly is technology being embraced and what are the resulting societal impacts.

For Latvia, 9 indicators have improved in the short-term and 2 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▲ 8.3% 2022 - 2023	▲ 4.3% 2021 - 2022	▲ 44.4% 2022 - 2023	▲ 114.8% 2022 - 2023	▼ -29.5% 2022 - 2023
▲ 9.2% 2013 - 2023	▲ 3.7% 2012 - 2022	▲ 15.8% 2013 - 2023	▲ 26.8% 2013 - 2023	▲ 2.2% 2013 - 2023

Technology adoption

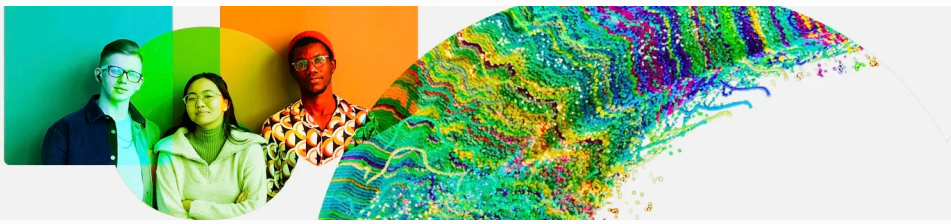
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 0.7% 2020 - 2021	▲ 1% 2021 - 2022	▲ 14% 2021 - 2022	▲ 12.1% 2021 - 2022	n/a
▲ 1.4% 2011 - 2021	▲ 1.3% 2012 - 2022		▲ 28% 2012 - 2022	n/a
85.2 per 100 inhabitants in 2021	26.4 per 100 inhabitants in 2022	42 per 100 inhabitants in 2022		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
0% 2022 - 2023	▲ 2.2% 2021 - 2022	▲ 2.3°C 2023
▲ 2.6% 2013 - 2023	▲ 0.1% 2012 - 2022	n/a
85,760 USD in 2023	74.6 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



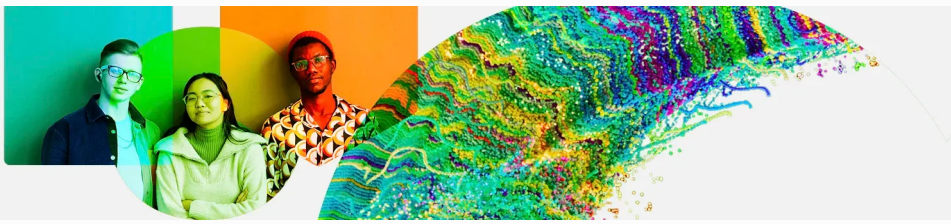
Expected vs. observed innovation performance

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

> Innovation overperformers relative to their economic development

Global Innovation Index 2024



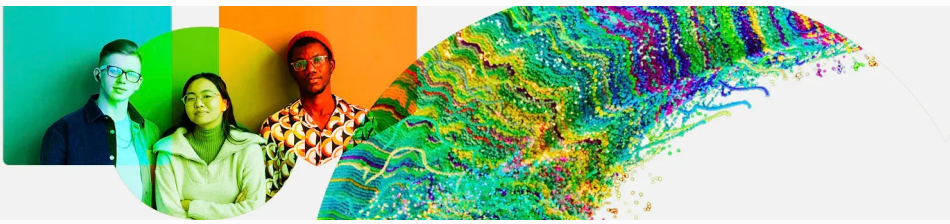
Effectively translating innovation investments into innovation outputs

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.

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

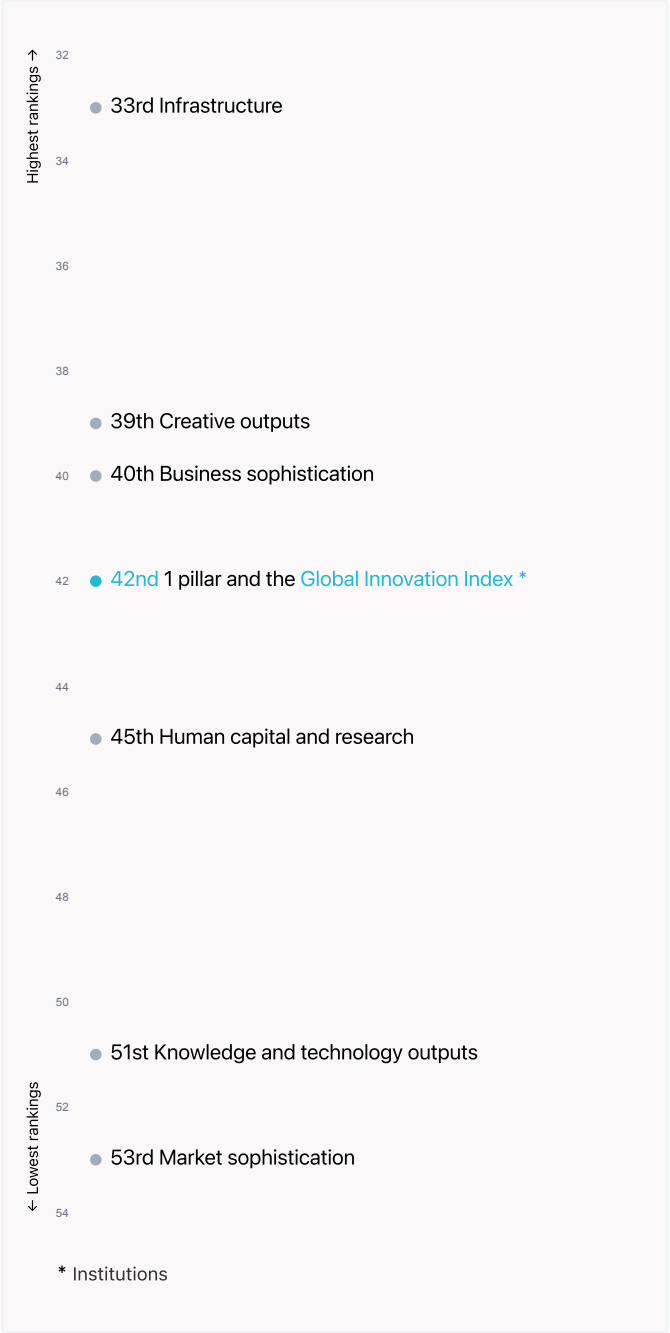
> Relationship between innovation inputs and outputs

Global Innovation Index 2024



Overview of Latvia'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 Latvia are those that rank above the GII (shown in blue) and the weakest are those that rank below.



Highest rankings

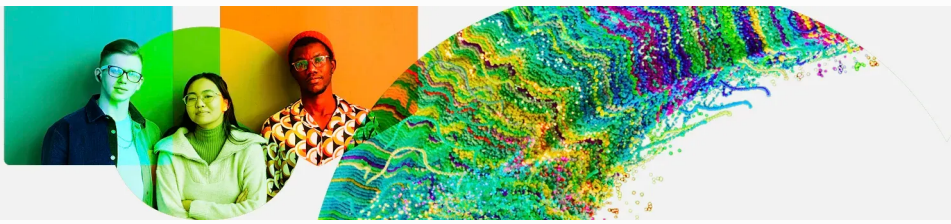
Latvia ranks highest in Infrastructure (33rd), Creative outputs (39th), Business sophistication (40th) and Institutions (42nd).

Lowest rankings

Latvia ranks lowest in Market sophistication (53rd), Knowledge and technology outputs (51st) and Human capital and research (45th).

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

Global Innovation Index 2024



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

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

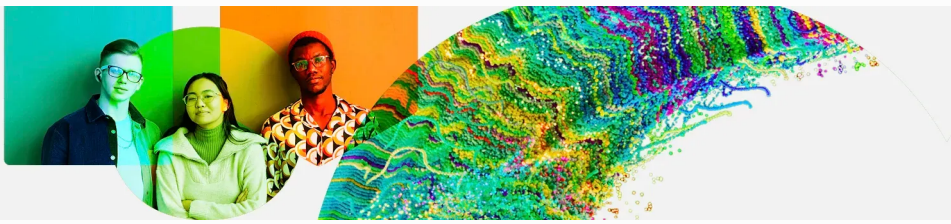
High-Income economies

Latvia performs below the high-income group average in all pillars.

Europe

Latvia performs below the regional average in all pillars.

Global Innovation Index 2024



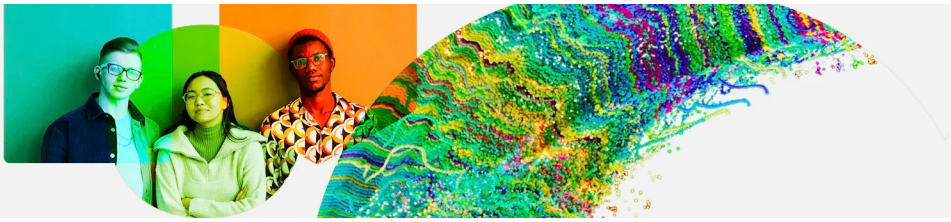
Innovation strengths and weaknesses in Latvia

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

Latvia's main innovation strengths are **ICT use*** (rank 8), **Cultural and creative services exports, % total trade** (rank 9) and **National feature films/mn pop. 15–69** (rank 10).

Strengths			Weaknesses		
Rank	**Code**	**Indicator name**	**Rank**	**Code**	**Indicator name**
8	3.1.2	ICT use*	118	1.3.1	Policy stability for doing business†
9	7.2.1	Cultural and creative services exports, % total trade	100	4.1.2	Domestic credit to private sector, % GDP
10	7.2.2	National feature films/mn pop. 15–69	99	5.3.1	Intellectual property payments, % total trade
14	5.1.5	Females employed w/advanced degrees, %	97	4.3.3	Domestic market scale, bn PPP$
14	2.2.1	Tertiary enrolment, % gross	96	6.2.3	Software spending, % GDP
15	7.3.3	Mobile app creation/bn PPP$ GDP	82	2.2.2	Graduates in science and engineering, %
15	5.1.2	Firms offering formal training, %	79	6.2.4	High-tech manufacturing, %
17	2.2.3	Tertiary inbound mobility, %	75	7.1.3	Global brand value, top 5,000, % GDP
19	6.3.5	ISO 9001 quality/bn PPP$ GDP	49	6.2.2	Unicorn valuation, % GDP
19	7.2.4	Creative goods exports, % total trade	41	2.3.3	Global corporate R&D investors, top 3, mn USD

Global Innovation Index 2024



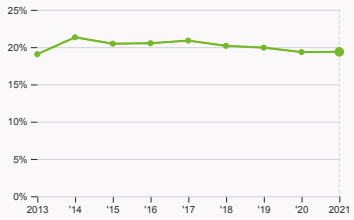
Latvia's innovation system

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

Innovation inputs in Latvia

2.1.1 **Expenditure on education**

was equal to 5.62 % GDP in 2021, up by 0.8 percentage points from the year prior – and equivalent to an indicator rank of 25.



2.2.2 **Graduates in science and engineering**

was equal to 19.36 % of total graduates in 2021, up by 0.03 percentage points from the year prior – and equivalent to an indicator rank of 82.

2.3.1 **Researchers**

was equal to 2262.02 FTE per million population in 2022, down by 5.61% from the year prior – and equivalent to an indicator rank of 40.

2.3.2 **Gross expenditure on R&D**

was equal to 0.76 % GDP in 2022, up by 0.02 percentage points from the year prior – and equivalent to an indicator rank of 48.

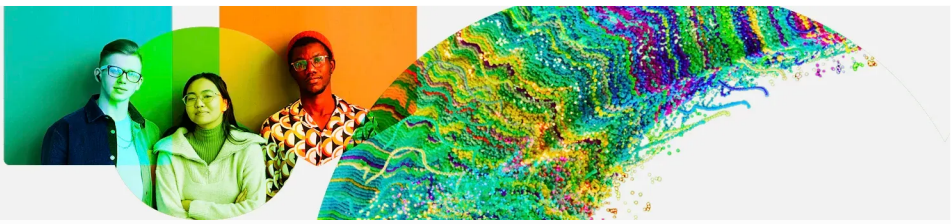
2.3.4 **QS university ranking**

was equal to an average score of 13.63 for the top three universities in 2023, up by 41.98% from the year prior – and equivalent to an indicator rank of 62.

4.2.4 **VC received, value**

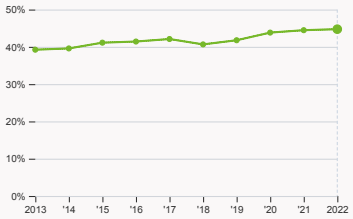
was equal to 34.94 thousand USD in 2023, up by 114.75% from the year prior – and equivalent to an indicator rank of 55.

Global Innovation Index 2024



4.3.2 Domestic industry diversification

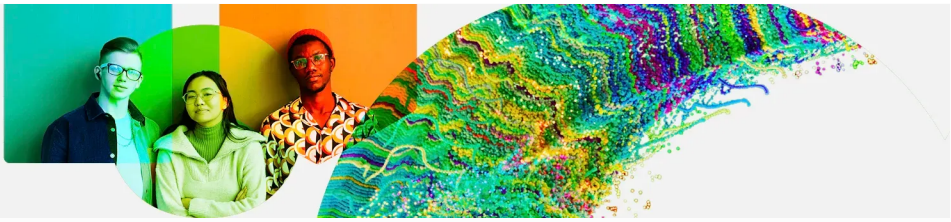
was equal to an index score of 0.16 in 2021, up by 20.43% from the year prior – and equivalent to an indicator rank of 65.



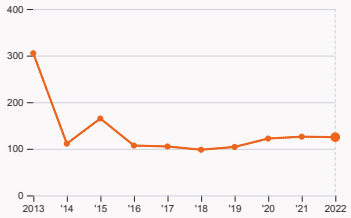
5.1.1 Knowledge-intensive employment

was equal to 44.74 % in 2022, up by 0.27 percentage points from the year prior – and equivalent to an indicator rank of 24.

Global Innovation Index 2024

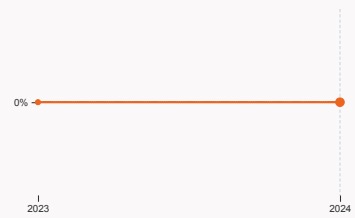


Innovation outputs in Latvia



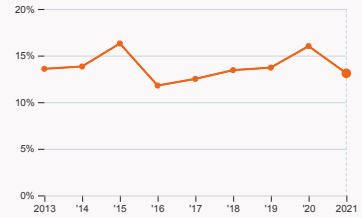
6.1.1 Patents by origin

was equal to 125 patents in 2022, down by 0.79% from the year prior – and equivalent to an indicator rank of 36.



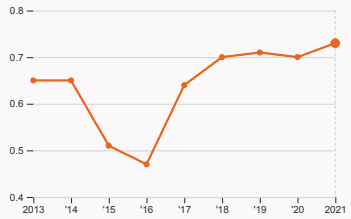
6.2.2 Unicorn valuation

was equal to 0 % GDP in 2024 with no change from the year prior – and equivalent to an indicator rank of 49.



6.2.4 High-tech manufacturing

was equal to 13.1 % of total manufacturing output in 2021, down by 2.92 percentage points from the year prior – and equivalent to an indicator rank of 79.

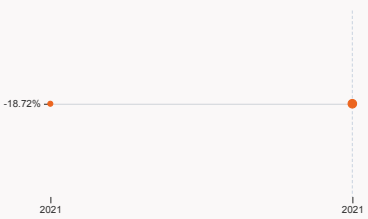


6.3.2 Production and export complexity

was equal to a score of 0.73 in 2021, up by 4.29% from the year prior – and equivalent to an indicator rank of 36.

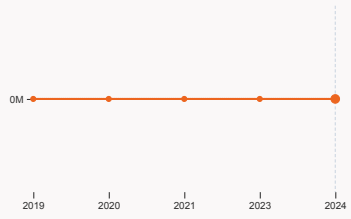
6.3.3 High-tech exports

was equal to 2.08 billion USD in 2022, down by 1.89% from the year prior – and equivalent to an indicator rank of 31.



7.1.1 Intangible asset intensity

was equal to -18.72 % for the top 15 companies in 2021 with no change from the year prior – and equivalent to an indicator rank of NA.

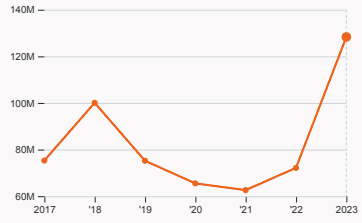


7.1.3 Global brand value

was equal to 0 million USD for the brands in the top 5,000 in 2024 with no change from the year prior – and equivalent to an indicator rank of 75.

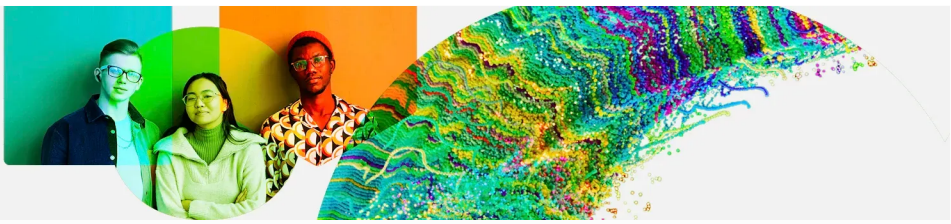
7.2.2 National feature films

was equal to 11 films in 2022, down by 45% from the year prior – and equivalent to an indicator rank of 10.



7.3.3 Mobile app creation

was equal to 128.3 million global downloads of mobile apps in 2023, up by 77.85% from the year prior – and equivalent to an indicator rank of 15.



Latvia's innovation top performers

2.3.4 QS university ranking of Latvia's top universities

Rank	University	Score
751-760	RIGA TECHNICAL UNIVERSITY	15.60
801-850	UNIVERSITY OF LATVIA	13.60
901-950	RIGA STRADINS UNIVERSITY	11.70

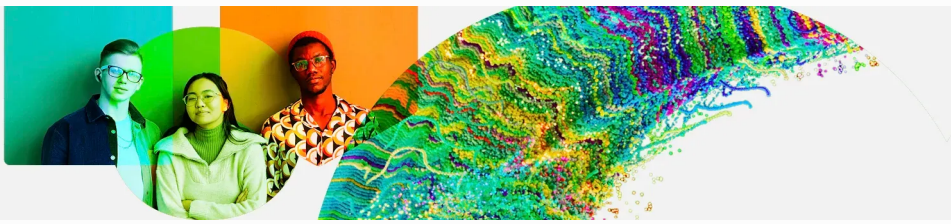
Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100].
Ranks can represent a single value "x", a tie "x=" or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

7.1.1 Top 15 intangible-asset intensive companies in Latvia

Rank	Firm	Intensity, %
1	IPAS INDEXO AS	78.19
2	AS MADARA COSMETICS	67.12
3	SAF TEHNIKA A/S	45.65

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

Global Innovation Index 2024



Latvia

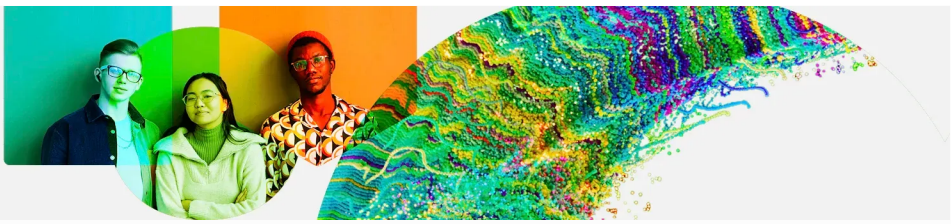
GII 2024 rank **42**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
46	38	High	EUR	1.9	76.5	40,891.8

	Score / Value	Rank	
Institutions	**57.9**	**42**	
1.1 Institutional environment	**69.7**	**36**	
1.1.1 Operational stability for businesses*	77.3	32	
1.1.2 Government effectiveness*	62.1	38	
1.2 Regulatory environment	**71.4**	**27**	
1.2.1 Regulatory quality*	72.6	26	
1.2.2 Rule of law*	70.3	30	
1.3 Business environment	**32.7**	**94**	◇
1.3.1 Policy stability for doing business†	23.1	118	○ ◇
1.3.2 Entrepreneurship policies and culture†	42.3	40	
Human capital and research	**39.2**	**45**	
2.1 Education	**63.3**	**20**	
2.1.1 Expenditure on education, % GDP	5.6	25	
2.1.2 Government funding/pupil, secondary, % GDP/cap	23.1	33	
2.1.3 School life expectancy, years	16.5	29	
2.1.4 PISA scales in reading, maths and science	483.9	22	
2.1.5 Pupil–teacher ratio, secondary	9.4	26	
2.2 Tertiary education	**41.9**	**34**	
2.2.1 Tertiary enrolment, % gross	91.3	14	● ◆
2.2.2 Graduates in science and engineering, %	19.4	82	○
2.2.3 Tertiary inbound mobility, %	12.7	17	● ◆
2.3 Research and development (R&D)	**12.2**	**55**	◇
2.3.1 Researchers, FTE/mn pop.	2,262	40	
2.3.2 Gross expenditure on R&D, % GDP	0.8	48	
2.3.3 Global corporate R&D investors, top 3, mn USD	0	41	○ ◇
2.3.4 QS university ranking, top 3*	13.8	62	
Infrastructure	**51.3**	**33**	
3.1 Information and communication technologies (ICTs)	**85.4**	**24**	
3.1.1 ICT access*	96.2	41	
3.1.2 ICT use*	92.7	8	● ◆
3.1.3 Government's online service*	79.4	35	
3.1.4 E-participation*	73.3	29	
3.2 General infrastructure	**36**	**48**	
3.2.1 Electricity output, GWh/mn pop.	2,651.1	69	◇
3.2.2 Logistics performance*	63.6	33	
3.2.3 Gross capital formation, % GDP	25	50	
3.3 Ecological sustainability	**32.5**	**33**	
3.3.1 GDP/unit of energy use	13.5	39	
3.3.2 Low-carbon energy use, %	25.8	48	
3.3.3 ISO 14001 environment/bn PPP$ GDP	4.7	23	
Market sophistication	**36.6**	**53**	
4.1 Credit	**32.5**	**49**	
4.1.1 Finance for startups and scaleups†	57	30	
4.1.2 Domestic credit to private sector, % GDP	28.8	100	○ ◇
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	
4.2 Investment	**19.9**	**41**	
4.2.1 Market capitalization, % GDP	n/a	n/a	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.2	33	
4.2.3 VC recipients, deals/bn PPP$ GDP	0.1	28	
4.2.4 VC received, value, % GDP	0.0009	55	
4.3 Trade, diversification and market scale	**57.3**	**63**	
4.3.1 Applied tariff rate, weighted avg., %	1.1	21	
4.3.2 Domestic industry diversification	79.5	65	
4.3.3 Domestic market scale, bn PPP$	76.5	97	○

	Score / Value	Rank	
Business sophistication	**35.9**	**40**	
5.1 Knowledge workers	**54.8**	**29**	
5.1.1 Knowledge-intensive employment, %	44.7	24	
5.1.2 Firms offering formal training, %	52.9	15	● ◆
5.1.3 GERD performed by business, % GDP	0.3	50	
5.1.4 GERD financed by business, %	33.5	56	
5.1.5 Females employed w/advanced degrees, %	26.6	14	● ◆
5.2 Innovation linkages	**22.8**	**67**	◇
5.2.1 Public Research-Industry co-publications, %	2	45	
5.2.2 University-industry R&D collaboration†	42.9	73	
5.2.3 State of cluster development†	37.4	91	◇
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.02	65	
5.2.5 Patent families/bn PPP$ GDP	0.3	41	
5.3 Knowledge absorption	**30**	**55**	
5.3.1 Intellectual property payments, % total trade	0.1	99	○
5.3.2 High-tech imports, % total trade	11.7	23	
5.3.3 ICT services imports, % total trade	1.7	42	
5.3.4 FDI net inflows, % GDP	5	22	
5.3.5 Research talent, % in businesses	29.2	47	
Knowledge and technology outputs	**24.2**	**51**	
6.1 Knowledge creation	**20.3**	**55**	
6.1.1 Patents by origin/bn PPP$ GDP	1.7	36	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.4	35	
6.1.3 Utility models by origin/bn PPP$ GDP	-	-	
6.1.4 Scientific and technical articles/bn PPP$ GDP	18.9	37	
6.1.5 Citable documents H-index	9.4	81	◇
6.2 Knowledge impact	**20.5**	**95**	◇
6.2.1 Labor productivity growth, %	1.8	32	◆
6.2.2 Unicorn valuation, % GDP	0	49	○ ◇
6.2.3 Software spending, % GDP	0.09	96	○ ◇
6.2.4 High-tech manufacturing, %	13.1	79	○ ◇
6.3 Knowledge diffusion	**31.9**	**38**	
6.3.1 Intellectual property receipts, % total trade	0.05	72	
6.3.2 Production and export complexity	61.5	36	
6.3.3 High-tech exports, % total trade	6.9	31	
6.3.4 ICT services exports, % total trade	4.4	23	
6.3.5 ISO 9001 quality/bn PPP$ GDP	12	19	● ◆
Creative outputs	**32.8**	**39**	
7.1 Intangible assets	**17.2**	**84**	◇
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	41	46	
7.1.3 Global brand value, top 5,000, % GDP	0	75	○ ◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	2.3	39	
7.2 Creative goods and services	**51.9**	**5**	● ◆
7.2.1 Cultural and creative services exports, % total trade	2.4	9	● ◆
7.2.2 National feature films/mn pop. 15–69	8.5	10	● ◆
7.2.3 Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4 Creative goods exports, % total trade	2.9	19	● ◆
7.3 Online creativity	**45**	**31**	
7.3.1 Top-level domains (TLDs)/th pop. 15–69	19.2	31	
7.3.2 GitHub commits/mn pop. 15–69	38.7	29	
7.3.3 Mobile app creation/bn PPP$ GDP	77	15	● ◆

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.



Data availability

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

Latvia has missing data for five indicators and outdated data for two indicators.

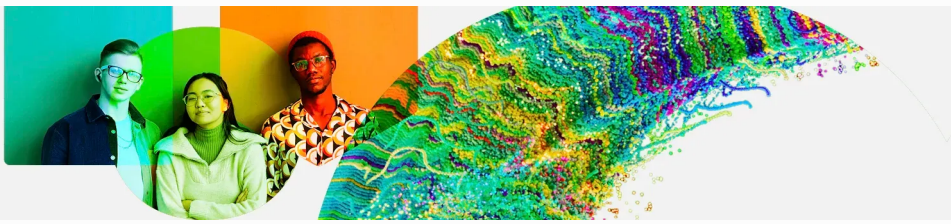
Missing data for Latvia

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2022	International Monetary Fund, Financial Access Survey (FAS)
4.2.1	Market capitalization, % GDP	n/a	2022	World Federation of Exchanges; World Bank
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2022	World Intellectual Property Organization; International Monetary Fund
7.1.1	Intangible asset intensity, top 15, %	n/a	2023	Brand Finance
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 Latvia

Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2021	2022	UNESCO Institute for Statistics
5.1.2	Firms offering formal training, %	2019	2023	World Bank Enterprise Surveys

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.