

# Global Innovation Index 2023

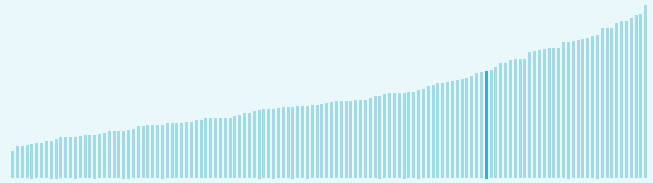


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

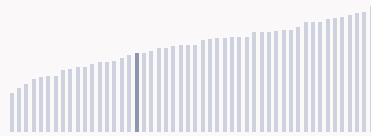
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

## Lithuania ranking in the Global Innovation Index 2023

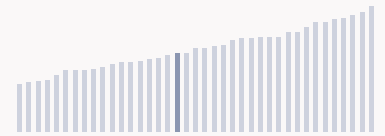
> Lithuania ranks **34th** among the 132 economies featured in the GII 2023.



> Lithuania ranks **33rd** among the 50 high-income group economies.



> Lithuania ranks **22nd** among the 39 economies in Europe.



### > Lithuania GII Ranking (2020-2023)

The table shows the rankings of Lithuania 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 Lithuania in the GII 2023 is between ranks 32 and 35.

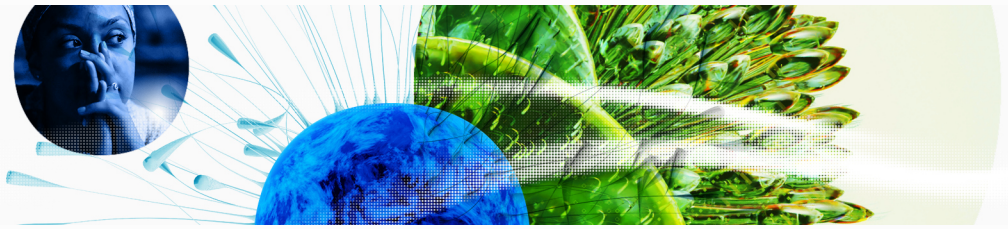
	GII Position	Innovation Inputs	Innovation Outputs
2020	40th	36th	42nd
2021	39th	35th	43rd
2022	39th	34th	47th
2023	34th	32nd	37th

Lithuania performs worse in innovation outputs than innovation inputs in 2023.

This year Lithuania ranks 32nd in innovation inputs. This position is higher than last year.

Lithuania ranks 37th in innovation outputs. This position is higher than last year.

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## → Expected vs. observed innovation performance

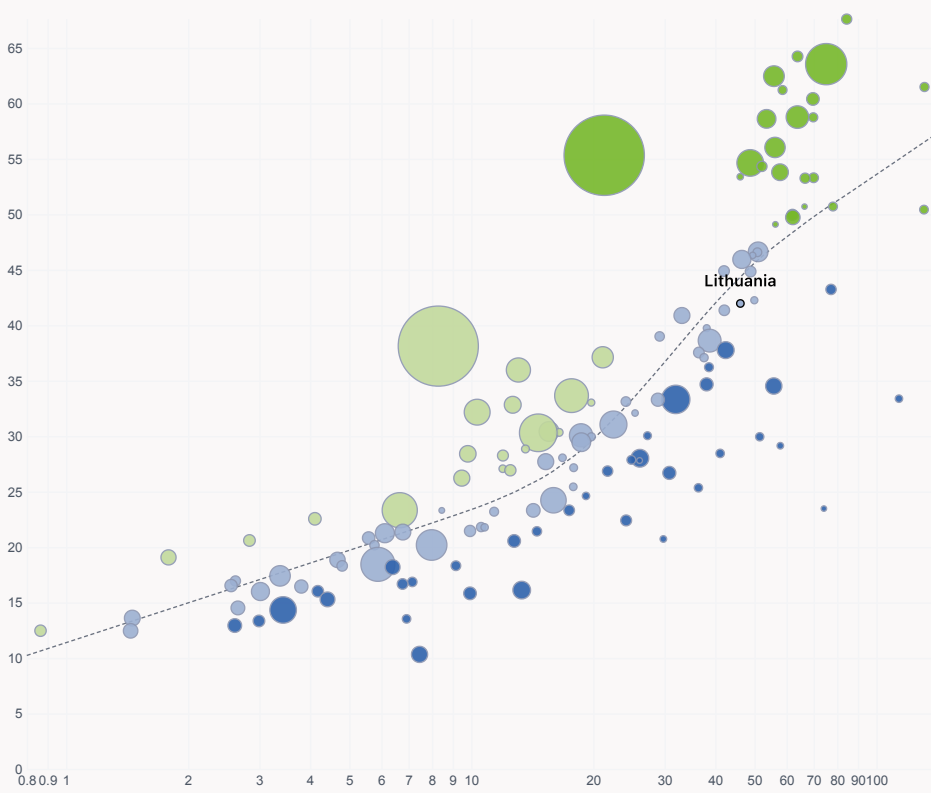
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.



> Relative to GDP, Lithuania's performance is at expectations for its level of development.

## > Innovation overperformers relative to their economic development

↑ **GII Score**



- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



→ GDP per capita, PPP logarithmic scale (thousands of \$)

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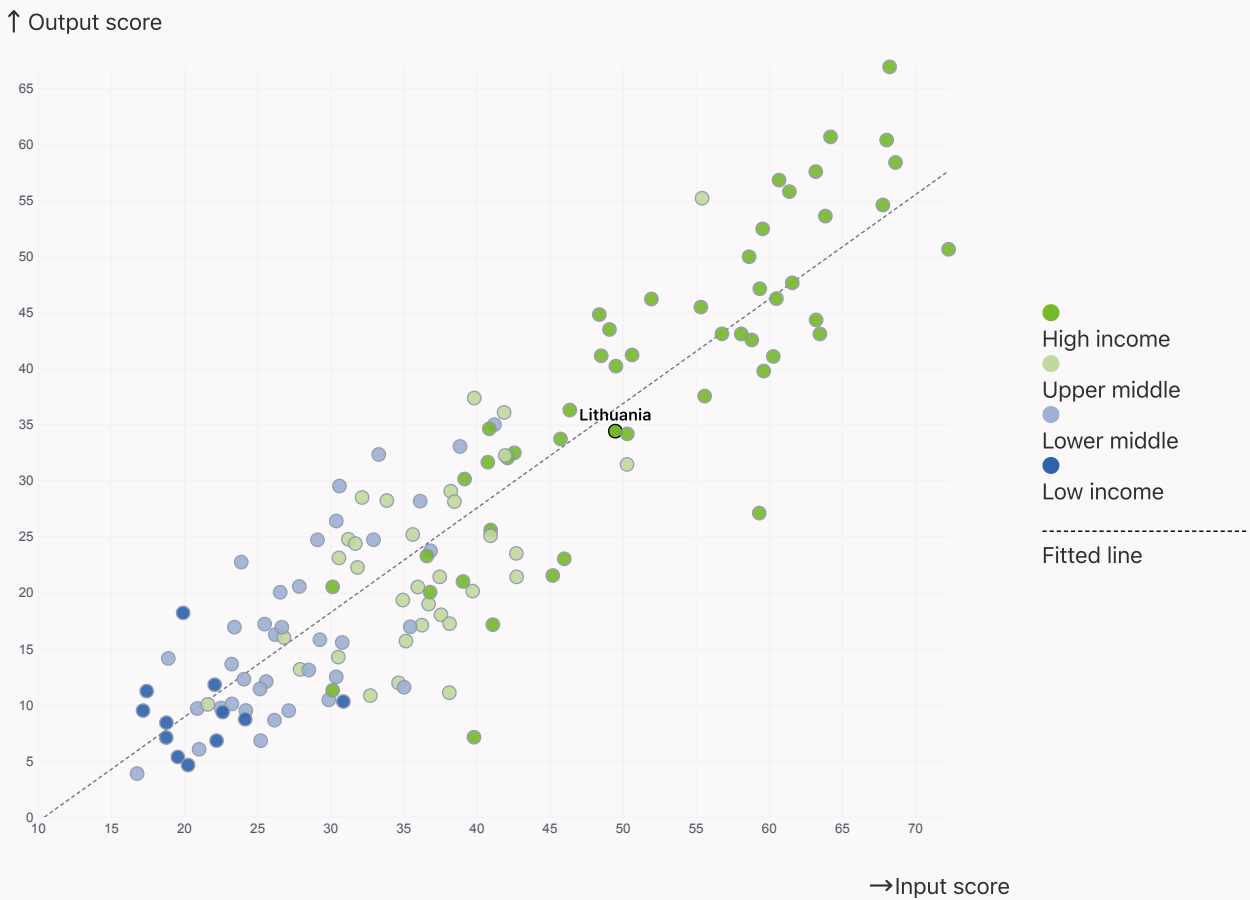
## → Effectively translating innovation investments into innovation outputs

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.

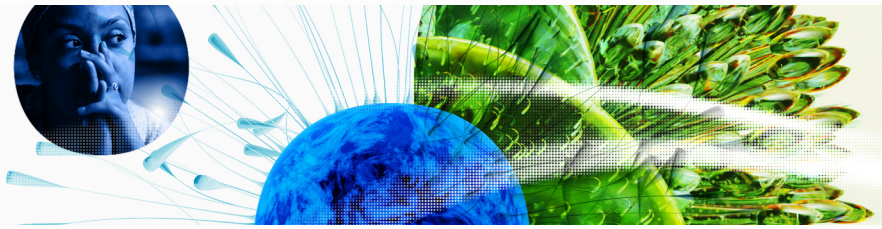


> Lithuania produces less innovation outputs relative to its level of innovation investments.

### > Relationship between innovation inputs and outputs

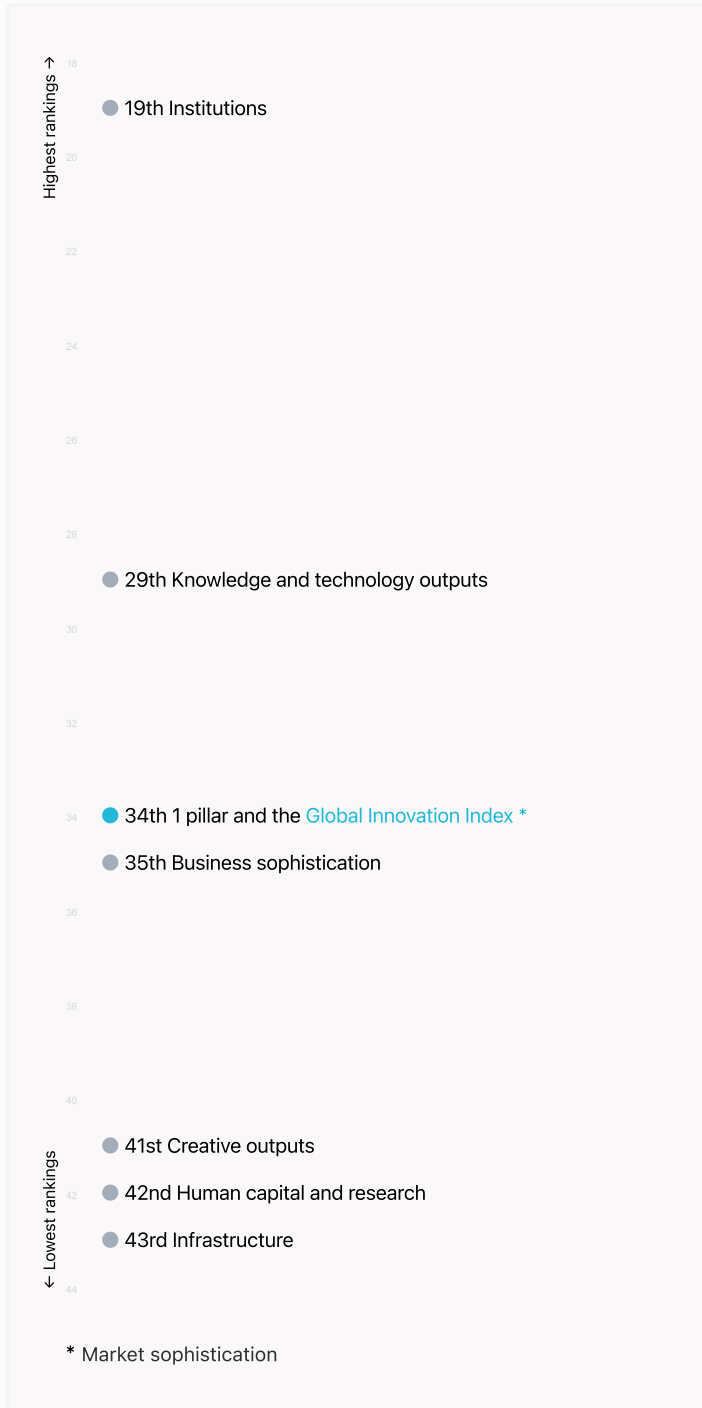


# Global Innovation Index 2023



## → Overview of Lithuania's rankings in the seven areas of the GII in 2023

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



### > Highest rankings



Lithuania ranks highest in Institutions (19th), Knowledge and technology outputs (29th) and Market sophistication (34th).

### > Lowest rankings



Lithuania ranks lowest in Infrastructure (43rd), Human capital and research (42nd) and Creative outputs (41st).



The full WIPO Intellectual Property Statistics profile for Lithuania can be found on [this link](#).

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## → Benchmark of Lithuania against other country groupings for each of the seven areas of the GII Index

The charts show the relative position of Lithuania (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

### > High-Income economies

Lithuania performs below the high-income group average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure.

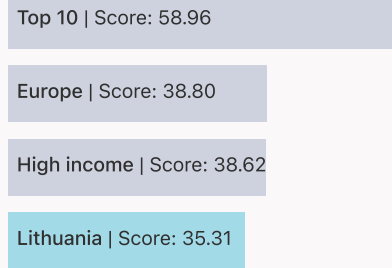


### > Europe

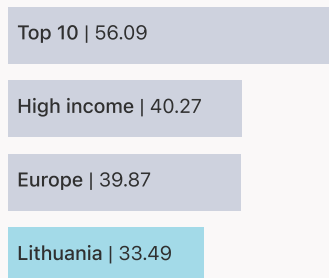
Lithuania performs below the regional average in Knowledge and technology outputs, Creative outputs, Business sophistication, Human capital and research, Infrastructure.



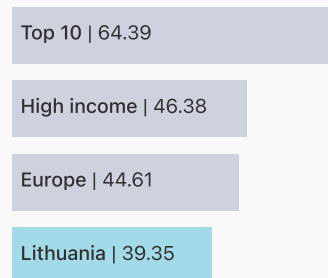
### Knowledge and technology outputs



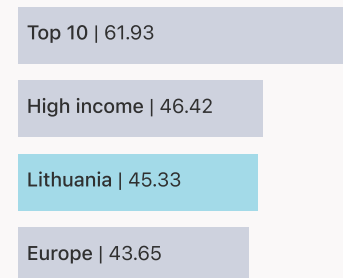
### Creative outputs



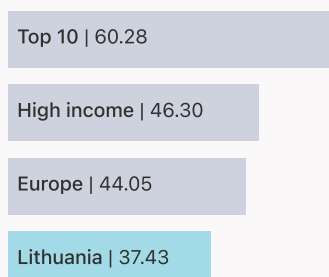
### Business sophistication



### Market sophistication



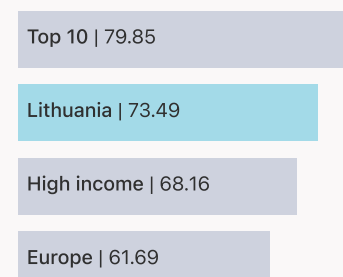
### Human capital and research

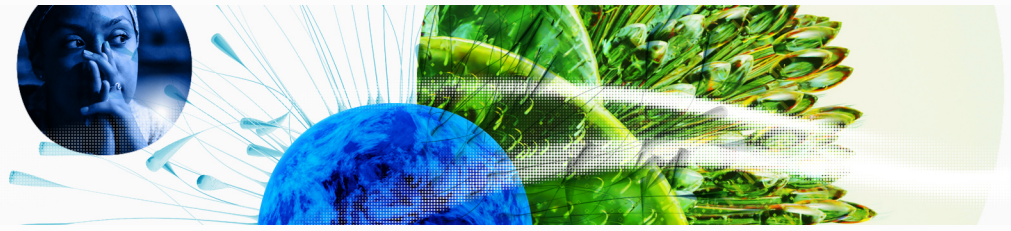


### Infrastructure



### Institutions





## → Innovation strengths and weaknesses in Lithuania

The table below gives an overview of the indicator strengths and weaknesses of Lithuania in the GII 2023.



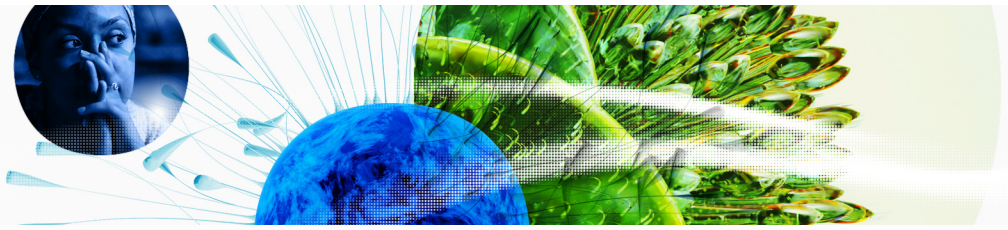
> Lithuania's main innovation strengths are **Females employed w/advanced degrees, %** (rank 1), **Unicorn valuation, % GDP** (rank 1) and **Mobile app creation/bn PPP\$ GDP** (rank 7).

### Strengths

### Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	5.1.5	Females employed w/advanced degrees, %	103	3.2.3	Gross capital formation, % GDP
1	6.2.2	Unicorn valuation, % GDP	99	6.2.3	Software spending, % GDP
7	7.3.4	Mobile app creation/bn PPP\$ GDP	90	3.2.1	Electricity output, GWh/mn pop.
8	5.2.3	GERD financed by abroad, % GDP	90	5.3.1	Intellectual property payments, % total trade
9	1.3.2	Entrepreneurship policies and culture	88	4.1.2	Domestic credit to private sector, % GDP
10	4.1.1	Finance for startups and scaleups	74	7.1.3	Global brand value, top 5,000
10	2.1.5	Pupil-teacher ratio, secondary	69	2.1.2	Government funding/pupil, secondary, % GDP/cap
13	3.1.1	ICT access	67	7.1.1	Intangible asset intensity, top 15, %
13	3.3.3	ISO 14001 environment/bn PPP\$ GDP	60	5.1.2	Firms offering formal training, %
15	5.3.4	FDI net inflows, % GDP	40	2.3.3	Global corporate R&D investors, top 3, mn US\$

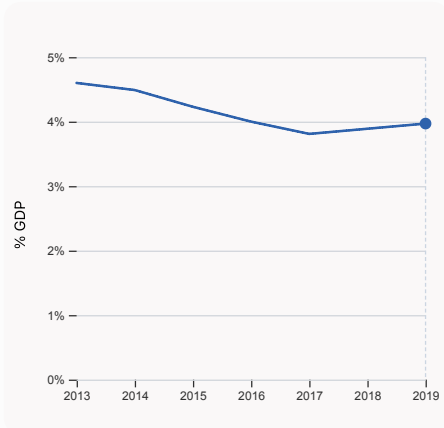
# Global Innovation Index 2023



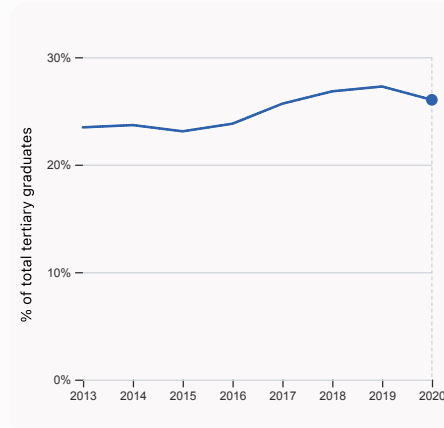
## → Lithuania's innovation system

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

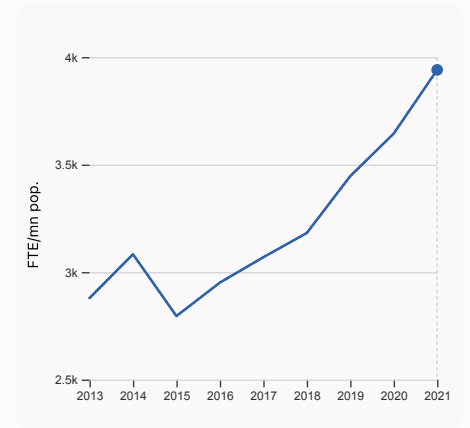
### > Innovation inputs in Lithuania



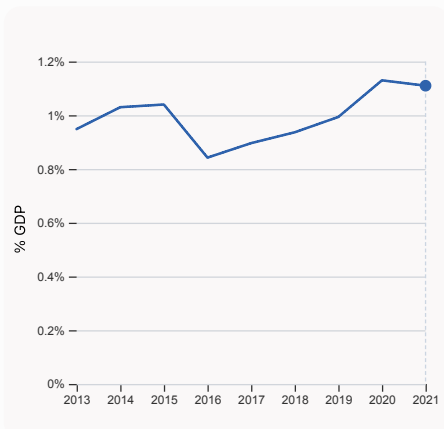
**2.1.1 Expenditure on education, % GDP**  
was equal to 3.97% GDP in 2019, up by 0.08 percentage points from the year prior – and equivalent to an indicator rank of 73.



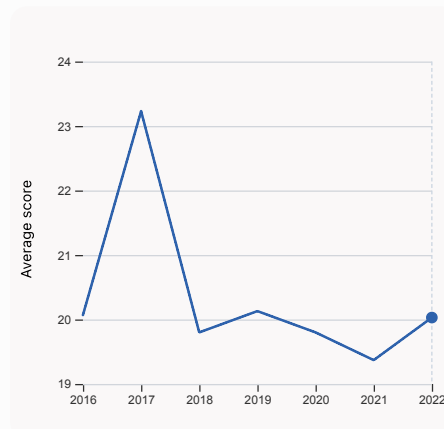
**2.2.2 Graduates in science and engineering, %**  
was equal to 26.03% of total tertiary graduates in 2020, down by 1.24 percentage points from the year prior – and equivalent to an indicator rank of 38.



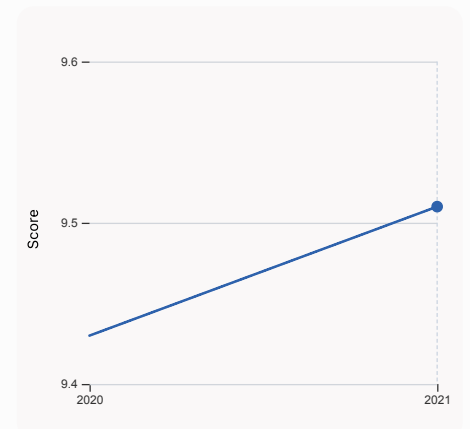
**2.3.1 Researchers, FTE/mn pop.**  
was equal to 3,940.72 FTE/mn pop. in 2021, up by 8.13% from the year prior – and equivalent to an indicator rank of 28.



**2.3.2 Gross expenditure on R&D, % GDP**  
was equal to 1.11% GDP in 2021, down by 0.02 percentage points from the year prior – and equivalent to an indicator rank of 36.

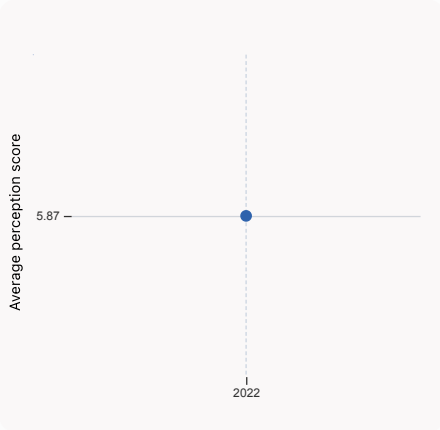
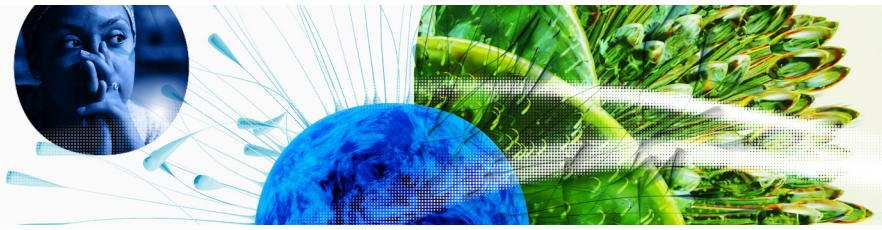


**2.3.4 QS university ranking, top 3**  
was equal to an average score of 20.03 for the top 3 universities in 2022, up by 3.41% from the year prior – and equivalent to an indicator rank of 52.

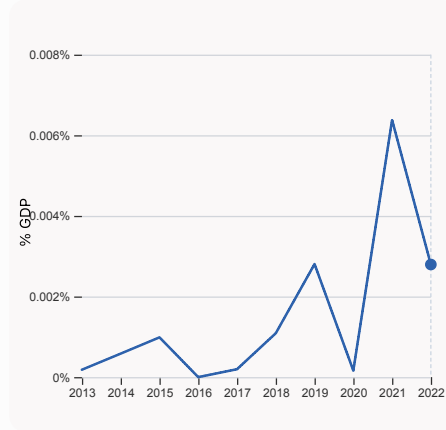


**3.1.1 ICT access**  
was equal to a score of 9.51 in 2021, up by 0.85% from the year prior – and equivalent to an indicator rank of 13.

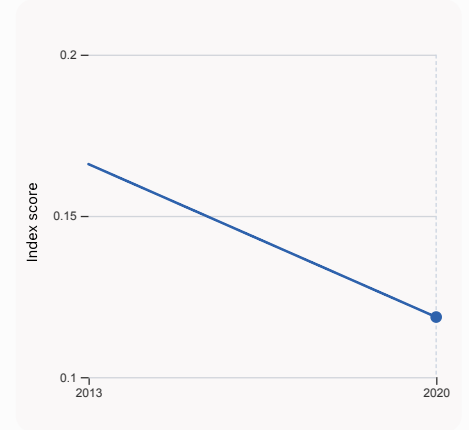
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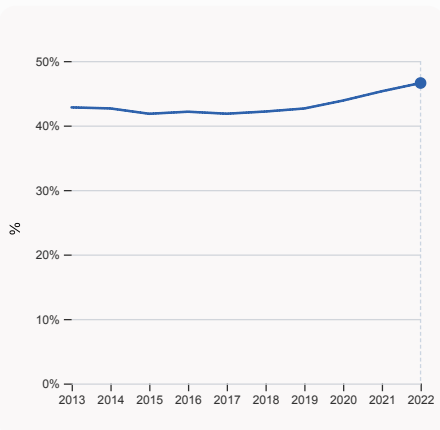
**4.1.1 Finance for startups and scaleups** was equal to an average perception score of 5.87 in 2022, equivalent to an indicator rank of 10.



**4.2.4 VC received, value, % GDP** was equal to 0.00279% GDP in 2022, down by 0.0036 percentage points from the year prior – and equivalent to an indicator rank of 23.



**4.3.2 Domestic industry diversification** was equal to an index score of 0.119 in 2020, down by 28.56% from the year prior – and equivalent to an indicator rank of 31.



**5.1.1 Knowledge-intensive employment, %** was equal to 46.59% in 2022, up by 1.28 percentage points from the year prior – and equivalent to an indicator rank of 19.

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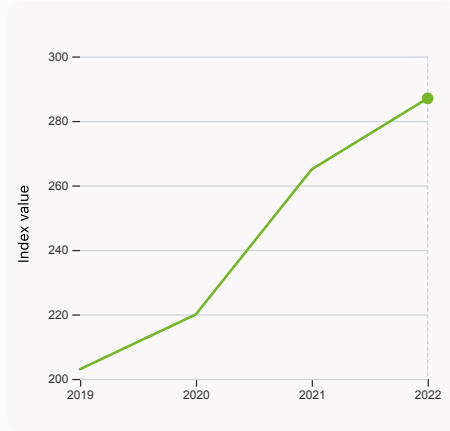


## > Innovation outputs in Lithuania



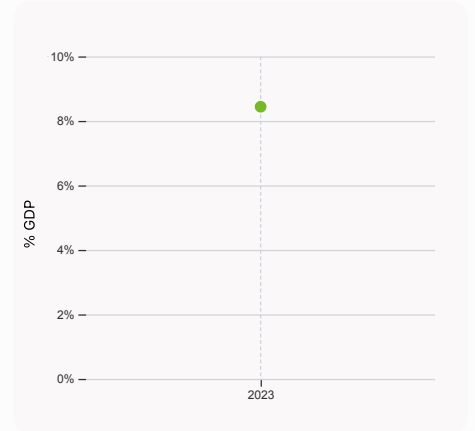
### 6.1.1 Patents by origin

was equal to 0.15 Thousands in 2021, up by 6.21% from the year prior – and equivalent to an indicator rank of 51.



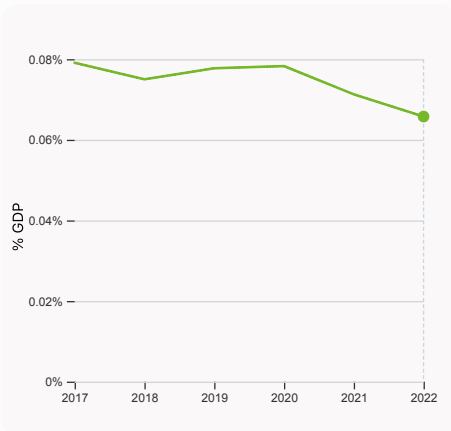
### 6.1.5 Citable documents H-index

was equal to an index value of 287 in 2022, up by 8.3% from the year prior – and equivalent to an indicator rank of 62.



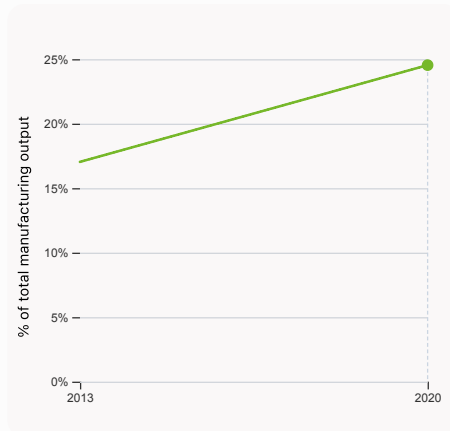
### 6.2.2 Unicorn valuation, % GDP

was equal to 8.44 % GDP in 2023 – and equivalent to an indicator rank of 1.



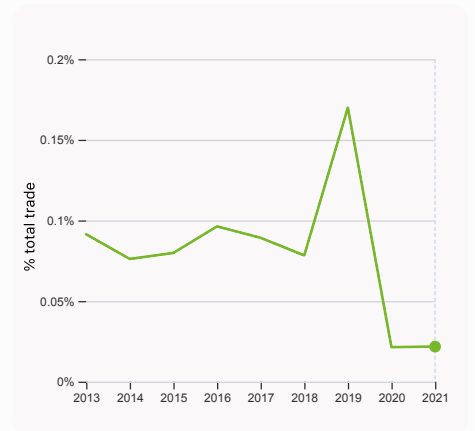
### 6.2.3 Software spending, % GDP

was equal to 0.066% GDP in 2022, down by 0.0055 percentage points from the year prior – and equivalent to an indicator rank of 99.



### 6.2.4 High-tech manufacturing, %

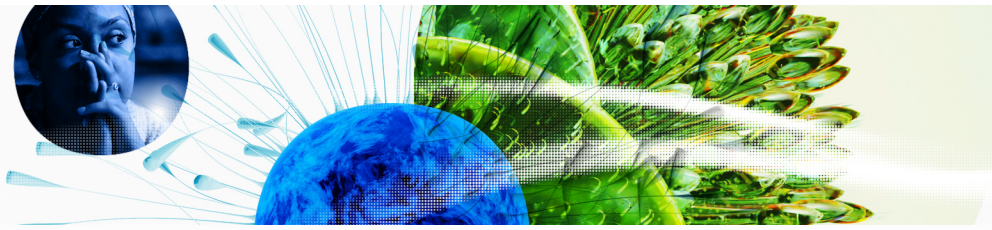
was equal to 24.54% of total manufacturing output in 2020, up by 7.5 percentage points from the year prior – and equivalent to an indicator rank of 52.



### 6.3.1 Intellectual property receipts, % total trade

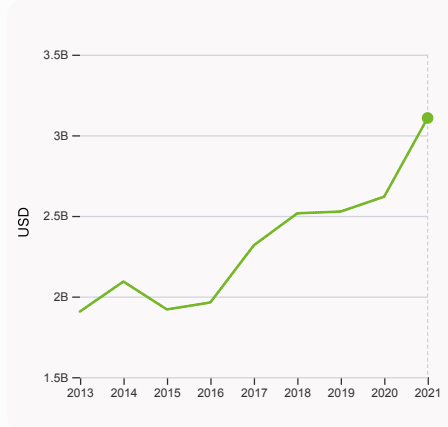
was equal to 0.022% total trade in 2021, up by 0.00033 percentage points from the year prior – and equivalent to an indicator rank of 66.

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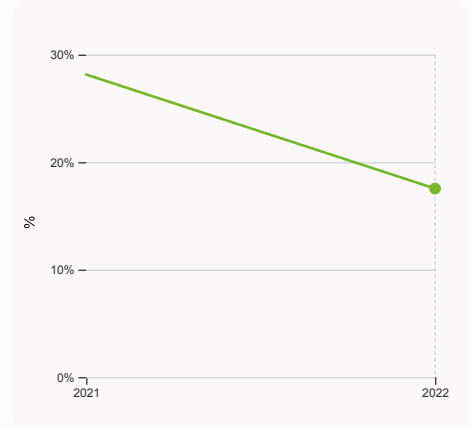
## 6.3.2 Production and export complexity

was equal to a score of 0.855 in 2020, up by 12.092% from the year prior – and equivalent to an indicator rank of 29.



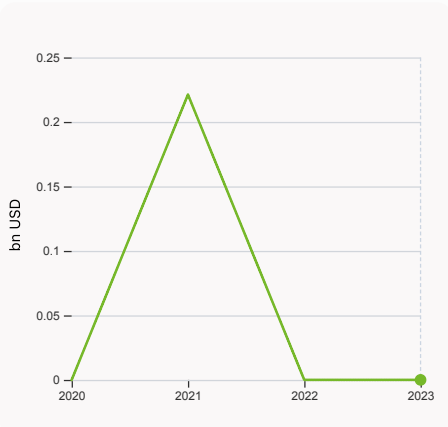
## 6.3.3 High-tech exports

was equal to 3,107,136,411 USD in 2021, up by 18.63% from the year prior – and equivalent to an indicator rank of 31.



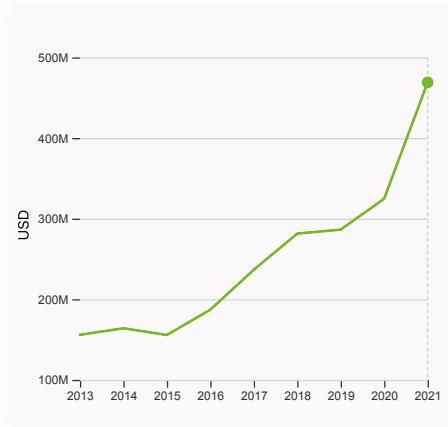
## 7.1.1 Intangible asset intensity, top 15, %

was equal to 17.54% in 2022, down by 10.61 percentage points from the year prior – and equivalent to an indicator rank of 67.



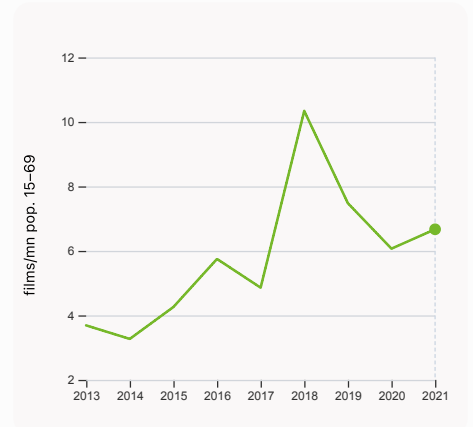
## 7.1.3 Global brand value, top 5,000

was equal to 0 bn USD in 2023 – and equivalent to an indicator rank of 74.



## 7.2.1 Cultural and creative services exports

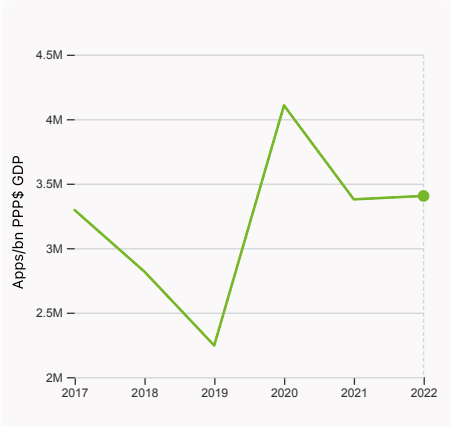
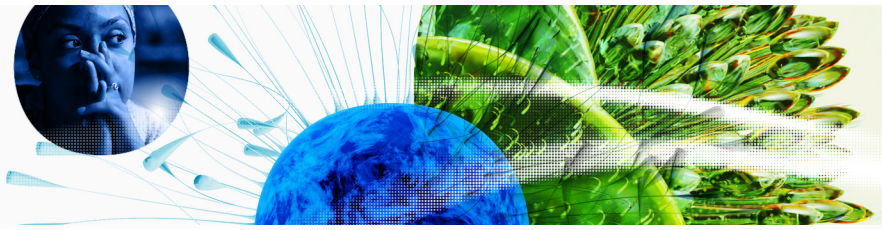
was equal to 469,017,000 USD in 2021, up by 44.45% from the year prior – and equivalent to an indicator rank of 33.



## 7.2.2 National feature films/mn pop. 15-69

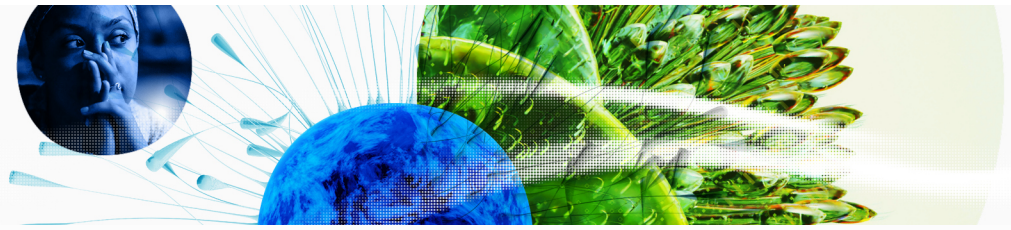
was equal to 6.67 films/mn pop. 15-69 in 2021, up by 9.88% from the year prior – and equivalent to an indicator rank of 14.

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## 7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 3,404,601.52 Apps/bn PPP\$ GDP in 2022, up by 0.78% from the year prior – and equivalent to an indicator rank of 7.



## → Lithuania's innovation top performers

### > 2.3.4 QS university ranking of Lithuania's top universities

Rank	University	Score
400	VILNIUS UNIVERSITY	28.40
701-750)	VILNIUS GEDIMINAS TECHNICAL UNIVERSITY	16.90
801-1000	KAUNAS UNIVERSITY OF TECHNOLOGY	14.80

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 Lithuania

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	VINTED	E-commerce & direct-to-consumer	Vilnius	5
2	NORD SECURITY	Cybersecurity	Vilnius	2

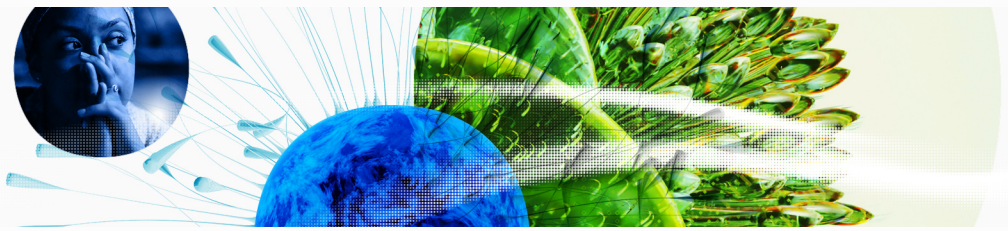
Source: CBInsights, Tracker – The Complete List of Unicorn Companies: <https://www.cbinsights.com/research-unicorn-companies>

### > 7.1.1 Top 15 intangible-asset intensive companies in Lithuania

Rank	Firm	Intensity, %
1	LITGRID AB	27.32
2	NOVATURAS AB	144.40
3	AB AMBER GRID	7.01

Source: Brand Finance (<https://brandirectory.com/reports/gif-2022>).

Note: Brand Finance only provides within economy ranks.



## Lithuania

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
37	32	High	EUR	2.8	130.7	46,158.6

Score / Value Rank

Score / Value Rank

<b>Institutions</b>		73.5	19	<b>Business sophistication</b>		39.3	35
<b>1.1 Institutional environment</b>		70.5	22	<b>5.1 Knowledge workers</b>		51.7	27
1.1.1 Operational stability for businesses*		75.0	17	5.1.1 Knowledge-intensive employment, %		46.6	19
1.1.2 Government effectiveness*		65.9	30	5.1.2 Firms offering formal training, %		27.5	60 ○
<b>1.2 Regulatory environment</b>		81.9	25	5.1.3 GERD performed by business, % GDP		0.5	37
1.2.1 Regulatory quality*		75.2	23	5.1.4 GERD financed by business, %		37.3	51
1.2.2 Rule of law*		72.2	26	5.1.5 Females employed w/advanced degrees, %		30.8	1 ●◆
1.2.3 Cost of redundancy dismissal		13.0	41	<b>5.2 Innovation linkages</b>		35.4	34
<b>1.3 Business environment</b>		68.1	24	5.2.1 University-industry R&D collaboration†		63.9	29
1.3.1 Policies for doing business†		57.3	44	5.2.2 State of cluster development†		41.1	68
1.3.2 Entrepreneurship policies and culture†		79.0	9 ●◆	5.2.3 GERD financed by abroad, % GDP		0.4	8 ●◆
<b>Human capital and research</b>		37.4	42	5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP		0.0	60
<b>2.1 Education</b>		55.1	54	5.2.5 Patent families/bn PPP\$ GDP		0.4	36
2.1.1 Expenditure on education, % GDP		● 4.0	73	<b>5.3 Knowledge absorption</b>		31.0	75 ◇
2.1.2 Government funding/pupil, secondary, % GDP/cap		16.8	69 ○◇	5.3.1 Intellectual property payments, % total trade		0.2	90 ○◇
2.1.3 School life expectancy, years		16.2	32	5.3.2 High-tech imports, % total trade		7.3	80
2.1.4 PISA scales in reading, maths and science		479.7	32	5.3.3 ICT services imports, % total trade		1.3	69
2.1.5 Pupil-teacher ratio, secondary		8.0	10 ●◆	5.3.4 FDI net inflows, % GDP		6.2	15 ●◆
<b>2.2 Tertiary education</b>		37.0	41	5.3.5 Research talent, % in businesses		30.9	42
2.2.1 Tertiary enrolment, % gross		70.8	33	<b>Knowledge and technology outputs</b>		35.3	29
2.2.2 Graduates in science and engineering, %		26.0	38	<b>6.1 Knowledge creation</b>		21.6	49
2.2.3 Tertiary inbound mobility, %		6.2	41	6.1.1 Patents by origin/bn PPP\$ GDP		1.3	51
<b>2.3 Research and development (R&amp;D)</b>		20.2	43	6.1.2 PCT patents by origin/bn PPP\$ GDP		0.3	37
2.3.1 Researchers, FTE/mn pop.		3,940.7	28	6.1.3 Utility models by origin/bn PPP\$ GDP		n/a	n/a
2.3.2 Gross expenditure on R&D, % GDP		1.1	36	6.1.4 Scientific and technical articles/bn PPP\$ GDP		n/a	n/a
2.3.3 Global corporate R&D investors, top 3, mn US\$		0.0	40 ○◇	6.1.5 Citable documents H-index		13.6	62
2.3.4 QS university ranking, top 3*		20.3	52	<b>6.2 Knowledge impact</b>		49.5	17
<b>Infrastructure</b>		51.9	43	6.2.1 Labor productivity growth, %		2.0	33 ◆
<b>3.1 Information and communication technologies (ICTs)</b>		79.5	40	6.2.2 Unicorn valuation, % GDP		8.4	1 ●◆
3.1.1 ICT access*		92.8	13 ●◆	6.2.3 Software spending, % GDP		0.1	99 ○◇
3.1.2 ICT use*		90.0	22	6.2.4 High-tech manufacturing, %		24.5	52
3.1.3 Government's online service*		81.7	28	<b>6.3 Knowledge diffusion</b>		34.8	43
3.1.4 E-participation*		53.5	67	6.3.1 Intellectual property receipts, % total trade		0.1	66
<b>3.2 General infrastructure</b>		26.3	66 ◇	6.3.2 Production and export complexity		70.4	29
3.2.1 Electricity output, GWh/mn pop.		1,559.0	90 ○◇	6.3.3 High-tech exports, % total trade		6.1	31
3.2.2 Logistics performance*		59.1	37	6.3.4 ICT services exports, % total trade		2.9	45
3.2.3 Gross capital formation, % GDP		19.2	103 ○◇	6.3.5 ISO 9001 quality/bn PPP\$ GDP		10.8	27
<b>3.3 Ecological sustainability</b>		50.0	22	<b>Creative outputs</b>		33.5	41
3.3.1 GDP/unit of energy use		13.2	36	<b>7.1 Intangible assets</b>		32.4	63
3.3.2 Environmental performance*		62.7	30	7.1.1 Intangible asset intensity, top 15, %		17.5	67 ○
3.3.3 ISO 14001 environment/bn PPP\$ GDP		7.0	13 ●◆	7.1.2 Trademarks by origin/bn PPP\$ GDP		45.8	50
<b>Market sophistication</b>		45.3	34	7.1.3 Global brand value, top 5,000		0.0	74 ○◇
<b>4.1 Credit</b>		45.3	35	7.1.4 Industrial designs by origin/bn PPP\$ GDP		2.7	36
4.1.1 Finance for startups and scaleups†		78.0	10 ●◆	<b>7.2 Creative goods and services</b>		26.6	37
4.1.2 Domestic credit to private sector, % GDP		37.4	88 ○◇	7.2.1 Cultural and creative services exports, % total trade		0.9	33
4.1.3 Loans from microfinance institutions, % GDP		n/a	n/a	7.2.2 National feature films/mn pop. 15-69		6.7	14
<b>4.2 Investment</b>		28.1	25	7.2.3 Entertainment and media market/th pop. 15-69		n/a	n/a
4.2.1 Market capitalization, % GDP		n/a	n/a	7.2.4 Creative goods exports, % total trade		1.6	33
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP		0.2	29	<b>7.3 Online creativity</b>		42.5	28
4.2.3 VC recipients, deals/bn PPP\$ GDP		0.1	15	7.3.1 Generic top-level domains (TLDs)/th pop. 15-69		15.7	33
4.2.4 VC received, value, % GDP		0.0	23	7.3.2 Country-code TLDs/th pop. 15-69		34.8	21
<b>4.3 Trade, diversification, and market scale</b>		62.6	49	7.3.3 GitHub commits/mn pop. 15-69		36.6	28
4.3.1 Applied tariff rate, weighted avg., %		1.5	20	7.3.4 Mobile app creation/bn PPP\$ GDP		82.8	7 ●◆
4.3.2 Domestic industry diversification		94.6	31				
4.3.3 Domestic market scale, bn PPP\$		130.7	81				

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 appendices for details, including the year of the data, at <https://www.wipo.int/gii-ranking>. 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 indicators that are either missing or outdated for Lithuania.



> Lithuania has missing data for four indicators and outdated data for one indicator.

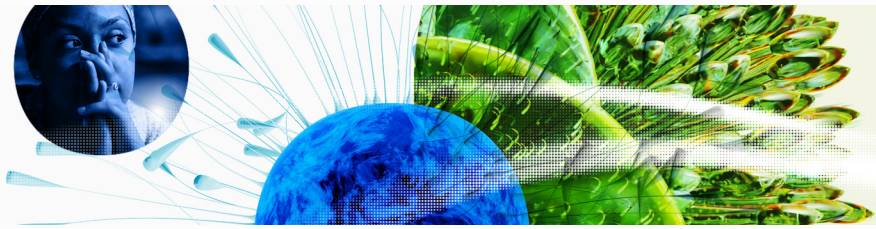
## > Missing data for Lithuania

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges; World Bank
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
7.2.3	Entertainment and media market/th pop. 15-69	n/a	2022	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

## > Outdated data for Lithuania

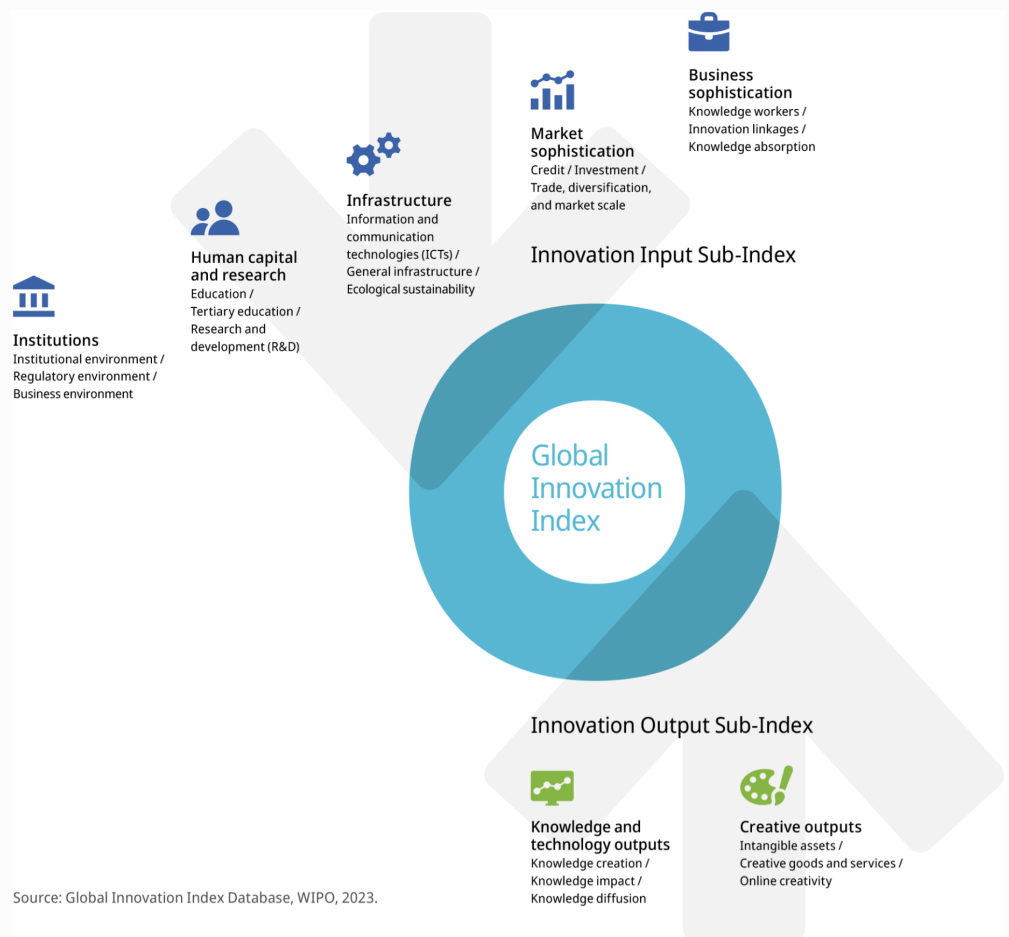
Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics

# Global Innovation Index 2023



## → 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.



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.