GLOBAL INNOVATION INDEX 2020

LITHUANIA

40th Lithuania ranks 40th 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 Lithuania 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 Lithuania in the GII 2020 is between ranks 38 and 40.

Rankings of Lithuania (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	40	36	42
2019	38	38	40
2018	40	36	44

- Lithuania performs better in innovation inputs than innovation outputs in 2020.
- This year Lithuania ranks 36th in innovation inputs, higher than last year and the same as 2018.
- As for innovation outputs, Lithuania ranks 42nd. This position is lower than last year and higher compared to 2018.

37th Lithuania ranks 37th among the 49 high-income group economies.

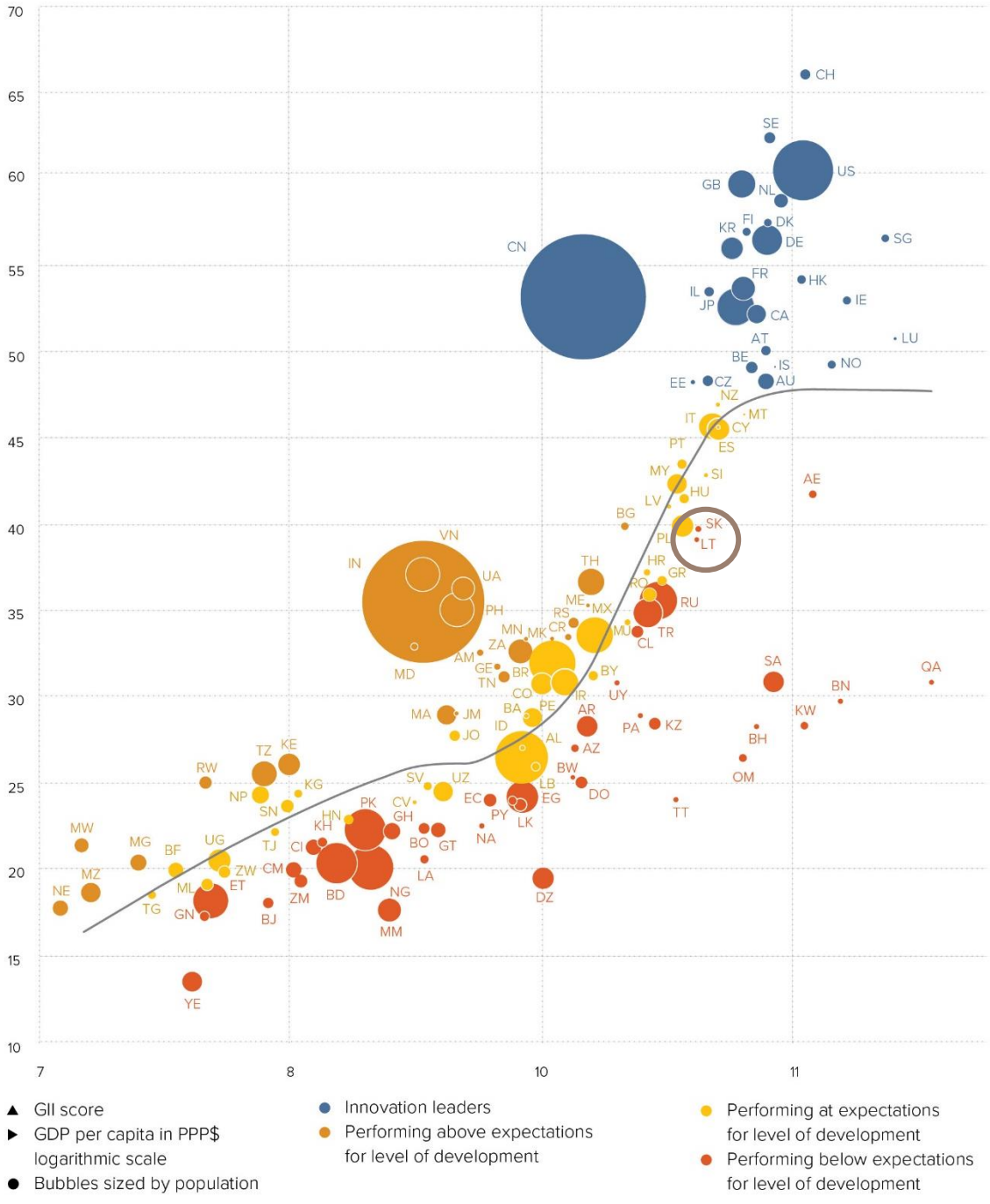
27th Lithuania ranks 27th among the 39 economies in Europe.

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, Lithuania is performing below expectations for its level of development.

The positive relationship between innovation and development

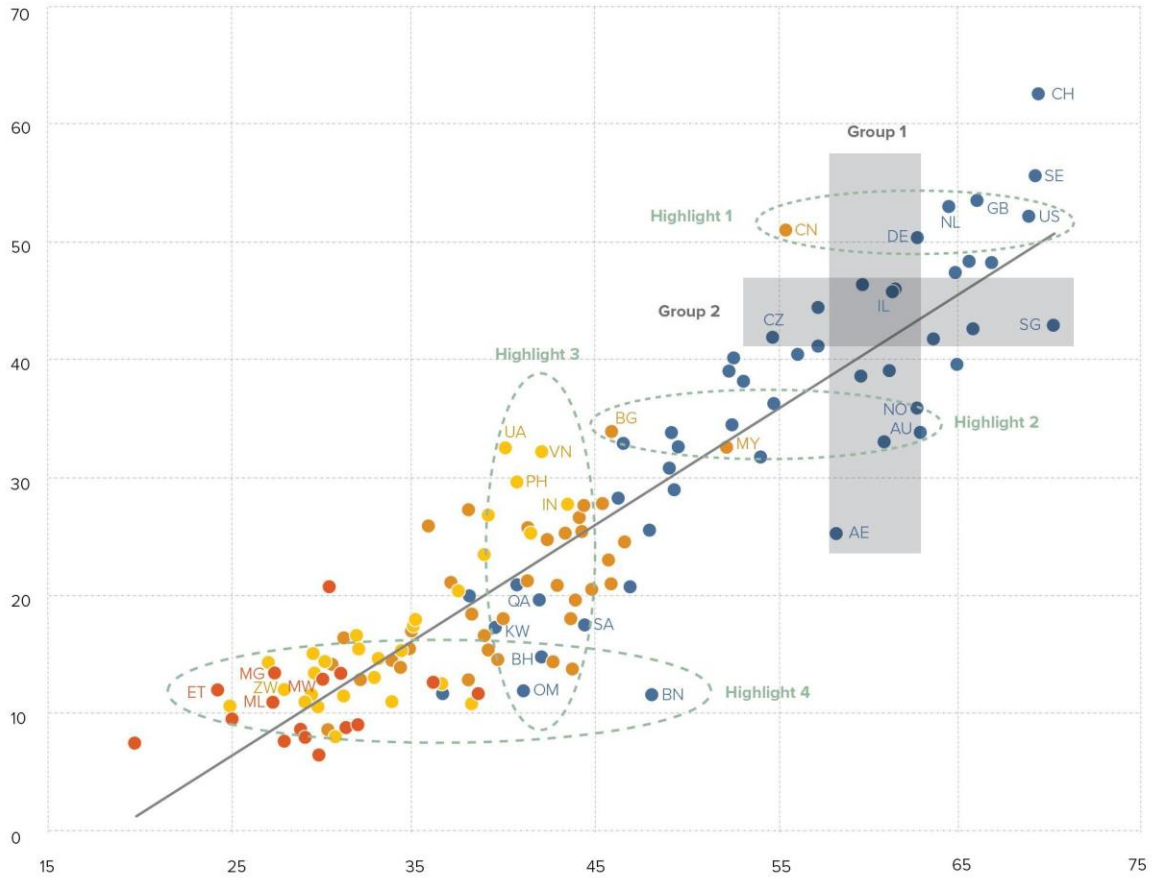


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance, 2020



▲ Output score
► Input score

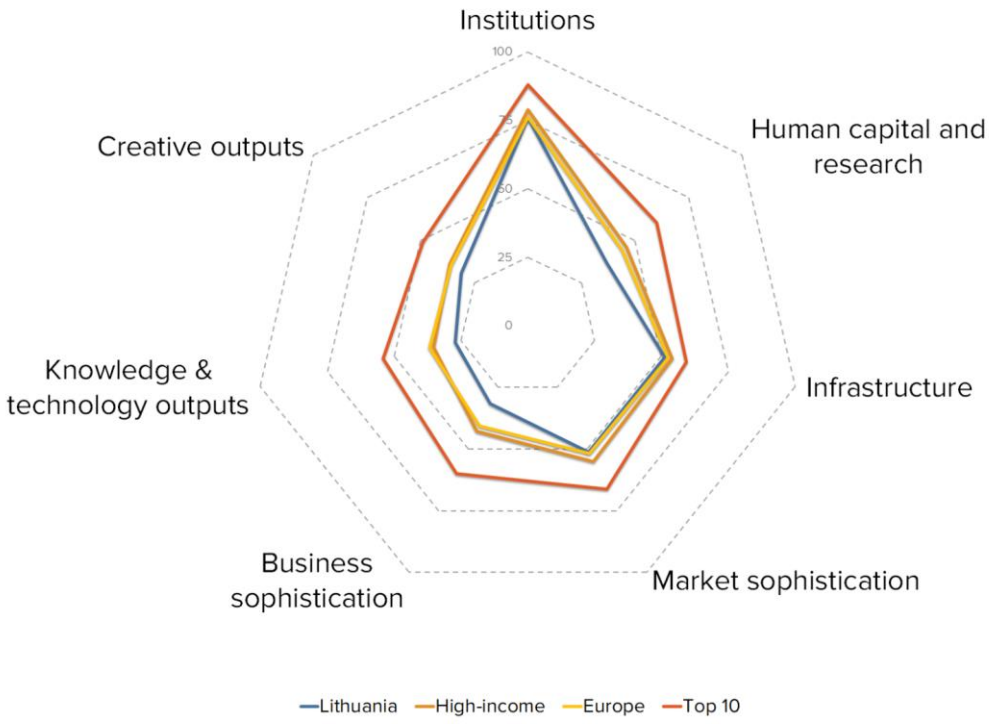
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

— 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 LITHUANIA AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

Lithuania's scores in the seven GII pillars



High-income group economies

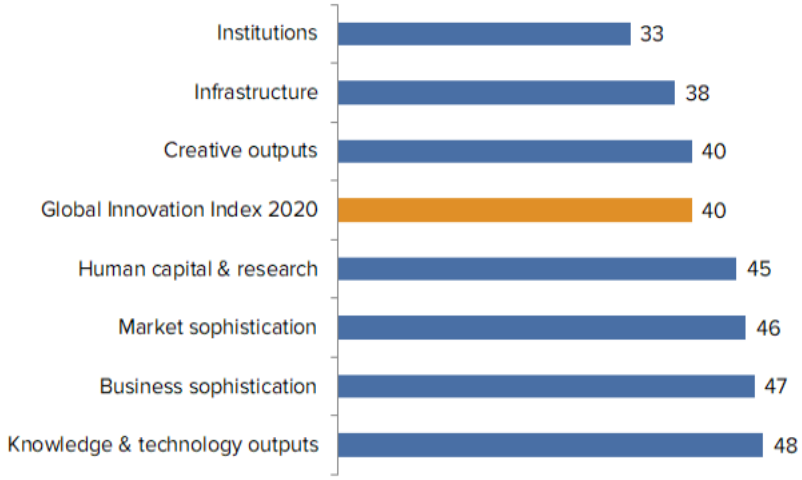
Lithuania scores below average for its income group in all seven of the GII pillars.

Europe

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

OVERVIEW OF LITHUANIA RANKINGS IN THE SEVEN GII AREAS

Lithuania performs best in Institutions and its weakest performance is in Knowledge & technology outputs.



*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 Lithuania in the GII 2020.

Strengths

Code	Indicator name	Rank
2.1.3	School life expectancy, years	21
2.1.5	Pupil-teacher ratio, secondary	9
3.3	Ecological sustainability	8
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	6
5.1.5	Females employed w/advanced degrees, %	4
5.2.3	GERD financed by abroad, % GDP	15
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	20
7.1.4	ICTs & organizational model creation†	21
7.3	Online creativity	21
7.3.2	Country-code TLDs/th pop. 15–69	21
7.3.3	Wikipedia edits/mn pop. 15–69	22
7.3.4	Mobile app creation/bn PPP$ GDP	8

Weaknesses

Code	Indicator name	Rank
2.3.3	Global R&D companies, top 3, mn US$	42
3.2	General infrastructure	98
3.2.1	Electricity output, GWh/mn pop	93
3.2.3	Gross capital formation, % GDP	105
4.1.2	Domestic credit to private sector, % GDP	80
5.2.2	State of cluster development†	92
5.3	Knowledge absorption	85
5.3.1	Intellectual property payments, % total trade	91
5.3.2	High-tech imports, % total trade	94
5.3.3	ICT services imports, % total trade	86
6.2.3	Computer software spending, % GDP	96
7.1.2	Global brand value, top 5,000, % GDP	80

STRENGTHS

GII strengths for Lithuania are found in five of the seven GII pillars.

- Human capital & research (45): shows strengths in the indicators School life expectancy (21) and Pupil–teacher ratio (9).
- Infrastructure (38): demonstrates strengths in the sub-pillar Ecological sustainability (8) and in the indicator ISO 14001 environmental certificates (6).
- Business sophistication (47): displays strengths in the indicators Females employed w/advanced degrees (4) and GERD financed by abroad (15).
- Knowledge & technology outputs (48): the indicator ISO 9001 quality certificates (20) reveals a strength.
- Creative outputs (40): exhibits strengths in the sub-pillar Online creativity (21) and in the indicators ICTs & organizational model creation (21), Country-code TLDs (21), Wikipedia edits (22) and Mobile app creation (8).

WEAKNESSES

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

- Human capital & research (45): the indicator Global R&D companies (42) reveals a weakness.
- Infrastructure (38): displays weaknesses in the sub-pillar General infrastructure (98) and in the indicators Electricity output (93) and Gross capital formation (105).
- Market sophistication (46): the indicator Domestic credit to private sector (80) demonstrates a weakness.
- Business sophistication (47): shows weaknesses in the sub-pillar Knowledge absorption (85) and in the indicators State of cluster development (92), Intellectual property payments (91), High-tech imports (94) and ICT services imports (86).
- Knowledge & technology outputs (48): displays a weakness in the indicator Computer software spending (96).
- Creative outputs (40): reveals a weakness in the indicator Global brand value (80).

LITHUANIA

GII 2020 rank

40

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
42	36	High	EUR	2.8	102.2	32,040.8	38

		Score/Value	Rank	
INSTITUTIONS		**76.0**	**33**	
1.1	**Political environment**	**77.4**	**29**	
1.1.1	Political and operational stability*	83.9	21	
1.1.2	Government effectiveness*	74.1	31	
1.2	**Regulatory environment**	**80.7**	**29**	
1.2.1	Regulatory quality*	71.2	29	
1.2.2	Rule of law*	71.6	31	
1.2.3	Cost of redundancy dismissal, salary weeks	13.0	41	
1.3	**Business environment**	**70.0**	**71**	
1.3.1	Ease of starting a business*	93.3	32	
1.3.2	Ease of resolving insolvency*	46.7	81	◇
HUMAN CAPITAL & RESEARCH		**36.9**	**45**	
2.1	**Education**	**49.2**	**55**	
2.1.1	Expenditure on education, % GDP ⊙	4.0	72	
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.7	63	
2.1.3	School life expectancy, years	16.6	21	●
2.1.4	PISA scales in reading, maths, & science	479.7	32	
2.1.5	Pupil-teacher ratio, secondary ⊙	7.8	9	● ◆
2.2	**Tertiary education**	**42.7**	**35**	
2.2.1	Tertiary enrolment, % gross	72.4	24	
2.2.2	Graduates in science & engineering, %	25.7	32	
2.2.3	Tertiary inbound mobility, %	4.6	48	
2.3	**Research & development (R&D)**	**18.8**	**45**	
2.3.1	Researchers, FTE/mn pop	3,131.8	30	
2.3.2	Gross expenditure on R&D, % GDP	0.9	41	
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	0.0	42	○ ◇
2.3.4	QS university ranking, average score top 3*	20.1	53	
INFRASTRUCTURE		**51.3**	**38**	
3.1	**Information & communication technologies (ICTs)**	**77.4**	**39**	
3.1.1	ICT access*	74.4	45	
3.1.2	ICT use*	75.1	30	
3.1.3	Government's online service*	79.9	45	
3.1.4	E-participation*	80.3	51	
3.2	**General infrastructure**	**19.9**	**98**	○ ◇
3.2.1	Electricity output, kWh/mn pop	1,065.2	93	○ ◇
3.2.2	Logistics performance*	44.5	53	◇
3.2.3	Gross capital formation, % GDP	18.8	105	○
3.3	**Ecological sustainability**	**56.5**	**8**	● ◆
3.3.1	GDP/unit of energy use	10.5	48	
3.3.2	Environmental performance*	62.9	35	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	9.4	6	● ◆
MARKET SOPHISTICATION		**51.2**	**46**	
4.1	**Credit**	**43.2**	**59**	
4.1.1	Ease of getting credit*	70.0	44	
4.1.2	Domestic credit to private sector, % GDP	40.7	80	○ ◇
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	**Investment**	**44.5**	**35**	
4.2.1	Ease of protecting minority investors*	70.0	36	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Venture capital deals/bn PPP$ GDP	0.1	24	
4.3	**Trade, competition, and market scale**	**65.8**	**48**	
4.3.1	Applied tariff rate, weighted avg., %	1.7	22	
4.3.2	Intensity of local competition+	75.1	26	
4.3.3	Domestic market scale, bn PPP$	102.2	80	

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**31.5**	**47**	
5.1	**Knowledge workers**	**42.7**	**40**	
5.1.1	Knowledge-intensive employment, %	42.2	23	
5.1.2	Firms offering formal training, %	27.5	55	
5.1.3	GERD performed by business, % GDP	0.3	45	
5.1.4	GERD financed by business, %	35.4	50	
5.1.5	Females employed w/advanced degrees, %	28.1	4	● ◆
5.2	**Innovation linkages**	**27.8**	**37**	
5.2.1	University/industry research collaboration+	53.4	34	
5.2.2	State of cluster development+	40.8	92	○ ◇
5.2.3	GERD financed by abroad, % GDP	0.2	15	●
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.1	34	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.3	35	
5.3	**Knowledge absorption**	**24.0**	**85**	○ ◇
5.3.1	Intellectual property payments, % total trade	0.2	91	○ ◇
5.3.2	High-tech imports, % total trade	6.1	94	○
5.3.3	ICT services imports, % total trade	0.8	86	○
5.3.4	FDI net inflows, % GDP	2.1	77	
5.3.5	Research talent, % in business enterprise	30.4	42	
KNOWLEDGE & TECHNOLOGY OUTPUTS		**27.1**	**48**	
6.1	**Knowledge creation**	**22.4**	**46**	
6.1.1	Patents by origin/bn PPP$ GDP	1.2	61	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.3	40	
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	19.7	28	
6.1.5	Citable documents H-index	13.1	58	
6.2	**Knowledge impact**	**28.9**	**44**	
6.2.1	Growth rate of PPP$ GDP/worker, %	3.6	22	◆
6.2.2	New businesses/th pop. 15-64	3.3	41	
6.2.3	Computer software spending, % GDP	0.0	96	○ ◇
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	15.1	20	●
6.2.5	High- and medium-high-tech manufacturing, %	18.0	59	
6.3	**Knowledge diffusion**	**30.0**	**43**	
6.3.1	Intellectual property receipts, % total trade	0.1	61	
6.3.2	High-tech net exports, % total trade	5.8	27	
6.3.3	ICT services exports, % total trade	1.5	70	
6.3.4	FDI net outflows, % GDP	1.5	44	
CREATIVE OUTPUTS		**30.9**	**40**	
7.1	**Intangible assets**	**27.6**	**66**	
7.1.1	Trademarks by origin/bn PPP$ GDP	47.7	53	
7.1.2	Global brand value, top 5,000, % GDP	0.0	80	○ ◇
7.1.3	Industrial designs by origin/bn PPP$ GDP	2.9	39	
7.1.4	ICTs & organizational model creation+	68.4	21	●
7.2	**Creative goods and services**	**19.0**	**57**	
7.2.1	Cultural & creative services exports, % total trade	0.6	39	
7.2.2	National feature films/mn pop. 15-69	5.4	40	
7.2.3	Entertainment & Media market/th pop. 15-69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	1.1	51	
7.2.5	Creative goods exports, % total trade	1.6	33	
7.3	**Online creativity**	**49.3**	**21**	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	13.7	33	
7.3.2	Country-code TLDs/th pop. 15-69	31.2	21	●
7.3.3	Wikipedia edits/mn pop. 15-69	81.0	22	●
7.3.4	Mobile app creation/bn PPP$ GDP	72.1	8	● ◆

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 Lithuania.

Missing data

Code	Indicator name	Country year	Model year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
4.2.2	Market capitalization, % GDP	n/a	2018	World Federation of Exchanges
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2018	World Intellectual Property Organization
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2018	PwC

Outdated data

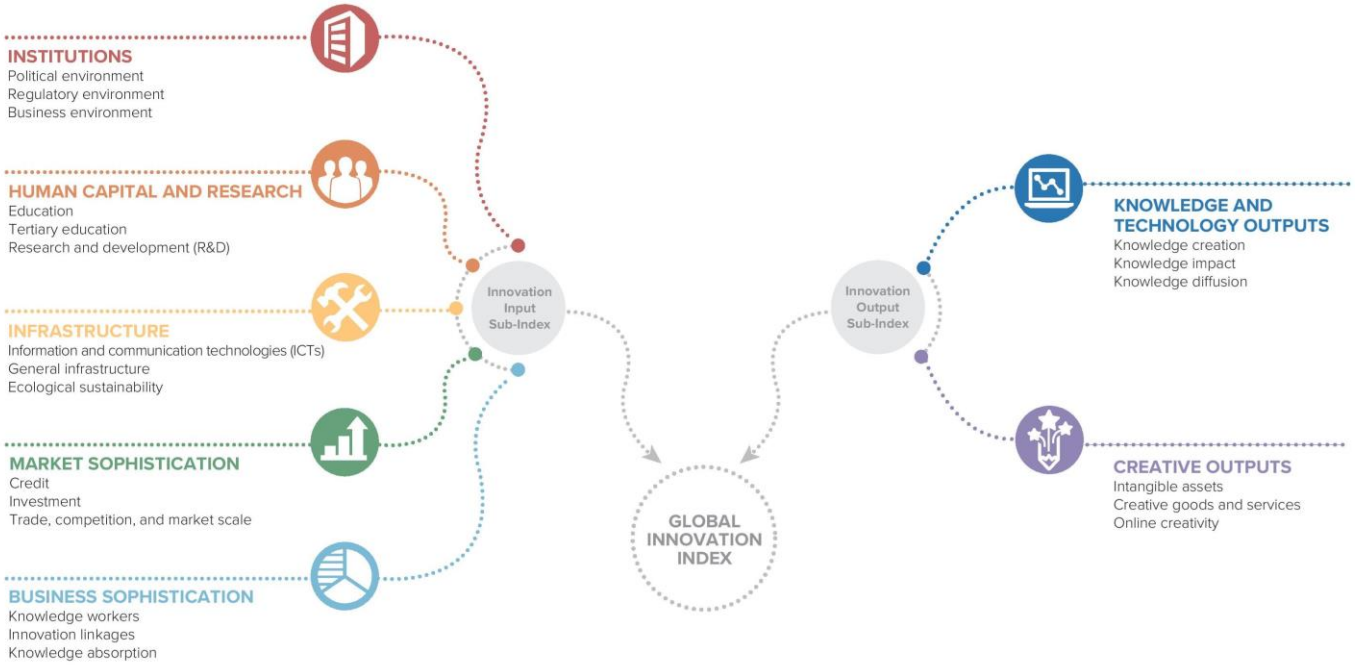
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2016	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2018	UNESCO Institute for Statistics

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.