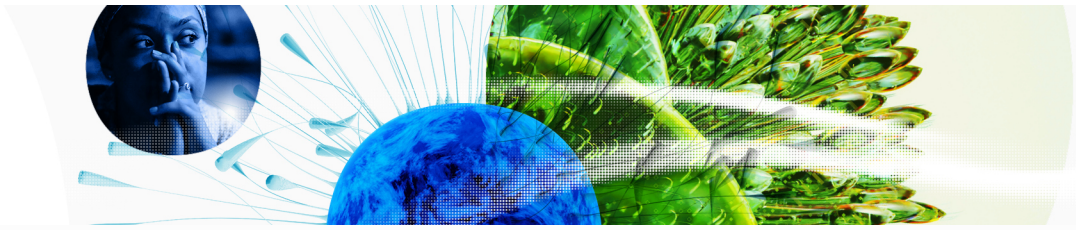
Global Innovation Index 2023



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

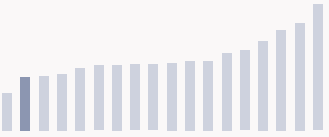
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

Lebanon ranking in the Global Innovation Index 2023

> Lebanon ranks 92nd among the 132 economies featured in the GII 2023.

> Lebanon ranks 15th among the 37 lower-middle-income group economies.

> Lebanon ranks 17th among the 18 economies in Northern Africa and Western Asia.



> Lebanon GII Ranking (2020-2023)

The table shows the rankings of Lebanon 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 Lebanon in the GII 2023 is between ranks 80 and 93.

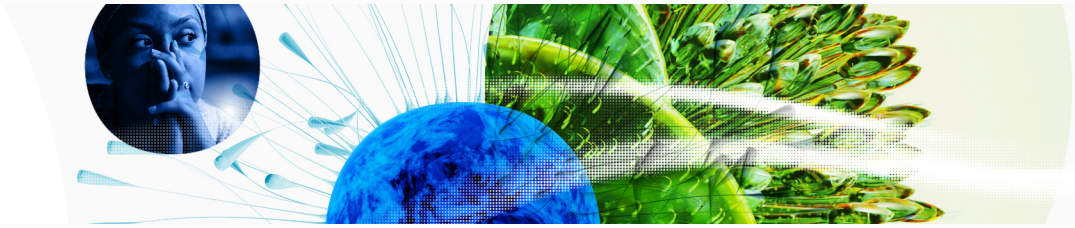
	GII Position	Innovation Inputs	Innovation Outputs
2020	87th	93rd	80th
2021	92nd	94th	97th
2022	n/a	n/a	n/a
2023	92nd	86th	95th

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

This year **Lebanon ranks 86th in innovation inputs.** This position is the same as last year.

Lebanon ranks 95th in innovation outputs. This position is the same as last year.

Global Innovation Index 2023

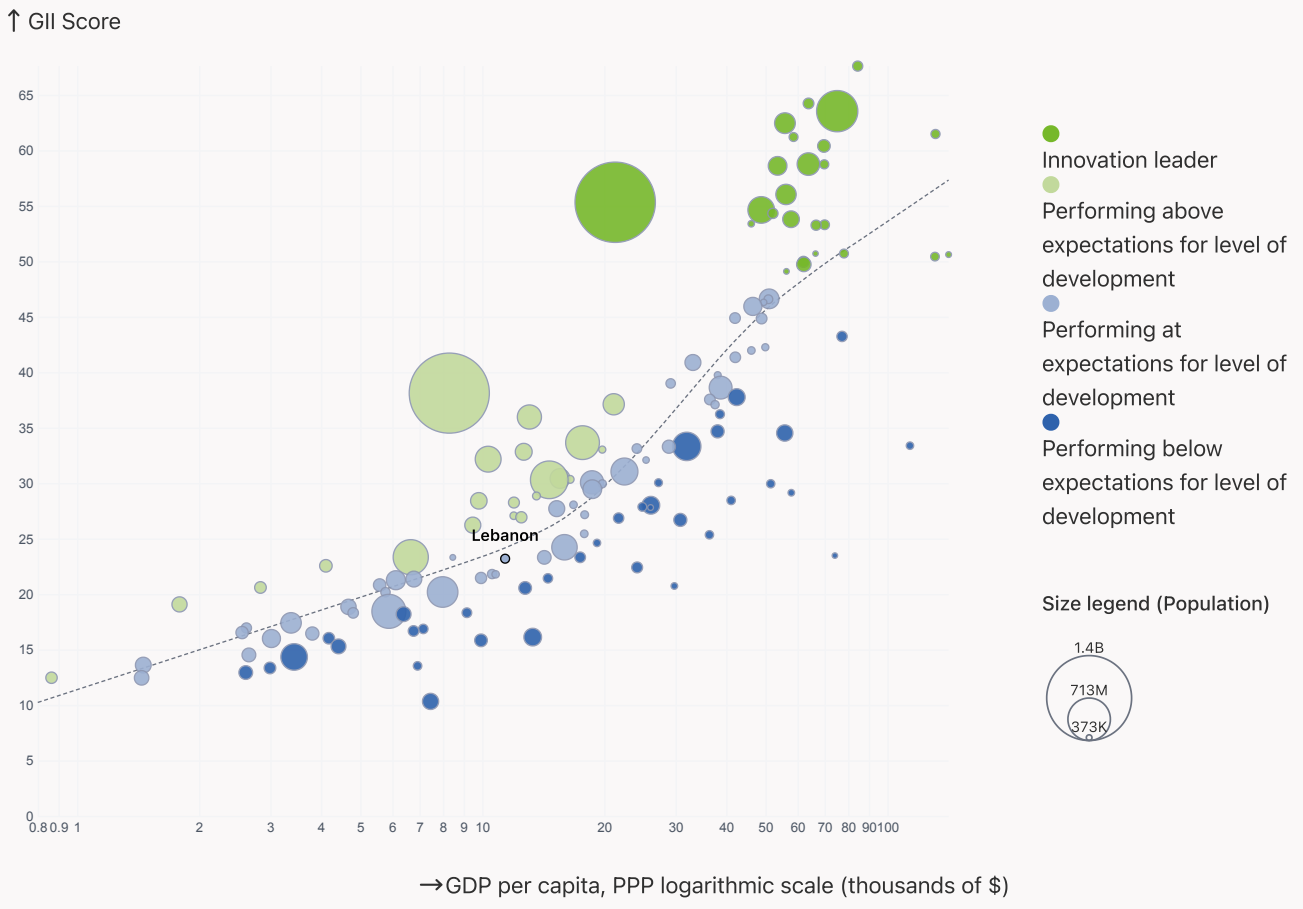


→ Expected vs. observed innovation performance

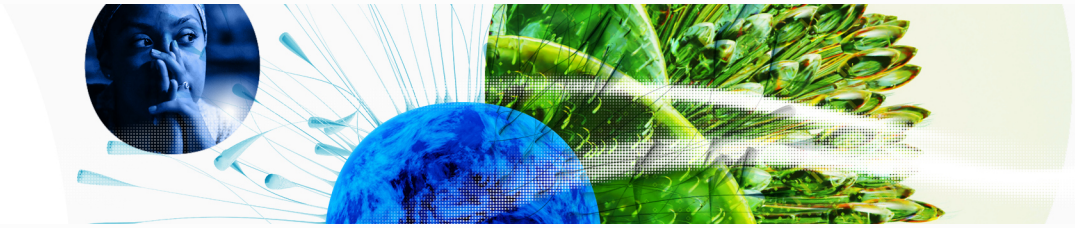
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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

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

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

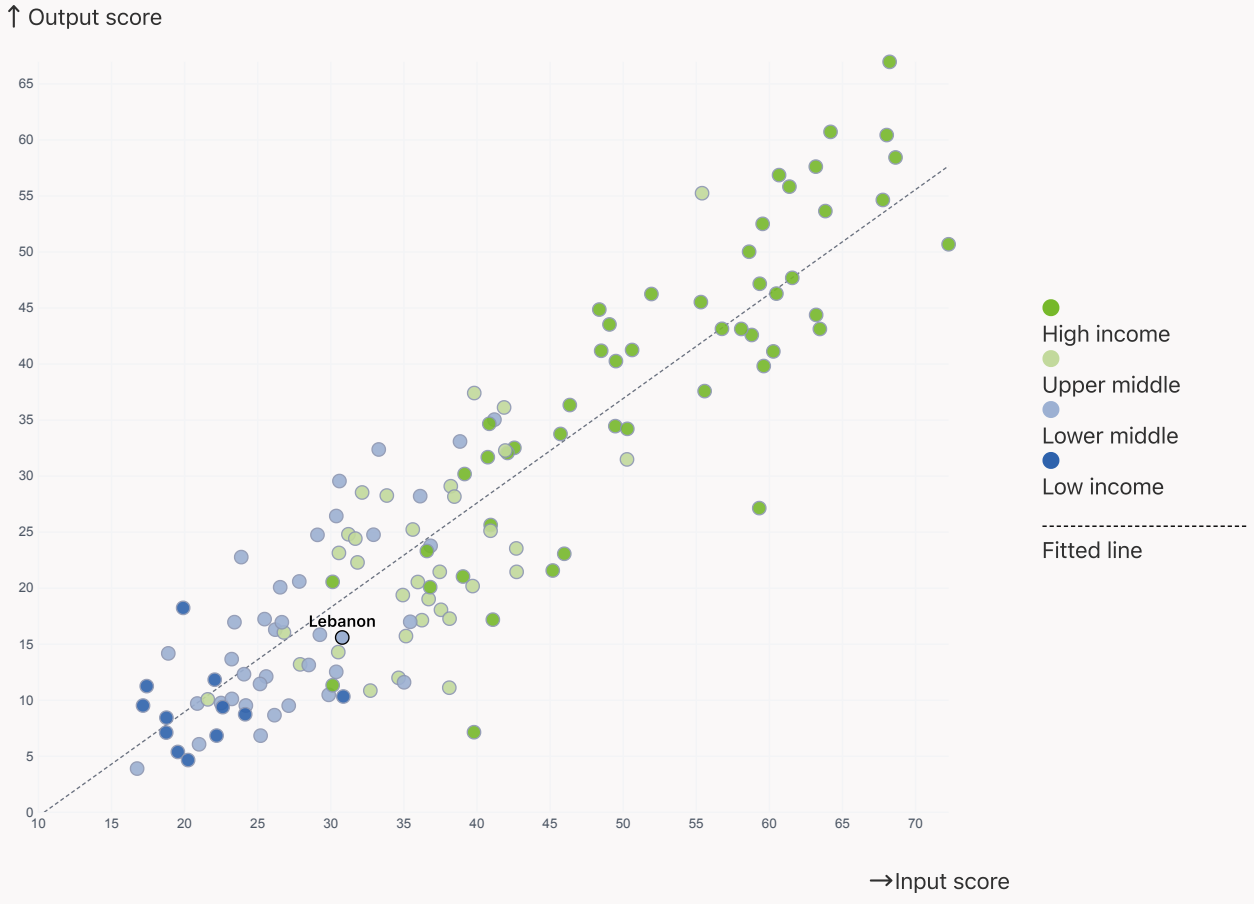


→ Effectively translating innovation investments into innovation outputs

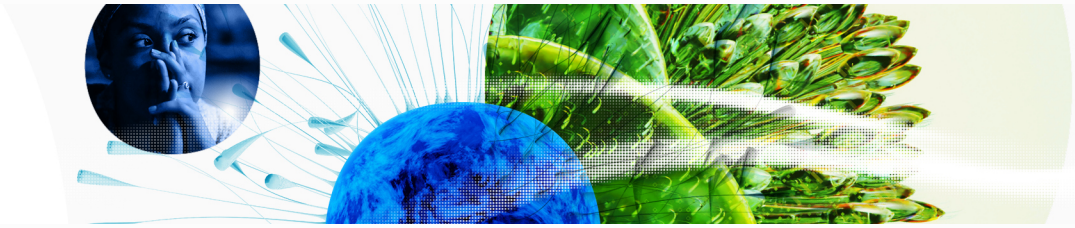
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

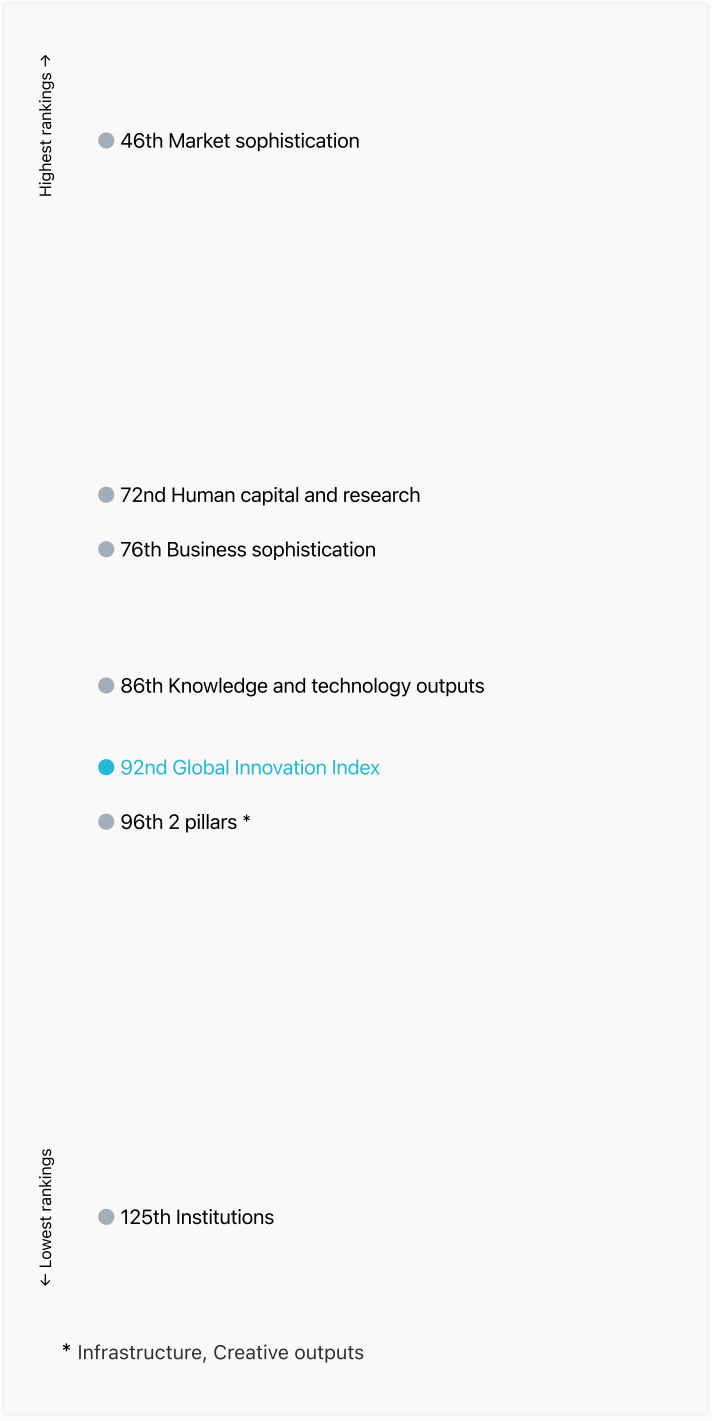


Global Innovation Index 2023



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



> Highest rankings

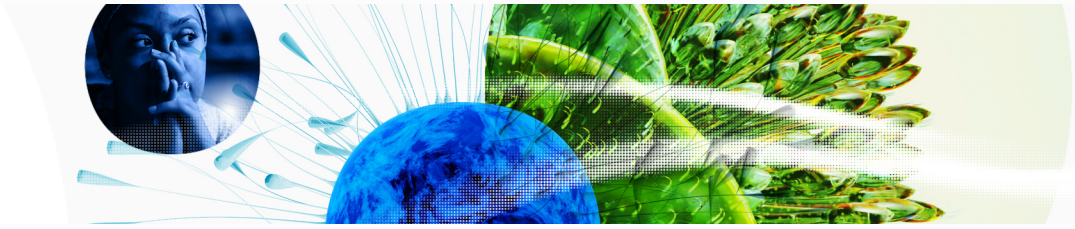
Lebanon ranks highest in Market sophistication (46th), Human capital and research (72nd), Business sophistication (76th) and Knowledge and technology outputs (86th).

> Lowest rankings

Lebanon ranks lowest in Institutions (125th), Infrastructure, Creative outputs (96th) and Knowledge and technology outputs (86th).

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

Global Innovation Index 2023



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

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

> Lower-Middle-Income economies

Lebanon performs above the lower-middle-income group average in Knowledge and technology outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure.

> Northern Africa And Western Asia

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

Knowledge and technology outputs

- Top 10 | Score: 58.96
- NAWA | Score: 24.01
- Lebanon | Score: 17.32
- Lower middle income | Score: 17.21

Creative outputs

- Top 10 | 56.09
- NAWA | 24.51
- Lower middle income | 16.35
- Lebanon | 13.77

Business sophistication

- Top 10 | 64.39
- NAWA | 29.44
- Lebanon | 25.75
- Lower middle income | 22.71

Market sophistication

- Top 10 | 61.93
- Lebanon | 39.60
- NAWA | 36.12
- Lower middle income | 28.01

Human capital and research

- Top 10 | 60.28
- NAWA | 32.72
- Lebanon | 29.88
- Lower middle income | 21.73

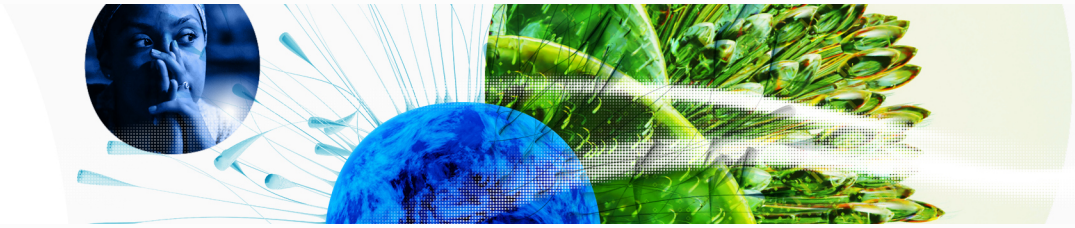
Infrastructure

- Top 10 | 62.83
- NAWA | 41.60
- Lebanon | 29.35
- Lower middle income | 27.83

Institutions

- Top 10 | 79.85
- NAWA | 53.39
- Lower middle income | 39.43
- Lebanon | 29.56

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Lebanon

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

> Lebanon's main innovation strengths are **Pupil-teacher ratio, secondary** (rank 6), **Cultural and creative services exports, % total trade** (rank 7) and **Finance for startups and scaleups** (rank 14).

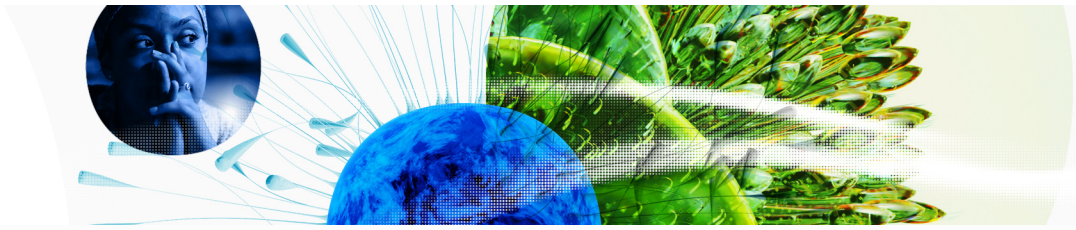
Strengths

Rank	Code	Indicator name
6	2.1.5	Pupil-teacher ratio, secondary
7	7.2.1	Cultural and creative services exports, % total trade
14	4.1.1	Finance for startups and scaleups
18	2.2.3	Tertiary inbound mobility, %
20	1.2.3	Cost of redundancy dismissal
24	6.1.4	Scientific and technical articles/bn PPP$ GDP
25	7.3.4	Mobile app creation/bn PPP$ GDP
25	4.1.2	Domestic credit to private sector, % GDP
27	2.2.2	Graduates in science and engineering, %
35	5.3.4	FDI net inflows, % GDP

Weaknesses

Rank	Code	Indicator name
132	1.1.1	Operational stability for businesses
131	1.1.2	Government effectiveness
131	6.2.1	Labor productivity growth, %
125	1.3.1	Policies for doing business
122	1.2.2	Rule of law
74	7.1.3	Global brand value, top 5,000
73	2.1.4	PISA scales in reading, maths and science
48	6.2.2	Unicorn valuation, % GDP
40	2.3.3	Global corporate R&D investors, top 3, mn US$

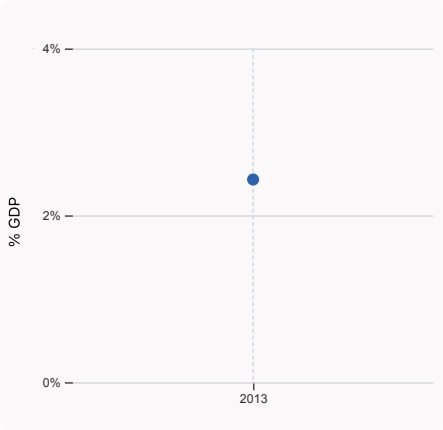
Global Innovation Index 2023



→ Lebanon's innovation system

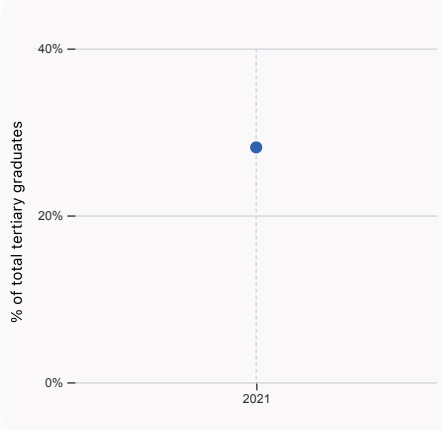
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Lebanon



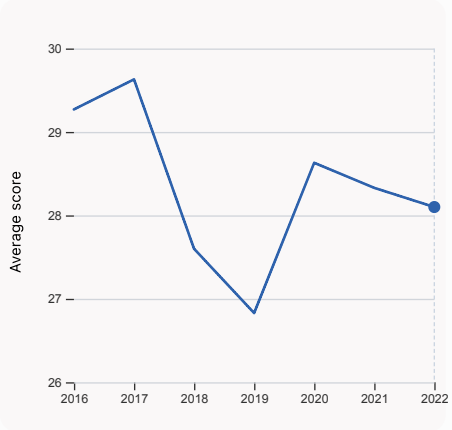
2.1.1 Expenditure on education, % GDP

was equal to 2.43 % GDP in 2013, equivalent to an indicator rank of 114.



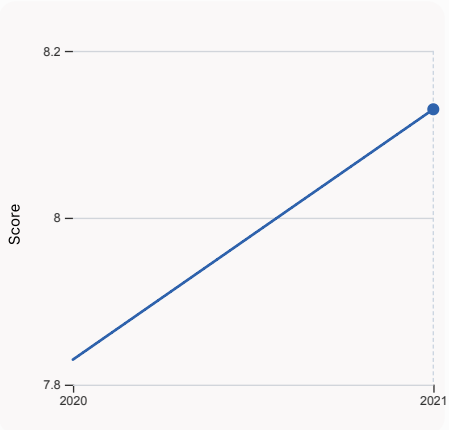
2.2.2 Graduates in science and engineering, %

was equal to 28.15 % of total tertiary graduates in 2021, equivalent to an indicator rank of 27.



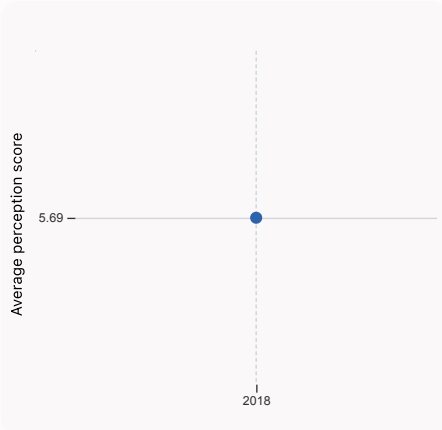
2.3.4 QS university ranking, top 3

was equal to an average score of 28.1 for the top 3 universities in 2022, down by 0.81% from the year prior – and equivalent to an indicator rank of 43.



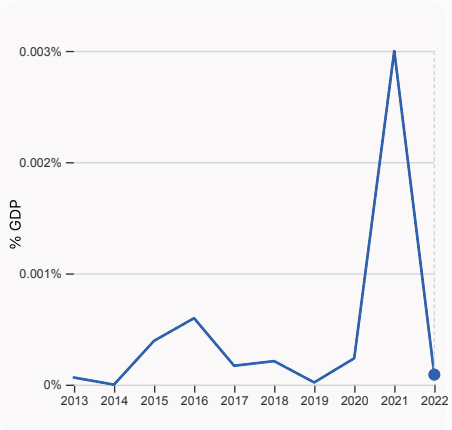
3.1.1 ICT access

was equal to a score of 8.13 in 2021, up by 3.83% from the year prior – and equivalent to an indicator rank of 87.



4.1.1 Finance for startups and scaleups

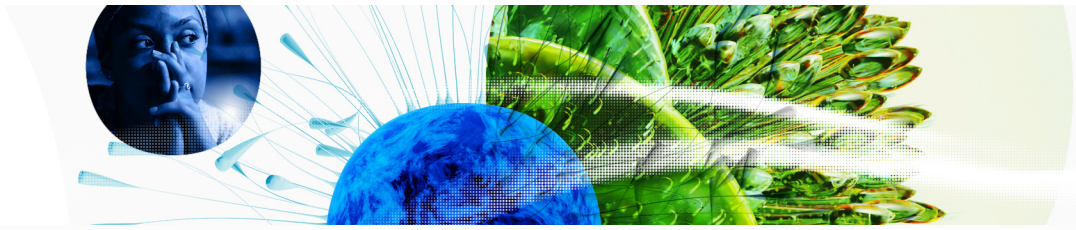
was equal to an average perception score of 5.69 in 2018, equivalent to an indicator rank of 14.

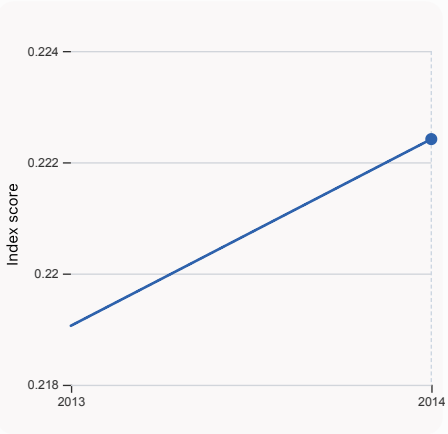


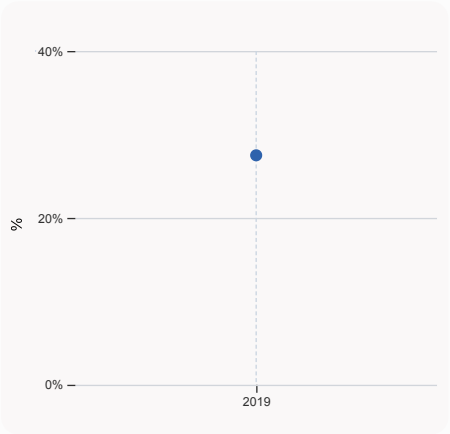
4.2.4 VC received, value, % GDP

was equal to 0.00009% GDP in 2022, down by 0.0029 percentage points from the year prior.

Global Innovation Index 2023







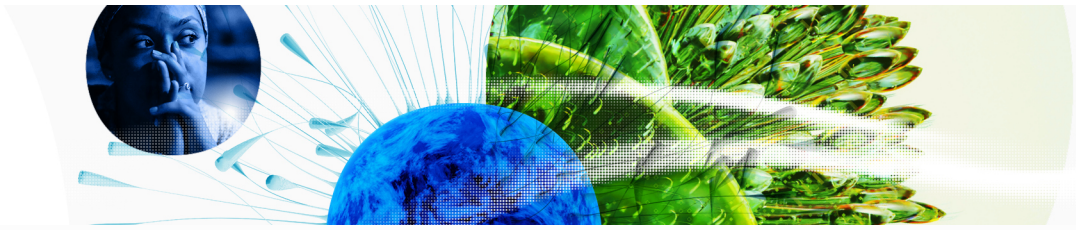
4.3.2 Domestic industry diversification

was equal to an index score of 0.222 in 2014, up by 1.53% from the year prior – and equivalent to an indicator rank of 75.

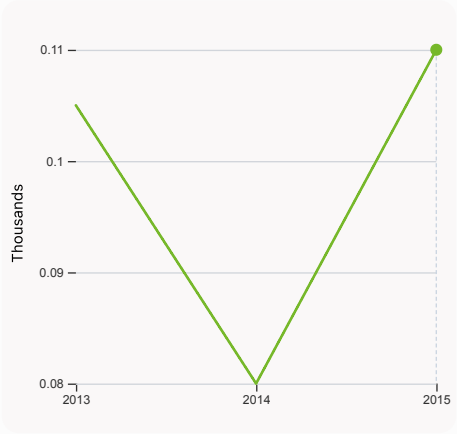
5.1.1 Knowledge-intensive employment, %

was equal to 27.5 % in 2019, equivalent to an indicator rank of 52.

Global Innovation Index 2023

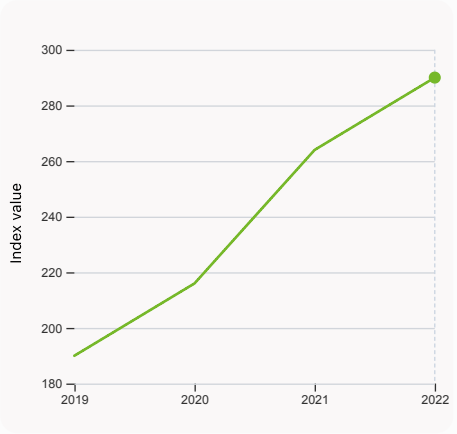


> Innovation outputs in Lebanon



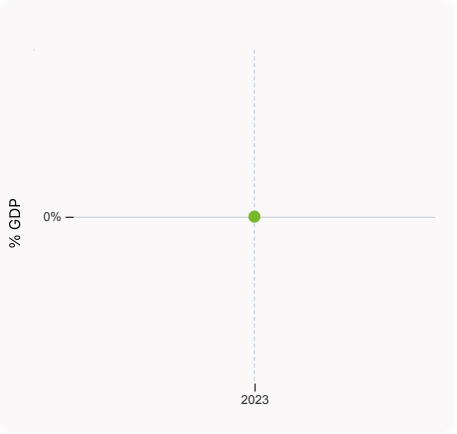
6.1.1 Patents by origin

was equal to 0.11 Thousands in 2015, up by 37.5% from the year prior – and equivalent to an indicator rank of 56.



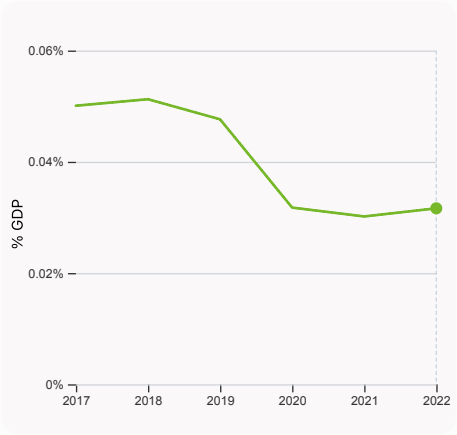
6.1.5 Citable documents H-index

was equal to an index value of 290 in 2022, up by 9.85% from the year prior – and equivalent to an indicator rank of 61.



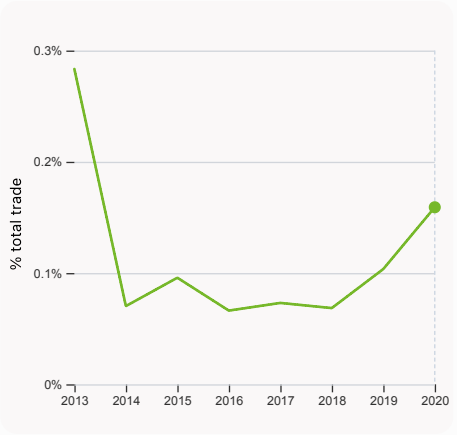
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.



6.2.3 Software spending, % GDP

was equal to 0.032% GDP in 2022, up by 0.0015 percentage points from the year prior – and equivalent to an indicator rank of 113.



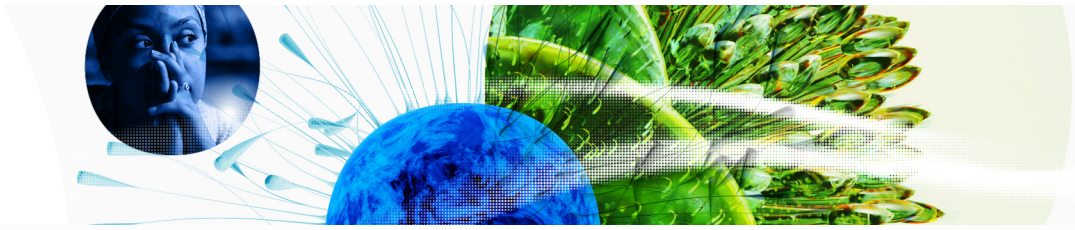
6.3.1 Intellectual property receipts, % total trade

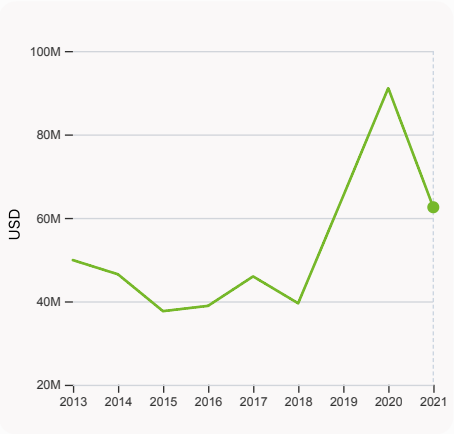
was equal to 0.159% total trade in 2020, up by 0.056 percentage points from the year prior – and equivalent to an indicator rank of 55.

6.3.2 Production and export complexity

was equal to a score of 0.329 in 2020, up by 28.012% from the year prior – and equivalent to an indicator rank of 47.

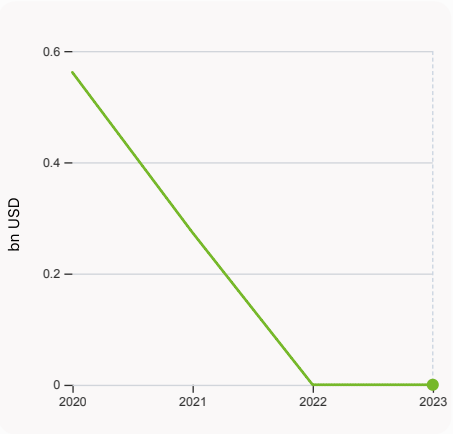
Global Innovation Index 2023





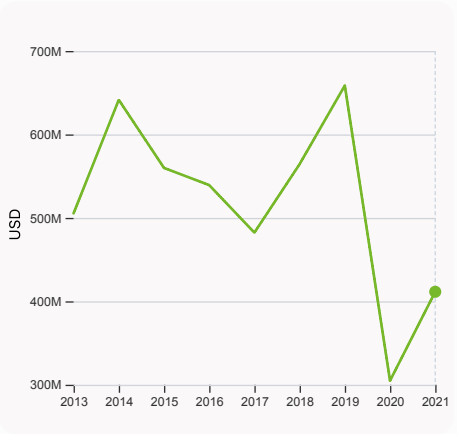
6.3.3 High-tech exports

was equal to 62,546,714 USD in 2021, down by 31.35% from the year prior – and equivalent to an indicator rank of 94.



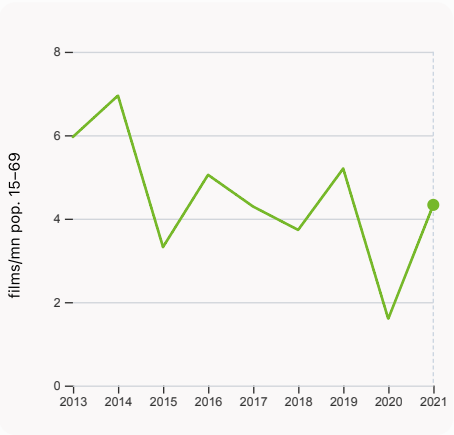
7.1.3 Global brand value, top 5,000

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



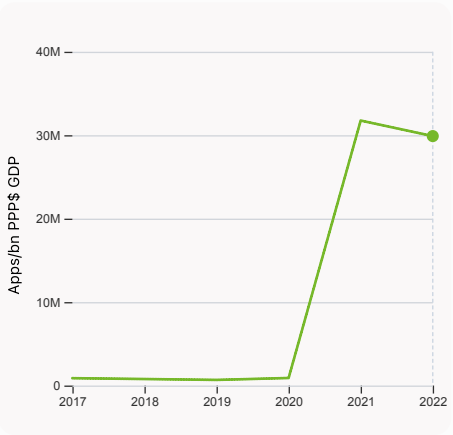
7.2.1 Cultural and creative services exports

was equal to 411,443,000 USD in 2021, up by 34.95% from the year prior – and equivalent to an indicator rank of 7.



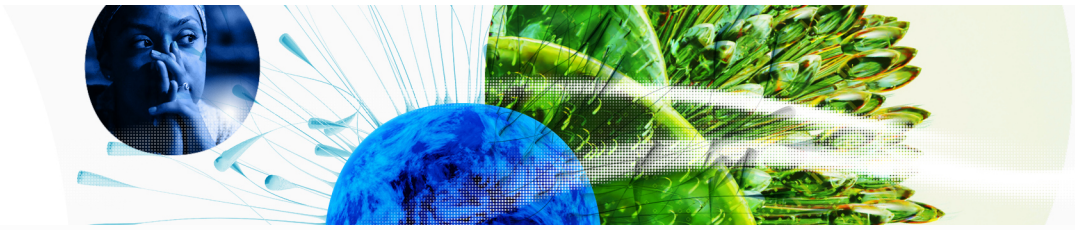
7.2.2 National feature films/mn pop. 15-69

was equal to 4.33 films/mn pop. 15–69 in 2021, up by 170.62% from the year prior – and equivalent to an indicator rank of 29.



7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 29,894,035 Apps/bn PPP$ GDP in 2022, down by 5.86% from the year prior.



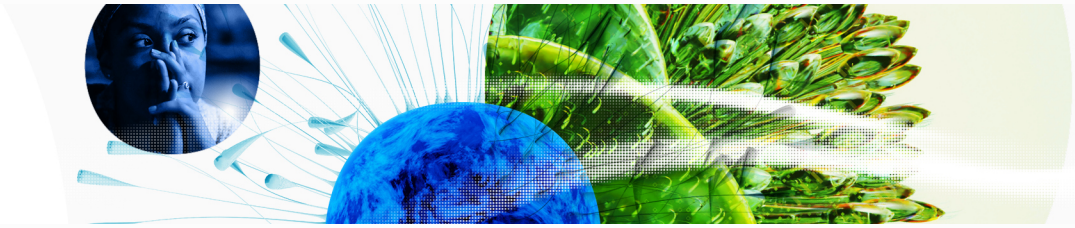
→ Lebanon's innovation top performers

> 2.3.4 QS university ranking of Lebanon's top universities

Rank	University	Score
252	AMERICAN UNIVERSITY OF BEIRUT (AUB)	38.40
531-540	UNIVERSITY OF BALAMAND	23.00
531-540	SAINT JOSEPH UNIVERSITY OF BEIRUT (USJ)	22.90

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".

Global Innovation Index 2023



Lebanon

GII 2023 rank **92**

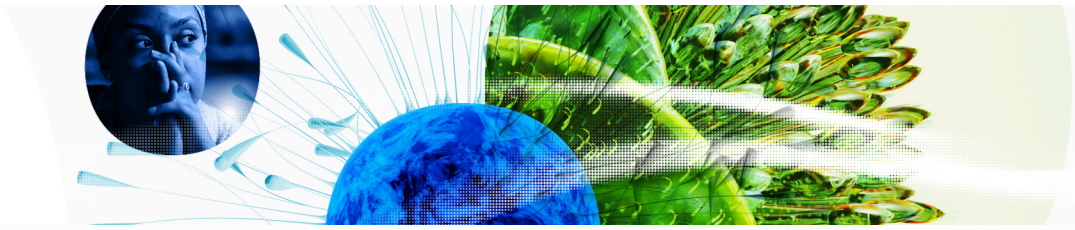
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
95	86	Lower middle	NAWA	5.5	n/a	n/a

	Score / Value	Rank
Institutions	**29.6**	**125**
1.1 Institutional environment	**0.6**	**132** ◇
1.1.1 Operational stability for businesses*	0.0	132 ○ ◇
1.1.2 Government effectiveness*	1.2	131 ○ ◇
1.2 Regulatory environment	**56.2**	**86**
1.2.1 Regulatory quality*	19.2	119
1.2.2 Rule of law*	8.3	122 ○ ◇
1.2.3 Cost of redundancy dismissal	8.7	20 ●
1.3 Business environment	**31.9**	**95**
1.3.1 Policies for doing business†	11.4	125 ○ ◇
1.3.2 Entrepreneurship policies and culture†	52.3	30
Human capital and research	**29.9**	**72**
2.1 Education	**31.2**	**118**
2.1.1 Expenditure on education, % GDP	2.4	114
2.1.2 Government funding/pupil, secondary, % GDP/cap	6.1	98
2.1.3 School life expectancy, years	n/a	n/a
2.1.4 PISA scales in reading, maths and science	376.8	73 ○
2.1.5 Pupil-teacher ratio, secondary	7.7	6 ●
2.2 Tertiary education	**44.2**	**22**
2.2.1 Tertiary enrolment, % gross	n/a	n/a
2.2.2 Graduates in science and engineering, %	28.1	27 ●
2.2.3 Tertiary inbound mobility, %	12.4	18 ●
2.3 Research and development (R&D)	**14.2**	**50**
2.3.1 Researchers, FTE/mn pop.	n/a	n/a
2.3.2 Gross expenditure on R&D, % GDP	n/a	n/a
2.3.3 Global corporate R&D investors, top 3, mn US$	0.0	40 ○ ◇
2.3.4 QS university ranking, top 3*	28.5	43
Infrastructure	**29.3**	**96**
3.1 Information and communication technologies (ICTs)	**51.4**	**96**
3.1.1 ICT access*	71.9	87
3.1.2 ICT use*	58.8	94
3.1.3 Government's online service*	36.5	114
3.1.4 E-participation*	38.4	90
3.2 General infrastructure	**13.5**	**112**
3.2.1 Electricity output, GWh/mn pop.	2,669.6	69
3.2.2 Logistics performance*	n/a	n/a
3.2.3 Gross capital formation, % GDP	n/a	n/a
3.3 Ecological sustainability	**23.1**	**70**
3.3.1 GDP/unit of energy use	10.3	62
3.3.2 Environmental performance*	22.5	102
3.3.3 ISO 14001 environment/bn PPP$ GDP	n/a	n/a
Market sophistication	**39.6**	**46**
4.1 Credit	**57.0**	**22**
4.1.1 Finance for startups and scaleups†	74.0	14 ●
4.1.2 Domestic credit to private sector, % GDP	106.6	25 ●
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a
4.2 Investment	**7.4**	**62**
4.2.1 Market capitalization, % GDP	17.9	62
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.2	30
4.2.3 VC recipients, deals/bn PPP$ GDP	0.0	49
4.2.4 VC received, value, % GDP	0.0	71
4.3 Trade, diversification, and market scale	**54.5**	**78**
4.3.1 Applied tariff rate, weighted avg., %	2.8	70
4.3.2 Domestic industry diversification	80.2	75
4.3.3 Domestic market scale, bn PPP$	77.7	92

	Score / Value	Rank
Business sophistication	**25.7**	**76**
5.1 Knowledge workers	**35.8**	**58**
5.1.1 Knowledge-intensive employment, %	27.5	52
5.1.2 Firms offering formal training, %	20.8	77
5.1.3 GERD performed by business, % GDP	n/a	n/a
5.1.4 GERD financed by business, %	n/a	n/a
5.1.5 Females employed w/advanced degrees, %	14.6	51
5.2 Innovation linkages	**17.1**	**89**
5.2.1 University-industry R&D collaboration†	35.2	86
5.2.2 State of cluster development†	28.1	99
5.2.3 GERD financed by abroad, % GDP	n/a	n/a
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	84
5.2.5 Patent families/bn PPP$ GDP	0.0	73
5.3 Knowledge absorption	**24.4**	**108**
5.3.1 Intellectual property payments, % total trade	0.1	105
5.3.2 High-tech imports, % total trade	5.1	113
5.3.3 ICT services imports, % total trade	0.9	89
5.3.4 FDI net inflows, % GDP	3.8	35 ●
5.3.5 Research talent, % in businesses	n/a	n/a
Knowledge and technology outputs	**17.3**	**86**
6.1 Knowledge creation	**29.5**	**33**
6.1.1 Patents by origin/bn PPP$ GDP	1.1	56
6.1.2 PCT patents by origin/bn PPP$ GDP	n/a	n/a
6.1.3 Utility models by origin/bn PPP$ GDP	n/a	n/a
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a
6.1.5 Citable documents H-index	13.7	61
6.2 Knowledge impact	**0.8**	**132** ◇
6.2.1 Labor productivity growth, %	-4.9	131 ○ ◇
6.2.2 Unicorn valuation, % GDP	0.0	48 ○ ◇
6.2.3 Software spending, % GDP	0.0	113 ◇
6.2.4 High-tech manufacturing, %	n/a	n/a
6.3 Knowledge diffusion	**21.6**	**68**
6.3.1 Intellectual property receipts, % total trade	0.1	55
6.3.2 Production and export complexity	59.4	47
6.3.3 High-tech exports, % total trade	0.4	94
6.3.4 ICT services exports, % total trade	2.0	58
6.3.5 ISO 9001 quality/bn PPP$ GDP	n/a	n/a
Creative outputs	**13.8**	**96**
7.1 Intangible assets	**3.8**	**122**
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a
7.1.2 Trademarks by origin/bn PPP$ GDP	12.7	105
7.1.3 Global brand value, top 5,000	0.0	74 ○ ◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	n/a	n/a
7.2 Creative goods and services	**24.4**	**43**
7.2.1 Cultural and creative services exports, % total trade	2.7	7 ●
7.2.2 National feature films/mn pop. 15-69	4.3	29
7.2.3 Entertainment and media market/th pop. 15-69	0.5	56
7.2.4 Creative goods exports, % total trade	1.3	39
7.3 Online creativity	**23.0**	**57**
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	8.8	44
7.3.2 Country-code TLDs/th pop. 15-69	0.3	107
7.3.3 GitHub commits/mn pop. 15-69	8.2	56
7.3.4 Mobile app creation/bn PPP$ GDP	74.8	25 ●

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.

Global Innovation Index 2023



→ Data availability

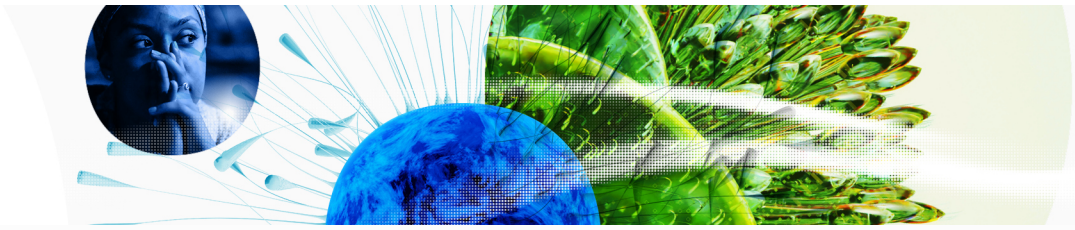
The following tables list indicators that are either missing or outdated for Lebanon.

> Lebanon has missing data for eighteen indicators and outdated data for twenty seven indicators.

> Missing data for Lebanon

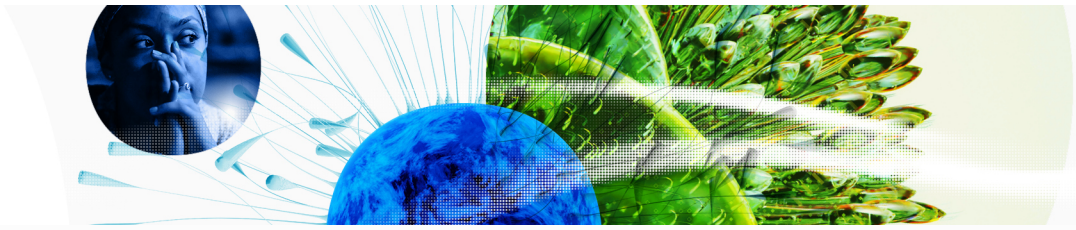
Code	Indicator name	Economy Year	Model Year	Source
2.1.3	School life expectancy, years	n/a	2020	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	n/a	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.2	Logistics performance	n/a	2023	World Bank, Logistics Performance Index 2023 (https://lpi.worldbank.org/); and World Bank 2023, Connecting to Compete 2023: Trade Logistics in the Global Economy ÔÇô The Logistics Performance Index and its Indicators.
3.2.3	Gross capital formation, % GDP	n/a	2022	International Monetary Fund
3.3.3	ISO 14001 environment/bn PPP$ GDP	n/a	2021	International Organization for Standardization, ISO Survey of Certifications to Management System Standards, 2021; International Monetary Fund, World Economic Outlook Database, October 2022
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
5.1.3	GERD performed by business, % GDP	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	2022	World Intellectual Property Organization; International Monetary Fund
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
6.2.4	High-tech manufacturing, %	n/a	2020	United Nations Industrial Development Organization

Global Innovation Index 2023



Code	Indicator name	Economy Year	Model Year	Source
6.3.5	ISO 9001 quality/bn PPP$ GDP	n/a	2021	International Organization for Standardization, ISO Survey of Certifications to Management System Standards, 2021; International Monetary Fund, World Economic Outlook Database, October 2022
7.1.1	Intangible asset intensity, top 15, %	n/a	2022	Brand Finance
7.1.4	Industrial designs by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund

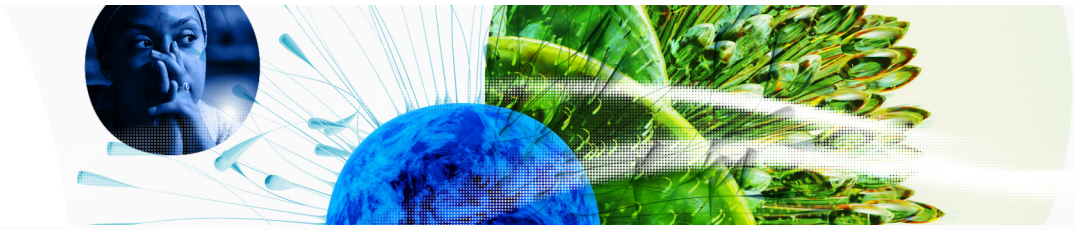
Global Innovation Index 2023



> Outdated data for Lebanon

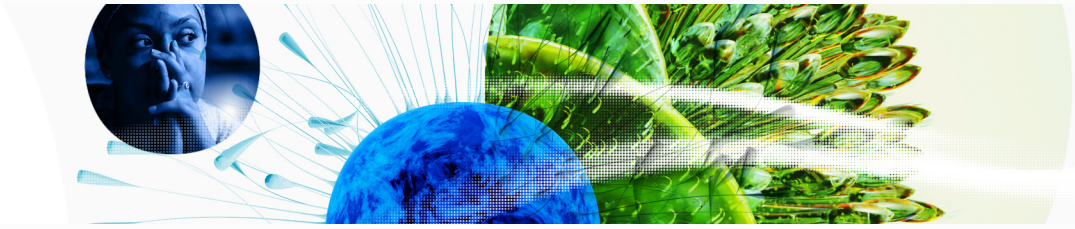
Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policies for doing business	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
1.3.2	Entrepreneurship policies and culture	2018	2022	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	2013	2021	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2013	2019	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2016	2020	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.1.1	Finance for startups and scaleups	2018	2022	Global Entrepreneurship Monitor
4.1.2	Domestic credit to private sector, % GDP	2017	2020	International Monetary Fund; World Bank and OECD GDP estimates.
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	2020	2022	Refinitiv; International Monetary Fund
4.2.3	VC recipients, deals/bn PPP$ GDP	2020	2022	Refinitiv; International Monetary Fund
4.2.4	VC received, value, % GDP	2020	2022	Refinitiv; International Monetary Fund
4.3.2	Domestic industry diversification	2014	2020	United Nations Industrial Development Organization
4.3.3	Domestic market scale, bn PPP$	2020	2022	International Monetary Fund
5.1.1	Knowledge-intensive employment, %	2019	2022	International Labour Organization
5.1.5	Females employed w/advanced degrees, %	2019	2022	International Labour Organization
5.2.1	University-industry R&D collaboration	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.2	State of cluster development	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	2020	2022	Refinitiv; International Monetary Fund
5.3.1	Intellectual property payments, % total trade	2020	2021	World Trade Organization and United Nations Conference on Trade and Development
5.3.3	ICT services imports, % total trade	2020	2021	World Trade Organization and United Nations Conference on Trade and Development
6.1.1	Patents by origin/bn PPP$ GDP	2015	2021	World Intellectual Property Organization; International Monetary Fund
6.1.4	Scientific and technical articles/bn PPP$ GDP	2020	2022	Clarivate; International Monetary Fund

Global Innovation Index 2023



Code	Indicator name	Economy Year	Model Year	Source
6.3.1	Intellectual property receipts, % total trade	2020	2021	World Trade Organization and United Nations Conference on Trade and Development
6.3.4	ICT services exports, % total trade	2020	2021	World Trade Organization and United Nations Conference on Trade and Development
7.1.2	Trademarks by origin/bn PPP$ GDP	2015	2021	World Intellectual Property Organization; International Monetary Fund
7.2.3	Entertainment and media market/th pop. 15-69	2020	2022	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund
7.3.4	Mobile app creation/bn PPP$ GDP	2020	2022	data.ia; International Monetary Fund

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.

Source: Global Innovation Index Database, WIPO, 2023.

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.