

# GLOBAL INNOVATION INDEX 2019

## LEBANON

**88th**

Lebanon ranks 88th among the 129 economies featured in the GII 2019.

The Global Innovation Index (GII) is a ranking of world economies based on 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 Lebanon over the past three years, noting that data availability and the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for Lebanon's ranking in the GII 2019 is between 76 and 90.

### Lebanon's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
<b>2019</b>	88	92	82
<b>2018</b>	90	87	94
<b>2017</b>	81	87	78

- Lebanon performs better in Innovation Outputs than Inputs in 2019.
- This year Lebanon ranks 92nd in Innovation Inputs, worse than last year and compared to 2017.
- As for Innovation Outputs, Lebanon ranks 82nd. This position is better than last year but worse compared to 2017.

**28th**

Lebanon ranks 28th among the 34 upper middle-income economies.

**16th**

Lebanon ranks 16th among the 19 economies in Northern Africa and Western Asia.

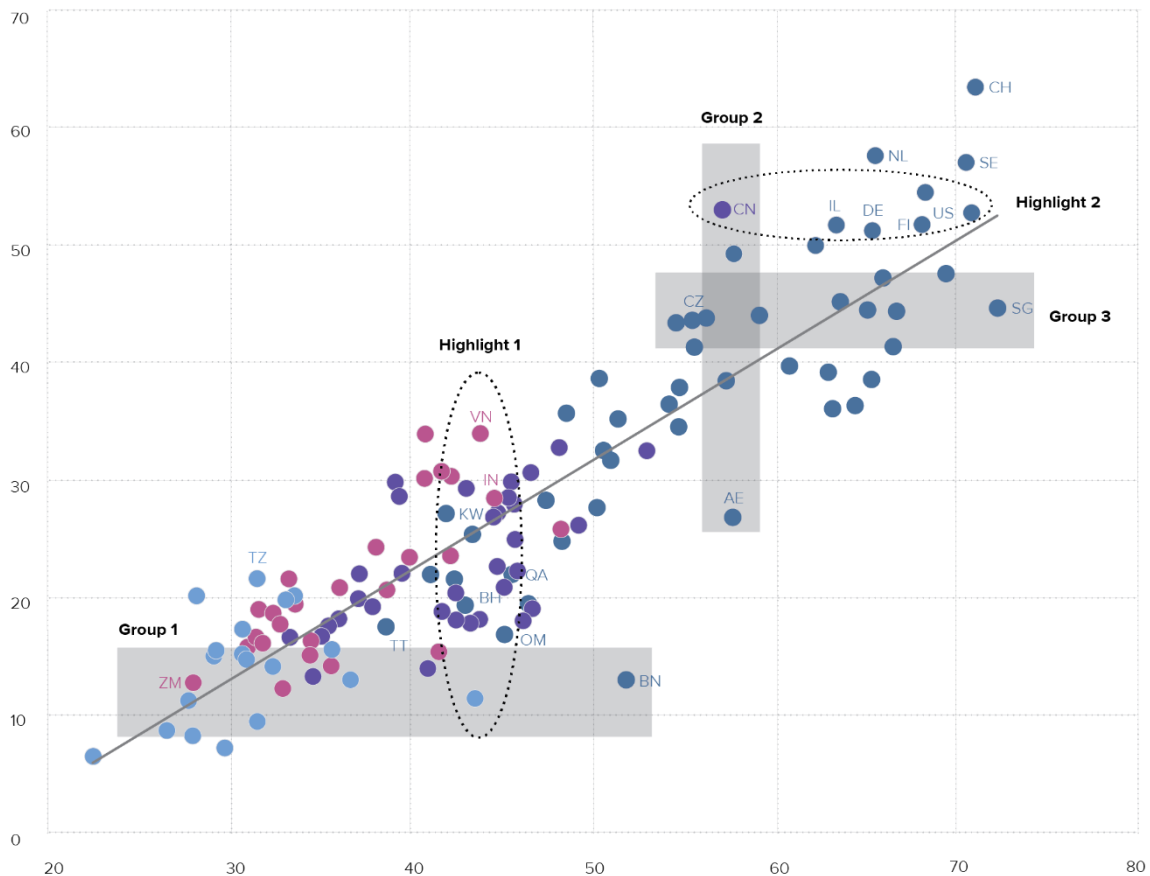


# EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs, indicating which economies best translate innovation inputs into innovation outputs. Economies appearing above the line are effectively translating their costly innovation investments into more and higher-quality outputs. In contrast, those below the line are not effectively translating innovation inputs into outputs.

Lebanon produces more innovation outputs relative to its level of innovation investments.

## Innovation input/output performance by income group, 2019



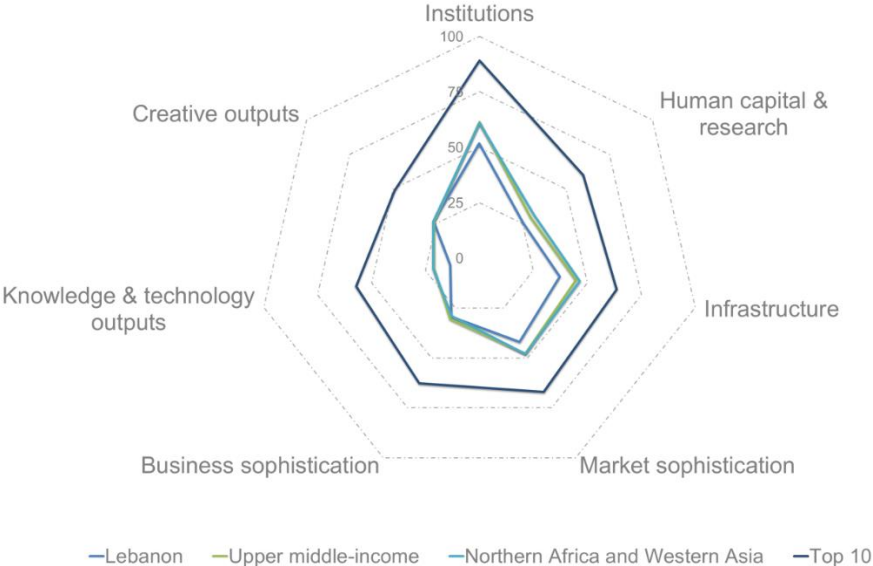
- ▲ Output score
- ▶ Input score
- High income
- Upper-middle income
- Lower-middle income
- Low income
- Fitted values

AE United Arab Emirates	CZ Czech Republic	NL Netherlands	TZ United Republic of Tanzania
BH Bahrain	DE Germany	OM Oman	US United States of America
BN Brunei Darussalam	FI Finland	QA Qatar	VN Viet Nam
CH Switzerland	IL Israel	SE Sweden	ZM Zambia
CN China	IN India	SG Singapore	
	KW Kuwait	TT Trinidad and Tobago	

Source: Global Innovation Index Database, Cornell, INSEAD, and WIPO, 2019.

# BENCHMARKING LEBANON TO OTHER UPPER MIDDLE-INCOME ECONOMIES AND THE NORTHERN AFRICA AND WESTERN ASIA REGION

**Lebanon’s scores in the seven GII pillars**



## Upper middle-income economies

Lebanon has high scores in 1 out of the 7 GII pillars: Creative outputs, which is above the average of the upper middle-income group.

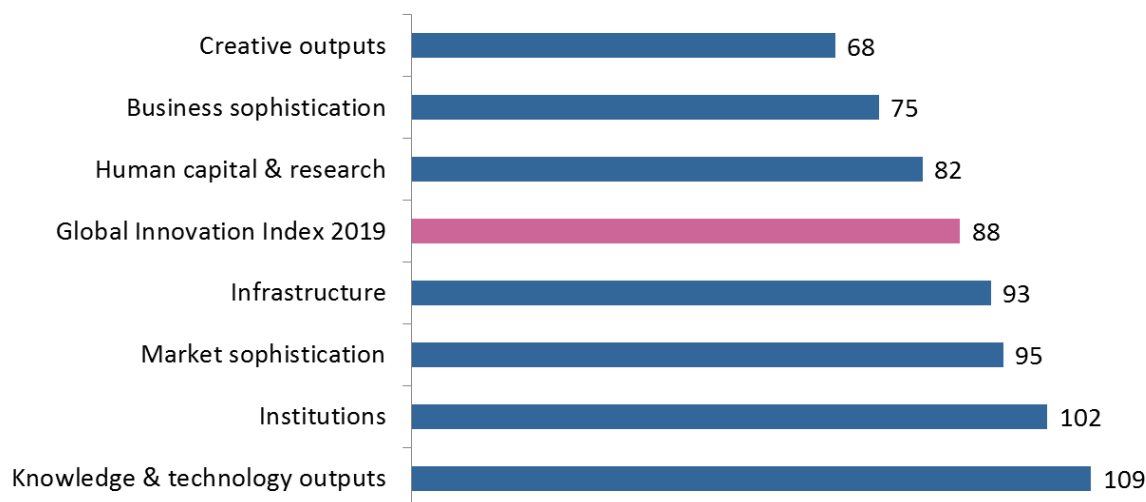
## Northern Africa and Western Asia Region

Compared to other economies in Northern Africa and Western Asia, Lebanon performs above average in 1 out of the 7 GII pillars: Business sophistication.

Top ranks are found in areas such as Tertiary education, Research and development (R&D), Knowledge creation, Creative goods & services, and Online creativity where the country ranks in the top 60 worldwide.

## OVERVIEW OF LEBANON'S RANKINGS IN THE 7 GII AREAS

Lebanon performs the best in Creative outputs and its weakest performance is in Knowledge & technology outputs.



\*The highest possible ranking in each pillar is 1.

## LEBANON'S INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of Lebanon's strengths and weaknesses in the GII 2019.

Strengths		
Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal, salary weeks	21
2.1.5	Pupil-teacher ratio, secondary	8
2.2.3	Tertiary inbound mobility, %	21
4.1.2	Domestic credit to private sector, % GDP	23
4.2.3	Venture capital deals/bn PPP\$ GDP	9
4.3.2	Intensity of local competition <sup>1</sup>	12
5.3.3	ICT services imports, % total trade	31
7.2	Creative goods & services	17
7.2.1	Cultural & creative services exports, % total trade	9
7.2.4	Printing & other media, % manufacturing	4
7.3.4	Mobile app creation/bn PPP\$ GDP	16

Weaknesses		
Code	Indicator name	Rank
1.1	Political environment	115
1.1.1	Political & operational stability*	127
1.2.2	Rule of law*	113
1.3	Business environment	120
1.3.2	Ease of resolving insolvency*	121
2.1	Education	113
2.1.1	Expenditure on education, % GDP	114
2.1.2	Government funding/pupil, secondary, % GDP/cap	103
2.1.4	PISA scales in reading, maths & science	66
2.3.3	Global R&D companies, top 3, in mn US\$	43
3.2	General infrastructure	119
4.2.1	Ease of protecting minority investors*	108
5.3.2	High-tech imports, % total trade	118
7.1.3	ICTs & business model creation <sup>1</sup>	117

## **STRENGTHS**

- GII strengths for Lebanon are found in five of the seven GII pillars.
- Several of these strengths are in Creative outputs (68), the best ranked GII pillar for the country. Here Lebanon has strengths in sub-pillar Creative goods & services (17) and three indicators: Cultural & creative services exports (9), Printing & other media (4), and Mobile app creation (16).
- Three other relative strengths are in Market sophistication (95). These are found in three indicators: Domestic credit to private sector (23), Venture capital deals (9), and Intensity of local competition (12).
- In Institutions (102), indicator Cost of redundancy dismissal (21) is a relative strength for Lebanon.
- In Human capital & research (82), Lebanon's strengths are indicators Pupil-teacher ratio (8) and Tertiary inbound mobility (21).
- In Business sophistication (75), indicator ICT services imports (31) is a relative strength for the country.

## **WEAKNESSES**

- Lebanon's weaknesses in the GII are found in six of the seven GII pillars, and mostly on the innovation input side of the GII.
- In Institutions (102), Lebanon's weaknesses are sub-pillars Political environment (115) and Business environment (120) and indicators Political & operational stability (127), Rule of law (113), and Ease of resolving insolvency (121).
- In Human capital & research (82), five relative weaknesses for this country are found: sub-pillar Education (113) and indicators Expenditure on education (114), Government funding per pupil (103), PISA results (66), and Global R&D companies (43).
- In Infrastructure (93), sub-pillar General infrastructure (119) is a relative weakness of Lebanon.
- In Market sophistication (95), only one weakness is found in indicator Ease of protecting minority investors (108).
- In Business sophistication (75), indicator High-tech imports (118) is a relative weakness of Lebanon.
- In Creative outputs (68), one relative weakness for the country is identified in indicator ICTs & business model creation (117).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2018 rank
<b>82</b>	<b>92</b>	<b>Upper middle</b>	<b>NAWA</b>	<b>6.1</b>	<b>91.2</b>	<b>14,684.1</b>	<b>90</b>
<b>INSTITUTIONS</b> ..... <b>51.8</b> <b>102</b> ◊				<b>BUSINESS SOPHISTICATION</b> ..... <b>29.3</b> <b>75</b>			
<b>1.1</b>	<b>Political environment</b> .....	<b>37.3</b>	<b>115</b>	◊ ◊	<b>5.1</b>	<b>Knowledge workers</b> .....	<b>30.6</b> <b>[82]</b>
1.1.1	Political and operational stability*.....	43.9	127	◊ ◊	5.1.1	Knowledge-intensive employment, %.....	n/a n/a
1.1.2	Government effectiveness*.....	34.1	99	◊	5.1.2	Firms offering formal training, % firms.....	26.6 58
<b>1.2</b>	<b>Regulatory environment</b> .....	<b>64.1</b>	<b>71</b>		5.1.3	GERD performed by business, % GDP.....	n/a n/a
1.2.1	Regulatory quality*.....	33.7	93		5.1.4	GERD financed by business, %.....	n/a n/a
1.2.2	Rule of law*.....	24.6	113	◊ ◊	5.1.5	Females employed w/advanced degrees, %.....	n/a n/a
1.2.3	Cost of redundancy dismissal, salary weeks.....	8.7	21	●	<b>5.2</b>	<b>Innovation linkages</b> .....	<b>25.6</b> <b>63</b>
<b>1.3</b>	<b>Business environment</b> .....	<b>54.1</b>	<b>120</b>	◊ ◊	5.2.1	University/industry research collaboration*.....	41.1 65
1.3.1	Ease of starting a business*.....	78.6	110		5.2.2	State of cluster development*.....	47.4 56
1.3.2	Ease of resolving insolvency*.....	29.6	121	◊ ◊	5.2.3	GERD financed by abroad, %.....	n/a n/a
					5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.0 44
					5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	0.1 61
<b>HUMAN CAPITAL &amp; RESEARCH</b> ..... <b>25.3</b> <b>82</b>				<b>KNOWLEDGE &amp; TECHNOLOGY OUTPUTS</b> .... <b>13.5</b> <b>[109]</b>			
<b>2.1</b>	<b>Education</b> .....	<b>26.5</b>	<b>113</b>	◊ ◊	<b>6.1</b>	<b>Knowledge creation</b> .....	<b>14.3</b> <b>[58]</b>
2.1.1	Expenditure on education, % GDP.....	2.5	114	◊ ◊	6.1.1	Patents by origin/bn PPP\$ GDP.....	1.3 55
2.1.2	Government funding/pupil, secondary, % GDP/cap.....	5.8	103	◊ ◊	6.1.2	PCT patents by origin/bn PPP\$ GDP.....	n/a n/a
2.1.3	School life expectancy, years.....	11.3	96	◊	6.1.3	Utility models by origin/bn PPP\$ GDP.....	n/a n/a
2.1.4	PISA scales in reading, maths, & science.....	376.4	66	◊	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	10.3 46
2.1.5	Pupil-teacher ratio, secondary.....	7.9	8	● ◆	6.1.5	Citable documents H-index.....	10.6 61
<b>2.2</b>	<b>Tertiary education</b> .....	<b>35.7</b>	<b>51</b>		<b>6.2</b>	<b>Knowledge impact</b> .....	<b>9.2</b> <b>[116]</b>
2.2.1	Tertiary enrolment, % gross.....	38.1	73		6.2.1	Growth rate of PPP\$ GDP/worker, %.....	n/a n/a
2.2.2	Graduates in science & engineering, %.....	23.4	40		6.2.2	New businesses/th pop. 15-64.....	n/a n/a
2.2.3	Tertiary inbound mobility, %.....	8.9	21	● ◆	6.2.3	Computer software spending, % GDP.....	0.1 102 ◊
<b>2.3</b>	<b>Research &amp; development (R&amp;D)</b> .....	<b>13.8</b>	<b>[48]</b>		6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	6.1 50
2.3.1	Researchers, FTE/mn pop.....	n/a	n/a		6.2.5	High- & medium-high-tech manufactures, %.....	n/a n/a
2.3.2	Gross expenditure on R&D, % GDP.....	n/a	n/a		<b>6.3</b>	<b>Knowledge diffusion</b> .....	<b>17.2</b> <b>68</b>
2.3.3	Global R&D companies, avg. exp. top 3, mn US\$.....	0.0	43	◊ ◊	6.3.1	Intellectual property receipts, % total trade.....	0.1 63
2.3.4	QS university ranking, average score top 3*.....	27.6	40		6.3.2	High-tech net exports, % total trade.....	1.0 68
					6.3.3	ICT services exports, % total trade.....	2.5 40
					6.3.4	FDI net outflows, % GDP.....	1.8 34
<b>INFRASTRUCTURE</b> ..... <b>37.1</b> <b>93</b> ◊				<b>CREATIVE OUTPUTS</b> ..... <b>26.5</b> <b>68</b>			
<b>3.1</b>	<b>Information &amp; communication technologies (ICTs)</b> .....	<b>53.0</b>	<b>91</b>		<b>7.1</b>	<b>Intangible assets</b> .....	<b>30.3</b> <b>106</b>
3.1.1	ICT access*.....	65.3	68		7.1.1	Trademarks by origin/bn PPP\$ GDP.....	15.1 96
3.1.2	ICT use*.....	55.0	64		7.1.2	Industrial designs by origin/bn PPP\$ GDP.....	n/a n/a
3.1.3	Government's online service*.....	47.2	108	◊	7.1.3	ICTs & business model creation*.....	43.2 117 ◊ ◊
3.1.4	E-participation*.....	44.4	107	◊	7.1.4	ICTs & organizational model creation*.....	42.4 105 ◊
<b>3.2</b>	<b>General infrastructure</b> .....	<b>20.8</b>	<b>119</b>	◊ ◊	<b>7.2</b>	<b>Creative goods &amp; services</b> .....	<b>34.6</b> <b>17</b> ● ◆
3.2.1	Electricity output, kWh/mn pop.....	3,109.8	62		7.2.1	Cultural & creative services exports, % total trade.....	1.7 9 ● ◆
3.2.2	Logistics performance*.....	30.6	78		7.2.2	National feature films/mn pop. 15-69.....	3.6 51
3.2.3	Gross capital formation, % GDP.....	n/a	n/a		7.2.3	Entertainment & Media market/th pop. 15-69.....	3.3 49
<b>3.3</b>	<b>Ecological sustainability</b> .....	<b>37.6</b>	<b>68</b>		7.2.4	Printing & other media, % manufacturing.....	4.1 4 ● ◆
3.3.1	GDP/unit of energy use.....	10.0	52		7.2.5	Creative goods exports, % total trade.....	0.5 57
3.3.2	Environmental performance*.....	61.1	60		<b>7.3</b>	<b>Online creativity</b> .....	<b>10.7</b> <b>51</b>
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....	0.4	87		7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....	6.5 49
					7.3.2	Country-code TLDs/th pop. 15-69.....	0.3 105
					7.3.3	Wikipedia edits/mn pop. 15-69.....	7.5 68
					7.3.4	Mobile app creation/bn PPP\$ GDP.....	31.1 16 ● ◆
<b>4.1</b>	<b>Credit</b> .....	<b>30.9</b>	<b>90</b>				
4.1.1	Ease of getting credit*.....	40.0	104	◊			
4.1.2	Domestic credit to private sector, % GDP.....	105.5	23	● ◆			
4.1.3	Microfinance gross loans, % GDP.....	0.1	50				
<b>4.2</b>	<b>Investment</b> .....	<b>33.3</b>	<b>106</b>				
4.2.1	Ease of protecting minority investors*.....	41.7	108	◊ ◊			
4.2.2	Market capitalization, % GDP.....	22.6	57				
4.2.3	Venture capital deals/bn PPP\$ GDP.....	0.2	9	● ◆			
<b>4.3</b>	<b>Trade, competition, &amp; market scale</b> .....	<b>61.3</b>	<b>62</b>				
4.3.1	Applied tariff rate, weighted avg., %.....	3.8	72				
4.3.2	Intensity of local competition*.....	79.0	12	● ◆			
4.3.3	Domestic market scale, bn PPP\$.....	91.2	82				

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 missing or are outdated for Lebanon.

### Missing data

Code	Indicator name	Country year	Model year	Source
2.3.1	Researchers, FTE/mn pop.	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
3.2.3	Gross capital formation, % GDP	n/a	2018	International Monetary Fund
5.1.1	Knowledge-intensive employment, %	n/a	2017	Source: International Labour Organization
5.1.3	GERD performed by business, % GDP	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	n/a	2016	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	n/a	2017	International Labour Organization
5.2.3	GERD financed by abroad, %	n/a	2016	UNESCO Institute for Statistics
5.3.5	Research talent, % in business enterprise	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.1.2	PCT patents by origin/bn PPP\$ GDP	n/a	2018	World Intellectual Property Organization
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2017	World Intellectual Property Organization
6.2.1	Growth rate of PPP\$ GDP/worker, %, 3-year average	n/a	2018	The Conference Board
6.2.2	New businesses/th pop. 15–64	n/a	2016	World Bank
6.2.5	High- & medium-high-tech manufactures, %	n/a	2016	United Nations Industrial Development Organization
7.1.2	Industrial designs by origin/bn PPP\$ GDP	n/a	2017	World Intellectual Property Organization

### Outdated data

Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2013	2015	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2013	2015	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	2011	2016	UNESCO Institute for Statistics
5.3.2	High-tech imports, % total trade	2016	2017	United Nations, COMTRADE
6.1.1	Patents by origin/bn PPP\$ GDP	2015	2017	World Intellectual Property Organization
7.1.1	Trademarks by origin/bn PPP\$ GDP	2015	2017	World Intellectual Property Organization
7.2.2	National feature films/mn pop. 15–69	2015	2017	UNESCO Institute for Statistics
7.2.4	Printing & other media, % manufacturing	2007	2016	United Nations Industrial Development Organization
7.3.3	Wikipedia edits/mn pop. 15–69	2014	2017	Wikimedia Foundation

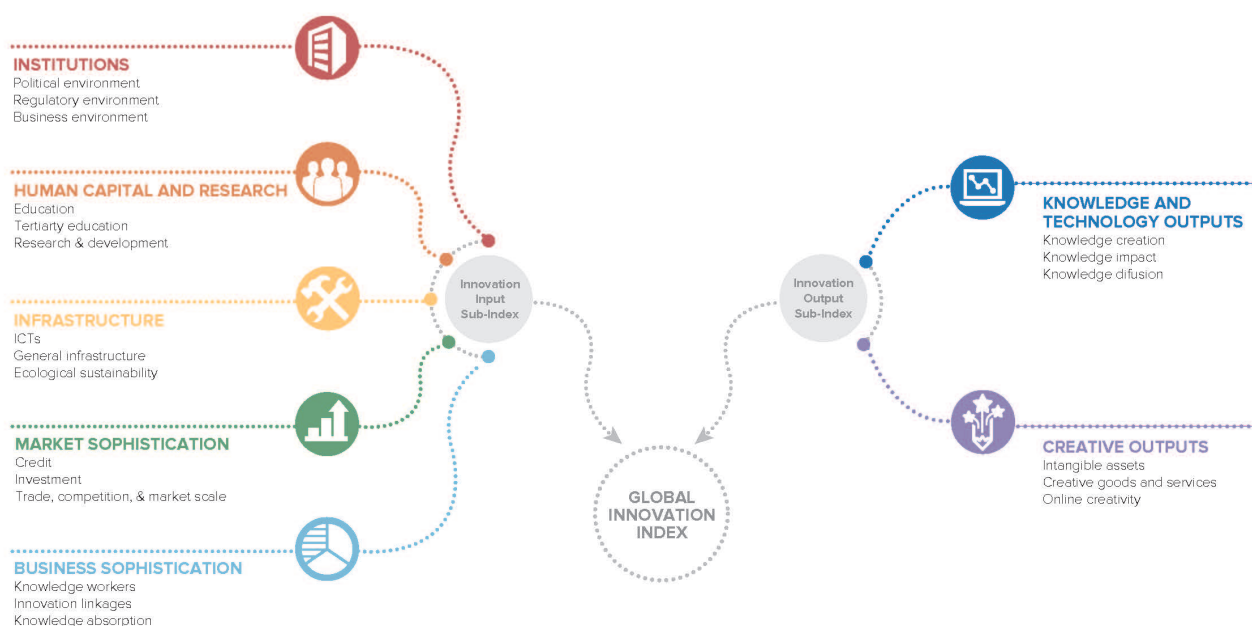


# ABOUT THE GLOBAL INNOVATION INDEX

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 2019, the GII presents its 12<sup>th</sup> edition devoted to the theme **Creating Healthy Lives—The Future of Medical Innovation**.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and 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 countries that incorporate the GII into their innovation agendas.

Framework of the Global Innovation Index 2019



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes 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 containing three sub-pillars.

