

## ARMENIA

### 61st

Armenia ranks 61st 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 Armenia 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 Armenia in the GII 2020 is between ranks 56 and 64.

Rankings of Armenia (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	61	83	47
2019	64	85	50
2018	68	94	50

- Armenia performs better in innovation outputs than innovation inputs in 2020.
- This year Armenia ranks 83rd in innovation inputs, higher than last year and higher compared to 2018.
- As for innovation outputs, Armenia ranks 47th. This position is higher than last year and higher compared to 2018.

### 15th

Armenia ranks 15th among the 37 upper middle-income group economies.

### 5th

Armenia ranks 5th among the 19 economies in Northern Africa and Western Asia.

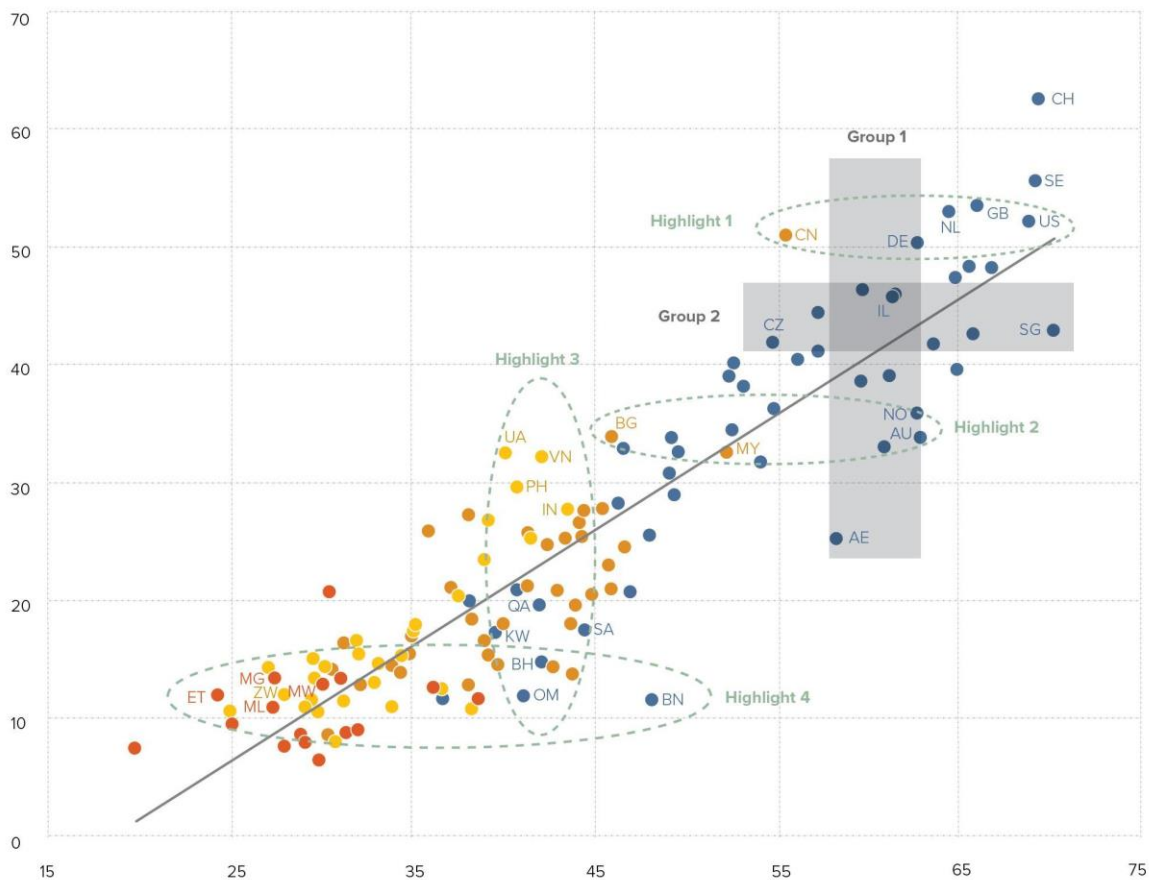


# EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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

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

**Innovation input to output performance, 2020**

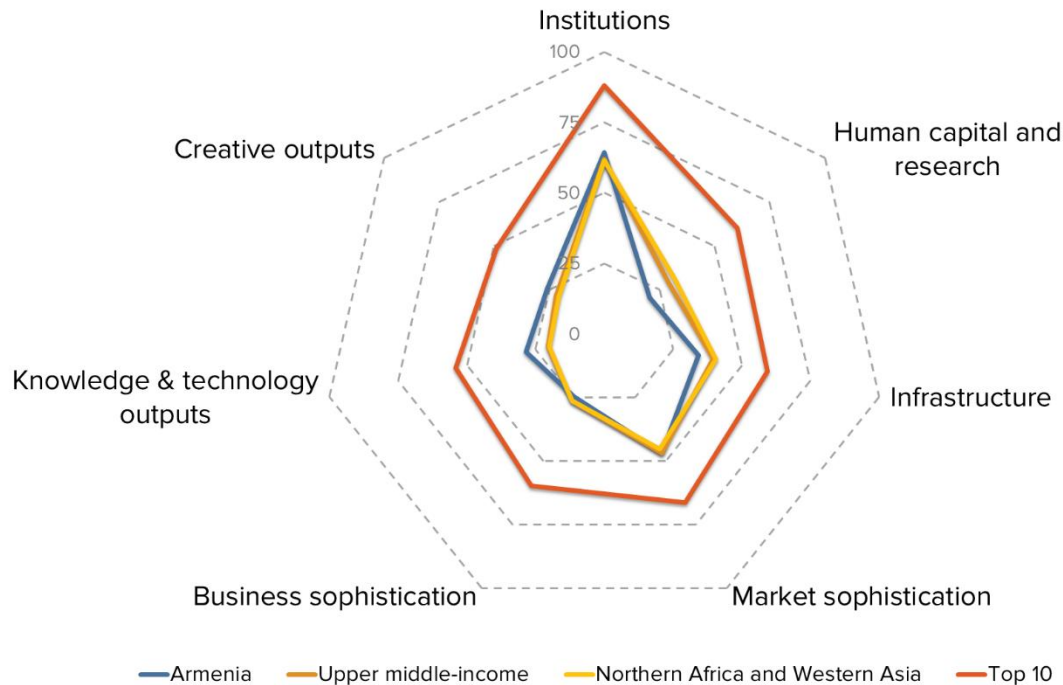


▲ Output score      ● High income group      ● Lower middle-income group      — Fitted values  
 ► Input score      ● Upper middle-income group      ● Low income group

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 ARMENIA AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND NORTHERN AFRICA AND WESTERN ASIA

## Armenia's scores in the seven GII pillars



### Upper middle-income group economies

Armenia has high scores in four GII pillars: Institutions, Market sophistication, Knowledge & technology outputs and Creative outputs, which are above average for the upper middle-income group.

Conversely, Armenia scores below average for its income group in three pillars: Human capital and research, Infrastructure and Business sophistication.

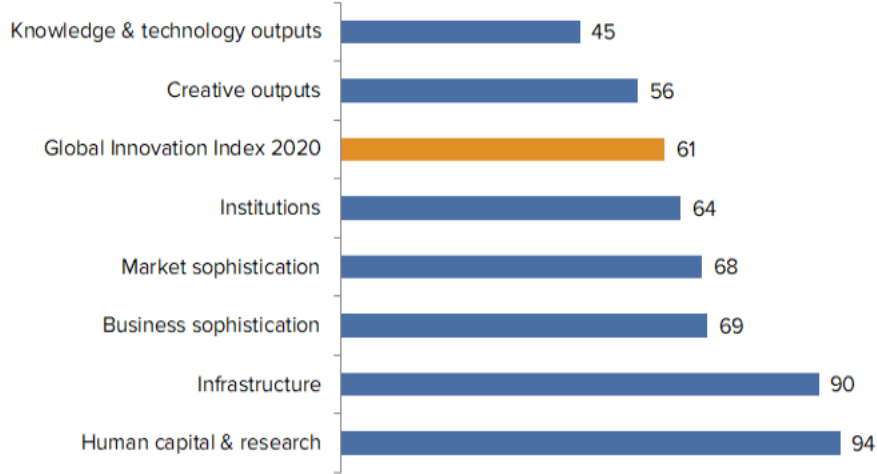
### Northern Africa and Western Asia

Compared to other economies in Northern Africa and Western Asia, Armenia performs:

- above average in four out of the seven GII pillars: Institutions, Market sophistication, Knowledge & technology outputs and Creative outputs; and
- below average in three out of the seven GII pillars: Human capital & research, Infrastructure and Business sophistication.

## OVERVIEW OF ARMENIA RANKINGS IN THE SEVEN GII AREAS

Armenia performs best in Knowledge & technology outputs and its weakest performance is in Human capital & research.



\*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 Armenia in the GII 2020.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.3.1	Ease of starting a business*	10	2.1.1	Expenditure on education, % GDP	105
2.1.5	Pupil-teacher ratio, secondary	11	2.2.2	Graduates in science & engineering, %	96
4.3.2	Intensity of local competition <sup>†</sup>	36	2.3.3	Global R&D companies, top 3, mn US\$	42
6.1	Knowledge creation	37	2.3.4	QS university ranking, average score top 3*	77
6.1.1	Patents by origin/bn PPP\$ GDP	29	3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	126
6.1.4	Scientific & technical articles/bn PPP\$ GDP	18	4.3.3	Domestic market scale, bn PPP\$	118
6.2.1	Growth rate of PPP\$ GDP/worker, %	1	5.1.2	Firms offering formal training, %	84
6.3.3	ICT services exports, % total trade	14	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	110
7.1.1	Trademarks by origin/bn PPP\$ GDP	14	6.2.5	High- & medium-high-tech manufacturing, %	100
7.2.2	National feature films/mn pop. 15–69	12	7.1.2	Global brand value, top 5000, % GDP	80
7.3.3	Wikipedia edits/mn pop. 15–69	7			

## **STRENGTHS**

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

- Institutions (64): the indicator Ease of starting a business (10) is a strength.
- Human capital & research (94): the indicator Pupil–teacher ratio (11) is a strength.
- Market sophistication (68): the indicator Intensity of local competition (36) is a strength.
- Knowledge & technology outputs (45): reveals strengths in the sub-pillar Knowledge creation (37) and in the indicators Patents by origin (29), Scientific & technical articles (18), Growth rate of GDP per worker (1) and ICT services exports (14).
- Creative outputs (56): has strengths in the indicators Trademarks by origin (14), National feature films (12) and Wikipedia edits (7).

## **WEAKNESSES**

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

- Human capital & research (94): has weaknesses in the indicators Expenditure on education (105), Graduates in science & engineering (96), Global R&D companies (42) and QS university ranking (77).
- Infrastructure (90): the indicator ISO 14001 environmental certificates (126) is a weakness.
- Market sophistication (68): the indicator Domestic market scale (118) is a weakness.
- Business sophistication (69): the indicator Firms offering formal training (84) is a weakness.
- Knowledge & technology outputs (45): displays weaknesses in the indicators ISO 9001 quality certificates (110) and High- & medium-high-tech manufacturing (100).
- Creative outputs (56): the indicator Global brand value (80) is a weakness.

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2019 rank
47	83	Upper middle	NAWA	3.0	32.9	9,675.8	64
		Score/Value	Rank			Score/Value	Rank
<b>INSTITUTIONS</b> ..... 64.3 64				<b>BUSINESS SOPHISTICATION</b> ..... 24.6 69			
<b>1.1</b>	<b>Political environment</b> .....	<b>54.5</b>	<b>76</b>	<b>5.1</b>	<b>Knowledge workers</b> .....	<b>29.6</b>	<b>67</b>
1.1.1	Political and operational stability*.....	64.3	83	5.1.1	Knowledge-intensive employment, %.....	29.4	48
1.1.2	Government effectiveness*.....	49.6	74	5.1.2	Firms offering formal training, %.....	16.2	84 ○ ◇
<b>1.2</b>	<b>Regulatory environment</b> .....	<b>68.0</b>	<b>54</b>	5.1.3	GERD performed by business, % GDP.....	n/a	n/a
1.2.1	Regulatory quality*.....	48.9	60	5.1.4	GERD financed by business, %.....	16.7	70
1.2.2	Rule of law*.....	42.8	71	5.1.5	Females employed w/advanced degrees, %.....	14.9	45
1.2.3	Cost of redundancy dismissal, salary weeks.....	13.0	41	<b>5.2</b>	<b>Innovation linkages</b> .....	<b>16.2</b>	<b>101</b>
<b>1.3</b>	<b>Business environment</b> .....	<b>70.3</b>	<b>70</b>	5.2.1	University/industry research collaboration*.....	35.5	97
1.3.1	Ease of starting a business*.....	96.1	10 ● ◆	5.2.2	State of cluster development.....	46.3	71
1.3.2	Ease of resolving insolvency*.....	44.6	86	5.2.3	GERD financed by abroad, % GDP.....	0.0	79
				5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.0	75
				5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	0.1	61
<b>HUMAN CAPITAL &amp; RESEARCH</b> ..... 20.5 94				<b>5.3 Knowledge absorption</b> ..... 28.0 [67]			
<b>2.1</b>	<b>Education</b> .....	<b>34.4</b>	<b>97</b>	5.3.1	Intellectual property payments, % total trade.....	n/a	n/a
2.1.1	Expenditure on education, % GDP.....	2.7	105 ○	5.3.2	High-tech imports, % total trade.....	6.7	80
2.1.2	Government funding/pupil, secondary, % GDP/cap.....	14.6	82	5.3.3	ICT services imports, % total trade.....	0.6	100
2.1.3	School life expectancy, years.....	13.1	80	5.3.4	FDI net inflows, % GDP.....	2.5	69
2.1.4	PISA scales in reading, maths, & science.....	n/a	n/a	5.3.5	Research talent, % in business enterprise.....	n/a	n/a
2.1.5	Pupil-teacher ratio, secondary.....	8.0	11 ● ◆	<b>5.4 Knowledge &amp; Technology Outputs</b> ..... 28.5 45			
<b>2.2</b>	<b>Tertiary education</b> .....	<b>25.8</b>	<b>79</b>	<b>6.1 Knowledge creation</b> .....	<b>27.2</b>	<b>37</b>	<b>●</b>
2.2.1	Tertiary enrolment, % gross.....	54.6	53	6.1.1	Patents by origin/bn PPP\$ GDP.....	3.4	29 ●
2.2.2	Graduates in science & engineering, %.....	15.2	96 ○ ◇	6.1.2	PCT patents by origin/bn PPP\$ GDP.....	0.1	62
2.2.3	Tertiary inbound mobility, %.....	4.5	51	6.1.3	Utility models by origin/bn PPP\$ GDP.....	1.1	22
<b>2.3</b>	<b>Research &amp; development (R&amp;D)</b> .....	<b>1.2</b>	<b>105</b>	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	24.3	18 ● ◆
2.3.1	Researchers, FTE/mn pop.....	n/a	n/a	6.1.5	Citable documents H-index.....	11.2	68
2.3.2	Gross expenditure on R&D, % GDP.....	0.2	91	<b>6.2 Knowledge impact</b> .....	<b>26.7</b>	<b>56</b>	<b>● ◆</b>
2.3.3	Global R&D companies, avg. exp. top 3, mn \$US.....	0.0	42 ○ ◇	6.2.1	Growth rate of PPP\$ GDP/worker, %.....	9.8	1 ● ◆
2.3.4	QS university ranking, average score top 3*.....	0.0	77 ○ ◇	6.2.2	New businesses/th pop. 15-64.....	3.1	47
				6.2.3	Computer software spending, % GDP.....	0.0	87
				6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	0.9	110 ○
				6.2.5	High- and medium-high-tech manufacturing, %.....	4.4	100 ○ ◇
<b>INFRASTRUCTURE</b> ..... 34.4 90				<b>6.3 Knowledge diffusion</b> ..... 31.6 40			
<b>3.1</b>	<b>Information &amp; communication technologies (ICTs)</b> .....	<b>58.6</b>	<b>83</b>	6.3.1	Intellectual property receipts, % total trade.....	n/a	n/a
3.1.1	ICT access*.....	68.1	62	6.3.2	High-tech net exports, % total trade.....	0.6	75
3.1.2	ICT use*.....	53.4	68	6.3.3	ICT services exports, % total trade.....	4.5	14 ● ◆
3.1.3	Government's online service*.....	56.3	96	6.3.4	FDI net outflows, % GDP.....	0.3	85
3.1.4	E-participation*.....	56.7	98	<b>6.4 Creative Outputs</b> ..... 25.8 56			
<b>3.2</b>	<b>General infrastructure</b> .....	<b>19.7</b>	<b>101</b>	<b>7.1 Intangible assets</b> .....	<b>28.6</b>	<b>59</b>	
3.2.1	Electricity output, kWh/mn pop.....	2,650.3	70	7.1.1	Trademarks by origin/bn PPP\$ GDP.....	95.0	14 ●
3.2.2	Logistics performance*.....	25.2	88	7.1.2	Global brand value, top 5,000, % GDP.....	0.0	80 ○ ◇
3.2.3	Gross capital formation, % GDP.....	23.1	70	7.1.3	Industrial designs by origin/bn PPP\$ GDP.....	2.0	50
				7.1.4	ICTs & organizational model creation*.....	52.8	67
<b>3.3</b>	<b>Ecological sustainability</b> .....	<b>24.8</b>	<b>82</b>	<b>7.2 Creative goods and services</b> .....	<b>20.9</b>	<b>51</b>	
3.3.1	GDP/unit of energy use.....	7.9	81	7.2.1	Cultural & creative services exports, % total trade.....	0.6	41
3.3.2	Environmental performance*.....	52.3	51	7.2.2	National feature films/mn pop. 15-69.....	13.2	12 ● ◆
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....	0.1	126 ○	7.2.3	Entertainment & Media market/th pop. 15-69.....	n/a	n/a
				7.2.4	Printing and other media, % manufacturing.....	1.3	34
				7.2.5	Creative goods exports, % total trade.....	0.8	54
<b>MARKET SOPHISTICATION</b> ..... 46.9 68				<b>7.3 Online creativity</b> ..... 25.0 45			
<b>4.1</b>	<b>Credit</b> .....	<b>39.0</b>	<b>78</b>	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....	2.9	65
4.1.1	Ease of getting credit*.....	70.0	44	7.3.2	Country-code TLDs/th pop. 15-69.....	5.2	53
4.1.2	Domestic credit to private sector, % GDP.....	55.6	62	7.3.3	Wikipedia edits/mn pop. 15-69.....	90.9	7 ● ◆
4.1.3	Microfinance gross loans, % GDP.....	0.6	33	7.3.4	Mobile app creation/bn PPP\$ GDP.....	1.5	66
<b>4.2</b>	<b>Investment</b> .....	<b>42.0</b>	<b>[47]</b>				
4.2.1	Ease of protecting minority investors*.....	42.0	102 ○				
4.2.2	Market capitalization, % GDP.....	n/a	n/a				
4.2.3	Venture capital deals/bn PPP\$ GDP.....	n/a	n/a				
<b>4.3</b>	<b>Trade, competition, and market scale</b> .....	<b>59.8</b>	<b>72</b>				
4.3.1	Applied tariff rate, weighted avg., %.....	2.2	59				
4.3.2	Intensity of local competition*.....	73.6	36 ●				
4.3.3	Domestic market scale, bn PPP\$.....	32.9	118 ○ ◇				

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 Armenia.

### Missing data

Code	Indicator name	Country year	Model year	Source
2.1.4	PISA scales in reading, maths & science	n/a	2018	OECD Programme for International Student Assessment (PISA)
2.3.1	Researchers, FTE/mn pop.	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
4.2.2	Market capitalization, % GDP	n/a	2018	World Federation of Exchanges
4.2.3	Venture capital deals/bn PPP\$ GDP	n/a	2019	Thomson Reuters
5.1.3	GERD performed by business, % GDP	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.3.1	Intellectual property payments, % total trade	n/a	2018	World Trade Organization
5.3.5	Research talent, % in business enterprise	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
6.3.1	Intellectual property receipts, % total trade	n/a	2018	World Trade 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	2017	2018	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2014	2016	UNESCO Institute for Statistics
4.3.1	Applied tariff rate, weighted avg., %	2017	2018	World Bank
5.1.1	Knowledge-intensive employment, %	2017	2018	Source: International Labour Organization
5.1.2	Firms offering formal training, %	2012	2018	World Bank
5.1.5	Females employed w/advanced degrees, %	2017	2018	International Labour Organization

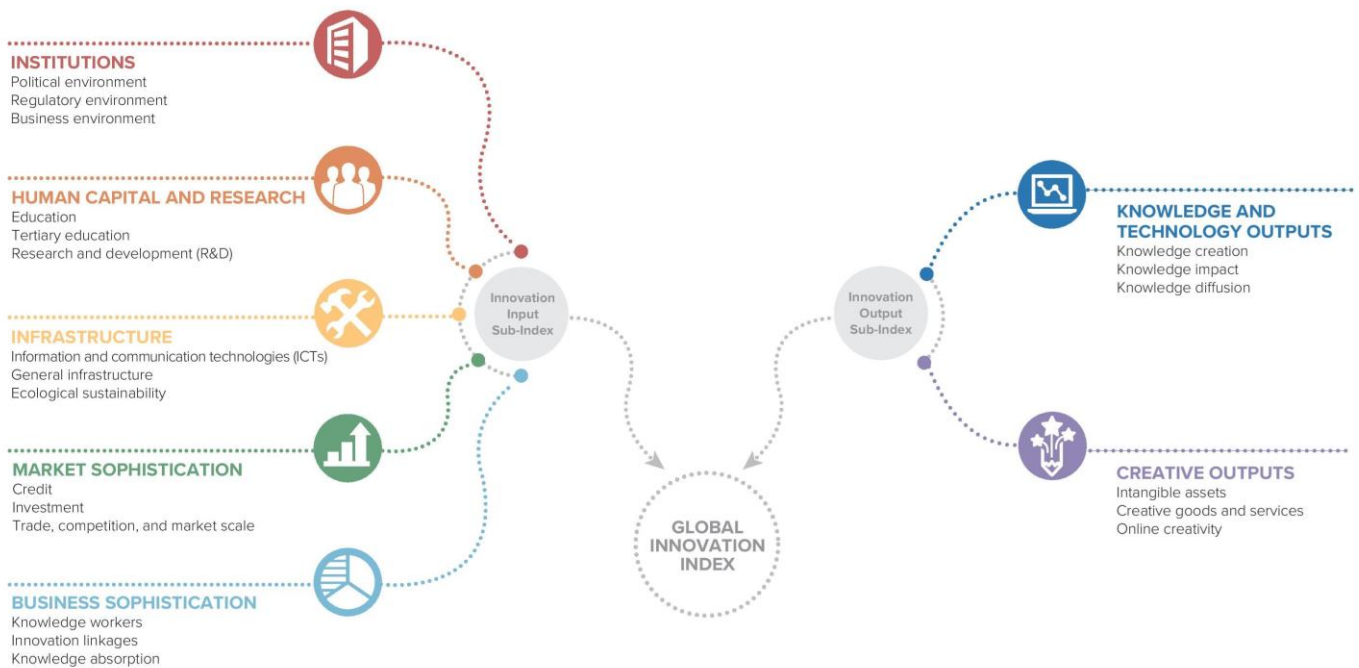


## ABOUT THE GLOBAL INNOVATION INDEX

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 13<sup>th</sup> 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.

