

GLOBAL INNOVATION INDEX 2019

MALAYSIA

35th

Malaysia ranks 35th 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 Malaysia 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 Malaysia's ranking in the GII 2019 is between 34 and 36.

Malaysia's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
2019	35	34	39
2018	35	34	39
2017	37	36	39

- Malaysia performs better in Innovation Inputs than Outputs.
- This year Malaysia ranks 34th in Innovation Inputs, the same as last year and better compared to 2017.
- As for Innovation Outputs, Malaysia ranks 39th. This position is the same as last year and compared to 2017.

2nd

Malaysia ranks 2nd among the 34 upper middle-income economies.

8th

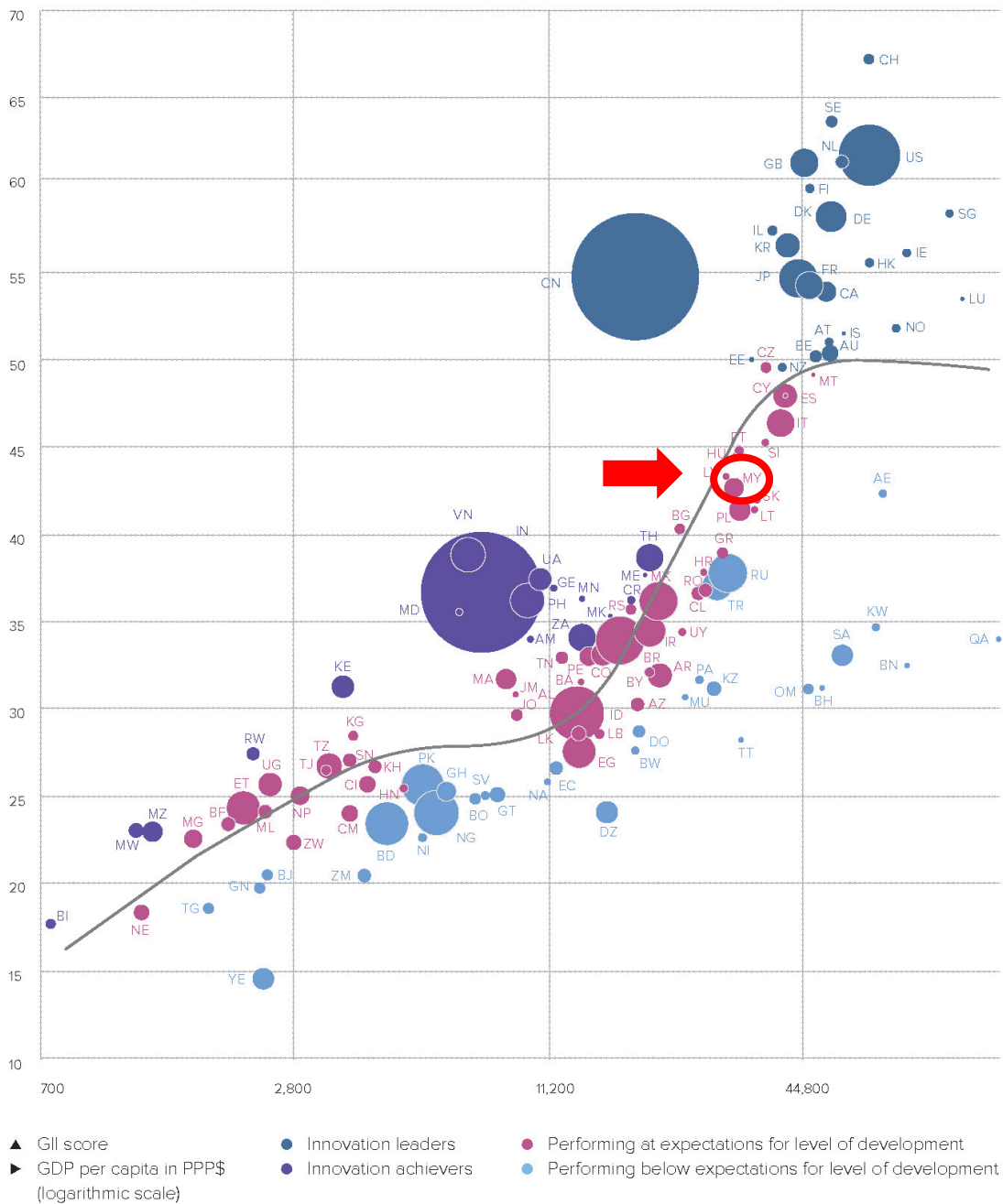
Malaysia ranks 8th among the 15 economies in South East Asia, East Asia, and Oceania.

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 considered Innovation under-performers relative to GDP.

Relative to GDP, Malaysia performs at its expected level of development.

GII scores and GDP per capita in PPP US\$ (bubbles sized by population)

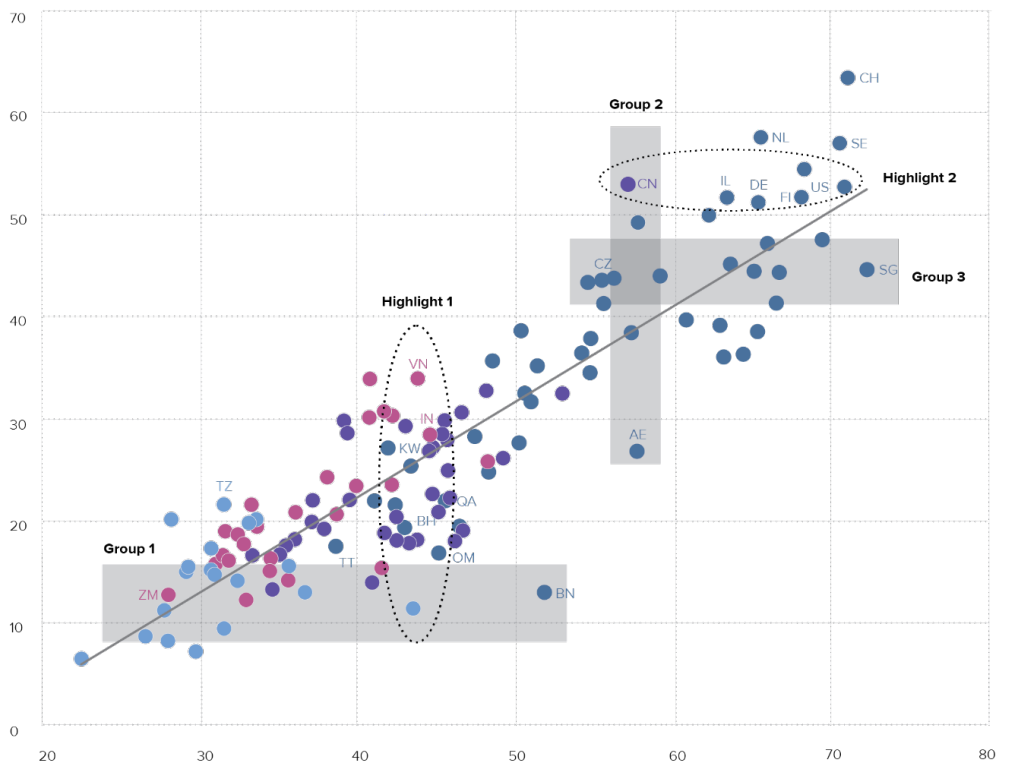


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input/output performance by income group, 2019

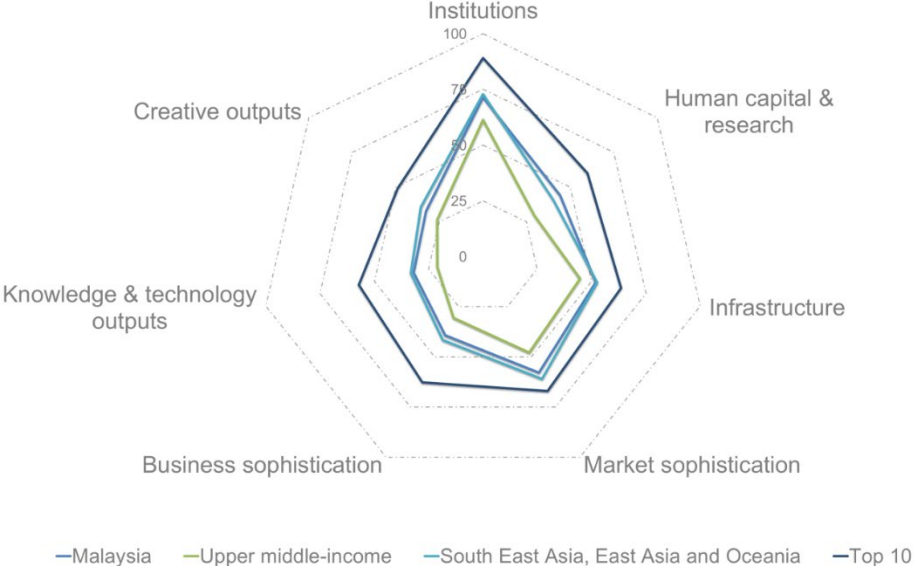


- ▲ Output score
 - ▶ Input score
 - High income
 - Upper-middle income
 - Lower-middle income
 - Low income
 - Fitted values
-
- | | | | |
|-------------------------|-------------------|------------------------|--------------------------------|
| AE United Arab Emirates | CZ Czech Republic | NL Netherlands | 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 MALAYSIA TO OTHER UPPER MIDDLE-INCOME ECONOMIES AND THE SOUTH EAST ASIA, EAST ASIA, AND OCEANIA REGION

Malaysia’s scores in the seven GII pillars



Upper middle-income economies

Malaysia has high scores in all the 7 GII pillars, which are above the average of the upper middle-income group.

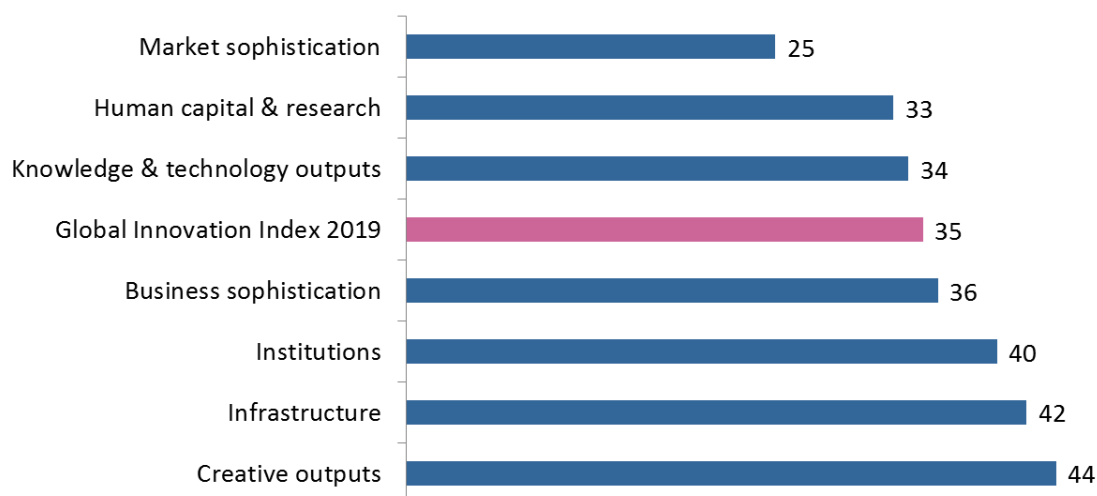
South East Asia, East Asia, and Oceania Region

Compared to other economies in South East Asia, East Asia, and Oceania, Malaysia performs above average in 1 out of the 7 GII pillars: Human capital & research.

Top ranks are found in sub-pillars Tertiary education, Knowledge absorption, Knowledge impact, Knowledge diffusion, and Creative goods & services where the country ranks in the top 25 worldwide.

OVERVIEW OF MALAYSIA'S RANKINGS IN THE 7 GII AREAS

Malaysia performs the best in Market sophistication and its weakest performance is in Creative outputs.



*The highest possible ranking in each pillar is 1.

MALAYSIA'S INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths		
Code	Indicator name	Rank
2.2.2	Graduates in science & engineering, %	8
2.3.4	QS university ranking, average score top 3*	17
4.2.1	Ease of protecting minority investors*	2
4.2.2	Market capitalization, % GDP	6
4.3.2	Intensity of local competition†	17
5.2.1	University/industry research collaboration†	8
5.2.2	State of cluster development†	8
5.3.2	High-tech imports, % total trade	3
6.3.2	High-tech net exports, % total trade	1
7.1.4	ICTs & organizational model creation†	17
7.2	Creative goods & services	11
7.2.5	Creative goods exports, % total trade	1

Weaknesses		
Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal, salary weeks	100
1.3.1	Ease of starting a business*	94
2.1.3	School life expectancy, years	76
2.1.4	PISA scales in reading, maths & science	58
5.1.2	Firms offering formal training, % firms	77
5.2.3	GERD financed by abroad, %	91
6.1.3	Utility models by origin/bn PPP\$ GDP	48
7.1.1	Trademarks by origin/bn PPP\$ GDP	87
7.1.2	Industrial designs by origin/bn PPP\$ GDP	83
7.2.4	Printing & other media, % manufacturing	72

STRENGTHS

- GII strengths for Malaysia are found in five of the seven GII pillars.
- In Human capital & research (33), Malaysia's strengths are two important indicators: Graduates in science & engineering (8) and Quality of universities (17).
- In Market sophistication (25), Malaysia presents three GII strengths: indicators Ease of protecting minority investors (2), Market capitalization (6), and Intensity of local competition (17).
- In Business sophistication (36), relative strengths of the country are indicators University-industry research collaboration (8), State of cluster development (8), and High-tech imports (3).
- In Knowledge & technology outputs (34), Malaysia's strength is indicator High-tech exports, where the country ranks 1st in the world.
- In Creative outputs (44), GII strengths for the country are sub-pillar Creative goods & services (11) as well as indicators ICTs & organizational model creation (17) and Creative goods exports, where Malaysia is world leader.

WEAKNESSES

- Malaysia's weaknesses in the GII are found in five of the seven GII pillars.
- In Institutions (40), Malaysia's weaknesses are indicators Cost of redundancy dismissal (100) and Ease of starting a business (94).
- In Human capital & research (33), two weaknesses are found in indicators School life expectancy (76) and PISA results (58).
- In Business sophistication (36), relative weaknesses of Malaysia are indicators Firms offering formal training (77) and R&D financed by abroad (91).
- In Knowledge & technology outputs (34), only one indicator – Utility models by origin (48) – is a relative weakness for the country.
- In Creative outputs (44), relative weaknesses of Malaysia are indicators Trademarks by origin (87), Industrial designs by origin (83), and Printing & other media (72).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GI 2018 rank		
39	34	Upper middle	SEAO	32.0	999.8	30,859.9	35		
INSTITUTIONS 71.6 40 ◆				BUSINESS SOPHISTICATION 39.3 36 ◆					
1.1	Political environment		72.6	35	◆	5.1	Knowledge workers	38.1	58
1.1.1	Political and operational stability*		84.2	25	◆	5.1.1	Knowledge-intensive employment, %	27.3	50
1.1.2	Government effectiveness*		66.9	37	◆	5.1.2	Firms offering formal training, % firms	18.5	77 ○ ◆
1.2	Regulatory environment		67.3	64		5.1.3	GERD performed by business, % GDP	0.8	25 ◆
1.2.1	Regulatory quality*		60.3	40	◆	5.1.4	GERD financed by business, %	56.9	16 ◆
1.2.2	Rule of law*		57.3	46	◆	5.1.5	Females employed w/advanced degrees, %	12.5	56
1.2.3	Cost of redundancy dismissal, salary weeks		23.9	100	○	5.2	Innovation linkages	30.2	47 ◆
1.3	Business environment		75.0	46		5.2.1	University/industry research collaboration†	72.0	8 ● ◆
1.3.1	Ease of starting a business*		82.8	94	○	5.2.2	State of cluster development†	71.1	8 ● ◆
1.3.2	Ease of resolving insolvency*		67.2	38		5.2.3	GERD financed by abroad, %	0.9	91 ○
HUMAN CAPITAL & RESEARCH 44.2 33 ◆				KNOWLEDGE & TECHNOLOGY OUTPUTS 32.1 34 ◆					
2.1	Education		46.1	70		5.3	Knowledge absorption	49.5	19 ◆
2.1.1	Expenditure on education, % GDP		4.7	56		5.3.1	Intellectual property payments, % total trade	0.7	53
2.1.2	Government funding/pupil, secondary, % GDP/cap		23.0	35		5.3.2	High-tech imports, % total trade	26.4	3 ● ◆
2.1.3	School life expectancy, years		13.5	76	○	5.3.3	ICT services imports, % total trade	1.4	48
2.1.4	PISA scales in reading, maths, & science		412.7	58	○	5.3.4	FDI net inflows, % GDP	3.6	46
2.1.5	Pupil-teacher ratio, secondary		12.3	51		5.3.5	Research talent, % in business enterprise	21.9	53
2.2	Tertiary education		47.8	18	◆	6.1	Knowledge creation	9.9	71
2.2.1	Tertiary enrolment, % gross		41.9	68		6.1.1	Patents by origin/bn PPP\$ GDP	1.2	57
2.2.2	Graduates in science & engineering, %		32.1	8	● ◆	6.1.2	PCT patents by origin/bn PPP\$ GDP	0.1	58
2.2.3	Tertiary inbound mobility, %		8.1	27	◆	6.1.3	Utility models by origin/bn PPP\$ GDP	0.1	48 ○
2.3	Research & development (R&D)		38.6	27	◆	6.1.4	Scientific & technical articles/bn PPP\$ GDP	8.0	59
2.3.1	Researchers, FTE/mn pop		2,357.9	36	◆	6.1.5	Citable documents H-index	17.0	43
2.3.2	Gross expenditure on R&D, % GDP		1.4	23	◆	6.2	Knowledge impact	46.3	24 ◆
2.3.3	Global R&D companies, avg. exp. top 3, mn US\$		44.3	37	◆	6.2.1	Growth rate of PPP\$ GDP/worker, %	3.3	21
2.3.4	QS university ranking, average score top 3*		50.6	17	● ◆	6.2.2	New businesses/th pop. 15-64	2.3	46
INFRASTRUCTURE 51.8 42 ◆				CREATIVE OUTPUTS 32.8 44					
3.1	Information & communication technologies (ICTs)		79.4	33	◆	6.2.3	Computer software spending, % GDP	0.4	29 ◆
3.1.1	ICT access*		75.0	43	◆	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	11.1	27
3.1.2	ICT use*		64.8	47	◆	6.2.5	High- & medium-high-tech manufactures, %	0.4	17 ◆
3.1.3	Government's online service*		88.9	27	◆	6.3	Knowledge diffusion	40.0	20 ◆
3.1.4	E-participation*		88.8	32		6.3.1	Intellectual property receipts, % total trade	0.1	62
3.2	General infrastructure		38.1	50		6.3.2	High-tech net exports, % total trade	34.1	1 ● ◆
3.2.1	Electricity output, kWh/mn pop		5,022.8	45		6.3.3	ICT services exports, % total trade	1.3	72
3.2.2	Logistics performance*		54.1	40	◆	6.3.4	FDI net outflows, % GDP	2.9	23 ◆
3.2.3	Gross capital formation, % GDP		24.3	51		7.1	Intangible assets	44.4	51
3.3	Ecological sustainability		37.9	66		7.1.1	Trademarks by origin/bn PPP\$ GDP	20.9	87 ○
3.3.1	GDP/unit of energy use		8.8	65		7.1.2	Industrial designs by origin/bn PPP\$ GDP	0.6	83 ○
3.3.2	Environmental performance*		59.2	66		7.1.3	ICTs & business model creation†	74.4	21 ◆
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP		2.4	42		7.1.4	ICTs & organizational model creation†	71.9	17 ● ◆
MARKET SOPHISTICATION 57.8 25 ◆				CREATIVE GOODS & SERVICES 37.1 11 ● ◆					
4.1	Credit		44.8	45	◆	7.2.1	Cultural & creative services exports, % total trade	0.3	67
4.1.1	Ease of getting credit*		75.0	29		7.2.2	National feature films/mn pop. 15-69	3.8	48
4.1.2	Domestic credit to private sector, % GDP		118.8	18	◆	7.2.3	Entertainment & Media market/th pop. 15-69	9.7	36 ◆
4.1.3	Microfinance gross loans, % GDP		0.1	52		7.2.4	Printing & other media, % manufacturing	0.9	72 ○
4.2	Investment		55.9	29		7.2.5	Creative goods exports, % total trade	9.8	1 ● ◆
4.2.1	Ease of protecting minority investors*		81.7	2	● ◆	7.3	Online creativity	5.2	64
4.2.2	Market capitalization, % GDP		131.7	6	● ◆	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	6.2	51
4.2.3	Venture capital deals/bn PPP\$ GDP		0.0	48		7.3.2	Country-code TLDs/th pop. 15-69	4.0	56
4.3	Trade, competition, & market scale		72.6	27		7.3.3	Wikipedia edits/mn pop. 15-69	9.4	65
4.3.1	Applied tariff rate, weighted avg., %		4.0	74		7.3.4	Mobile app creation/bn PPP\$ GDP	4.2	54
4.3.2	Intensity of local competition†		76.7	17	● ◆				
4.3.3	Domestic market scale, bn PPP\$		999.8	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 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

Malaysia has complete data coverage in the GII 2019.

The following table lists data that are outdated for Malaysia.

Outdated data

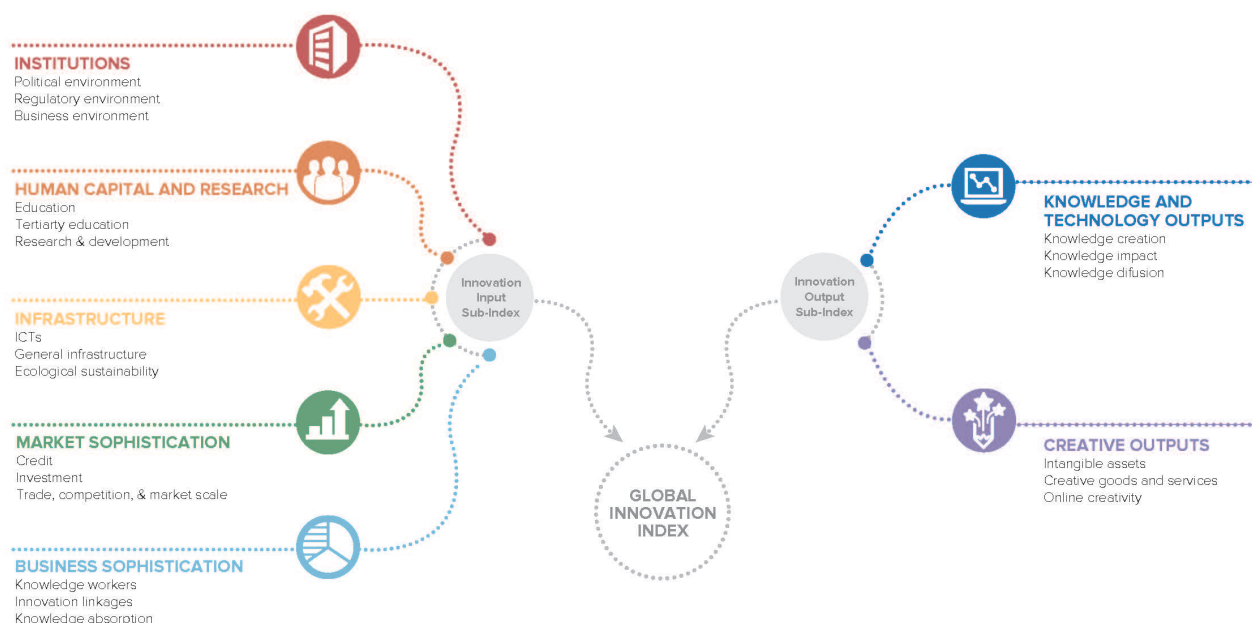
Code	Indicator name	Country year	Model year	Source
2.1.4	PISA scales in reading, maths & science	2012	2015	OECD Programme for International Student Assessment (PISA)
2.3.1	Researchers, FTE/mn pop.	2016	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2016	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.1.3	Microfinance gross loans, % GDP	2011	2017	Microfinance Information Exchange
4.3.1	Applied tariff rate, weighted mean, %	2016	2017	World Bank
5.1.1	Knowledge-intensive employment, %	2016	2017	Source: International Labour Organization
5.1.3	GERD performed by business, % GDP	2016	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2016	2017	International Labour Organization
5.3.5	Research talent, % in business enterprise	2016	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.2.5	High- & medium-high-tech manufactures, %	2015	2016	United Nations Industrial Development Organization
7.2.4	Printing & other media, % manufacturing	2015	2016	United Nations Industrial Development 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 2019, the GII presents its 12th 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.

