Global Innovation Index 2021

MALAYSIA

36th Malaysia ranks 36th among the 132 economies featured in the GII 2021.

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 Malaysia 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 Malaysia in the GII 2021 is between ranks 34 and 36.

Rankings for Malaysia (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	36	36	34
2020	33	34	36
2019	35	34	39

- Malaysia performs better in innovation outputs than innovation inputs in 2021.
- This year Malaysia ranks 36th in innovation inputs, lower than both 2020 and 2019.
- As for innovation outputs, Malaysia ranks 34th. This position is higher than both 2020 and 2019.

3rd Malaysia ranks 3rd among the 34 upper middle-income group economies.

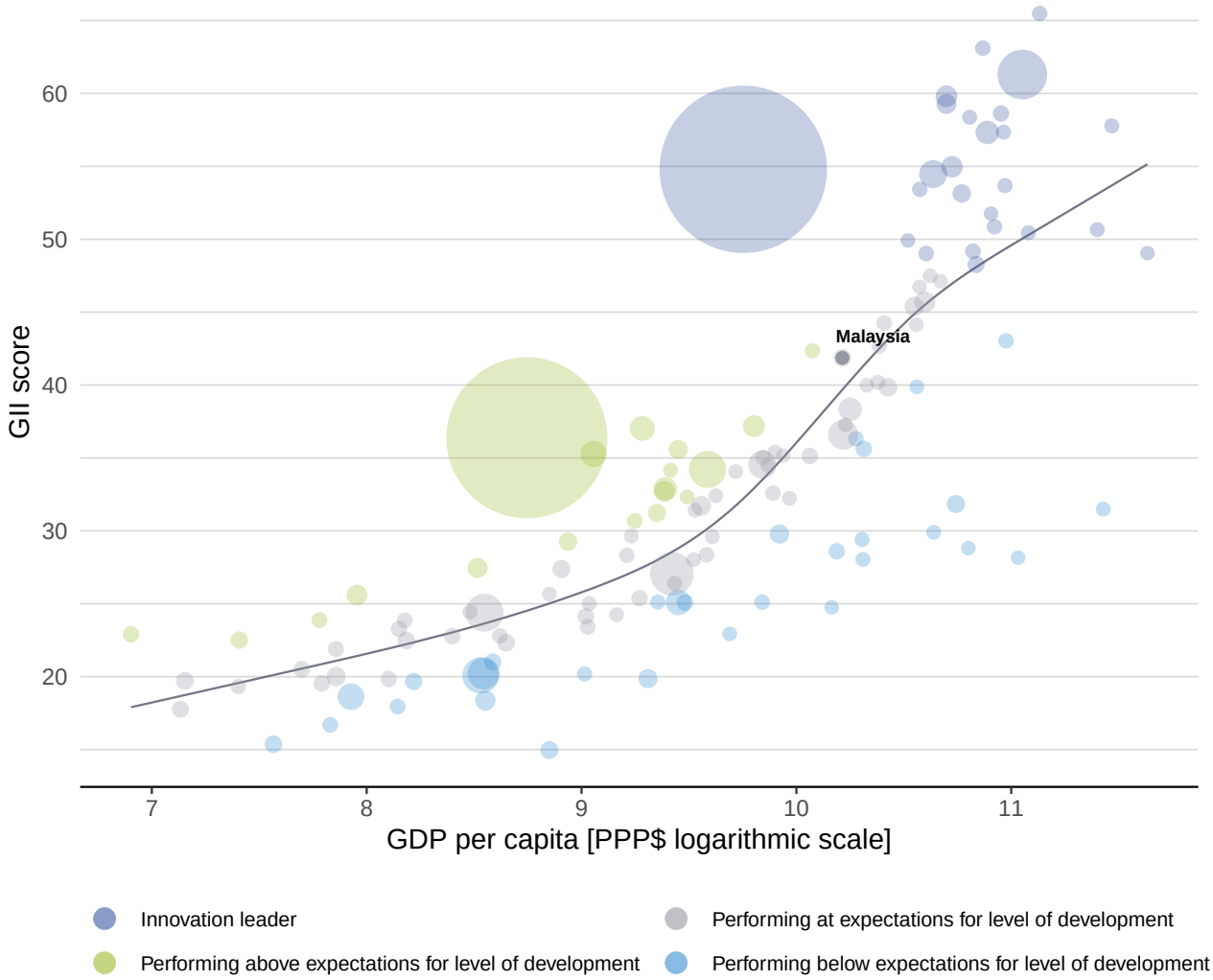
8th Malaysia ranks 8th among the 17 economies in South East Asia, East Asia, and Oceania.

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 performing below expectations.

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

The positive relationship between innovation and development

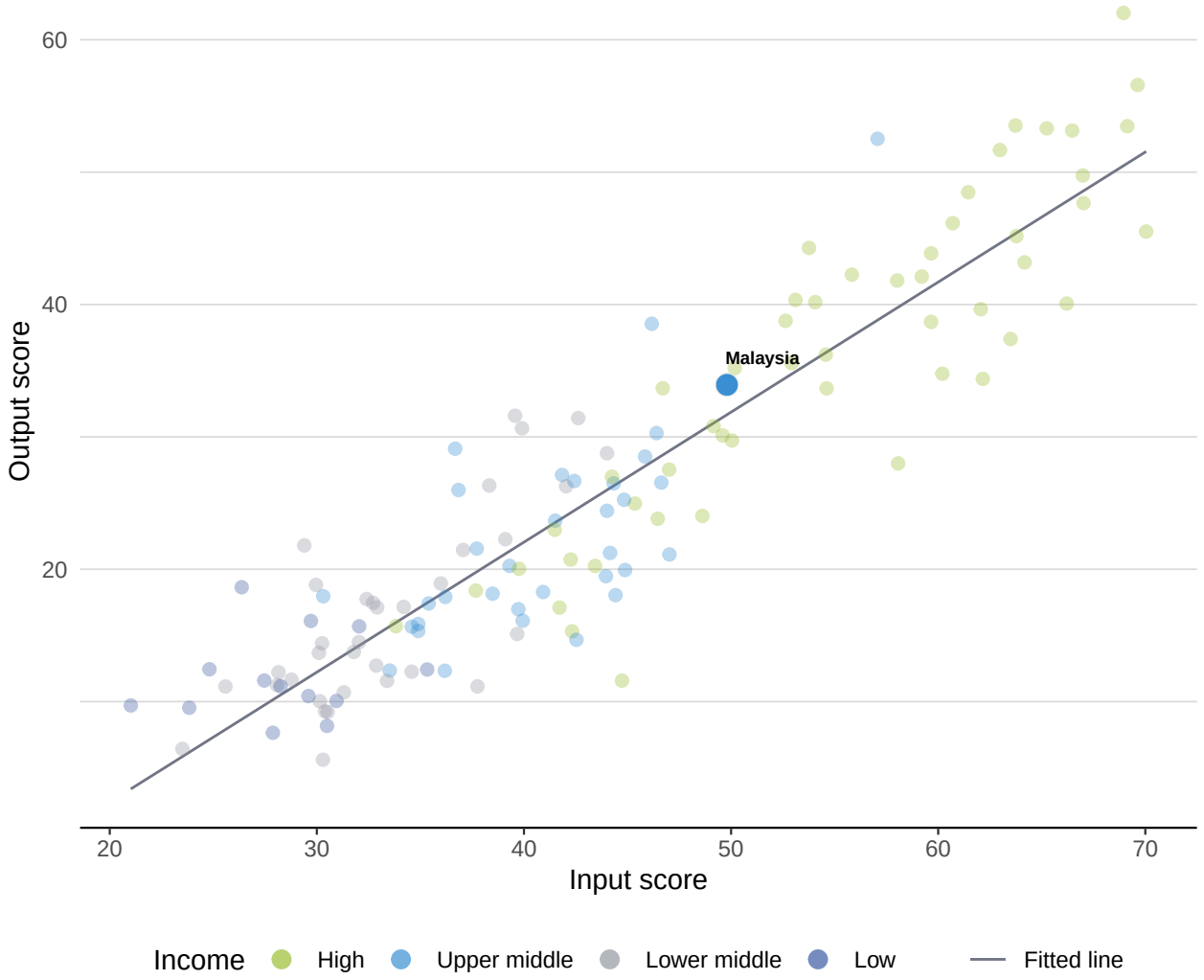


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

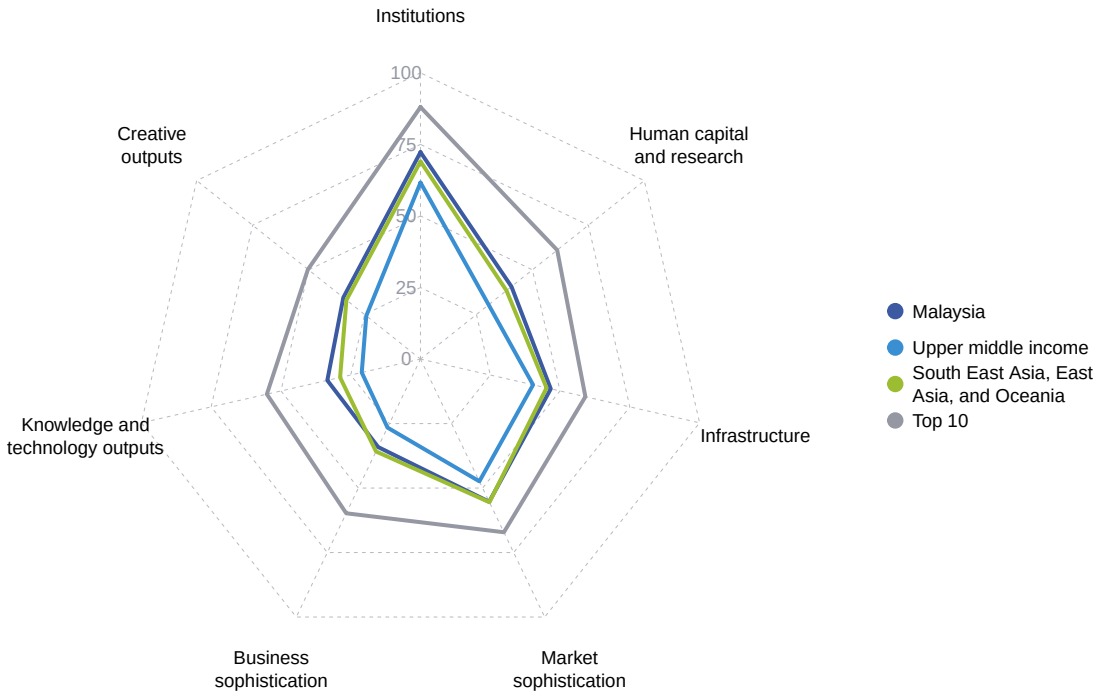
Malaysia produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND SOUTH EAST ASIA, EAST ASIA, AND OCEANIA

The seven GII pillar scores for Malaysia



Upper middle-income group economies

Malaysia performs above the upper middle-income group average in all GII pillars.

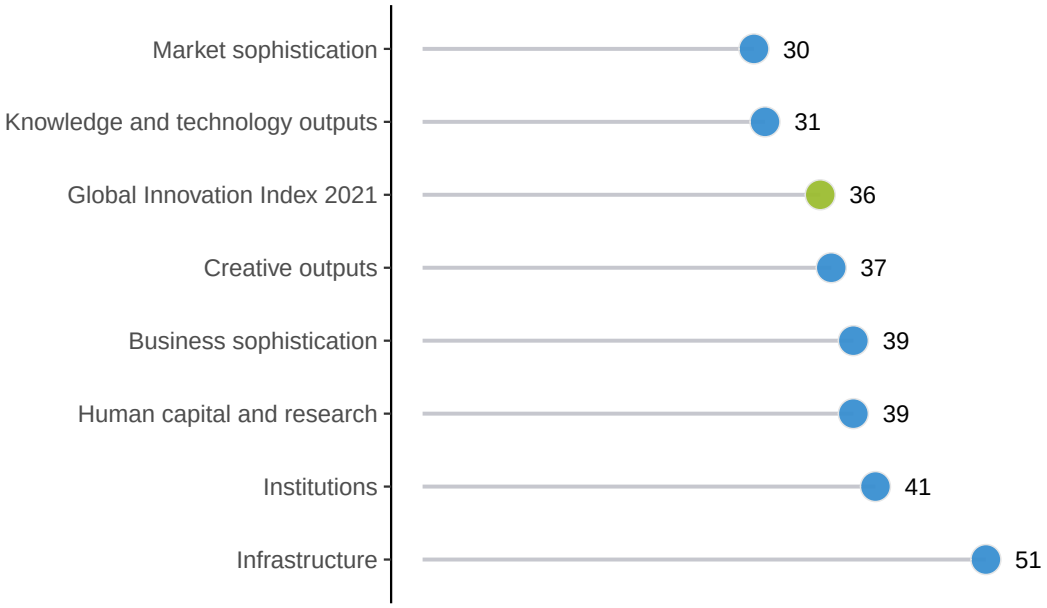
South East Asia, East Asia, and Oceania

Malaysia performs above the regional average in five pillars, namely: Institutions; Human capital and research; Infrastructure; Knowledge and technology outputs; and, Creative outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Malaysia performs best in Market sophistication and its weakest performance is in Infrastructure.

The seven GII pillar ranks for Malaysia



Note: The highest possible ranking in each pillar is one.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Malaysia in the GII 2021.

Strengths and weaknesses for Malaysia

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.2	Tertiary education	15	1.2.3	Cost of redudancy dismissal	103
2.2.2	Graduates in science and engineering, %	5	1.3.1	Ease of starting a business	97
2.3.4	QS university ranking, top 3	14	2.3.3	Global corporate R&D investors, top 3, mn US$	41
4.1.2	Domestic credit to private sector, % GDP	17	4.1.3	Microfinance gross loans, % GDP	56
4.2.1	Ease of protecting minority investors	2	5.1.2	Firms offering formal training, %	82
4.2.2	Market capitalization, % GDP	8	5.3.5	Research talent, % in businesses	59
5.2.2	State of cluster development and depth	13	6.1.3	Utility models by origin/bn PPP$ GDP	53
5.3.2	High-tech imports, % total trade	4	7.1.1	Trademarks by origin/bn PPP$ GDP	86
6.3	Knowledge diffusion	14	7.1.3	Industrial designs by origin/bn PPP$ GDP	82
6.3.3	High-tech exports, % total trade	1	7.2.4	Printing and other media, % manufacturing	69
7.1.2	Global brand value, top 5,000, % GDP	10			
7.2	Creative goods and services	10			
7.2.5	Creative goods exports, % total trade	1			

Malaysia

GII 2021 rank
36

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
34	36	Upper middle	SEAO	32.4	900.4	27,287	33

		Score/ Value	Rank	
Institutions		**72.3**	**41**	◆
1.1	**Political environment**	**76.5**	**29**	◆
1.1.1	Political and operational stability*	83.9	13	◆
1.1.2	Government effectiveness*	72.8	33	◆
1.2	**Regulatory environment**	**65.1**	**65**	
1.2.1	Regulatory quality*	61.1	41	◆
1.2.2	Rule of law*	62.3	39	◆
1.2.3	Cost of redundancy dismissal	23.9	103 ○	
1.3	**Business environment**	**75.2**	**50**	
1.3.1	Ease of starting a business*	83.3	97 ○	
1.3.2	Ease of resolving insolvency*	67.0	37	
Human capital and research		**40.6**	**39**	◆
2.1	**Education**	**46.0**	**77**	
2.1.1	Expenditure on education, % GDP	4.2	63	
2.1.2	Government funding/pupil, secondary, % GDP/cap	19.2	53	
2.1.3	School life expectancy, years ◴	13.7	73	
2.1.4	PISA scales in reading, maths and science	430.9	48	
2.1.5	Pupil-teacher ratio, secondary	11.4	43	
2.2	**Tertiary education**	**49.6**	**15**	● ◆
2.2.1	Tertiary enrolment, % gross	43.1	69	
2.2.2	Graduates in science and engineering, %	39.2	5	● ◆
2.2.3	Tertiary inbound mobility, %	6.7	37	
2.3	**Research and development (R&D)**	**26.3**	**40**	◆
2.3.1	Researchers, FTE/mn pop. ◴	2,184.7	37	◆
2.3.2	Gross expenditure on R&D, % GDP ◴	1.0	37	◆
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41	○ ◇
2.3.4	QS university ranking, top 3*	58.3	14	● ◆
Infrastructure		**46.7**	**51**	
3.1	**Information and communication technologies (ICTs)**	**79.2**	**35**	◆
3.1.1	ICT access*	79.2	36	◆
3.1.2	ICT use*	66.6	55	
3.1.3	Government's online service*	85.3	24	
3.1.4	E-participation*	85.7	29	
3.2	**General infrastructure**	**31.3**	**55**	
3.2.1	Electricity output, GWh/mn pop.	5,406.7	39	◆
3.2.2	Logistics performance*	54.5	40	◆
3.2.3	Gross capital formation, % GDP	21.6	73	
3.3	**Ecological sustainability**	**29.6**	**61**	
3.3.1	GDP/unit of energy use	10.2	65	
3.3.2	Environmental performance*	47.9	62	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.5	34	
Market sophistication		**55.3**	**30**	◆
4.1	**Credit**	**50.5**	**31**	◆
4.1.1	Ease of getting credit*	75.0	34	
4.1.2	Domestic credit to private sector, % GDP	120.9	17	● ◆
4.1.3	Microfinance gross loans, % GDP ◴	0.1	56 ○	
4.2	**Investment**	**35.2**	**49**	
4.2.1	Ease of protecting minority investors*	88.0	2	● ◆
4.2.2	Market capitalization, % GDP	121.5	8	● ◆
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	52	
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	58	
4.3	**Trade, diversification, and market scale**	**80.2**	**28**	
4.3.1	Applied tariff rate, weighted avg., % ◴	4.0	74	
4.3.2	Domestic industry diversification	94.4	32	
4.3.3	Domestic market scale, bn PPP$	900.4	29	

		Score/ Value	Rank	
Business sophistication		**34.1**	**39**	◆
5.1	**Knowledge workers**	**30.2**	**68**	
5.1.1	Knowledge-intensive employment, %	27.5	55	
5.1.2	Firms offering formal training, % ◴	18.5	82 ○	
5.1.3	GERD performed by business, % GDP ◴	0.5	39	
5.1.4	GERD financed by business, %	38.2	46	
5.1.5	Females employed w/advanced degrees, % ◴	12.5	59	
5.2	**Innovation linkages**	**28.8**	**38**	◆
5.2.1	University-industry R&D collaboration†	58.8	25	◆
5.2.2	State of cluster development and depth†	65.2	13	● ◆
5.2.3	GERD financed by abroad, % GDP	0.1	48	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.1	25	◆
5.2.5	Patent families/bn PPP$ GDP	0.2	51	
5.3	**Knowledge absorption**	**43.3**	**24**	◆
5.3.1	Intellectual property payments, % total trade	0.9	42	
5.3.2	High-tech imports, % total trade	25.5	4	● ◆
5.3.3	ICT services imports, % total trade	1.6	49	
5.3.4	FDI net inflows, % GDP	2.6	67	
5.3.5	Research talent, % in businesses ◴	15.8	59 ○	
Knowledge and technology outputs		**33.4**	**31**	◆
6.1	**Knowledge creation**	**12.8**	**69**	
6.1.1	Patents by origin/bn PPP$ GDP	1.1	61	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.3	43	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	53 ○	
6.1.4	Scientific and technical articles/bn PPP$ GDP	15.3	56	
6.1.5	Citable documents H-index	20.1	41	
6.2	**Knowledge impact**	**38.5**	**30**	◆
6.2.1	Labor productivity growth, %	–0.3	75	
6.2.2	New businesses/th pop. 15–64	2.4	52	
6.2.3	Software spending, % GDP	0.3	36	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	10.7	27	
6.2.5	High-tech manufacturing, %	44.4	20	◆
6.3	**Knowledge diffusion**	**48.9**	**14**	● ◆
6.3.1	Intellectual property receipts, % total trade	0.1	53	
6.3.2	Production and export complexity	67.7	26	◆
6.3.3	High-tech exports, % total trade	38.6	1	● ◆
6.3.4	ICT services exports, % total trade	1.3	72	
Creative outputs		**34.5**	**37**	◆
7.1	**Intangible assets**	**40.5**	**39**	
7.1.1	Trademarks by origin/bn PPP$ GDP	23.8	86 ○	
7.1.2	Global brand value, top 5,000, % GDP	153.2	10	● ◆
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.6	82 ○	
7.1.4	ICTs and organizational model creation†	71.9	17	◆
7.2	**Creative goods and services**	**41.1**	**10**	● ◆
7.2.1	Cultural and creative services exports, % total trade	0.3	64	
7.2.2	National feature films/mn pop. 15–69	3.8	50	
7.2.3	Entertainment and media market/th pop. 15–69	12.2	33	◆
7.2.4	Printing and other media, % manufacturing ◴	0.8	69 ○	
7.2.5	Creative goods exports, % total trade	8.8	1	● ◆
7.3	**Online creativity**	**15.8**	**71**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	6.3	50	
7.3.2	Country-code TLDs/th pop. 15–69	4.0	58	
7.3.3	Wikipedia edits/mn pop. 15–69	49.7	65	
7.3.4	Mobile app creation/bn PPP$ GDP	3.3	64	

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 IV 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 Malaysia.

Missing data for Malaysia

Code	Indicator name	Economy year	Model year	Source

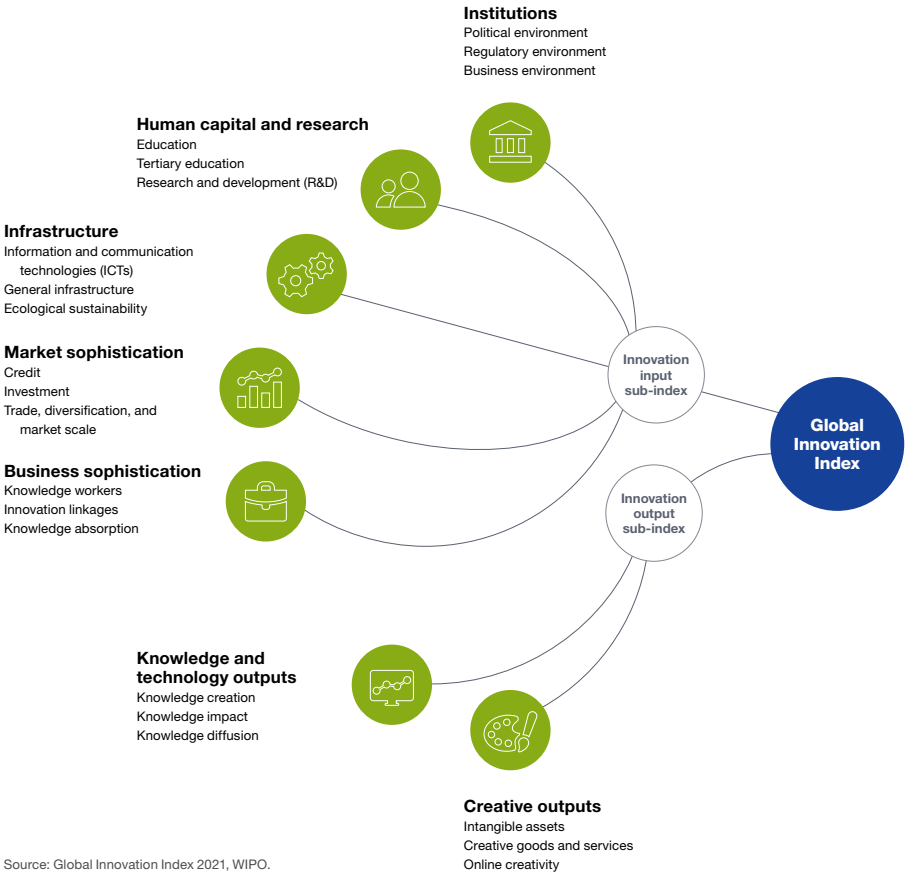
Outdated data for Malaysia

Code	Indicator name	Economy year	Model year	Source
2.1.3	School life expectancy, years	2017	2018	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.1.3	Microfinance gross loans, % GDP	2011	2018	Microfinance Information Exchange
4.3.1	Applied tariff rate, weighted avg., %	2016	2019	World Bank
5.1.2	Firms offering formal training, %	2015	2019	World Bank
5.1.3	GERD performed by business, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2016	2019	International Labour Organization
5.3.5	Research talent, % in businesses	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
7.2.4	Printing and other media, % manufacturing	2017	2018	United Nations Industrial Development Organization

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 2021, WIPO.

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.