Global Innovation Index 2022

MALAYSIA

36th Malaysia ranks 36th among the 132 economies featured in the GII 2022.

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 2022 is between ranks 35 and 37.

Rankings for Malaysia (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	33	34	36
2021	36	36	34
2022	36	35	37

- Malaysia performs better in innovation inputs than innovation outputs in 2022.
- This year Malaysia ranks 35th in innovation inputs, higher than last year but lower than 2020.
- As for innovation outputs, Malaysia ranks 37th. This position is lower than both 2021 and 2020.

3rd Malaysia ranks 3rd among the 36 upper-middle-income group economies.

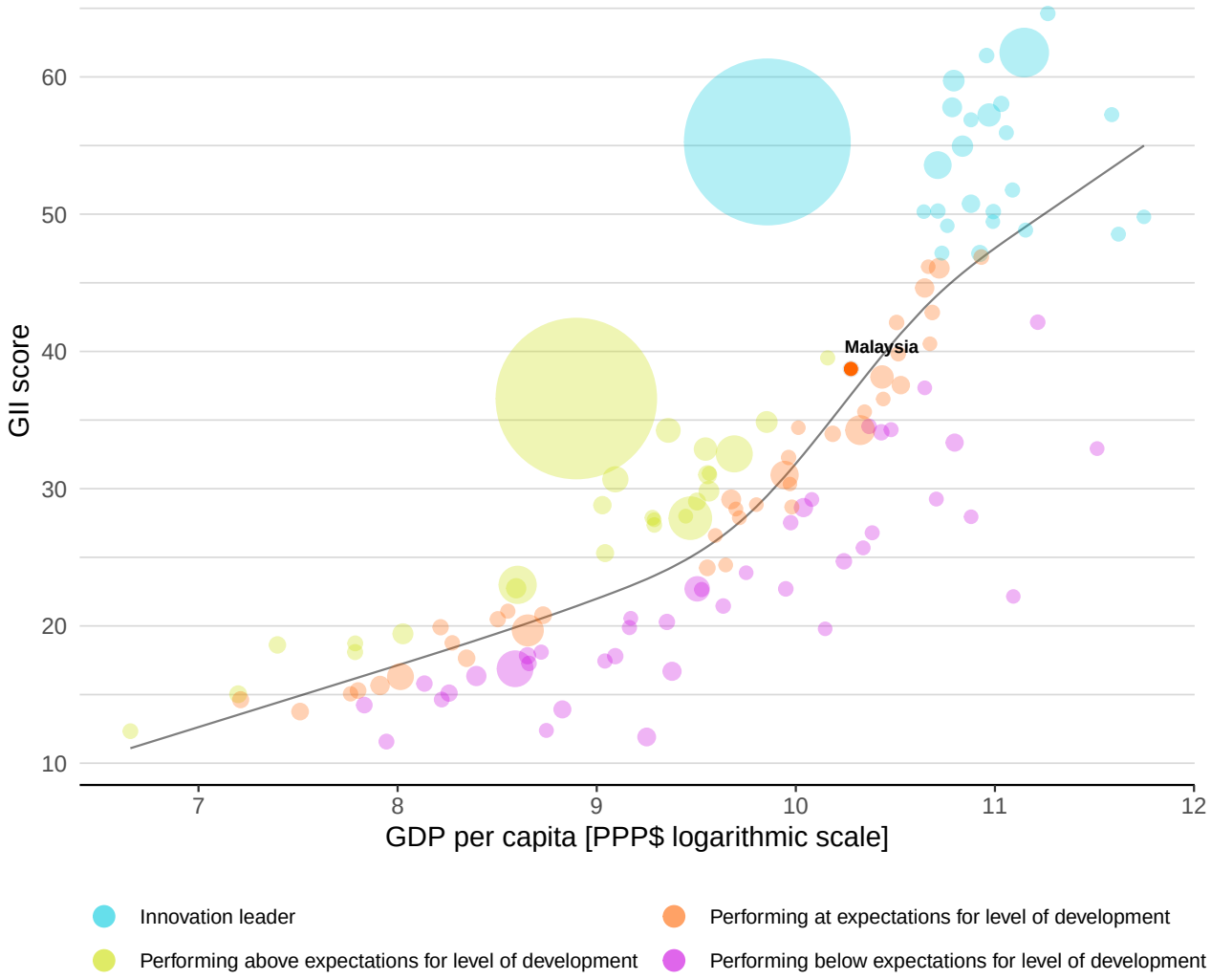
8th Malaysia ranks 8th among the 17 economies in South East Asia, East Asia, and Oceania.

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

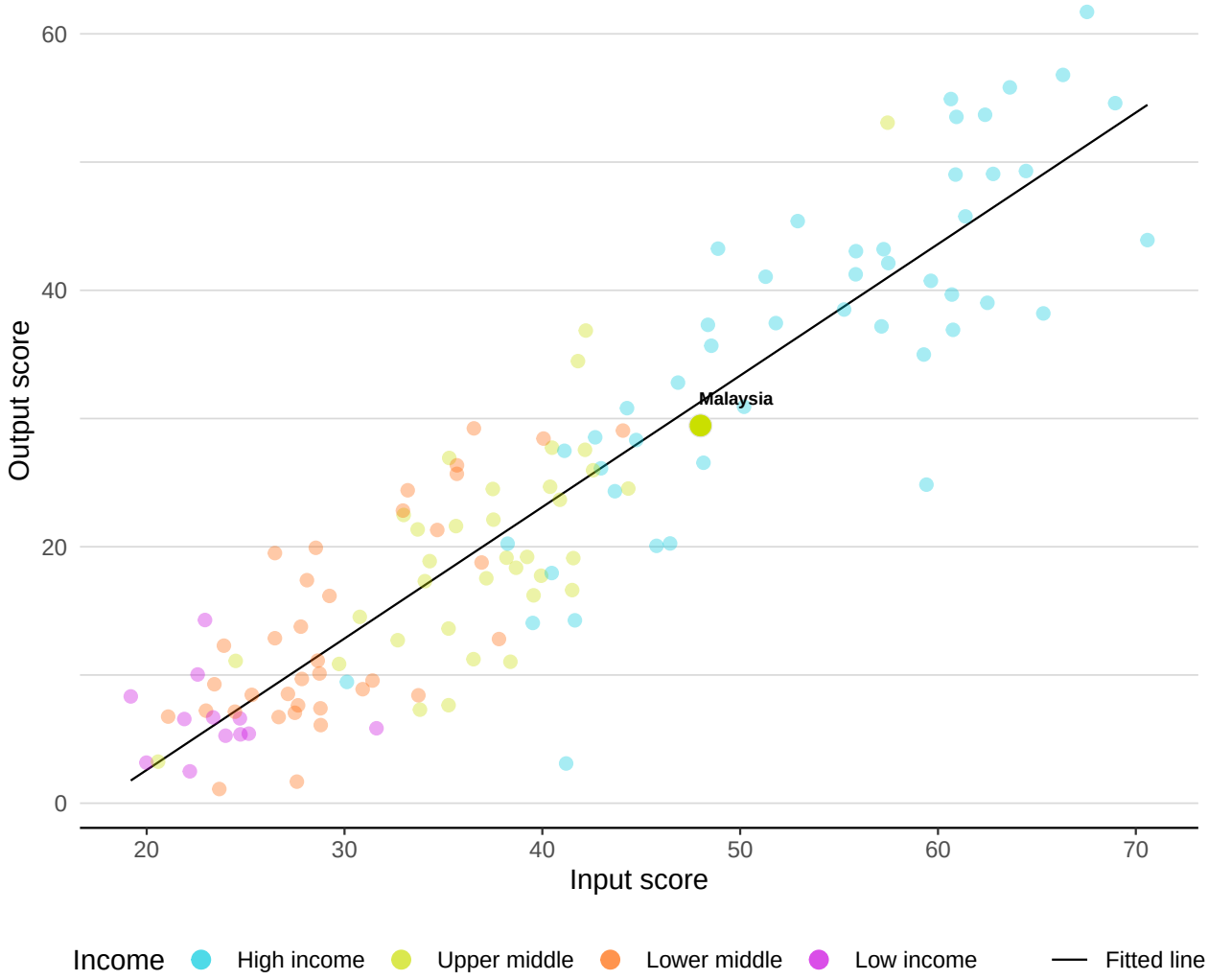


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

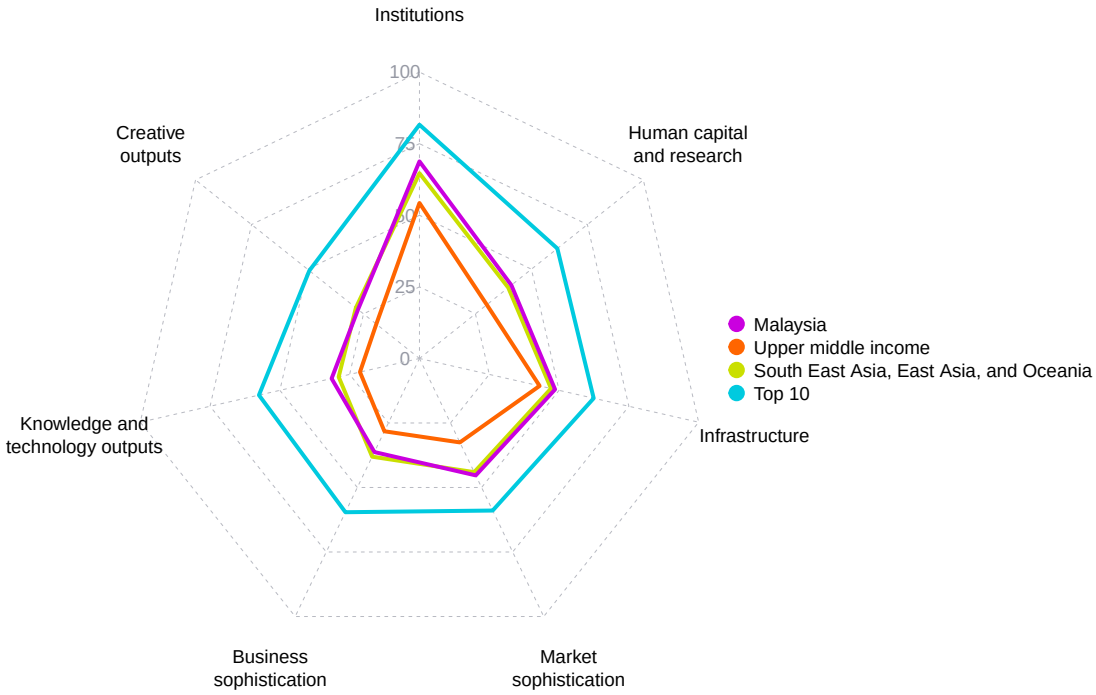
Malaysia produces less innovation outputs relative to its level of innovation investments.

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.

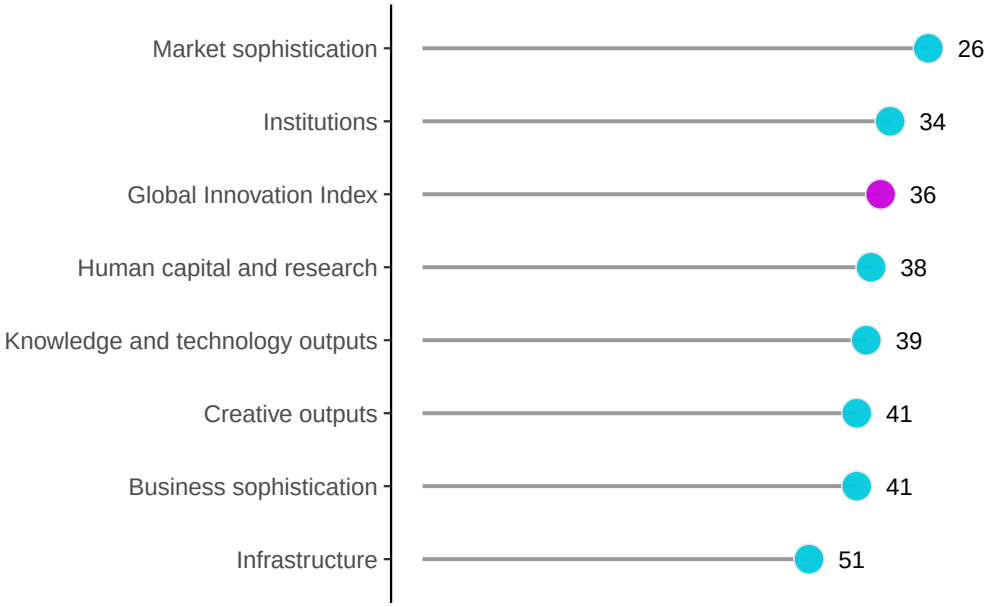
South East Asia, East Asia, and Oceania

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

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 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 1.

The full WIPO Intellectual Property Statistics profile for Malaysia can be found at:

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=MY.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Malaysia in the GII 2022.

Strengths and weaknesses for Malaysia

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.2.2	Graduates in science and engineering, %	3	1.2.3	Cost of redundancy dismissal	104
2.3.4	QS university ranking, top 3	16	2.1.3	School life expectancy, years	79
3.1.1	ICT access	19	2.3.3	Global corporate R&D investors, top 3, mn USD	38
4.1.1	Finance for startups and scaleups	2	3.2.3	Gross capital formation, % GDP	94
4.1.2	Domestic credit to private sector, % GDP	16	3.3.2	Environmental performance	91
4.2.1	Market capitalization, % GDP	11	5.1.2	Firms offering formal training, %	83
5.3.2	High-tech imports, % total trade	4	5.3.5	Research talent, % in businesses	57
6.3.3	High-tech exports, % total trade	1	6.1.3	Utility models by origin/bn PPP$ GDP	56
7.1.3	Global brand value, top 5,000, % GDP	10	7.1.2	Trademarks by origin/bn PPP$ GDP	93
7.2.5	Creative goods exports, % total trade	1	7.1.4	Industrial designs by origin/bn PPP$ GDP	81

GII 2022 rank

Malaysia

36

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
37	35	Upper middle	SEAO	32.8	969.0	29,048

			Score/ Value	Rank	
Institutions			**68.8**	**34**	◆
1.1	**Political environment**		77.9	24	◆
1.1.1	Political and operational stability*		83.6	16	◆
1.1.2	Government effectiveness*		72.1	29	◆
1.2	**Regulatory environment**		66.1	62	
1.2.1	Regulatory quality*		64.2	40	◆
1.2.2	Rule of law*		63.2	39	◆
1.2.3	Cost of redundancy dismissal		23.9	104 ○	
1.3	**Business environment**		62.4	29	◆
1.3.1	Policies for doing business†		62.2	33	◆
1.3.2	Entrepreneurship policies and culture*	◴	62.6	20	◆
Human capital and research			**41.0**	**38**	◆
2.1	**Education**		47.8	74	
2.1.1	Expenditure on education, % GDP		3.9	78	
2.1.2	Government funding/pupil, secondary, % GDP/cap		20.2	56	
2.1.3	School life expectancy, years		13.3	79 ○	
2.1.4	PISA scales in reading, maths and science		430.9	48	
2.1.5	Pupil-teacher ratio, secondary		11.1	40	
2.2	**Tertiary education**		48.7	13 ●	◆
2.2.1	Tertiary enrolment, % gross		42.6	74	
2.2.2	Graduates in science and engineering, %		38.9	3 ●	◆
2.2.3	Tertiary inbound mobility, %		7.5	33	◆
2.3	**Research and development (R&D)**		26.7	38	◆
2.3.1	Researchers, FTE/mn pop.	◴	2,184.7	38	◆
2.3.2	Gross expenditure on R&D, % GDP	◴	1.0	40	◆
2.3.3	Global corporate R&D investors, top 3, mn USD		0.0	38 ○	◇
2.3.4	QS university ranking, top 3*		58.0	16 ●	◆
Infrastructure			**48.6**	**51**	
3.1	**Information and communication technologies (ICTs)**		84.6	30	◆
3.1.1	ICT access*		93.6	19 ●	◆
3.1.2	ICT use*		73.9	44	◆
3.1.3	Government's online service*		85.3	24	
3.1.4	E-participation*		85.7	29	
3.2	**General infrastructure**		35.3	47	
3.2.1	Electricity output, GWh/mn pop.	◴	5,501.7	37	◆
3.2.2	Logistics performance*		54.4	40	◆
3.2.3	Gross capital formation, % GDP		19.7	94 ○	
3.3	**Ecological sustainability**		25.7	66	
3.3.1	GDP/unit of energy use		9.9	72	
3.3.2	Environmental performance*		35.0	91 ○	◇
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP		2.7	32	
Market sophistication			**45.3**	**26**	◆
4.1	**Credit**		55.7	10 ●	◆
4.1.1	Finance for startups and scaleups*	◴	60.6	2 ●	◆
4.1.2	Domestic credit to private sector, % GDP		134.0	16 ●	◆
4.1.3	Loans from microfinance institutions, % GDP		n/a	n/a	
4.2	**Investment**		16.2	40	
4.2.1	Market capitalization, % GDP		117.0	11 ●	◆
4.2.2	Venture capital investors, deals/bn PPP$ GDP		0.0	54	
4.2.3	Venture capital recipients, deals/bn PPP$ GDP		0.0	61	
4.2.4	Venture capital received, value, % GDP		0.0	46	
4.3	**Trade, diversification, and market scale**		64.0	33	
4.3.1	Applied tariff rate, weighted avg., %		3.6	79	
4.3.2	Domestic industry diversification		93.7	30	
4.3.3	Domestic market scale, bn PPP$		969.0	29	

			Score/ Value	Rank	
Business sophistication			**36.3**	**41**	◆
5.1	**Knowledge workers**		32.9	62	
5.1.1	Knowledge-intensive employment, %	◴	28.2	52	
5.1.2	Firms offering formal training, %	◴	18.5	83 ○	
5.1.3	GERD performed by business, % GDP	◴	0.5	41	
5.1.4	GERD financed by business, %	◴	38.2	45	
5.1.5	Females employed w/advanced degrees, %	◴	14.7	52	
5.2	**Innovation linkages**		31.2	37	◆
5.2.1	University-industry R&D collaboration†		53.6	36	◆
5.2.2	State of cluster development and depth†		59.1	29	◆
5.2.3	GERD financed by abroad, % GDP	◴	0.1	43	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP		0.1	22	◆
5.2.5	Patent families/bn PPP$ GDP		0.2	48	
5.3	**Knowledge absorption**		44.7	27	◆
5.3.1	Intellectual property payments, % total trade		1.0	38	
5.3.2	High-tech imports, % total trade		29.4	4 ●	◆
5.3.3	ICT services imports, % total trade		2.0	37	
5.3.4	FDI net inflows, % GDP		2.0	72	
5.3.5	Research talent, % in businesses	◴	15.8	57 ○	
Knowledge and technology outputs			**31.5**	**39**	◆
6.1	**Knowledge creation**		12.3	67	
6.1.1	Patents by origin/bn PPP$ GDP		1.1	62	
6.1.2	PCT patents by origin/bn PPP$ GDP		0.1	58	
6.1.3	Utility models by origin/bn PPP$ GDP		0.1	56 ○	
6.1.4	Scientific and technical articles/bn PPP$ GDP		18.0	52	
6.1.5	Citable documents H-index		22.0	40	
6.2	**Knowledge impact**		36.1	36	
6.2.1	Labor productivity growth, %		1.0	62	
6.2.2	New businesses/th pop. 15–64		2.1	58	
6.2.3	Software spending, % GDP		0.3	34	◆
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP		11.0	26	
6.2.5	High-tech manufacturing, %		45.5	18	◆
6.3	**Knowledge diffusion**		46.0	22	◆
6.3.1	Intellectual property receipts, % total trade		0.1	54	
6.3.2	Production and export complexity		67.8	24	◆
6.3.3	High-tech exports, % total trade		46.9	1 ●	◆
6.3.4	ICT services exports, % total trade		1.6	75	
Creative outputs			**27.4**	**41**	
7.1	**Intangible assets**		38.0	41	
7.1.1	Intangible asset intensity, top 15, %		66.9	28	
7.1.2	Trademarks by origin/bn PPP$ GDP		20.4	93 ○	
7.1.3	Global brand value, top 5,000, % GDP		141.9	10 ●	◆
7.1.4	Industrial designs by origin/bn PPP$ GDP		0.6	81 ○	
7.2	**Creative goods and services**		29.4	31	◆
7.2.1	Cultural and creative services exports, % total trade		0.3	63	
7.2.2	National feature films/mn pop. 15–69		2.1	46	
7.2.3	Entertainment and media market/th pop. 15–69		11.1	33	◆
7.2.4	Printing and other media, % manufacturing		0.8	61	
7.2.5	Creative goods exports, % total trade		9.3	1 ●	◆
7.3	**Online creativity**		4.5	64	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69		6.8	48	
7.3.2	Country-code TLDs/th pop. 15–69		3.9	59	
7.3.3	GitHub commit pushes received/mn pop. 15–69		4.6	62	
7.3.4	Mobile app creation/bn PPP$ GDP		2.5	66	

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/global_innovation_index/en/2022. 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 indicators that are either missing or outdated for Malaysia.

Missing data for Malaysia

Code	Indicator name	Economy year	Model year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2020	International Monetary Fund, Financial Access Survey (FAS)

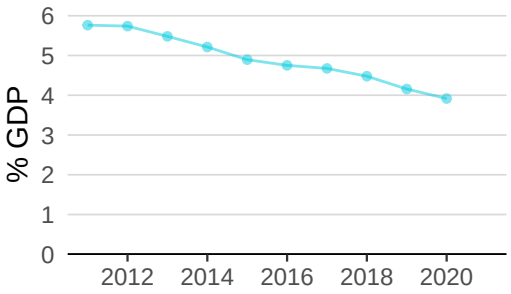
Outdated data for Malaysia

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	2017	2021	Global Entrepreneurship Monitor
2.3.1	Researchers, FTE/mn pop.	2018	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2018	2020	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2019	2020	International Energy Agency
4.1.1	Finance for startups and scaleups	2017	2021	Global Entrepreneurship Monitor
5.1.1	Knowledge-intensive employment, %	2020	2021	International Labour Organization
5.1.2	Firms offering formal training, %	2015	2019	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2018	2020	UNESCO Institute for Statistics
5.1.4	GERD financed by business, %	2018	2019	UNESCO Institute for Statistics
5.1.5	Females employed w/advanced degrees, %	2020	2021	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2018	2019	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	2018	2020	UNESCO Institute for Statistics

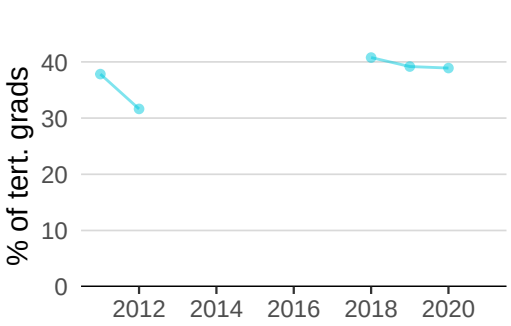
MALAYSIA'S INNOVATION SYSTEM

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

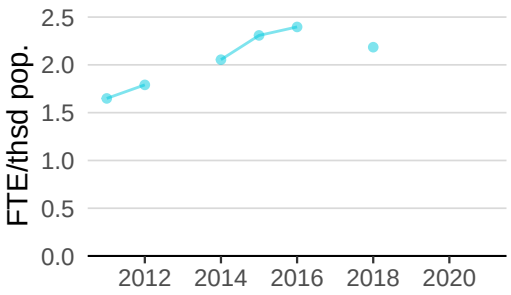
Innovation inputs



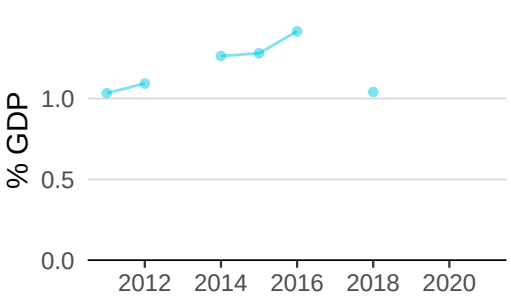
2.1.1 Expenditure on education was equal to 3.9% GDP in 2020–down by 6 percentage points from the year prior–and equivalent to an indicator rank of 78.



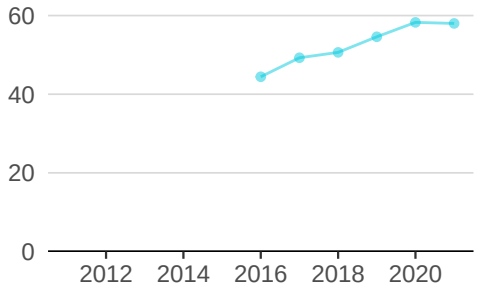
2.2.2 Graduates in science and engineering was equal to 38.9% of tert. grads in 2020–down by 1 percentage point from the year prior–and equivalent to an indicator rank of 3.



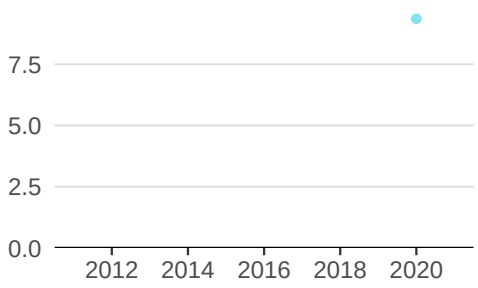
2.3.1 Researchers was equal to 2.2 FTE/thsd pop. in 2018 and equivalent to an indicator rank of 38.



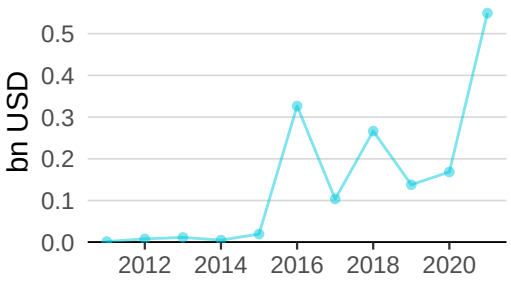
2.3.2 Gross expenditure on R&D was equal to 1.0% GDP in 2018 and equivalent to an indicator rank of 40.



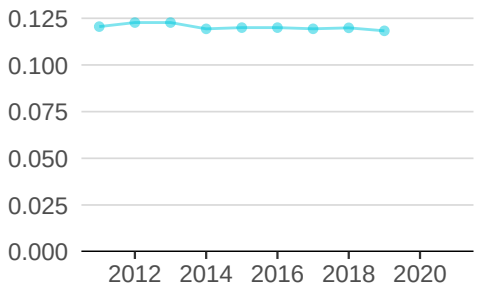
2.3.4 QS university ranking was equal to 58.0 in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 16.



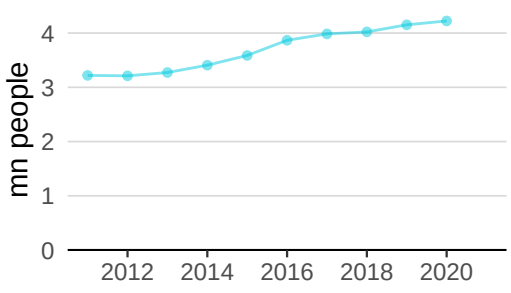
3.1.1 ICT access was equal to 9.4 in 2020 and equivalent to an indicator rank of 19.



4.2.4 Venture capital received was equal to 0.5 bn USD in 2021–up by 226 percentage points from the year prior–and equivalent to an indicator rank of 46.

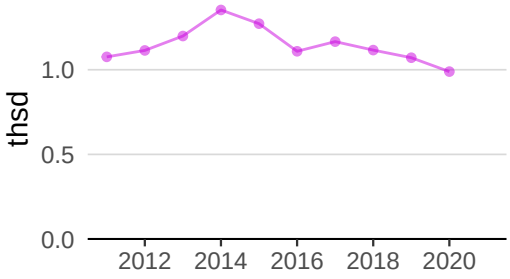


4.3.2 Domestic industry diversification was equal to 0.1 in 2019–down by 1 percentage point from the year prior–and equivalent to an indicator rank of 30.

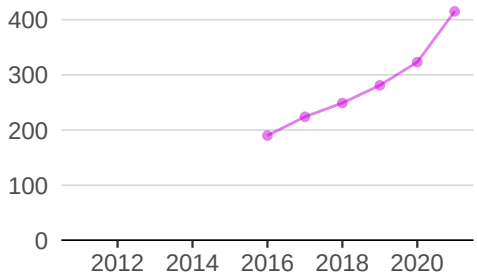


5.1.1 Knowledge-intensive employment was equal to 4.2 mn people in 2020–up by 2 percentage points from the year prior–and equivalent to an indicator rank of 52.

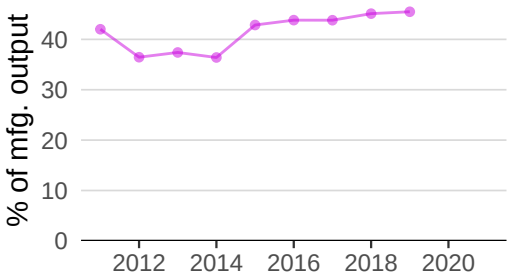
Innovation outputs



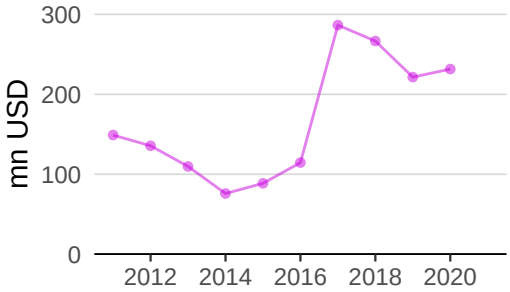
6.1.1 Patents by origin was equal to 1.0 thsd in 2020–down by 8 percentage points from the year prior–and equivalent to an indicator rank of 62.



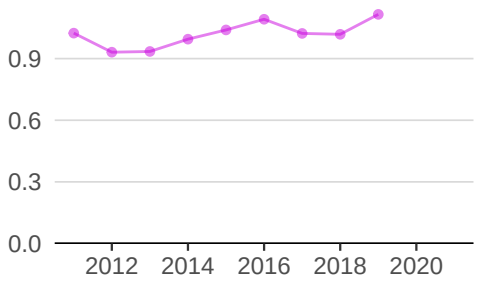
6.1.5 Citable documents H-index was equal to 415.0 in 2021–up by 28 percentage points from the year prior–and equivalent to an indicator rank of 40.



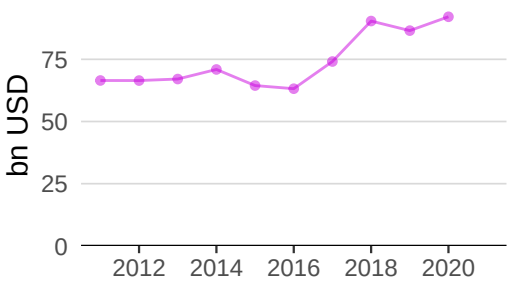
6.2.5 High-tech manufacturing was equal to 45.5% of mfg. output in 2019–up by 1 percentage point from the year prior–and equivalent to an indicator rank of 18.



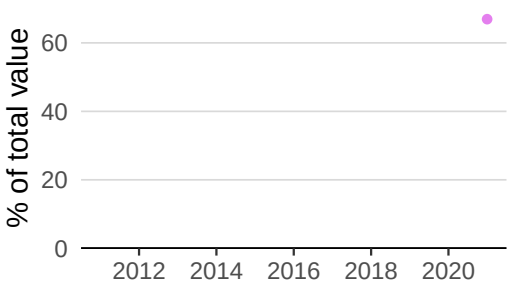
6.3.1 Intellectual property receipts was equal to 231.5 mn USD in 2020–up by 5 percentage points from the year prior–and equivalent to an indicator rank of 54.



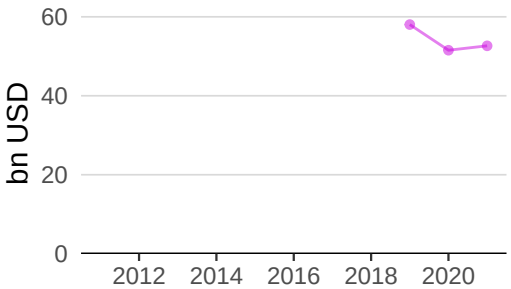
6.3.2 Production and export complexity was equal to 1.1 in 2019–up by 10 percentage points from the year prior–and equivalent to an indicator rank of 24.



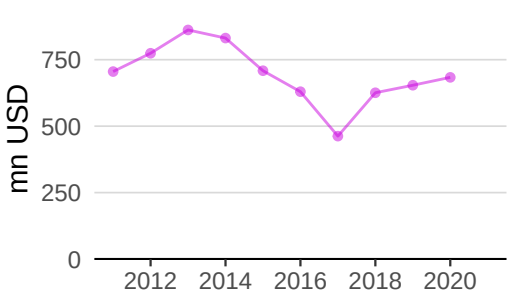
6.3.3 High-tech exports was equal to 92.1 bn USD in 2020–up by 6 percentage points from the year prior–and equivalent to an indicator rank of 1.



7.1.1 Intangible asset intensity was equal to 66.9% of total value in 2021 and equivalent to an indicator rank of 28.



7.1.3 Global brand value was equal to 52.6 bn USD in 2021–up by 2 percentage points from the year prior–and equivalent to an indicator rank of 10.



7.2.1 Cultural and creative services exports was equal to 683.6 mn USD in 2020–up by 5 percentage points from the year prior–and equivalent to an indicator rank of 63.

MALAYSIA'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank

No observations

Source: European Commission's Joint Research Centre (https://iri.jrc.ec.europa.eu/scoreboard/2021-eu-industrial-rd-investment-scoreboard).

2.3.4 QS university ranking

University	Score	Rank
UNIVERSITI PUTRA MALAYSIA	52.2	143
UNIVERSITI KEBANGSAAN MALAYSIA	52.0	144
UNIVERSITI MALAYA	69.8	65

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2022).
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".

7.1.1 Intangible asset intensity, top 15

Firm	Rank
IHH HEALTHCARE	1
MAXIS	2
PUBLIC BANK BERHAD	3

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).
Note: Brand Finance only provides within economy ranks.

7.1.3 Global brand value, top 5,000

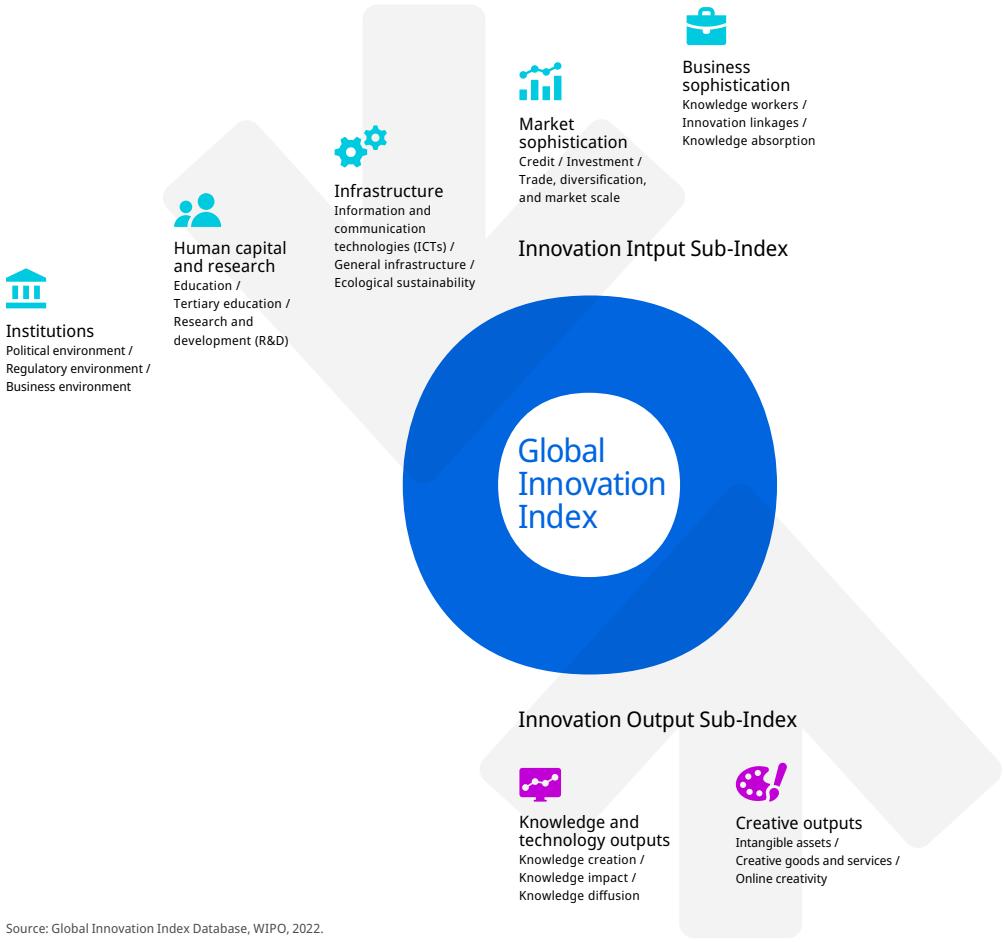
Brand	Industry	Rank
PETRONAS	Oil & Gas	1
GENTING	Leisure & Tourism	2
MAYBANK	Banking	3

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

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, 2022.

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.