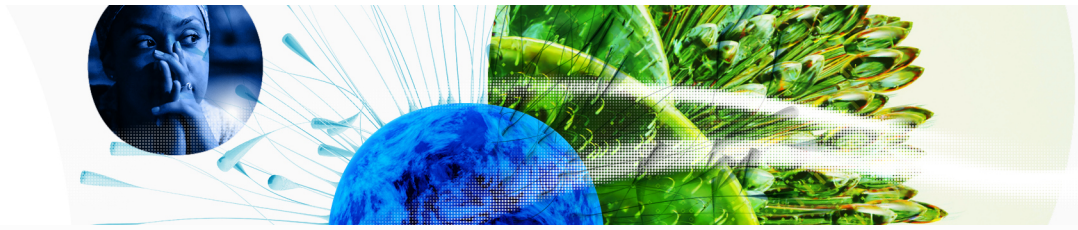
Global Innovation Index 2023



The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

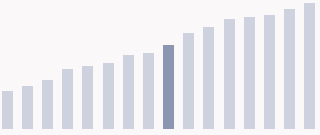
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

Malaysia ranking in the Global Innovation Index 2023

> Malaysia ranks 36th among the 132 economies featured in the GII 2023.

> Malaysia ranks 2nd among the 33 upper-middle-income group economies.

> Malaysia ranks 8th among the 16 economies in South East Asia, East Asia, and Oceania.



> Malaysia GII Ranking (2020-2023)

The table shows the rankings of Malaysia over the past four years. 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 2023 is between ranks 35 and 37.

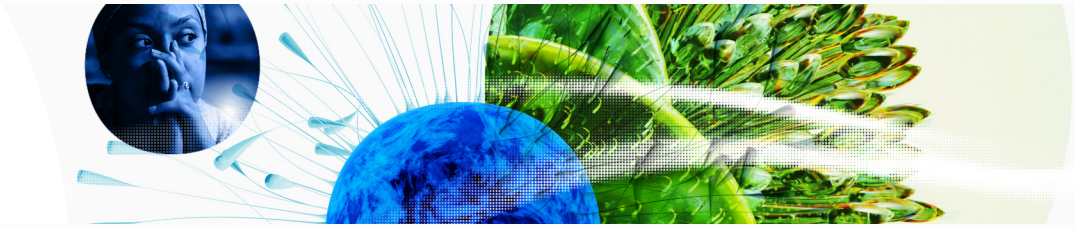
	GII Position	Innovation Inputs	Innovation Outputs
2020	33rd	34th	36th
2021	36th	36th	34th
2022	36th	35th	37th
2023	36th	30th	46th

Malaysia performs worse in innovation outputs than innovation inputs in 2023.

This year Malaysia ranks 30th in innovation inputs. This position is higher than last year.

Malaysia ranks 46th in innovation outputs. This position is lower than last year.

Global Innovation Index 2023

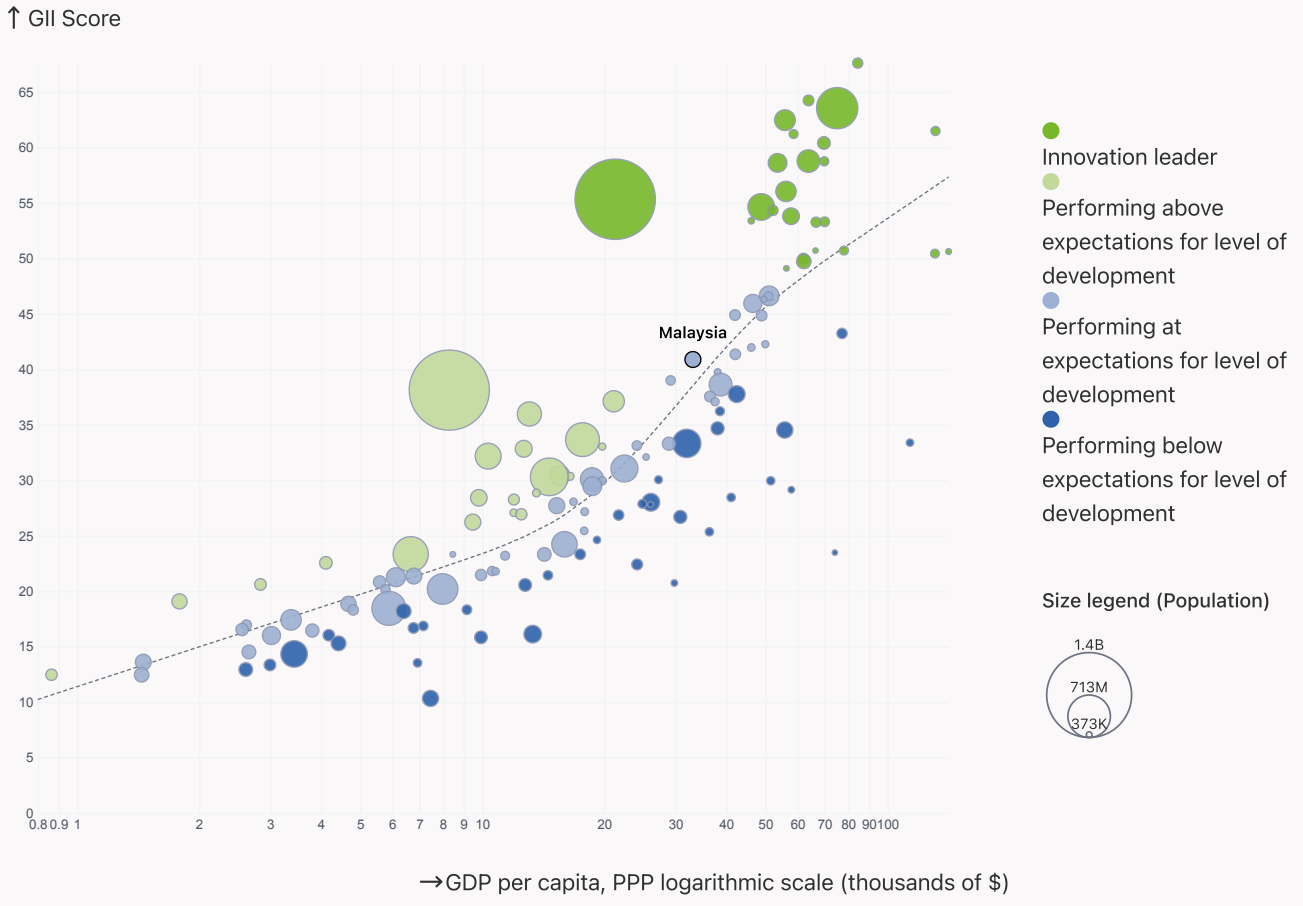


→ Expected vs. observed innovation performance

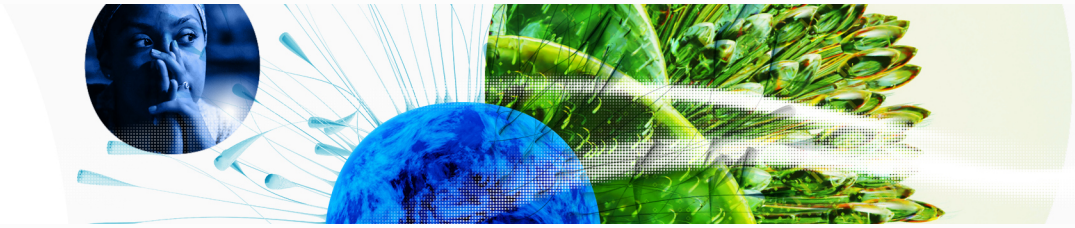
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.

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

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

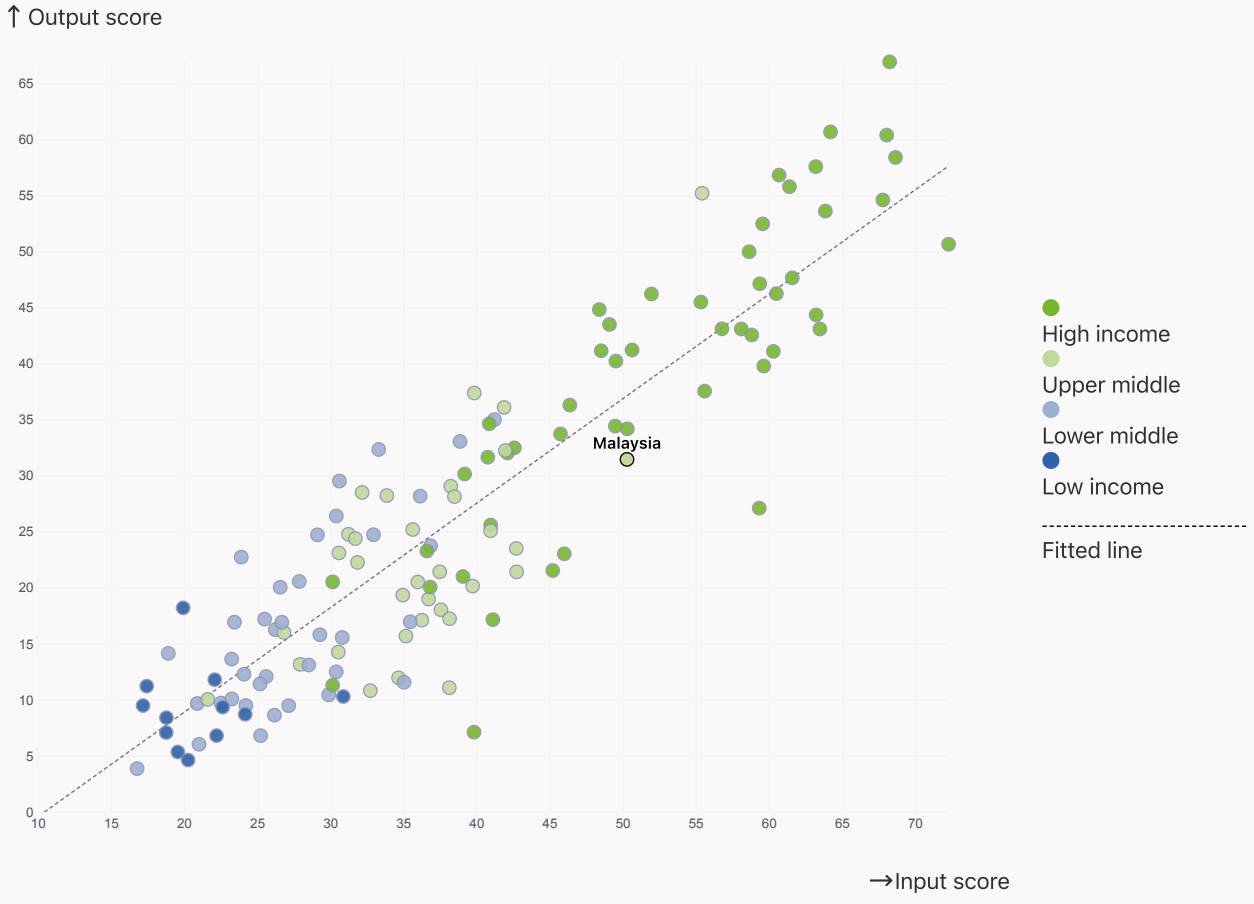


→ Effectively translating innovation investments into innovation outputs

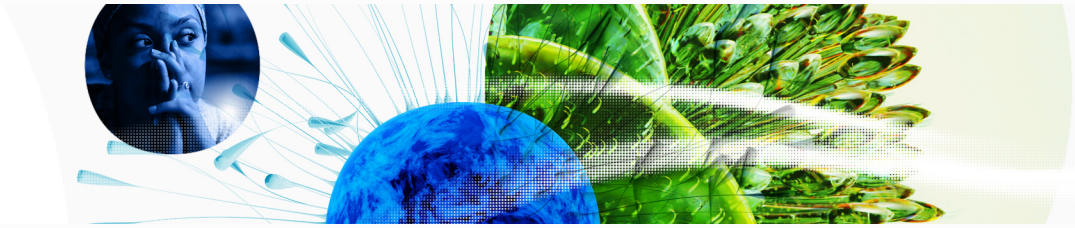
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

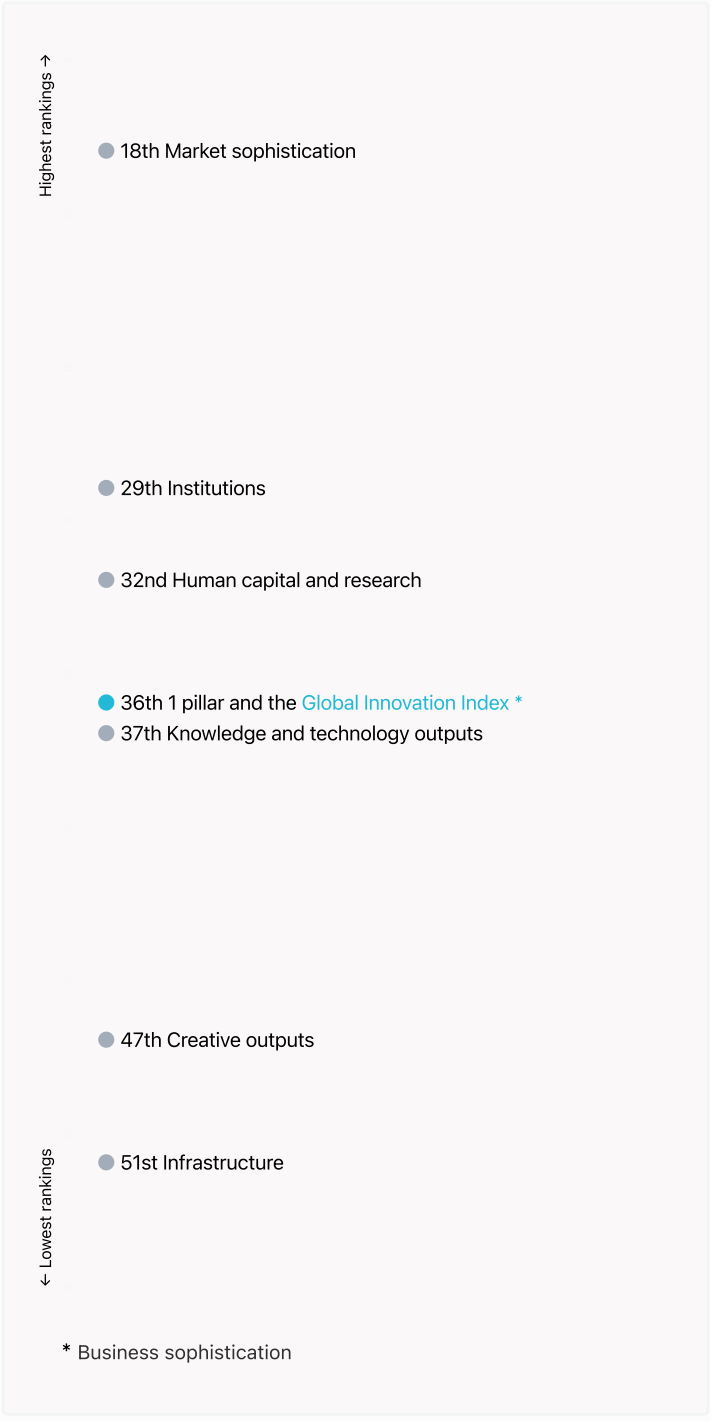


Global Innovation Index 2023



→ Overview of Malaysia's rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Malaysia are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings

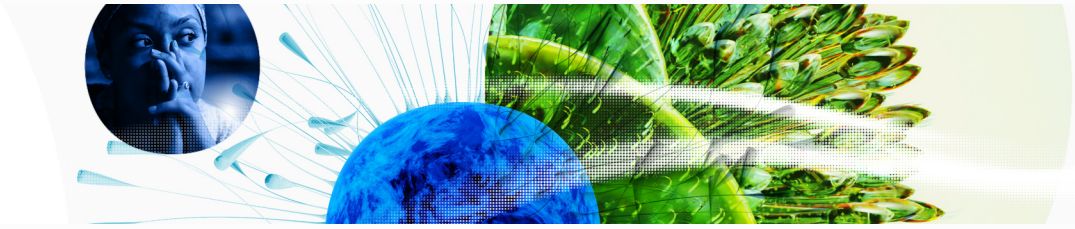
Malaysia ranks highest in Market sophistication (18th), Institutions (29th), Human capital and research (32nd) and Business sophistication (36th).

> Lowest rankings

Malaysia ranks lowest in Infrastructure (51st), Creative outputs (47th) and Knowledge and technology outputs (37th).

The full WIPO Intellectual Property Statistics profile for Malaysia can be found on this link.

Global Innovation Index 2023



→ Benchmark of Malaysia against other country groupings for each of the seven areas of the GII Index

The charts shows the relative position of Malaysia (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> Upper-Middle-Income economies

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

> South East Asia, East Asia, And Oceania

Malaysia performs above the regional average in Market sophistication, Human capital and research, Institutions.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- SEAO | Score: 32.16
- Malaysia | Score: 32.16
- Upper middle income | Score: 22.36

* South East Asia, East Asia, and Oceania

Creative outputs

- Top 10 | 56.09
- SEAO | 34.40
- Malaysia | 30.71
- Upper middle income | 23.16

Business sophistication

- Top 10 | 64.39
- SEAO | 40.54
- Malaysia | 38.80
- Upper middle income | 29.27

Market sophistication

- Top 10 | 61.93
- Malaysia | 53.23
- SEAO | 47.18
- Upper middle income | 35.45

Human capital and research

- Top 10 | 60.28
- Malaysia | 44.30
- SEAO | 40.81
- Upper middle income | 29.68

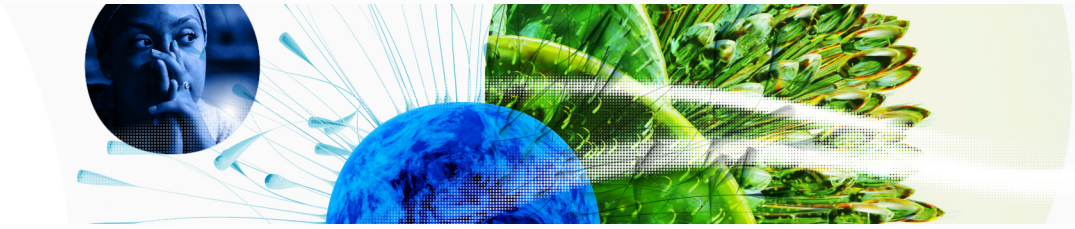
Infrastructure

- Top 10 | 62.83
- SEAO | 47.13
- Malaysia | 46.55
- Upper middle income | 40.40

Institutions

- Top 10 | 79.85
- Malaysia | 68.66
- SEAO | 62.54
- Upper middle income | 47.71

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Malaysia

The table below gives an overview of the indicator strengths and weaknesses of Malaysia in the GII 2023.

> Malaysia's main innovation strengths are **Creative goods exports, % total trade** (rank 1), **High-tech exports, % total trade** (rank 1) and **Graduates in science and engineering, %** (rank 1).

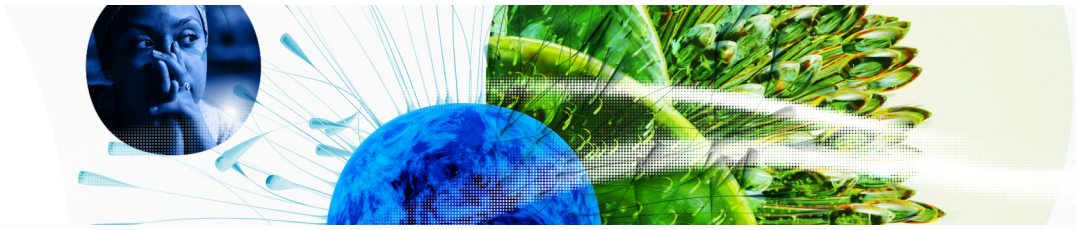
Strengths

Rank	Code	Indicator name
1	7.2.4	Creative goods exports, % total trade
1	6.3.3	High-tech exports, % total trade
1	2.2.2	Graduates in science and engineering, %
2	4.1.1	Finance for startups and scaleups
3	5.3.2	High-tech imports, % total trade
8	1.3.2	Entrepreneurship policies and culture
11	4.2.1	Market capitalization, % GDP
14	2.3.4	QS university ranking, top 3
16	4.1.2	Domestic credit to private sector, % GDP
17	3.1.1	ICT access

Weaknesses

Rank	Code	Indicator name
104	1.2.3	Cost of redundancy dismissal
93	3.3.2	Environmental performance
91	7.1.2	Trademarks by origin/bn PPP$ GDP
86	3.2.3	Gross capital formation, % GDP
83	7.1.4	Industrial designs by origin/bn PPP$ GDP
80	2.1.3	School life expectancy, years
78	3.3.1	GDP/unit of energy use
75	7.2.2	National feature films/mn pop. 15-69
69	5.1.2	Firms offering formal training, %
56	5.3.5	Research talent, % in businesses

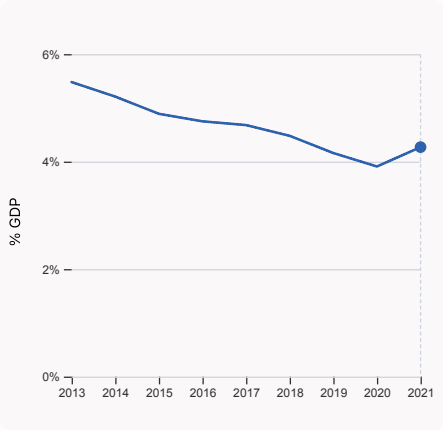
Global Innovation Index 2023



→ Malaysia's innovation system

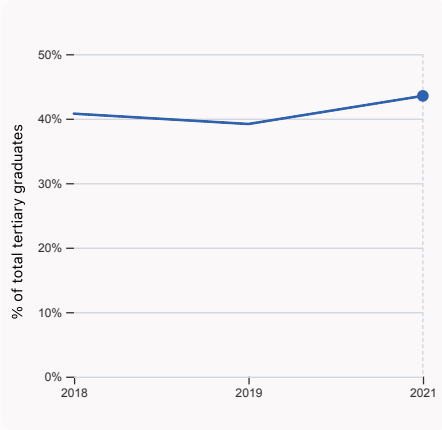
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Malaysia



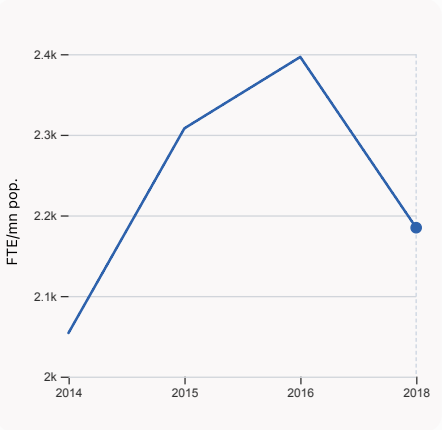
2.1.1 Expenditure on education, % GDP

was equal to 4.27% GDP in 2021, up by 0.36 percentage points from the year prior – and equivalent to an indicator rank of 60.



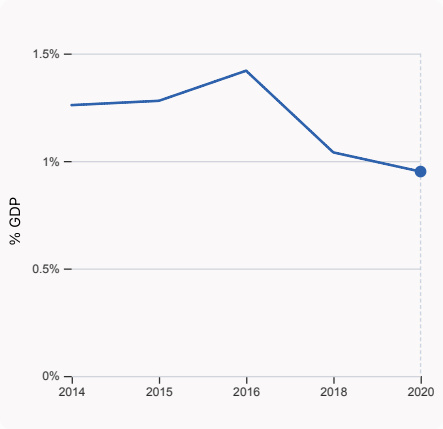
2.2.2 Graduates in science and engineering, %

was equal to 43.53% of total tertiary graduates in 2021, up by 4.36 percentage points from the year prior – and equivalent to an indicator rank of 1.



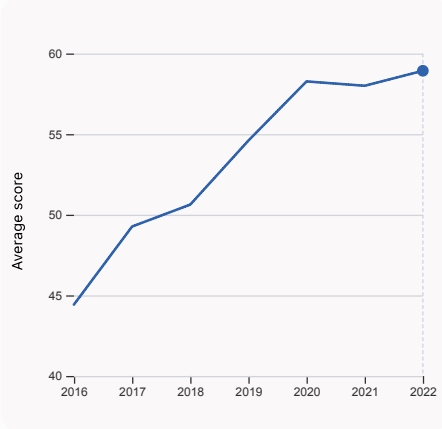
2.3.1 Researchers, FTE/mn pop.

was equal to 2,184.72 FTE/mn pop. in 2018, down by 8.84% from the year prior – and equivalent to an indicator rank of 39.



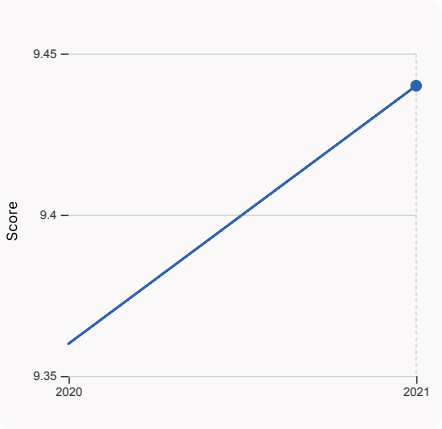
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.951% GDP in 2020, down by 0.089 percentage points from the year prior – and equivalent to an indicator rank of 43.



2.3.4 QS university ranking, top 3

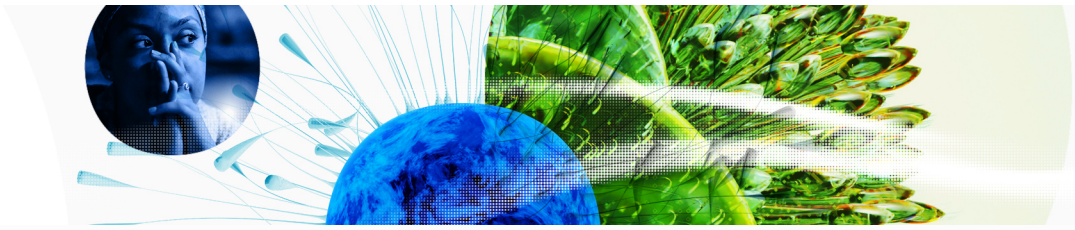
was equal to an average score of 58.93 for the top 3 universities in 2022, up by 1.6% from the year prior – and equivalent to an indicator rank of 14.

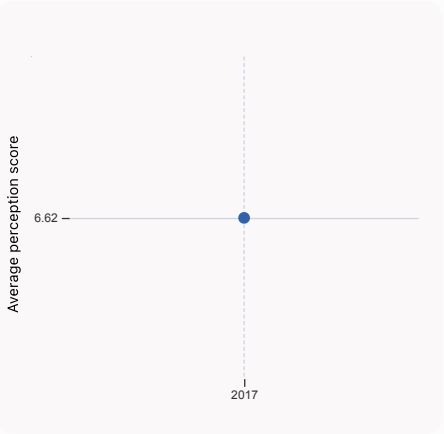


3.1.1 ICT access

was equal to a score of 9.44 in 2021, up by 0.85% from the year prior – and equivalent to an indicator rank of 17.

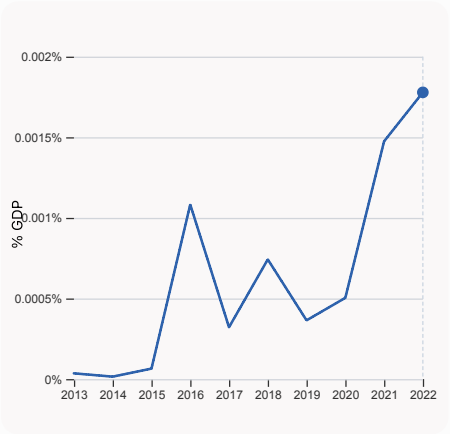
Global Innovation Index 2023





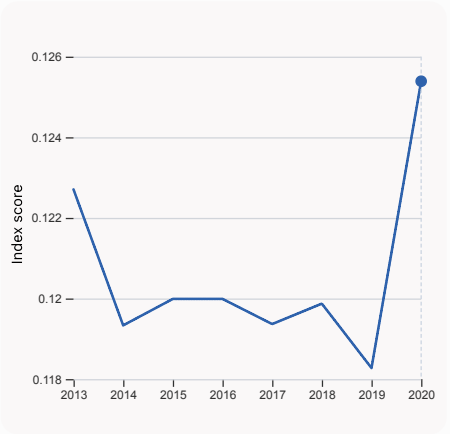
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 6.62 in 2017, equivalent to an indicator rank of 2.



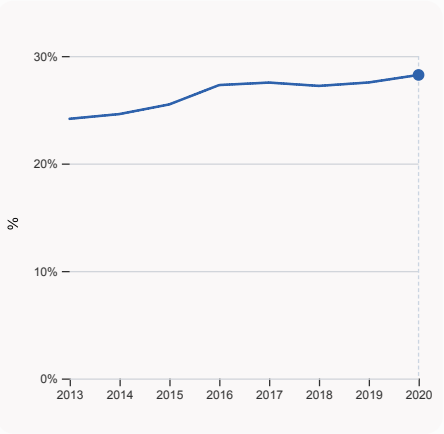
4.2.4 VC received, value, % GDP

was equal to 0.00178% GDP in 2022, up by 0.0003 percentage points from the year prior – and equivalent to an indicator rank of 43.



4.3.2 Domestic industry diversification

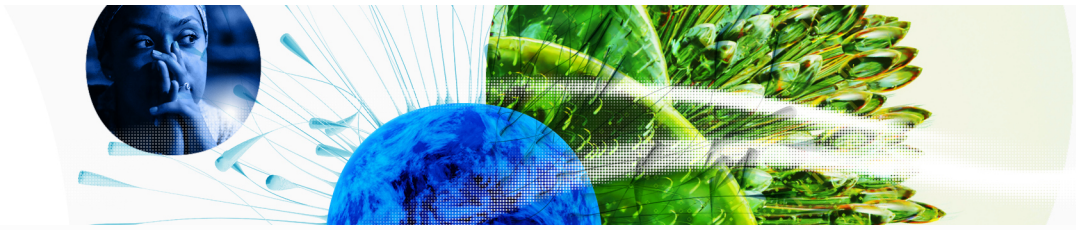
was equal to an index score of 0.125 in 2020, up by 6.015% from the year prior – and equivalent to an indicator rank of 36.



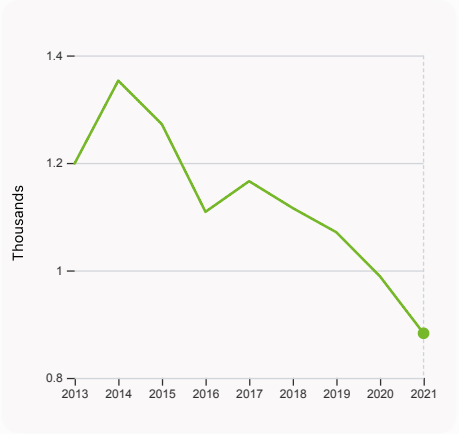
5.1.1 Knowledge-intensive employment, %

was equal to 28.24% in 2020, up by 0.7 percentage points from the year prior – and equivalent to an indicator rank of 51.

Global Innovation Index 2023

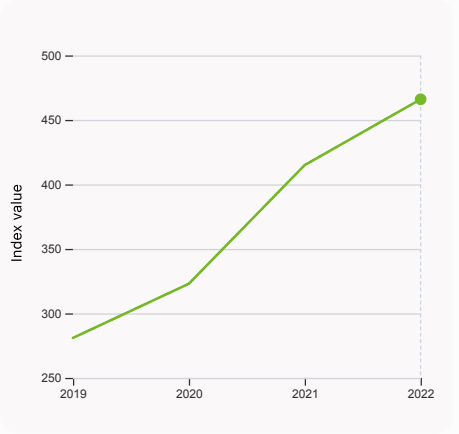


> Innovation outputs in Malaysia



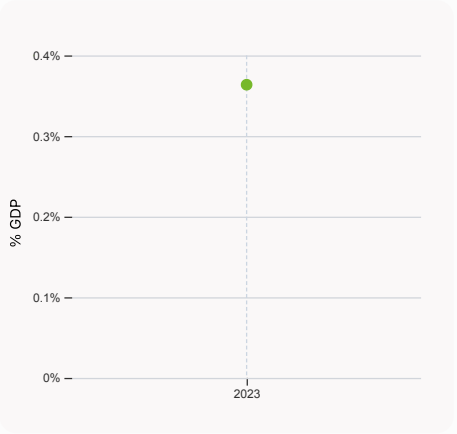
6.1.1 Patents by origin

was equal to 0.88 Thousands in 2021, down by 10.72% from the year prior – and equivalent to an indicator rank of 62.



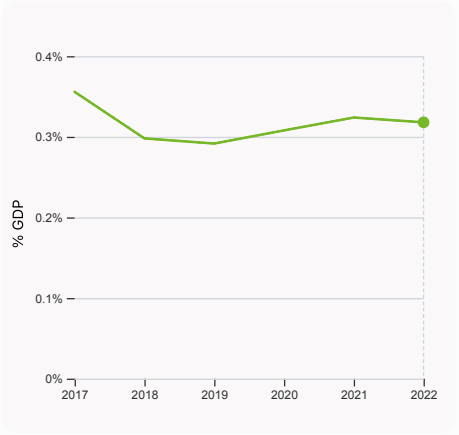
6.1.5 Citable documents H-index

was equal to an index value of 466 in 2022, up by 12.29% from the year prior – and equivalent to an indicator rank of 39.



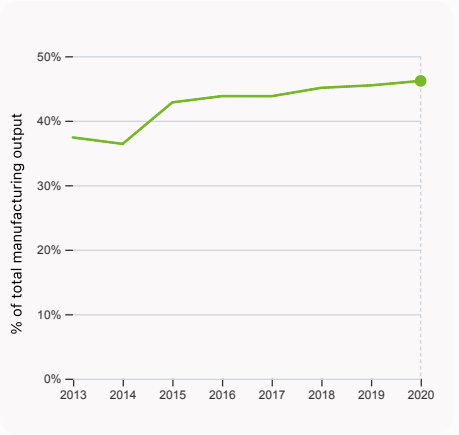
6.2.2 Unicorn valuation, % GDP

was equal to 0.364 % GDP in 2023 – and equivalent to an indicator rank of 42.



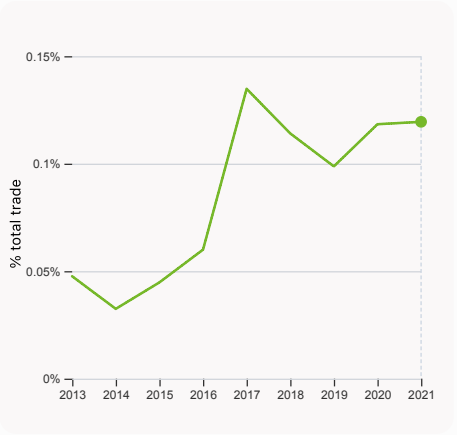
6.2.3 Software spending, % GDP

was equal to 0.318% GDP in 2022, down by 0.006 percentage points from the year prior – and equivalent to an indicator rank of 38.



6.2.4 High-tech manufacturing, %

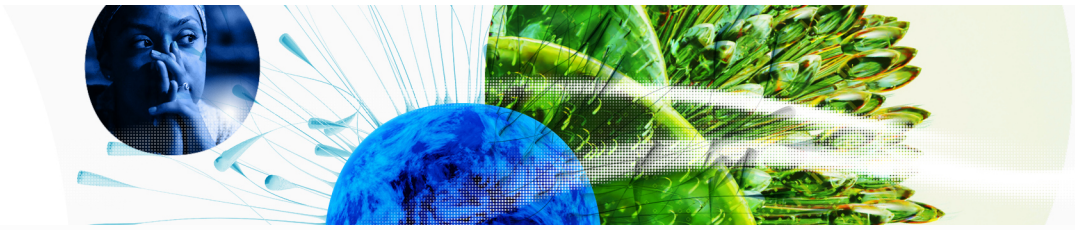
was equal to 46.17% of total manufacturing output in 2020, up by 0.69 percentage points from the year prior – and equivalent to an indicator rank of 17.

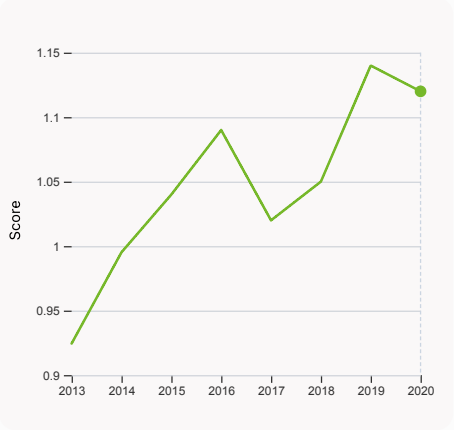


6.3.1 Intellectual property receipts, % total trade

was equal to 0.119% total trade in 2021, up by 0.0011 percentage points from the year prior – and equivalent to an indicator rank of 54.

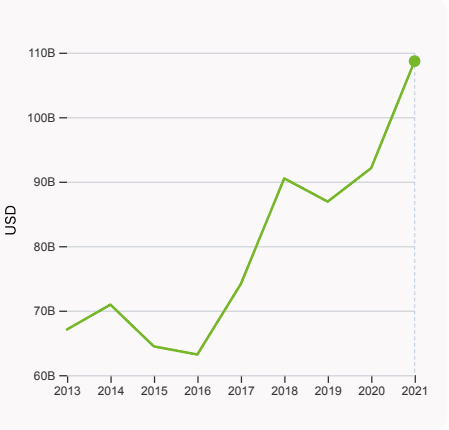
Global Innovation Index 2023





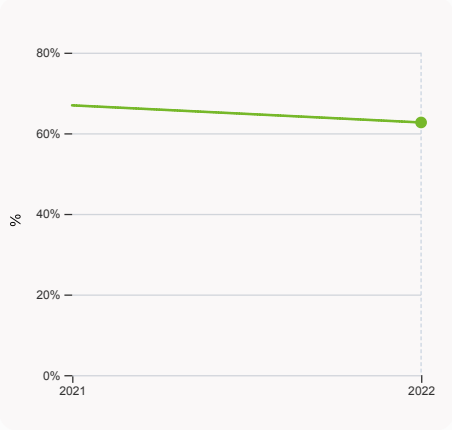
6.3.2 Production and export complexity

was equal to a score of 1.12 in 2020, down by 1.75% from the year prior – and equivalent to an indicator rank of 24.



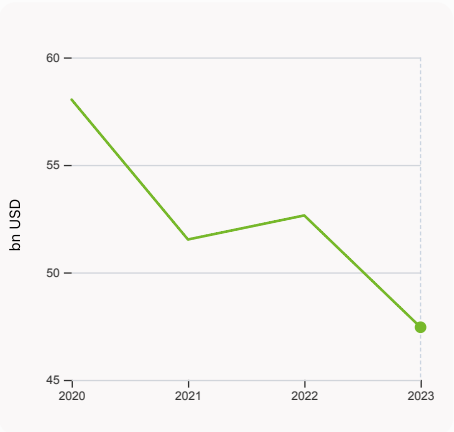
6.3.3 High-tech exports

was equal to 108,683,181,168 USD in 2021, up by 18.0056% from the year prior – and equivalent to an indicator rank of 1.



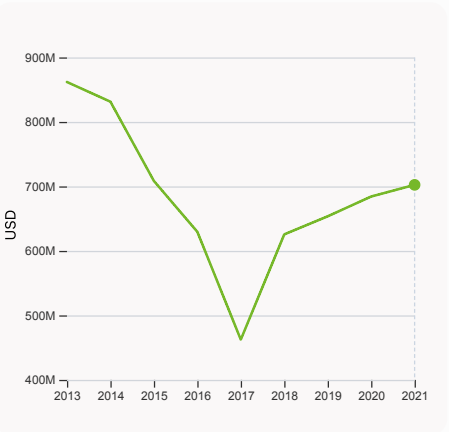
7.1.1 Intangible asset intensity, top 15, %

was equal to 62.68% in 2022, down by 4.25 percentage points from the year prior – and equivalent to an indicator rank of 33.



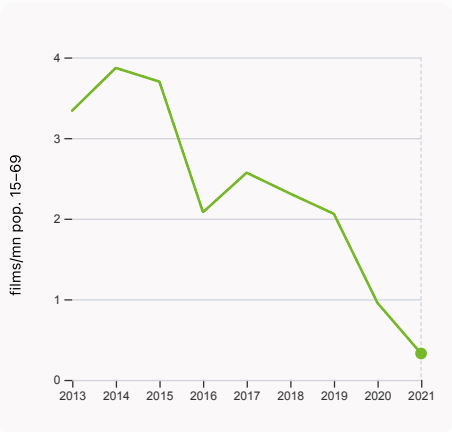
7.1.3 Global brand value, top 5,000

was equal to 47.448 bn USD in 2023, down by 9.88% from the year prior – and equivalent to an indicator rank of 16.



7.2.1 Cultural and creative services exports

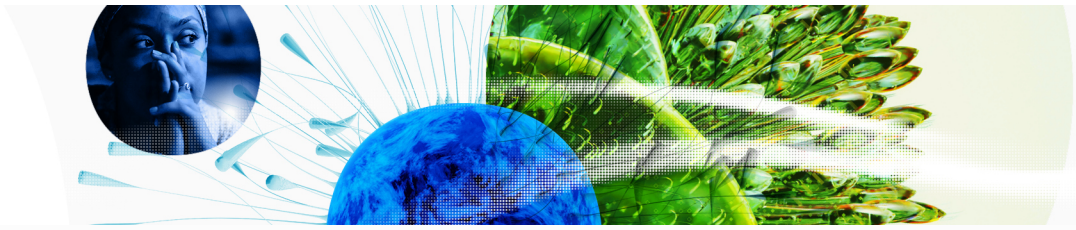
was equal to 702,400,000 USD in 2021, up by 2.64% from the year prior – and equivalent to an indicator rank of 67.

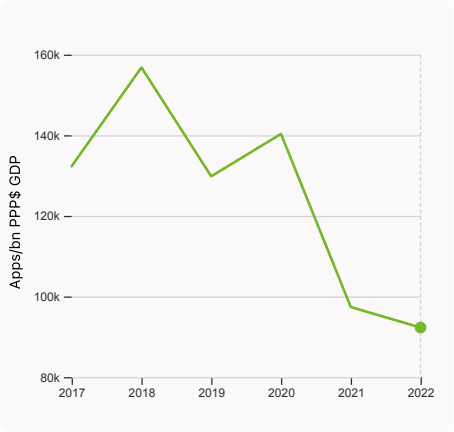


7.2.2 National feature films/mn pop. 15-69

was equal to 0.328 films/mn pop. 15–69 in 2021, down by 65.68% from the year prior – and equivalent to an indicator rank of 75.

Global Innovation Index 2023

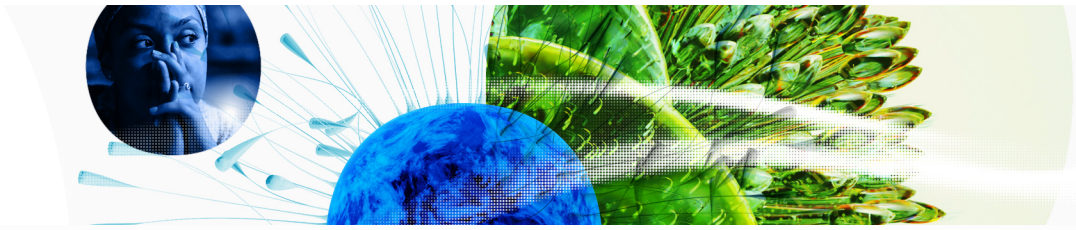




7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 92,288.7 Apps/bn PPP$ GDP in 2022, down by 5.24% from the year prior – and equivalent to an indicator rank of 74.

Global Innovation Index 2023



→ Malaysia's innovation top performers

> 2.3.4 QS university ranking of Malaysia’s top universities

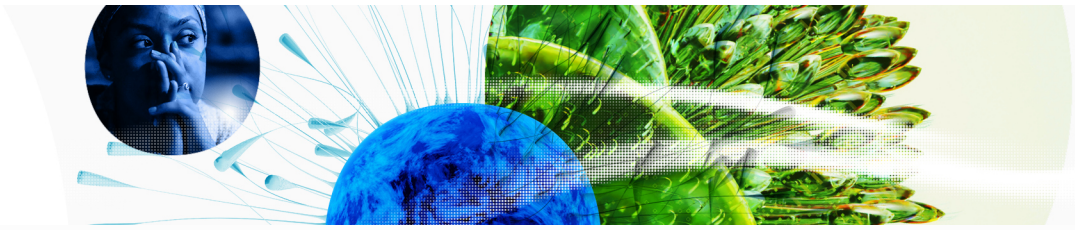
Rank	University	Score
70	UNIVERSITI MALAYA (UM)	67.90
123	UNIVERSITI PUTRA MALAYSIA (UPM)	54.70
129	UNIVERSITI KEBANGSAAN MALAYSIA (UKM)	54.20

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
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".

> 6.2.2 Top Unicorn Companies in Malaysia

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	CARSOME	E-commerce & direct-to-consumer	Selangor	2

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: https://www.cbinsights.com/research-unicorn-companies



> 7.1.1 Top 15 intangible-asset intensive companies in Malaysia

Rank	Firm	Intensity, %
1	IHH HEALTHCARE BHD	67.96
2	MAXIS BHD	90.61
3	PUBLIC BANK BHD	30.71

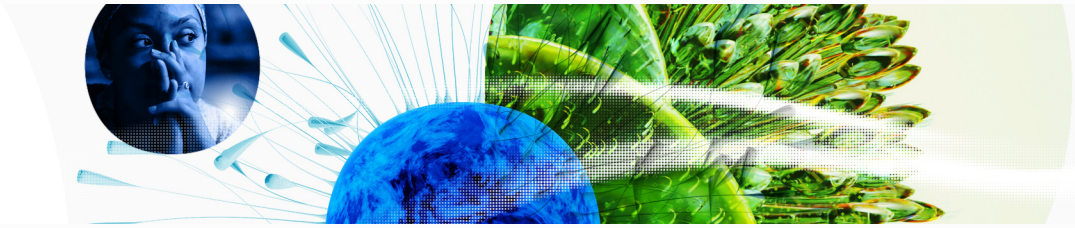
Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

> 7.1.3 Top 5,000 companies in Malaysia with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	PETRONAS	Oil & Gas	12,711.9
2	MAYBANK	Banking	3,946.3
3	GENTING	Leisure & Tourism	3,623.0

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

Global Innovation Index 2023



Malaysia

GII 2023 rank **36**

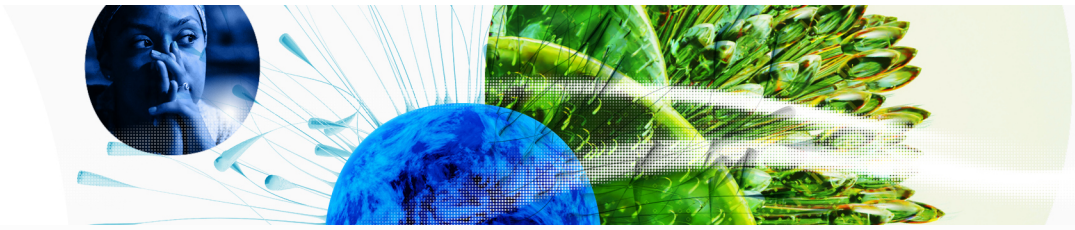
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
46	30	Upper middle	SEAO	33.9	1,096.5	33,112.7

	Score / Value	Rank
Institutions	**68.7**	**29**
1.1 Institutional environment	**69.6**	**24**
1.1.1 Operational stability for businesses*	75.0	17
1.1.2 Government effectiveness*	64.1	31
1.2 Regulatory environment	**63.5**	**65**
1.2.1 Regulatory quality*	60.8	43
1.2.2 Rule of law*	56.1	40
1.2.3 Cost of redundancy dismissal	23.9	104 ○
1.3 Business environment	**72.9**	**20**
1.3.1 Policies for doing business†	66.3	30
1.3.2 Entrepreneurship policies and culture†	79.5	8 ●
Human capital and research	**44.3**	**32**
2.1 Education	**48.2**	**72**
2.1.1 Expenditure on education, % GDP	4.3	60
2.1.2 Government funding/pupil, secondary, % GDP/cap	20.6	48
2.1.3 School life expectancy, years	13.3	80 ○
2.1.4 PISA scales in reading, maths and science	430.9	48
2.1.5 Pupil-teacher ratio, secondary	10.9	41
2.2 Tertiary education	**48.8**	**11**
2.2.1 Tertiary enrolment, % gross	41.4	77
2.2.2 Graduates in science and engineering, %	43.5	1 ●
2.2.3 Tertiary inbound mobility, %	8.1	31
2.3 Research and development (R&D)	**35.9**	**31**
2.3.1 Researchers, FTE/mn pop.	2,184.7	39
2.3.2 Gross expenditure on R&D, % GDP	1.0	43
2.3.3 Global corporate R&D investors, top 3, mn US$	44.2	38
2.3.4 QS university ranking, top 3*	59.7	14 ●
Infrastructure	**46.5**	**51**
3.1 Information and communication technologies (ICTs)	**79.2**	**41**
3.1.1 ICT access*	91.7	17 ●
3.1.2 ICT use*	84.0	45
3.1.3 Government's online service*	73.8	53
3.1.4 E-participation*	67.4	47
3.2 General infrastructure	**37.5**	**37**
3.2.1 Electricity output, GWh/mn pop.	5,640.8	37
3.2.2 Logistics performance*	68.2	25
3.2.3 Gross capital formation, % GDP	21.4	86 ○
3.3 Ecological sustainability	**22.9**	**71**
3.3.1 GDP/unit of energy use	9.3	78 ○
3.3.2 Environmental performance*	27.3	93 ○ ◇
3.3.3 ISO 14001 environment/bn PPP$ GDP	2.7	33
Market sophistication	**53.2**	**18**
4.1 Credit	**72.3**	**4**
4.1.1 Finance for startups and scaleups†	93.9	2 ●
4.1.2 Domestic credit to private sector, % GDP	133.9	16 ●
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a
4.2 Investment	**22.7**	**31**
4.2.1 Market capitalization, % GDP	117.0	11 ●
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.1	38
4.2.3 VC recipients, deals/bn PPP$ GDP	0.1	29
4.2.4 VC received, value, % GDP	0.0	43
4.3 Trade, diversification, and market scale	**64.6**	**31**
4.3.1 Applied tariff rate, weighted avg., %	3.6	79
4.3.2 Domestic industry diversification	93.7	36
4.3.3 Domestic market scale, bn PPP$	1,096.5	30

	Score / Value	Rank
Business sophistication	**38.8**	**36**
5.1 Knowledge workers	**34.0**	**62**
5.1.1 Knowledge-intensive employment, %	28.2	51
5.1.2 Firms offering formal training, %	24.0	69 ○
5.1.3 GERD performed by business, % GDP	0.5	41
5.1.4 GERD financed by business, %	38.2	46
5.1.5 Females employed w/advanced degrees, %	14.7	50
5.2 Innovation linkages	**34.2**	**36**
5.2.1 University-industry R&D collaboration†	62.8	31
5.2.2 State of cluster development†	64.3	31
5.2.3 GERD financed by abroad, % GDP	0.1	45
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.1	20
5.2.5 Patent families/bn PPP$ GDP	0.2	44
5.3 Knowledge absorption	**48.2**	**27**
5.3.1 Intellectual property payments, % total trade	1.1	33
5.3.2 High-tech imports, % total trade	29.8	3 ●
5.3.3 ICT services imports, % total trade	1.8	44
5.3.4 FDI net inflows, % GDP	2.9	49
5.3.5 Research talent, % in businesses	15.8	56 ○
Knowledge and technology outputs	**32.2**	**37**
6.1 Knowledge creation	**14.5**	**66**
6.1.1 Patents by origin/bn PPP$ GDP	0.9	62
6.1.2 PCT patents by origin/bn PPP$ GDP	0.1	50
6.1.3 Utility models by origin/bn PPP$ GDP	0.1	52
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a
6.1.5 Citable documents H-index	23.5	39
6.2 Knowledge impact	**37.7**	**36**
6.2.1 Labor productivity growth, %	1.3	52
6.2.2 Unicorn valuation, % GDP	0.4	42
6.2.3 Software spending, % GDP	0.3	38
6.2.4 High-tech manufacturing, %	46.2	17
6.3 Knowledge diffusion	**44.3**	**24**
6.3.1 Intellectual property receipts, % total trade	0.1	54
6.3.2 Production and export complexity	75.9	24
6.3.3 High-tech exports, % total trade	44.7	1 ●
6.3.4 ICT services exports, % total trade	1.4	74
6.3.5 ISO 9001 quality/bn PPP$ GDP	12.1	22
Creative outputs	**30.7**	**47**
7.1 Intangible assets	**36.5**	**53**
7.1.1 Intangible asset intensity, top 15, %	62.7	33
7.1.2 Trademarks by origin/bn PPP$ GDP	20.7	91 ○ ◇
7.1.3 Global brand value, top 5,000	10.2	16
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.5	83 ○
7.2 Creative goods and services	**29.6**	**31**
7.2.1 Cultural and creative services exports, % total trade	0.3	67
7.2.2 National feature films/mn pop. 15-69	0.3	75 ○
7.2.3 Entertainment and media market/th pop. 15-69	10.7	33
7.2.4 Creative goods exports, % total trade	8.8	1 ●
7.3 Online creativity	**20.3**	**64**
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	7.6	50
7.3.2 Country-code TLDs/th pop. 15-69	3.8	61
7.3.3 GitHub commits/mn pop. 15-69	6.8	64
7.3.4 Mobile app creation/bn PPP$ GDP	63.1	74

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/gii-ranking. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

Global Innovation Index 2023



→ Data availability

The following tables list indicators that are either missing or outdated for Malaysia.

> Malaysia has missing data for one indicator and outdated data for eleven indicators.

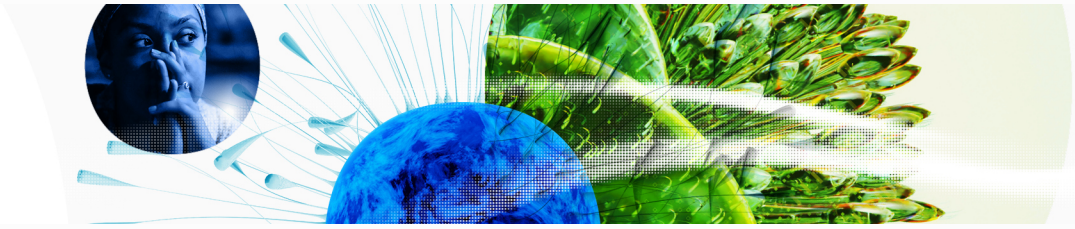
> Missing data for Malaysia

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	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	2022	Global Entrepreneurship Monitor
2.3.1	Researchers, FTE/mn pop.	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.1.1	Finance for startups and scaleups	2017	2022	Global Entrepreneurship Monitor
5.1.1	Knowledge-intensive employment, %	2020	2022	International Labour Organization
5.1.3	GERD performed by business, % GDP	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2020	2022	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

Global Innovation Index 2023



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, 2023.

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.