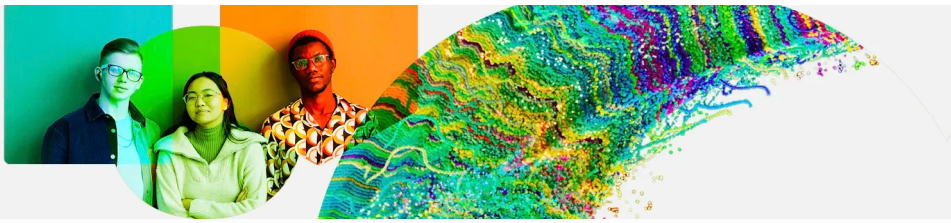
Global Innovation Index 2024



Malaysia ranking in the Global Innovation Index 2024

Malaysia ranks 33rd among the 133 economies featured in the GII 2024.

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

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

Malaysia GII Ranking (2020-2024)

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 2024 is between ranks 33 and 37.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	33rd	34th	36th
2021	36th	36th	34th
2022	36th	35th	37th
2023	36th	30th	46th
2024	33rd	28th	41st

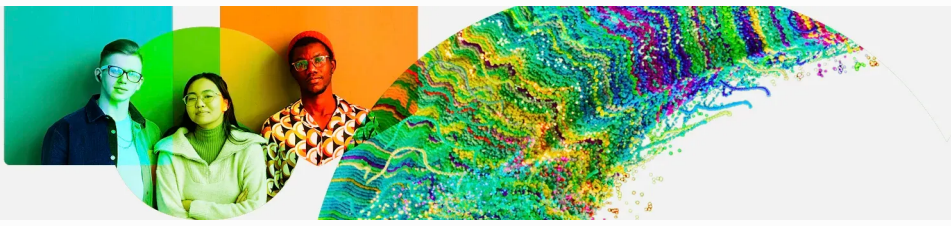
Malaysia performs worse in innovation outputs than innovation inputs in 2024.

This year **Malaysia ranks 28th in innovation inputs.** This position is higher than last year.

Malaysia ranks 41st in innovation outputs. This position is higher than last year.

Malaysia has 2 clusters in the top 100 S&T clusters of the Global Innovation Index.

Global Innovation Index 2024



> Global Innovation Tracker

The Global Innovation Tracker 2024 shows what is the current state of innovation in Malaysia, how rapidly is technology being embraced and what are the resulting societal impacts.

For Malaysia, 6 indicators have improved in the short-term and 6 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -12.4% 2022 - 2023	▼ -5% 2018 - 2020	▼ -37.6% 2022 - 2023	▼ -60.6% 2022 - 2023	▼ -13.8% 2022 - 2023
▲ 4.8% 2013 - 2023	▲ 3.1% 2010 - 2020	▲ 25% 2013 - 2023	▲ 37.8% 2013 - 2023	▼ -8.2% 2013 - 2023

Technology adoption

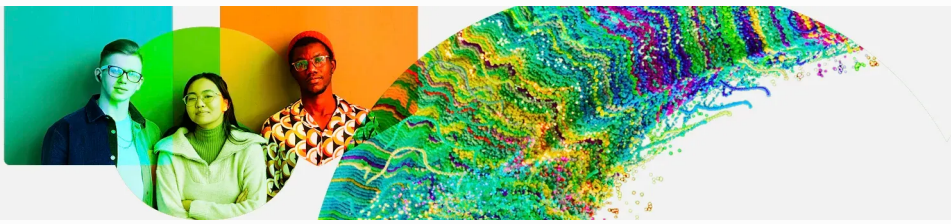
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 0.8% 2021 - 2022	▲ 11.9% 2021 - 2022	▲ 1,077.5% 2021 - 2022	▲ 9.4% 2021 - 2022	n/a
▲ 0.8% 2012 - 2022	▲ 2.4% 2012 - 2022		▲ 13.6% 2012 - 2022	n/a
86 per 100 inhabitants in 2022	12.4 per 100 inhabitants in 2022	47.1 per 100 inhabitants in 2022		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▲ 1.3% 2022 - 2023	▲ 1.8% 2021 - 2022	▲ 1.1°C 2023
▲ 2.4% 2013 - 2023	▲ 0.2% 2012 - 2022	n/a
75,581 USD in 2023	76.3 years in 2022	

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the country from 1951–1980. Figures are rounded.

Global Innovation Index 2024



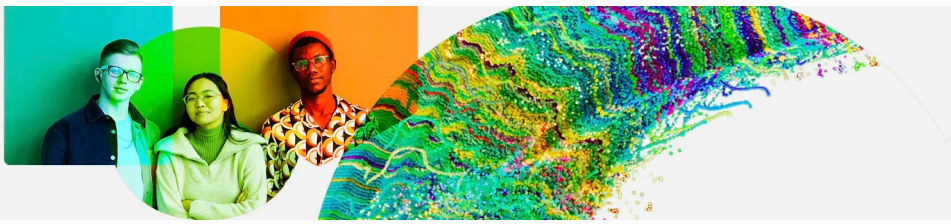
Expected vs. observed innovation performance

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 2024

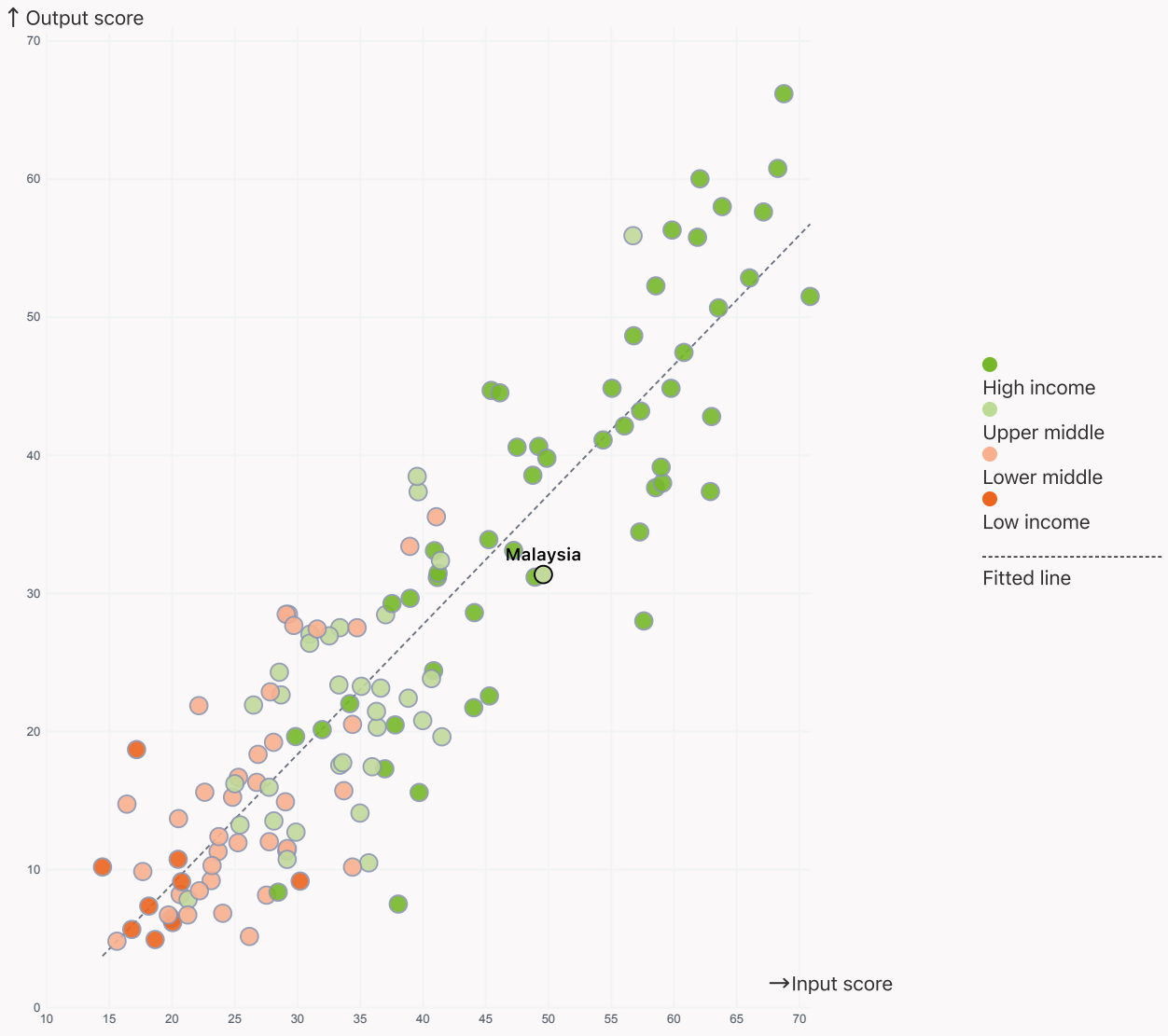


Effectively translating innovation investments into innovation outputs

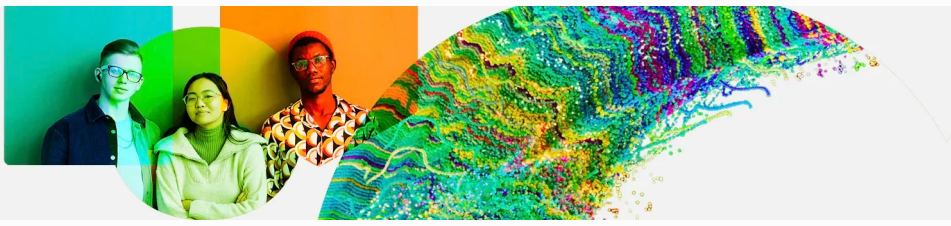
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

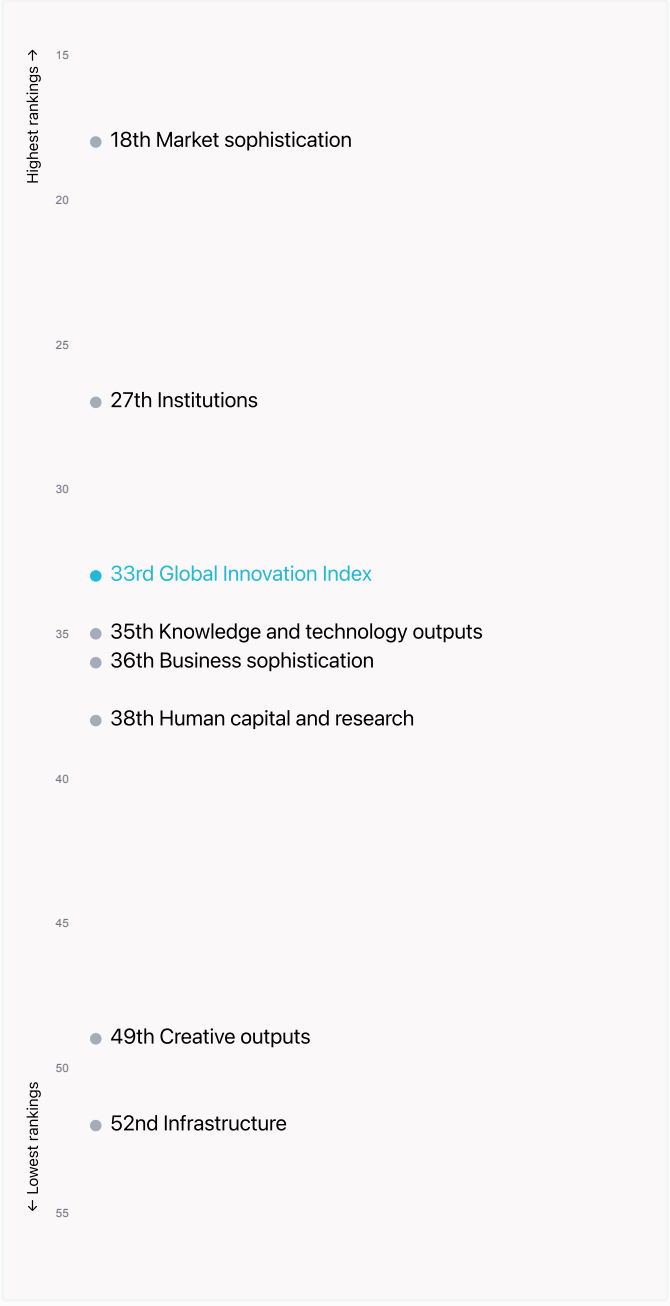


Global Innovation Index 2024



Overview of Malaysia's rankings in the seven areas of the GII in 2024

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

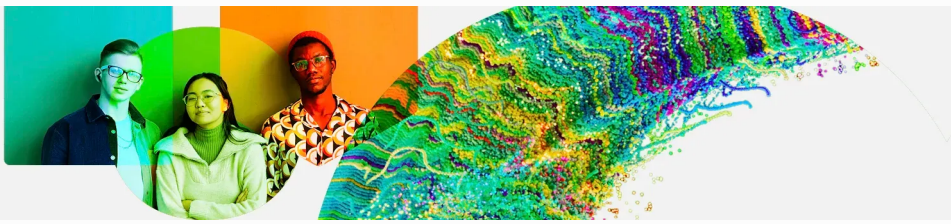
Malaysia ranks highest in Market sophistication (18th) and Institutions (27th).

Lowest rankings

Malaysia ranks lowest in Infrastructure (52nd), Creative outputs (49th) and Human capital and research (38th).

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

Global Innovation Index 2024



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

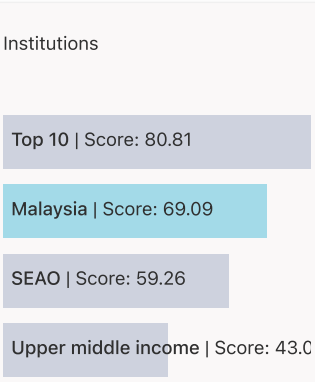
The charts shows the relative position of Malaysia (blue bar) against other economy groupings (grey bars), for each of the seven areas of the GII Index.

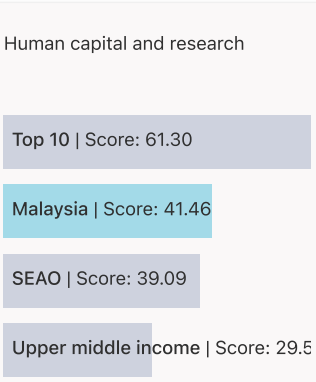
Upper-Middle-Income economies

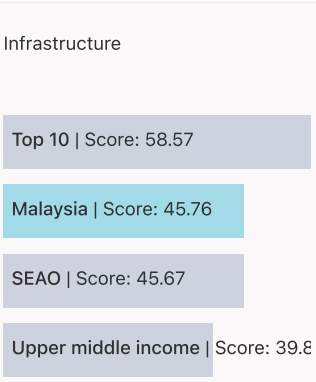
Malaysia performs above the upper-middle-income group average in all pillars.

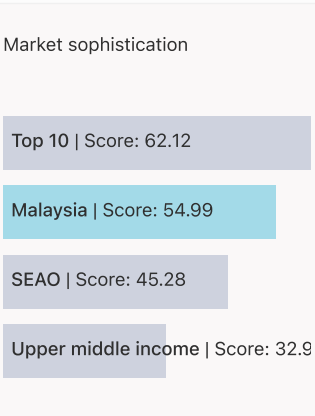
South East Asia, East Asia, And Oceania

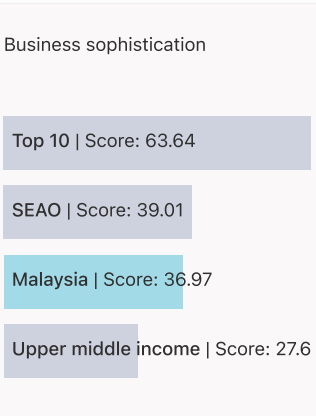
Malaysia performs above the regional average in Institutions, Human capital and research, Infrastructure, Market sophistication, Knowledge and technology outputs.

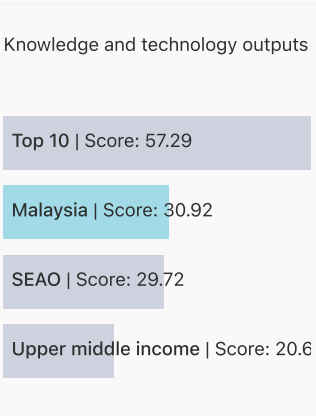


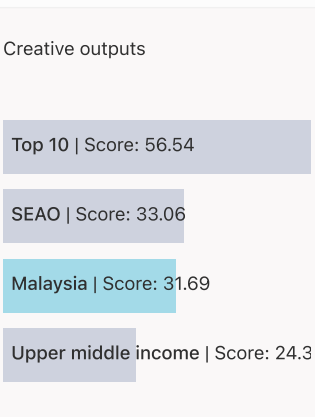




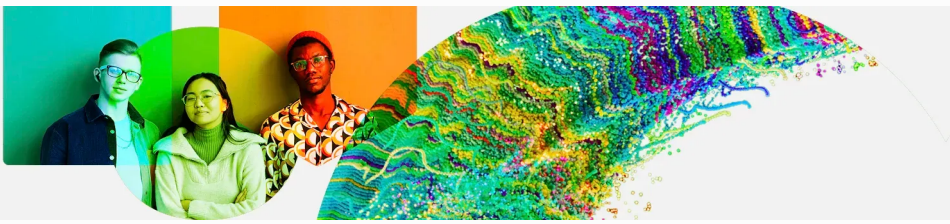








Global Innovation Index 2024



Innovation strengths and weaknesses in Malaysia

The table below gives an overview of the indicator strengths and weaknesses of Malaysia in the GII 2024.

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).

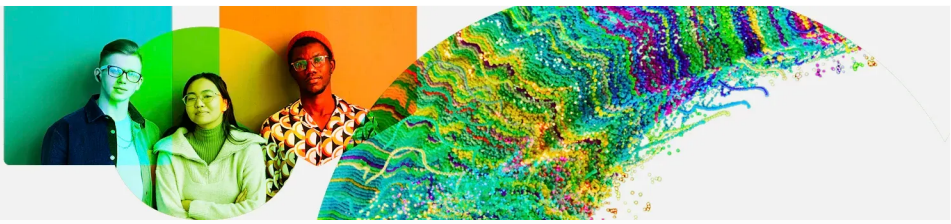
Strengths

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, %
3	5.3.2	High-tech imports, % total trade
15	2.3.4	QS university ranking, top 3*
16	4.3.1	Applied tariff rate, weighted avg., %
16	7.1.3	Global brand value, top 5,000, % GDP
17	4.1.2	Domestic credit to private sector, % GDP

Weaknesses

Rank	Code	Indicator name
98	5.2.1	Public Research-Industry co-publications, %
97	7.1.2	Trademarks by origin/bn PPP$ GDP
96	3.3.2	Low-carbon energy use, %
91	2.1.1	Expenditure on education, % GDP
85	7.1.4	Industrial designs by origin/bn PPP$ GDP
83	2.1.3	School life expectancy, years
73	5.1.2	Firms offering formal training, %
58	2.1.4	PISA scales in reading, maths and science
57	7.2.2	National feature films/mn pop. 15–69
57	5.3.5	Research talent, % in businesses

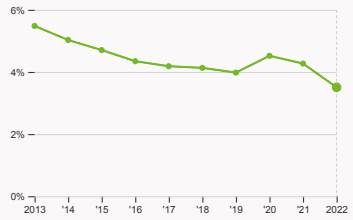
Global Innovation Index 2024



Malaysia's innovation system

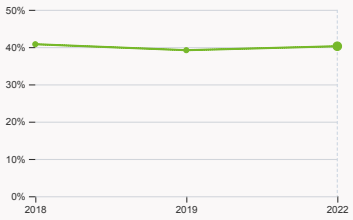
As far as practicable, the plots below present unscaled indicator data.

Innovation inputs in Malaysia



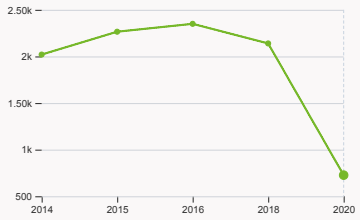
2.1.1 **Expenditure on education**

was equal to 3.51 % GDP in 2022, down by 0.77 percentage points from the year prior – and equivalent to an indicator rank of 91.



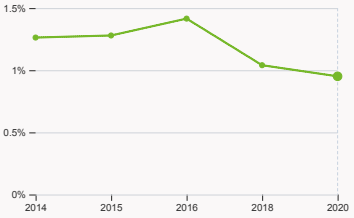
2.2.2 **Graduates in science and engineering**

was equal to 40.23 % of total graduates in 2022, up by 1.06 percentage points from the year prior – and equivalent to an indicator rank of 1.



2.3.1 **Researchers**

was equal to 726.46 FTE per million population in 2020, down by 66.05% from the year prior – and equivalent to an indicator rank of 63.



2.3.2 **Gross expenditure on R&D**

was equal to 0.95 % GDP in 2020, down by 0.09 percentage points from the year prior – and equivalent to an indicator rank of 43.

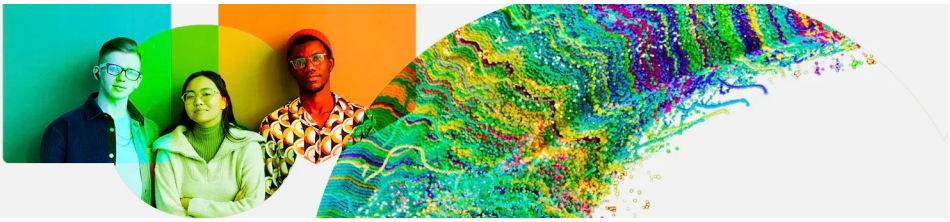
2.3.4 **QS university ranking**

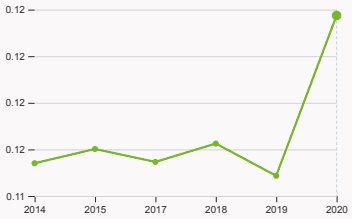
was equal to an average score of 57.23 for the top three universities in 2023, down by 2.88% from the year prior – and equivalent to an indicator rank of 15.

4.2.4 **VC received, value**

was equal to 313.92 thousand USD in 2023, down by 60.56% from the year prior – and equivalent to an indicator rank of 43.

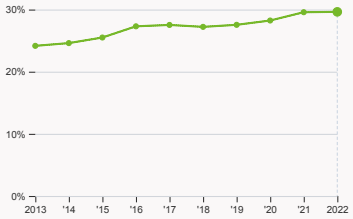
Global Innovation Index 2024





4.3.2 Domestic industry diversification

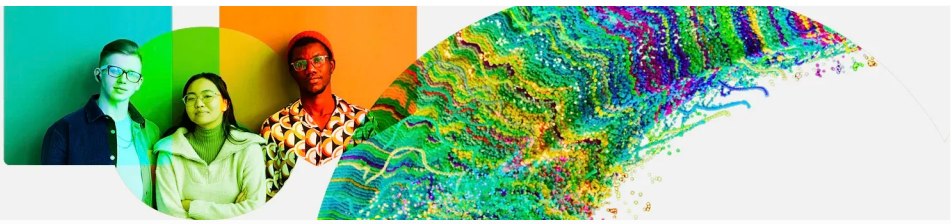
was equal to an index score of 0.12 in 2020, up by 5.99% from the year prior – and equivalent to an indicator rank of 43.



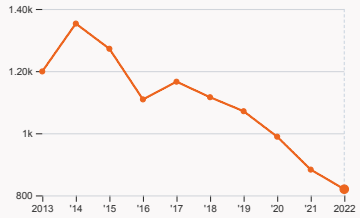
5.1.1 Knowledge-intensive employment

was equal to 29.63 % in 2022, up by 0.06 percentage points from the year prior – and equivalent to an indicator rank of 48.

Global Innovation Index 2024

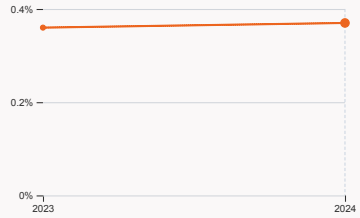


Innovation outputs in Malaysia



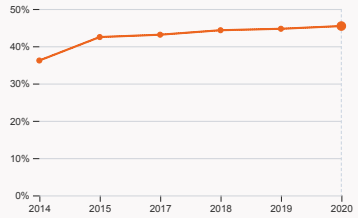
6.1.1 Patents by origin

was equal to 820 patents in 2022, down by 7.13% from the year prior – and equivalent to an indicator rank of 66.



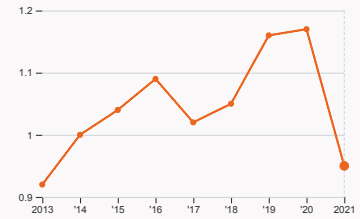
6.2.2 Unicorn valuation

was equal to 0.37 % GDP in 2024, up by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 42.



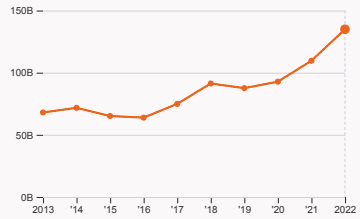
6.2.4 High-tech manufacturing

was equal to 45.42 % of total manufacturing output in 2020, up by 0.73 percentage points from the year prior – and equivalent to an indicator rank of 16.



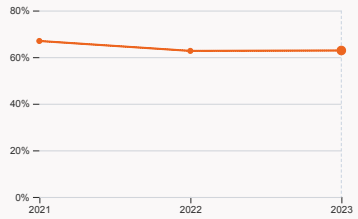
6.3.2 Production and export complexity

was equal to a score of 0.95 in 2021, down by 18.8% from the year prior – and equivalent to an indicator rank of 28.



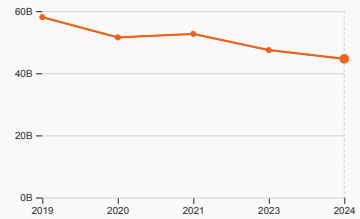
6.3.3 High-tech exports

was equal to 134.9 billion USD in 2022, up by 23.08% from the year prior – and equivalent to an indicator rank of 1.



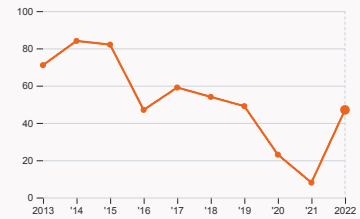
7.1.1 Intangible asset intensity

was equal to 62.85 % for the top 15 companies in 2023, up by 0.17 percentage points from the year prior – and equivalent to an indicator rank of 30.



7.1.3 Global brand value

was equal to 44.64 billion USD for the brands in the top 5,000 in 2024, down by 5.92% from the year prior – and equivalent to an indicator rank of 16.

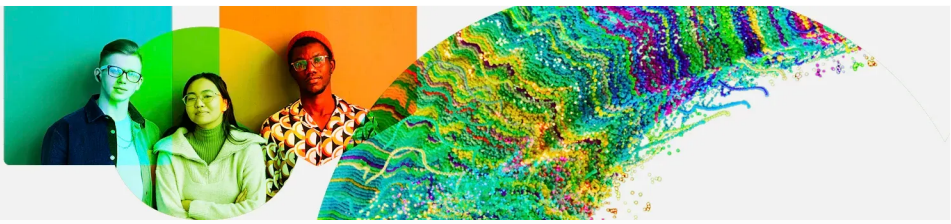


7.2.2 National feature films

was equal to 47 films in 2022, up by 487.5% from the year prior – and equivalent to an indicator rank of 57.

7.3.3 Mobile app creation

was equal to 131.89 million global downloads of mobile apps in 2023, up by 30.33% from the year prior – and equivalent to an indicator rank of 76.



Malaysia's innovation top performers

2.3.4 QS university ranking of Malaysia's top universities

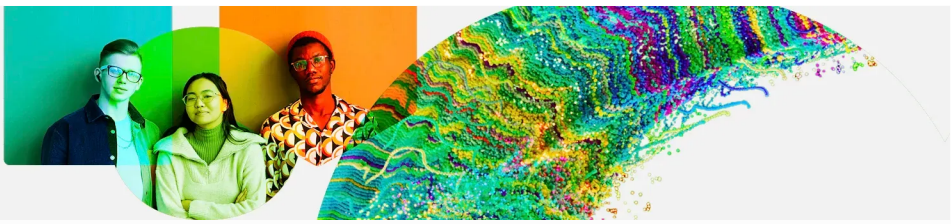
Rank	University	Score
65	UNIVERSITI MALAYA (UM)	68.70
137	UNIVERSITI SAINS MALAYSIA (USM)	52.60
158	UNIVERSITI PUTRA MALAYSIA (UPM)	50.40

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	Industrials	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	CELCOMDIGI BERHAD	84.08
2	IHH HEALTHCARE BERHAD	65.40
3	PRESS METAL ALUMINIUM HOLDINGS BERHAD	72.33

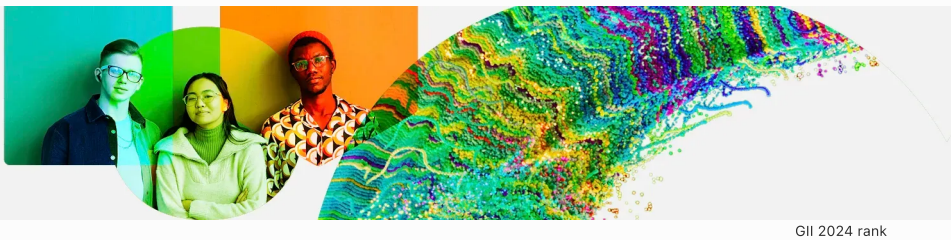
Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

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	14,561.4
2	GENTING	Leisure & Tourism	3,538.5
3	MAYBANK	Banking	3,389.4

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

Global Innovation Index 2024



Malaysia

GII 2024 rank **33**

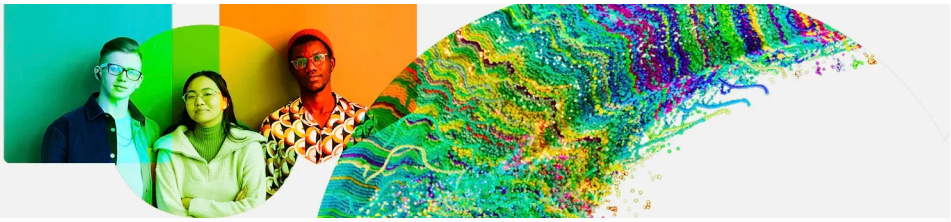
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
41	28	Upper middle	SEAO	35.1	1,225.9	37,082.8

	Score / Value	Rank	
Institutions	69.1	27	◆
1.1 Institutional environment	75.6	26	◆
1.1.1 Operational stability for businesses*	81.3	18	◆
1.1.2 Government effectiveness*	69.9	32	◆
1.2 Regulatory environment	59.4	41	◆
1.2.1 Regulatory quality*	58.8	43	◆
1.2.2 Rule of law*	60	40	◆
1.3 Business environment	72.3	17	●◆
1.3.1 Policy stability for doing business†	69.2	29	◆
1.3.2 Entrepreneurship policies and culture†	75.4	10	
Human capital and research	41.5	38	◆
2.1 Education	44.1	85	
2.1.1 Expenditure on education, % GDP	3.5	91	○
2.1.2 Government funding/pupil, secondary, % GDP/cap	20.6	45	
2.1.3 School life expectancy, years	12.9	83	○
2.1.4 PISA scales in reading, maths and science	404.4	58	○
2.1.5 Pupil–teacher ratio, secondary	11.3	42	
2.2 Tertiary education	49.3	16	●◆
2.2.1 Tertiary enrolment, % gross	40.3	82	
2.2.2 Graduates in science and engineering, %	40.2	1	●◆
2.2.3 Tertiary inbound mobility, %	9	31	◆
2.3 Research and development (R&D)	31	35	◆
2.3.1 Researchers, FTE/mn pop.	726.5	63	
2.3.2 Gross expenditure on R&D, % GDP	1	43	
2.3.3 Global corporate R&D investors, top 3, mn USD	43.2	38	◆
2.3.4 QS university ranking, top 3*	57.9	15	●◆
Infrastructure	45.8	52	
3.1 Information and communication technologies (ICTs)	82.3	35	
3.1.1 ICT access*	98.6	28	◆
3.1.2 ICT use*	89.6	18	◆
3.1.3 Government's online service*	73.8	53	
3.1.4 E-participation*	67.4	47	
3.2 General infrastructure	39	39	◆
3.2.1 Electricity output, GWh/mn pop.	5,360.7	40	◆
3.2.2 Logistics performance*	68.2	25	◆
3.2.3 Gross capital formation, % GDP	23.2	73	
3.3 Ecological sustainability	15.9	86	
3.3.1 GDP/unit of energy use	9.3	82	
3.3.2 Low-carbon energy use, %	7.1	96	○
3.3.3 ISO 14001 environment/bn PPP$ GDP	2.6	38	
Market sophistication	55	18	◆
4.1 Credit	67.5	5	●◆
4.1.1 Finance for startups and scaleups†	94	2	
4.1.2 Domestic credit to private sector, % GDP	113.3	17	●◆
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	
4.2 Investment	29.4	28	◆
4.2.1 Market capitalization, % GDP	111.3	14	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.2	32	
4.2.3 VC recipients, deals/bn PPP$ GDP	0.2	18	◆
4.2.4 VC received, value, % GDP	0.001	43	
4.3 Trade, diversification and market scale	68	21	
4.3.1 Applied tariff rate, weighted avg., %	1	16	●◆
4.3.2 Domestic industry diversification	88	43	
4.3.3 Domestic market scale, bn PPP$	1,225.9	30	

	Score / Value	Rank	
Business sophistication	37	36	◆
5.1 Knowledge workers	36.1	57	
5.1.1 Knowledge-intensive employment, %	29.6	48	
5.1.2 Firms offering formal training, %	24	73	○
5.1.3 GERD performed by business, % GDP	0.5	42	
5.1.4 GERD financed by business, %	38.2	49	
5.1.5 Females employed w/advanced degrees, %	15.3	50	
5.2 Innovation linkages	33.8	37	◆
5.2.1 Public Research-Industry co-publications, %	0.9	98	○
5.2.2 University-industry R&D collaboration†	59	39	
5.2.3 State of cluster development†	70.4	33	◆
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.06	23	◆
5.2.5 Patent families/bn PPP$ GDP	0.2	47	
5.3 Knowledge absorption	41	27	◆
5.3.1 Intellectual property payments, % total trade	1	35	
5.3.2 High-tech imports, % total trade	29	3	●◆
5.3.3 ICT services imports, % total trade	1.4	62	
5.3.4 FDI net inflows, % GDP	3.4	43	
5.3.5 Research talent, % in businesses	15.8	57	○
Knowledge and technology outputs	30.9	35	◆
6.1 Knowledge creation	13.3	70	
6.1.1 Patents by origin/bn PPP$ GDP	0.7	66	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.1	62	
6.1.3 Utility models by origin/bn PPP$ GDP	0.1	52	
6.1.4 Scientific and technical articles/bn PPP$ GDP	11.7	61	
6.1.5 Citable documents H-index	24.3	39	
6.2 Knowledge impact	36.8	35	◆
6.2.1 Labor productivity growth, %	1.1	49	
6.2.2 Unicorn valuation, % GDP	0.4	42	
6.2.3 Software spending, % GDP	0.3	32	◆
6.2.4 High-tech manufacturing, %	45.4	16	◆
6.3 Knowledge diffusion	42.7	22	◆
6.3.1 Intellectual property receipts, % total trade	0.1	54	
6.3.2 Production and export complexity	66.9	28	◆
6.3.3 High-tech exports, % total trade	45.3	1	●◆
6.3.4 ICT services exports, % total trade	1.2	78	
6.3.5 ISO 9001 quality/bn PPP$ GDP	11.8	22	
Creative outputs	31.7	49	
7.1 Intangible assets	34.9	49	
7.1.1 Intangible asset intensity, top 15, %	62.8	30	
7.1.2 Trademarks by origin/bn PPP$ GDP	16.4	97	○◇
7.1.3 Global brand value, top 5,000, % GDP	9.6	16	●◆
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.3	85	○
7.2 Creative goods and services	32.3	28	◆
7.2.1 Cultural and creative services exports, % total trade	0.3	71	
7.2.2 National feature films/mn pop. 15–69	1.9	57	○
7.2.3 Entertainment and media market/th pop. 15–69	10.2	36	◆
7.2.4 Creative goods exports, % total trade	8	1	●◆
7.3 Online creativity	24.7	68	
7.3.1 Top-level domains (TLDs)/th pop. 15–69	4.2	58	
7.3.2 GitHub commits/mn pop. 15–69	7	68	
7.3.3 Mobile app creation/bn PPP$ GDP	62.7	76	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, 🕒 that the economy's data is outdated. Square brackets [ ] indicate the the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Global Innovation Index 2024



Data availability

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

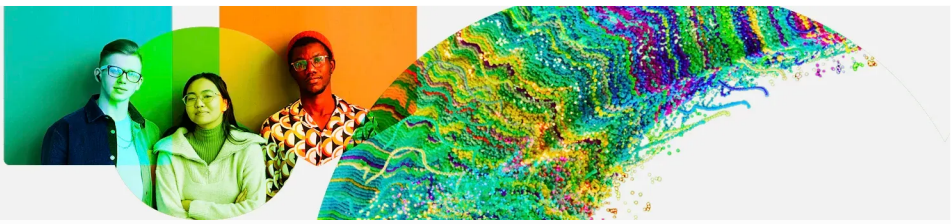
Malaysia has missing data for one indicator and outdated data for thirteen indicators.

Missing data for Malaysia

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2022	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	2023	Global Entrepreneurship Monitor
2.1.3	School life expectancy, years	2021	2022	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2021	2022	International Energy Agency
4.1.1	Finance for startups and scaleups[+]	2017	2023	Global Entrepreneurship Monitor
4.3.2	Domestic industry diversification	2020	2021	United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database (INDSTAT) Rev.3 and 4
5.1.2	Firms offering formal training, %	2019	2023	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2018	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2022	2023	International Labour Organization
5.3.5	Research talent, % in businesses	2018	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.2.4	High-tech manufacturing, %	2020	2021	United Nations Industrial Development Organization

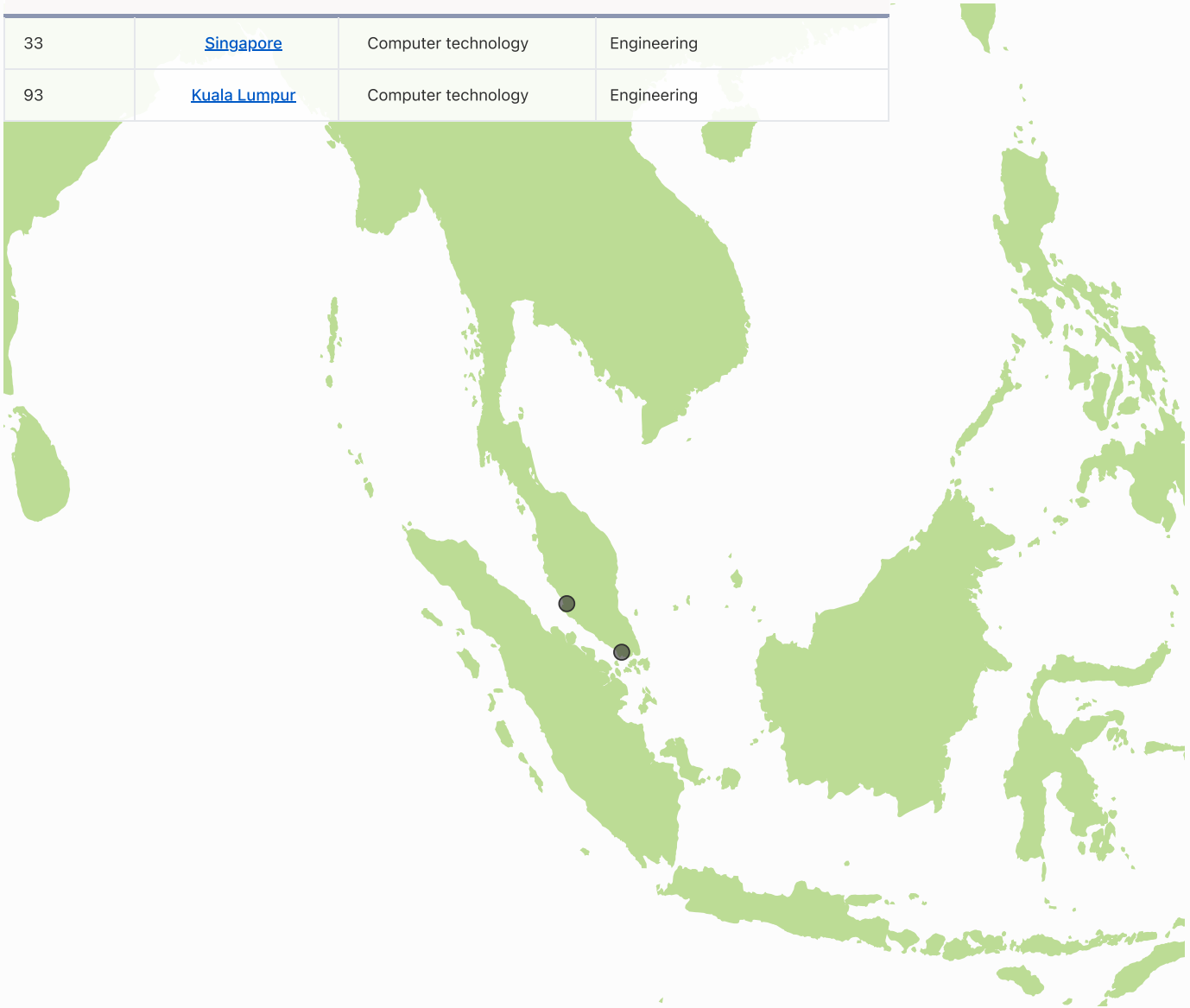


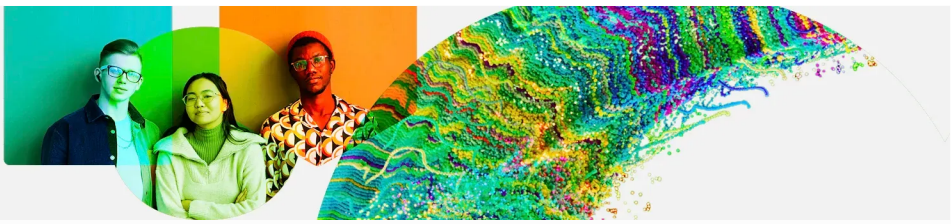
Top science and technology clusters in Malaysia

Malaysia has 2 clusters in the top 100 S&T clusters of the Global Innovation Index, 1 more than in 2023.

The table and map below give an overview of the top science and technology clusters in Malaysia.

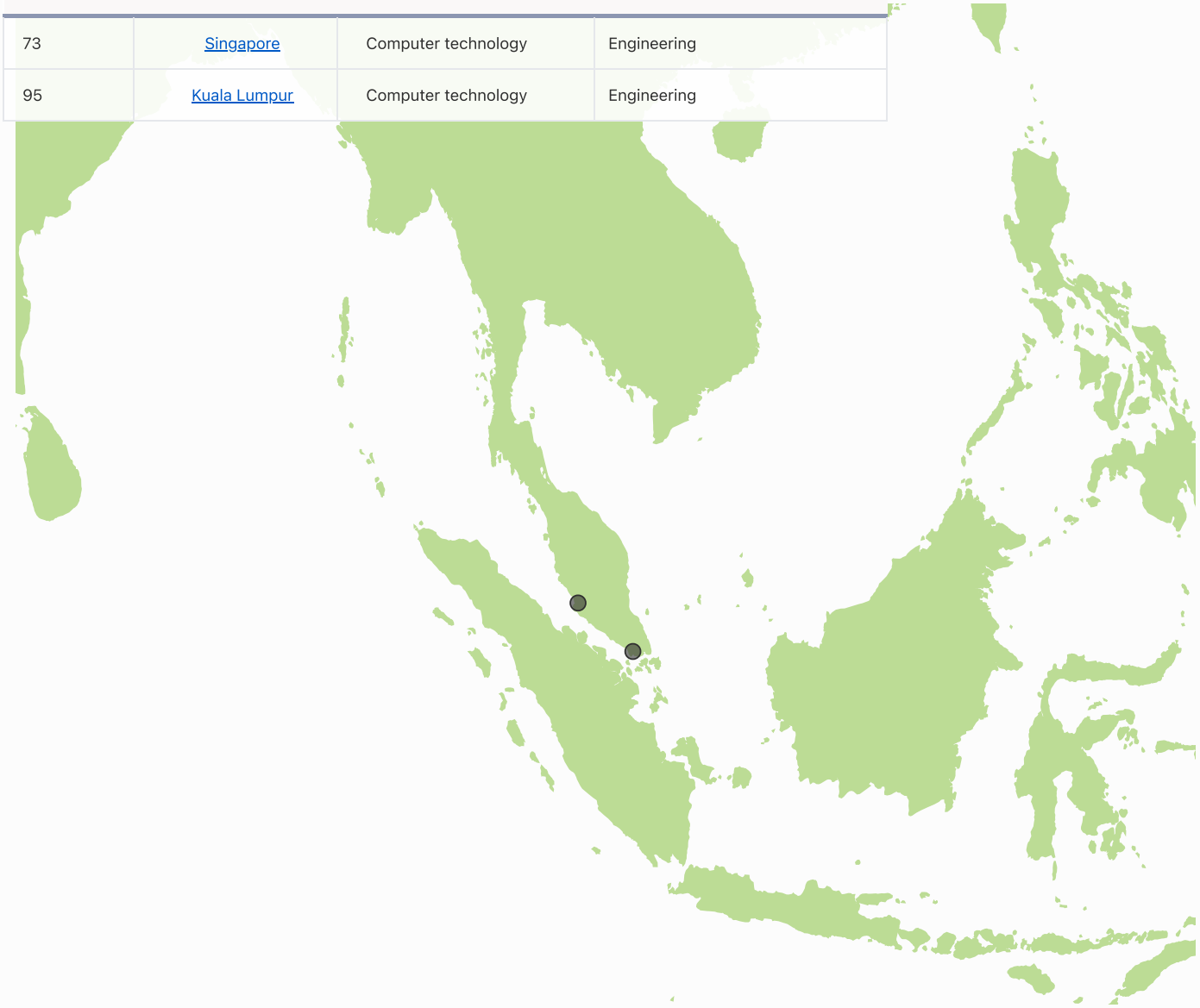
Rank	Cluster name	Top patent field	Top academic subject
33	Singapore	Computer technology	Engineering
93	Kuala Lumpur	Computer technology	Engineering





The table and map below give an overview of the top science and technology clusters by intensity in Malaysia.

Rank	Cluster name	Top patent field	Top academic subject
73	Singapore	Computer technology	Engineering
95	Kuala Lumpur	Computer technology	Engineering



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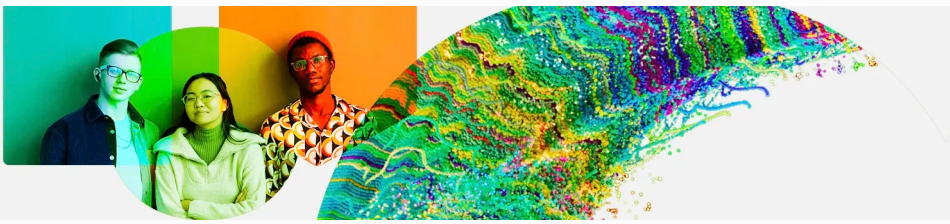
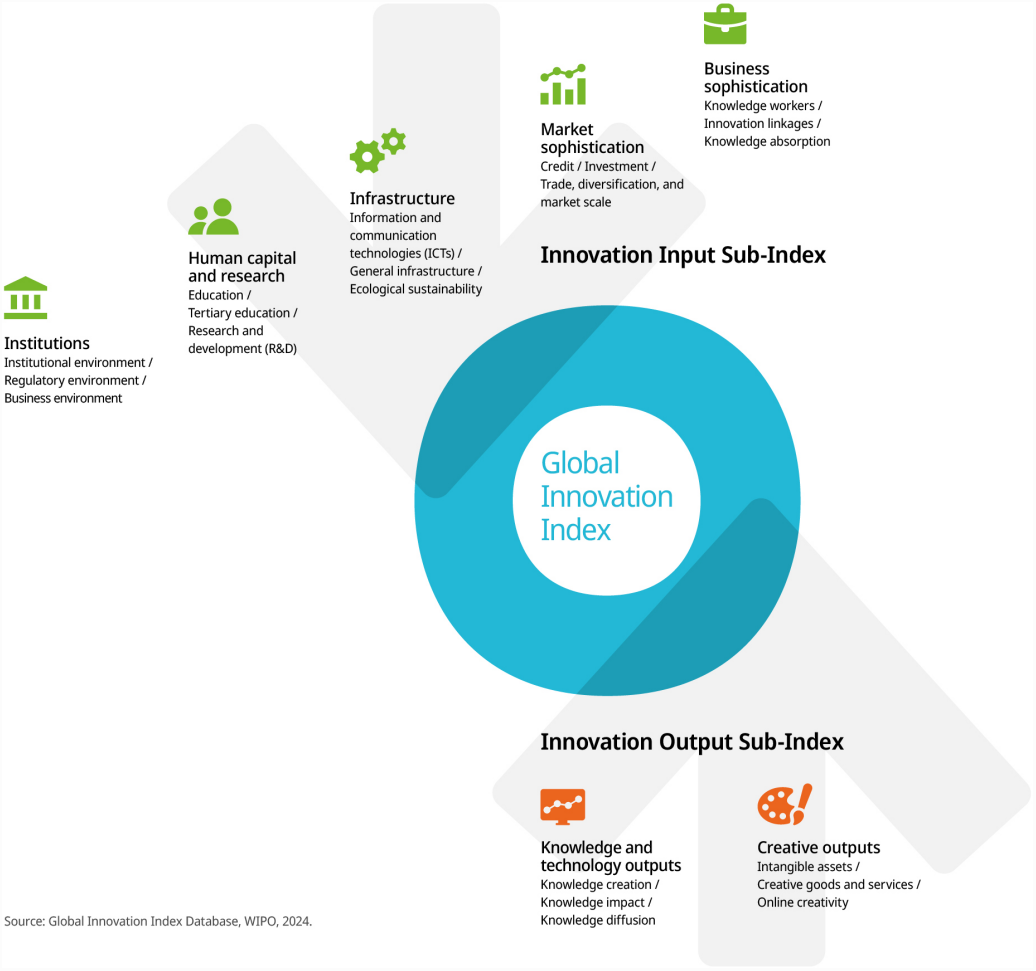


About the Global Innovation Index

- 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, 2024.

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.