



THAILAND

44th Thailand ranks 44th among the 131 economies featured in the GII 2020.

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 Thailand 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 Thailand in the GII 2020 is between ranks 42 and 45.

Rankings of Thailand (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	44	48	44
2019	43	47	43
2018	44	52	45

- Thailand performs better in innovation outputs than innovation inputs in 2020.
- This year Thailand ranks 48th in innovation inputs, lower than last year and higher compared to 2018.
- As for innovation outputs, Thailand ranks 44th. This position is lower than last year and higher compared to 2018.

4th Thailand ranks 4th among the 37 upper middle-income group economies.

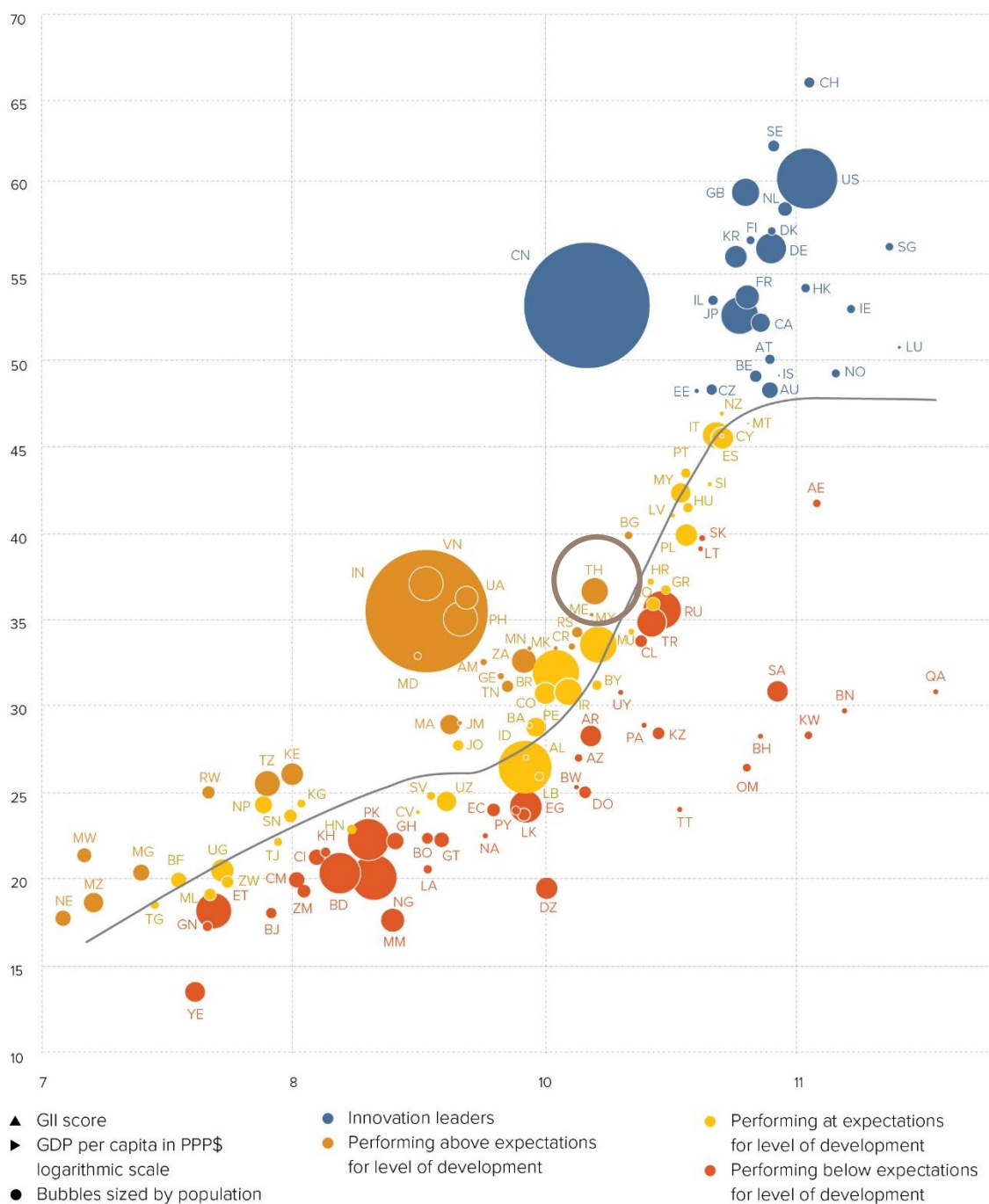
10th Thailand ranks 10th among the 17 economies in South East Asia, East Asia, and Oceania.

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, Thailand's performance is above expectations for its level of development.

The positive relationship between innovation and development

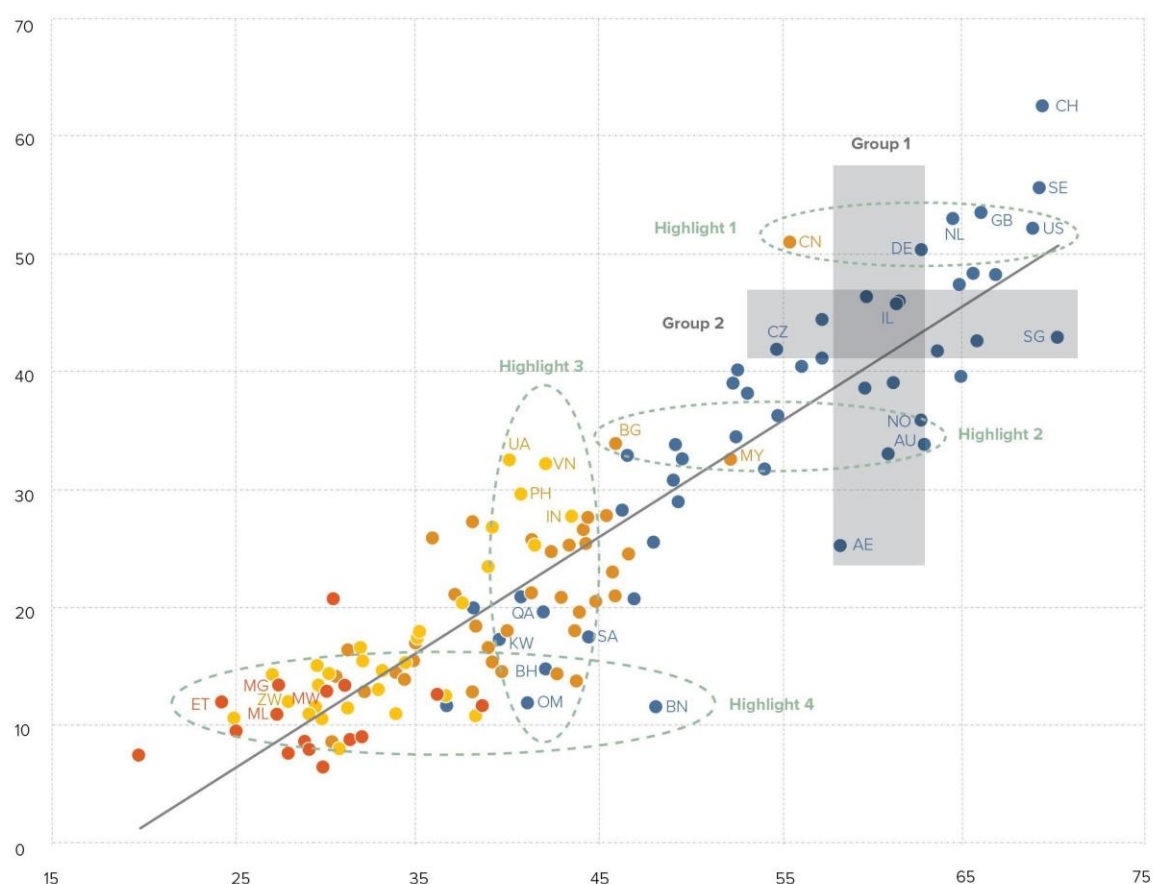


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance, 2020



▲ Output score
► Input score

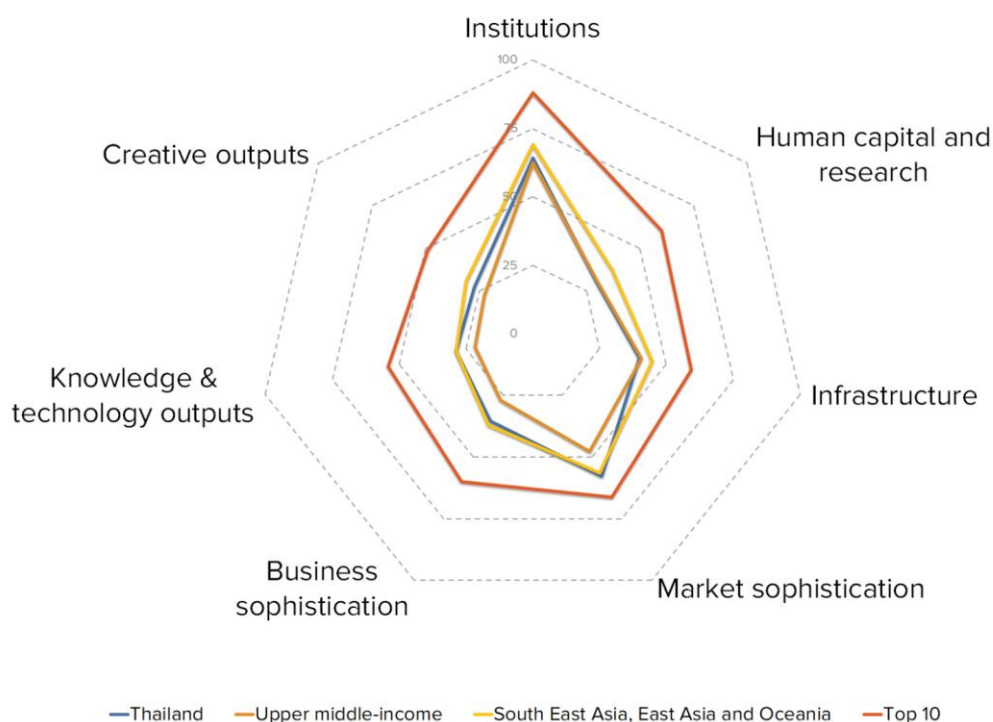
● High income group
● Lower middle-income group
● Upper middle-income group
● Low income group

— Fitted values

AU	Australia	IN	India	NL	Netherlands	CH	Switzerland
BH	Bahrain	IL	Israel	NO	Norway	UA	Ukraine
BN	Brunei Darussalam	KW	Kuwait	OM	Oman	AE	United Arab Emirates
BG	Bulgaria	MG	Madagascar	PH	Philippines	GB	United Kingdom
CN	China	MW	Malawi	QA	Qatar	US	United States of America
CZ	Czech Republic	ML	Mali	SA	Saudi Arabia	VN	Viet Nam
ET	Ethiopia	MY	Malaysia	SG	Singapore	ZW	Zimbabwe
DE	Germany			SE	Sweden		

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

Thailand's scores in the seven GII pillars



Upper middle-income group economies

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

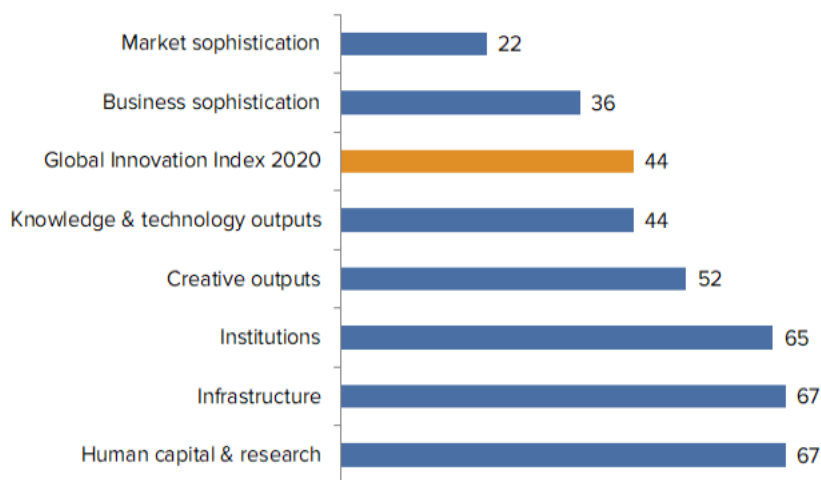
South East Asia, East Asia, and Oceania

Compared to other economies in South East Asia, East Asia, and Oceania, Thailand performs:

- above average in one out of the seven GII pillars: Market sophistication; and
- below average in six out of the seven GII pillars: Institutions, Human capital & research, Infrastructure, Business sophistication, Knowledge & technology outputs and Creative outputs.

OVERVIEW OF THAILAND RANKINGS IN THE SEVEN GII AREAS

Thailand performs best in Market sophistication and its weakest performance is in Human capital & research and in Infrastructure.



*The highest possible ranking in each pillar is 1.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Thailand in the GII 2020.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
4.1.2	Domestic credit to private sector, % GDP	10	1.2	Regulatory environment	113
4.2.1	Ease of protecting minority investors*	3	1.2.3	Cost of redundancy dismissal, salary weeks	123
4.2.2	Market capitalization, % GDP	10	2.1.5	Pupil-teacher ratio, secondary	109
5.1.4	GERD financed by business, %	1	2.3.3	Global R&D companies, top 3, mn US\$	42
5.3	Knowledge absorption	15	4.1.3	Microfinance gross loans, % GDP	80
5.3.1	Intellectual property payments, % total trade	16	5.1.1	Knowledge-intensive employment, %	95
5.3.2	High-tech imports, % total trade	12	5.1.2	Firms offering formal training, %	79
6.1.3	Utility models by origin/bn PPP\$ GDP	10	5.2.3	GERD financed by abroad, % GDP	83
6.3.2	High-tech net exports, % total trade	9	5.3.3	ICT services imports, % total trade	123
6.3.4	FDI net outflows, % GDP	15	6.3.3	ICT services exports, % total trade	117
7.2	Creative goods and services	14	7.2.1	Cultural & creative services exports, % total trade	103
7.2.5	Creative goods exports, % total trade	1			

STRENGTHS

GII strengths for Thailand are found in four of the seven GII pillars.

- Market sophistication (22): shows strengths in the indicators Domestic credit to private sector (10), Ease of protecting minority investors (3) and Market capitalization (10).
- Business sophistication (36): displays strengths in the sub-pillar Knowledge absorption (15) and in the indicators GERD financed by business (1), Intellectual property payments (16) and High-tech imports (12).
- Knowledge & technology outputs (44): reveals strengths in the indicators Utility models by origin (10), High-tech net exports (9) and FDI net outflows (15).
- Creative outputs (52): demonstrates strengths in the sub-pillar Creative goods and services (14) and in the indicator Creative goods exports (1).

WEAKNESSES

GII weaknesses for Thailand are found in six of the seven GII pillars.

- Institutions (65): exhibits weaknesses in the sub-pillar Regulatory environment (113) and in the indicator Cost of redundancy dismissal (123).
- Human capital & research (67): displays weaknesses in the indicators Pupil-teacher ratio (109) and Global R&D companies (42).
- Market sophistication (22): the indicator Microfinance gross loans (80) is a weakness.
- Business sophistication (36): demonstrates weaknesses in the indicators Knowledge-intensive employment (95), Firms offering formal training (79), GERD financed by abroad (83) and ICT services imports (123).
- Knowledge & technology outputs (44): reveals weaknesses in the indicator ICT services exports (117).
- Creative outputs (52): the indicator Cultural & creative services exports (103) is a weakness.

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2019 rank
44	48	Upper middle	SEAO	69.6	1,383.0	17,778.8	43
Score/Value Rank				Score/Value Rank			
INSTITUTIONS..... 64.1 65				BUSINESS SOPHISTICATION..... 35.4 36			
1.1	Political environment.....		62.5 51	5.1	Knowledge workers.....		37.3 51
1.1.1	Political and operational stability*.....		71.4 59	5.1.1	Knowledge-intensive employment, %.....		13.8 95
1.1.2	Government effectiveness*.....		58.0 49	5.1.2	Firms offering formal training, %.....		18.0 79
1.2	Regulatory environment.....		45.3 113	5.1.3	GERD performed by business, % GDP.....		0.8 27
1.2.1	Regulatory quality*.....		44.7 64	5.1.4	GERD financed by business, %.....		80.8 1
1.2.2	Rule of law*.....		47.3 63	5.1.5	Females employed w/advanced degrees, %.....		9.8 68
1.2.3	Cost of redundancy dismissal, salary weeks.....		36.0 123	5.2	Innovation linkages.....		20.0 68
1.3	Business environment.....		84.6 20	5.2.1	University/industry research collaboration*.....		54.1 31
1.3.1	Ease of starting a business*.....		92.4 43	5.2.2	State of cluster development.....		51.4 45
1.3.2	Ease of resolving insolvency*.....		76.8 22	5.2.3	GERD financed by abroad, % GDP.....		0.0 83
				5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....		0.0 58
				5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....		0.1 66
HUMAN CAPITAL & RESEARCH..... 29.9 67				5.3	Knowledge absorption.....		49.0 15
2.1	Education.....		37.6 87	5.3.1	Intellectual property payments, % total trade.....		1.6 16
2.1.1	Expenditure on education, % GDP.....		4.1 68	5.3.2	High-tech imports, % total trade.....		15.6 12
2.1.2	Government funding/pupil, secondary, % GDP/cap.....		18.0 61	5.3.3	ICT services imports, % total trade.....		0.2 123
2.1.3	School life expectancy, years.....		15.4 41	5.3.4	FDI net inflows, % GDP.....		1.7 90
2.1.4	PISA scales in reading, maths, & science.....		412.4 61	5.3.5	Research talent, % in business enterprise.....		60.8 13
2.1.5	Pupil-teacher ratio, secondary.....		25.9 109	KNOWLEDGE & TECHNOLOGY OUTPUTS.... 28.6 44			
2.2	Tertiary education.....		35.4 58	6.1	Knowledge creation.....		18.1 54
2.2.1	Tertiary enrolment, % gross.....		49.3 61	6.1.1	Patents by origin/bn PPP\$ GDP.....		0.7 76
2.2.2	Graduates in science & engineering, %.....		27.9 24	6.1.2	PCT patents by origin/bn PPP\$ GDP.....		0.1 60
2.2.3	Tertiary inbound mobility, %.....		1.3 85	6.1.3	Utility models by origin/bn PPP\$ GDP.....		2.1 10
2.3	Research & development (R&D).....		16.7 46	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....		4.8 90
2.3.1	Researchers, FTE/mn pop.....		1,350.3 47	6.1.5	Citable documents H-index.....		21.2 38
2.3.2	Gross expenditure on R&D, % GDP.....		1.0 36	6.2	Knowledge impact.....		33.5 32
2.3.3	Global R&D companies, avg. exp. top 3, mn \$US.....		0.0 42	6.2.1	Growth rate of PPP\$ GDP/worker, %.....		3.6 21
2.3.4	QS university ranking, average score top 3*.....		30.6 38	6.2.2	New businesses/th pop. 15-64.....		1.1 80
				6.2.3	Computer software spending, % GDP.....		0.0 61
				6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....		6.4 43
				6.2.5	High- and medium-high-tech manufacturing, %.....		43.8 15
INFRASTRUCTURE..... 40.1 67				6.3	Knowledge diffusion.....		34.0 36
3.1	Information & communication technologies (ICTs)....		61.3 79	6.3.1	Intellectual property receipts, % total trade.....		0.0 71
3.1.1	ICT access*.....		56.4 80	6.3.2	High-tech net exports, % total trade.....		14.4 9
3.1.2	ICT use*.....		59.6 59	6.3.3	ICT services exports, % total trade.....		0.2 117
3.1.3	Government's online service*.....		63.9 86	6.3.4	FDI net outflows, % GDP.....		3.8 15
3.1.4	E-participation*.....		65.2 81	CREATIVE OUTPUTS..... 27.3 52			
3.2	General infrastructure.....		30.5 50	7.1	Intangible assets.....		29.0 57
3.2.1	Electricity output, kWh/mn pop.....		2,702.0 67	7.1.1	Trademarks by origin/bn PPP\$ GDP.....		24.9 85
3.2.2	Logistics performance*.....		62.9 31	7.1.2	Global brand value, top 5,000, % GDP.....		63.9 29
3.2.3	Gross capital formation, % GDP.....		24.9 52	7.1.3	Industrial designs by origin/bn PPP\$ GDP.....		3.1 37
3.3	Ecological sustainability.....		28.4 67	7.1.4	ICTs & organizational model creation*.....		60.3 43
3.3.1	GDP/unit of energy use.....		8.0 78	7.2	Creative goods and services.....		37.9 14
3.3.2	Environmental performance*.....		45.4 70	7.2.1	Cultural & creative services exports, % total trade.....		0.0 103
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....		2.3 36	7.2.2	National feature films/mn pop. 15-69.....		1.5 75
				7.2.3	Entertainment & Media market/th pop. 15-69.....		9.3 38
				7.2.4	Printing and other media, % manufacturing.....		0.8 75
				7.2.5	Creative goods exports, % total trade.....		7.8 1
MARKET SOPHISTICATION..... 57.8 22				7.3	Online creativity.....		13.2 73
4.1	Credit.....		54.0 21	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....		5.4 52
4.1.1	Ease of getting credit*.....		70.0 44	7.3.2	Country-code TLDs/th pop. 15-69.....		0.4 100
4.1.2	Domestic credit to private sector, % GDP.....		144.6 10	7.3.3	Wikipedia edits/mn pop. 15-69.....		46.3 68
4.1.3	Microfinance gross loans, % GDP.....		0.0 80	7.3.4	Mobile app creation/bn PPP\$ GDP.....		3.8 58
4.2	Investment.....		45.9 31				
4.2.1	Ease of protecting minority investors*.....		86.0 3				
4.2.2	Market capitalization, % GDP.....		108.2 10				
4.2.3	Venture capital deals/bn PPP\$ GDP.....		0.0 57				
4.3	Trade, competition, and market scale.....		73.4 25				
4.3.1	Applied tariff rate, weighted avg., %.....		3.5 72				
4.3.2	Intensity of local competition*.....		74.2 34				
4.3.3	Domestic market scale, bn PPP\$.....		1,383.0 20				

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; + a survey question. ○ indicates that the economy's data are older than the base year; see Appendix II for details, including the year of the data, at <http://globalinnovationindex.org>. Square brackets [] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

DATA AVAILABILITY

The following tables list data that are either missing or outdated for Thailand.

Missing data

Thailand has complete data coverage in the GII 2020.

Outdated data

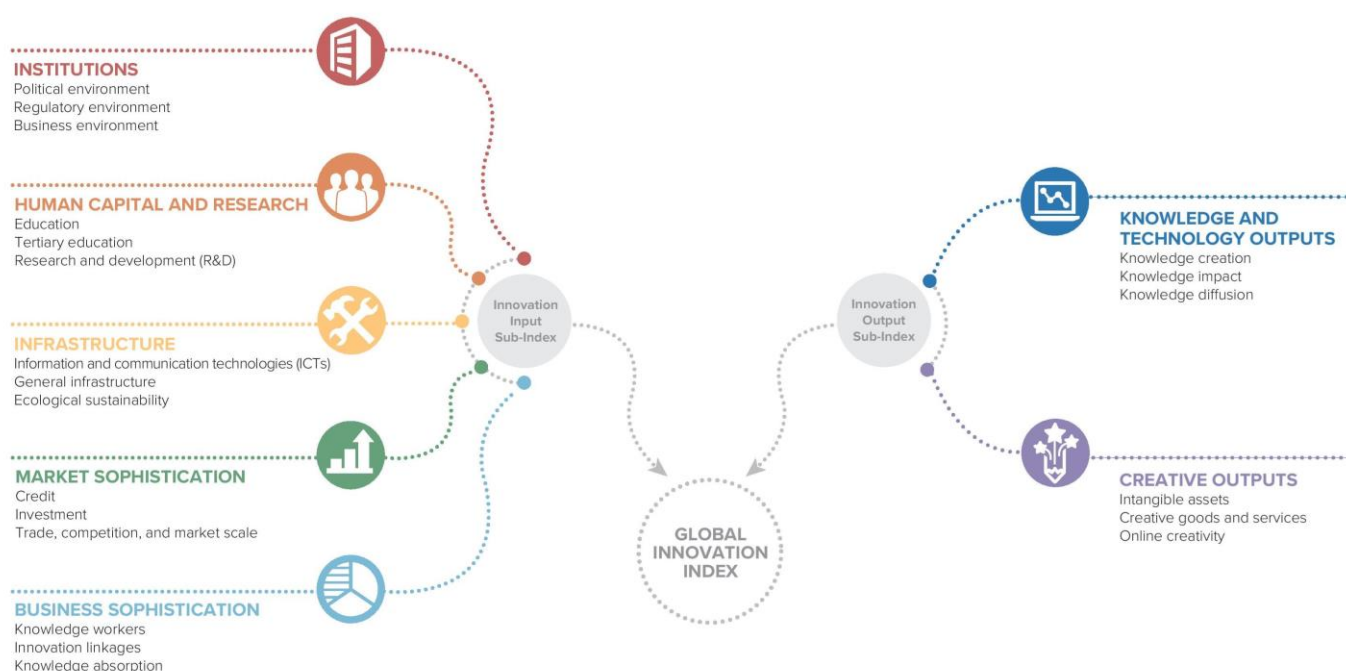
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2013	2018	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2013	2016	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2016	2017	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2016	2017	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	2016	2017	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2016	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2017	2018	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., %	2015	2018	World Bank
5.1.2	Firms offering formal training, %	2015	2018	World Bank
5.1.3	GERD performed by business, % GDP	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.3.5	Research talent, % in business enterprise	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
6.2.5	High- and medium-high-tech manufacturing, %	2016	2017	United Nations Industrial Development Organization
7.2.4	Printing and other media, % manufacturing	2016	2017	United Nations Industrial Development Organization

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2020, the GII presents its 13th edition devoted to the theme *Who Will Finance Innovation?*

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.

Framework of the Global Innovation Index 2020



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.



www.globalinnovationindex.org



GII app for iOS



GII app for android