

# GLOBAL INNOVATION INDEX 2019

## VIET NAM

**42nd**

Viet Nam ranks 42nd among the 129 economies featured in the GII 2019.

The Global Innovation Index (GII) is a ranking of world economies based on 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 Viet Nam over the past three years, noting that data availability and the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for Viet Nam's ranking in the GII 2019 is between 41 and 51.

### Viet Nam's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
<b>2019</b>	42	63	37
<b>2018</b>	45	65	41
<b>2017</b>	47	71	38

- Viet Nam performs better in Innovation Outputs than Inputs.
- This year Viet Nam ranks 63rd in Innovation Inputs, better than last year and compared to 2017.
- As for Innovation Outputs, Viet Nam ranks 37th. This position is better than last year and compared to 2017.

**1st**

Viet Nam ranks 1st among the 26 lower middle-income economies.

**9th**

Viet Nam ranks 9th among the 15 economies in South East Asia, East Asia, and Oceania.

Viet Nam makes important progress this year, moving up three positions and reaching the 42nd place. Its improvement this year is largely due to its relative performance and less so to new GII data or methods (page 9).

Viet Nam scores above average in all the dimensions measured in the GII relative to the lower middle-income group and has an overall innovation performance that is comparable to the top economies in the upper middle-income group.

This year Viet Nam gains positions in the GII areas that measure the quality of its human capital and research systems, the sophistication of its credit market, and its innovation results in terms of new knowledge and technologies.

Viet Nam stands out as one of the few lower middle-income economies that are getting much more innovation results for their innovation investments.

Viet Nam boasts top ranks in important variables such as Labor productivity growth, High-technology exports, Exports of creative goods, Trademarks by origin, and Mobile app creation (pages 6 and 7).

Compared to other economies in ASEAN (Association of Southeast Asian Nations), Viet Nam continues to lead in areas such as Expenditure on education, FDI inflows, and High-technology imports - where it ranks first in the world.

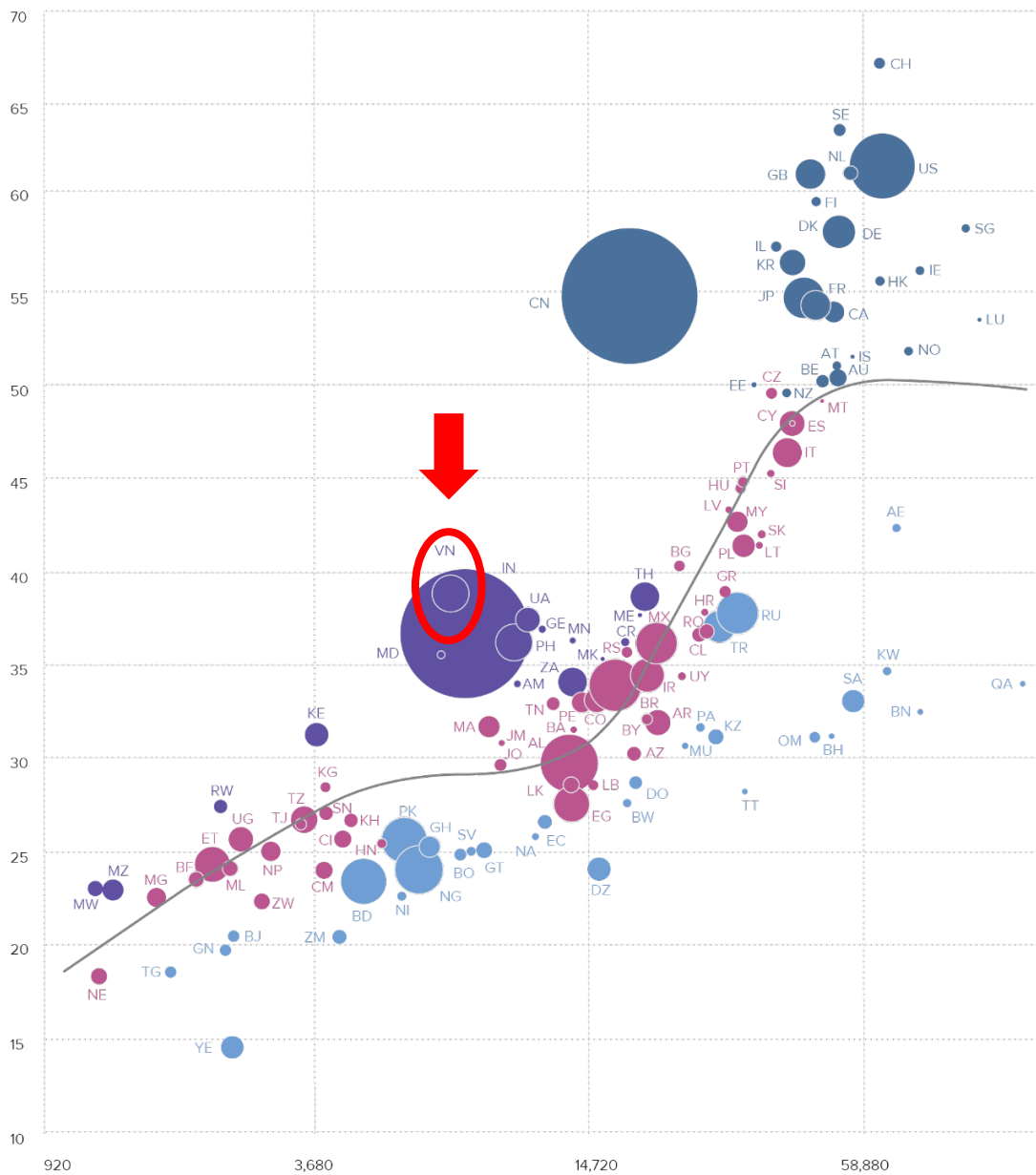
Despite these important achievements and its solid innovation profile, Viet Nam still presents some areas of opportunity, including Global R&D companies and ICT services imports and exports (pages 6 and 7).

# 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 considered Innovation under-performers relative to GDP.

Relative to GDP, Viet Nam performs well above its expected level of development.

## GII scores and GDP per capita in PPP US\$ (bubbles sized by population)



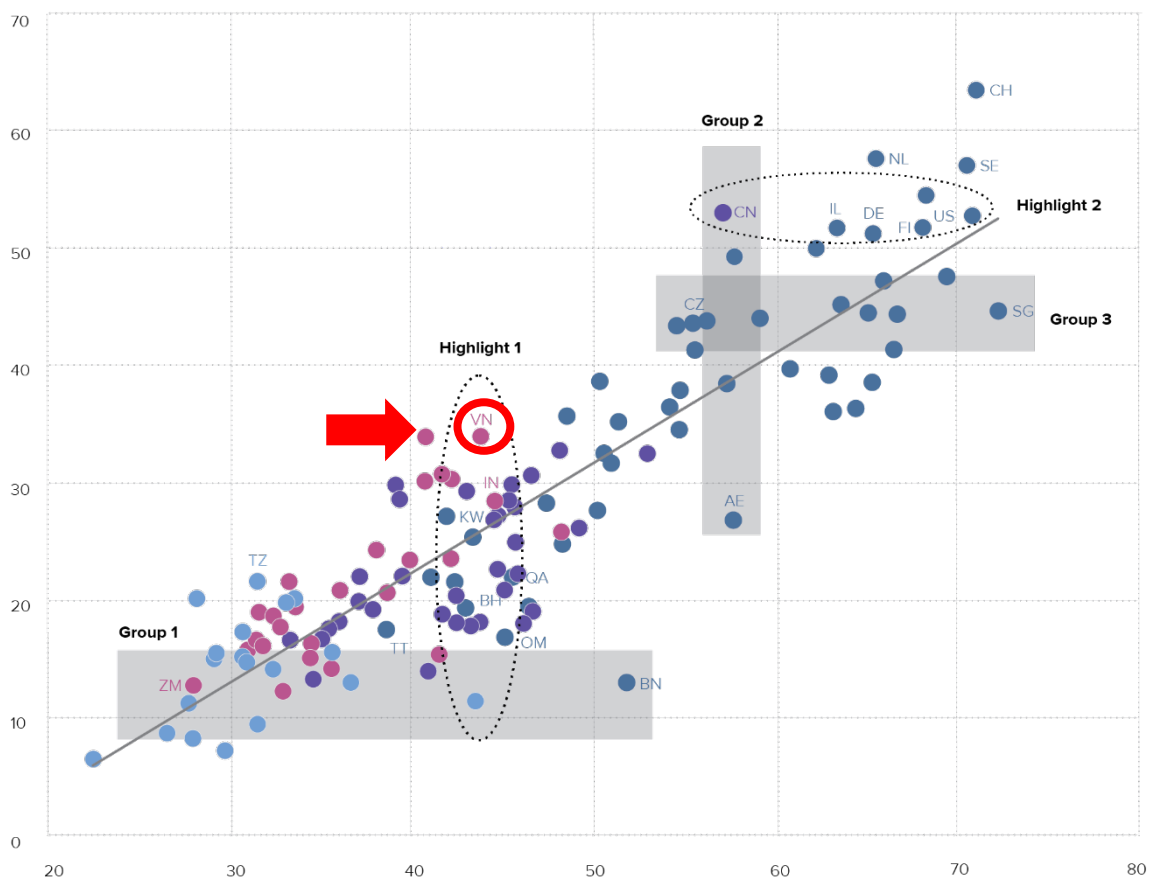
- ▲ GII score
- ▶ GDP per capita in PPP\$ (logarithmic scale)
- Innovation leaders
- Innovation achievers
- Performing at expectations for level of development
- Performing below expectations for level of development

# EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs, indicating which economies best translate innovation inputs into innovation outputs. Economies appearing above the line are effectively translating their costly innovation investments into more and higher-quality outputs. In contrast, those below the line are not effectively translating innovation inputs into outputs.

Viet Nam produces more innovation outputs relative to its level of innovation investments.

## Innovation input/output performance by income group, 2019

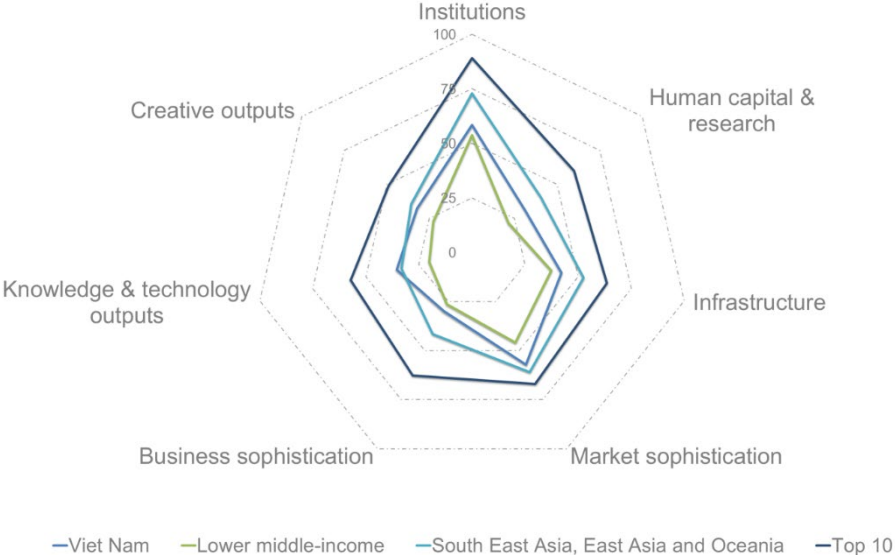


- ▲ Output score
- ▶ Input score
- High income
- Upper-middle income
- Lower-middle income
- Low income
- Fitted values

AE United Arab Emirates	CZ Czech Republic	NL Netherlands	TZ United Republic of Tanzania
BH Bahrain	DE Germany	OM Oman	US United States of America
BN Brunei Darussalam	FI Finland	QA Qatar	VN Viet Nam
CH Switzerland	IL Israel	SE Sweden	ZM Zambia
CN China	IN India	SG Singapore	
	KW Kuwait	TT Trinidad and Tobago	

# BENCHMARKING VIET NAM TO OTHER LOWER MIDDLE-INCOME ECONOMIES AND THE SOUTH EAST ASIA, EAST ASIA, AND OCEANIA REGION

**Viet Nam’s scores in the seven GII pillars**



## Lower middle-income economies

Viet Nam has high scores in all of the 7 GII pillars, which are above the average of the lower middle-income group.

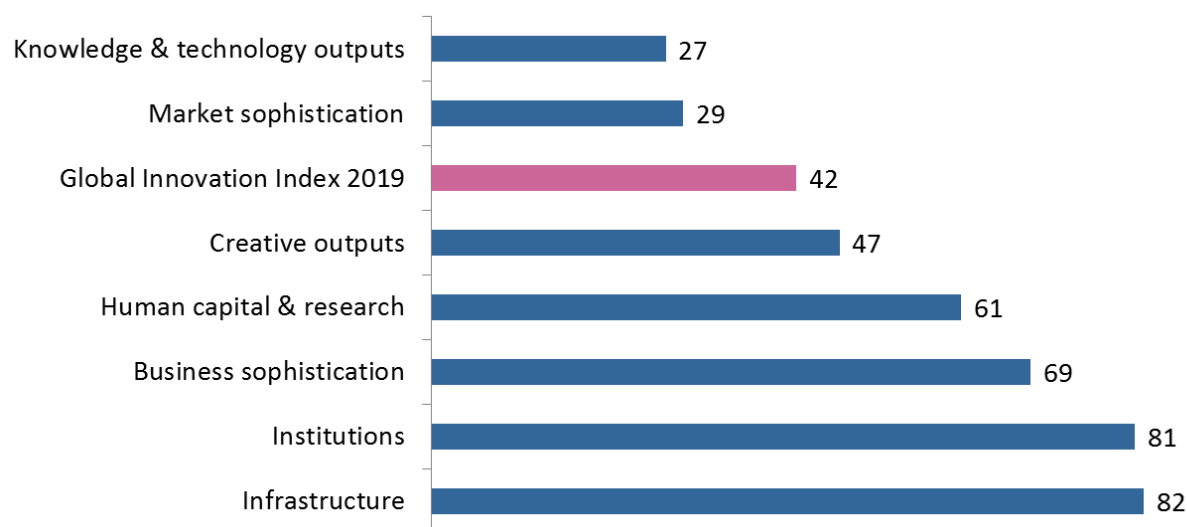
## South East Asia, East Asia, and Oceania Region

Compared to other economies in the South East Asia, East Asia, and Oceania region, Viet Nam performs above average in 1 out of the 7 GII pillars: Knowledge & technology outputs.

Top ranks are found in areas such as Education, Credit, Knowledge absorption, Knowledge impact, and Knowledge diffusion, where the country ranks in the top 25 worldwide.

## OVERVIEW OF VIET NAM'S RANKINGS IN THE 7 GII AREAS

Viet Nam performs the best in Knowledge & technology outputs and its weakest performance is in Infrastructure.



\*The highest possible ranking in each pillar is 1.

## VIET NAM'S INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of Viet Nam's strengths and weaknesses in the GII 2019.

Strengths		
Code	Indicator name	Rank
4.1	Credit	11
4.1.2	Domestic credit to private sector, % GDP	16
4.1.3	Microfinance gross loans, % GDP	8
5.1.4	GERD financed by business, %	8
5.3	Knowledge absorption	23
5.3.2	High-tech imports, % total trade	1
5.3.4	FDI net inflows, % GDP, 3-year average	23
6.2	Knowledge impact	5
6.2.1	Growth rate of PPP\$ GDP/worker, %, 3-year average	3
6.3	Knowledge diffusion	18
6.3.2	High-tech net exports, % total trade	1
7.1.1	Trademarks by origin/bn PPP\$ GDP	24
7.2.5	Creative goods exports, % total trade	10
7.3.4	Mobile app creation/bn PPP\$ GDP	13

Weaknesses		
Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal, salary weeks	101
1.3	Business environment	106
1.3.2	Ease of resolving insolvency*	110
2.2.3	Tertiary inbound mobility, %	104
2.3.3	Global R&D companies, top 3, in mn US\$	43
3.3.2	Environmental performance*	104
4.2	Investment	108
5.1	Knowledge workers	102
5.1.1	Knowledge-intensive employment, %	117
5.1.2	Firms offering formal training, % firms	70
5.3.3	ICT services imports, % total trade	126
6.3.3	ICT services exports, % total trade	125
7.2.3	Entertainment & Media market/th pop. 15–69	56

## **STRENGTHS**

- GII strengths for Viet Nam are concentrated in four of the seven GII pillars.
- On the innovation input side of the GII, strengths are found only in two areas: Market sophistication (29) and Business sophistication (69).
- In Market sophistication (29), Viet Nam's strengths are sub-pillar Credit (11) as well as two of its three indicators - Domestic credit to private sector (16) and Microfinance gross loans (8).
- In Business sophistication (69), GII strengths are sub-pillar Knowledge absorption (23) and indicators R&D financed by business (8), FDI inflows (23), and High-tech imports where Viet Nam ranks 1st.
- In Knowledge & technology outputs (27), Viet Nam's strengths are sub-pillar Knowledge impact, where it ranks 5th in the world, and sub-pillar Knowledge diffusion (18). At the indicator level, two other strengths are found in Labor productivity growth and High-tech exports, where Viet Nam positions 3rd and 1st respectively.
- In Creative outputs (47), GII strengths are three indicators: Trademarks by origin (24), Creative goods exports (10), and Mobile app creation (13).

## **WEAKNESSES**

- Viet Nam's weaknesses in the GII are scattered across the seven GII pillars.
- Most of them are in Business sophistication (69), where Viet Nam's weaknesses are sub-pillar Knowledge workers (102) and indicators Knowledge-intensive employment (117), Firms offering formal training (70), and ICT services imports (126).
- In Institutions (81), Viet Nam's weaknesses are sub-pillar Business environment (106) and indicators Cost of redundancy dismissal (101) and Ease of resolving insolvency (110).
- In Human capital & research (61), GII weaknesses are indicators Tertiary inbound mobility (104) and Global R&D companies (43).
- In Infrastructure (82), one weakness is found in indicator Environmental performance (104).
- In Market sophistication (29), sub-pillar Investment (108) is one of Viet Nam's weaknesses.
- In Knowledge & technology outputs (27), only one indicator – ICT services exports (125) – is a relative weakness for Viet Nam.
- In Creative outputs (47), GII weaknesses for the country is indicator Entertainment & Media market (56).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2018 rank
<b>37</b>	<b>63</b>	<b>Lower middle</b>	<b>SEAO</b>	<b>96.5</b>	<b>707.6</b>	<b>7,510.5</b>	<b>45</b>
				Score/Value	Rank		
<b>INSTITUTIONS</b>				<b>58.6</b>	<b>81</b>		
<b>1.1</b>	<b>Political environment</b>		<b>58.6</b>	<b>57</b>	◆		
1.1.1	Political and operational stability*		82.5	32	◆		
1.1.2	Government effectiveness*		46.6	71	◆		
<b>1.2</b>	<b>Regulatory environment</b>		<b>57.3</b>	<b>90</b>			
1.2.1	Regulatory quality*		31.3	97			
1.2.2	Rule of law*		48.2	59	◆		
1.2.3	Cost of redundancy dismissal, salary weeks		24.6	101	○		
<b>1.3</b>	<b>Business environment</b>		<b>59.9</b>	<b>106</b>	○		
1.3.1	Ease of starting a business*		84.8	80			
1.3.2	Ease of resolving insolvency*		34.9	110	○		
<b>HUMAN CAPITAL &amp; RESEARCH</b>				<b>31.1</b>	<b>61</b>		
<b>2.1</b>	<b>Education</b>		<b>61.2</b>	<b>[18]</b>			
2.1.1	Expenditure on education, % GDP		5.7	24			
2.1.2	Government funding/pupil, secondary, % GDP/cap		n/a	n/a			
2.1.3	School life expectancy, years		n/a	n/a			
2.1.4	PISA scales in reading, maths, & science		502.0	20	◆		
2.1.5	Pupil-teacher ratio, secondary		n/a	n/a			
<b>2.2</b>	<b>Tertiary education</b>		<b>24.7</b>	<b>81</b>			
2.2.1	Tertiary enrolment, % gross		28.3	85			
2.2.2	Graduates in science & engineering, %		22.7	46			
2.2.3	Tertiary inbound mobility, %		0.2	104	○		
<b>2.3</b>	<b>Research &amp; development (R&amp;D)</b>		<b>7.4</b>	<b>67</b>			
2.3.1	Researchers, FTE/mn pop		700.8	58			
2.3.2	Gross expenditure on R&D, % GDP		0.5	61			
2.3.3	Global R&D companies, avg. exp. top 3, mn US\$		0.0	43	○ ◆		
2.3.4	QS university ranking, average score top 3*		9.9	64			
<b>INFRASTRUCTURE</b>				<b>42.0</b>	<b>82</b>		
<b>3.1</b>	<b>Information &amp; communication technologies (ICTs)</b>		<b>57.5</b>	<b>82</b>			
3.1.1	ICT access*		48.8	90			
3.1.2	ICT use*		38.7	92			
3.1.3	Government's online service*		73.6	57			
3.1.4	E-participation*		69.1	70			
<b>3.2</b>	<b>General infrastructure</b>		<b>39.3</b>	<b>45</b>			
3.2.1	Electricity output, kWh/mn pop		1,778.1	81			
3.2.2	Logistics performance*		56.6	38	◆		
3.2.3	Gross capital formation, % GDP		27.5	32			
<b>3.3</b>	<b>Ecological sustainability</b>		<b>29.2</b>	<b>100</b>			
3.3.1	GDP/unit of energy use		6.7	92			
3.3.2	Environmental performance*		47.0	104	○		
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP		2.2	45	◆		
<b>MARKET SOPHISTICATION</b>				<b>57.0</b>	<b>29</b>	◆	
<b>4.1</b>	<b>Credit</b>		<b>68.6</b>	<b>11</b>	◆		
4.1.1	Ease of getting credit*		75.0	29			
4.1.2	Domestic credit to private sector, % GDP		130.7	16	◆		
4.1.3	Microfinance gross loans, % GDP		3.9	8	◆		
<b>4.2</b>	<b>Investment</b>		<b>33.1</b>	<b>108</b>	○		
4.2.1	Ease of protecting minority investors*		55.0	84			
4.2.2	Market capitalization, % GDP		36.9	41			
4.2.3	Venture capital deals/bn PPP\$ GDP		0.0	37			
<b>4.3</b>	<b>Trade, competition, &amp; market scale</b>		<b>69.3</b>	<b>35</b>	◆		
4.3.1	Applied tariff rate, weighted avg., %		2.7	61			
4.3.2	Intensity of local competition*		63.2	90			
4.3.3	Domestic market scale, bn PPP\$		707.6	33			
<b>BUSINESS SOPHISTICATION</b>				<b>30.0</b>	<b>69</b>		
<b>5.1</b>	<b>Knowledge workers</b>		<b>22.8</b>	<b>102</b>	○		
5.1.1	Knowledge-intensive employment, %		1.1	117	○ ◆		
5.1.2	Firms offering formal training, % firms		22.2	70	○		
5.1.3	GERD performed by business, % GDP		0.4	42	◆		
5.1.4	GERD financed by business, %		64.1	8	◆ ◆		
5.1.5	Females employed w/advanced degrees, %		6.1	83			
<b>5.2</b>	<b>Innovation linkages</b>		<b>20.0</b>	<b>86</b>			
5.2.1	University/industry research collaboration*		38.6	75			
5.2.2	State of cluster development*		45.2	74			
5.2.3	GERD financed by abroad, %		4.5	64			
5.2.4	JV-strategic alliance deals/bn PPP\$ GDP		0.0	49			
5.2.5	Patent families 2+ offices/bn PPP\$ GDP		0.0	84			
<b>5.3</b>	<b>Knowledge absorption</b>		<b>47.1</b>	<b>23</b>	◆ ◆		
5.3.1	Intellectual property payments, % total trade		n/a	n/a			
5.3.2	High-tech imports, % total trade		26.5	1	◆ ◆		
5.3.3	ICT services imports, % total trade		0.0	126	○ ◆		
5.3.4	FDI net inflows, % GDP		6.2	23	◆		
5.3.5	Research talent, % in business enterprise		24.1	51			
<b>KNOWLEDGE &amp; TECHNOLOGY OUTPUTS</b>				<b>35.6</b>	<b>27</b>	◆	
<b>6.1</b>	<b>Knowledge creation</b>		<b>8.1</b>	<b>80</b>			
6.1.1	Patents by origin/bn PPP\$ GDP		0.9	65			
6.1.2	PCT patents by origin/bn PPP\$ GDP		0.0	82			
6.1.3	Utility models by origin/bn PPP\$ GDP		0.4	35			
6.1.4	Scientific & technical articles/bn PPP\$ GDP		5.6	74			
6.1.5	Citable documents H-index		11.7	57			
<b>6.2</b>	<b>Knowledge impact</b>		<b>56.5</b>	<b>5</b>	◆ ◆		
6.2.1	Growth rate of PPP\$ GDP/worker, %		6.0	3	◆ ◆		
6.2.2	New businesses/th pop. 15-64		n/a	n/a			
6.2.3	Computer software spending, % GDP		0.3	38			
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP		8.3	37	◆		
6.2.5	High- & medium-high-tech manufactures, %		0.4	27	◆		
<b>6.3</b>	<b>Knowledge diffusion</b>		<b>42.1</b>	<b>18</b>	◆ ◆		
6.3.1	Intellectual property receipts, % total trade		n/a	n/a			
6.3.2	High-tech net exports, % total trade		32.9	1	◆ ◆		
6.3.3	ICT services exports, % total trade		0.1	125	○ ◆		
6.3.4	FDI net outflows, % GDP		0.4	71			
<b>CREATIVE OUTPUTS</b>				<b>32.3</b>	<b>47</b>	◆	
<b>7.1</b>	<b>Intangible assets</b>		<b>43.7</b>	<b>53</b>			
7.1.1	Trademarks by origin/bn PPP\$ GDP		85.3	24	◆		
7.1.2	Industrial designs by origin/bn PPP\$ GDP		2.7	43			
7.1.3	ICTs & business model creation*		56.1	83			
7.1.4	ICTs & organizational model creation*		54.4	63			
<b>7.2</b>	<b>Creative goods &amp; services</b>		<b>28.8</b>	<b>32</b>	◆		
7.2.1	Cultural & creative services exports, % total trade		n/a	n/a			
7.2.2	National feature films/mn pop. 15-69		1.2	78			
7.2.3	Entertainment & Media market/th pop. 15-69		1.3	56	○		
7.2.4	Printing & other media, % manufacturing		0.9	70			
7.2.5	Creative goods exports, % total trade		5.9	10	◆ ◆		
<b>7.3</b>	<b>Online creativity</b>		<b>13.0</b>	<b>44</b>	◆		
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69		2.4	74	◆		
7.3.2	Country-code TLDs/th pop. 15-69		1.8	69			
7.3.3	Wikipedia edits/mn pop. 15-69		7.1	70			
7.3.4	Mobile app creation/bn PPP\$ GDP		42.9	13	◆ ◆		

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 AND GII MODEL

The following tables list data that are missing or are outdated for Viet Nam.

### Missing data

Code	Indicator name	Country year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2015	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2016	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	n/a	2017	UNESCO Institute for Statistics
5.3.1	Intellectual property payments, % total trade	n/a	2017	World Trade Organization
6.2.2	New businesses/th pop. 15–64	n/a	2016	World Bank
6.3.1	Intellectual property receipts, % total trade	n/a	2017	World Trade Organization
7.2.1	Cultural & creative services exports, % total trade	n/a	2017	World Trade Organization

### Outdated data

Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2013	2015	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2016	2017	UNESCO Institute for Statistics
7.2.2	National feature films/mn pop. 15–69	2011	2017	UNESCO Institute for Statistics

### Model changes

The table below provides a summary of the adjustments to the GII 2019 framework.

#### Changes to the GII 2019 framework

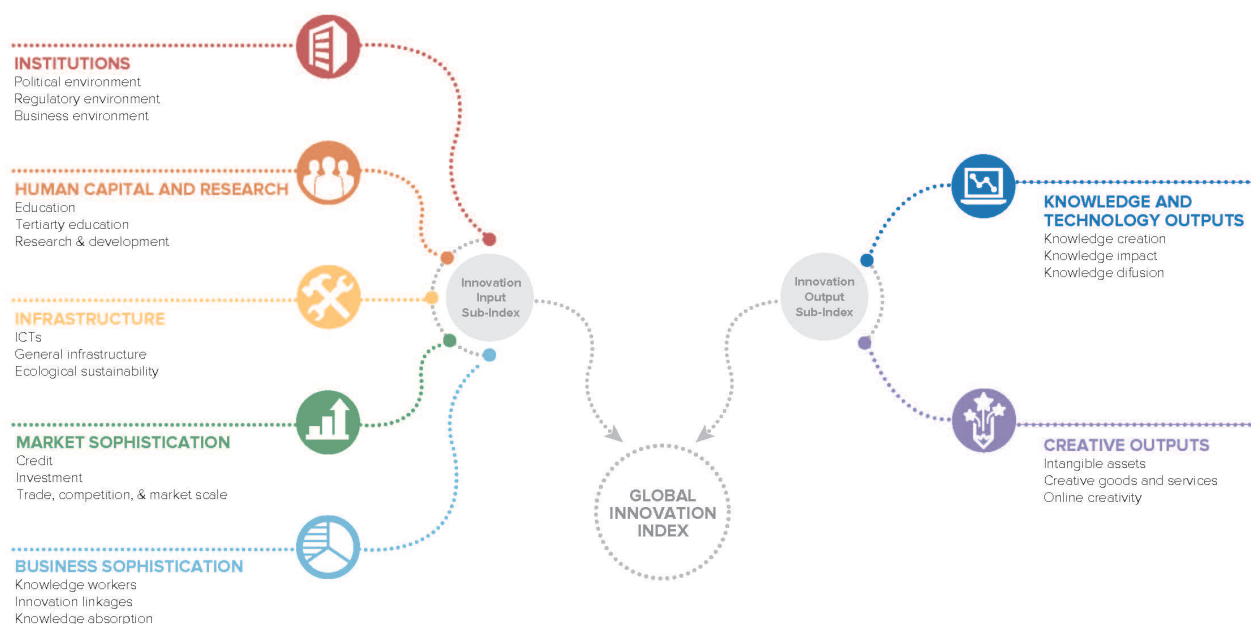
GII 2018		Adjustment	GII 2019	
1.1.1	Political stability & safety	Replaced	1.1.1	Political & operational stability
3.3.2	Environmental performance	Indicator changed at source	3.3.2	Environmental performance
5.3.1	Intellectual property payments, % total trade	Methodology change	5.3.1	Intellectual property payments, % total trade (3 year avg.)
5.3.2	High-tech imports, % total trade	Methodology change	5.3.2	High-tech imports, % total trade
6.2.1	Growth rate of PPP\$ GDP/worker, %	Methodology change	6.2.1	Growth rate of PPP\$ GDP/worker, % (3 year avg.)
6.3.1	Intellectual property receipts, % total trade	Methodology change	6.3.1	Intellectual property receipts, % total trade (3 year avg.)
7.3.4	Mobile app creation/bn PPP\$ GDP	Methodology change	7.3.4	Mobile app creation/bn PPP\$ GDP

# 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 2019, the GII presents its 12<sup>th</sup> edition devoted to the theme **Creating Healthy Lives—The Future of Medical Innovation**.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and 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 countries that incorporate the GII into their innovation agendas.

## Framework of the Global Innovation Index 2019



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes 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 containing three sub-pillars.

