

# THE GLOBAL INNOVATION INDEX (GII)

2014 - 2018



Source: Excerpts from The Global Innovation Index, 2014, 2015, 2016, 2017 and 2018

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# RATIONALE

- Innovation is driver of economic progress and competitiveness
- There is awareness that innovation definition has broadened – not restricted to R&D laboratories and to published scientific papers. Innovation could be more general and includes social innovations and business model innovations.
- Innovation in emerging markets is seen as critical for inspiring people-especially the next generation of entrepreneurs and innovators.
- GII helps to create an environment in which innovation factors are under continual evaluation and it provides a key tool and a rich database of detailed metrics for refining innovation policies.

# INNOVATION INPUT SUB-INDEX

Pillar 1:

INSTITUTIONS

Subpillar 1:

POLITICAL ENVIRONMENT

Subpillar 2:

REGULATORY ENVIRONMENT

Subpillar 3:

BUSINESS ENVIRONMENT

Pillar 2:

HUMAN CAPITAL AND  
RESEARCH

Subpillar 1:

EDUCATION

Subpillar 2:

TERTIARY EDUCATION

Subpillar 3:

RESEARCH & DEVELOPMENT

Pillar 3:

INFRASTRUCTURE

Subpillar 1:

ICT

Subpillar 2:

GENERAL INFRASTRUCTURE

Subpillar 3:

ECOLOGICAL SUSTAINABILITY

Pillar 4:

MARKET  
SOPHISTICATION

Subpillar 1:

CREDIT

Subpillar 2:

INVESTMENT

Subpillar 3:

TRADE, COMPETITION & MARKET SCALE

Pillar 5:

BUSINESS  
SOPHISTICATION

Subpillar 1:

KNOWLEDGE WORKERS

Subpillar 2:

INNOVATION LINKAGES

Subpillar 3:

KNOWLEDGE ABSORPTION

## INNOVATION OUTPUT SUB-INDEX

Pillar 6:

KNOWLEDGE &  
TECHNOLOGY  
OUTPUTS

Subpillar 1:

KNOWLEDGE CREATION

Subpillar 2:

KNOWLEDGE IMPACT

Subpillar 3:

KNOWLEDGE DIFFUSION

Pillar 7:

CREATIVE  
OUTPUTS

Subpillar 1:

INTANGIBLE ASSETS

Subpillar 2:

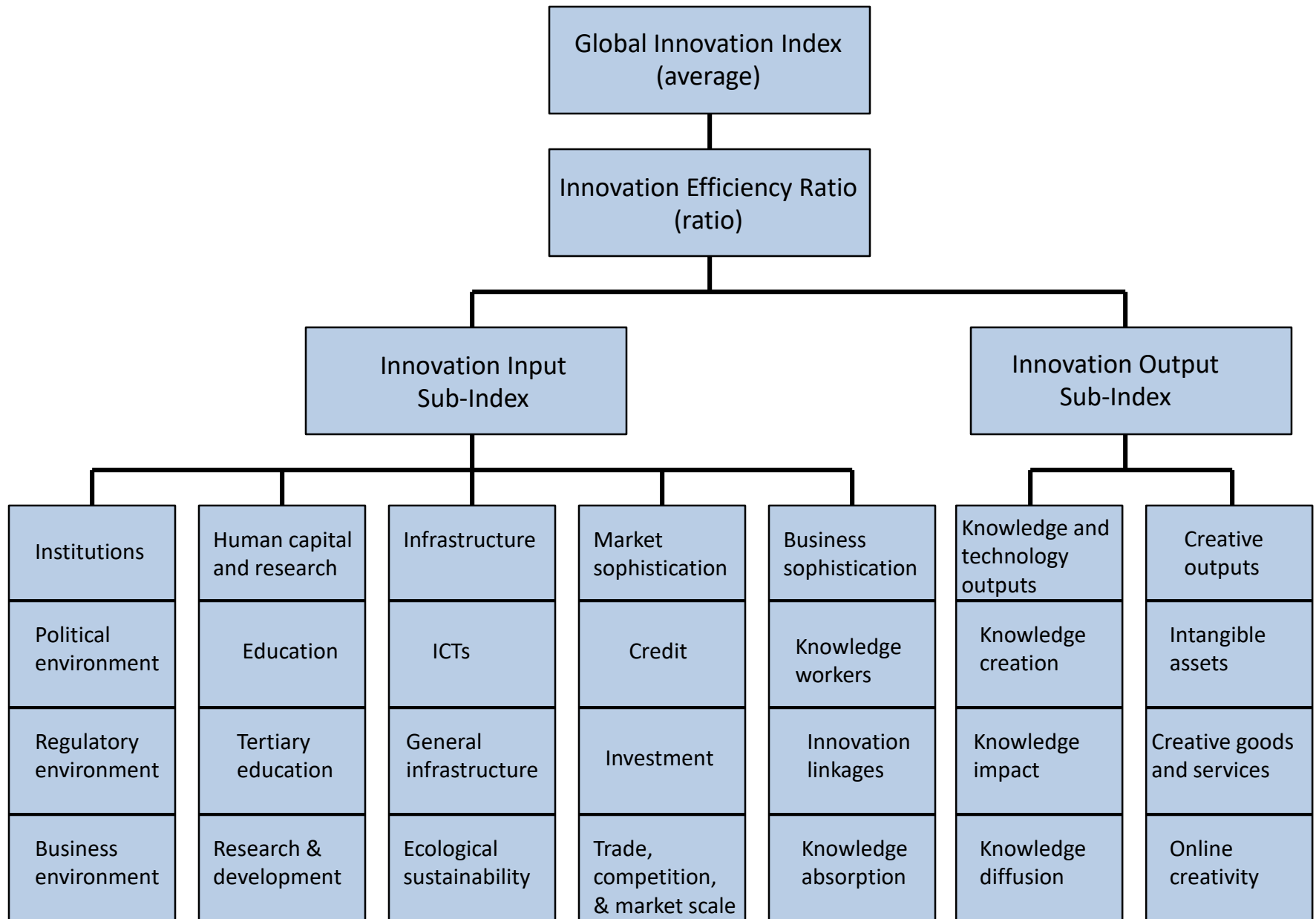
CREATIVE GOODS AND SERVICES

Subpillar 3:

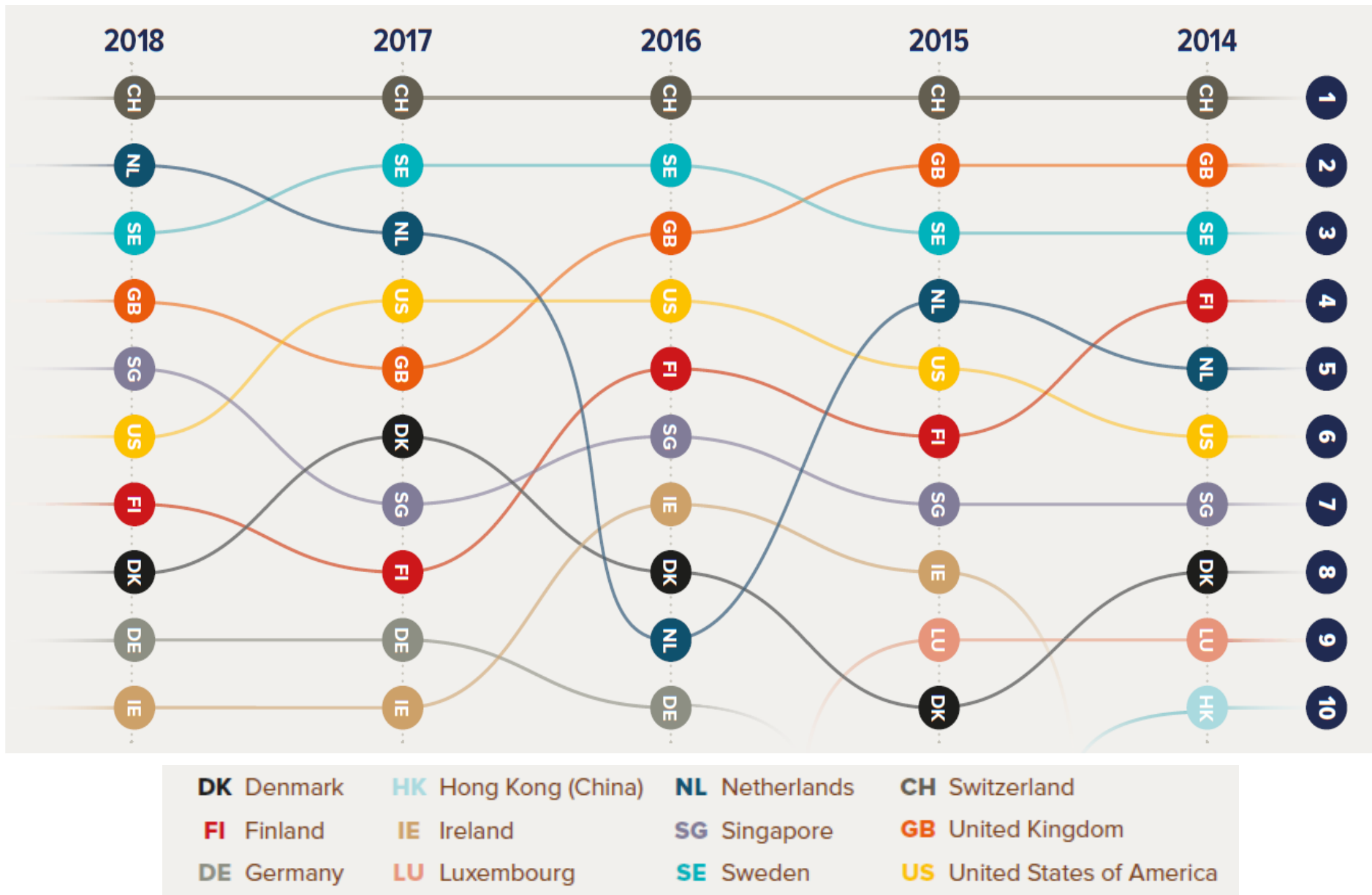
ONLINE CREATIVITY



**Figure 1: Framework of the Global Innovation Index**



# MOVEMENT IN THE TOP 10 OF THE GLOBAL INNOVATION INDEX



Note: Year-on-year GII rank changes are influenced by performance and methodological considerations



Since 2011  
Switzerland has  
ranked 1st in the  
GII every year.



In 2015 Ireland  
entered the top 10  
and Hong Kong  
(China) exited.



After 2016  
no country has entered  
or exited the top 10.



Sweden maintained  
2nd place for the  
second time in 2017.



In 2018  
the Netherlands  
and Sweden traded  
2nd and 3rd place.

Overall Global Innovation Index and Innovation Efficiency Ratio: ASEAN Ranking										
ASEAN Country	Overall Global Innovation Index Ranking and Score					Innovation Efficiency Ratio Ranking and Score				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Singapore	7 (59.24)	7 (59.36)	6 (59.16)	7 (58.7)	5 (59.83)	110 (0.61)	100 (0.65)	78 (0.62)	63 (0.6)	63 (0.61)
Malaysia	33 (45.60)	32 (45.98)	35 (43.36)	37 (42.7)	35 (43.16)	72 (0.74)	56 (0.74)	59 (0.67)	46 (0.7)	48 (0.66)
Thailand	48 (39.28)	55 (38.10)	52 (36.51)	51 (37.6)	44 (38.00)	62 (0.76)	43 (0.76)	53 (0.70)	24 (0.8)	33 (0.71)
Philippines	100 (29.87)	83 (31.05)	74 (31.83)	73 (32.5)	73 (31.56)	35 (0.81)	44 (0.76)	49 (0.71)	55 (0.6)	62 (0.61)
Indonesia	87 (31.81)	97 (29.79)	88 (29.07)	87 (30.1)	85 (29.80)	4 (0.96)	42 (0.77)	52 (0.71)	42 (0.7)	66 (0.61)
Vietnam	71 (34.89)	52 (38.35)	59 (35.37)	47 (38.3)	45 (37.94)	5 (0.95)	9 (0.92)	11 (0.84)	10 (0.8)	16 (0.80)
Brunei Darussalam	88 (31.67)	n/a	n/a	71 (32.9)	67 (32.84)	139 (0.43)	n/a	n/a	124 (0.3)	124 (0.31)
Cambodia	106 (28.66)	91 (30.35)	95 (27.94)	101 (27.0)	98 (26.69)	67 (0.74)	80 (0.69)	90 (0.59)	61 (0.6)	60 (0.61)
Myanmar	140 (19.64)	138 (20.27)	n/a	n/a	n/a 7	80 (0.71)	75 (0.69)	n/a	n/a	n/a

## INNOVATION INPUT AND OUTPUT SUB-INDECES: ASEAN RANKING

ASEAN Country	INNOVATION INPUT SUB-INDEX					INNOVATION OUTPUT SUB-INDEX				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
<b>SINGAPORE</b>	1 (73.60)	1 (72.12)	1 (72.94)	1 (72.3)	1 (74.23)	25 (44.88)	20 (46.60)	20 (45.38)	17 (45.1)	15 (45.43)
<b>MALAYSIA</b>	30 (52.46)	31 (52.78)	32 (52.05)	36 (50.9)	34 (52.07)	35 (38.74)	34 (39.18)	39 (34.66)	34.5 (39)	39 (34.26)
<b>THAILAND</b>	52 (44.75)	62 (43.17)	57 (42.98)	65 (42.9)	52 (44.49)	49 (33.81)	50 (33.02)	50 (30.04)	43 (32.2)	45 (31.51)
<b>PHILIPPINES</b>	110 (32.93)	101 (35.24)	86 (37.23)	83 (39.4)	82 (32.14)	84 (26.80)	77 (26.86)	64 (26.43)	65 (25.6)	68 (23.98)
<b>INDONESIA</b>	117 (32.42)	114 (33.74)	99 (34.04)	99 (35.7)	90 (37.12)	60 (31.20)	85 (25.83)	76 (24.10)	73 (24.5)	73 (22.47)
<b>VIETNAM</b>	100 (35.75)	78 (40.04)	79 (38.45)	71 (41.7)	65 (42.17)	47 (34.02)	39 (36.65)	42 (32.29)	38 (34.9)	41 (33.70)
<b>BRUNEI DARUSALAM</b>	55 (44.30)	n/a	n/a	40 (49.3)	37 (50.05)	124 (19.04)	n/a	n/a	110 (16.5)	112 (15.63)
<b>CAMBODIA</b>	113 (32.85)	96 (35.98)	94 (35.06)	104 (33.2)	103 (33.06)	99 (24.46)	91 (24.72)	95 (20.82)	87 (20.9)	84 (20.32)
<b>MYANMAR</b>	143 (23.03)	139 (23.92)	n/a	n/a	n/a	133 (16.25)	130 (16.62)	n/a	n/a	n/a

**S&T contributes to:  
Human Capital and Research,  
Infrastructure, Business Sophistication,  
Knowledge and Technology Outputs, and  
Creative Outputs**

# HUMAN CAPITAL AND RESEARCH

## INDICATORS

1. Education
  - 1.1 Expenditure on education, % GDP
  - 1.2 Government expenditures on education/pupil, secondary
  - 1.3 School life expectancy, years
  - 1.4 PISA scales in reading, maths & science
  - 1.5 Pupil-teacher ratio, secondary
2. Tertiary Education
  - 2.1 Tertiary enrolment, % gross
  - 2.2 Graduates in science & engineering, %
  - 2.3 Tertiary inbound mobility, %
3. Research and development (R&D)
  - 2.1 Researchers, FTE/million population
  - 2.2 Gross expenditure on R&D, % GDP
  - 2.3 Global R&D firms, average exp. top 3, million \$US
  - 2.4 QS university ranking, average score top 3

# DESCRIPTIONS OF SELECTED INDICATORS

Indicator	Description
Graduates in science and engineering <sup>1</sup>	The share of all tertiary graduates in science, manufacturing, engineering, and construction over all tertiary graduates (% of total tertiary graduates).
Researchers <sup>2</sup>	Researchers in R&D are professionals engaged in the conception or creation of new knowledge, products, processes, methods, or systems and in the management of the projects concerned. Postgraduate PhD students engaged in R&D are included (Researchers, full-time equivalence (FTE) (per million population).
Gross Expenditure on R&D, % GDP <sup>3</sup>	Total domestic intramural expenditure (US\$) on R&D during a given period as a percentage of GDP. Intramural R&D expenditure is all expenditure for R&D performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds.
QS University Ranking, ave. score of top 3 universities <sup>4</sup>	Average score of the top three universities per country. If fewer than three universities are listed in the Quacquarelli Symonds ranking of the global top 700 universities, the sum of the scores of the listed universities is divided by three, thus implying a score of zero for the non-listed universities.

Source: <sup>1</sup> UNESCO Institute for Statistics, UIS online database (2006–14). (<http://stats.uis.unesco.org>)

<sup>2</sup> UNESCO Institute for Statistics, UIS online database (2007–14). (<http://stats.uis.unesco.org>)

<sup>3</sup> UNESCO Institute for Statistics, UIS online database (2007–15). (<http://stats.uis.unesco.org>)

<sup>4</sup> QS Quacquarelli Symonds Ltd, QS World University Ranking 2015/2016, Top Universities. (<http://www.topuniversities.com/university-rankings/world-university-rankings/2015>)



# Graduates in Science & Engineering

Tertiary graduates in science, manufacturing, engineering and construction over all tertiary graduates (% of total tertiary graduates)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	n/a	n/a	n/a	n/a	n/a
<b>MALAYSIA</b>	6 (69.27)	9 (63.40)	6 (66.49)	7 (33.3)	4 (33.8)
<b>THAILAND</b>	1 (100.00)	n/a	n/a	n/a	20 (26.8)
<b>BRUNEI</b>	63 (30.87)	n/a	n/a	6 (34.0)	8 (30.5)
<b>VIETNAM</b>	31 (42.32)	29 (48.02)	39 (42.90)	40 (22.4)	44 (22.7)
<b>PHILIPPINES</b>	n/a	n/a	26 (49.70)	27 (25.5)	17 (28.7)
<b>INDONESIA</b>	35 (39.79)	40 (42.71)	46 (41.35)	47 (21.7)	54 (20.7)
<b>CAMBODIA</b>	95 (19.47)	93 (22.09)	93 (21.39)	93 (12.5)	78 (15.4)

# Researchers

Researchers, headcounts (per million population)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015* (Rank out of 141 countries)	2016* (Rank out of 128 countries)	2017* (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	9 (68.53)	7 (77.20)	6 (80.71)	6 (6658.5)	5 (6729.7)
<b>MALAYSIA</b>	35 (23.95)	37 (21.26)	39 (21.61)	37 2017.4	35 (2274.0)
<b>THAILAND</b>	68 (5.35)	57 (6.48)	59 (6.44)	51 (874.3)	53 (865.4)
<b>BRUNEI</b>	65 (6.25)	n/a	n/a	n/a	n/a
<b>VIETNAM</b>	n/a	n/a	n/a	58 (674.8)	58 (672.1)
<b>PHILIPPINES</b>	97 (1.12)	85 (0.87)	69 (2.54)	75 (189.4)	76 (187.7)
<b>INDONESIA</b>	91 (1.53)	84 (1.01)	83 (0.94)	87 (89.5)	86 (89.2)
<b>CAMBODIA</b>	n/a	n/a	n/a	n/a	98 (30.4)

\* Researchers, Full-time equivalence (per million population)

## Gross Expenditure on R&D (GERD)

GERD: Gross expenditure on R&D (% of GDP)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	16 (51.02)	18 (47.93)	16 (46.05)	15 (2.2)	13 (2.2)
<b>MALAYSIA</b>	34 (24.22)	32 (26.61)	33 (24.68)	29 (1.3)	23 (1.3)
<b>THAILAND</b>	81 (5.47)	70 (8.95)	72 (7.46)	52 (0.6)	53 (0.6)
<b>BRUNEI</b>	114 (0.56)	n/a	n/a	n/a	n/a
<b>VIETNAM</b>	n/a	90 (4.24)	89 (3.43)	73 (0.4)	66 (0.4)
<b>PHILIPPINES</b>	102 (2.23)	105 (2.31)	97 (2.19)	96 (0.1)	97 (0.1)
<b>INDONESIA</b>	105 (1.62)	109 (1.68)	105 (0.95)	105 (0.1)	107 (0.1)
<b>CAMBODIA</b>	n/a	n/a	n/a	n/a	100 (0.1)

# QS University Ranking, average score of top 3 universities

Average score of top 3 universities at the QS world university ranking

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	20 (56.83)	20 (58.37)	16 (62.70)	12 (70.3)	13 (70.2)
<b>MALAYSIA</b>	28 (45.20)	27 (49.43)	28 (49.13)	29 (44.4)	25 (49.3)
<b>THAILAND</b>	35 (37.33)	36 (40.17)	36 (38.17)	37 (33.4)	38 (32.9)
<b>BRUNEI</b>	70 (0.0)	n/a	n/a	75 (0.0)	61 (11.3)
<b>VIETNAM</b>	70 (0.0)	73 (0.0)	73 (0.0)	75 (0.0)	78 (0.0)
<b>PHILIPPINES</b>	45 (28.03)	45 (29.93)	47 (27.57)	47 (24.4)	48 (24.4)
<b>INDONESIA</b>	40 (31.57)	41 (32.90)	41 (32.33)	38 (29.8)	37 (34.9)
<b>CAMBODIA</b>	70 (0.0)	73 (0.0)	73 (0.0)	75 (0.0)	78 (0.0)

# INFRASTRUCTURE

# DESCRIPTIONS OF INFORMATION AND COMMUNICATION TECHNOLOGIES INDICATORS

Indicator	Description
ICT access <sup>1</sup>	The ICT access index is a composite indicator that weights five ICT indicators (20% each): (1) Fixed telephone lines per 100 inhabitants; (2) Mobile cellular telephone subscriptions per 100 inhabitants; (3) International Internet bandwidth (bit/s) per Internet user; (4) Percentage of households with a computer; and (5) Percentage of households with Internet access. It is the first sub-index in ITU's ICT Development Index (IDI).
ICT use <sup>1</sup>	The ICT use index is a composite indicator that weights three ICT indicators (33% each): (1) Percentage of individuals using the Internet; (2) Fixed (wired)-broadband Internet subscriptions per 100 inhabitants; (3) Active mobile-broadband subscriptions per 100 inhabitants. It is the second sub-index in ITU's ICT Development Index (IDI).
Government's online service <sup>2</sup>	To arrive at a set of online service index values, research teams assessed each country's national websites, including the national central portal, e-services portal, and e-participation portal as well as the websites of the related ministries of education, labour, social services, health, finance, and environment, as applicable. In addition to being assessed for content and features, the national sites were tested for a minimal level of web content accessibility as described in the <i>Web Content Accessibility Guidelines of the World Wide Web Consortium</i> .
Online e-participation <sup>2</sup>	This is measured to offer insight into how different countries are using online tools to promote interaction between citizen and government, as well as among citizens, for the benefit of all. The index ranges from 0 to 1, with 1 showing greater e-participation.

Source: <sup>1</sup> International Telecommunication Union, *Measuring the Information Society 2012, ICT Development Index 2012 (2010–11)*. (<http://www.itu.int/ITU-D/ict/publications/idi/>)

<sup>2</sup> United Nations Public Administration Network, *e-Government Survey 2012 (2010–12)*. (<http://www2.unpan.org/egovkb/>)

# ICT ACCESS

ICT access index

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	8 (83.10)	13 (86.10)	14 (86.39)	11 (87.0)	12 (86.1)
<b>MALAYSIA</b>	51 (60.90)	54 (65.80)	55 (66.09)	59 (67.5)	56 (69.3)
<b>THAILAND</b>	83 (40.00)	79 (48.80)	77 (51.98)	75 (55.0)	76 (54.8)
<b>BRUNEI</b>	40 (65.50)	n/a	n/a	47 (72.1)	39 (74.7)
<b>VIETNAM</b>	81 (40.40)	91 (44.80)	89 (44.26)	90 (46.0)	89 (47.5)
<b>PHILIPPINES</b>	95 (34.10)	96 (43.00)	90 (43.89)	89 (47.0)	86 (48.7)
<b>INDONESIA</b>	90 (36.20)	95 (43.20)	84 (45.96)	88 (47.1)	87 (48.5)
<b>CAMBODIA</b>	100 (31.40)	106 (37.30)	101 (37.74)	99 (42.1)	100 (41.6)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	11 (72.50)	14 (71.90)	15 (76.10)	18 (75.4)	22 (74.5)
<b>MALAYSIA</b>	59 (31.10)	65 (31.60)	54 (47.58)	41 (58.6)	43 (61.7)
<b>THAILAND</b>	100 (12.30)	66 (31.20)	60 (42.81)	63 (43.3)	62 (53.3)
<b>BRUNEI</b>	68 (25.30)	n/a	n/a	85 (29.7)	39 (63.0)
<b>VIETNAM</b>	78 (22.20)	83 (25.00)	78 (30.05)	77 (35.1)	85 (36.5)
<b>PHILIPPINES</b>	95 (14.60)	87 (22.80)	68 (35.45)	88 (29.3)	83 (37.0)
<b>INDONESIA</b>	90 (16.40)	93 (18.00)	95 (17.95)	96 (21.9)	94 (31.9)
<b>CAMBODIA</b>	120 (4.10)	119 (5.50)	108 (7.77)	97 (20.9)	97 (25.6)



# GOVERNMENT'S ONLINE SERVICE

Government's online service index

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	1 (100.00)	2 (99.21)	2 (99.21)	3 (97.1)	3 (97.1)
<b>MALAYSIA</b>	20 (79.08)	31 (67.72)	31 (67.72)	40 (71.7)	40 (71.7)
<b>THAILAND</b>	65 (50.98)	74 (44.09)	73 (44.09)	77 (55.1)	77 (55.1)
<b>BRUNEI</b>	44 (59.48)	n/a	n/a	83 (50.7)	82 (50.7)
<b>VIETNAM</b>	90 (42.48)	79 (41.73)	78 (41.73)	72 (57.2)	72 (57.2)
<b>PHILIPPINES</b>	68 (49.67)	66 (48.03)	66 (48.03)	51 (66.7)	51 (66.7)
<b>INDONESIA</b>	68 (49.67)	90 (36.22)	88 (36.22)	102 (36.2)	102 (36.2)
<b>CAMBODIA</b>	136 (18.95)	122 (17.32)	112 (17.32)	126 (5.1)	125 (5.1)

# ONLINE E-PARTICIPATION

E-Participation Index

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	3 (94.74)	10 (90.20)	10 (90.20)	8 (91.5)	8 (91.5)
<b>MALAYSIA</b>	31 (50.00)	59 (52.94)	59 (52.94)	47 (67.8)	47 (67.8)
<b>THAILAND</b>	48 (31.58)	54 (54.90)	54 (54.90)	65 (59.3)	65 (59.3)
<b>BRUNEI</b>	34 (47.37)	n/a	n/a	101 (37.3)	101 (37.3)
<b>VIETNAM</b>	94 (10.53)	64 (49.02)	64 (49.02)	43 (69.5)	43 (69.5)
<b>PHILIPPINES</b>	65 (21.05)	51 (56.86)	51 (56.86)	65 (59.3)	65 (59.3)
<b>INDONESIA</b>	65 (21.05)	104 (29.41)	99 (29.41)	101 (37.3)	101 (37.3)
<b>CAMBODIA</b>	129 (0.00)	121 (19.61)	112 (19.61)	125 (6.8)	124 (6.8)

# **BUSINESS SOPHISTICATION**

# DESCRIPTION OF SELECTED KNOWLEDGE WORKERS INDICATORS

Indicator	Description
Employment in knowledge-intensive services	Sum of people in categories 1 to 3 as a percentage of total people employed, according to the International Standard Classification of Occupations (ISCO). Categories included: ISCO-08: 1 Managers, 2 Professionals, and 3 Technicians and associate professionals (years 2009–10); ISCO-88: 1 Legislators, senior officials and managers, 2 Professionals, 3 Technicians and associate professionals; ISCO-1968: 1 Professional, technical and related workers (category 0 Armed forces is excluded), 2 Administrative and managerial workers, 3 Clerical and related workers (years 2003–08).
GERD performed by business enterprise	Gross expenditure on R&D performed by business enterprise as a percentage of GDP.
GERD financed by business enterprise	Percentage of gross expenditure on R&D financed by business enterprise.

# EMPLOYMENT IN KNOWLEDGE INTENSIVE SERVICES

Employment in knowledge-intensive services (% of workforce)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	2 (89.09)	2 (89.04)	2 (85.02)	2 (54.3)	2 (54.3)
<b>MALAYSIA</b>	50 (47.46)	57 (41.14)	51 (39.70)	53 (25.5)	51 (27.3)
<b>THAILAND</b>	97 (18.07)	97 (22.61)	90 (21.20)	91 (13.8)	90 (14.3)
<b>BRUNEI</b>	n/a	n/a	n/a	25 (40.5)	26 (40.5)
<b>VIETNAM</b>	100 (11.80)	101 (15.86)	94 (15.53)	94 (10.8)	95 (11.0)
<b>PHILIPPINES</b>	64 (38.48)	63 (39.42)	60 (36.96)	58 (24.0)	56 (25.3)
<b>INDONESIA</b>	99 (13.89)	102 (13.98)	96 (13.24)	96 (9.8)	96 (10.8)
<b>CAMBODIA</b>	109 (3.14)	110 (5.78)	100 (5.48)	102 (4.1)	97 (10.2)

# GERD PERFORMED BY BUSINESS ENTERPRISE

GERD: Performed by business enterprise (%of GDP)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	15 (41.78)	17 (35.42)	16 (34.26)	16 (1.3)	15 (1.3)
<b>MALAYSIA</b>	31 (18.20)	26 (20.90)	27 (20.29)	32 (0.6)	27 (0.7)
<b>THAILAND</b>	55 (3.11)	49 (5.64)	52 (5.27)	36 (0.4)	37 (0.4)
<b>BRUNEI</b>	n/a	n/a	n/a	n/a	n/a
<b>VIETNAM</b>	n/a	71 (1.42)	68 (1.43)	52 (0.2)	48 (0.3)
<b>PHILIPPINES</b>	67 (1.88)	68 (1.79)	69 (1.42)	69 (0.0)	71 (0.0)
<b>INDONESIA</b>	81 (0.12)	79 (0.45)	75 (0.63)	76 (0.0)	76 (0.0)
<b>CAMBODIA</b>	n/a	n/a	n/a	n/a	79 (0.0)

# GERD FINANCED BY BUSINESS ENTERPRISE

GERD: Financed by business enterprise (% of total GERD)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	20 (73.53)	16 (70.49)	17 (68.14)	16 (54.1)	16 (54.1)
<b>MALAYSIA</b>	27 (67.04)	11 (79.52)	11 (77.89)	75 (6.9)	23 (49.6)
<b>THAILAND</b>	45 (48.71)	17 (68.34)	18 (66.94)	6 (66.2)	6 (66.2)
<b>BRUNEI</b>	n/a	n/a	n/a	n/a	n/a
<b>VIETNAM</b>	n/a	53 (37.47)	54 (36.70)	36 (40.0)	13 (58.1)
<b>PHILIPPINES</b>	26 (67.38)	6 (81.85)	42 (47.65)	41 (36.9)	46 (36.9)
<b>INDONESIA</b>	n/a	n/a	n/a	n/a	n/a
<b>CAMBODIA</b>	n/a	n/a	n/a	n/a	66 (19.4)

# DESCRIPTION OF SELECTED INNOVATION LINKAGES INDICATORS

Indicator	Description
University-industry research collaboration	Average answer to the survey question: To what extent do business and universities collaborate on research and development (R&D) in your country? (1 = Do not collaborate at all; 7 = Collaborate extensively)
State of cluster development	Mean of the average responses to two survey questions on the role of clusters in the economy. 'Clusters' are defined as geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field. The questions are: (1) In your country, how prevalent are well-developed and deep clusters? [1 = nonexistent; 7 = widespread in many fields]; and (2) In your country, how extensive is collaboration among firms (e.g., suppliers, competitors, clients) in order to promote knowledge flows and innovation? [1 = collaboration is nonexistent; 7 = collaboration is extensive]
GERD financed by abroad	Percentage of gross expenditure on R&D financed by abroad—i.e., with foreign financing.
Patent families filed in at least three offices	Is defined as a set of interrelated patent applications filed in one or more countries/ jurisdictions to protect the same invention (either directly or through the WIPO-administered Patent Cooperation Treaty).



# UNIVERSITY-INDUSTRY RESEARCH COLLABORATION

Average answer to the survey question: To what extent do business and universities collaborate on R&D In your country? (1=Do not collaborate at all; 7= Collaborate extensively)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2017 (Rank out of 127 countries)
<b>SINGAPORE</b>	4 (77.00)	5 (76.29)	5 (76.29)	7 (74.5)	8 (71.3)
<b>MALAYSIA</b>	15 (67.00)	12 (72.10)	12 (72.10)	11 (70.0)	11 (69.6)
<b>THAILAND</b>	49 (48.67)	44 (49.23)	44 (49.23)	40 (46.2)	38 (48.6)
<b>BRUNEI</b>	63 (43.50)	n/a	n/a	79 (38.4)	83 (37.6)
<b>VIETNAM</b>	83 (39.00)	89 (37.84)	86 (37.84)	76 (38.9)	59 (41.7)
<b>PHILIPPINES</b>	67 (43.00)	53 (46.57)	54 (46.57)	59 (41.1)	56 (42.1)
<b>INDONESIA</b>	29 (58.17)	29 (59.12)	29 (59.12)	27 (57.0)	29 (55.3)
<b>CAMBODIA</b>	102 (36.00)	112 (32.95)	105 (32.95)	95 (34.7)	91 (35.8)

# STATE OF CLUSTER DEVELOPMENT

Mean of the average responses to 2 survey questions on the role of clusters in the economy.

Question 1: In your country, how prevalent are well-developed and deep clusters? (1=nonexistent; 7=widespread in many fields; Question 2: In your country, how extensive is collaboration among firms to promote knowledge flows and innovation? (1=collaboration is nonexistent; 7=collaboration is extensive)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
SINGAPORE	7 (70.00)	11 (68.81)	12 (68.81)	11 (69.5)	9 (69.6)
MALAYSIA	13 (67.33)	8 (71.29)	5 (72.02)	12 (69.5)	12 (68.1)
THAILAND	31 (55.67)	37 (53.28)	38 (51.16)	58 (46.2)	63 (46.2)
BRUNEI	36 (53.00)	n/a	n/a	47 (48.9)	71 (44.7)
VIETNAM	64 (48.00)	72 (45.97)	56 (47.00)	50 (47.50)	64 (46.2)
PHILIPPINES	52 (50.50)	48 (50.53)	44 (49.64)	62 (45.7)	59 (46.6)
INDONESIA	27 (57.17)	24 (58.81)	27 (56.15)	28 (57.6)	25 (59.9)
CAMBODIA	41 (52.33)	61 (47.74)	61 (45.70)	44 (49.1)	47 (50.5)

## GERD FINANCED BY ABROAD

GERD: Financed by abroad (% of total GERD)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	62 (6.38)	62 (7.31)	63 (7.47)	57 (6.8)	53 (6.8)
<b>MALAYSIA</b>	90 (0.36)	66 (5.63)	68 (5.88)	96 (0.2)	82 (1.7)
<b>THAILAND</b>	80 (1.25)	77 (2.94)	75 (3.20)	81 (1.5)	85 (1.5)
<b>BRUNEI</b>	n/a	n/a	n/a	n/a	n/a
<b>VIETNAM</b>	n/a	71 (4.86)	72 (5.11)	82 (1.5)	68 (2.9)
<b>PHILIPPINES</b>	65 (5.25)	70 (5.02)	80 (2.35)	77 (1.8)	79 (1.8)
<b>INDONESIA</b>	n/a	n/a	n/a	n/a	n/a
<b>CAMBODIA</b>	n/a	n/a	n/a	n/a	10 (34.9)

# PATENT FAMILIES FILED IN AT LEAST THREE OFFICES

Number of patent families filed by residents in at least three offices (per billion PPP \$GDP)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016* (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	16 (62.26)	19 (51.52)	20 (35.81)	19 (2.8)	18 (2.2)
<b>MALAYSIA</b>	68 (6.09)	56 (8.64)	48 (7.05)	45 (0.3)	40 (0.2)
<b>THAILAND</b>	86 (3.17)	90 (2.10)	85 (1.17)	77 (0.1)	64 (0.1)
<b>BRUNEI</b>	55 (10.04)	n/a	n/a	63 (0.1)	67 (0.1)
<b>VIETNAM</b>	97 (1.65)	96 (1.10)	90 (0.68)	96 (0.0)	98 (0.0)
<b>PHILIPPINES</b>	87 (3.17)	77 (4.32)	91 (0.67)	79 (0.1)	91 (0.1)
<b>INDONESIA</b>	105 (0.24)	105 (0.35)	112 (0.01)	117 (0.0)	113 (0.0)
<b>CAMBODIA</b>	n/a	n/a	n/a	93 (0.0)	88 (0.0)

\* Patent families filed in at least two offices

# DESCRIPTION OF SELECTED KNOWLEDGE ABSORPTION INDICATORS

Indicator	Description
Royalties and license fees payments	Royalties and license fees payments (% of total service imports) according to the Extended Balance of Payments Services Classification EBOPS 2002—i.e., code 266 Royalties and license fees (including franchises and similar rights) as a percentage of code 200 total services. Receipts are between residents and nonresidents for the authorized use of intangible, nonproduced, nonfinancial assets and proprietary rights (such as patents, copyrights, trademarks, industrial processes, and franchises) and for the use, through licensing agreements, of produced originals of prototypes (such as films and manuscripts).
High-tech imports	High-technology imports minus reimports over total imports minus reimports. The list of commodities contains technical products with a high intensity of R&D, based on the Eurostat classification, itself based on SITC Rev.4 and the Organisation for Economic Co-operation and Development (OECD) definition. Commodities belong to the following sectors: aerospace; computers & office machines; electronics, telecommunications; pharmacy; scientific instruments; electrical machinery; chemistry; nonelectrical machinery; and armament.
Communications, computer and information services imports	Communication, computer and information services imports (% of total service imports) according to the Extended Balance of Payments Services Classification EBOPS 2002, including codes 245 Communications services (postal, courier services, and telecommunications services); and/or 262 Computer and information services, as a percentage of code 200 Total services.

# ROYALTIES AND LICENSE FEES PAYMENTS

Royalty and license fees, payments (% of total service imports)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015* (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	1 (100.00)	1 (100.00)	n/a	n/a	n/a
<b>MALAYSIA</b>	47 (19.63)	51 (17.03)	n/a	n/a	n/a
<b>THAILAND</b>	15 (41.99)	12 (48.42)	n/a	n/a	n/a
<b>BRUNEI</b>	94 (4.11)	n/a	n/a	n/a	n/a
<b>VIETNAM</b>	n/a	n/a	n/a	n/a	n/a
<b>PHILIPPINES</b>	42 (22.73)	44 (21.59)	n/a	n/a	n/a
<b>INDONESIA</b>	33 (26.92)	40 (24.56)	n/a	n/a	n/a
<b>CAMBODIA</b>	96 (3.90)	97 (3.37)	n/a	n/a	105 (0.1)

\* Royalty and license fees, payments (% of total trade)

# HIGH-TECH IMPORTS

High-tech net imports (% of total net imports)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015* (Rank out of 141 countries)	2016* (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	5 (90.02)	6 (87.54)	4 (83.92)	5 (21.4)	1 (28.6)
<b>MALAYSIA</b>	1 (100.00)	1 (100.00)	3 (97.11)	1 (24.7)	1 (25.6)
<b>THAILAND</b>	13 (62.47)	15 (59.30)	12 (60.80)	12 (15.6)	11 (15.5)
<b>BRUNEI</b>	113 (10.44)	n/a	n/a	96 (6.0)	58 (1.6)
<b>VIETNAM</b>	7 (84.15)	4 (93.55)	6 (82.59)	3 (22.6)	4 (23.8)
<b>PHILIPPINES</b>	n/a	n/a	n/a	n/a	n/a
<b>INDONESIA</b>	38 (37.03)	52 (29.80)	60 (29.15)	58 (8.5)	54 (9.0)
<b>CAMBODIA</b>	125 (1.54)	108 (11.28)	107 (13.84)	122 (2.9)	120 (3.1)

\* High-tech net imports (% of total trade)

# COMMUNICATIONS, COMPUTER AND INFORMATION SERVICES IMPORTS

Communications, computer and information services imports (% of total services imports)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016* (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	85 (12.33)	85 (16.53)	38 (24.65)	33 (1.7)	69 (1.4)
<b>MALAYSIA</b>	56 (23.76)	43 (38.05)	48 (22.19)	38 (1.6)	37 (1.6)
<b>THAILAND</b>	129 (3.14)	115 (4.88)	115 (4.37)	117 (0.2)	116 (0.2)
<b>BRUNEI</b>	121 (5.00)	n/a	n/a	113 (0.3)	115 (0.3)
<b>VIETNAM</b>	137 (0.01)	n/a	120 (0.64)	123 (0.1)	45 (0.3)
<b>PHILIPPINES</b>	96 (10.11)	75 (20.72)	72 (14.57)	68 (1.0)	82 (0.8)
<b>INDONESIA</b>	78 (14.16)	73 (20.83)	73 (14.37)	66 (1.0)	54 (1.3)
<b>CAMBODIA</b>	94 (10.43)	94 (13.54)	87 (10.34)	87 (0.7)	93 (0.6)

\* ICT Services Imports – Telecommunications, computers and information services imports (% of total trade)



# **KNOWLEDGE AND TECHNOLOGY OUTPUTS**

# DESCRIPTION OF KNOWLEDGE CREATION INDICATORS

Indicator	Description
National office resident patent applications	Number of patent applications filed by residents at the national patent office. Data are scaled by PPP\$ GDP (billions). 'Patent' is defined in the description of indicator 5.2.5. Patent applications by resident data are based on 'equivalent count', by which applications at regional offices are multiplied by the corresponding number of member states. (SOURCE:WIPO)
Patent Cooperation Treaty resident applications	Number of patent applications filed by residents under the World Intellectual Property Organization (WIPO)-administered Patent Cooperation Treaty (PCT). Data are reported for PCT member countries only, and scaled by PPP\$ GDP (billions). 'Patent' is defined in the description of indicator 5.2.5. PCT applications are assigned to a particular country of origin according to the country of residence of the first-named applicant. The PCT system simplifies the process of multiple national patent filings by reducing the requirement to file a separate application in each jurisdiction. However, the decision of whether to grant patent rights remains in the hands of national and regional patent offices, and the patent rights remain limited to the jurisdiction of the patent granting authority. The PCT international application process starts with the international phase, during which an international search and, possibly, a preliminary examination are performed, and concludes with the national phase, during which national and regional patent offices decide on the patentability of an invention according to national law. (Source: WIPO)
National office resident utility model applications	Number of utility model (UM) applications filed by residents at the national patent office. (SOURCE: WIPO)
Scientific and technical publications	The number of scientific and engineering articles published in the following fields: physics, biology, chemistry, mathematics, clinical medicine, biomedical research, engineering and technology, and earth and space sciences. (Source: Thompson Reuters, Web of Science; Science Citation Index; Social Sciences Citation Index; IMF; World Economic Outlook)
Citable documents H index	The H index is an economy's number of published articles (H) that have received at least H citations, in the period 1996–2011. It quantifies both country scientific productivity and scientific impact and is also applicable to scientists, journals, etc. (Source: SCImago Journal & Country Rank; <a href="http://www.scimagojr.com">http://www.scimagojr.com</a> )

# NATIONAL OFFICE RESIDENT PATENT APPLICATIONS

Number of patent applications filed by residents at the national patent office  
(per billion PPP\$ GDP)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016* (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	35 (20.15)	37 (19.97)	37 (16.19)	33 (3.1)	32 (3.3)
<b>MALAYSIA</b>	50 (13.53)	49 (13.03)	52 (9.88)	54 (1.6)	59 (1.3)
<b>THAILAND</b>	58 (9.47)	51 (12.28)	67 (5.23)	66 (0.9)	65 (0.9)
<b>BRUNEI</b>	n/a	n/a	n/a	68 (0.8)	73 (0.8)
<b>VIETNAM</b>	64 (6.78)	65 (6.96)	66 (5.29)	61 (1.1)	67 (0.9)
<b>PHILIPPINES</b>	84 (2.24)	82 (2.45)	77 (2.62)	75 (0.5)	84 (0.4)
<b>INDONESIA</b>	76 (2.80)	86 (1.85)	90 (1.37)	81 (0.4)	85 (0.4)
<b>CAMBODIA</b>	109 (0.07)	112 (0.0)	113 (0.11)	118 (0.0)	120 (0.0)

\* Patent applications by origin (Number of resident patent applications filed at a given national or regional patent office)

# PATENT COOPERATION TREATY RESIDENT APPLICATIONS

Number of international patent applications filed by residents at the PCT (per billion PPP\$ GDP)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016* (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	20 (35.74)	20 (25.36)	19 (27.09)	19 (1.8)	20 (1.7)
<b>MALAYSIA</b>	35 (14.04)	42 (5.08)	45 (4.57)	50 (0.2)	57 (0.2)
<b>THAILAND</b>	72 (3.00)	67 (0.79)	59 (1.64)	60 (0.1)	60 (0.1)
<b>BRUNEI</b>	68 (3.94)	n/a	n/a	56 (0.1)	74 (0.1)
<b>VIETNAM</b>	96 (1.15)	94 (0.12)	81 (0.50)	100 (0.0)	88 (0.0)
<b>PHILIPPINES</b>	93 (1.27)	79 (0.57)	82 (0.48)	89 (0.0)	97 (0.0)
<b>INDONESIA</b>	110 (0.33)	98 (0.03)	96 (0.0)	103 (0.0)	107 (0.0)
<b>CAMBODIA</b>	n/a	n/a	n/a	n/a	n/a

- PCT international applications by origin

# NATIONAL OFFICE RESIDENT UTILITY MODEL APPLICATIONS

Number of utility model applications filed by residents at the National Patent Office (per billion PPP\$ GDP)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016* (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	n/a	n/a	n/a	n/a	n/a
<b>MALAYSIA</b>	58 (0.65)	53 (1.39)	51 (1.70)	51 (0.1)	52 (0.1)
<b>THAILAND</b>	14 (28.47)	19 (25.71)	18 (28.33)	16 (1.9)	11 (2.1)
<b>BRUNEI</b>	n/a	n/a	n/a	n/a	n/a
<b>VIETNAM</b>	38 (7.23)	37 (7.40)	34 (8.48)	35 (0.6)	35 (0.5)
<b>PHILIPPINES</b>	21 (20.98)	23 (18.29)	21 (23.36)	23 (1.1)	18 (1.4)
<b>INDONESIA</b>	47 (2.22)	54 (1.26)	54 (1.18)	53 (0.1)	48 (0.1)
<b>CAMBODIA</b>	n/a	n/a	n/a	n/a	n/a

- Utility model applications by origin

# SCIENTIFIC AND TECHNICAL PUBLICATIONS

Number of scientific and technical journal articles (per billion PPP\$ GDP)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	27 (47.54)	33 (38.71)	29 (39.71)	28 (26.1)	27 (18.9)
<b>MALAYSIA</b>	53 (24.63)	54 (20.74)	55 (18.63)	58 (12.3)	58 (8.6)
<b>THAILAND</b>	82 (13.14)	85 (9.71)	86 (8.67)	84 (6.5)	84 (4.6)
<b>BRUNEI</b>	121 (4.79)	n/a	n/a	88 (6.1)	89 (4.0)
<b>VIETNAM</b>	102 (8.17)	99 (6.78)	95 (6.80)	94 (5.6)	79 (4.9)
<b>PHILIPPINES</b>	131 (2.69)	131 (1.94)	123 (1.43)	120 (1.6)	120 (1.1)
<b>INDONESIA</b>	138 (1.21)	137 (0.48)	127 (0.00)	124 (0.7)	123 (0.5)
<b>CAMBODIA</b>	110 (6.79)	106 (6.14)	98 (6.36)	99 (5.0)	109 (2.3)

## CITABLE DOCUMENTS H INDEX

The H Index is the economy's number of published articles (H) that have received at least H citations in the period 1996-2011)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	28 (35.16)	27 (32.03)	27 (32.86)	25 (33.9)	24 (35.6)
<b>MALAYSIA</b>	52 (15.52)	51 (14.33)	48 (14.31)	45 (15.0)	43 (16.1)
<b>THAILAND</b>	38 (21.29)	38 (19.22)	38 (19.15)	38 (19.3)	38 (19.9)
<b>BRUNEI</b>	122 (3.85)	n/a	n/a	116 (2.1)	118 (2.0)
<b>VIETNAM</b>	59 (13.05)	58 (11.83)	58 (11.09)	58 (10.6)	57 (11.3)
<b>PHILIPPINES</b>	54 (14.29)	54 (12.81)	55 (12.50)	54 (12.5)	54 (13.1)
<b>INDONESIA</b>	55 (13.74)	56 (12.27)	56 (11.79)	55 (11.8)	56 (12.0)
<b>CAMBODIA</b>	113 (5.08)	112 (4.78)	104 (4.23)	103 (4.0)	98 (4.4)

# DESCRIPTION OF KNOWLEDGE IMPACT INDICATORS

Indicator	Description
Total computer software spending	Computer software spending includes the total value of purchased or leased packaged software such as operating systems, database systems, programming tools, utilities, and applications. It excludes expenditures for internal software development and outsourced custom software development.
High-tech and medium-high-tech output	High-tech and medium-high-tech output as a percentage of total manufactures output, on the basis of the Organisation for Economic Co-operation and Development (OECD) classification of Technology Intensity Definition, itself based on International Standard Industrial Classification ISIC Revision 3.



# TOTAL COMPUTER SOFTWARE SPENDING

Total computer software spending (% of GDP)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
SINGAPORE	26 (26.39)	21 (31.26)	24 (27.37)	34 (0.3)	35 (0.3)
MALAYSIA	23 (28.80)	20 (34.39)	21 (31.43)	29 (0.4)	29 (0.4)
THAILAND	32 (23.31)	26 (27.16)	31 (22.82)	47 (0.3)	51 (0.3)
BRUNEI	n/a	n/a	n/a	n/a	n/a
VIETNAM	42 (19.67)	31 (24.79)	33 (22.46)	39 (0.3)	45 (0.3)
PHILIPPINES	53 (15.03)	53 (18.97)	53 (16.71)	61 (0.3)	64 (0.2)
INDONESIA	21 (36.64)	44 (21.08)	32 (22.57)	36 (0.3)	31 (0.3)
CAMBODIA	n/a	n/a	n/a	112 (0.0)	111 (0.0)

# HIGH-TECH AND MEDIUM HIGH-TECH OUTPUT

High-tech and medium-high-tech output (% of total manufactures output)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	1 (100.00)	1 (100.00)	1 (100.00)	2 (0.6)	1 (0.7)
<b>MALAYSIA</b>	19 (57.88)	19 (60.62)	26 (53.41)	28 (0.4)	14 (0.4)
<b>THAILAND</b>	15 (62.06)	11 (63.33)	20 (60.55)	19 (0.4)	15 (0.4)
<b>BRUNEI</b>	n/a	n/a	n/a	99 (0.0)	96 (0.0)
<b>VIETNAM</b>	60 (21.97)	44 (37.73)	48 (36.99)	46 (0.3)	47 (0.2)
<b>PHILIPPINES</b>	41 (36.33)	62 (23.44)	12 (63.12)	18 (0.4)	27 (0.4)
<b>INDONESIA</b>	32 (44.87)	36 (44.54)	38 (43.88)	43 (0.3)	35 (0.3)
<b>CAMBODIA</b>	n/a	n/a	n/a	n/a	n/a

# DESCRIPTION OF SELECTED KNOWLEDGE DIFFUSION INDICATORS

Indicator	Description
Royalties and license fees receipts	Royalties and license fees receipts (% of total service imports) according to the Extended Balance of Payments Services Classification EBOPS 2002—i.e., code 266 Royalties and license fees (including franchises and similar rights) as a percentage of code 200 Total services. Receipts are between residents and nonresidents for the authorized use of intangible, nonproduced, nonfinancial assets and proprietary rights (such as patents, copyrights, trademarks, industrial processes, and franchises) and for the use, through licensing agreements, of produced originals of prototypes (such as films and manuscripts).
High-tech exports	High-technology exports minus reexports over total exports minus reexports.

# ROYALTIES & LICENSE FEES RECEIPTS

Royalty & license fees, receipts (% of total service exports)

Country	Ranking (Raw Score/Data)				
	2014* (Rank out of 143 countries)	2015* (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	30 (35.82)	26 (36.57)	n/a	n/a	n/a
<b>MALAYSIA</b>	65 (10.88)	74 (8.17)	n/a	n/a	n/a
<b>THAILAND</b>	56 (15.86)	61 (13.55)	n/a	n/a	n/a
<b>BRUNEI</b>	n/a	n/a	n/a	n/a	n/a
<b>VIETNAM</b>	n/a	n/a	n/a	n/a	n/a
<b>PHILIPPINES</b>	n/a	98 (0.91)	n/a	n/a	n/a
<b>INDONESIA</b>	78 (6.04)	80 (5.01)	n/a	n/a	n/a
<b>CAMBODIA</b>	72 (8.91)	82 (4.72)	n/a	n/a	n/a

- Royalty & license fees, receipts (% of total trade)

# HIGH-TECH EXPORTS

High-tech net exports (% of total net exports)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015* (Rank out of 141 countries)	2016* (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	3 (93.64)	1 (100.00)	1 (100.00)	3 (29.1)	1 (28.6)
<b>MALAYSIA</b>	2 (96.63)	1 (100.00)	1 (100.00)	1 (32.3)	1 (33.3)
<b>THAILAND</b>	13 (49.00)	14 (55.92)	10 (53.74)	9 (15.2)	8 (15.5)
<b>BRUNEI</b>	64 (4.42)	n/a	n/a	62 (1.4)	58 (1.6)
<b>VIETNAM</b>	6 (63.92)	1 (100.00)	4 (83.86)	4 (26.8)	1 (29.9)
<b>PHILIPPINES</b>	n/a	n/a	n/a	n/a	n/a
<b>INDONESIA</b>	39 (12.26)	43 (13.21)	41 (12.15)	43 (3.5)	54 (9.0)
<b>CAMBODIA</b>	97 (0.68)	70 (3.13)	66 (2.71)	69 (0.9)	120 (3.1)

- High-tech net exports (% of total trade)

# CREATIVE OUTPUTS

## DESCRIPTION OF SELECTED INTANGIBLE ASSETS INDICATORS

Indicator	Description
ICTs and business model creation	Average answer to the question: To what extent are information and communication technologies creating new business models, services and products in your country? [1 = not at all; 7 = a significant extent]
ICTs and organizational models creation	Average answer to the question: To what extent are information and communication technologies creating new organizational models (e.g., virtual teams, remote working, telecommuting) within businesses in your country? [1 = not at all; 7 = a significant extent]

# ICT AND BUSINESS MODEL CREATION

Average answer to the question: To what extent are ICT creating new business models, services and products in your country? (1= not at all; 7= a significant extent)

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	10 (74.67)	9 (75.63)	6 (79.46)	7 (81.5)	8 (80.7)
<b>MALAYSIA</b>	11 (73.67)	10 (75.04)	10 (77.08)	20 (76.2)	20 (76.4)
<b>THAILAND</b>	65 (57.33)	44 (61.20)	41 (63.61)	39 (67.1)	33 (69.3)
<b>BRUNEI</b>	64 (57.83)	n/a	n/a	93 (51.9)	85 (55.3)
<b>VIETNAM</b>	38 (64.00)	52 (59.39)	66 (57.67)	78 (57.1)	80 (56.6)
<b>PHILIPPINES</b>	41 (63.33)	48 (60.47)	57 (60.28)	60 (60.9)	58 (60.8)
<b>INDONESIA</b>	37 (64.17)	32 (65.32)	46 (62.74)	52 (62.9)	48 (65.1)
<b>CAMBODIA</b>	74 (54.67)	77 (53.15)	69 (56.78)	61 (60.7)	74 (57.7)



# ICTs AND ORGANIZATIONAL MODEL CREATION

Average answer to the survey question: In your country, to what extent do ICTs enable new organizational models (e.g. virtual teams, remote working, telecommuting) within businesses? [1 = not at all; 7 = to a great extent]

Country	Ranking (Raw Score/Data)				
	2014 (Rank out of 143 countries)	2015 (Rank out of 141 countries)	2016 (Rank out of 128 countries)	2017 (Rank out of 127 countries)	2018 (Rank out of 126 countries)
<b>SINGAPORE</b>	8 (71.83)	11 (72.23)	11 (74.53)	9 (76.7)	11 (75.9)
<b>MALAYSIA</b>	11 (70.83)	4 (74.87)	8 (76.27)	18 (73.7)	18 (72.5)
<b>THAILAND</b>	83 (49.67)	66 (52.69)	49 (56.48)	43 (58.9)	40 (59.9)
<b>BRUNEI</b>	52 (57.00)	n/a	n/a	81 (47.7)	86 (48.2)
<b>VIETNAM</b>	57 (56.00)	69 (52.18)	65 (53.41)	61 (54.2)	66 (53.3)
<b>PHILIPPINES</b>	26 (63.67)	38 (60.25)	46 (57.11)	57 (54.8)	62 (53.6)
<b>INDONESIA</b>	39 (59.67)	33 (61.31)	38 (59.78)	38 (59.8)	34 (63.2)
<b>CAMBODIA</b>	60 (55.33)	58 (55.18)	63 (53.81)	52 (55.6)	46 (59.3)

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