



GLOBAL INNOVATION INDEX 2019

KENYA

77th

Kenya ranks 77th 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 Kenya 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 Kenya's ranking in the GII 2019 is between 71 and 81.

Kenya's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
2019	77	89	64
2018	78	91	64
2017	80	91	70

- Kenya performs better in Innovation Outputs than Inputs.
- This year Kenya ranks 89th in Innovation Inputs, better than last year and compared to 2017.
- As for Innovation Outputs, Kenya ranks 64th. This position is the same as last year and better compared to 2017.

10th

Kenya ranks 10th among the 26 lower middle-income economies.

2nd

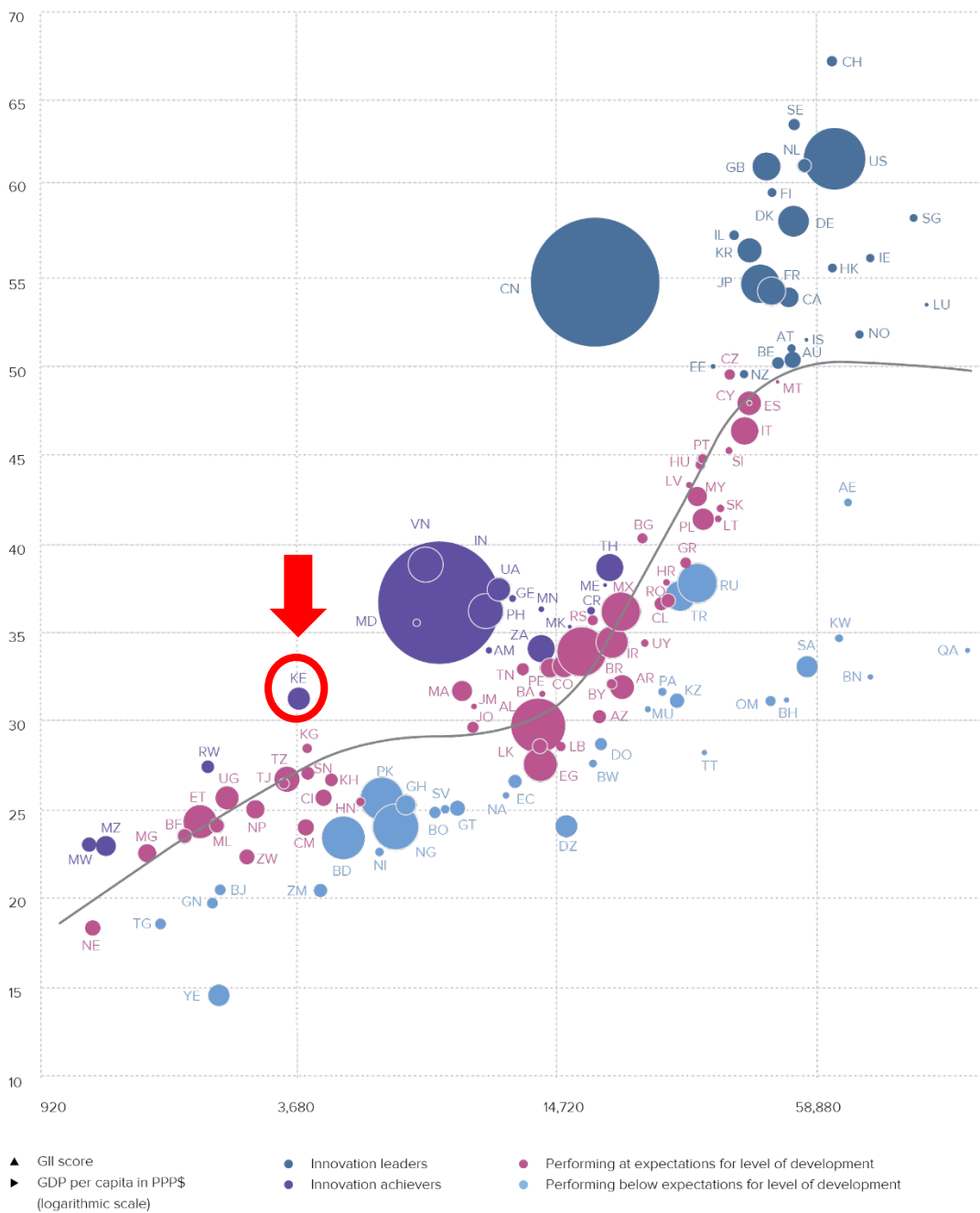
Kenya ranks 2nd among the 26 economies in Sub-Saharan Africa.

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, Kenya performs above its expected level of development.

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

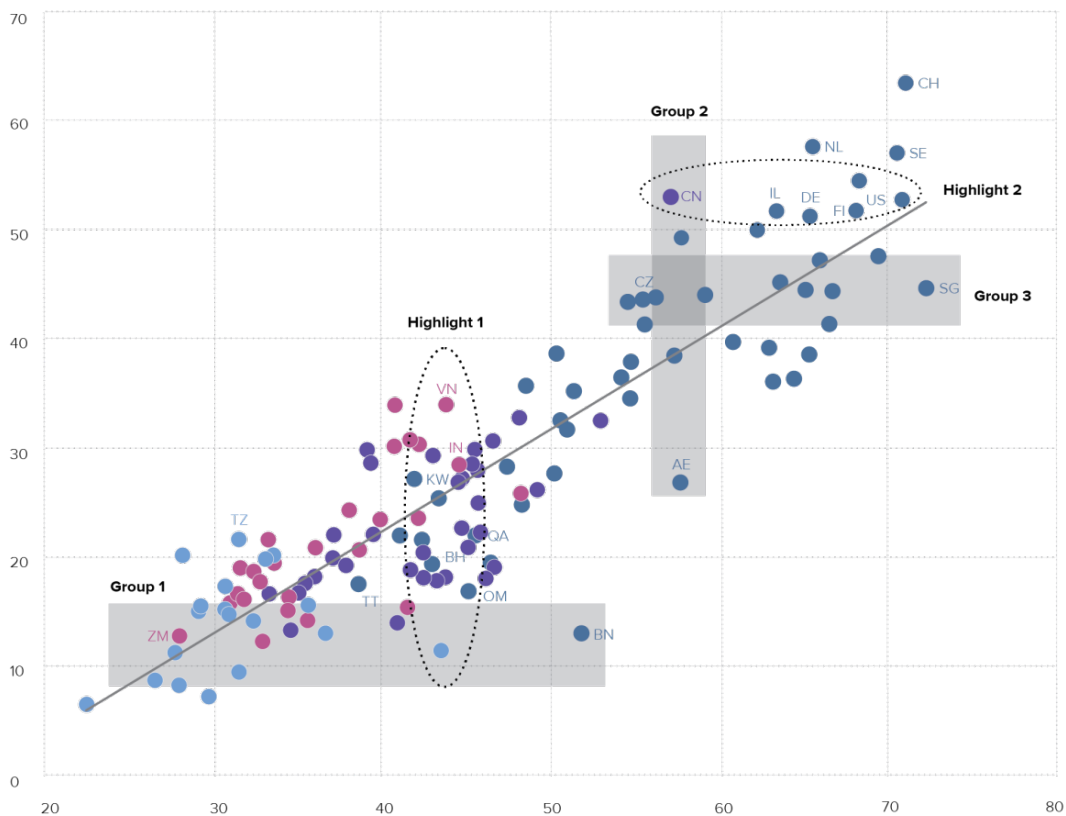


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input/output performance by income group, 2019

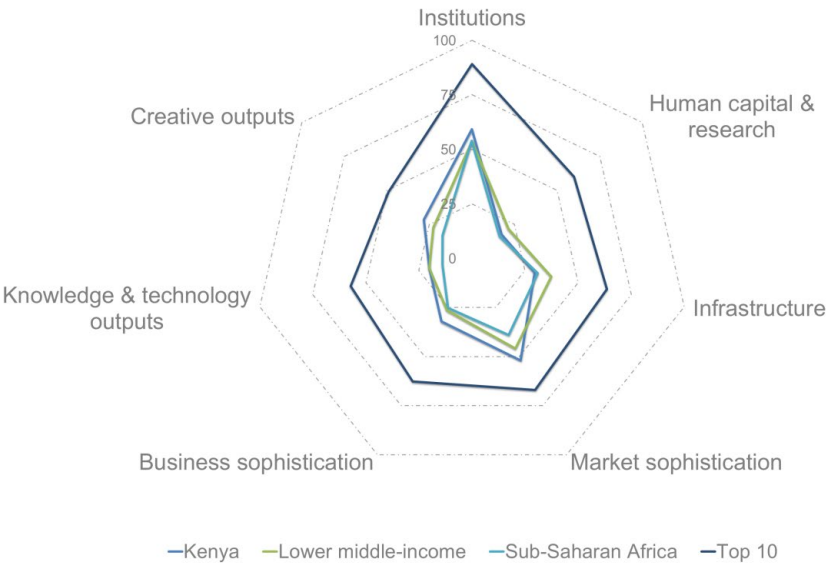


- ▲ Output score
- ▶ Input score
- High income
- Upper-middle income
- Lower-middle income
- Low income
- Fitted values

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 KENYA TO OTHER LOWER MIDDLE-INCOME ECONOMIES AND THE SUB-SAHARAN AFRICA REGION

Kenya’s scores in the seven GII pillars



Lower middle-income economies

Kenya has high scores in 4 out of the 7 GII pillars: Institutions, Market sophistication, Business sophistication, and Creative outputs, which are above the average of the lower middle-income group.

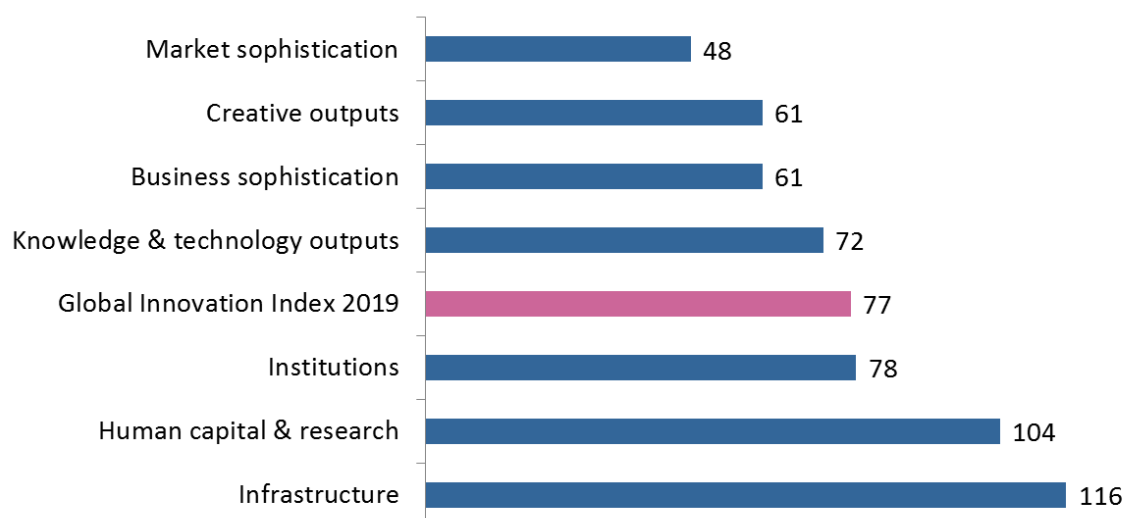
Sub-Saharan Africa Region

Compared to other economies in Sub-Saharan Africa, Kenya performs above average in all GII pillars but Infrastructure.

Top ranks are found in sub-pillars Credit, Investment, Innovation linkages, Knowledge diffusion, and Creative goods & services where the country ranks in the top 60 worldwide.

OVERVIEW OF KENYA'S RANKINGS IN THE 7 GII AREAS

Kenya performs the best in Market sophistication and its weakest performance is in Infrastructure.



*The highest possible ranking in each pillar is 1.

KENYA'S INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths		
Code	Indicator name	Rank
4.1	Credit	21
4.1.1	Ease of getting credit*	7
4.1.3	Microfinance gross loans, % GDP	6
4.2.1	Ease of protecting minority investors*	10
5.2	Innovation linkages	20
5.2.1	University/industry research collaboration†	29
5.2.3	GERD financed by abroad, %	5
5.3.1	Intellectual property payments, % total trade	26
6.3.1	Intellectual property receipts, % total trade	25
6.3.3	ICT services exports, % total trade	26
7.1.3	ICTs & business model creation†	33
7.2	Creative goods & services	30
7.2.4	Printing & other media, % manufacturing	3

Weaknesses		
Rank	Indicator name	Rank
2.1.3	School life expectancy, years	102
2.1.5	Pupil-teacher ratio, secondary	109
2.3.3	Global R&D companies, top 3, in mn US\$	43
3	Infrastructure	116
3.1.2	ICT use*	112
3.2	General infrastructure	117
3.2.1	Electricity output, kWh/mn pop	113
3.2.3	Gross capital formation, % GDP	112
3.3	Ecological sustainability	118
4.3.1	Applied tariff rate, weighted mean, %	121
5.3.3	ICT services imports, % total trade	116
5.3.4	FDI net inflows, % GDP, 3-year average	111
7.3.4	Mobile app creation/bn PPP\$ GDP	89

STRENGTHS

- GII strengths for Kenya are found in four of the seven GII pillars.
- Several of these strengths are in Market sophistication (48), the best ranked pillar for Kenya. Here the country exhibits strengths in sub-pillar Credit (21) as well as in indicators Ease of getting credit (7), Microfinance gross loans (6), and Ease of protecting minority investors (10).
- Other GII strengths are in Business sophistication (61), and in particular in sub-pillar Innovation linkages (20) as well as in indicators University-industry research collaboration (29), R&D financed by abroad (5), and Intellectual property payments (26).
- In Knowledge & technology outputs (72), Kenya's strengths are indicators Intellectual property receipts (25) and ICT services exports (26).
- In Creative outputs (61), sub-pillar Creative goods & services (30) is a relative strength for Kenya. At the indicator level, ICTs & business model creation (33) and Printing & other media (3) are other GII strengths for the country.

WEAKNESSES

- Kenya's weaknesses in the GII are found in five of the seven GII pillars.
- Pillar Infrastructure (116) is a notable weakness of Kenya.
- Almost half of the relative weaknesses of Kenya are found in Infrastructure (116). Here, Kenya's weaknesses are two sub-pillars: General infrastructure (117) and Ecological sustainability (118). At the indicator level, ICT use (112), Electricity output (113), and Gross capital formation (112) are all GII weaknesses for the country.
- Three other relative weaknesses are in Human capital & research (104), where Kenya exhibits weaknesses in indicators School life expectancy (102), Pupil-teacher ratio (109), and Global R&D companies (43).
- In Business sophistication (61), relative weaknesses for the country are indicators ICT services imports (116) and FDI inflows (111).
- The last relative weakness in the Kenyan input side of the GII is found in indicator Applied tariff rate (121) in Market sophistication (48).
- On the innovation output side of the GII, only one weakness is found in indicator Mobile app creation (89) in Creative outputs (61).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2018 rank
64	89	Lower middle	SSF	51.0	177.4	3,690.9	78
				Score/Value	Rank		
INSTITUTIONS				59.2	78		
1.1	Political environment	45.9	91				
1.1.1	Political and operational stability*	59.6	98				
1.1.2	Government effectiveness*	39.0	88				
1.2	Regulatory environment	61.9	76				
1.2.1	Regulatory quality*	35.7	88				
1.2.2	Rule of law*	35.5	88				
1.2.3	Cost of redundancy dismissal, salary weeks	15.8	63				
1.3	Business environment	69.9	67				
1.3.1	Ease of starting a business*	82.4	97				
1.3.2	Ease of resolving insolvency*	57.4	52	◆			
HUMAN CAPITAL & RESEARCH				17.5	104		
2.1	Education	33.8	[100]				
2.1.1	Expenditure on education, % GDP	5.2	39				
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a				
2.1.3	School life expectancy, years	10.5	102	○			
2.1.4	PISA scales in reading, maths, & science	n/a	n/a				
2.1.5	Pupil-teacher ratio, secondary	33.4	109	○ ◇			
2.2	Tertiary education	13.4	104				
2.2.1	Tertiary enrolment, % gross	11.7	104				
2.2.2	Graduates in science & engineering, %	16.5	79				
2.2.3	Tertiary inbound mobility, %	0.9	89				
2.3	Research & development (R&D)	5.5	76				
2.3.1	Researchers, FTE/mn pop	225.0	76				
2.3.2	Gross expenditure on R&D, % GDP	0.8	45	◆			
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*	2.5	77				
INFRASTRUCTURE				29.6	116	○ ◇	
3.1	Information & communication technologies (ICTs)	43.3	100				
3.1.1	ICT access*	39.6	104				
3.1.2	ICT use*	17.6	112	○ ◇			
3.1.3	Government's online service*	62.5	89				
3.1.4	E-participation*	53.4	101				
3.2	General infrastructure	20.9	117	○			
3.2.1	Electricity output, kWh/mn pop	201.2	113	○ ◇			
3.2.2	Logistics performance*	35.1	67				
3.2.3	Gross capital formation, % GDP	16.8	112	○ ◇			
3.3	Ecological sustainability	24.5	118	○			
3.3.1	GDP/unit of energy use	5.3	104				
3.3.2	Environmental performance*	47.3	103				
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	0.4	91				
MARKET SOPHISTICATION				51.8	48		
4.1	Credit	58.1	21	◆			
4.1.1	Ease of getting credit*	90.0	7	◆			
4.1.2	Domestic credit to private sector, % GDP	29.3	97				
4.1.3	Microfinance gross loans, % GDP	4.2	6	◆			
4.2	Investment	46.3	52				
4.2.1	Ease of protecting minority investors*	78.3	10	◆			
4.2.2	Market capitalization, % GDP	30.0	49				
4.2.3	Venture capital deals/bn PPP\$ GDP	0.1	23	◆			
4.3	Trade, competition, & market scale	51.2	103				
4.3.1	Applied tariff rate, weighted avg., %	12.3	121	○ ◇			
4.3.2	Intensity of local competition*	72.0	46	◆			
4.3.3	Domestic market scale, bn PPP\$	177.4	67				
BUSINESS SOPHISTICATION				32.2	61	◆	
5.1	Knowledge workers	26.3	[92]				
5.1.1	Knowledge-intensive employment, %	n/a	n/a				
5.1.2	Firms offering formal training, % firms	40.6	34				
5.1.3	GERD performed by business, % GDP	4.1	66				
5.1.4	GERD financed by business, %	4.3	83				
5.1.5	Females employed w/advanced degrees, %	n/a	n/a				
5.2	Innovation linkages	45.0	20	◆			
5.2.1	University/industry research collaboration*	55.1	29	◆			
5.2.2	State of cluster development*	55.4	34	◆			
5.2.3	GERD financed by abroad, %	47.1	5	◆			
5.2.4	JV-strategic alliance deals/bn PPP\$ GDP	0.0	50				
5.2.5	Patent families 2+ offices/bn PPP\$ GDP	0.0	77				
5.3	Knowledge absorption	25.2	100				
5.3.1	Intellectual property payments, % total trade	1.2	26	◆			
5.3.2	High-tech imports, % total trade	9.1	42				
5.3.3	ICT services imports, % total trade	0.3	116	○ ◇			
5.3.4	FDI net inflows, % GDP	0.8	111	○			
5.3.5	Research talent, % in business enterprise	11.4	63				
KNOWLEDGE & TECHNOLOGY OUTPUTS				20.1	72		
6.1	Knowledge creation	11.3	65				
6.1.1	Patents by origin/bn PPP\$ GDP	0.8	67				
6.1.2	PCT patents by origin/bn PPP\$ GDP	0.0	76				
6.1.3	Utility models by origin/bn PPP\$ GDP	0.9	24				
6.1.4	Scientific & technical articles/bn PPP\$ GDP	6.0	68				
6.1.5	Citable documents H-index	14.3	52				
6.2	Knowledge impact	30.4	92				
6.2.1	Growth rate of PPP\$ GDP/worker, %	2.1	43				
6.2.2	New businesses/th pop. 15-64	0.8	75				
6.2.3	Computer software spending, % GDP	0.2	77				
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	3.6	69				
6.2.5	High- & medium-high-tech manufactures, %	0.1	77				
6.3	Knowledge diffusion	18.5	57				
6.3.1	Intellectual property receipts, % total trade	0.6	25	◆			
6.3.2	High-tech net exports, % total trade	0.3	88				
6.3.3	ICT services exports, % total trade	3.3	26	◆			
6.3.4	FDI net outflows, % GDP	0.3	80				
CREATIVE OUTPUTS				28.3	61		
7.1	Intangible assets	41.1	64				
7.1.1	Trademarks by origin/bn PPP\$ GDP	32.5	74				
7.1.2	Industrial designs by origin/bn PPP\$ GDP	0.9	70				
7.1.3	ICTs & business model creation*	68.9	33	◆			
7.1.4	ICTs & organizational model creation*	60.0	44	◆			
7.2	Creative goods & services	30.6	30	◆			
7.2.1	Cultural & creative services exports, % total trade	0.0	98				
7.2.2	National feature films/mn pop. 15-69	n/a	n/a				
7.2.3	Entertainment & Media market/th pop. 15-69	2.4	51	◆			
7.2.4	Printing & other media, % manufacturing	4.2	3	◆			
7.2.5	Creative goods exports, % total trade	0.3	75				
7.3	Online creativity	0.6	106				
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	1.0	97				
7.3.2	Country-code TLDs/th pop. 15-69	0.8	84				
7.3.3	Wikipedia edits/mn pop. 15-69	1.0	103				
7.3.4	Mobile app creation/bn PPP\$ GDP	0.0	89	○			

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 missing or are outdated for Kenya.

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
2.1.4	PISA scales in reading, maths & science	n/a	2015	OECD Programme for International Student Assessment (PISA)
5.1.1	Knowledge-intensive employment, %	n/a	2017	Source: International Labour Organization
5.1.5	Females employed w/advanced degrees, %	n/a	2017	International Labour Organization
7.2.2	National feature films/mn pop. 15–69	n/a	2017	UNESCO Institute for Statistics

Outdated data

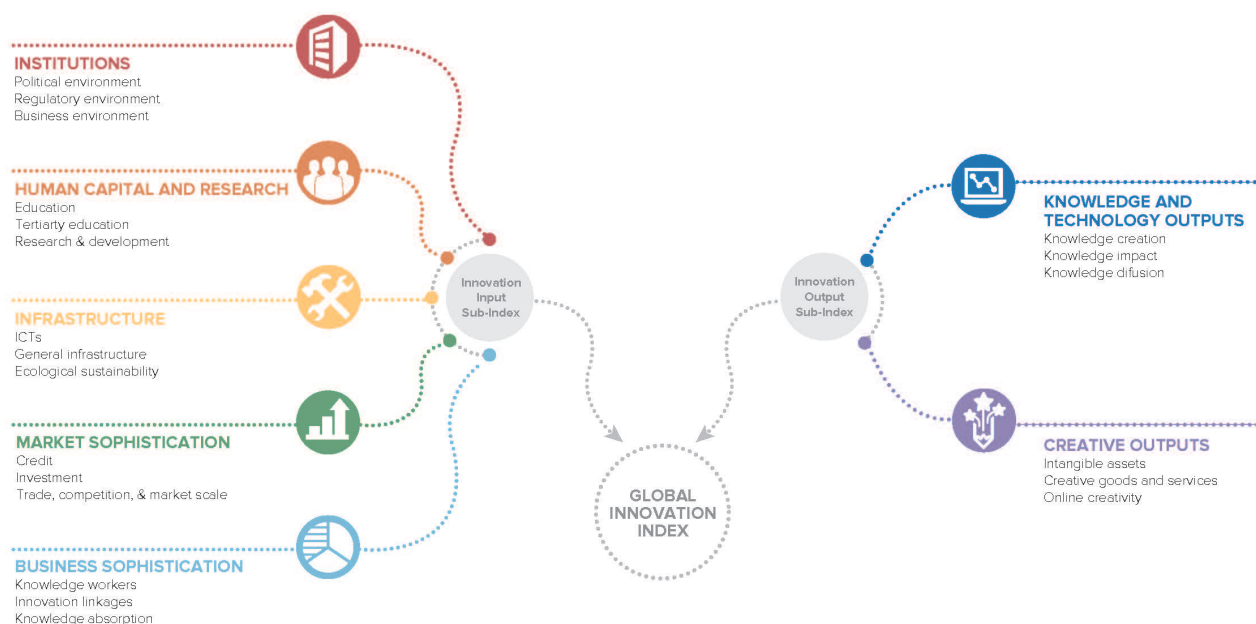
Code	Indicator name	Country year	Model year	Source
2.1.3	School life expectancy, years	2009	2016	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2009	2017	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2016	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2010	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2010	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.2.2	Market capitalization, % GDP	2011	2017	World Federation of Exchanges
4.3.1	Applied tariff rate, weighted mean, %	2016	2017	World Bank
5.1.3	GERD performed by business, % GDP	2010	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	2010	2016	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.2.3	GERD financed by abroad, %	2010	2016	UNESCO Institute for Statistics
5.3.5	Research talent, % in business enterprise	2010	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.2.2	New businesses/th pop. 15–64	2008	2016	World Bank
6.2.5	High- & medium-high-tech manufactures, %	2015	2016	United Nations Industrial Development Organization
7.2.4	Printing & other media, % manufacturing	2015	2016	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2013	2017	United Nations, COMTRADE
7.3.3	Wikipedia edits/mn pop. 15–69	2014	2017	Wikimedia Foundation

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 12th 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.

