GLOBAL INNOVATION INDEX 2020

KENYA

86th Kenya ranks 86th 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 Kenya 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 Kenya in the GII 2020 is between ranks 75 and 87.

Rankings of Kenya (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	86	92	78
2019	77	89	64
2018	78	91	64

- Kenya performs better in innovation outputs than innovation inputs in 2020.
- This year Kenya ranks 92nd in innovation inputs, lower than last year and lower compared to 2018.
- As for innovation outputs, Kenya ranks 78th. This position is lower than last year and lower compared to 2018.

10th Kenya ranks 10th among the 29 lower middle-income group economies.

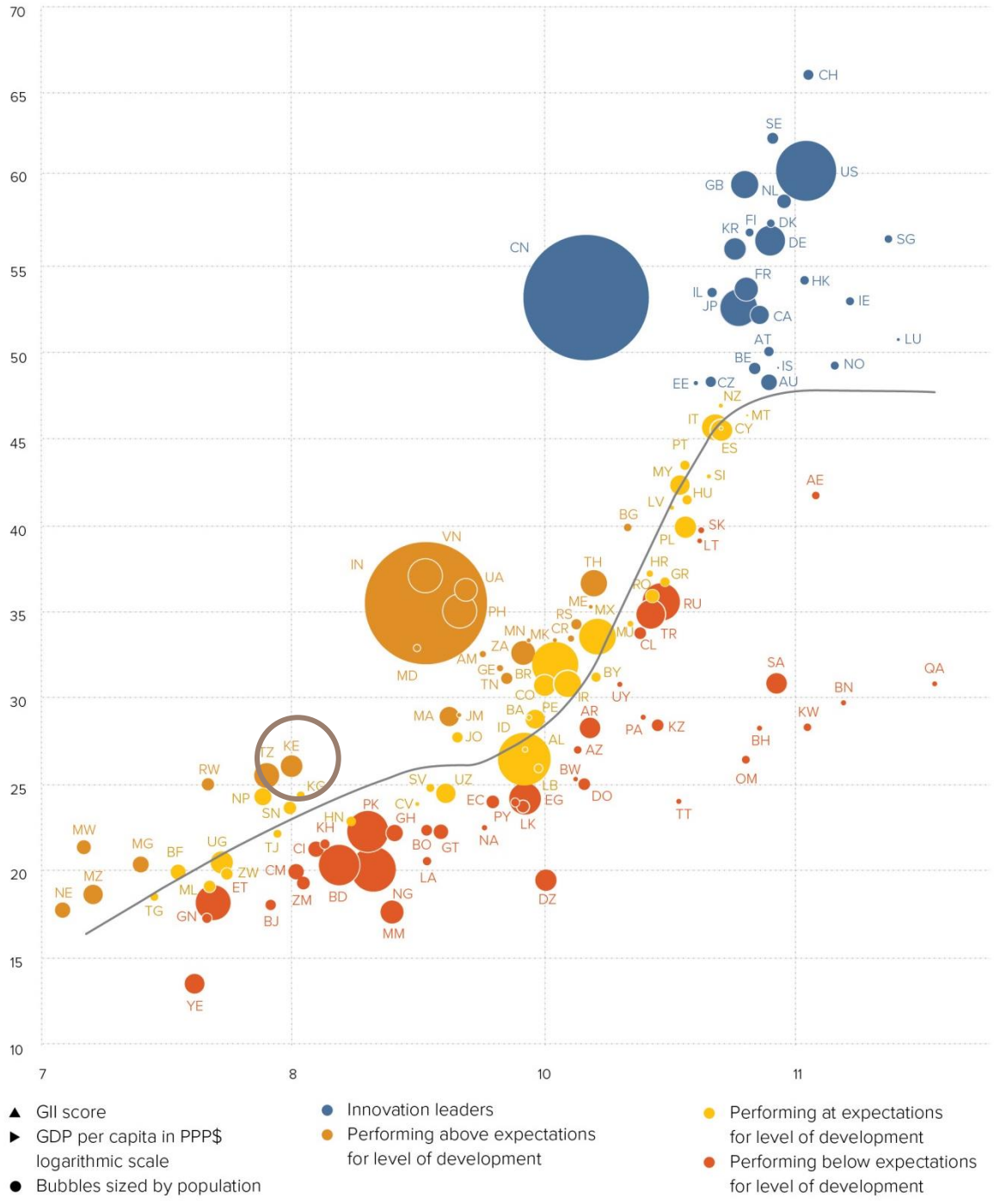
3rd Kenya ranks 3rd among the 26 economies in Sub-Saharan Africa.

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 performing below expectations.

Relative to GDP, Kenya is performing above expectations for its level of development.

The positive relationship between innovation and development

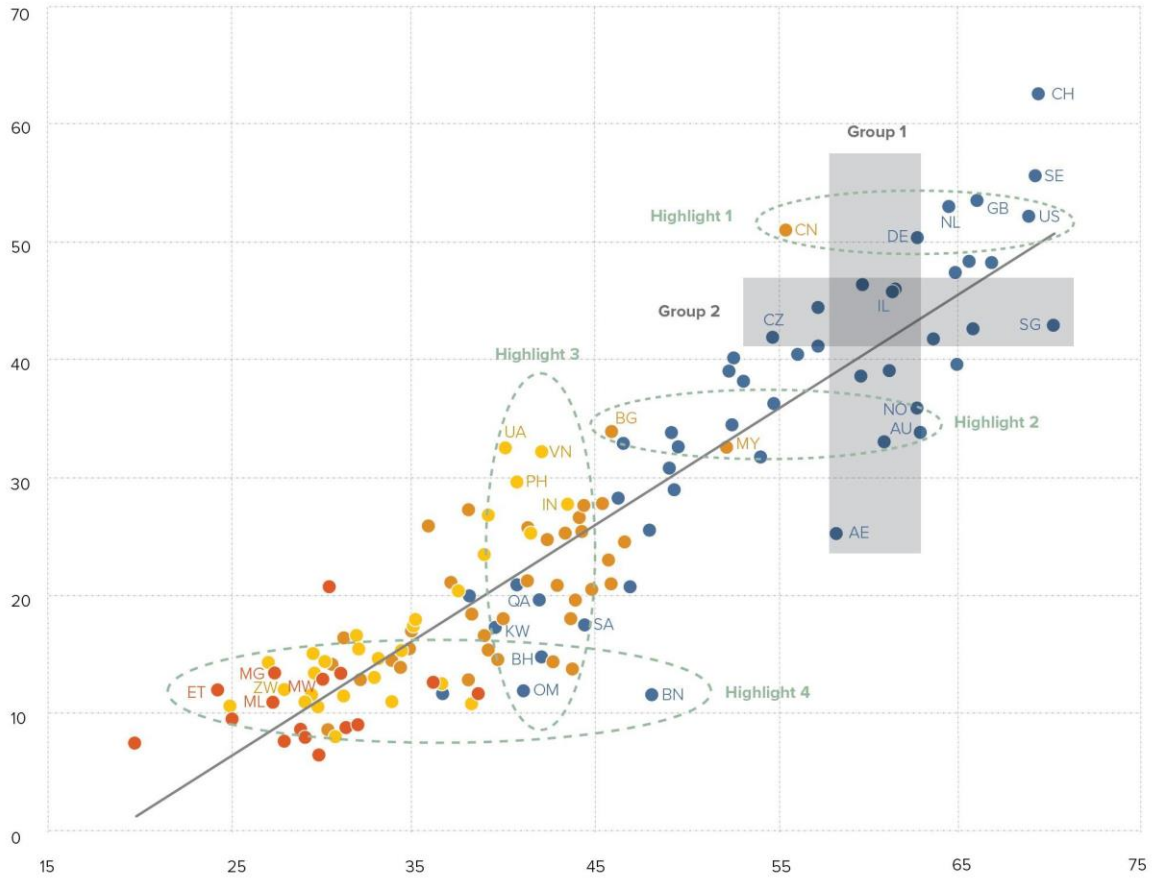


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance, 2020



▲ Output score
► Input score

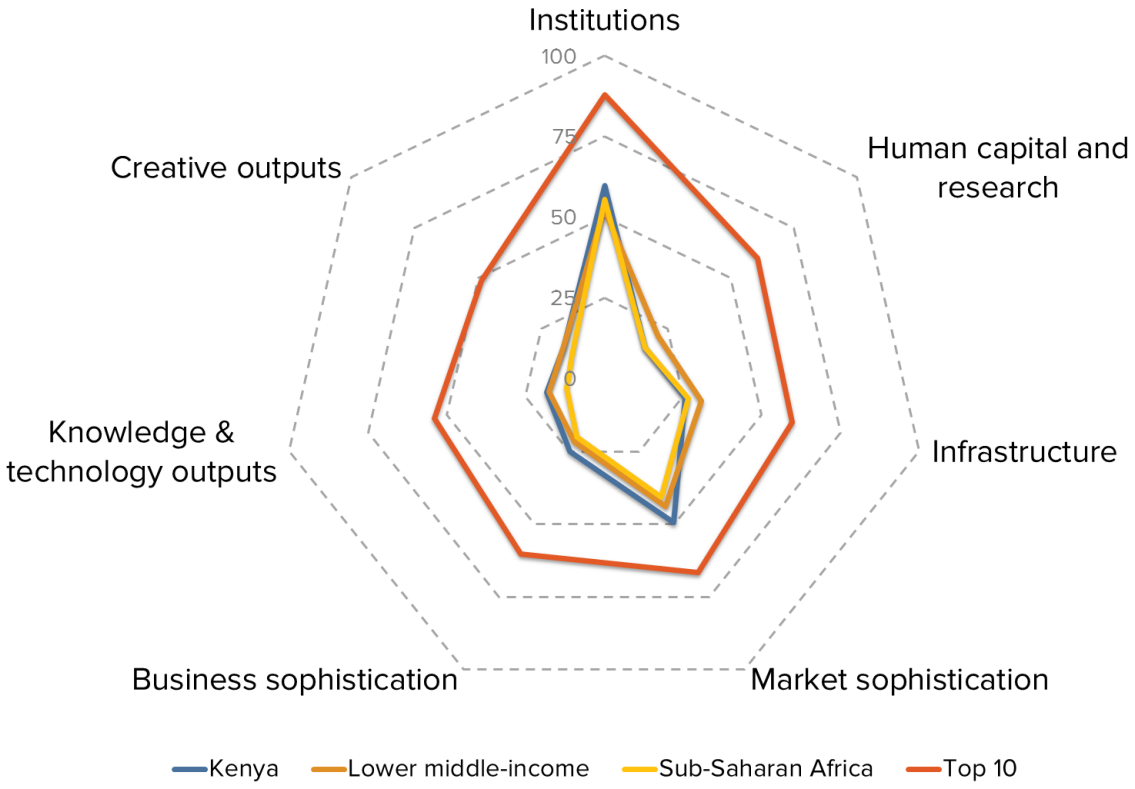
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

— 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 KENYA AGAINST OTHER LOWER MIDDLE-INCOME ECONOMIES AND SUB-SAHARAN AFRICA

Kenya's scores in the seven GII pillars



Lower middle-income group economies

Kenya has high scores in four out of the seven GII pillars: Institutions, Market sophistication, Business sophistication and Knowledge & technology outputs which are above average for the lower middle-income group.

Conversely, Kenya scores below average for its income group in three pillars: Human capital & research, Infrastructure and Creative outputs.

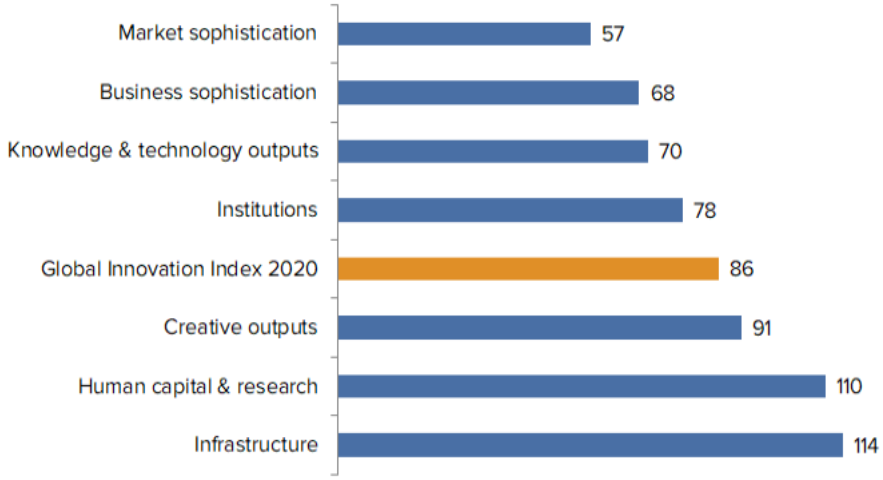
Sub-Saharan Africa

Compared to other economies in Sub-Saharan Africa, Kenya performs:

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

OVERVIEW OF KENYA RANKINGS IN THE SEVEN GII AREAS

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



*The highest possible ranking in each pillar is 1.

This year Kenya improves its rank in two out of the seven GII pillars: Infrastructure (114) and Knowledge & technology outputs (70).

Led by telecoms brand Safaricom, Kenya ranks 54th worldwide in an indicator new to the GII, Global brand value.

INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths

Code	Indicator name	Rank
2.1.1	Expenditure on education, % GDP	29
4.1	Credit	20
4.1.1	Ease of getting credit*	4
4.1.3	Microfinance gross loans, % GDP	10
4.2.1	Ease of protecting minority investors*	1
5.2	Innovation linkages	31
5.2.1	University/industry research collaboration†	36
5.2.3	GERD financed by abroad, % GDP	5
5.3.1	Intellectual property payments, % total trade	29
6.3.1	Intellectual property receipts, % total trade	25
6.3.3	ICT services exports, % total trade	26
7.2.4	Printing & other media, % manufacturing	3

Weaknesses

Code	Indicator name	Rank
2.1.5	Pupil-teacher ratio, secondary	121
2.3.3	Global R&D companies, top 3, mn US$	42
2.3.4	QS university ranking, average score top 3*	77
3.2	General infrastructure	119
3.2.1	Electricity output, GWh/mn pop	114
3.2.3	Gross capital formation, % GDP	116
3.3	Ecological sustainability	119
5.2.5	Patent families 2+ offices/bn PPP$ GDP	101
5.3.3	ICT services imports, % total trade	118
7.2.1	Cultural & creative services exports, % total trade	104
7.3	Online creativity	124
7.3.3	Wikipedia edits/mn pop. 15–69	121
7.3.4	Mobile app creation/bn PPP$ GDP	92

STRENGTHS

GII strengths for Kenya are found in five of the seven GII pillars.

- Human capital & research (110): the indicator Expenditure on education (29) is a strength.
- Market sophistication (57): has strengths in the sub-pillar Credit (20) and in the indicators Ease of getting credit (4), Microfinance gross loans (10) and Ease of protecting minority investors (1).
- Business sophistication (68): shows strengths in the sub-pillar Innovation linkages (31) and in the indicators University/industry research collaboration (36), GERD financed by abroad (5) and Intellectual property payments (29).
- Knowledge & technology outputs (70): reveals strengths in the indicators Intellectual property receipts (25) and ICT services exports (26).
- Creative outputs (91): the indicator Printing and other media (3) is a strength.

WEAKNESSES

GII weaknesses for Kenya are found in four of the seven GII pillars.

- Human capital & research (110): has weaknesses in the indicators Pupil–teacher ratio (121), Global R&D companies (42) and QS university ranking (77).
- Infrastructure (114): displays weaknesses in the sub-pillars General infrastructure (119) and Ecological sustainability (119) and in the indicators Electricity output (114) and Gross capital formation (116).
- Business sophistication (68): demonstrates weaknesses in the indicators Patent families (101) and ICT services imports (118).
- Creative outputs (91): has weaknesses in the sub-pillar Online creativity (124) and in the indicators Cultural & creative services exports (104), Wikipedia edits (121) and Mobile app creation (92).

KENYA

GII 2020 rank

86

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
78	92	Lower middle	SSF	52.6	191.3	3,382.6	77

		Score/Value	Rank	
INSTITUTIONS		**59.9**	**78**	
1.1	**Political environment**	**47.0**	**97**	
1.1.1	Political and operational stability*	58.9	104	
1.1.2	Government effectiveness*	41.0	92	
1.2	**Regulatory environment**	**60.3**	**79**	
1.2.1	Regulatory quality*	35.8	89	
1.2.2	Rule of law*	36.0	88	
1.2.3	Cost of redundancy dismissal, salary weeks	15.8	61	
1.3	**Business environment**	**72.6**	**60**	
1.3.1	Ease of starting a business*	82.7	100	
1.3.2	Ease of resolving insolvency*	62.4	45	◆
HUMAN CAPITAL & RESEARCH		**15.8**	**110**	
2.1	**Education**	**31.5**	**[101]**	
2.1.1	Expenditure on education, % GDP	5.3	29	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	10.3	106	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	33.4	121	○ ◇
2.2	**Tertiary education**	**11.5**	**112**	
2.2.1	Tertiary enrolment, % gross	11.5	107	
2.2.2	Graduates in science & engineering, %	16.5	85	
2.2.3	Tertiary inbound mobility, %	0.9	89	
2.3	**Research & development (R&D)**	**4.5**	**77**	
2.3.1	Researchers, FTE/mn pop.	221.4	80	
2.3.2	Gross expenditure on R&D, % GDP	0.8	47	◆
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	0.0	42	○ ◇
2.3.4	QS university ranking, average score top 3*	0.0	77	○ ◇
INFRASTRUCTURE		**25.5**	**114**	
3.1	**Information & communication technologies (ICTs)**	**44.8**	**102**	
3.1.1	ICT access*	43.0	102	
3.1.2	ICT use*	20.3	114	◇
3.1.3	Government's online service*	62.5	90	
3.1.4	E-participation*	53.4	102	
3.2	**General infrastructure**	**15.4**	**119**	○
3.2.1	Electricity output, kWh/mn pop	207.7	114	○ ◇
3.2.2	Logistics performance*	35.0	67	
3.2.3	Gross capital formation, % GDP	16.9	116	○ ◇
3.3	**Ecological sustainability**	**16.3**	**119**	○ ◇
3.3.1	GDP/unit of energy use	5.4	105	◇
3.3.2	Environmental performance*	34.7	103	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	93	
MARKET SOPHISTICATION		**49.1**	**57**	
4.1	**Credit**	**54.6**	**20**	● ◆
4.1.1	Ease of getting credit*	95.0	4	● ◆
4.1.2	Domestic credit to private sector, % GDP	28.0	97	
4.1.3	Microfinance gross loans, % GDP	4.2	10	● ◆
4.2	**Investment**	**36.6**	**67**	
4.2.1	Ease of protecting minority investors*	92.0	1	● ◆
4.2.2	Market capitalization, % GDP	30.2	47	
4.2.3	Venture capital deals/bn PPP$ GDP	0.0	49	
4.3	**Trade, competition, and market scale**	**56.1**	**93**	
4.3.1	Applied tariff rate, weighted avg., %	10.1	115	◇
4.3.2	Intensity of local competition+	72.0	46	◆
4.3.3	Domestic market scale, bn PPP$	191.3	70	

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**24.8**	**68**	
5.1	**Knowledge workers**	**14.8**	**111**	
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, %	37.4	36	
5.1.3	GERD performed by business, % GDP	0.1	67	
5.1.4	GERD financed by business, %	4.3	86	
5.1.5	Females employed w/advanced degrees, %	1.5	106	
5.2	**Innovation linkages**	**33.4**	**31**	● ◆
5.2.1	University/industry research collaboration+	51.5	36	● ◆
5.2.2	State of cluster development+	53.5	39	◆
5.2.3	GERD financed by abroad, % GDP	0.4	5	● ◆
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.0	52	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.0	101	○ ◇
5.3	**Knowledge absorption**	**26.2**	**73**	
5.3.1	Intellectual property payments, % total trade	1.2	29	● ◆
5.3.2	High-tech imports, % total trade	9.4	40	
5.3.3	ICT services imports, % total trade	0.3	118	○ ◇
5.3.4	FDI net inflows, % GDP	1.1	107	
5.3.5	Research talent, % in business enterprise	11.4	61	
KNOWLEDGE & TECHNOLOGY OUTPUTS		**18.4**	**70**	
6.1	**Knowledge creation**	**13.8**	**67**	
6.1.1	Patents by origin/bn PPP$ GDP	1.4	55	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.0	83	
6.1.3	Utility models by origin/bn PPP$ GDP	1.0	23	
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.7	69	
6.1.5	Citable documents H-index	15.4	53	
6.2	**Knowledge impact**	**17.9**	**90**	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.2	43	
6.2.2	New businesses/th pop. 15-64	1.5	68	
6.2.3	Computer software spending, % GDP	0.0	77	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.1	70	
6.2.5	High- and medium-high-tech manufacturing, %	9.6	83	
6.3	**Knowledge diffusion**	**23.6**	**65**	
6.3.1	Intellectual property receipts, % total trade	0.6	25	● ◆
6.3.2	High-tech net exports, % total trade	0.4	86	
6.3.3	ICT services exports, % total trade	3.3	26	●
6.3.4	FDI net outflows, % GDP	0.8	62	
CREATIVE OUTPUTS		**16.0**	**91**	
7.1	**Intangible assets**	**23.1**	**83**	
7.1.1	Trademarks by origin/bn PPP$ GDP	32.6	74	
7.1.2	Global brand value, top 5,000, % GDP	13.1	54	
7.1.3	Industrial designs by origin/bn PPP$ GDP	1.0	71	
7.1.4	ICTs & organizational model creation+	60.0	44	◆
7.2	**Creative goods and services**	**17.3**	**59**	
7.2.1	Cultural & creative services exports, % total trade	0.0	104	○
7.2.2	National feature films/mn pop. 15-69	n/a	n/a	
7.2.3	Entertainment & Media market/th pop. 15-69	1.6	56	
7.2.4	Printing and other media, % manufacturing	4.1	3	● ◆
7.2.5	Creative goods exports, % total trade	0.2	85	
7.3	**Online creativity**	**0.5**	**124**	○ ◇
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	0.9	97	
7.3.2	Country-code TLDs/th pop. 15-69	1.0	87	
7.3.3	Wikipedia edits/mn pop. 15-69	5.2	121	○ ◇
7.3.4	Mobile app creation/bn PPP$ GDP	0.0	92	○

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 Kenya.

Missing data

Code	Indicator name	Country year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2016	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths & science	n/a	2018	OECD Programme for International Student Assessment (PISA)
5.1.1	Knowledge-intensive employment, %	n/a	2018	International Labour Organization
7.2.2	National feature films/mn pop. 15–69	n/a	2017	UNESCO Institute for Statistics

Outdated data

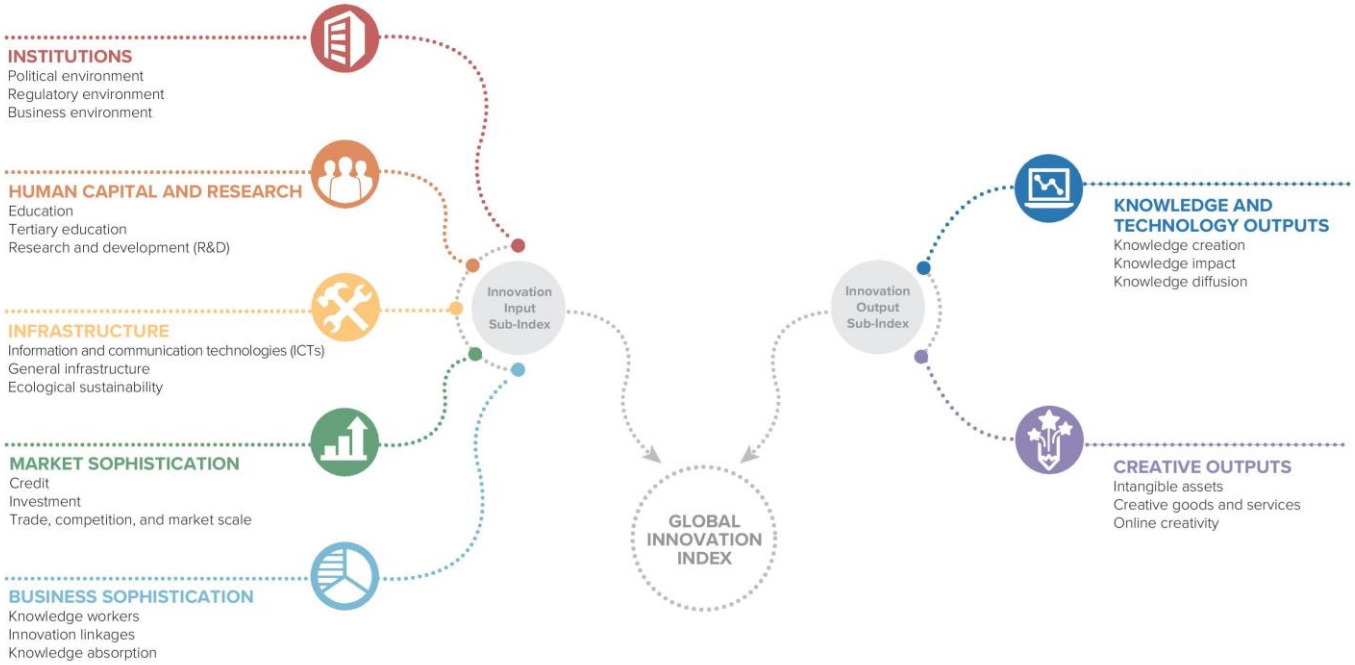
Code	Indicator name	Country year	Model year	Source
2.1.3	School life expectancy, years	2009	2017	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2009	2018	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	2016	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2010	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2010	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
4.1.3	Microfinance gross loans, % GDP	2017	2018	Microfinance Information Exchange
4.2.2	Market capitalization, % GDP	2011	2018	World Federation of Exchanges
5.1.2	Firms offering formal training, %	2017	2018	World Bank
5.1.3	GERD performed by business, % GDP	2010	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.4	GERD financed by business, %	2010	2017	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2016	2018	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2010	2017	UNESCO Institute for Statistics
5.3.1	Intellectual property payments, % total trade	2017	2018	World Trade Organization
5.3.3	ICT services imports, % total trade	2017	2018	World Trade Organization
5.3.5	Research talent, % in business enterprise	2010	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
6.3.1	Intellectual property receipts, % total trade	2017	2018	World Trade Organization
6.3.3	ICT services exports, % total trade	2017	2018	World Trade Organization
7.1.1	Trademarks by origin/bn PPP$ GDP	2017	2018	World Intellectual Property Organization
7.3.4	Mobile app creation/bn PPP$ GDP	2018	2019	App Annie

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.