Global Innovation Index 2022

KENYA

88th Kenya ranks 88th among the 132 economies featured in the GII 2022.

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 2022 is between ranks 85 and 97.

Rankings for Kenya (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	86	92	78
2021	85	89	76
2022	88	103	79

- Kenya performs better in innovation outputs than innovation inputs in 2022.
- This year Kenya ranks 103rd in innovation inputs, lower than both 2021 and 2020.
- As for innovation outputs, Kenya ranks 79th. This position is lower than both 2021 and 2020.

13th Kenya ranks 13th among the 36 lower-middle-income group economies.

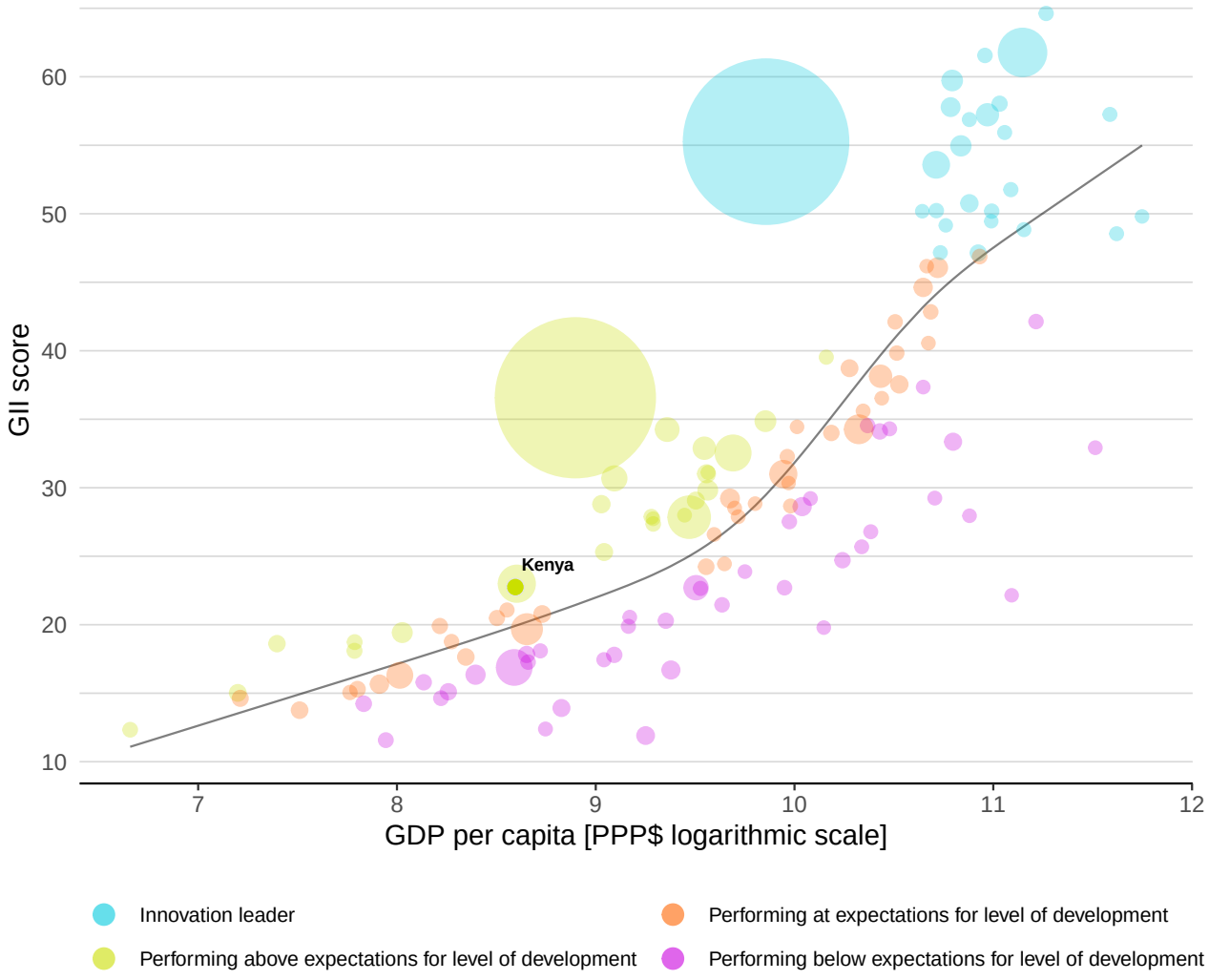
4th Kenya ranks 4th among the 27 economies in Sub-Saharan Africa.

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

The positive relationship between innovation and development

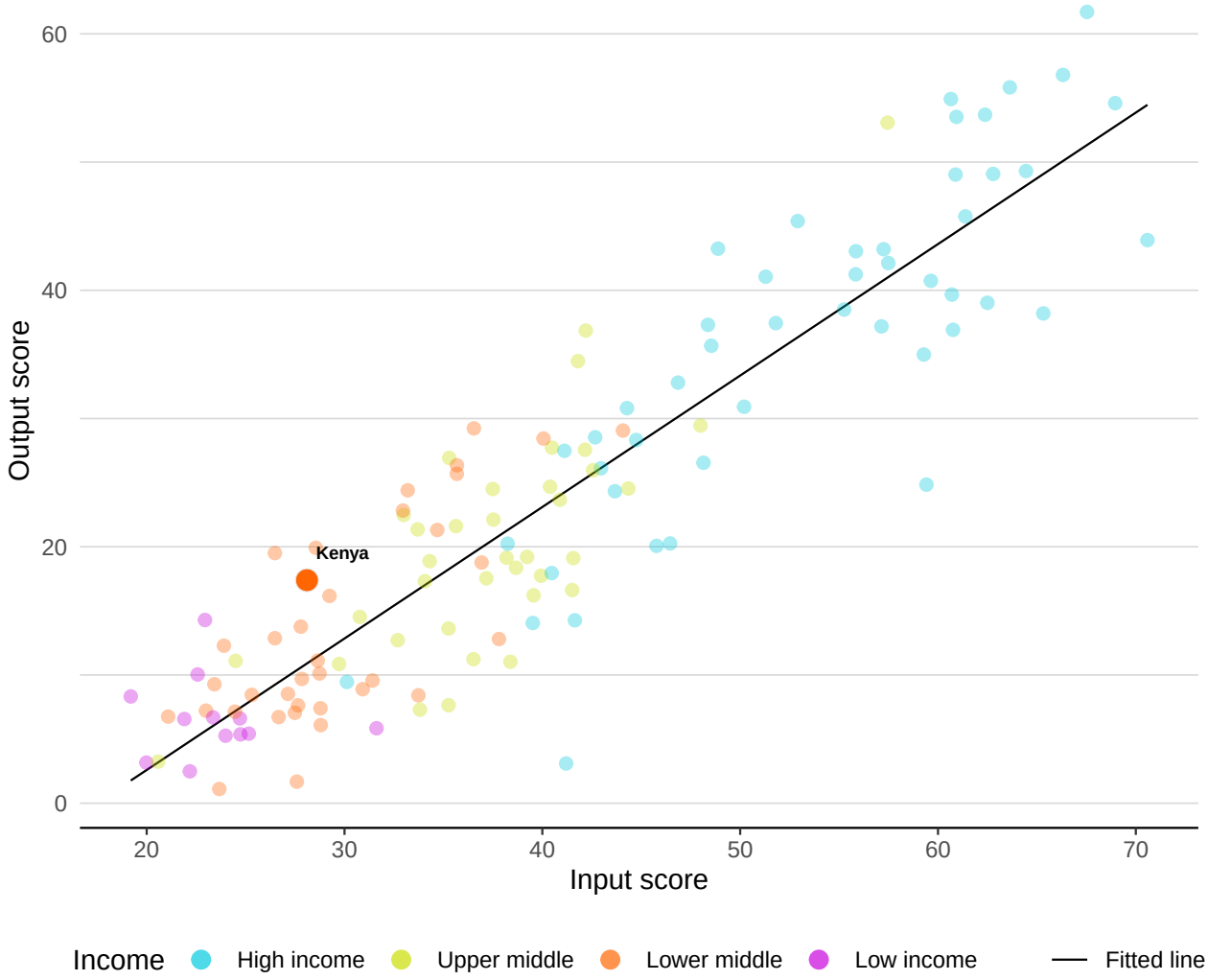


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

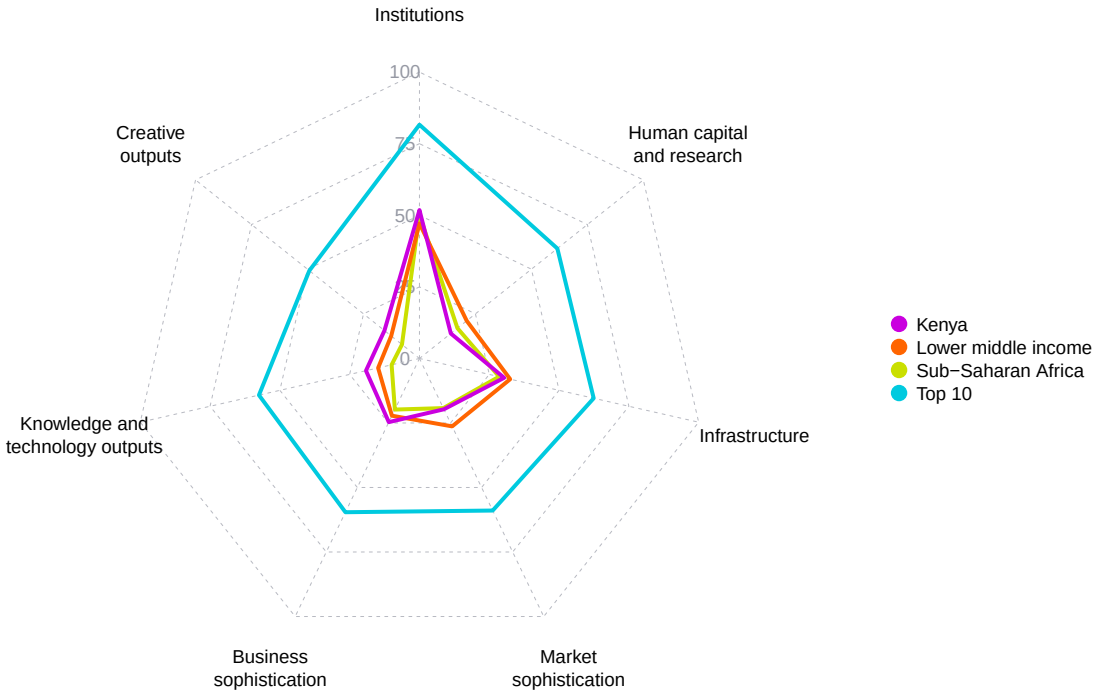
Kenya produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER LOWER MIDDLE-INCOME GROUP ECONOMIES AND SUB-SAHARAN AFRICA

The seven GII pillar scores for Kenya



Lower-middle-income group economies

Kenya performs above the lower-middle-income group average in four pillars, namely: Institutions; Business sophistication; Knowledge and technology outputs; and, Creative outputs.

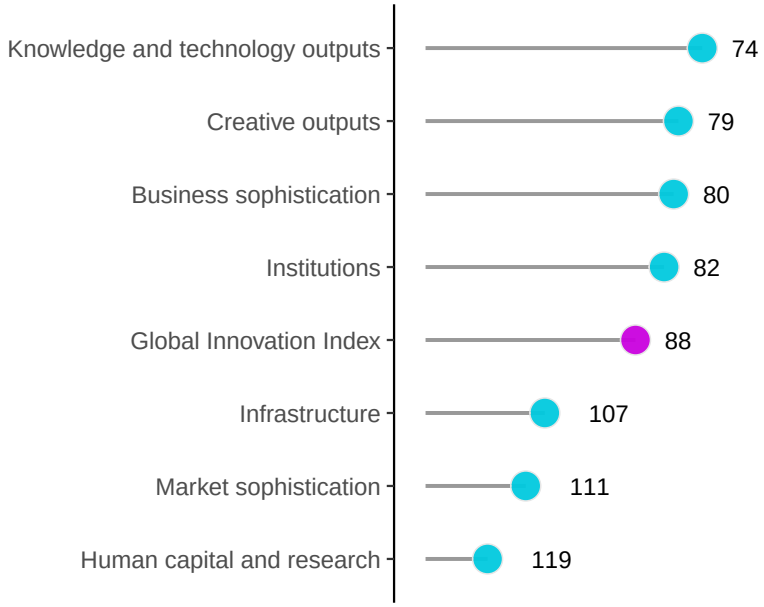
Sub-Saharan Africa

Kenya performs above the regional average in six pillars, namely: Institutions; Infrastructure; Market sophistication; Business sophistication; Knowledge and technology outputs; and, Creative outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Kenya performs best in Knowledge and technology outputs and its weakest performance is in Human capital and research.

The seven GII pillar ranks for Kenya



Note: The highest possible ranking in each pillar is 1.

The full WIPO Intellectual Property Statistics profile for Kenya can be found at:

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=KE.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Kenya in the GII 2022.

Strengths and weaknesses for Kenya

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.1.1	Expenditure on education, % GDP	48	2.1.5	Pupil-teacher ratio, secondary	119
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	24	2.2.1	Tertiary enrolment, % gross	113
5.3.1	Intellectual property payments, % total trade	37	2.3.3	Global corporate R&D investors, top 3, mn USD	38
5.3.2	High-tech imports, % total trade	50	2.3.4	QS university ranking, top 3	72
6.1.3	Utility models by origin/bn PPP$ GDP	25	3.2.1	Electricity output, GWh/mn pop.	118
6.1.5	Citable documents H-index	52	3.2.3	Gross capital formation, % GDP	124
6.2.1	Labor productivity growth, %	24	4.3.1	Applied tariff rate, weighted avg., %	115
6.3.1	Intellectual property receipts, % total trade	28	5.3.3	ICT services imports, % total trade	121
6.3.4	ICT services exports, % total trade	26	7.1.1	Intangible asset intensity, top 15, %	71
7.2.4	Printing and other media, % manufacturing	3	7.2.1	Cultural and creative services exports, % total trade	102

GII 2022 rank

Kenya

88

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
79	103	Lower middle	SSA	55.0	269.3	5,407

		Score/ Value	Rank
Institutions		**51.8**	**82**
1.1	**Political environment**	49.2	98
1.1.1	Political and operational stability*	56.4	108
1.1.2	Government effectiveness*	42.1	89
1.2	**Regulatory environment**	58.7	84
1.2.1	Regulatory quality*	33.9	99
1.2.2	Rule of law*	31.6	96
1.2.3	Cost of redundancy dismissal	15.8	63
1.3	**Business environment**	47.6	[67]
1.3.1	Policies for doing business†	47.6	72
1.3.2	Entrepreneurship policies and culture*	n/a	n/a
Human capital and research		**14.0**	**[119]**
2.1	**Education**	38.3	[103]
2.1.1	Expenditure on education, % GDP	4.8	48 ●
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 and science	n/a	n/a
2.1.5	Pupil-teacher ratio, secondary 🕘	30.7	119 ○ ◇
2.2	**Tertiary education**	3.7	123 ○ ◇
2.2.1	Tertiary enrolment, % gross	10.0	113 ○
2.2.2	Graduates in science and engineering, %	n/a	n/a
2.2.3	Tertiary inbound mobility, %	1.3	86
2.3	**Research and development (R&D)**	0.0	[120]
2.3.1	Researchers, FTE/mn pop.	n/a	n/a
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	38 ○ ◇
2.3.4	QS university ranking, top 3*	0.0	72 ○ ◇
Infrastructure		**30.3**	**107**
3.1	**Information and communication technologies (ICTs)**	58.8	94
3.1.1	ICT access*	75.3	91
3.1.2	ICT use*	32.6	109
3.1.3	Government's online service*	67.7	75
3.1.4	E-participation*	59.5	87
3.2	**General infrastructure**	16.1	117 ○
3.2.1	Electricity output, GWh/mn pop. 🕘	204.1	118 ○
3.2.2	Logistics performance*	35.3	67
3.2.3	Gross capital formation, % GDP	13.0	124 ○ ◇
3.3	**Ecological sustainability**	16.1	121 ○
3.3.1	GDP/unit of energy use	6.9	102
3.3.2	Environmental performance*	30.8	103
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	100
Market sophistication		**19.7**	**111**
4.1	**Credit**	8.3	117 ○
4.1.1	Finance for startups and scaleups*	n/a	n/a
4.1.2	Domestic credit to private sector, % GDP	32.0	91
4.1.3	Loans from microfinance institutions, % GDP	0.4	40
4.2	**Investment**	13.9	43 ●
4.2.1	Market capitalization, % GDP	23.1	58
4.2.2	Venture capital investors, deals/bn PPP$ GDP	0.1	39 ◆
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	0.1	24 ● ◆
4.2.4	Venture capital received, value, % GDP	0.0	43
4.3	**Trade, diversification, and market scale**	36.9	106
4.3.1	Applied tariff rate, weighted avg., %	9.3	115 ○
4.3.2	Domestic industry diversification	65.1	93
4.3.3	Domestic market scale, bn PPP$	269.3	61

		Score/ Value	Rank
Business sophistication		**24.7**	**80**
5.1	**Knowledge workers**	22.3	[89]
5.1.1	Knowledge-intensive employment, % 🕘	13.8	93
5.1.2	Firms offering formal training, % 🕘	37.4	40
5.1.3	GERD performed by business, % GDP	n/a	n/a
5.1.4	GERD financed by business, %	n/a	n/a
5.1.5	Females employed w/advanced degrees, % 🕘	1.7	109
5.2	**Innovation linkages**	25.4	53 ◆
5.2.1	University-industry R&D collaboration†	45.3	60
5.2.2	State of cluster development and depth†	49.2	53
5.2.3	GERD financed by abroad, % GDP	n/a	n/a
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	65
5.2.5	Patent families/bn PPP$ GDP	0.0	96
5.3	**Knowledge absorption**	26.3	84
5.3.1	Intellectual property payments, % total trade 🕘	1.0	37 ● ◆
5.3.2	High-tech imports, % total trade	9.3	50 ●
5.3.3	ICT services imports, % total trade 🕘	0.4	121 ○
5.3.4	FDI net inflows, % GDP	1.3	93
5.3.5	Research talent, % in businesses	n/a	n/a
Knowledge and technology outputs		**19.2**	**74**
6.1	**Knowledge creation**	12.7	65
6.1.1	Patents by origin/bn PPP$ GDP	1.4	54
6.1.2	PCT patents by origin/bn PPP$ GDP	0.0	83
6.1.3	Utility models by origin/bn PPP$ GDP	0.9	25 ●
6.1.4	Scientific and technical articles/bn PPP$ GDP	12.3	77
6.1.5	Citable documents H-index	15.7	52 ●
6.2	**Knowledge impact**	21.6	83
6.2.1	Labor productivity growth, %	2.8	24 ●
6.2.2	New businesses/th pop. 15–64	1.5	68
6.2.3	Software spending, % GDP	0.2	76
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.9	85
6.2.5	High-tech manufacturing, %	11.4	83
6.3	**Knowledge diffusion**	23.2	66
6.3.1	Intellectual property receipts, % total trade 🕘	0.5	28 ● ◆
6.3.2	Production and export complexity	34.5	75
6.3.3	High-tech exports, % total trade	0.6	85
6.3.4	ICT services exports, % total trade 🕘	4.1	26 ●
Creative outputs		**15.6**	**79**
7.1	**Intangible assets**	17.7	84
7.1.1	Intangible asset intensity, top 15, %	18.2	71 ○
7.1.2	Trademarks by origin/bn PPP$ GDP	21.3	91
7.1.3	Global brand value, top 5,000, % GDP	16.7	49
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.9	71
7.2	**Creative goods and services**	25.8	44 ● ◆
7.2.1	Cultural and creative services exports, % total trade 🕘	0.0	102 ○
7.2.2	National feature films/mn pop. 15–69	n/a	n/a
7.2.3	Entertainment and media market/th pop. 15–69	2.2	53
7.2.4	Printing and other media, % manufacturing	3.7	3 ● ◆
7.2.5	Creative goods exports, % total trade	0.1	92
7.3	**Online creativity**	1.3	96
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	0.8	92
7.3.3	GitHub commit pushes received/mn pop. 15–69	2.8	75
7.3.4	Mobile app creation/bn PPP$ GDP	0.7	79

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 appendices for details, including the year of the data, at https://www.wipo.int/global_innovation_index/en/2022. 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 indicators that are either missing or outdated for Kenya.

Missing data for Kenya

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2021	Global Entrepreneurship Monitor
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2018	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2019	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
2.2.2	Graduates in science and engineering, %	n/a	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	n/a	2020	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups	n/a	2021	Global Entrepreneurship Monitor
5.1.3	GERD performed by business, % GDP	n/a	2020	UNESCO Institute for Statistics
5.1.4	GERD financed by business, %	n/a	2019	UNESCO Institute for Statistics
5.2.3	GERD financed by abroad, % GDP	n/a	2019	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	n/a	2020	UNESCO Institute for Statistics
7.2.2	National feature films/mn pop. 15–69	n/a	2019	OMDIA

Outdated data for Kenya

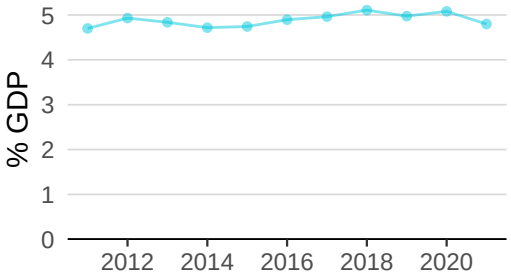
Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2015	2019	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2019	2020	International Energy Agency
5.1.1	Knowledge-intensive employment, %	2019	2021	International Labour Organization
5.1.2	Firms offering formal training, %	2018	2019	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	2019	2021	International Labour Organization
5.3.1	Intellectual property payments, % total trade	2019	2020	World Trade Organization and United Nations Conference on Trade and Development
5.3.3	ICT services imports, % total trade	2019	2020	World Trade Organization and United Nations Conference on Trade and Development
6.3.1	Intellectual property receipts, % total trade	2019	2020	World Trade Organization and United Nations Conference on Trade and Development

Code	Indicator name	Economy year	Model year	Source
6.3.4	ICT services exports, % total trade	2019	2020	World Trade Organization and United Nations Conference on Trade and Development
7.2.1	Cultural and creative services exports, % total trade	2017	2020	World Trade Organization and United Nations Conference on Trade and Development

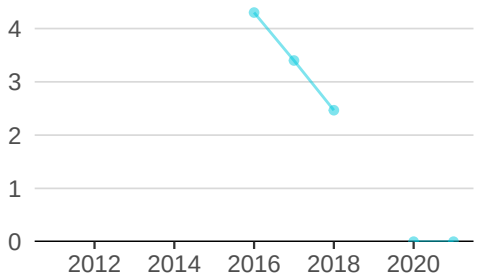
KENYA'S INNOVATION SYSTEM

As far as practicable, the plots below present unscaled indicator data.

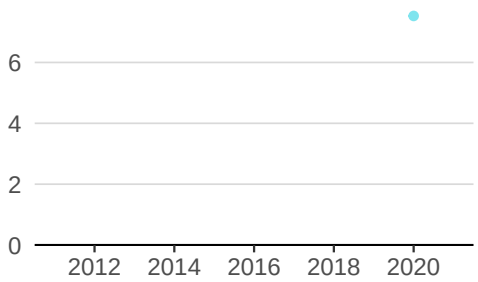
Innovation inputs



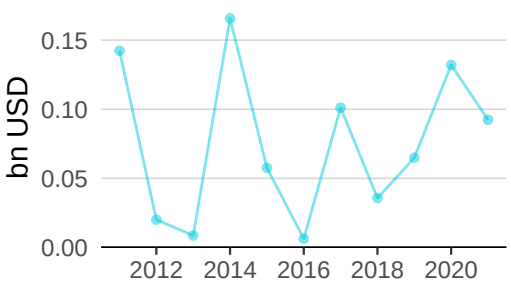
2.1.1 Expenditure on education was equal to 4.8% GDP in 2021–down by 6 percentage points from the year prior–and equivalent to an indicator rank of 48.



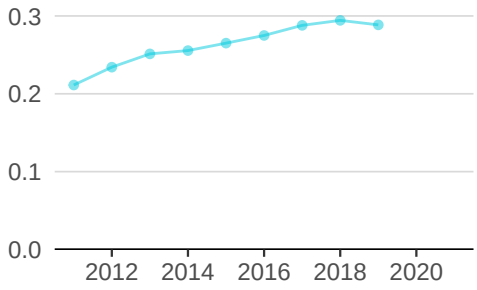
2.3.4 QS university ranking was equal to 0.0 in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 72.



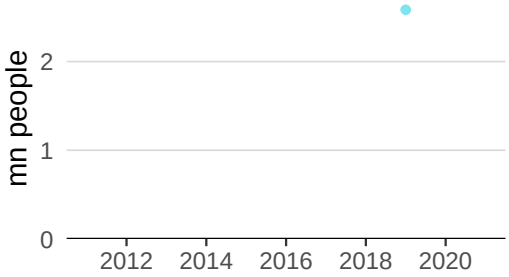
3.1.1 ICT access was equal to 7.5 in 2020 and equivalent to an indicator rank of 91.



4.2.4 Venture capital received was equal to 0.1 bn USD in 2021–down by 30 percentage points from the year prior–and equivalent to an indicator rank of 43.

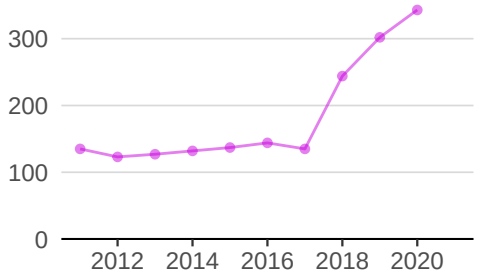


4.3.2 Domestic industry diversification was equal to 0.3 in 2019–down by 2 percentage points from the year prior–and equivalent to an indicator rank of 93.

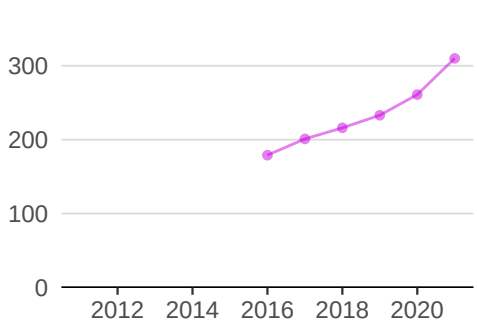


5.1.1 Knowledge-intensive employment was equal to 2.6 mn people in 2019 and equivalent to an indicator rank of 93.

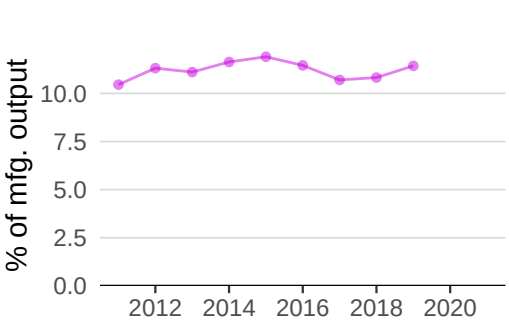
Innovation outputs



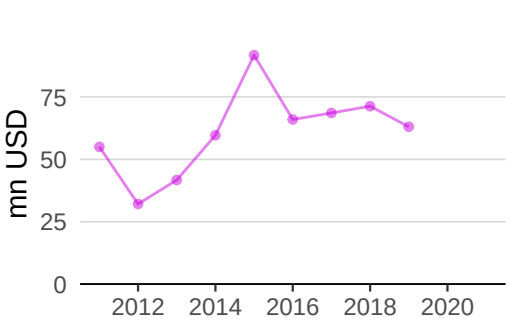
6.1.1 Patents by origin was equal to 343.0 in 2020–up by 14 percentage points from the year prior–and equivalent to an indicator rank of 54.



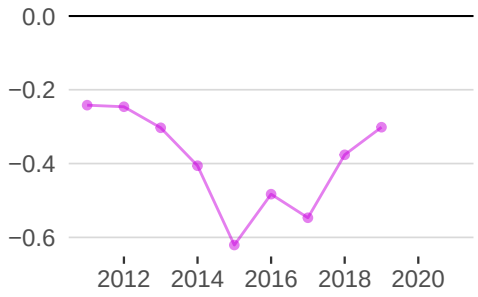
6.1.5 Citable documents H-index was equal to 310.0 in 2021–up by 19 percentage points from the year prior–and equivalent to an indicator rank of 52.



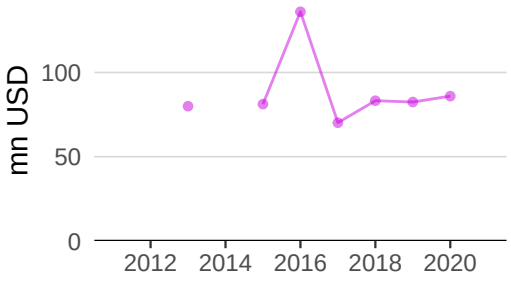
6.2.5 High-tech manufacturing was equal to 11.4% of mfg. output in 2019–up by 6 percentage points from the year prior–and equivalent to an indicator rank of 83.



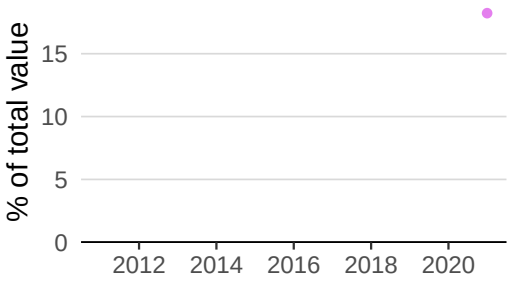
6.3.1 Intellectual property receipts was equal to 63.1 mn USD in 2019–down by 12 percentage points from the year prior–and equivalent to an indicator rank of 28.



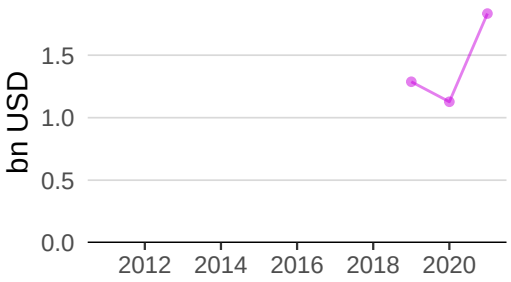
6.3.2 Production and export complexity was equal to -0.3 in 2019–up by 20 percentage points from the year prior–and equivalent to an indicator rank of 75.



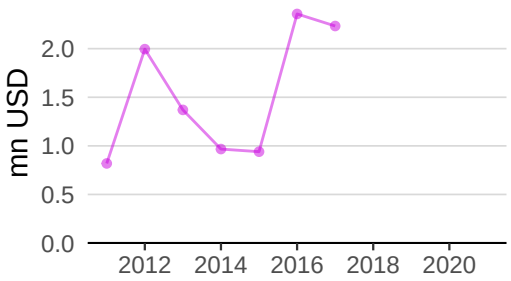
6.3.3 High-tech exports was equal to 86.0 mn USD in 2020–up by 4 percentage points from the year prior–and equivalent to an indicator rank of 85.



7.1.1 Intangible asset intensity was equal to 18.2% of total value in 2021 and equivalent to an indicator rank of 71.



7.1.3 Global brand value was equal to 1.8 bn USD in 2021–up by 63 percentage points from the year prior–and equivalent to an indicator rank of 49.



7.2.1 Cultural and creative services exports was equal to 2.2 mn USD in 2017–down by 5 percentage points from the year prior–and equivalent to an indicator rank of 102.

KENYA'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank

No observations

Source: European Commission's Joint Research Centre (https://iri.jrc.ec.europa.eu/scoreboard/2021-eu-industrial-rd-investment-scoreboard).

2.3.4 QS university ranking

University	Score	Rank

No observations

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2022).

7.1.1 Intangible asset intensity, top 15

Firm	Rank
SAFARICOM	1
EQUITY GROUP	2
SAMEER AFRICA	3

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).
Note: Brand Finance only provides within economy ranks.

7.1.3 Global brand value, top 5,000

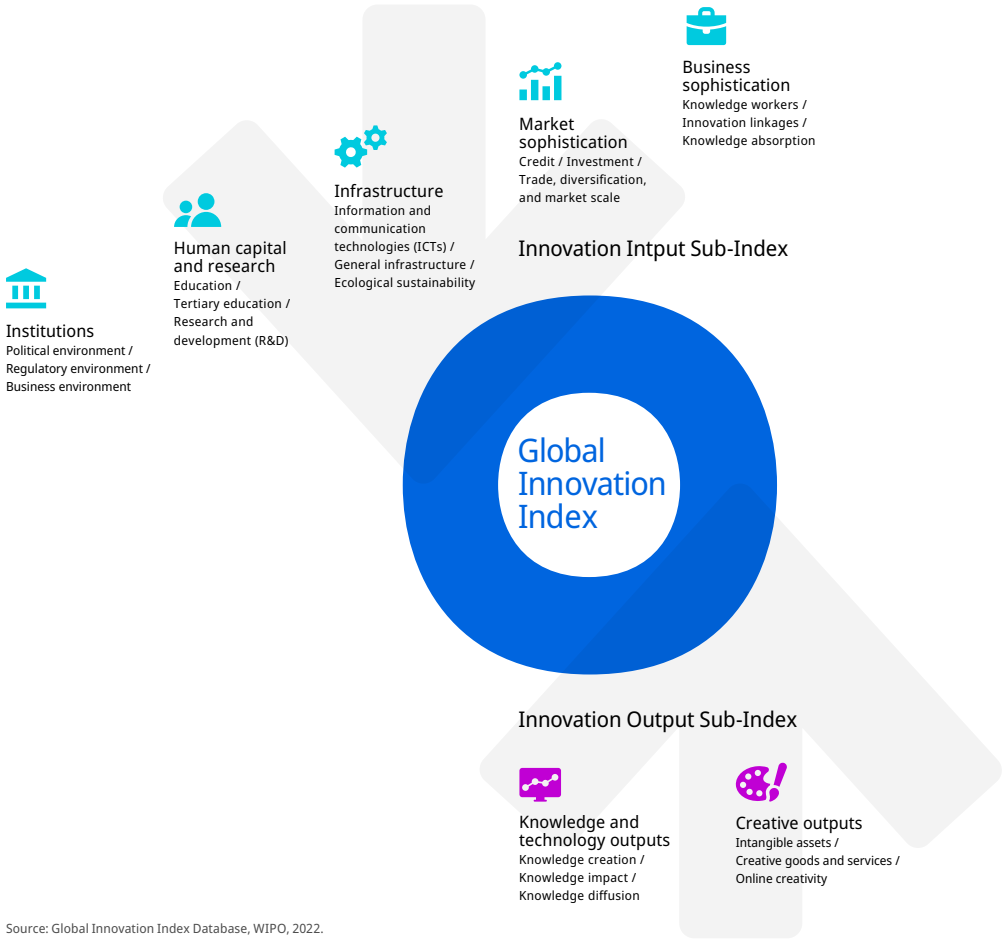
Brand	Industry	Rank
SAFARICOM	Telecoms	1
EQUITY GROUP	Banking	2
KENYA COMMERCIAL BANK	Banking	3

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.

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.



Source: Global Innovation Index Database, WIPO, 2022.

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.