Global Innovation Index 2021

KENYA

85th Kenya ranks 85th among the 132 economies featured in the GII 2021.

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 2021 is between ranks 78 and 86.

Rankings for Kenya (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	85	89	76
2020	86	92	78
2019	77	89	64

- Kenya performs better in innovation outputs than innovation inputs in 2021.
- This year Kenya ranks 89th in innovation inputs, higher than last year but the same as 2019.
- As for innovation outputs, Kenya ranks 76th. This position is higher than last year but lower than 2019.

9th Kenya ranks 9th among the 34 lower middle-income group economies.

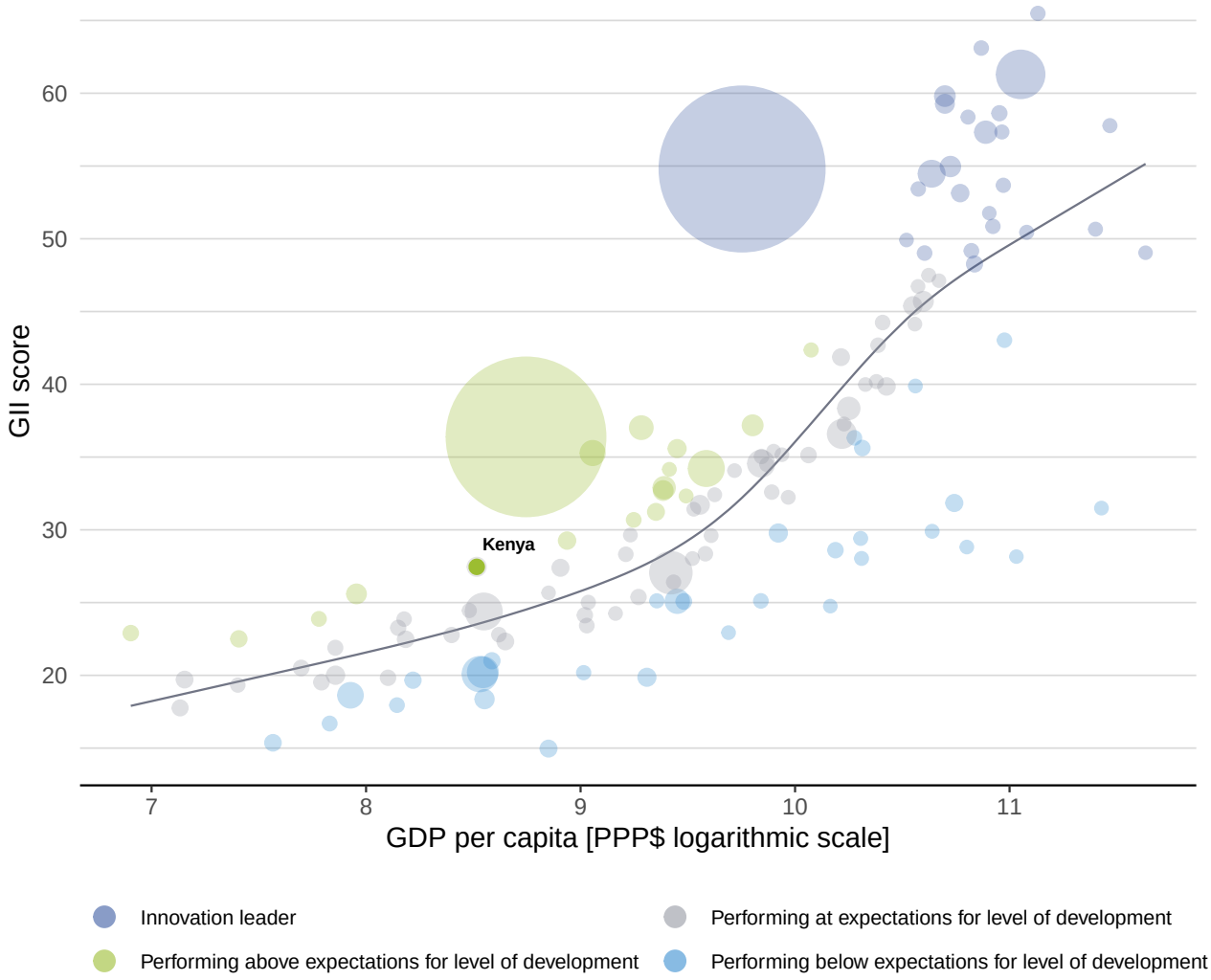
3rd Kenya ranks 3rd among the 27 economies in Sub-Saharan Africa.

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

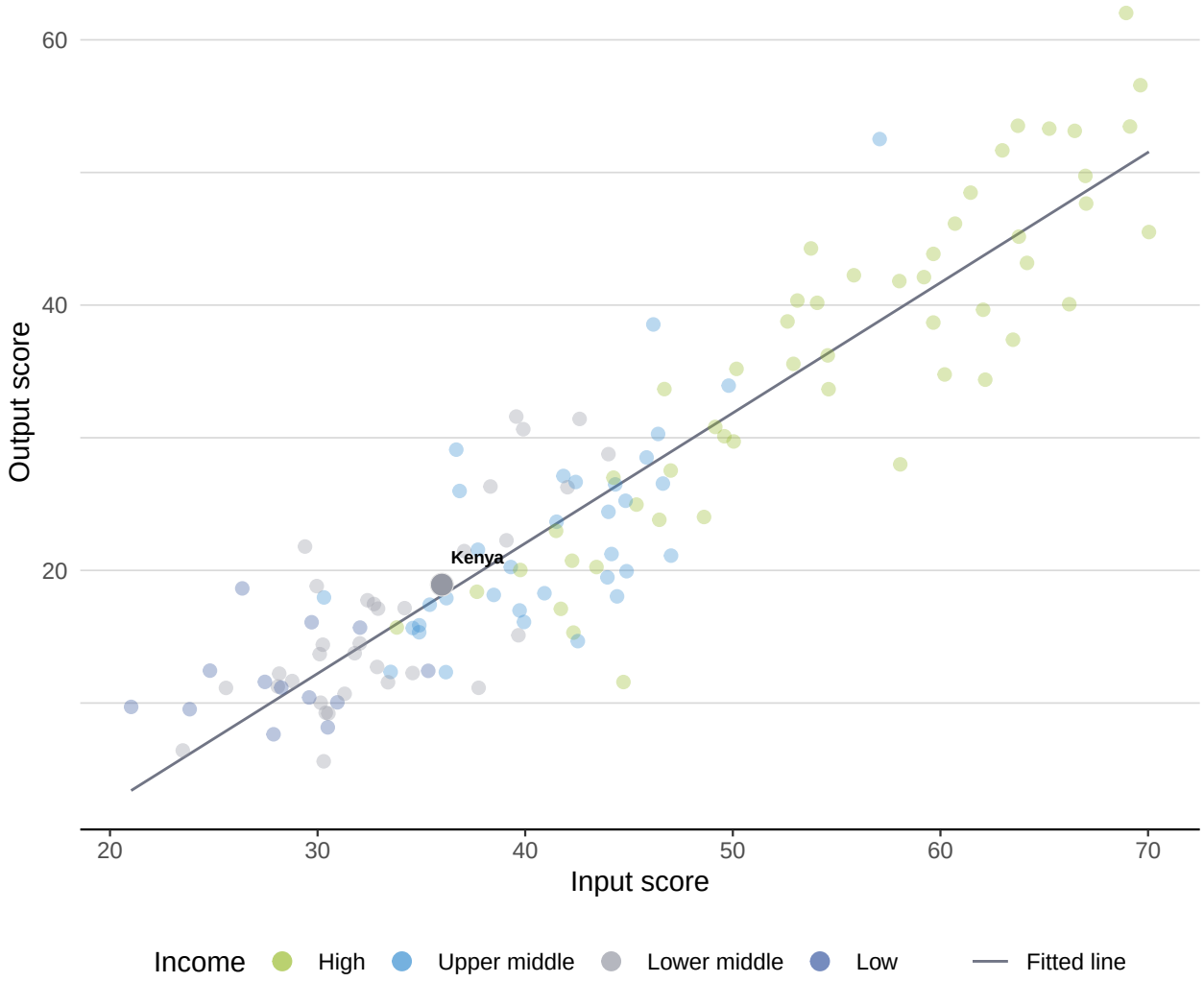


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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; Market sophistication; Business sophistication; and, Knowledge and technology outputs.

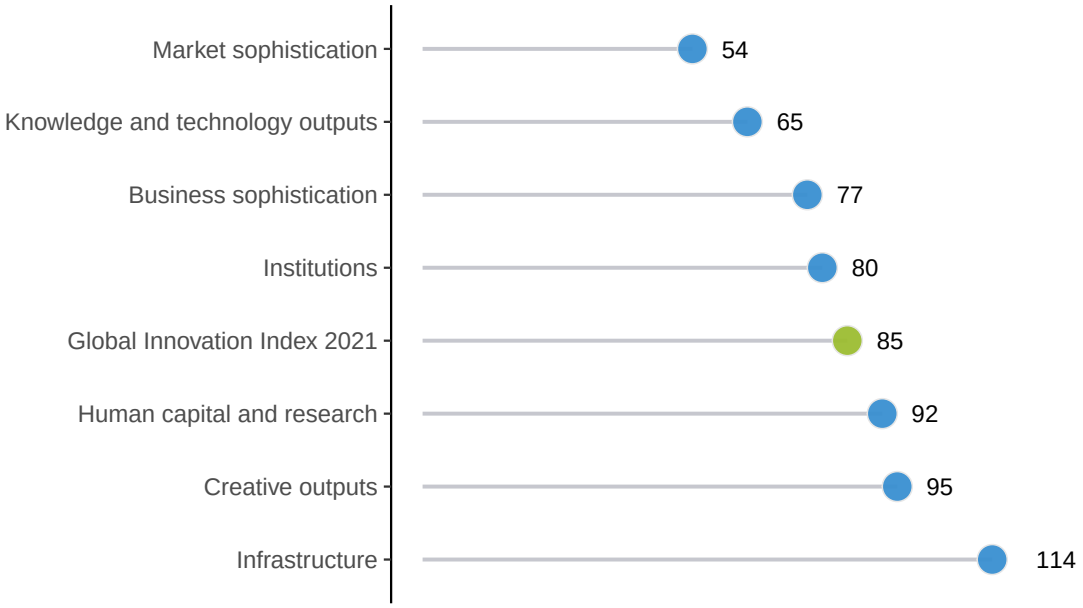
Sub-Saharan Africa

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

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

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

The seven GII pillar ranks for Kenya



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

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Kenya in the GII 2021.

Strengths and weaknesses for Kenya

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.1.1	Expenditure on education, % GDP	27	2.1.5	Pupil-teacher ratio, secondary	119
4.1	Credit	20	2.3.3	Global corporate R&D investors, top 3, mn US$	41
4.1.1	Ease of getting credit	4	2.3.4	QS university ranking, top 3	74
4.1.3	Microfinance gross loans, % GDP	10	3.2	General infrastructure	120
4.2.1	Ease of protecting minority investors	1	3.2.1	Electricity output, GWh/mn pop.	116
5.2.3	GERD financed by abroad, % GDP	6	3.2.3	Gross capital formation, % GDP	120
5.3.1	Intellectual property payments, % total trade	16	3.3	Ecological sustainability	120
6.2.1	Labor productivity growth, %	18	4.3.1	Applied tariff rate, weighted avg., %	123
6.3.1	Intellectual property receipts, % total trade	27	5.1.5	Females employed w/advanced degrees, %	110
6.3.4	ICT services exports, % total trade	14	7.2.1	Cultural and creative services exports, % total trade	99
7.2.4	Printing and other media, % manufacturing	3	7.3	Online creativity	131
			7.3.3	Wikipedia edits/mn pop. 15–69	129
			7.3.4	Mobile app creation/bn PPP$ GDP	103

Kenya

GII 2021 rank
85

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
76	89	Lower middle	SSF	53.8	243.1	4,993	86

		Score/ Value	Rank	
Institutions		**59.9**	**80**	
1.1	**Political environment**	**47.1**	**98**	
1.1.1	Political and operational stability*	57.1	106	
1.1.2	Government effectiveness*	42.1	92	
1.2	**Regulatory environment**	**60.1**	**80**	
1.2.1	Regulatory quality*	36.3	94	
1.2.2	Rule of law*	34.8	91	
1.2.3	Cost of redundancy dismissal	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 and research		**21.9**	**92**	
2.1	**Education**	**49.4**	**[68]**	
2.1.1	Expenditure on education, % GDP	5.3	27	●
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**	**11.6**	**111**	
2.2.1	Tertiary enrolment, % gross	11.5	111	
2.2.2	Graduates in science and engineering, %	16.5	91	
2.2.3	Tertiary inbound mobility, %	0.9	89	
2.3	**Research and development (R&D)**	**4.5**	**78**	
2.3.1	Researchers, FTE/mn pop.	221.4	79	
2.3.2	Gross expenditure on R&D, % GDP	0.8	48	◆
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41	○ ◇
2.3.4	QS university ranking, top 3*	0.0	74	○ ◇
Infrastructure		**25.9**	**114**	
3.1	**Information and communication technologies (ICTs)**	**47.7**	**96**	
3.1.1	ICT access*	41.8	105	
3.1.2	ICT use*	21.7	112	
3.1.3	Government's online service*	67.6	75	
3.1.4	E-participation*	59.5	87	
3.2	**General infrastructure**	**14.0**	**120**	○
3.2.1	Electricity output, GWh/mn pop.	229.0	116	○
3.2.2	Logistics performance*	35.7	67	
3.2.3	Gross capital formation, % GDP	12.3	120	○ ◇
3.3	**Ecological sustainability**	**16.1**	**120**	○
3.3.1	GDP/unit of energy use	6.1	105	
3.3.2	Environmental performance*	34.7	103	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	103	
Market sophistication		**48.8**	**54**	
4.1	**Credit**	**56.7**	**20**	● ◆
4.1.1	Ease of getting credit*	95.0	4	● ◆
4.1.2	Domestic credit to private sector, % GDP	27.5	101	
4.1.3	Microfinance gross loans, % GDP	4.2	10	● ◆
4.2	**Investment**	**32.2**	**61**	
4.2.1	Ease of protecting minority investors*	92.0	1	● ◆
4.2.2	Market capitalization, % GDP	26.2	51	
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	53	
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.1	23	◆
4.3	**Trade, diversification, and market scale**	**57.6**	**102**	
4.3.1	Applied tariff rate, weighted avg., %	11.5	123	○ ◇
4.3.2	Domestic industry diversification	71.8	94	
4.3.3	Domestic market scale, bn PPP$	243.1	61	

		Score/ Value	Rank	
Business sophistication		**23.4**	**77**	
5.1	**Knowledge workers**	**14.8**	**112**	
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	84	
5.1.5	Females employed w/advanced degrees, %	1.5	110	○
5.2	**Innovation linkages**	**29.4**	**35**	◆
5.2.1	University-industry R&D collaboration†	46.8	49	◆
5.2.2	State of cluster development and depth†	49.1	53	
5.2.3	GERD financed by abroad, % GDP	0.4	6	● ◆
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	65	
5.2.5	Patent families/bn PPP$ GDP	0.0	85	
5.3	**Knowledge absorption**	**25.9**	**68**	
5.3.1	Intellectual property payments, % total trade	1.7	16	● ◆
5.3.2	High-tech imports, % total trade	8.2	58	
5.3.3	ICT services imports, % total trade	0.4	111	
5.3.4	FDI net inflows, % GDP	1.6	87	
5.3.5	Research talent, % in businesses	11.4	62	
Knowledge and technology outputs		**21.1**	**65**	
6.1	**Knowledge creation**	**14.6**	**67**	
6.1.1	Patents by origin/bn PPP$ GDP	1.3	58	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.0	82	
6.1.3	Utility models by origin/bn PPP$ GDP	0.9	24	
6.1.4	Scientific and technical articles/bn PPP$ GDP	11.1	77	
6.1.5	Citable documents H-index	15.9	52	
6.2	**Knowledge impact**	**23.7**	**86**	
6.2.1	Labor productivity growth, %	2.7	18	●
6.2.2	New businesses/th pop. 15–64	1.5	68	
6.2.3	Software spending, % GDP	0.1	77	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.9	91	
6.2.5	High-tech manufacturing, %	11.1	85	
6.3	**Knowledge diffusion**	**25.0**	**45**	
6.3.1	Intellectual property receipts, % total trade	0.6	27	● ◆
6.3.2	Production and export complexity	36.0	76	
6.3.3	High-tech exports, % total trade	0.5	89	
6.3.4	ICT services exports, % total trade	5.3	14	● ◆
Creative outputs		**16.7**	**95**	
7.1	**Intangible assets**	**24.1**	**89**	
7.1.1	Trademarks by origin/bn PPP$ GDP	24.6	82	
7.1.2	Global brand value, top 5,000, % GDP	11.2	59	
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.7	81	
7.1.4	ICTs and organizational model creation†	60.0	44	◆
7.2	**Creative goods and services**	**16.5**	**62**	
7.2.1	Cultural and creative services exports, % total trade	0.0	99	○
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	2.0	53	
7.2.4	Printing and other media, % manufacturing	3.9	3	● ◆
7.2.5	Creative goods exports, % total trade	0.1	94	
7.3	**Online creativity**	**2.3**	**131**	○ ◇
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.9	98	
7.3.2	Country-code TLDs/th pop. 15–69	0.9	87	
7.3.3	Wikipedia edits/mn pop. 15–69	12.5	129	○ ◇
7.3.4	Mobile app creation/bn PPP$ GDP	0.0	103	○

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 IV 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 for Kenya

Code	Indicator name	Economy year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2017	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2018	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD Programme for International Student Assessment (PISA)
5.1.1	Knowledge-intensive employment, %	n/a	2019	International Labour Organization
7.2.2	National feature films/mn pop. 15–69	n/a	2017	UNESCO Institute for Statistics

Outdated data for Kenya

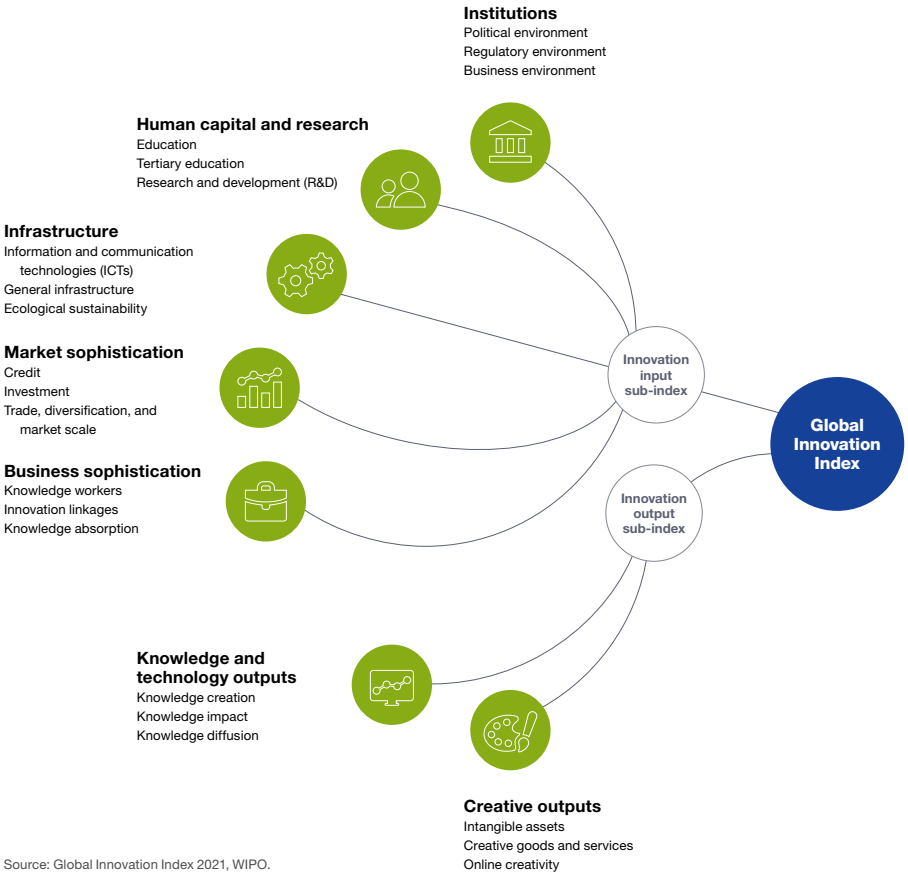
Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2015	2019	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2017	2018	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2016	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.2.3	Tertiary inbound mobility, %	2017	2018	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2010	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2010	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.1.3	Microfinance gross loans, % GDP	2017	2018	Microfinance Information Exchange
5.1.2	Firms offering formal training, %	2018	2019	World Bank

Code	Indicator name	Economy year	Model year	Source
5.1.3	GERD performed by business, % GDP	2010	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	2010	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2016	2019	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2010	2018	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	2010	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators

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 2021, WIPO.

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.