Global Innovation Index 2021

ETHIOPIA

126th Ethiopia ranks 126th 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 Ethiopia 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 Ethiopia in the GII 2021 is between ranks 123 and 129.

Rankings for Ethiopia (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	126	129	107
2020	127	130	110
2019	111	124	80

- Ethiopia performs better in innovation outputs than innovation inputs in 2021.
- This year Ethiopia ranks 129th in innovation inputs, higher than last year but lower than 2019.
- As for innovation outputs, Ethiopia ranks 107th. This position is higher than last year but lower than 2019.

10th Ethiopia ranks 10th among the 13 low-income group economies.

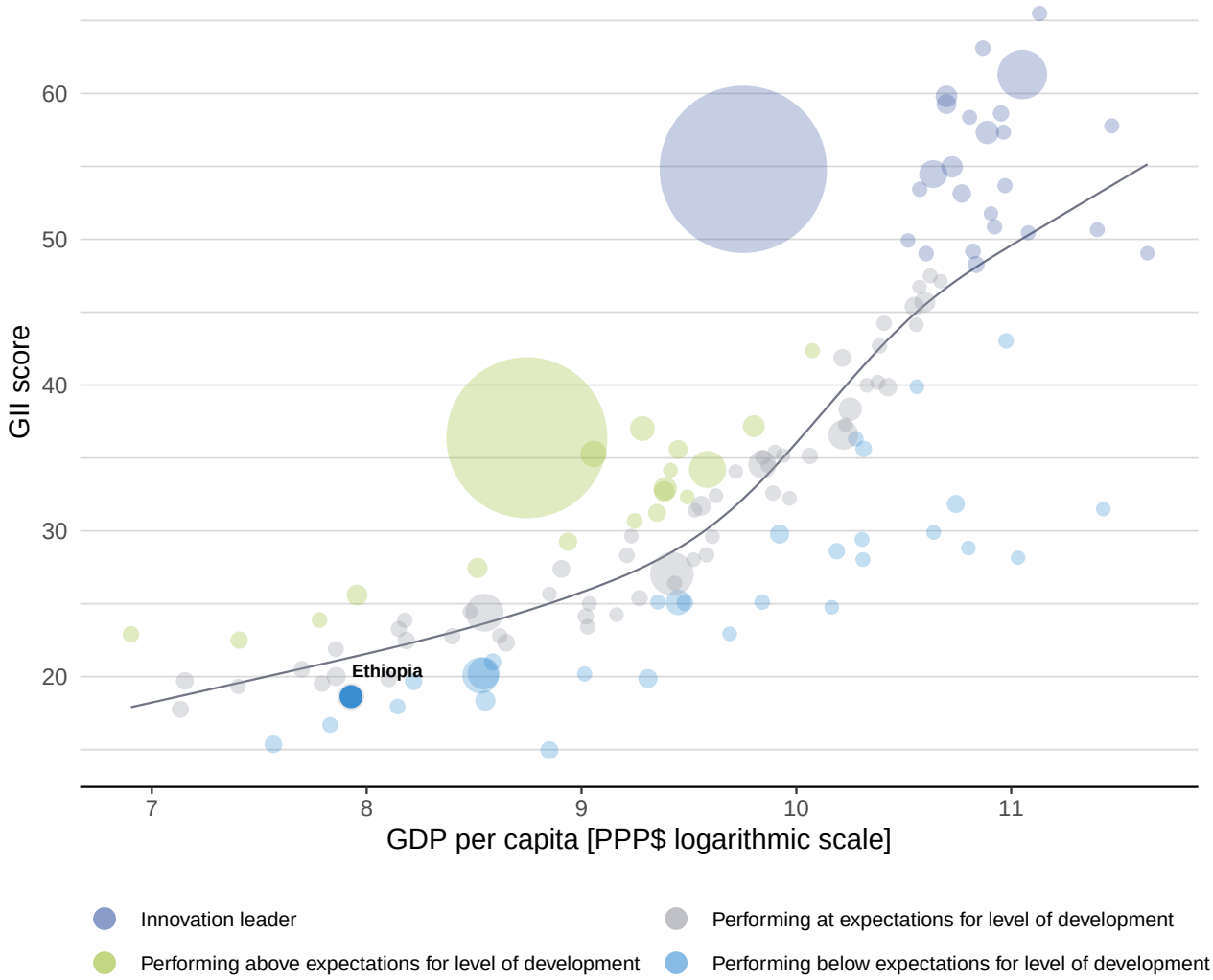
23rd Ethiopia ranks 23rd among the 27 economies in Sub-Saharan Africa.

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, Ethiopia's performance is below expectations for its level of development.

The positive relationship between innovation and development

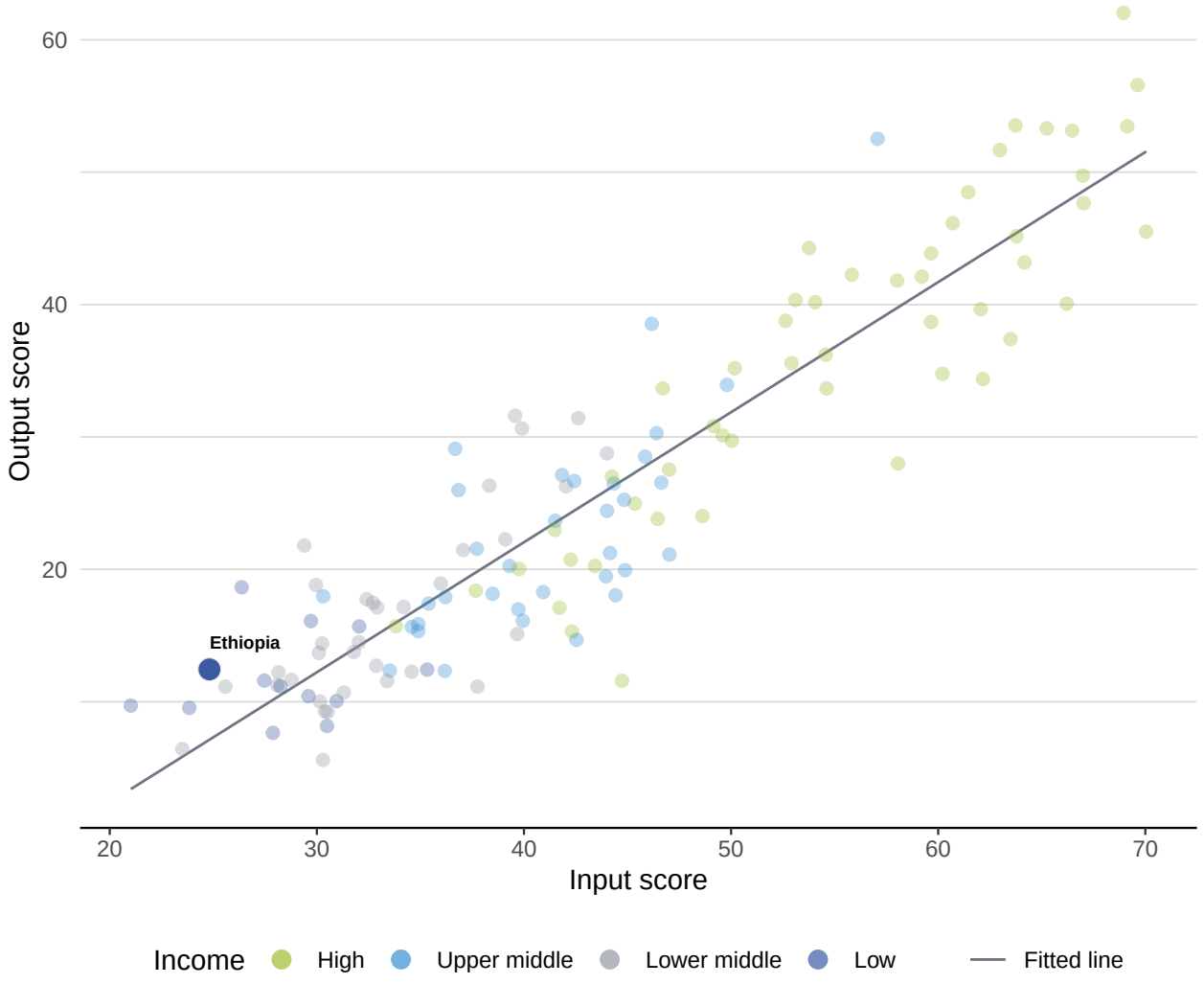


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance



BENCHMARKING AGAINST OTHER LOW-INCOME GROUP ECONOMIES AND SUB-SAHARAN AFRICA

The seven GII pillar scores for Ethiopia

Low-income group economies

Ethiopia performs above the low-income group average in two pillars, namely: Infrastructure; and, Knowledge and technology outputs.

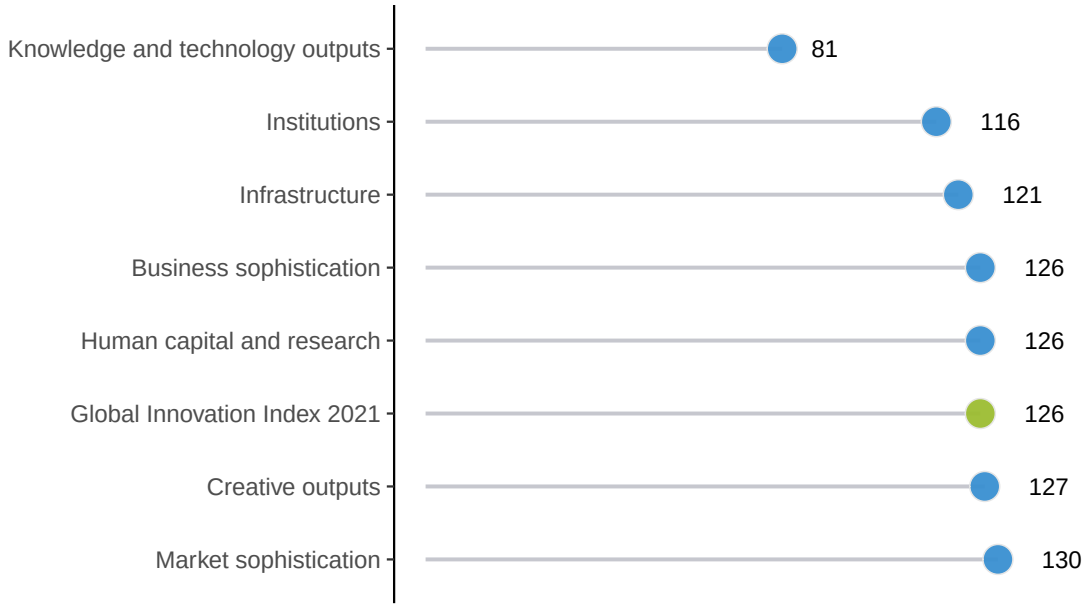
Sub-Saharan Africa

Ethiopia performs above the regional average in Knowledge and technology outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Ethiopia performs best in Knowledge and technology outputs and its weakest performance is in Market sophistication.

The seven GII pillar ranks for Ethiopia



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 Ethiopia in the GII 2021.

Strengths and weaknesses for Ethiopia

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.1.1	Expenditure on education, % GDP	49	2.1.5	Pupil-teacher ratio, secondary	123
3.2	General infrastructure	43	2.3.3	Global corporate R&D investors, top 3, mn US$	41
3.2.3	Gross capital formation, % GDP	11	2.3.4	QS university ranking, top 3	74
4.3.2	Domestic industry diversification	54	3.1.1	ICT access	132
4.3.3	Domestic market scale, bn PPP$	58	3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	132
5.2.3	GERD financed by abroad, % GDP	51	4.2	Investment	132
5.3.2	High-tech imports, % total trade	12	4.2.1	Ease of protecting minority investors	132
5.3.4	FDI net inflows, % GDP	30	5.2.5	Patent families/bn PPP$ GDP	100
6.1	Knowledge creation	57	6.2.3	Software spending, % GDP	125
6.1.3	Utility models by origin/bn PPP$ GDP	13	7.1.1	Trademarks by origin/bn PPP$ GDP	127
6.2.1	Labor productivity growth, %	5	7.3	Online creativity	132
7.2.4	Printing and other media, % manufacturing	21	7.3.3	Wikipedia edits/mn pop. 15–69	131
			7.3.4	Mobile app creation/bn PPP$ GDP	104

Ethiopia

GII 2021 rank **126**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
107	129	Low	SSF	115.0	272.0	2,772	127

		Score/ Value	Rank	
Institutions		**48.4**	**116**	
1.1	**Political environment**	**41.6**	**113**	
1.1.1	Political and operational stability*	51.8	119	
1.1.2	Government effectiveness*	36.5	107	
1.2	**Regulatory environment**	**52.6**	**100**	
1.2.1	Regulatory quality*	20.3	123	
1.2.2	Rule of law*	34.2	93	
1.2.3	Cost of redundancy dismissal	19.1	81	
1.3	**Business environment**	**51.0**	**126**	◇
1.3.1	Ease of starting a business*	71.7	122	◇
1.3.2	Ease of resolving insolvency*	30.3	119	◇
Human capital and research		**10.5**	**126**	
2.1	**Education**	**24.8**	**124**	
2.1.1	Expenditure on education, % GDP	4.7	49	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	16.8	67	
2.1.3	School life expectancy, years	8.4	116	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	43.7	123	○ ◇
2.2	**Tertiary education**	**5.1**	**[125]**	
2.2.1	Tertiary enrolment, % gross	8.1	118	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**1.6**	**100**	
2.3.1	Researchers, FTE/mn pop.	90.5	89	◆
2.3.2	Gross expenditure on R&D, % GDP	0.3	85	
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		**24.6**	**121**	
3.1	**Information and communication technologies (ICTs)**	**25.6**	**127**	
3.1.1	ICT access*	21.7	132	○ ◇
3.1.2	ICT use*	10.9	129	
3.1.3	Government's online service*	36.5	119	
3.1.4	E-participation*	33.3	120	
3.2	**General infrastructure**	**34.0**	**43**	●
3.2.1	Electricity output, GWh/mn pop.	124.3	121	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	36.7	11	●
3.3	**Ecological sustainability**	**14.1**	**127**	
3.3.1	GDP/unit of energy use	4.8	118	
3.3.2	Environmental performance*	34.4	105	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.0	132	○ ◇
Market sophistication		**26.1**	**130**	◇
4.1	**Credit**	**10.1**	**128**	
4.1.1	Ease of getting credit*	15.0	127	◇
4.1.2	Domestic credit to private sector, % GDP	n/a	n/a	
4.1.3	Microfinance gross loans, % GDP	0.0	66	
4.2	**Investment**	**4.0**	**132**	○ ◇
4.2.1	Ease of protecting minority investors*	10.0	132	○ ◇
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	87	
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	87	◇
4.3	**Trade, diversification, and market scale**	**64.3**	**76**	◆
4.3.1	Applied tariff rate, weighted avg., %	12.1	126	◇
4.3.2	Domestic industry diversification	89.1	54	●
4.3.3	Domestic market scale, bn PPP$	272.0	58	● ◆

		Score/ Value	Rank	
Business sophistication		**14.5**	**126**	
5.1	**Knowledge workers**	**5.4**	**130**	◇
5.1.1	Knowledge-intensive employment, %	4.5	119	
5.1.2	Firms offering formal training, %	20.8	74	
5.1.3	GERD performed by business, % GDP	0.0	88	
5.1.4	GERD financed by business, %	1.5	92	
5.1.5	Females employed w/advanced degrees, %	0.3	123	
5.2	**Innovation linkages**	**15.0**	**108**	
5.2.1	University-industry R&D collaboration†	39.6	78	
5.2.2	State of cluster development and depth†	37.7	110	
5.2.3	GERD financed by abroad, % GDP	0.1	51	●
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	105	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○ ◇
5.3	**Knowledge absorption**	**23.1**	**75**	
5.3.1	Intellectual property payments, % total trade	0.1	103	
5.3.2	High-tech imports, % total trade	15.2	12	● ◆
5.3.3	ICT services imports, % total trade	0.9	83	
5.3.4	FDI net inflows, % GDP	3.8	30	●
5.3.5	Research talent, % in businesses	2.2	76	
Knowledge and technology outputs		**16.2**	**81**	◆
6.1	**Knowledge creation**	**18.0**	**57**	● ◆
6.1.1	Patents by origin/bn PPP$ GDP	0.1	119	
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	1.7	13	●
6.1.4	Scientific and technical articles/bn PPP$ GDP	13.0	68	
6.1.5	Citable documents H-index	8.6	84	◆
6.2	**Knowledge impact**	**23.5**	**87**	
6.2.1	Labor productivity growth, %	5.3	5	● ◆
6.2.2	New businesses/th pop. 15–64	0.5	97	
6.2.3	Software spending, % GDP	0.0	125	○ ◇
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.2	130	
6.2.5	High-tech manufacturing, %	13.6	79	
6.3	**Knowledge diffusion**	**7.1**	**109**	
6.3.1	Intellectual property receipts, % total trade	0.0	78	
6.3.2	Production and export complexity	28.7	96	
6.3.3	High-tech exports, % total trade	0.3	97	
6.3.4	ICT services exports, % total trade	0.6	97	
Creative outputs		**8.7**	**127**	
7.1	**Intangible assets**	**13.0**	**124**	
7.1.1	Trademarks by origin/bn PPP$ GDP	2.3	127	○ ◇
7.1.2	Global brand value, top 5,000, % GDP	2.9	76	
7.1.3	Industrial designs by origin/bn PPP$ GDP	n/a	n/a	
7.1.4	ICTs and organizational model creation†	38.2	117	
7.2	**Creative goods and services**	**8.7**	**[85]**	
7.2.1	Cultural and creative services exports, % total trade	0.0	105	
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	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	1.8	21	●
7.2.5	Creative goods exports, % total trade	0.0	116	
7.3	**Online creativity**	**0.0**	**132**	○ ◇
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.0	130	
7.3.2	Country-code TLDs/th pop. 15–69	0.0	131	
7.3.3	Wikipedia edits/mn pop. 15–69	6.1	131	○ ◇
7.3.4	Mobile app creation/bn PPP$ GDP	0.0	104	○ ◇

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 Ethiopia.

Missing data for Ethiopia

Code	Indicator name	Economy year	Model year	Source
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD Programme for International Student Assessment (PISA)
2.2.2	Graduates in science and engineering, %	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.2.3	Tertiary inbound mobility, %	n/a	2018	UNESCO Institute for Statistics
3.2.2	Logistics performance	n/a	2018	World Bank
4.1.2	Domestic credit to private sector, % GDP	n/a	2019	International Monetary Fund
4.2.2	Market capitalization, % GDP	n/a	2019	World Federation of Exchanges
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	2020	World Intellectual Property Organization
7.1.3	Industrial designs by origin/bn PPP$ GDP	n/a	2019	World Intellectual Property Organization
7.2.2	National feature films/mn pop. 15–69	n/a	2017	UNESCO Institute for Statistics
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC

Outdated data for Ethiopia

Code	Indicator name	Economy year	Model year	Source
2.1.1	Expenditure on education, % GDP	2015	2017	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2017	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2012	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2015	2019	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2014	2018	UNESCO Institute for Statistics

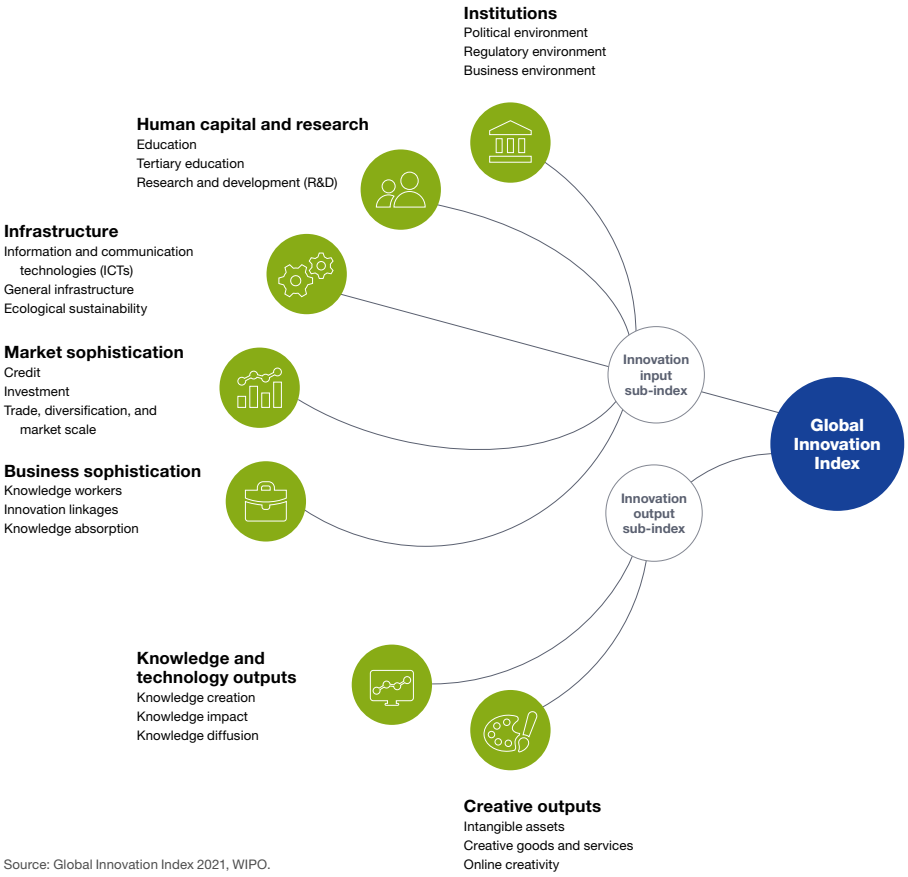
Code	Indicator name	Economy year	Model year	Source
2.3.1	Researchers, FTE/mn pop.	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.3.1	Applied tariff rate, weighted avg., %	2018	2019	World Bank
4.3.2	Domestic industry diversification	2015	2018	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2013	2019	International Labour Organization
5.1.2	Firms offering formal training, %	2015	2019	World Bank
5.1.3	GERD performed by business, % GDP	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2013	2019	International Labour Organization
5.2.1	University-industry R&D collaboration	2019	2020	World Economic Forum
5.2.2	State of cluster development and depth	2019	2020	World Economic Forum
5.2.3	GERD financed by abroad, % GDP	2017	2018	UNESCO Institute for Statistics
5.3.2	High-tech imports, % total trade	2018	2019	United Nations, COMTRADE
5.3.5	Research talent, % in businesses	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.1.1	Patents by origin/bn PPP$ GDP	2018	2019	World Intellectual Property Organization
6.1.3	Utility models by origin/bn PPP$ GDP	2018	2019	World Intellectual Property Organization
6.2.5	High-tech manufacturing, %	2015	2018	United Nations Industrial Development Organization
6.3.3	High-tech exports, % total trade	2018	2019	United Nations, COMTRADE
7.1.1	Trademarks by origin/bn PPP$ GDP	2018	2019	World Intellectual Property Organization

Code	Indicator name	Economy year	Model year	Source
7.2.4	Printing and other media, % manufacturing	2013	2018	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2018	2019	United Nations, COMTRADE
7.3.4	Mobile app creation/bn PPP$ GDP	2019	2020	App Annie

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.