GLOBAL INNOVATION INDEX 2020

ETHIOPIA

127th Ethiopia ranks 127th 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 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 2020 is between ranks 120 and 128.

Rankings of Ethiopia (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	127	130	110
2019	111	124	80
2018	n/a	n/a	n/a

- Ethiopia performs better in innovation outputs than innovation inputs in 2020.
- This year Ethiopia ranks 130th in innovation inputs, lower than last year.
- As for innovation outputs, Ethiopia ranks 110th. This position is lower than last year.

13th Ethiopia ranks 13th among the 16 low-income group economies.

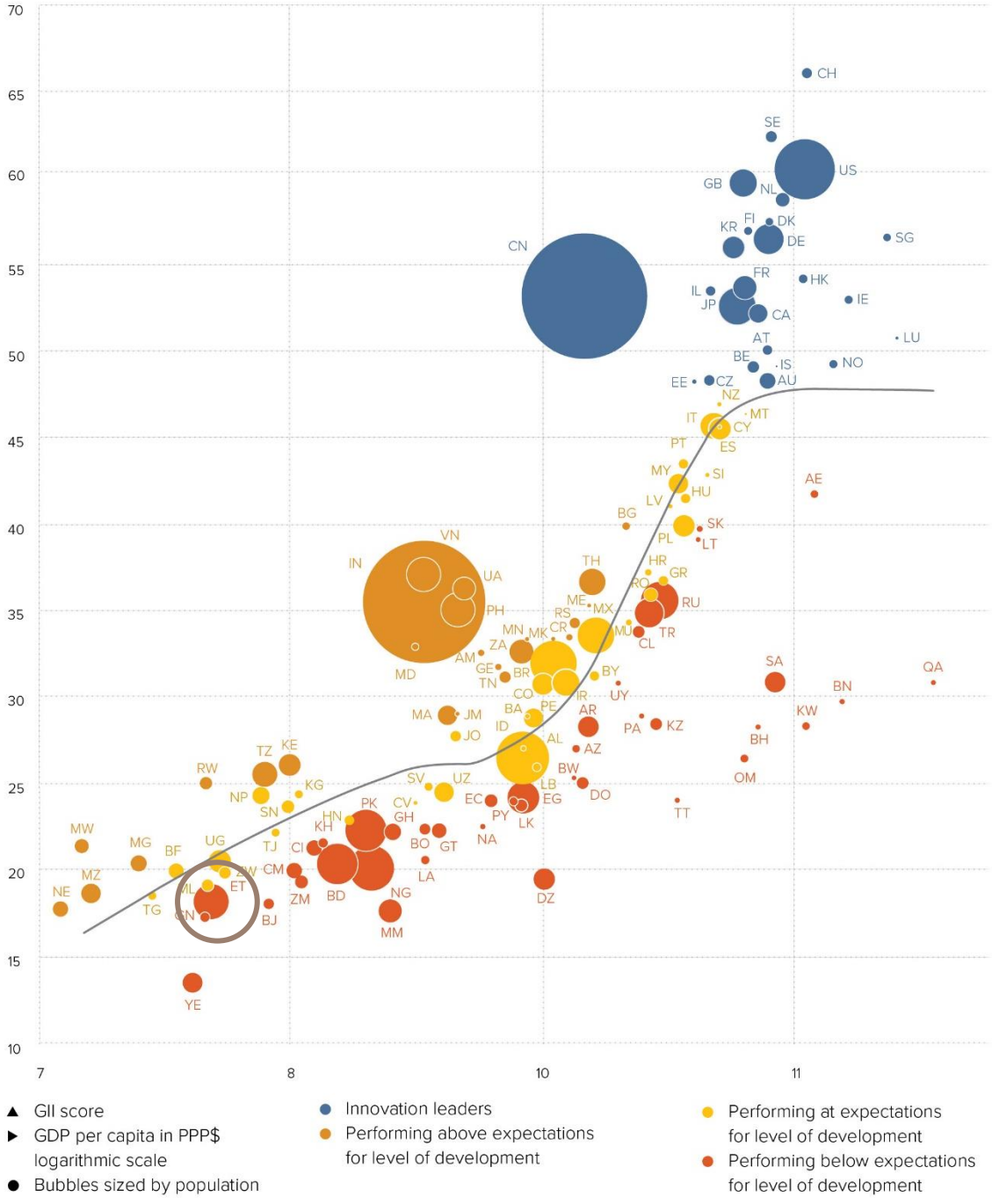
24th Ethiopia ranks 24th among the 26 economies in Sub-Saharan Africa.

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, Ethiopia is performing below expectations for its level of development.

The positive relationship between innovation and development

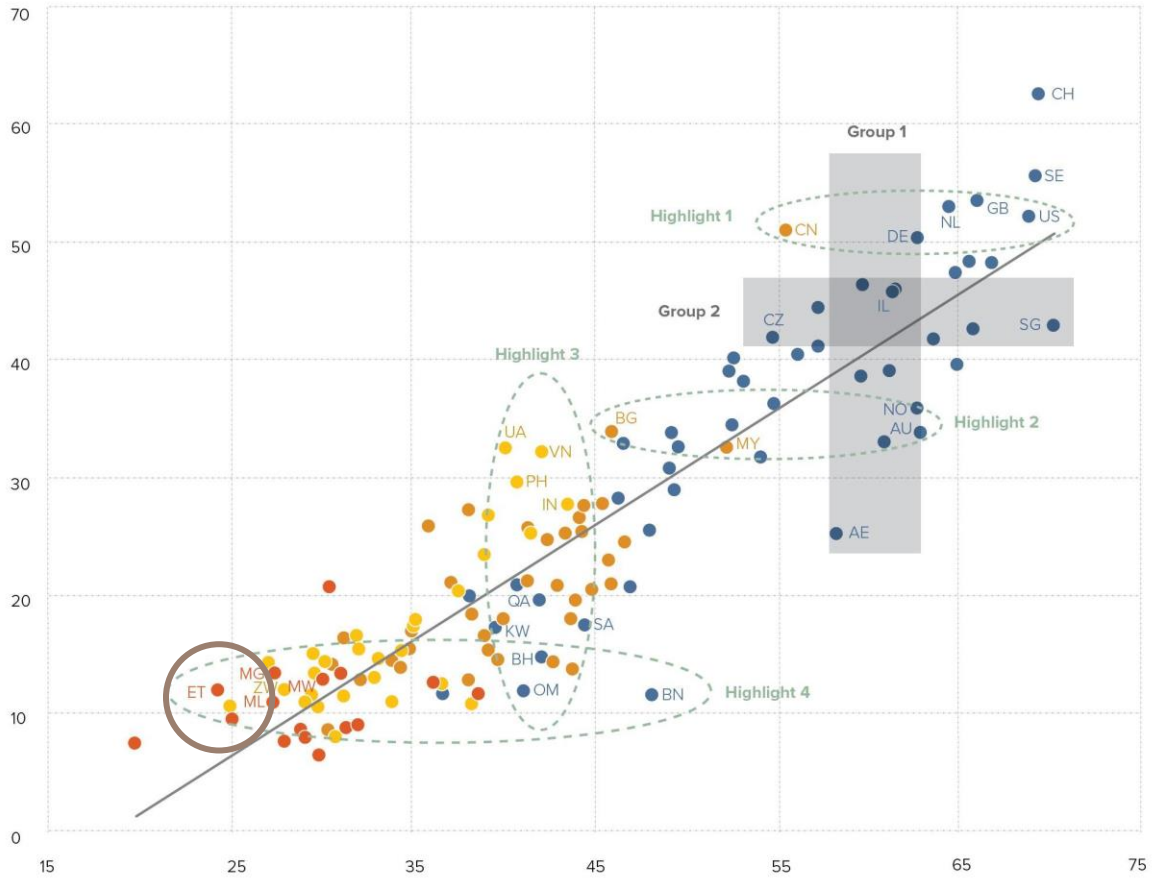


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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, 2020



▲ Output score
► Input score

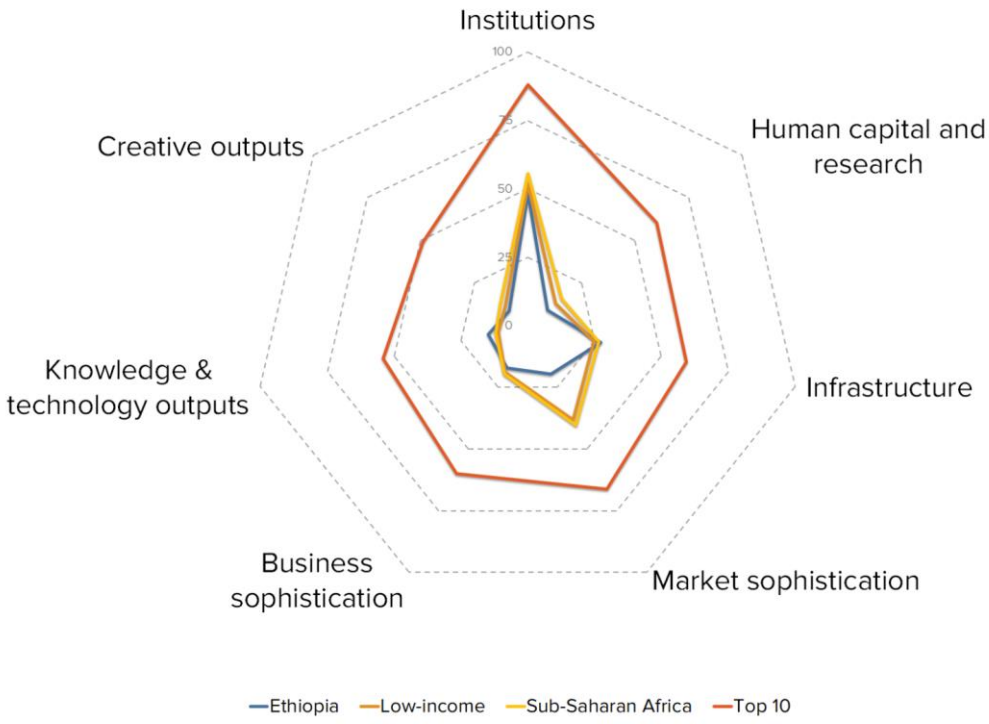
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

— 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 ETHIOPIA AGAINST OTHER LOW-INCOME GROUP ECONOMIES AND SUB-SAHARAN AFRICA

Ethiopia's scores in the seven GII pillars



Low-income group economies

Ethiopia has high scores in two out of the seven GII pillars: Infrastructure and Knowledge & technology outputs, which are above average for the low-income group.

Conversely, Ethiopia scores below average for its income group in five pillars: Institutions, Human capital & research, Market sophistication, Business sophistication and Creative outputs.

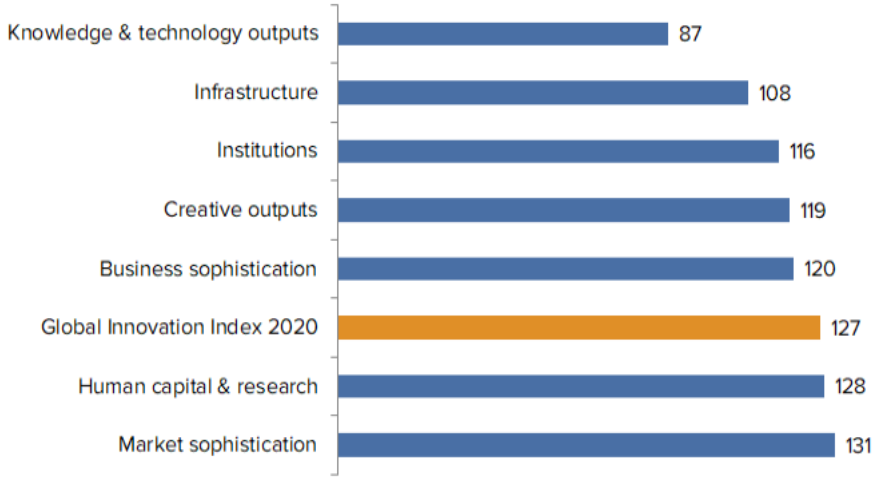
Sub-Saharan Africa

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

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

OVERVIEW OF ETHIOPIA RANKINGS IN THE SEVEN GII AREAS

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



*The highest possible ranking in each pillar is 1.

INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths

Code	Indicator name	Rank
2.1.1	Expenditure on education, % GDP	52
3.2	General infrastructure	52
3.2.3	Gross capital formation, % GDP	11
4.3.3	Domestic market scale, bn PPP$	61
5.2.3	GERD financed by abroad, % GDP	49
5.3	Knowledge absorption	60
5.3.2	High-tech imports, % total trade	6
5.3.4	FDI net inflows, % GDP	28
6.1.3	Utility models by origin/bn PPP$ GDP	12
6.2.1	Growth rate of PPP$ GDP/worker, %	10
6.3.4	FDI net outflows, % GDP	10
7.2.4	Printing & other media, % manufacturing	20

Weaknesses

Code	Indicator name	Rank
2.1.5	Pupil-teacher ratio, secondary	124
2.3.3	Global R&D companies, top 3, mn US$	42
2.3.4	QS university ranking, average score top 3*	77
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	131
4	Market sophistication	131
4.2	Investment	131
4.2.1	Ease of protecting minority investors*	131
4.3.2	Intensity of local competition†	127
5.2.5	Patent families 2+ offices/bn PPP$ GDP	101
6.2.3	Computer software spending, % GDP	125
7.1.1	Trademarks by origin/bn PPP$ GDP	126
7.3	Online creativity	131
7.3.2	Country-code TLDs/th pop. 15–69	131
7.3.4	Mobile app creation/bn PPP$ GDP	102

STRENGTHS

GII strengths for Ethiopia are found in six of the seven GII pillars.

- Human capital & research (128): the indicator Expenditure on education (52) reveals a strength.
- Infrastructure (108): exhibits strengths in the sub-pillar General infrastructure (52) and in the indicator Gross capital formation (11).
- Market sophistication (131): the indicator Domestic market scale (61) demonstrates a strength.
- Business sophistication (120): displays strengths in the sub-pillar Knowledge absorption (60) and in the indicators GERD financed by abroad (49), High-tech imports (6) and FDI net inflows (28).
- Knowledge & technology outputs (87): reveals strengths in the indicators Utility models by origin (12), Growth rate of PPP (10) and FDI net outflows (10).
- Creative outputs (119): the indicator Printing & other media (20) displays a strength.

WEAKNESSES

GII weaknesses for Ethiopia are found in six of the seven GII pillars.

- Human capital & research (128): shows weaknesses in the indicators Pupil–teacher ratio (124), Global R&D companies (42) and QS university ranking (77).
- Infrastructure (108): displays weakness in the indicator ISO 14001 environmental certificates (131).
- Market sophistication (131): shows weaknesses in the sub-pillar Investment (131) and in the indicators Ease of protecting minority investors (131) and Intensity of local competition (127).
- Business sophistication (120): the indicator Patent families (101) demonstrates a weakness.
- Knowledge & technology outputs (87): displays weakness in the indicator Computer software spending (125).
- Creative outputs (119): exhibits weaknesses in the sub-pillar Online creativity (131) and in the indicators Trademarks by origin (126), Country-code TLDs (131) and Mobile app creation (102).

ETHIOPIA

GII 2020 rank

127

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
110	130	Low	SSF	112.1	240.2	2,192.2	111

		Score/Value	Rank	
INSTITUTIONS		**48.6**	**116**	
1.1	**Political environment**	**42.8**	**113**	
1.1.1	Political and operational stability*	55.4	116	
1.1.2	Government effectiveness*	36.6	108	
1.2	**Regulatory environment**	**51.9**	**99**	
1.2.1	Regulatory quality*	16.1	125	
1.2.2	Rule of law*	35.5	91	
1.2.3	Cost of redundancy dismissal, salary weeks	19.1	80	
1.3	**Business environment**	**51.0**	**126**	◇
1.3.1	Ease of starting a business*	71.7	121	◇
1.3.2	Ease of resolving insolvency*	30.3	119	◇
HUMAN CAPITAL & RESEARCH		**9.3**	**128**	
2.1	**Education**	**20.9**	**125**	
2.1.1	Expenditure on education, % GDP	4.7	52	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	16.8	69	
2.1.3	School life expectancy, years	8.4	116	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	40.4	124	○ ◇
2.2	**Tertiary education**	**5.4**	**[124]**	
2.2.1	Tertiary enrolment, % gross	8.1	114	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research & development (R&D)**	**1.6**	**101**	
2.3.1	Researchers, FTE/mn pop.	90.5	89	◆
2.3.2	Gross expenditure on R&D, % GDP	0.3	83	
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	0.0	42	○ ◇
2.3.4	QS university ranking, average score top 3*	0.0	77	○ ◇
INFRASTRUCTURE		**27.3**	**108**	
3.1	**Information & communication technologies (ICTs)**	**38.3**	**113**	
3.1.1	ICT access*	21.7	130	◇
3.1.2	ICT use*	10.9	128	
3.1.3	Government's online service*	63.2	88	◆
3.1.4	E-participation*	57.3	96	
3.2	**General infrastructure**	**29.8**	**52**	●
3.2.1	Electricity output, kWh/mn pop	132.8	119	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	38.5	11	●
3.3	**Ecological sustainability**	**13.9**	**127**	
3.3.1	GDP/unit of energy use	4.2	116	
3.3.2	Environmental performance*	34.4	105	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.0	131	○ ◇
MARKET SOPHISTICATION		**19.6**	**131**	○ ◇
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**	**5.1**	**131**	○ ◇
4.2.1	Ease of protecting minority investors*	10.0	131	○ ◇
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Venture capital deals/bn PPP$ GDP	0.0	79	
4.3	**Trade, competition, and market scale**	**43.7**	**127**	
4.3.1	Applied tariff rate, weighted avg., %	12.1	125	◇
4.3.2	Intensity of local competition+	45.6	127	○ ◇
4.3.3	Domestic market scale, bn PPP$	240.2	61	● ◆

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**17.1**	**120**	
5.1	**Knowledge workers**	**5.5**	**128**	◇
5.1.1	Knowledge-intensive employment, %	4.5	115	
5.1.2	Firms offering formal training, %	20.8	72	
5.1.3	GERD performed by business, % GDP	0.0	87	
5.1.4	GERD financed by business, %	1.5	95	
5.1.5	Females employed w/advanced degrees, %	0.3	119	
5.2	**Innovation linkages**	**15.3**	**110**	
5.2.1	University/industry research collaboration+	39.6	76	
5.2.2	State of cluster development+	37.7	105	
5.2.3	GERD financed by abroad, % GDP	0.1	49	●
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.0	103	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.0	101	○ ◇
5.3	**Knowledge absorption**	**30.5**	**60**	●
5.3.1	Intellectual property payments, % total trade	0.0	113	
5.3.2	High-tech imports, % total trade	22.2	6	● ◆
5.3.3	ICT services imports, % total trade	0.7	91	
5.3.4	FDI net inflows, % GDP	4.8	28	●
5.3.5	Research talent, % in business enterprise	2.2	76	
KNOWLEDGE & TECHNOLOGY OUTPUTS		**14.7**	**87**	◆
6.1	**Knowledge creation**	**14.2**	**66**	◆
6.1.1	Patents by origin/bn PPP$ GDP	0.1	124	
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	1.8	12	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.5	82	
6.1.5	Citable documents H-index	8.2	84	◆
6.2	**Knowledge impact**	**18.3**	**88**	◆
6.2.1	Growth rate of PPP$ GDP/worker, %	4.9	10	● ◆
6.2.2	New businesses/th pop. 15-64	0.5	97	
6.2.3	Computer software spending, % GDP	0.0	125	○ ◇
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.2	128	◇
6.2.5	High- and medium-high-tech manufacturing, %	13.5	72	◆
6.3	**Knowledge diffusion**	**11.7**	**112**	
6.3.1	Intellectual property receipts, % total trade	0.0	105	
6.3.2	High-tech net exports, % total trade	0.1	115	
6.3.3	ICT services exports, % total trade	0.6	93	
6.3.4	FDI net outflows, % GDP	4.7	10	● ◆
CREATIVE OUTPUTS		**8.8**	**119**	
7.1	**Intangible assets**	**13.2**	**119**	
7.1.1	Trademarks by origin/bn PPP$ GDP	2.5	126	○ ◇
7.1.2	Global brand value, top 5,000, % GDP	4.2	70	
7.1.3	Industrial designs by origin/bn PPP$ GDP	n/a	n/a	
7.1.4	ICTs & organizational model creation+	38.2	117	
7.2	**Creative goods and services**	**8.7**	**[83]**	
7.2.1	Cultural & creative services exports, % total trade	0.0	100	
7.2.2	National feature films/mn pop. 15-69	n/a	n/a	
7.2.3	Entertainment & Media market/th pop. 15-69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	1.8	20	● ◆
7.2.5	Creative goods exports, % total trade	0.0	116	
7.3	**Online creativity**	**0.0**	**131**	○ ◇
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	n/a	n/a	
7.3.4	Mobile app creation/bn PPP$ GDP	0.0	102	○ ◇

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 Ethiopia.

Missing data

Code	Indicator name	Country year	Model year	Source
2.1.4	PISA scales in reading, maths & science	n/a	2018	OECD Programme for International Student Assessment (PISA)
2.2.2	Graduates in science & engineering, %	n/a	2017	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	n/a	2017	UNESCO Institute for Statistics
3.2.2	Logistics performance*	n/a	2018	World Bank and Turku School of Economics
4.1.2	Domestic credit to private sector, % GDP	n/a	2018	International Monetary Fund
4.2.2	Market capitalization, % GDP	n/a	2018	World Federation of Exchanges
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	2019	World Intellectual Property Organization
7.1.3	Industrial designs by origin/bn PPP$ GDP	n/a	2018	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 & Media market/th pop. 15–69	n/a	2018	PwC
7.3.3	Wikipedia edits/mn pop. 15–69	n/a	2019	Wikimedia Foundation

Outdated data

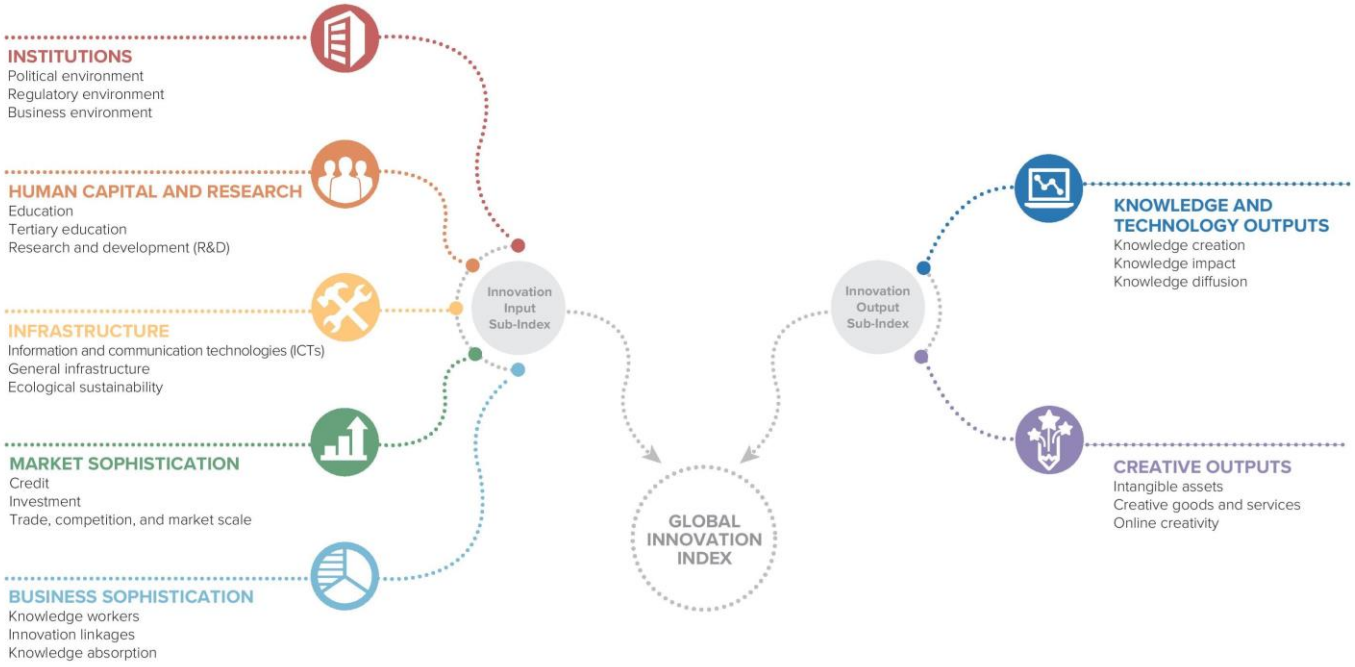
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2015	2018	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2016	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2012	2017	UNESCO Institute for Statistics
2.1.5	Pupil–teacher ratio, secondary	2012	2018	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2014	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
3.1.1	ICT access*	2017	2018	GII Special Tabulation
3.1.2	ICT use*	2017	2018	GII Special Tabulation
5.1.1	Knowledge-intensive employment, %	2013	2018	International Labour Organization
5.1.2	Firms offering formal training, %	2014	2018	World Bank
5.1.3	GERD performed by business, % GDP	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2013	2018	International Labour Organization
5.3.1	Intellectual property payments, % total trade	2017	2018	World Trade Organization
5.3.2	High-tech imports, % total trade	2016	2018	United Nations, COMTRADE
5.3.3	ICT services imports, % total trade	2017	2018	World Trade Organization
5.3.5	Research talent, % in business enterprise	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
6.2.5	High- & medium-high-tech manufacturing, %	2013	2017	United Nations Industrial Development Organization
6.3.1	Intellectual property receipts, % total trade	2017	2018	World Trade Organization
6.3.2	High-tech net exports, % total trade	2016	2018	United Nations, COMTRADE
6.3.3	ICT services exports, % total trade	2017	2018	World Trade Organization
7.2.4	Printing & other media, % manufacturing	2013	2017	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2017	2018	United Nations, COMTRADE

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.