GLOBAL INNOVATION INDEX 2020

MOZAMBIQUE

124th Mozambique ranks 124th 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 Mozambique 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 Mozambique in the GII 2020 is between ranks 123 and 130.

Rankings of Mozambique (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	124	122	125
2019	119	118	114
2018	115	112	109

- Mozambique performs better in innovation inputs than innovation outputs in 2020.
- This year Mozambique ranks 122nd in innovation inputs, lower than last year and lower compared to 2018.
- As for innovation outputs, Mozambique ranks 125th. This position is lower than last year and lower compared to 2018.

10th Mozambique ranks 10th among the 16 low-income group economies.

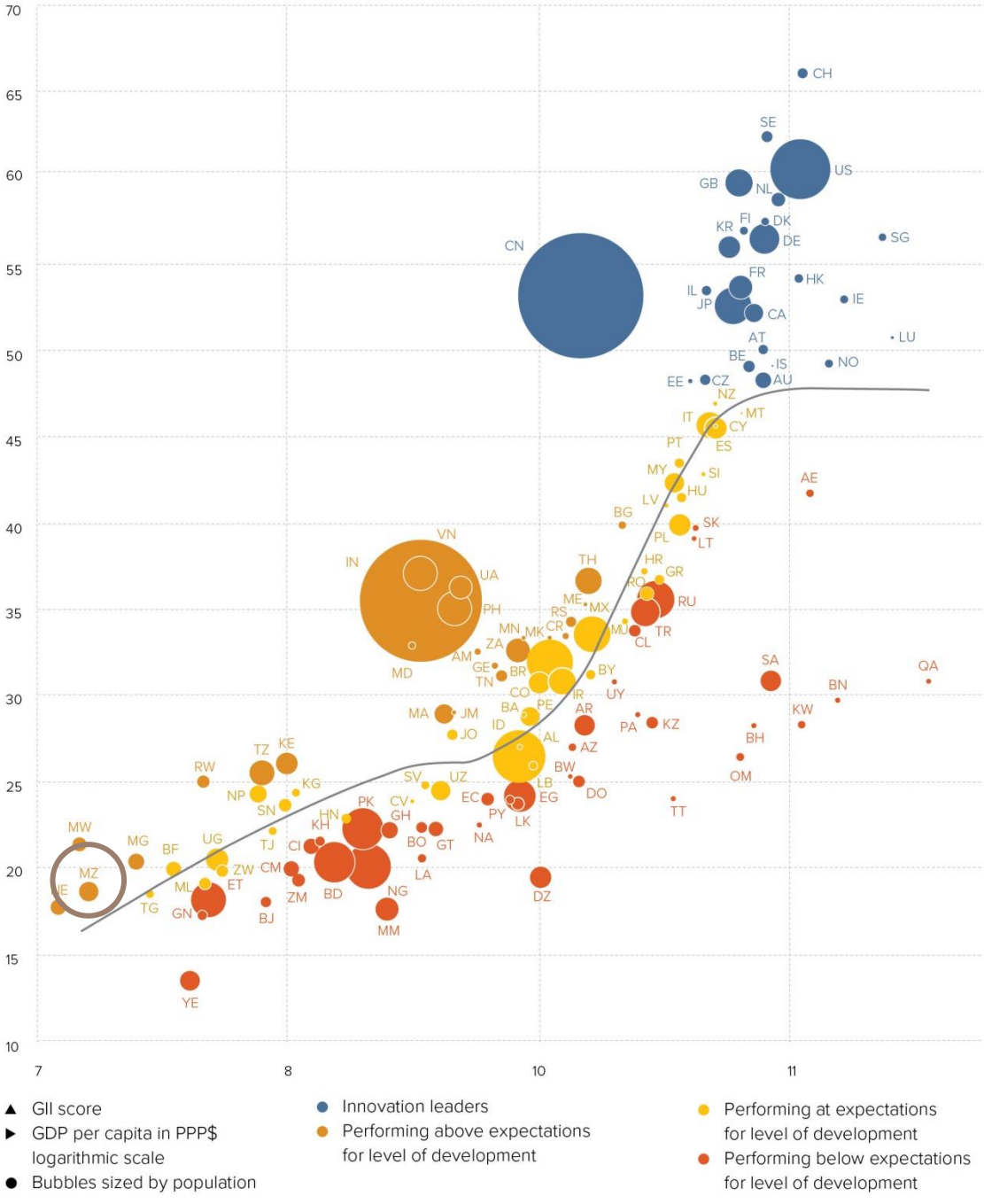
21st Mozambique ranks 21st among the 26 economies in Sub-Saharan Africa.

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

The positive relationship between innovation and development

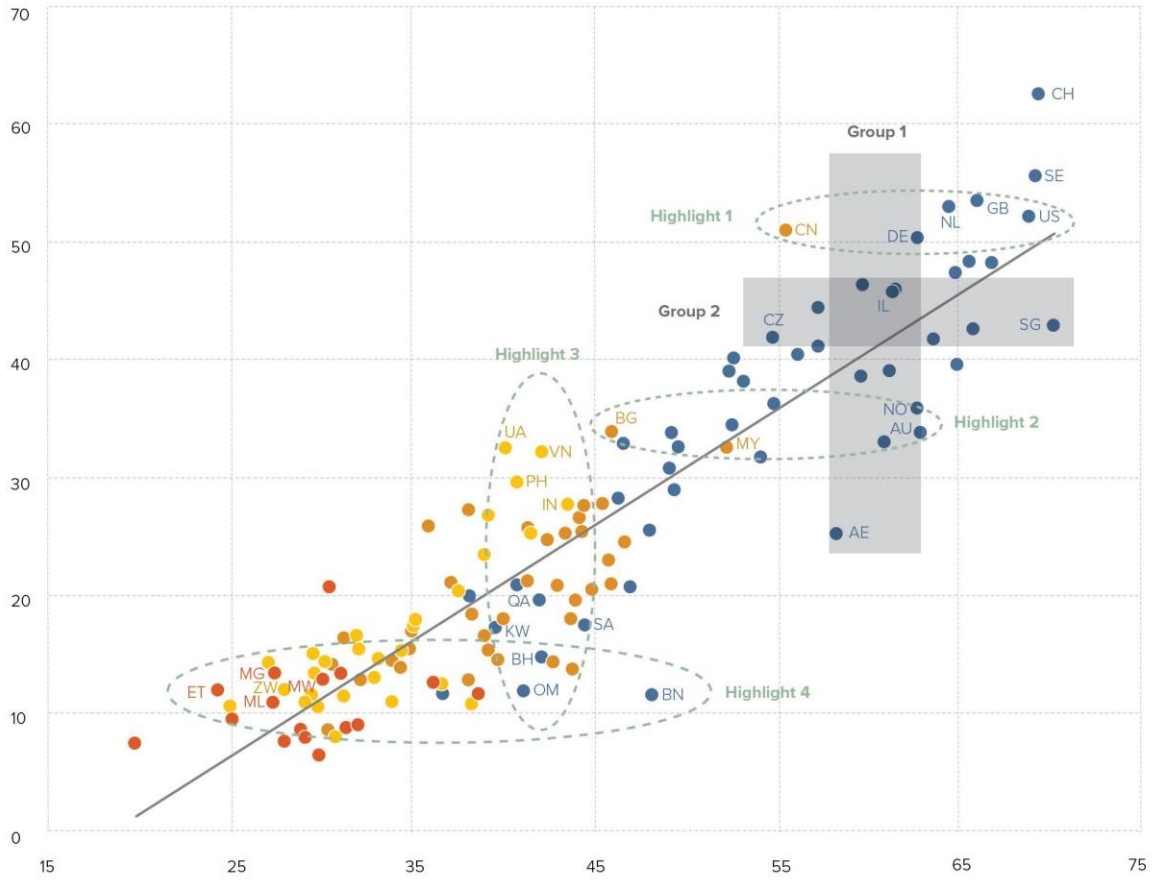


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Mozambique produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020



▲ Output score
► Input score

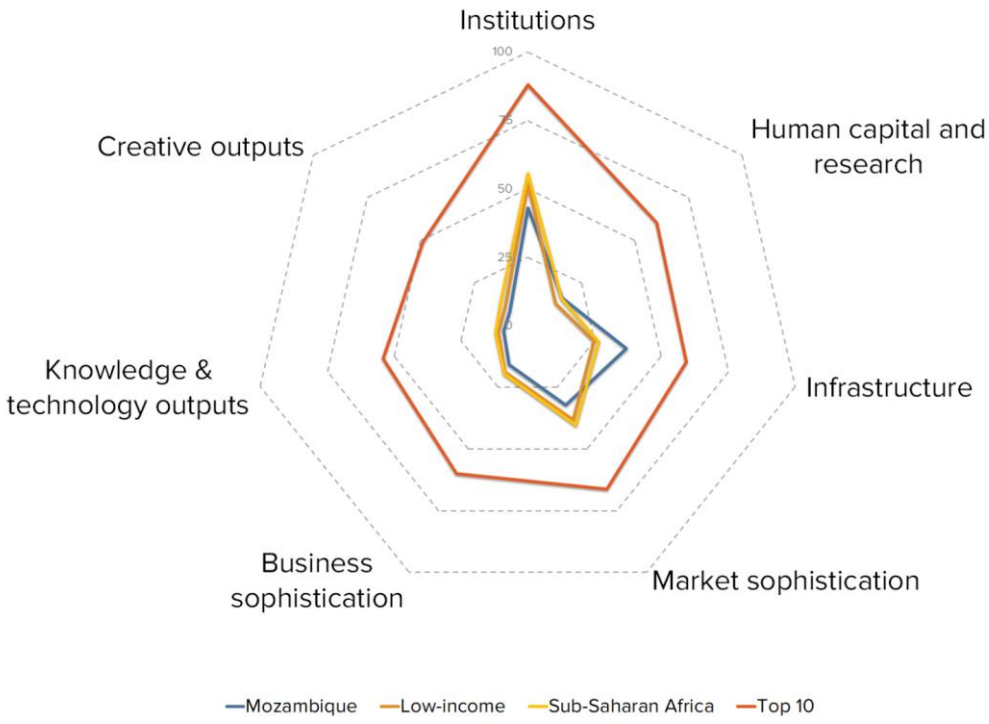
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

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

Mozambique's scores in the seven GII pillars



Low-income group economies

Mozambique has high scores in two out of the seven GII pillars: Human capital & research and Infrastructure, which are above average for the low-income group.

Conversely, Mozambique scores below average for its income group in five GII pillars: Institutions, Market sophistication, Business sophistication, Knowledge & technology outputs and Creative outputs.

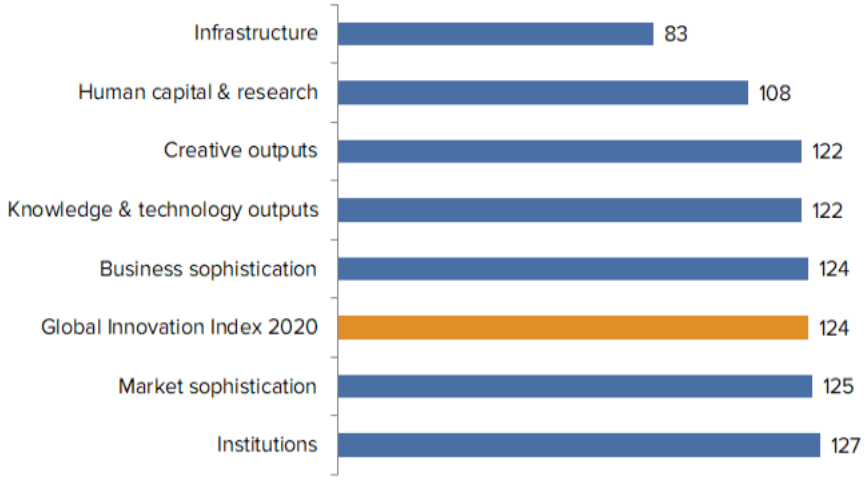
Sub-Saharan Africa

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

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

OVERVIEW OF MOZAMBIQUE RANKINGS IN THE SEVEN GII AREAS

Mozambique performs best in Infrastructure and its weakest performance is in Institutions.



*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 Mozambique in the GII 2020.

Strengths

Code	Indicator name	Rank
1.3.2	Ease of resolving insolvency*	78
2.1	Education	72
2.1.1	Expenditure on education, % GDP	18
2.1.2	Government funding/pupil, secondary, % GDP/cap	3
3.2	General infrastructure	1
3.2.3	Gross capital formation, % GDP	1
4.3.1	Applied tariff rate, weighted avg., %	78
5.2	Innovation linkages	42
5.2.3	GERD financed by abroad, % GDP	31
5.2.4	JV–strategic alliance deals/bn PPP$ GDP	33
5.3.3	ICT services imports, % total trade	71
5.3.4	FDI net inflows, % GDP	5
6.1.1	Patents by origin/bn PPP$ GDP	68

Weaknesses

Code	Indicator name	Rank
2.1.5	Pupil-teacher ratio, secondary	123
2.2	Tertiary education	128
2.2.2	Graduates in science & engineering, %	106
2.3.3	Global R&D companies, top 3, mn US$	42
2.3.4	QS university ranking, average score top 3*	77
3.1.2	ICT use*	130
3.3	Ecological sustainability	129
3.3.1	GDP/unit of energy use	120
4.3.2	Intensity of local competition†	124
5.1	Knowledge workers	129
5.1.3	GERD performed by business, % GDP	88
5.3.5	Research talent, % in business enterprise	85
7.1.2	Global brand value, top 5000, % GDP	80
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	129

STRENGTHS

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

- Institutions (127): exhibits strengths in the indicator Ease of resolving insolvency (78).
- Human capital & research (108): shows strengths in the sub-pillar Education (72) and in the indicators Expenditure on education (18) and Government funding/pupil (3).
- Infrastructure (83): demonstrates strengths in the sub-pillar General infrastructure (1) and in the indicator Gross capital formation (1).
- Market sophistication (125): displays strengths in the indicator Applied tariff rate (78).
- Business sophistication (124): shows strengths in the sub-pillar Innovation linkages (42) and in the indicators GERD financed by abroad (31), JV–strategic alliance deals (33), ICT services imports (71) and FDI net inflows (5).
- Knowledge & technology outputs (122): reveals strengths in the indicator Patents by origin (68).

WEAKNESSES

GII weaknesses for Mozambique are found in five of the seven GII pillars.

- Human capital & research (108): exhibits weaknesses in the sub-pillar Tertiary education (128) and in the indicators Pupil-teacher ratio (123), Graduates in science & engineering (106), Global R&D companies (42) and QS university ranking (77).
- Infrastructure (83): displays weaknesses in the sub-pillar Ecological sustainability (129) and in the indicators ICT use (130) and GDP/unit of energy use (120).
- Market sophistication (125): shows weaknesses in the indicator Intensity of local competition (124).
- Business sophistication (124): demonstrates weaknesses in the sub-pillar Knowledge workers (129) and in the indicators GERD performed by business (88) and Research talent (85).
- Creative outputs (122): reveals weaknesses in the indicators Global brand value (80) and Generic top-level domains (129).

MOZAMBIQUE

GII 2020 rank

124

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
125	122	Low	SSF	30.4	40.6	1,137.6	119

		Score/Value	Rank	
INSTITUTIONS		**43.1**	**127**	◇
1.1	**Political environment**	**39.5**	**121**	
1.1.1	Political and operational stability*	57.1	110	
1.1.2	Government effectiveness*	30.6	121	
1.2	**Regulatory environment**	**31.3**	**125**	◇
1.2.1	Regulatory quality*	22.6	113	
1.2.2	Rule of law*	19.5	122	
1.2.3	Cost of redundancy dismissal, salary weeks	37.5	125	◇
1.3	**Business environment**	**58.5**	**108**	
1.3.1	Ease of starting a business*	69.3	126	◇
1.3.2	Ease of resolving insolvency*	47.8	78	● ◆
HUMAN CAPITAL & RESEARCH		**16.1**	**108**	
2.1	**Education**	**44.3**	**72**	● ◆
2.1.1	Expenditure on education, % GDP	5.6	18	● ◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	42.5	3	● ◆
2.1.3	School life expectancy, years	10.0	109	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	36.5	123	○ ◇
2.2	**Tertiary education**	**2.2**	**128**	○ ◇
2.2.1	Tertiary enrolment, % gross	7.3	115	
2.2.2	Graduates in science & engineering, %	9.6	106	○ ◇
2.2.3	Tertiary inbound mobility, %	0.4	103	
2.3	**Research & development (R&D)**	**1.7**	**99**	
2.3.1	Researchers, FTE/mn pop.	43.0	95	
2.3.2	Gross expenditure on R&D, % GDP	0.3	77	
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	0.0	42	○ ◇
2.3.4	QS university ranking, average score top 3*	0.0	77	○ ◇
INFRASTRUCTURE		**37.0**	**83**	◆
3.1	**Information & communication technologies (ICTs)**	**30.2**	**122**	
3.1.1	ICT access*	25.7	126	
3.1.2	ICT use*	8.5	130	○ ◇
3.1.3	Government's online service*	42.4	115	
3.1.4	E-participation*	44.4	108	
3.2	**General infrastructure**	**67.3**	**1**	● ◆
3.2.1	Electricity output, kWh/mn pop	572.7	105	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	76.8	1	● ◆
3.3	**Ecological sustainability**	**13.5**	**129**	○
3.3.1	GDP/unit of energy use	3.1	120	○
3.3.2	Environmental performance*	33.9	106	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.5	84	◆
MARKET SOPHISTICATION		**32.2**	**125**	
4.1	**Credit**	**13.8**	**126**	
4.1.1	Ease of getting credit*	25.0	126	
4.1.2	Domestic credit to private sector, % GDP	23.0	110	
4.1.3	Microfinance gross loans, % GDP	0.2	51	
4.2	**Investment**	**32.0**	**[88]**	
4.2.1	Ease of protecting minority investors*	32.0	120	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Venture capital deals/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, competition, and market scale**	**50.6**	**113**	
4.3.1	Applied tariff rate, weighted avg., %	4.2	78	● ◆
4.3.2	Intensity of local competition+	54.9	124	○
4.3.3	Domestic market scale, bn PPP$	40.6	110	

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**15.8**	**124**	
5.1	**Knowledge workers**	**5.0**	**129**	○ ◇
5.1.1	Knowledge-intensive employment, %	3.9	117	
5.1.2	Firms offering formal training, %	20.7	73	
5.1.3	GERD performed by business, % GDP	0.0	88	○ ◇
5.1.4	GERD financed by business, %	0.5	98	
5.1.5	Females employed w/advanced degrees, %	0.7	113	
5.2	**Innovation linkages**	**26.2**	**42**	●
5.2.1	University/industry research collaboration+	34.0	100	
5.2.2	State of cluster development+	35.0	112	
5.2.3	GERD financed by abroad, % GDP	0.1	31	●
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.1	33	● ◆
5.2.5	Patent families 2+ offices/bn PPP$ GDP	n/a	n/a	
5.3	**Knowledge absorption**	**16.3**	**122**	
5.3.1	Intellectual property payments, % total trade	0.2	89	
5.3.2	High-tech imports, % total trade	4.3	117	
5.3.3	ICT services imports, % total trade	1.0	71	●
5.3.4	FDI net inflows, % GDP	20.6	5	● ◆
5.3.5	Research talent, % in business enterprise	0.3	85	○
KNOWLEDGE & TECHNOLOGY OUTPUTS		**8.9**	**122**	
6.1	**Knowledge creation**	**5.9**	**99**	
6.1.1	Patents by origin/bn PPP$ GDP	0.9	68	● ◆
6.1.2	PCT patents by origin/bn PPP$ GDP	0.0	88	◆
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	56	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.1	87	
6.1.5	Citable documents H-index	5.3	101	
6.2	**Knowledge impact**	**10.9**	**[114]**	
6.2.1	Growth rate of PPP$ GDP/worker, %	-0.3	100	
6.2.2	New businesses/th pop. 15-64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.0	115	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.4	94	◆
6.2.5	High- and medium-high-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	**9.9**	**122**	◇
6.3.1	Intellectual property receipts, % total trade	0.0	98	
6.3.2	High-tech net exports, % total trade	0.3	88	
6.3.3	ICT services exports, % total trade	0.2	116	
6.3.4	FDI net outflows, % GDP	0.1	102	
CREATIVE OUTPUTS		**8.2**	**122**	
7.1	**Intangible assets**	**14.1**	**113**	
7.1.1	Trademarks by origin/bn PPP$ GDP	31.8	77	
7.1.2	Global brand value, top 5,000, % GDP	0.0	80	○ ◇
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.1	108	
7.1.4	ICTs & organizational model creation+	35.8	120	
7.2	**Creative goods and services**	**2.2**	**[117]**	
7.2.1	Cultural & creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15-69	2.0	66	
7.2.3	Entertainment & Media market/th pop. 15-69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	125	
7.3	**Online creativity**	**2.3**	**119**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	0.0	129	○
7.3.2	Country-code TLDs/th pop. 15-69	0.2	109	
7.3.3	Wikipedia edits/mn pop. 15-69	11.5	118	
7.3.4	Mobile app creation/bn PPP$ GDP	n/a	n/a	

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 Mozambique.

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)
3.2.2	Logistics performance*	n/a	2018	World Bank and Turku School of Economics
4.2.2	Market capitalization, % GDP	n/a	2018	World Federation of Exchanges
4.2.3	Venture capital deals/bn PPP$ GDP	n/a	2019	Thomson Reuters
5.2.5	Patent families 2+ offices/bn PPP$ GDP	n/a	2016	World Intellectual Property Organization
6.2.2	New businesses/th pop. 15–64	n/a	2018	World Bank
6.2.5	High- and medium-high-tech manufacturing, %	n/a	2017	United Nations Industrial Development Organization
7.2.1	Cultural & creative services exports, % total trade	n/a	2018	World Trade Organization
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2018	PwC
7.2.4	Printing and other media, % manufacturing	n/a	2017	United Nations Industrial Development Organization
7.3.4	Mobile app creation/bn PPP$ GDP	n/a	2019	App Annie

Outdated data

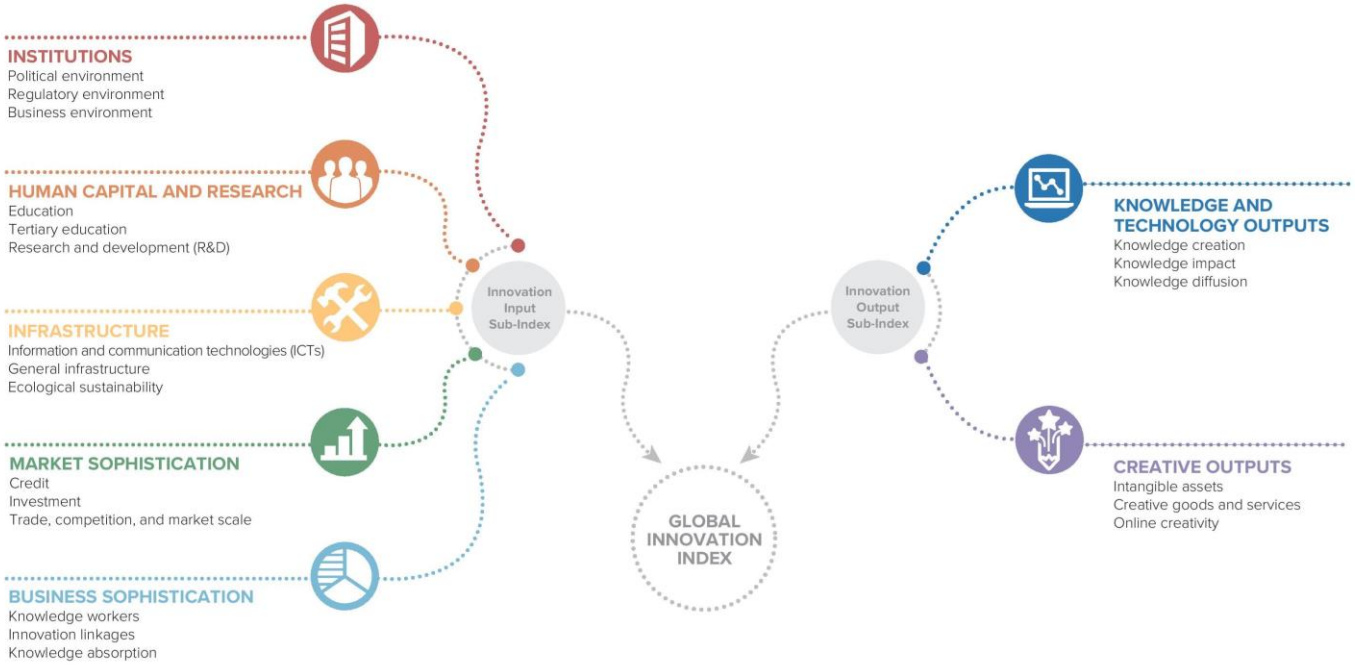
Code	Indicator name	Country year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	2013	2016	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2018	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2015	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2015	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.1	Knowledge-intensive employment, %	2015	2018	International Labour Organization
5.1.2	Firms offering formal training, %	2017	2018	World Bank
5.1.3	GERD performed by business, % GDP	2015	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.4	GERD financed by business, %	2015	2017	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2015	2018	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2015	2017	UNESCO Institute for Statistics
5.3.5	Research talent, % in business enterprise	2015	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
6.3.1	Intellectual property receipts, % total trade	2012	2018	World Trade Organization

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.