MOZAMBIQUE

123rd Mozambique ranks 123rd 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 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 2022 is between ranks 117 and 126.

Rankings for Mozambique (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	124	122	125
2021	122	122	118
2022	123	123	119

- Mozambique performs better in innovation outputs than innovation inputs in 2022.
- This year Mozambique ranks 123rd in innovation inputs, lower than both 2021 and 2020.
- As for innovation outputs, Mozambique ranks 119th. This position is lower than last year but higher than 2020.

7th Mozambique ranks 7th among the 12 low-income group economies.

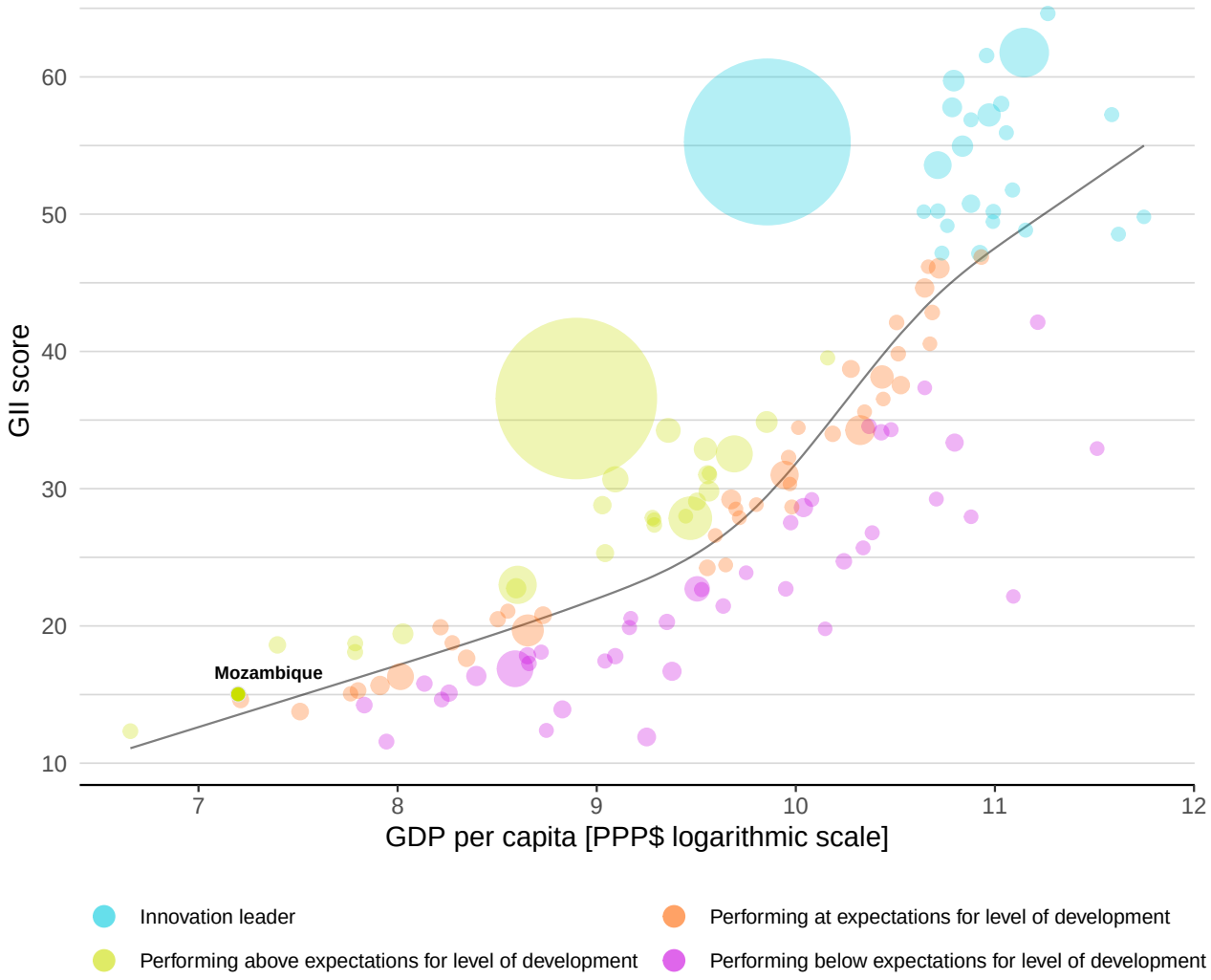
20th Mozambique ranks 20th among the 27 economies in Sub-Saharan Africa.

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

The positive relationship between innovation and development

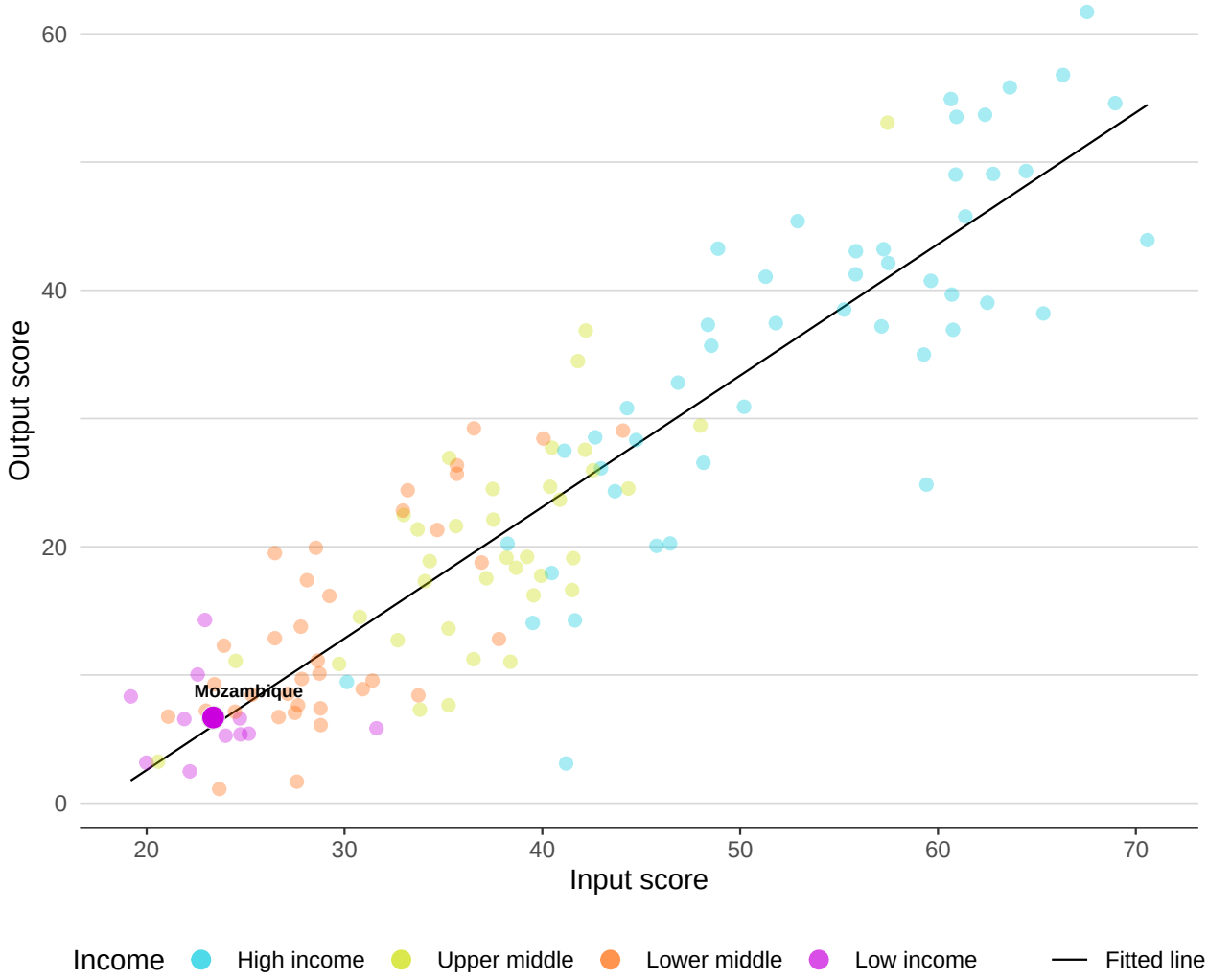


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

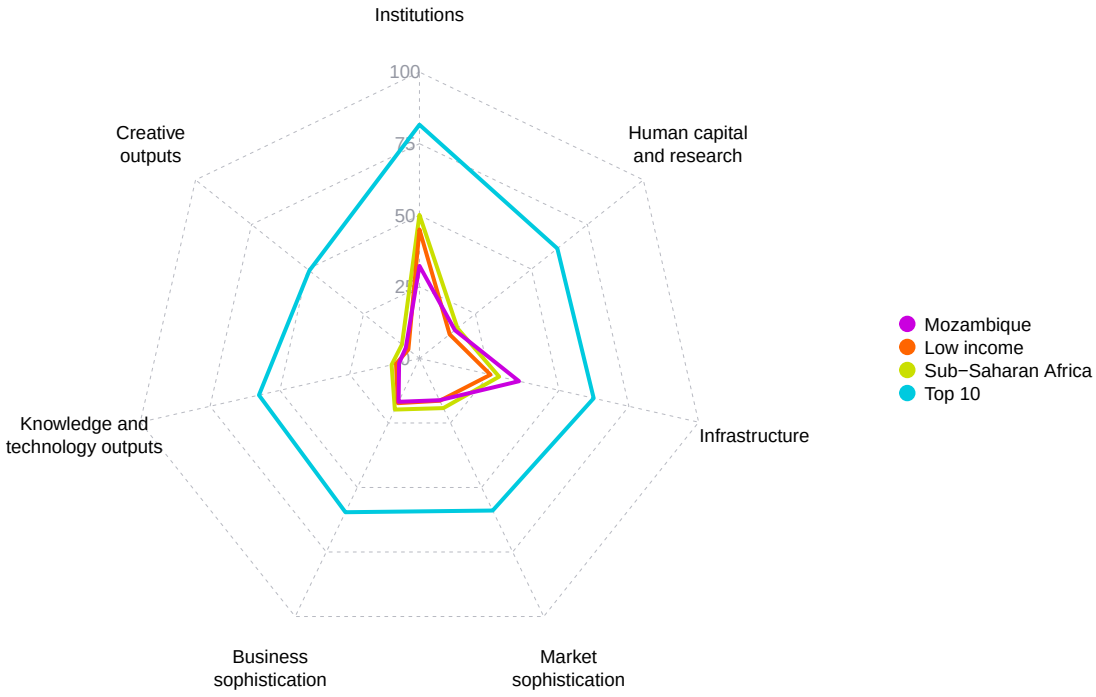
Mozambique produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance



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

The seven GII pillar scores for Mozambique



Low-income group economies

Mozambique performs above the low-income group average in three pillars, namely: Human capital and research; Infrastructure; and, Creative outputs.

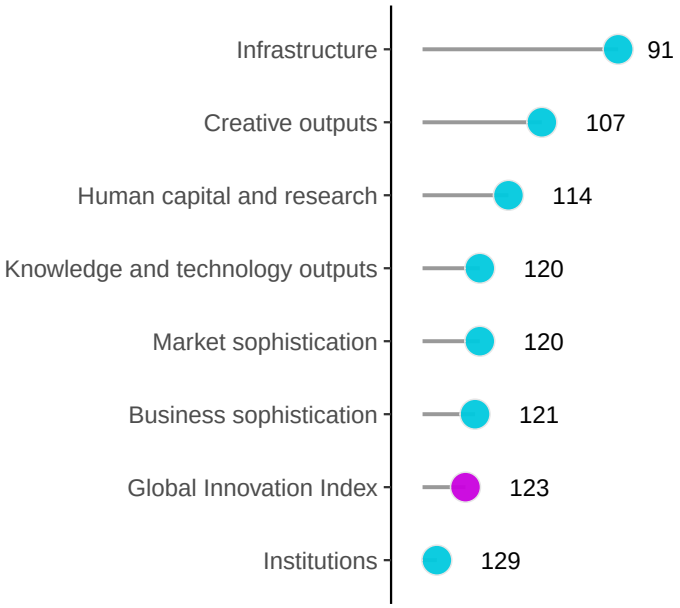
Sub-Saharan Africa

Mozambique performs above the regional average in Infrastructure.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

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

The seven GII pillar ranks for Mozambique



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

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

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

INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths and weaknesses for Mozambique

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.1.1	Expenditure on education, % GDP	16	1.3.2	Entrepreneurship policies and culture	74
2.1.2	Government funding/pupil, secondary, % GDP/cap	2	2.1.5	Pupil-teacher ratio, secondary	122
3.2.3	Gross capital formation, % GDP	1	2.2.2	Graduates in science and engineering, %	108
5.2.3	GERD financed by abroad, % GDP	32	2.3.3	Global corporate R&D investors, top 3, mn USD	38
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	36	2.3.4	QS university ranking, top 3	72
5.3.3	ICT services imports, % total trade	51	4.1.1	Finance for startups and scaleups	74
5.3.4	FDI net inflows, % GDP	7	5.3.5	Research talent, % in businesses	84
6.1.4	Scientific and technical articles/bn PPP$ GDP	67	6.1.2	PCT patents by origin/bn PPP$ GDP	101
7.1.2	Trademarks by origin/bn PPP$ GDP	57	6.3.1	Intellectual property receipts, % total trade	113
7.1.4	Industrial designs by origin/bn PPP$ GDP	67	7.1.3	Global brand value, top 5,000, % GDP	77

GII 2022 rank

Mozambique

123

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
119	123	Low	SSA	32.2	43.0	1,338

		Score/ Value	Rank	
Institutions		**32.3**	**129**	◇
1.1	**Political environment**	44.3	116	
1.1.1	Political and operational stability*	54.5	116	
1.1.2	Government effectiveness*	34.1	112	
1.2	**Regulatory environment**	32.6	127	◇
1.2.1	Regulatory quality*	27.7	111	
1.2.2	Rule of law*	19.6	121	
1.2.3	Cost of redundancy dismissal	37.5	127	◇
1.3	**Business environment**	20.1	125	◇
1.3.1	Policies for doing business†	40.2	95	
1.3.2	Entrepreneurship policies and culture*	0.0	74 ○	◇
Human capital and research		**15.8**	**114**	
2.1	**Education**	45.4	79	◆
2.1.1	Expenditure on education, % GDP	6.3	16 ●	◆
2.1.2	Government funding/pupil, secondary, % GDP/cap	40.1	2 ●	◆
2.1.3	School life expectancy, years	10.0	104	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	36.5	122 ○	◇
2.2	**Tertiary education**	1.1	128 ○	◇
2.2.1	Tertiary enrolment, % gross	7.3	119	
2.2.2	Graduates in science and engineering, %	9.6	108 ○	◇
2.2.3	Tertiary inbound mobility, %	0.4	104	◇
2.3	**Research and development (R&D)**	1.0	95	
2.3.1	Researchers, FTE/mn pop.	43.0	97	
2.3.2	Gross expenditure on R&D, % GDP	0.3	76	
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		**35.7**	**91**	◆
3.1	**Information and communication technologies (ICTs)**	42.6	118	
3.1.1	ICT access*	46.4	124	
3.1.2	ICT use*	19.7	125	
3.1.3	Government's online service*	51.8	102	
3.1.4	E-participation*	52.4	96	
3.2	**General infrastructure**	51.5	23 ●	◆
3.2.1	Electricity output, GWh/mn pop.	625.0	105	◆
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	59.9	1 ●	◆
3.3	**Ecological sustainability**	13.0	132 ○	
3.3.1	GDP/unit of energy use	3.6	127	
3.3.2	Environmental performance*	31.7	101	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.4	94	
Market sophistication		**16.2**	**120**	
4.1	**Credit**	7.1	120	
4.1.1	Finance for startups and scaleups*	13.7	74 ○	◇
4.1.2	Domestic credit to private sector, % GDP	24.8	108	
4.1.3	Loans from microfinance institutions, % GDP	0.0	60	
4.2	**Investment**	4.5	[84]	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	n/a	
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	0.0	58	
4.2.4	Venture capital received, value, % GDP	0.0	81	
4.3	**Trade, diversification, and market scale**	37.0	105	
4.3.1	Applied tariff rate, weighted avg., %	4.1	86	◆
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	43.0	110	

		Score/ Value	Rank	
Business sophistication		**16.8**	**121**	
5.1	**Knowledge workers**	5.1	131 ○	◇
5.1.1	Knowledge-intensive employment, %	3.9	122	
5.1.2	Firms offering formal training, %	20.7	77	
5.1.3	GERD performed by business, % GDP	0.0	90	
5.1.4	GERD financed by business, %	0.5	97	
5.1.5	Females employed w/advanced degrees, %	0.7	120	
5.2	**Innovation linkages**	21.1	83	
5.2.1	University-industry R&D collaboration†	34.0	104	
5.2.2	State of cluster development and depth†	35.0	115	
5.2.3	GERD financed by abroad, % GDP	0.1	32 ●	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	36 ●	◆
5.2.5	Patent families/bn PPP$ GDP	0.0	77	◆
5.3	**Knowledge absorption**	24.1	92	
5.3.1	Intellectual property payments, % total trade	0.0	115	
5.3.2	High-tech imports, % total trade	5.7	112	
5.3.3	ICT services imports, % total trade	1.7	51 ●	
5.3.4	FDI net inflows, % GDP	16.1	7 ●	◆
5.3.5	Research talent, % in businesses	0.3	84 ○	◇
Knowledge and technology outputs		**7.3**	**120**	
6.1	**Knowledge creation**	6.3	96	
6.1.1	Patents by origin/bn PPP$ GDP	0.6	74	◆
6.1.2	PCT patents by origin/bn PPP$ GDP	0.0	101 ○	◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	58	
6.1.4	Scientific and technical articles/bn PPP$ GDP	14.2	67 ●	
6.1.5	Citable documents H-index	4.8	97	
6.2	**Knowledge impact**	11.8	115	
6.2.1	Labor productivity growth, %	−0.7	99	
6.2.2	New businesses/th pop. 15–64	0.2	109	
6.2.3	Software spending, % GDP	0.0	111	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.5	93	◆
6.2.5	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	3.8	123	◇
6.3.1	Intellectual property receipts, % total trade	0.0	113 ○	◇
6.3.2	Production and export complexity	12.2	115	
6.3.3	High-tech exports, % total trade	0.0	128	
6.3.4	ICT services exports, % total trade	0.3	113	◇
Creative outputs		**6.1**	**107**	
7.1	**Intangible assets**	12.0	95	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	42.1	57 ●	
7.1.3	Global brand value, top 5,000, % GDP	0.0	77 ○	◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.0	67 ●	
7.2	**Creative goods and services**	0.1	[130]	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
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	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	122	
7.3	**Online creativity**	0.1	126	
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	GitHub commit pushes received/mn pop. 15–69	0.1	125	
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 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 Mozambique.

Missing data for Mozambique

Code	Indicator name	Economy year	Model year	Source
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
3.2.2	Logistics performance	n/a	2018	Logistics Performance Index, World Bank
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	2021	Refinitiv
4.3.2	Domestic industry diversification	n/a	2019	United Nations Industrial Development Organization
6.2.5	High-tech manufacturing, %	n/a	2019	United Nations Industrial Development Organization
7.1.1	Intangible asset intensity, top 15, %	n/a	2021	Brand Finance
7.2.1	Cultural and creative services exports, % total trade	n/a	2020	World Trade Organization and United Nations Conference on Trade and Development
7.2.2	National feature films/mn pop. 15–69	n/a	2019	OMDIA
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2021	PwC, GEMO
7.2.4	Printing and other media, % manufacturing	n/a	2019	United Nations Industrial Development Organization
7.3.4	Mobile app creation/bn PPP$ GDP	n/a	2021	data.ia

Outdated data for Mozambique

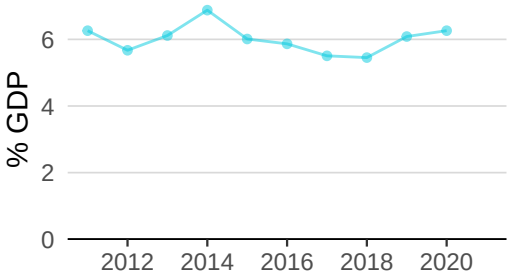
Code	Indicator name	Economy year	Model year	Source
1.3.1	Policies for doing business	2019	2021	World Economic Forum, Executive Opinion Survey (EOS)
1.3.2	Entrepreneurship policies and culture	2018	2021	Global Entrepreneurship Monitor
2.1.2	Government funding/pupil, secondary, % GDP/cap	2013	2018	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2017	2019	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2019	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2018	2019	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2018	2020	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2018	2019	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2015	2020	UNESCO Institute for Statistics

Code	Indicator name	Economy year	Model year	Source
2.3.2	Gross expenditure on R&D, % GDP	2015	2020	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2019	2020	International Energy Agency
4.1.1	Finance for startups and scaleups	2018	2021	Global Entrepreneurship Monitor
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	2020	2021	Refinitiv
4.2.4	Venture capital received, value, % GDP	2020	2021	Refinitiv
5.1.1	Knowledge-intensive employment, %	2015	2021	International Labour Organization
5.1.2	Firms offering formal training, %	2018	2019	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2015	2020	UNESCO Institute for Statistics
5.1.4	GERD financed by business, %	2015	2019	UNESCO Institute for Statistics
5.1.5	Females employed w/advanced degrees, %	2015	2021	International Labour Organization
5.2.1	University-industry R&D collaboration	2019	2021	World Economic Forum, Executive Opinion Survey (EOS)
5.2.2	State of cluster development and depth	2019	2021	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	GERD financed by abroad, % GDP	2015	2019	UNESCO Institute for Statistics
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	2020	2021	Refinitiv
5.3.5	Research talent, % in businesses	2015	2020	UNESCO Institute for Statistics
7.1.4	Industrial designs by origin/bn PPP$ GDP	2019	2020	World Intellectual Property Organization

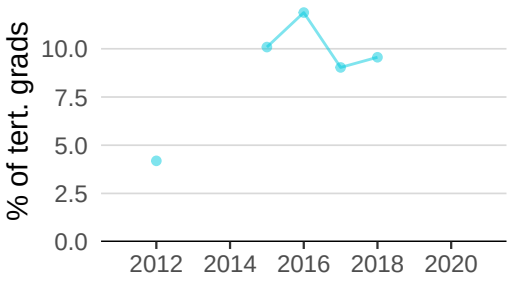
MOZAMBIQUE'S INNOVATION SYSTEM

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

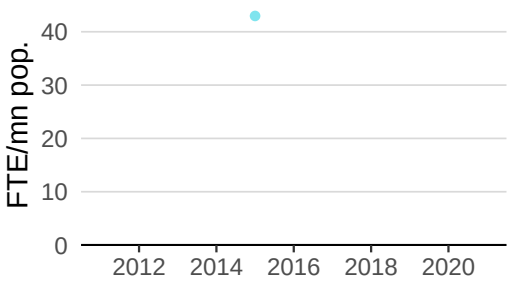
Innovation inputs



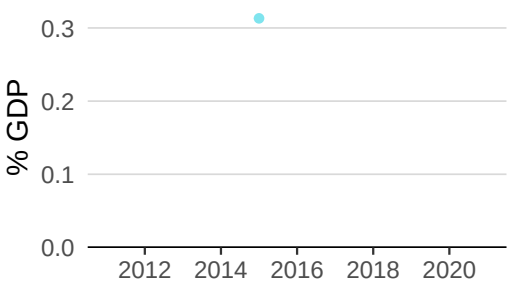
2.1.1 Expenditure on education was equal to 6.3% GDP in 2020–up by 3 percentage points from the year prior–and equivalent to an indicator rank of 16.



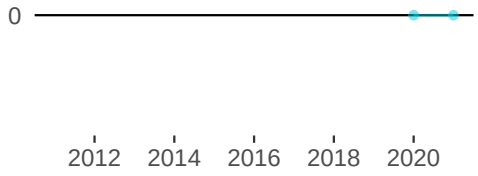
2.2.2 Graduates in science and engineering was equal to 9.6% of tert. grads in 2018–up by 6 percentage points from the year prior–and equivalent to an indicator rank of 108.



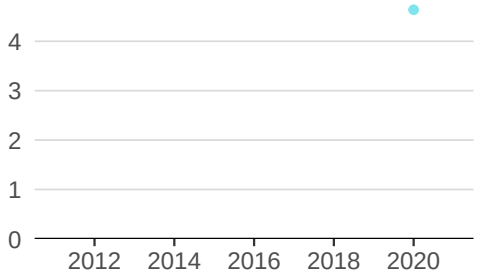
2.3.1 Researchers was equal to 43.0 FTE/mn pop. in 2015 and equivalent to an indicator rank of 97.



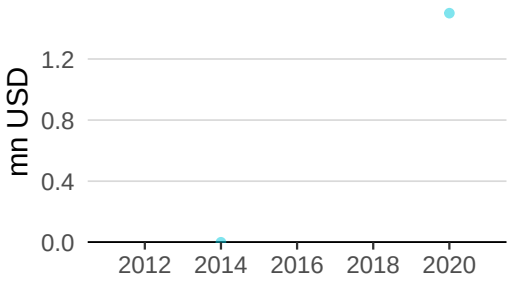
2.3.2 Gross expenditure on R&D was equal to 0.3% GDP in 2015 and equivalent to an indicator rank of 76.



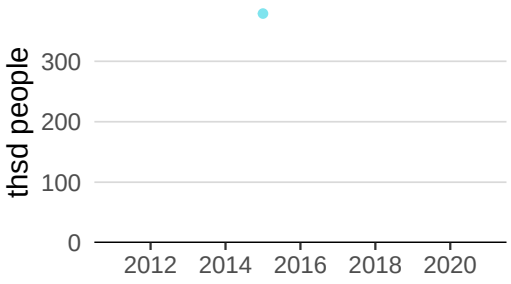
2.3.4 QS university ranking was equal to 0.0 in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 72.



3.1.1 ICT access was equal to 4.6 in 2020 and equivalent to an indicator rank of 124.

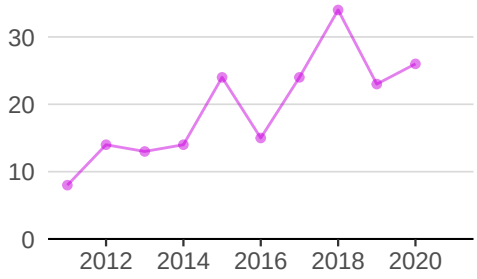


4.2.4 Venture capital received was equal to 1.5 mn USD in 2020 and equivalent to an indicator rank of 81.

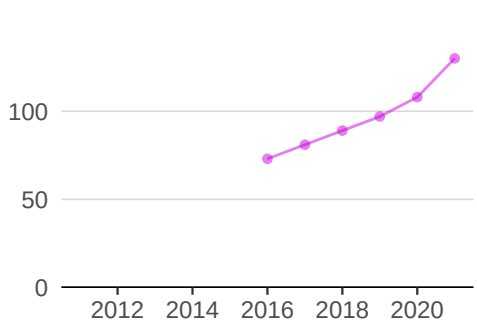


5.1.1 Knowledge-intensive employment was equal to 378.9 thsd people in 2015 and equivalent to an indicator rank of 122.

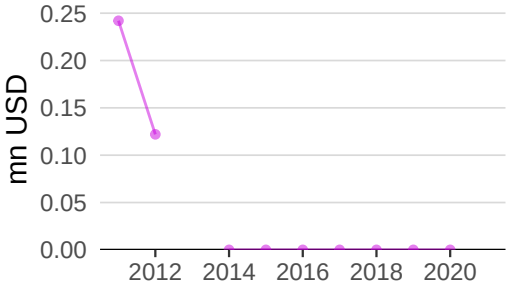
Innovation outputs



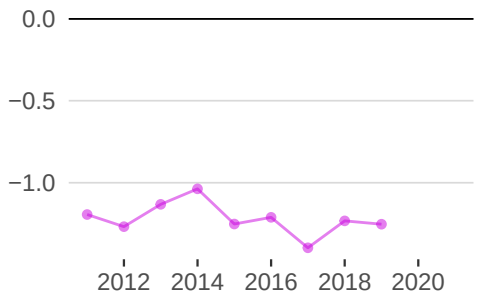
6.1.1 Patents by origin was equal to 26.0 in 2020–up by 13 percentage points from the year prior–and equivalent to an indicator rank of 74.



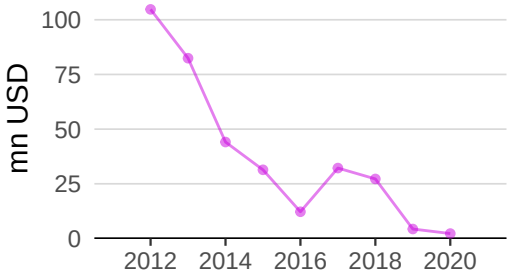
6.1.5 Citable documents H-index was equal to 130.0 in 2021–up by 20 percentage points from the year prior–and equivalent to an indicator rank of 97.



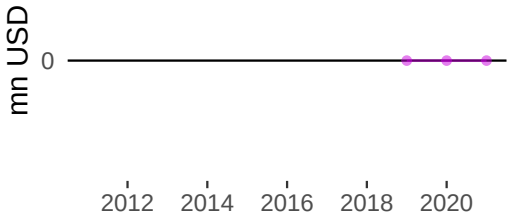
6.3.1 Intellectual property receipts was equal to 0.0 mn USD in 2020–effectively unchanged from the year prior–and equivalent to an indicator rank of 113.



6.3.2 Production and export complexity was equal to -1.3 in 2019–down by 2 percentage points from the year prior–and equivalent to an indicator rank of 115.



6.3.3 High-tech exports was equal to 2.3 mn USD in 2020–down by 48 percentage points from the year prior–and equivalent to an indicator rank of 128.



7.1.3 Global brand value was equal to 0.0 mn USD in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 77.

MOZAMBIQUE'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

No observations

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).

7.1.3 Global brand value, top 5,000

Brand	Industry	Rank

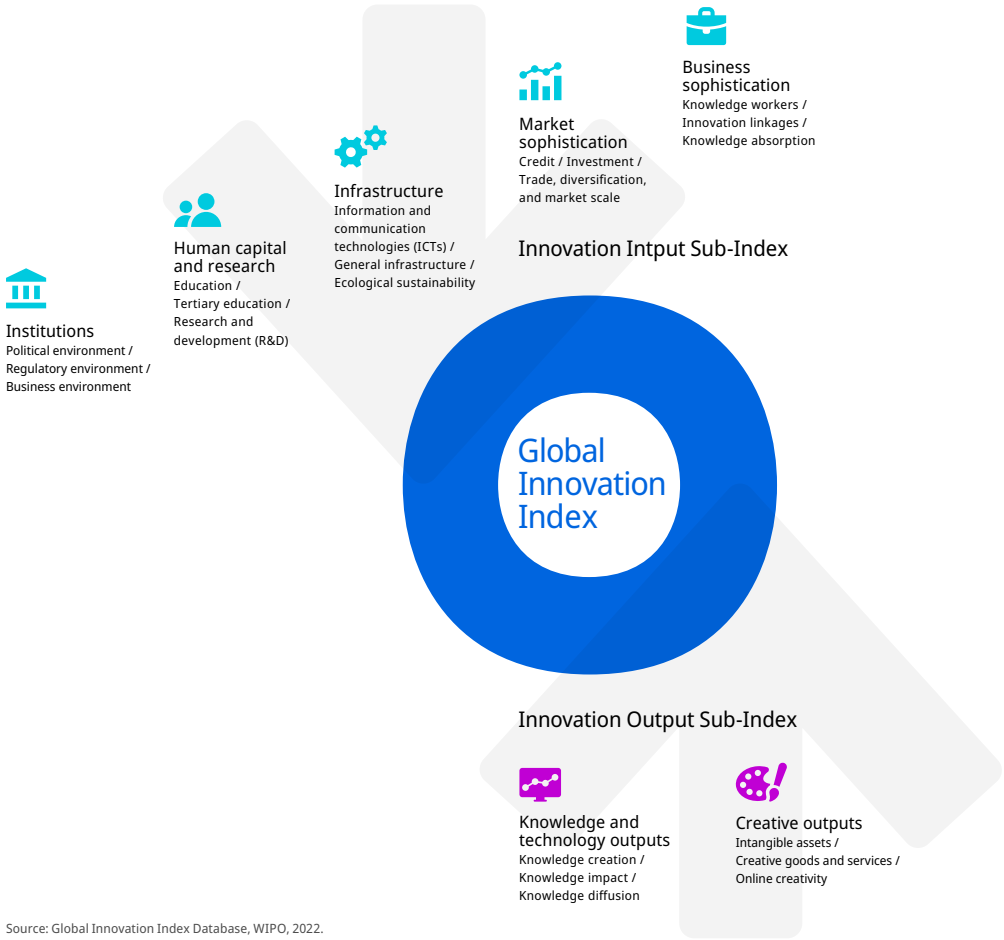
No observations

Source: Brand Finance (https://brandirectory.com).

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.