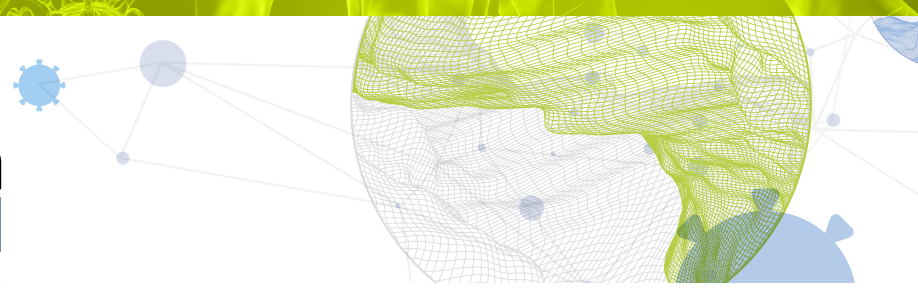




Global Innovation Index 2021



MALI

124th Mali ranks 124th 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 Mali 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 Mali in the GII 2021 is between ranks 116 and 125.

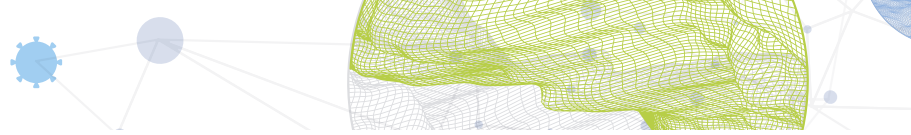
Rankings for Mali (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	124	126	114
2020	123	126	116
2019	112	120	100

- Mali performs better in innovation outputs than innovation inputs in 2021.
- This year Mali ranks 126th in innovation inputs, the same as last year but lower than 2019.
- As for innovation outputs, Mali ranks 114th. This position is higher than last year but lower than 2019.

8th Mali ranks 8th among the 13 low-income group economies.

21st Mali ranks 21st among the 27 economies in Sub-Saharan Africa.

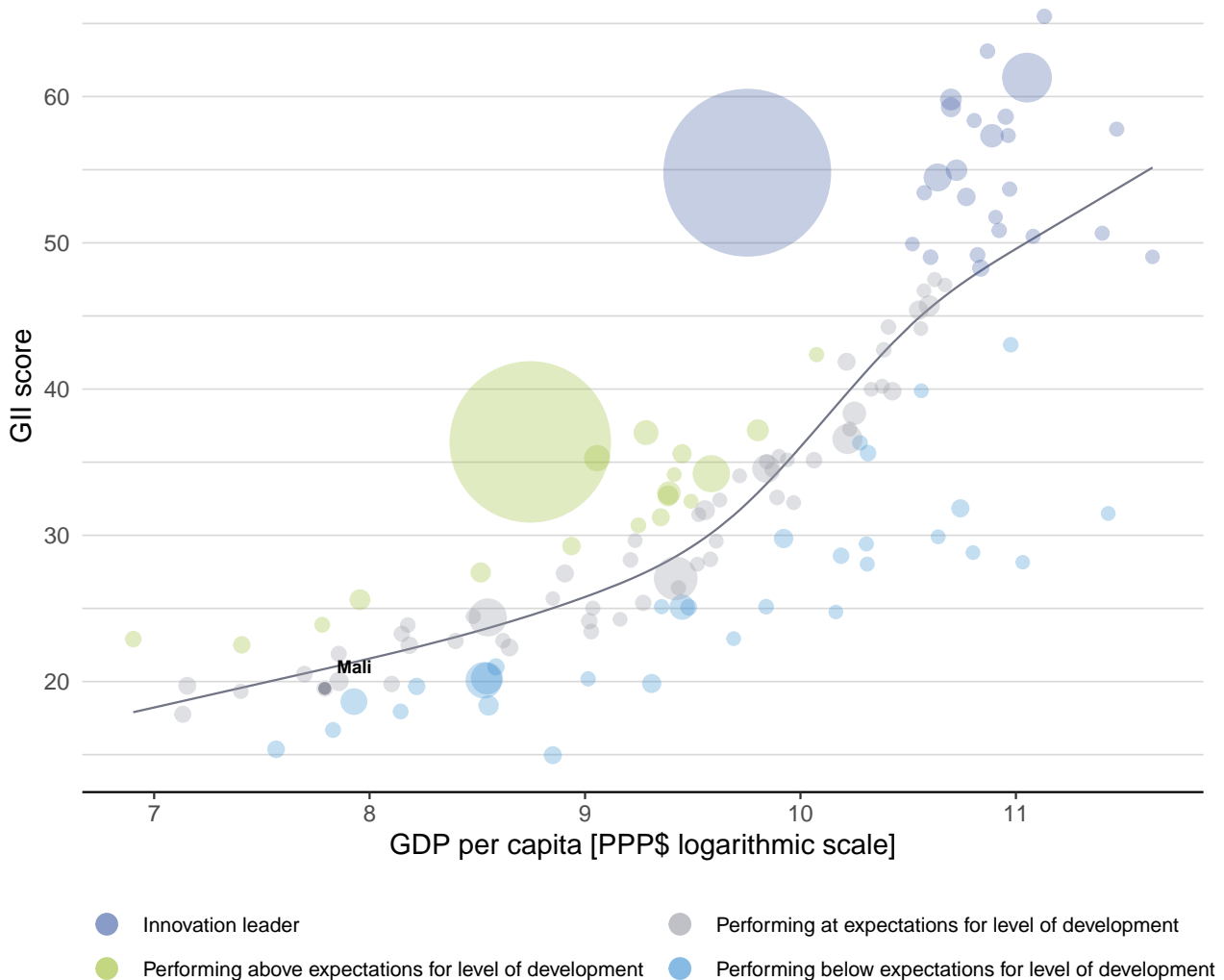


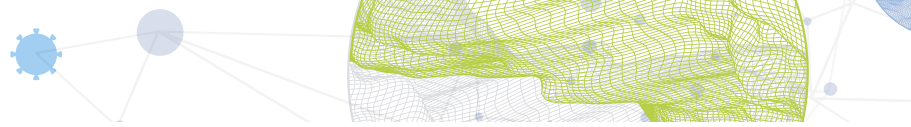
EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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, Mali's performance is at expectations for its level of development.

The positive relationship between innovation and development



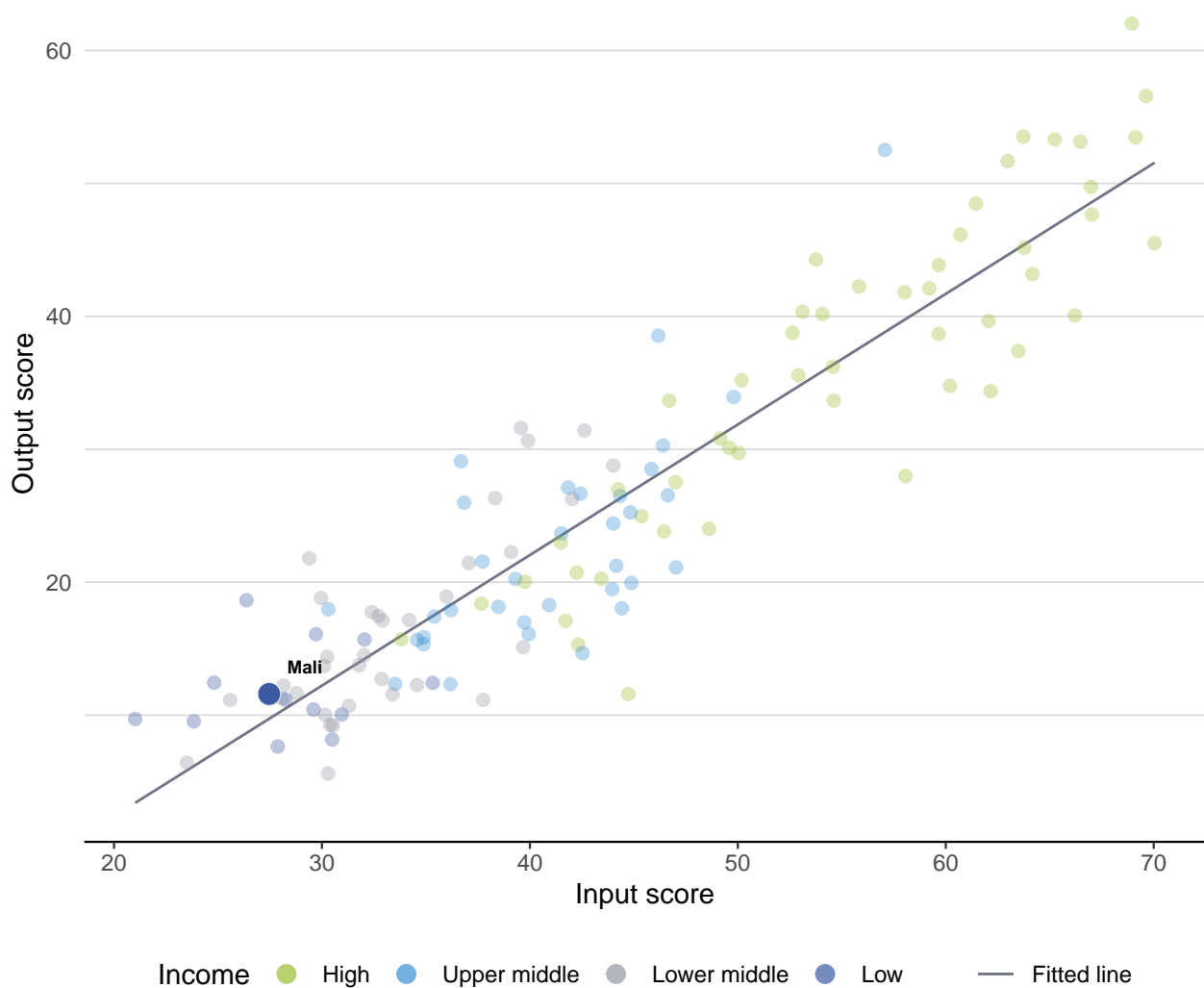


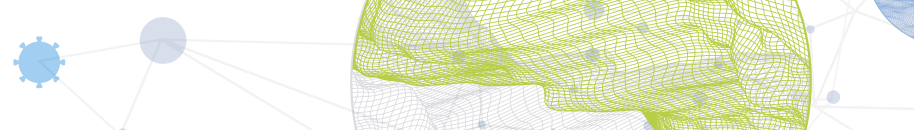
EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Mali 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 Mali

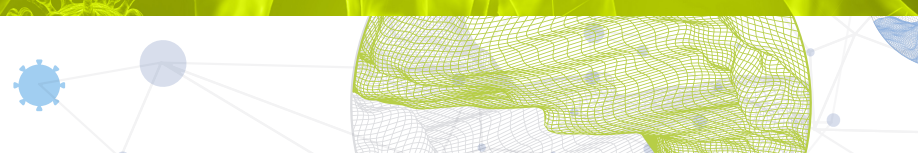


Low-income group economies

Mali performs above the low-income group average in three pillars, namely: Institutions; Business sophistication; and, Knowledge and technology outputs.

Sub-Saharan Africa

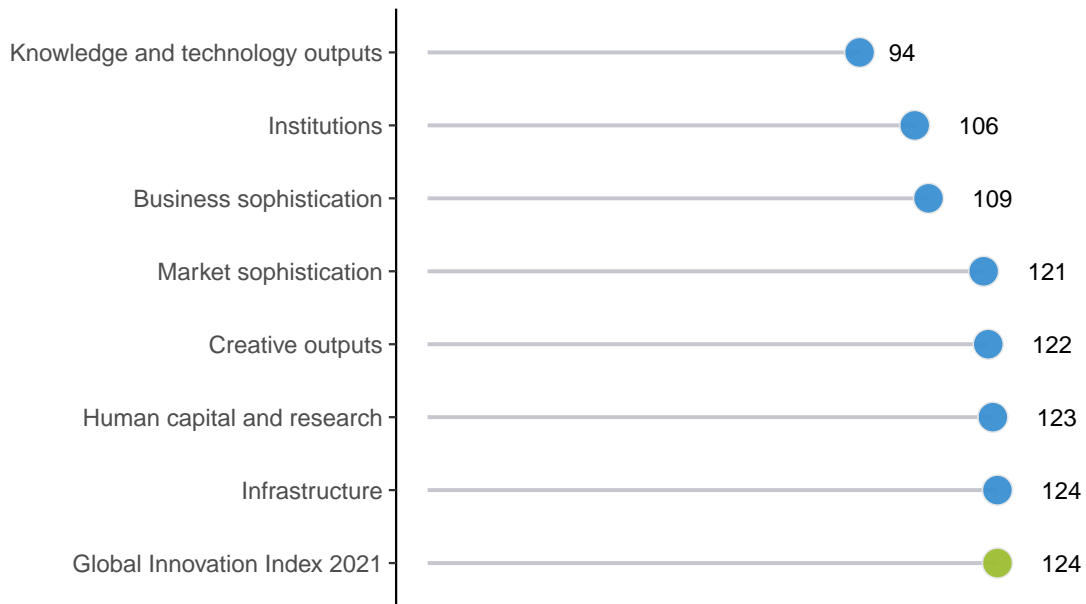
Mali performs above the regional average in Knowledge and technology outputs.



OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Mali performs best in Knowledge and technology outputs and its weakest performance is in Infrastructure.

The seven GII pillar ranks for Mali



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 Mali in the GII 2021.

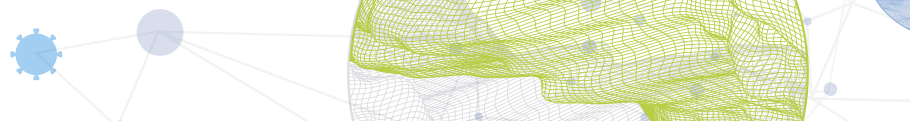
Strengths and weaknesses for Mali

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal	50	1.1	Political environment	130
2.1.2	Government funding/pupil, secondary, % GDP/cap	16	1.1.1	Political and operational stability	130
4.1.3	Microfinance gross loans, % GDP	41	2.1.3	School life expectancy, years	118
5.2.3	GERD financed by abroad, % GDP	32	2.2	Tertiary education	126
5.3	Knowledge absorption	63	2.3.3	Global corporate R&D investors, top 3, mn US\$	41
5.3.3	ICT services imports, % total trade	16	2.3.4	QS university ranking, top 3	74
5.3.4	FDI net inflows, % GDP	46	5.1	Knowledge workers	129
5.3.5	Research talent, % in businesses	41	5.1.1	Knowledge-intensive employment, %	120
6.2.1	Labor productivity growth, %	51	5.1.5	Females employed w/advanced degrees, %	121
6.3	Knowledge diffusion	58	5.2.5	Patent families/bn PPP\$ GDP	100
6.3.4	ICT services exports, % total trade	18	6.1.2	PCT patents by origin/bn PPP\$ GDP	98
7.3.2	Country-code TLDs/th pop. 15–69	45	7.1.2	Global brand value, top 5,000, % GDP	80
			7.2.2	National feature films/mn pop. 15–69	108

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$	GII 2020 rank
114	126	Low	SSF	20.3	47.6	2,421	123

	Score/Value	Rank		Score/Value	Rank
 Institutions	51.3	106	 Business sophistication	17.7	109
1.1 Political environment	32.4	130 ○	5.1 Knowledge workers	5.5	129 ○ ◇
1.1.1 Political and operational stability*	42.9	130 ○	5.1.1 Knowledge-intensive employment, %	○	4.3 120 ○
1.1.2 Government effectiveness*	27.2	126	5.1.2 Firms offering formal training, %	○	17.7 85
1.2 Regulatory environment	57.7	85	5.1.3 GERD performed by business, % GDP		n/a n/a
1.2.1 Regulatory quality*	28.5	107	5.1.4 GERD financed by business, %	○	0.8 95
1.2.2 Rule of law*	24.7	114	5.1.5 Females employed w/advanced degrees, %	○	0.5 121 ○
1.2.3 Cost of redundancy dismissal	13.6	50 ●	5.2 Innovation linkages	20.0	70
1.3 Business environment	63.8	89	5.2.1 University-industry R&D collaboration†		41.1 71
1.3.1 Ease of starting a business*	84.3	95	5.2.2 State of cluster development and depth†		43.5 83 ◆
1.3.2 Ease of resolving insolvency*	43.4	91	5.2.3 GERD financed by abroad, % GDP	○	0.1 32 ●
 Human capital and research	11.3	123	5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP		0.0 76
2.1 Education	29.6	115	5.2.5 Patent families/bn PPP\$ GDP		0.0 100 ○ ◇
2.1.1 Expenditure on education, % GDP	3.8	77	5.3 Knowledge absorption	27.6	63 ● ◆
2.1.2 Government funding/pupil, secondary, % GDP/cap	25.4	16 ●	5.3.1 Intellectual property payments, % total trade	○	0.0 116
2.1.3 School life expectancy, years	○	7.5 118 ○ ◇	5.3.2 High-tech imports, % total trade	○	6.8 81
2.1.4 PISA scales in reading, maths and science		n/a n/a	5.3.3 ICT services imports, % total trade		2.6 16 ● ◆
2.1.5 Pupil-teacher ratio, secondary	○	29.7 117	5.3.4 FDI net inflows, % GDP		3.1 46 ●
2.2 Tertiary education	3.0	126 ○	5.3.5 Research talent, % in businesses	○	31.4 41 ● ◆
2.2.1 Tertiary enrolment, % gross	○	5.5 122	 Knowledge and technology outputs	13.6	94
2.2.2 Graduates in science and engineering, %		n/a n/a	6.1 Knowledge creation	3.6	118
2.2.3 Tertiary inbound mobility, %	○	0.9 91	6.1.1 Patents by origin/bn PPP\$ GDP		0.1 117
2.3 Research and development (R&D)	1.5	101	6.1.2 PCT patents by origin/bn PPP\$ GDP		0.0 98 ○ ◇
2.3.1 Researchers, FTE/mn pop.	○	32.9 100	6.1.3 Utility models by origin/bn PPP\$ GDP		n/a n/a
2.3.2 Gross expenditure on R&D, % GDP	○	0.3 80	6.1.4 Scientific and technical articles/bn PPP\$ GDP		4.9 109
2.3.3 Global corporate R&D investors, top 3, mn US\$		0.0 41 ○ ◇	6.1.5 Citable documents H-index		5.1 104
2.3.4 QS university ranking, top 3*		0.0 74 ○ ◇	6.2 Knowledge impact	18.5	112
 Infrastructure	22.5	124	6.2.1 Labor productivity growth, %		0.7 51 ●
3.1 Information and communication technologies (ICTs)	30.0	125	6.2.2 New businesses/th pop. 15–64		0.3 108
3.1.1 ICT access*		36.9 113 ◆	6.2.3 Software spending, % GDP		0.0 115
3.1.2 ICT use*		16.3 118	6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP		0.5 123
3.1.3 Government's online service*		34.7 122	6.2.5 High-tech manufacturing, %		n/a n/a
3.1.4 E-participation*		32.1 123	6.3 Knowledge diffusion	18.6	58 ● ◆
3.2 General infrastructure	22.0	98	6.3.1 Intellectual property receipts, % total trade	○	0.0 108
3.2.1 Electricity output, GWh/mn pop.		n/a n/a	6.3.2 Production and export complexity		32.6 84 ◆
3.2.2 Logistics performance*		25.2 92	6.3.3 High-tech exports, % total trade	○	0.1 123
3.2.3 Gross capital formation, % GDP		18.5 98	6.3.4 ICT services exports, % total trade		4.6 18 ● ◆
3.3 Ecological sustainability	15.4	124	 Creative outputs	9.6	122
3.3.1 GDP/unit of energy use		n/a n/a	7.1 Intangible assets	13.9	121
3.3.2 Environmental performance*		29.4 123	7.1.1 Trademarks by origin/bn PPP\$ GDP		5.6 119
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP		0.3 104	7.1.2 Global brand value, top 5,000, % GDP		0.0 80 ○ ◇
 Market sophistication	34.5	121	7.1.3 Industrial designs by origin/bn PPP\$ GDP		0.3 96
4.1 Credit	16.5	125	7.1.4 ICTs and organizational model creation†		45.0 96
4.1.1 Ease of getting credit*		30.0 122	7.2 Creative goods and services	1.0	[129]
4.1.2 Domestic credit to private sector, % GDP		24.5 107	7.2.1 Cultural and creative services exports, % total trade	○	0.1 79
4.1.3 Microfinance gross loans, % GDP		0.4 41 ●	7.2.2 National feature films/mn pop. 15–69		0.1 108 ○ ◇
4.2 Investment	42.0	[28]	7.2.3 Entertainment and media market/th pop. 15–69		n/a n/a
4.2.1 Ease of protecting minority investors*		42.0 102	7.2.4 Printing and other media, % manufacturing		n/a n/a
4.2.2 Market capitalization, % GDP		n/a n/a	7.2.5 Creative goods exports, % total trade	○	0.0 126
4.2.3 Venture capital investors, deals/bn PPP\$ GDP		n/a n/a	7.3 Online creativity	9.7	95
4.2.4 Venture capital recipients, deals/bn PPP\$ GDP		n/a n/a	7.3.1 Generic top-level domains (TLDs)/th pop. 15–69		0.1 122
4.3 Trade, diversification, and market scale	45.0	120	7.3.2 Country-code TLDs/th pop. 15–69		6.7 45 ● ◆
4.3.1 Applied tariff rate, weighted avg., %		7.2 98	7.3.3 Wikipedia edits/mn pop. 15–69		25.7 111
4.3.2 Domestic industry diversification		n/a n/a	7.3.4 Mobile app creation/bn PPP\$ GDP		n/a n/a
4.3.3 Domestic market scale, bn PPP\$		47.6 104			

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.

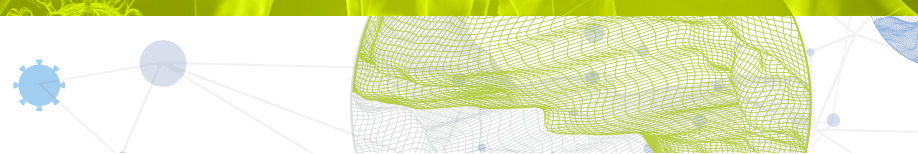


DATA AVAILABILITY

The following tables list data that are either missing or outdated for Mali.

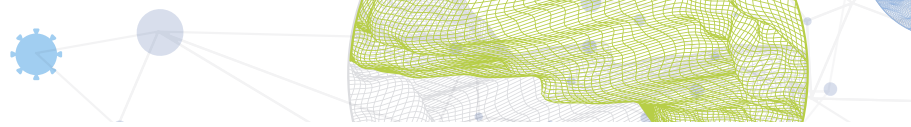
Missing data for Mali

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
3.2.1	Electricity output, GWh/mn pop.	n/a	2018	International Energy Agency
3.3.1	GDP/unit of energy use	n/a	2018	International Energy Agency
4.2.2	Market capitalization, % GDP	n/a	2019	World Federation of Exchanges
4.2.3	Venture capital investors, deals/bn PPP\$ GDP	n/a	2020	Refinitiv Eikon
4.2.4	Venture capital recipients, deals/bn PPP\$ GDP	n/a	2020	Refinitiv Eikon
4.3.2	Domestic industry diversification	n/a	2018	United Nations Industrial Development Organization
5.1.3	GERD performed by business, % GDP	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2019	World Intellectual Property Organization
6.2.5	High-tech manufacturing, %	n/a	2018	United Nations Industrial Development Organization
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC
7.2.4	Printing and other media, % manufacturing	n/a	2018	United Nations Industrial Development Organization
7.3.4	Mobile app creation/bn PPP\$ GDP	n/a	2020	App Annie



Outdated data for Mali

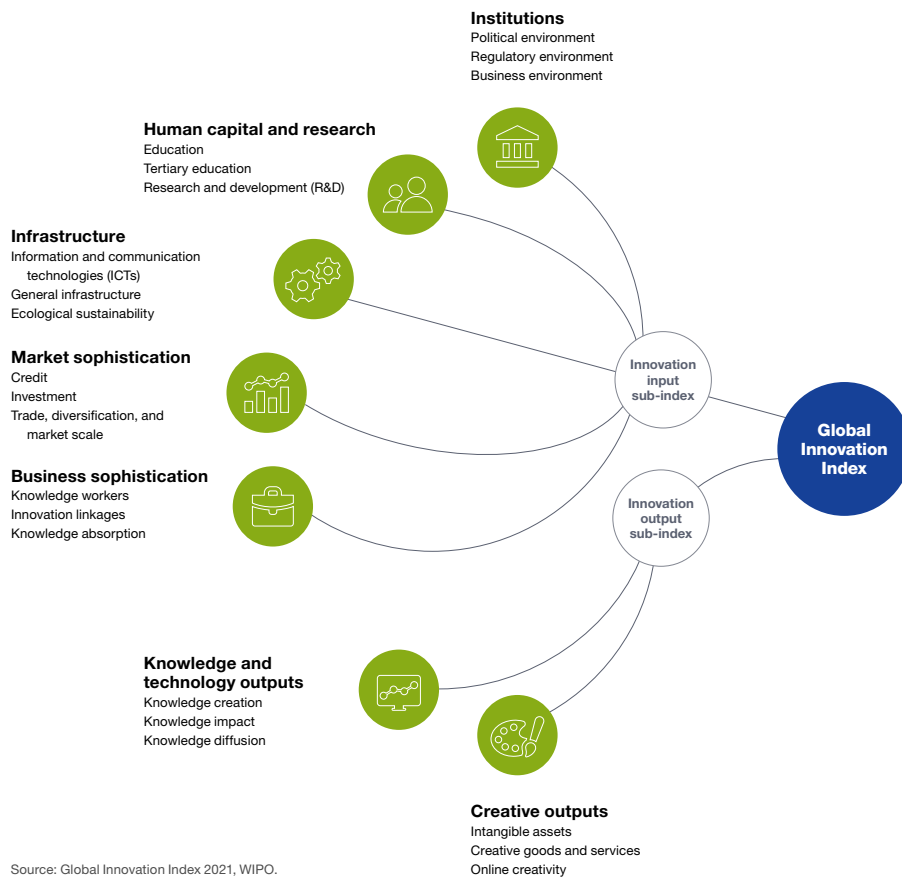
Code	Indicator name	Economy year	Model year	Source
2.1.3	School life expectancy, years	2017	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2018	2019	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2015	2018	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2015	2018	UNESCO Institute for Statistics
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
5.1.1	Knowledge-intensive employment, %	2018	2019	International Labour Organization
5.1.2	Firms offering formal training, %	2016	2019	World Bank
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, %	2018	2019	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2017	2018	UNESCO Institute for Statistics
5.3.1	Intellectual property payments, % total trade	2011	2019	World Trade Organization
5.3.2	High-tech imports, % total trade	2017	2019	United Nations, COMTRADE
5.3.5	Research talent, % in businesses	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.3.1	Intellectual property receipts, % total trade	2017	2019	World Trade Organization
6.3.3	High-tech exports, % total trade	2017	2019	United Nations, COMTRADE
7.2.1	Cultural and creative services exports, % total trade	2015	2019	World Trade Organization
7.2.5	Creative goods exports, % total trade	2017	2019	United Nations, COMTRADE



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.



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.