

BOTSWANA

89th

Botswana ranks 89th 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 Botswana 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 Botswana in the GII 2020 is between ranks 88 and 95.

Rankings of Botswana (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	89	84	105
2019	93	80	117
2018	91	74	107

- Botswana performs better in innovation inputs than innovation outputs in 2020.
- This year Botswana ranks 84th in innovation inputs, lower than last year and lower compared to 2018.
- As for innovation outputs, Botswana ranks 105th. This position is higher than last year and higher compared to 2018.

30th

Botswana ranks 30th among the 37 upper middle-income group economies.

5th

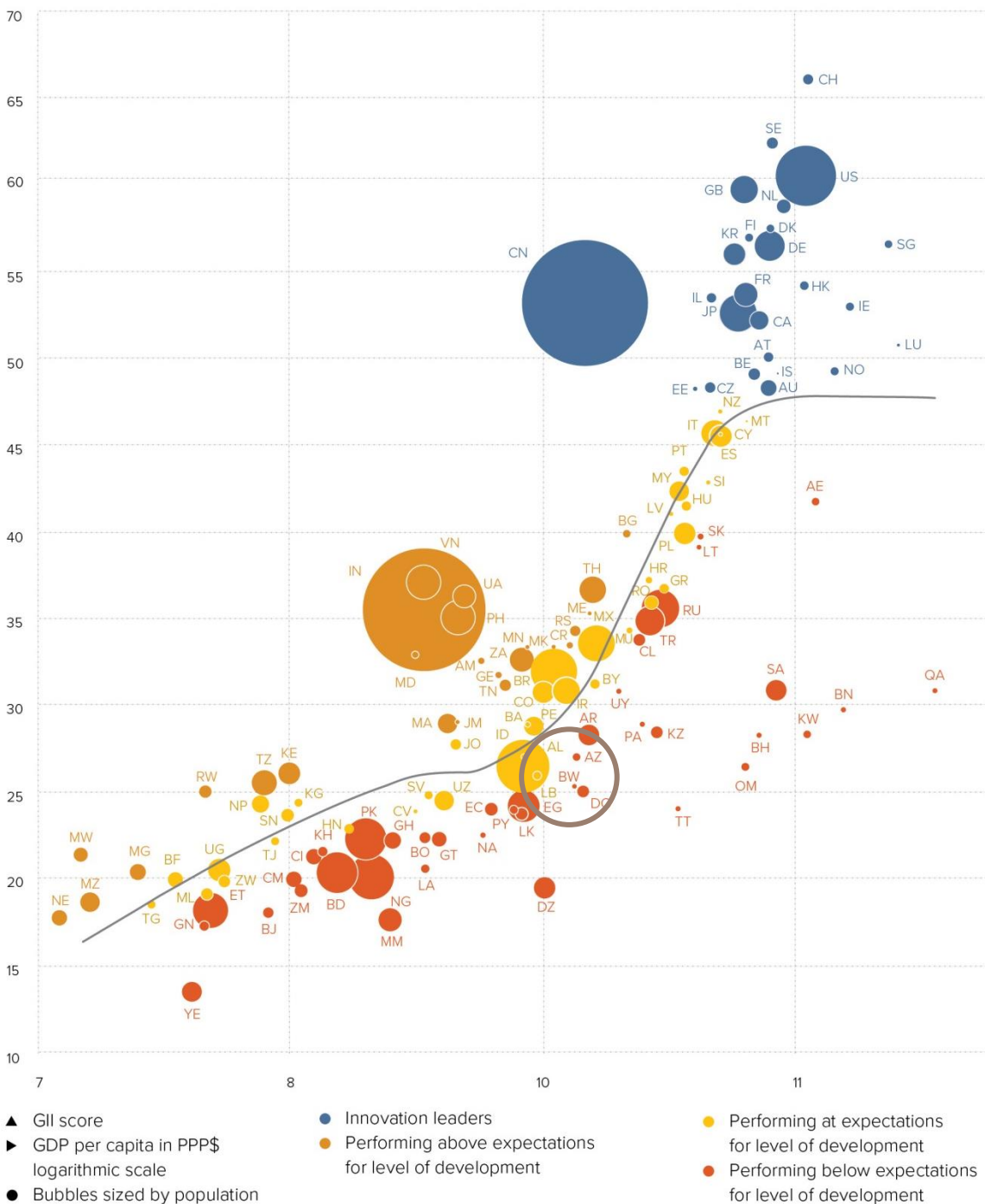
Botswana ranks 5th among the 26 economies in Sub-Saharan Africa.

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

The positive relationship between innovation and development

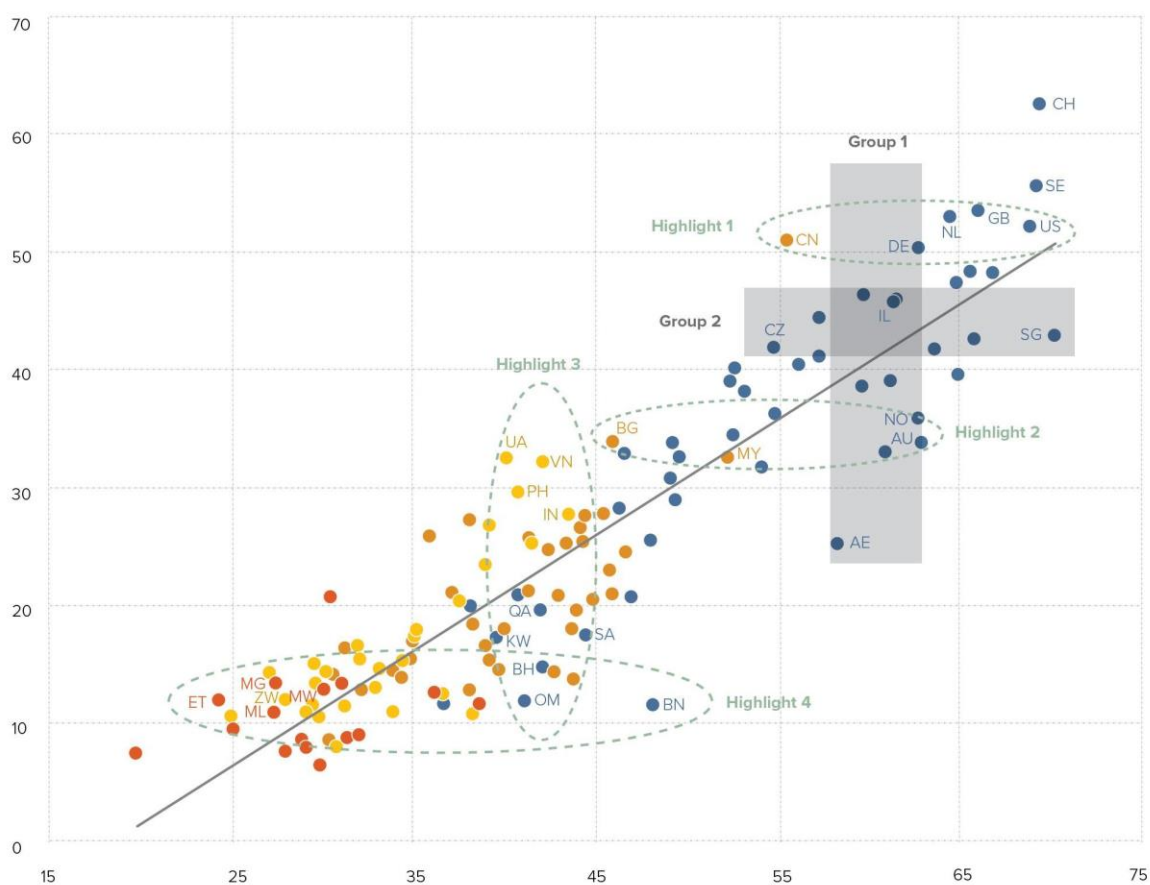


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

Innovation input to output performance, 2020

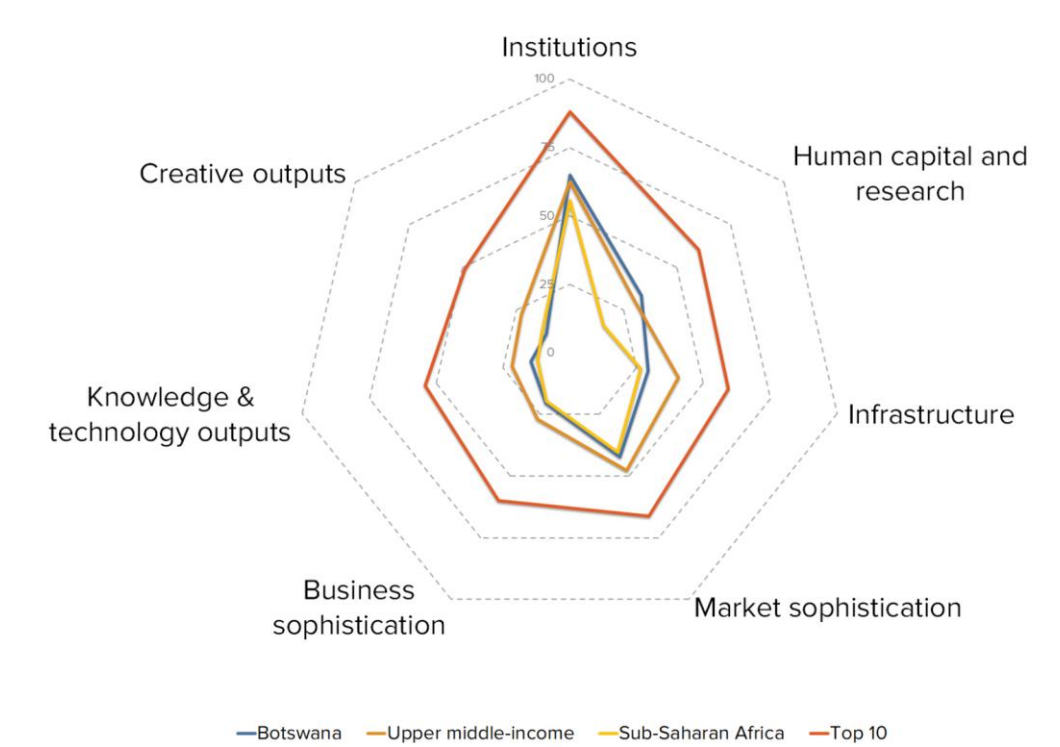


▲ Output score ● High income group ● Lower middle-income group — Fitted values
 ► Input score ● Upper middle-income group ● Low income group

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 BOTSWANA AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND SUB-SAHARAN AFRICA

Botswana's scores in the seven GII pillars



Upper middle-income group economies

Botswana has high scores in two out of the seven GII pillars: Institutions and Human capital & research, which are above average for the upper middle-income group.

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

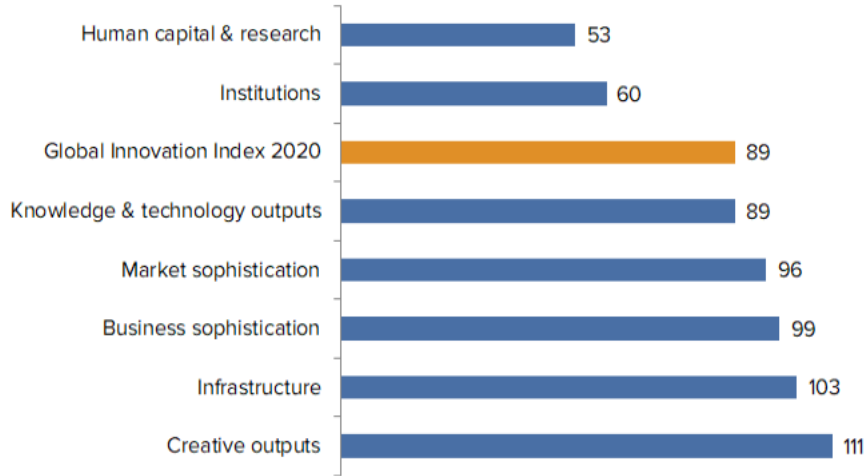
Sub-Saharan Africa

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

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

OVERVIEW OF BOTSWANA RANKINGS IN THE SEVEN GII AREAS

Botswana performs best in Human capital & research and its weakest performance is in Creative outputs.



*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 Botswana in the GII 2020.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.1.1	Political & operational stability*	21	2.3.3	Global R&D companies, top 3, mn US\$	42
1.2.2	Rule of law*	43	2.3.4	QS university ranking, average score top 3*	77
2.1.1	Expenditure on education, % GDP	1	3.1.3	Government's online service*	127
2.1.2	Government funding/pupil, secondary, % GDP/cap	7	3.1.4	E-participation*	125
3.2.3	Gross capital formation, % GDP	16	5.2.5	Patent families 2+ offices/bn PPP\$ GDP	101
3.3.1	GDP/unit of energy use	31	5.3	Knowledge absorption	130
4.3.1	Applied tariff rate, weighted avg., %	4	5.3.5	Research talent, % in business enterprise	79
5.1.2	Firms offering formal training, %	15	6.1.1	Patents by origin/bn PPP\$ GDP	121
5.2.3	GERD financed by abroad, % GDP	34	6.1.2	PCT patents by origin/bn PPP\$ GDP	100
6.2.2	New businesses/th pop. 15–64	3	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	124
			7.1.2	Global brand value, top 5,000, % GDP	80

STRENGTHS

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

- Institutions (60): exhibits strengths in the indicators Political & operational stability (21) and Rule of law (43).
- Human capital & research (53): shows strengths in the indicators Expenditure on education (1) and Government funding/pupil (7).
- Infrastructure (103): demonstrates strengths in the indicators Gross capital formation (16) and GDP/unit of energy use (31).
- Market sophistication (96): the indicator Applied tariff rate (4) reveals a strength.
- Business sophistication (99): displays strengths in the indicators Firms offering formal training (15) and GERD financed by abroad GDP (34).
- Knowledge & technology outputs (89): the indicator New businesses (3) demonstrates a strength.

WEAKNESSES

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

- Human capital & research (53): shows weaknesses in the indicators Global R&D companies (42) and QS university ranking (77).
- Infrastructure (103): displays weaknesses in the indicators Government's online service (127) and E-participation (125).
- Business sophistication (99): demonstrates weaknesses in the sub-pillar Knowledge absorption (130) and in the indicators Patent families (101) and Research talent (79).
- Knowledge & technology outputs (89): displays weaknesses in the indicators Patents by origin (121), PCT patents by origin (100) and ISO 9001 quality certificates (124).
- Creative outputs (111): the indicator Global brand value (80) reveals a weakness.

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2019 rank
105	84	Upper middle	SSF	2.3	44.1	16,202.0	93
		Score/Value	Rank				
		Score/Value	Rank				
INSTITUTIONS 64.9 60				BUSINESS SOPHISTICATION 20.4 99			
1.1	Political environment	66.4	45 ◆	5.1	Knowledge workers	28.1	75
1.1.1	Political and operational stability*.....	83.9	21 ● ◆	5.1.1	Knowledge-intensive employment, %.....	17.9	85
1.1.2	Government effectiveness*.....	57.6	52	5.1.2	Firms offering formal training, %.....	51.9	15 ●
1.2	Regulatory environment	66.0	62	5.1.3	GERD performed by business, % GDP.....	0.1	62
1.2.1	Regulatory quality*.....	53.8	49	5.1.4	GERD financed by business, %.....	17.7	69
1.2.2	Rule of law*.....	58.8	43 ● ◆	5.1.5	Females employed w/advanced degrees, %.....	9.1	72
1.2.3	Cost of redundancy dismissal, salary weeks.....	20.3	85	5.2	Innovation linkages	18.9	78
1.3	Business environment	62.2	95	5.2.1	University/industry research collaboration*.....	36.9	89
1.3.1	Ease of starting a business*.....	76.2	116 ◇	5.2.2	State of cluster development.....	36.3	109 ◇
1.3.2	Ease of resolving insolvency*.....	48.2	76	5.2.3	GERD financed by abroad, % GDP.....	0.1	34 ● ◆
				5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.0	49
				5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	0.0	101 ○ ◇
HUMAN CAPITAL & RESEARCH 33.6 53				5.3 Knowledge absorption 14.1 130 ○ ◇			
2.1	Education	82.5	[1]	5.3.1	Intellectual property payments, % total trade.....	0.1	96
2.1.1	Expenditure on education, % GDP.....	9.6	1 ● ◆	5.3.2	High-tech imports, % total trade.....	4.9	111
2.1.2	Government funding/pupil, secondary, % GDP/cap.....	35.9	7 ● ◆	5.3.3	ICT services imports, % total trade.....	1.0	69
2.1.3	School life expectancy, years.....	n/a	n/a	5.3.4	FDI net inflows, % GDP.....	1.0	109 ◇
2.1.4	PISA scales in reading, maths, & science.....	n/a	n/a	5.3.5	Research talent, % in business enterprise.....	1.0	79 ○ ◇
2.1.5	Pupil-teacher ratio, secondary.....	n/a	n/a	KNOWLEDGE & TECHNOLOGY OUTPUTS 14.5 89			
2.2	Tertiary education	15.2	103 ◇	6.1	Knowledge creation	5.7	100
2.2.1	Tertiary enrolment, % gross.....	24.9	88 ◇	6.1.1	Patents by origin/bn PPP\$ GDP.....	0.1	121 ○
2.2.2	Graduates in science & engineering, %.....	n/a	n/a	6.1.2	PCT patents by origin/bn PPP\$ GDP.....	0.0	100 ○ ◇
2.2.3	Tertiary inbound mobility, %.....	2.4	71	6.1.3	Utility models by origin/bn PPP\$ GDP.....	0.3	41
2.3	Research & development (R&D)	3.2	86	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	5.8	75
2.3.1	Researchers, FTE/mn pop.....	185.2	82	6.1.5	Citable documents H-index.....	5.3	100
2.3.2	Gross expenditure on R&D, % GDP.....	0.5	63	6.2	Knowledge impact	26.0	61
2.3.3	Global R&D companies, avg. exp. top 3, mn \$US.....	0.0	42 ○ ◇	6.2.1	Growth rate of PPP\$ GDP/worker, %.....	2.3	42
2.3.4	QS university ranking, average score top 3*.....	0.0	77 ○ ◇	6.2.2	New businesses/th pop. 15-64.....	20.1	3 ● ◆
				6.2.3	Computer software spending, % GDP.....	0.0	84
				6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	0.4	124 ○
				6.2.5	High- and medium-high-tech manufacturing, %.....	n/a	n/a
INFRASTRUCTURE 29.4 103 ◇				6.3 Knowledge diffusion 11.9 109			
3.1	Information & communication technologies (ICTs)	33.7	116 ◇	6.3.1	Intellectual property receipts, % total trade.....	0.0	92
3.1.1	ICT access*.....	51.9	88	6.3.2	High-tech net exports, % total trade.....	0.6	78
3.1.2	ICT use*.....	42.5	95 ◇	6.3.3	ICT services exports, % total trade.....	0.3	110
3.1.3	Government's online service*.....	20.8	127 ○ ◇	6.3.4	FDI net outflows, % GDP.....	0.6	74
3.1.4	E-participation*.....	19.7	125 ○ ◇	CREATIVE OUTPUTS 11.0 111 ◇			
3.2	General infrastructure	27.4	61	7.1	Intangible assets	13.8	116 ◇
3.2.1	Electricity output, kWh/mn pop.....	1,319.4	91 ◇	7.1.1	Trademarks by origin/bn PPP\$ GDP.....	14.5	103
3.2.2	Logistics performance*.....	n/a	n/a	7.1.2	Global brand value, top 5,000, % GDP.....	0.0	80 ○ ◇
3.2.3	Gross capital formation, % GDP.....	34.6	16 ● ◆	7.1.3	Industrial designs by origin/bn PPP\$ GDP.....	0.3	91
				7.1.4	ICTs & organizational model creation*.....	41.9	109 ◇
3.3	Ecological sustainability	27.0	72	7.2	Creative goods and services	2.1	[118]
3.3.1	GDP/unit of energy use.....	12.5	31 ●	7.2.1	Cultural & creative services exports, % total trade.....	0.0	99
3.3.2	Environmental performance*.....	40.4	87 ◇	7.2.2	National feature films/mn pop. 15-69.....	n/a	n/a
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....	0.3	100	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.....	0.2	77
MARKET SOPHISTICATION 42.2 96				7.3 Online creativity 14.3 70			
4.1	Credit	36.1	83	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....	1.1	94
4.1.1	Ease of getting credit*.....	60.0	74	7.3.2	Country-code TLDs/th pop. 15-69.....	1.3	78
4.1.2	Domestic credit to private sector, % GDP.....	31.8	93	7.3.3	Wikipedia edits/mn pop. 15-69.....	43.6	74
4.1.3	Microfinance gross loans, % GDP.....	n/a	n/a	7.3.4	Mobile app creation/bn PPP\$ GDP.....	n/a	n/a
4.2	Investment	31.8	91				
4.2.1	Ease of protecting minority investors*.....	60.0	71				
4.2.2	Market capitalization, % GDP.....	n/a	n/a				
4.2.3	Venture capital deals/bn PPP\$ GDP.....	0.0	53				
4.3	Trade, competition, and market scale	58.8	82				
4.3.1	Applied tariff rate, weighted avg., %.....	0.3	4 ● ◆				
4.3.2	Intensity of local competition*.....	61.7	101				
4.3.3	Domestic market scale, bn PPP\$.....	44.1	107				

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 Botswana.

Missing data

Code	Indicator name	Country year	Model year	Source
2.1.3	School life expectancy, years	n/a	2017	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths & science	n/a	2018	OECD Programme for International Student Assessment (PISA)
2.1.5	Pupil-teacher ratio, secondary	n/a	2018	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	n/a	2017	UNESCO Institute for Statistics
3.2.2	Logistics performance*	n/a	2018	World Bank and Turku School of Economics
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
4.2.2	Market capitalization, % GDP	n/a	2018	World Federation of Exchanges
6.2.5	High- & medium-high-tech manufacturing, %	n/a	2017	United Nations Industrial Development 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
7.2.4	Printing & 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

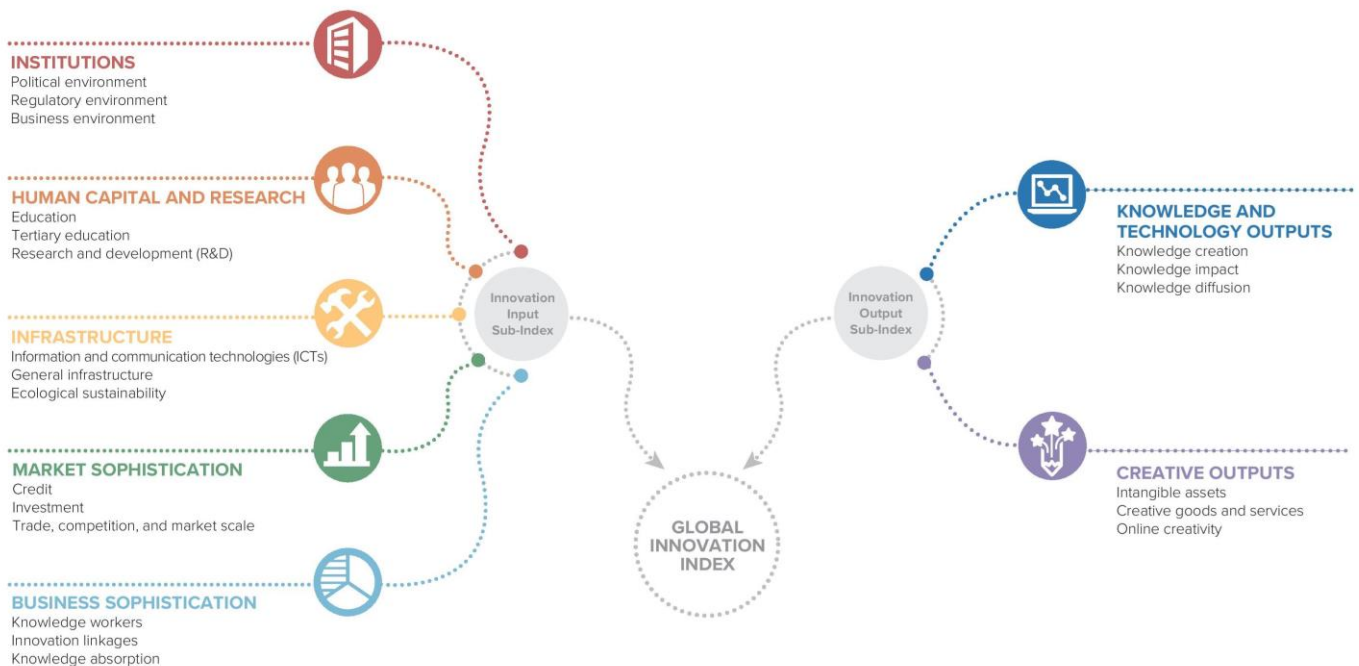
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2009	2018	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2009	2016	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2013	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2013	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.1	Knowledge-intensive employment, %	2010	2018	International Labour Organization
5.1.2	Firms offering formal training, %	2009	2018	World Bank
5.1.3	GERD performed by business, % GDP	2013	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.4	GERD financed by business, %	2013	2017	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2010	2018	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2013	2017	UNESCO Institute for Statistics
5.3.1	Intellectual property payments, % total trade	2017	2018	World Trade Organization
5.3.3	ICT services imports, % total trade	2017	2018	World Trade Organization
5.3.5	Research talent, % in business enterprise	2013	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
6.1.1	Patents by origin/bn PPP\$ GDP	2017	2018	World Intellectual Property Organization
6.2.2	New businesses/th pop. 15–64	2016	2018	World Bank
6.3.1	Intellectual property receipts, % total trade	2017	2018	World Trade Organization
6.3.3	ICT services exports, % total trade	2017	2018	World Trade Organization
7.1.3	Industrial designs by origin/bn PPP\$ GDP	2014	2018	World Intellectual Property 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.

