GLOBAL INNOVATION INDEX 2020



BENIN

126th

Benin ranks 126th 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 Benin 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 Benin in the GII 2020 is between ranks 126 and 130.

Rankings of Benin (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	126	116	131
2019	123	114	125
2018	121	110	123

- Benin performs better in innovation inputs than innovation outputs in 2020.
- This year Benin ranks 116th in innovation inputs, lower than last year and lower compared to 2018.
- As for innovation outputs, Benin ranks 131st. This position is lower than last year and lower compared to 2018.



Benin ranks 12th among the 16 low-income group economies.



Benin ranks 23rd among the 26 economies in Sub-Saharan Africa.

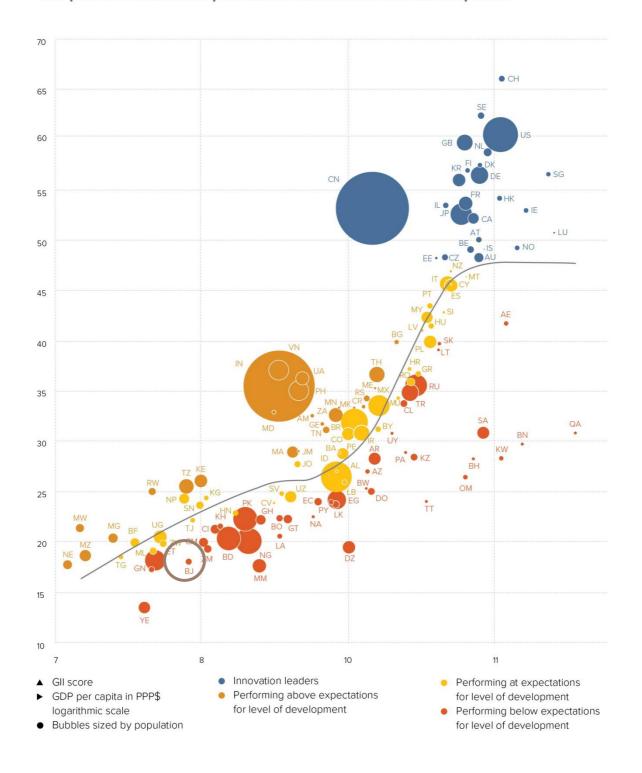


EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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

The positive relationship between innovation and development



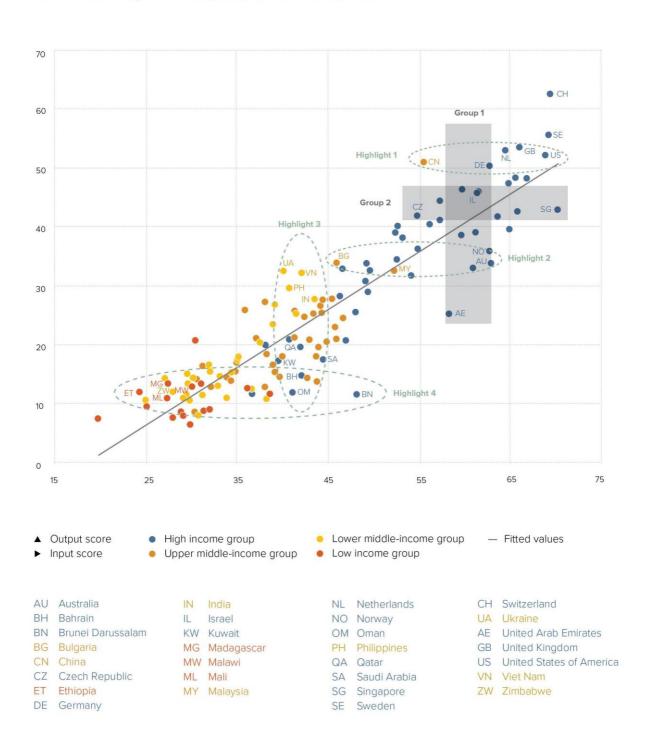


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

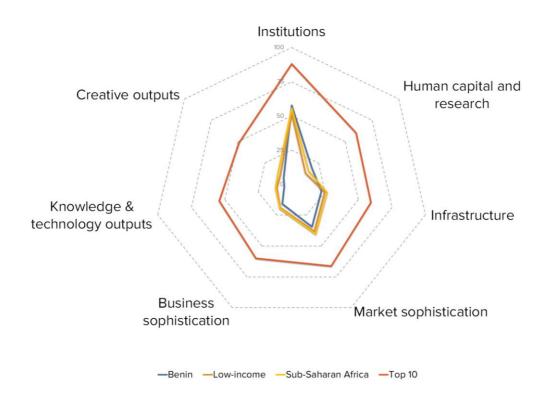
Innovation input to output performance, 2020







Benin's scores in the seven GII pillars



Low-income group economies

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

Conversely, Benin 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, Benin performs:

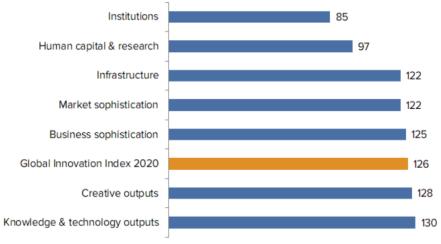
- above average in two out of the seven GII pillars: Institutions and Human capital & research; and
- below average in five out of the seven GII pillars: Infrastructure, Market sophistication, Business sophistication, Knowledge & technology outputs and Creative outputs.





OVERVIEW OF BENIN RANKINGS IN THE SEVEN GII AREAS

Benin performs best in Institutions and its weakest performance is in Knowledge & technology 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 Benin in the GII 2020.

Strengths					
nk					
,					

Weaknesses						
Code	Code Indicator name					
2.3.3	Global R&D companies, top 3, mn US\$					
2.3.4	QS university ranking, average score top 3* 77					
3.2.1	Electricity output, GWh/mn pop	121				
3.3	Ecological sustainability	131				
3.3.3	ISO 14001 environmental certificates/bn PPP\$ G	SDP128				
4.3	Trade, competition, and market scale 128					
4.3.1	Applied tariff rate, weighted avg., %	130				
5.2.5	Patent families 2+ offices/bn PPP\$ GDP	101				
5.3.1	.1 Intellectual property payments, % total trade 1					
6	Knowledge & technology outputs	130				
6.3	Knowledge diffusion	129				
6.3.1	Intellectual property receipts, % total trade	108				
7	Creative outputs	128				
7.1	Intangible assets	127				
7.1.2	Global brand value, top 5000, % GDP	80				
7.3.2	Country-code TLDs/th pop. 15–69	127				



STRENGTHS

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

- Institutions (85): exhibits strengths in the sub-pillar Regulatory environment (75) and in the indicators Cost of redundancy dismissal (37) and Ease of starting a business (55).
- Human capital & research (97): shows strengths in the indicators Expenditure on education (71), Pupil—teacher ratio, secondary (42) and Tertiary inbound mobility (34).
- Infrastructure (122): demonstrates strengths in the indicators Logistics performance (75) and Gross capital formation (39).
- Market sophistication (122): has strength in the indicator Microfinance gross loans (12).
- Business sophistication (125): the indicator ICT services imports (64) is a strength.
- Knowledge & technology outputs (130): the indicator Scientific & technical articles (72) is a strength.

WEAKNESSES

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

- Human capital & research (97): has weaknesses in the indicators Global R&D companies (42) and QS university ranking (77).
- Infrastructure (122): displays weaknesses in the sub-pillar Ecological sustainability (131) and in the indicators Electricity output (121) and ISO 14001 environmental certificates (128).
- Market sophistication (122): shows weaknesses in the sub-pillar Trade, competition, and market scale (128) and in the indicator Applied tariff rate (130).
- Business sophistication (125): demonstrates weaknesses in the indicators Patent families (101) and Intellectual property payments (117).
- Knowledge & technology outputs (130): displays weaknesses in the sub-pillar Knowledge diffusion (129) and in the indicator Intellectual property receipts (108).
- Creative outputs (128): has weaknesses in the sub-pillar Intangible assets (127) and in the indicators Global brand value (80) and Country-code TLDs (127).



126

Output i	rank	Input rank	Income	Regio	n	Pop	ulation (m	nn) GDP, PPP\$	GDP per capita, PPP\$	GII	2019 ra
131 116 Low		116	Low	SSF		11.8		40.7	3,008.8	123 core/Value Rank	
		e/Value	Rank				Sc				
	STITU	TIONS		57.8	85			BUSINESS SOPHIS	TICATION	15.7	125
1 Po	olitical e	environment		45.8	101		5.1	Knowledge workers		13.4	[116]
			ability*		92		5.1.1		employment, %	n/a	n/a
1.2 Go	overnme	ent effectiveness	*	37.5	102		5.1.2		aining, %	20.0	75
				64.0		_	5.1.3		usiness, % GDP	n/a	n/a
					75 95		5.1.4 5.1.5		iness, %advanced degrees, %	n/a 0.8	n/a 112
					107		5.1.5	i emales employed w/	advanced degrees, /o	0.0	112
			sal, salary weeks	11.6	37	•	5.2	Innovation linkages		17.1	94
			- 200				5.2.1	University/industry rese	35.6 36.5	96	
					81	_	5.2.2				108
			Cy*	90.6	55 95	•	5.2.3 5.2.4	GERD financed by abroad, % GDP JV-strategic alliance deals/bn PPP\$ GDP			n/a 81
J.Z Ed	ise or re	esolving insolveni	су	41.0	95		5.2.5		ces/bn PPP\$ GDP	0.0	101
# н∪	UMAN	CAPITAL & R	ESEARCH	18.9	97		5.3	Knowledge absorptio	n	16.6	121
No. of the last				100000000	1000		5.3.1	Intellectual property pa	ayments, % total trade	0.0	117
					95		5.3.2	High-tech imports, % to	otal trade	4.0	120
			% GDP	4.0	71	•	5.3.3		6 total trade	1.1	64
			econdary, % GDP/cap ars	10.8 12.6	92 86		5.3.4 5.3.5		ousiness enterprise	1.9 n/a	85 n/a
			ths, & science	n/a	n/a		0.0.0	Research talent, 70 in b	distress enterprise	11/0	11/0
			lary. 🗹	11.0	42	• +				-	
2 Te	untinus a	ducation		24.6	90		<u>M</u>	KNOWLEDGE & TEC	HNOLOGY OUTPUTS	5.5	130
			S	21.6 12.3	105	•	6.1	Knowledge creation		6.1	95
			gineering, %.©	20.7	68		6.1.1		PP\$ GDP	0.1	111
			%	7.0	34		6.1.2		bn PPP\$ GDP	0.0	89
							6.1.3		/bn PPP\$ GDP		n/a
			(R&D)	0.0	[121]		6.1.4		rticles/bn PPP\$ GDP		72 (
			, % GDP	n/a	n/a n/a		6.1.5	Citable documents H-i	ndex	4.7	110
			exp. top 3, mn \$US	n/a 0.0		00	6.2	Knowledge impact		3.0	[128]
			rage score top 3*	0.0		00	6.2.1		DP/worker, %		n/a
							6.2.2	New businesses/th po	p. 15-64	0.5	94
							6.2.3		ending, % GDP		99
× IN	FRAS	TRUCTURE			122		6.2.4 6.2.5		cates/bn PPP\$ GDP	1.0	108
1 Inf	formatio	on & communicati	on technologies (ICTs)	32.2	118		0.2.5	nign- and medium-nig	h-tech manufacturing, %	n/a	n/a
			 ,		120		6.3	Knowledge diffusion.		7.4	129
1.2 IC	T use*			13.4	124		6.3.1	Intellectual property re	ceipts, % total trade		108
			ce*		110		6.3.2		% total trade	0.0	124
1.4 E-p	participa	ation*		37.1	115		6.3.3 6.3.4		6 total trade	0.1	120 94
					91			7 2 11100 0 0 0 110 110 1 0 0 2			
			pop		121		364			700 300	400
			GDP	31.9 26.6	39	•	ân	CREATIVE OUTPU	TS	7.4	128 (
2.5	oss cap	ntai ioimation, 76	ODI	20.0	33		7.1	Intangible assets		11.5	127
3 Ec	ologica	al sustainability		12.8	131	0	7.1.1		on PPP\$ GDP	4.6	120
				4.4	114		7.1.2		p 5,000, % GDP	0.0	80
			e*		120	0	7.1.3		rigin/bn PPP\$ GDP	0.1	113
3.3 ISC) 14001	environmental cer	tificates/bn PPP\$ GDP	0.1	128	O	7.1.4	ICTs & organizational r	model creation+	39.2	115
			7.00	242	422		7.2		ervices		[129]
ııı M∠	ARKE	SOPHISTICA	TION	34.3	122		7.2.1 7.2.2		ces exports, % total trade mn pop. 15-69	0.0 n/a	96 n/a
1 Cr	edit			21.5	122		7.2.3		market/th pop. 15-69	n/a	n/a
					122		7.2.4		dia, % manufacturing	n/a	n/a
			sector, % GDP	23.1	109	_	7.2.5	Creative goods export	ts, % total trade	0.0	121
.3 Mi	crofinar	nce gross Ioans, '	% GDP	2.1	12		73	Online one-strate.		6.3	103
2 Inv	vestme	nt		42.0	[47]		7.3 7.3.1		ins (TLDs)/th pop. 15-69	6.3 0.6	103 103
			investors*		102		7.3.1		pop. 15-69	0.0	127
)P	n/a	n/a		7.3.3		p. 15-69		103
2.3 Ve	enture c	apital deals/bn P	PP\$ GDP	n/a	n/a		7.3.4	Mobile app creation/b	n PPP\$ GDP	n/a	n/a
3 Tra	ade, co	mpetition, and r	narket scale	39.5	128						
3.1 Ap	plied ta	ariff rate, weighte	d avg., %	15.3		0 0					
			On+		90						
3.3 Do	mestic	market scale, bn	PPP\$	40.7	109						





DATA AVAILABILITY

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

Missing data

Code	Indicator name	Country	Model	Source	
Code	indicator name	year	year		
2.1.4	PISA scales in reading, maths & science	n/a	2018	OECD Programme for International Student Assessment (PISA)	
2.3.1	Researchers, FTE/mn pop.	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators	
2.3.2	Gross expenditure on R&D, % GDP	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators	
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	
5.1.1	Knowledge-intensive employment, %	n/a	2018	Source: International Labour Organization	
5.1.3	GERD performed by business, % GDP	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators	
5.1.4	GERD financed by business, %	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators	
5.2.3	GERD financed by abroad, % GDP	n/a	2017	UNESCO Institute for Statistics	
5.3.5	Research talent, % in business enterprise	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators	
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2018	World Intellectual Property Organization	
6.2.1	Growth rate of PPP\$ GDP/worker, %	n/a	2019	The Conference Board	
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
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2016	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2016	2017	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2016	2018	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	2015	2017	UNESCO Institute for Statistics
5.1.2	Firms offering formal training, %	2015	2018	World Bank
5.1.5	Females employed w/advanced degrees, %	2011	2018	International Labour Organization
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
6.3.1	Intellectual property receipts, % total trade	2016	2018	World Trade Organization
6.3.3	ICT services exports, % total trade	2017	2018	World Trade Organization
7.2.1	Cultural & creative services exports, % total trade	2011	2018	World Trade Organization

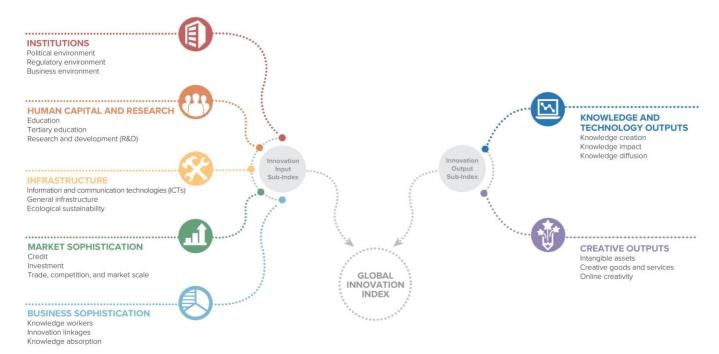


ABOUT THE GLOBAL INNOVATION INDEX

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.



