



# Global Innovation Index 2021



## BENIN

**128th** Benin ranks 128th 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 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 2021 is between ranks 125 and 131.

### Rankings for Benin (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	128	113	132
2020	126	116	131
2019	123	114	125

- Benin performs better in innovation inputs than innovation outputs in 2021.
- This year Benin ranks 113th in innovation inputs, higher than both 2020 and 2019.
- As for innovation outputs, Benin ranks 132nd. This position is lower than both 2020 and 2019.

**33rd** Benin ranks 33rd among the 34 lower middle-income group economies.

**24th** Benin ranks 24th among the 27 economies in Sub-Saharan Africa.

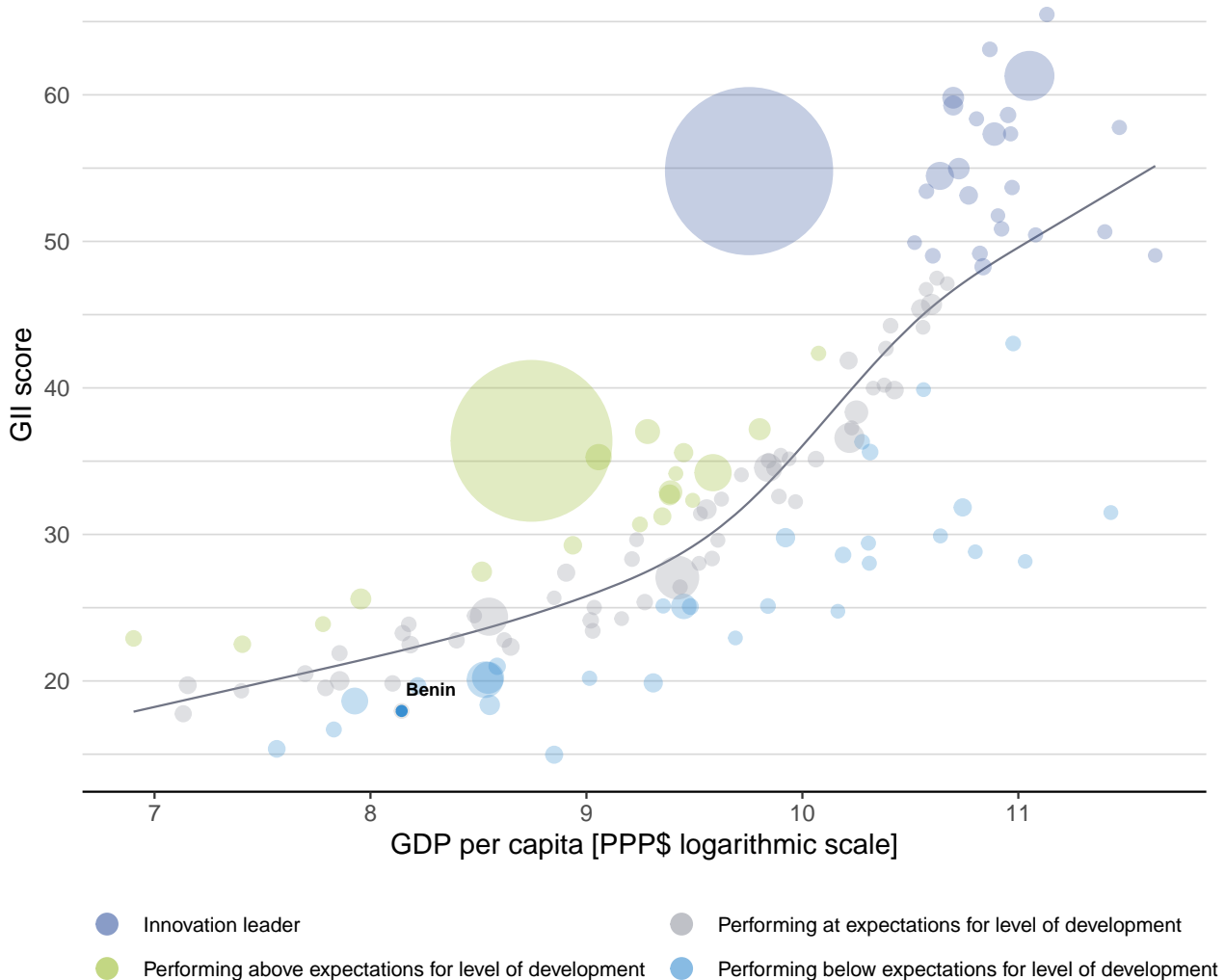


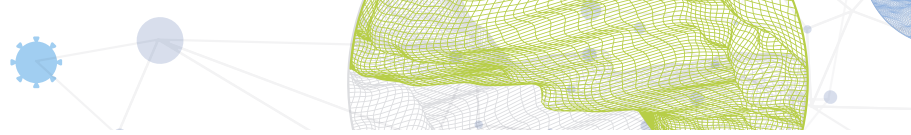
## EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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, Benin's performance is below expectations for its level of development.

### The positive relationship between innovation and development



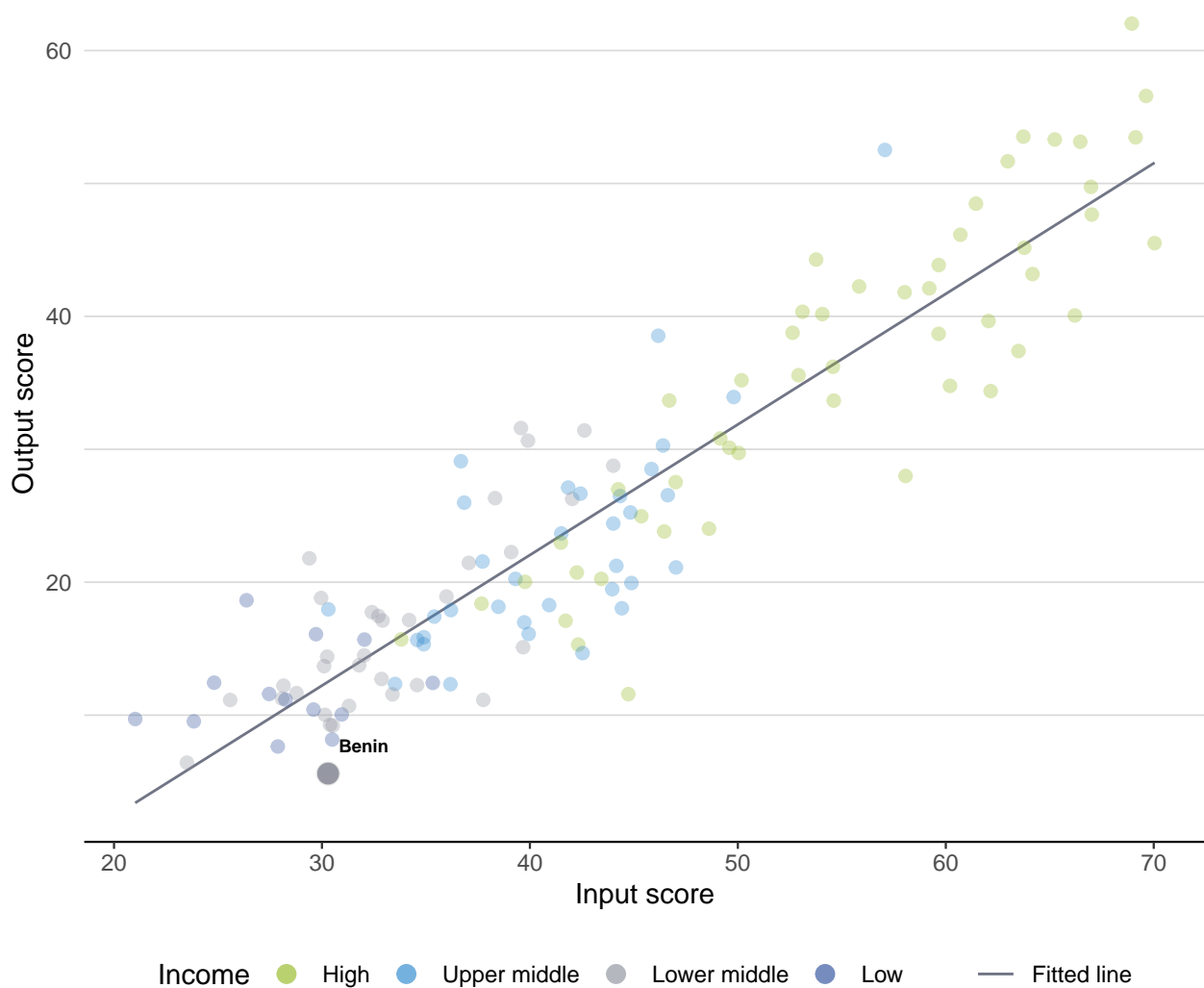


## EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation 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**





## BENCHMARKING AGAINST OTHER LOWER MIDDLE-INCOME GROUP ECONOMIES AND SUB-SAHARAN AFRICA

### The seven GII pillar scores for Benin

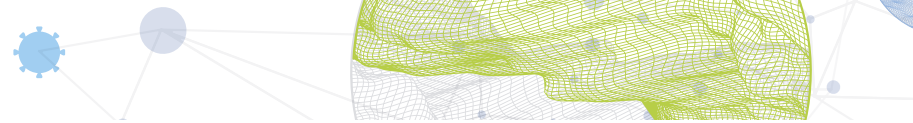


#### Lower middle-income group economies

Benin performs above the lower middle-income group average in Institutions.

#### Sub-Saharan Africa

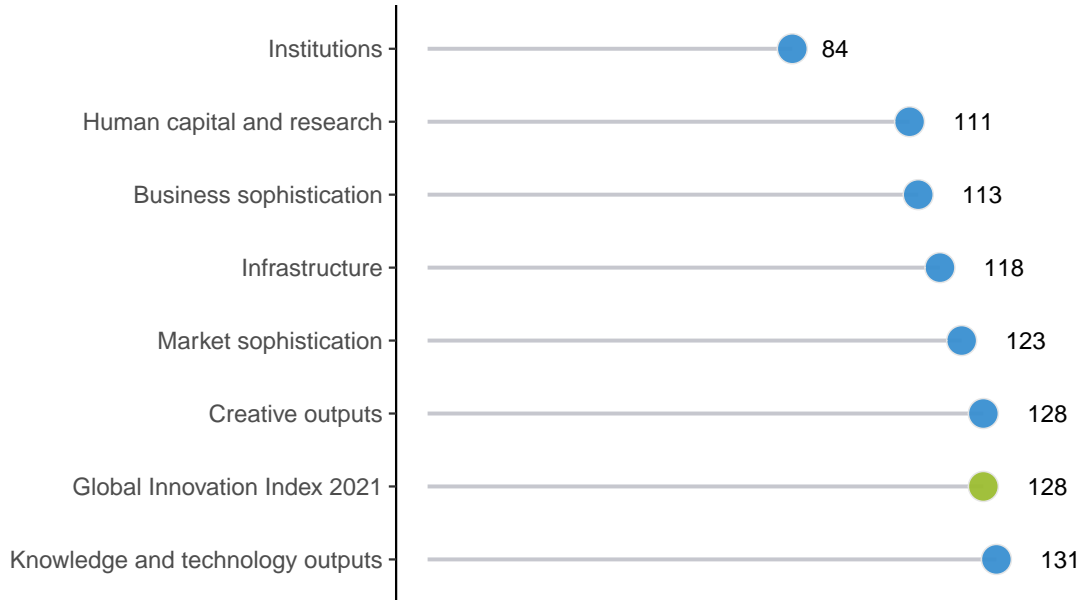
Benin performs above the regional average in two pillars, namely: Institutions; and, Human capital and research.



## OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Benin performs best in Institutions and its weakest performance is in Knowledge and technology outputs.

### The seven GII pillar ranks for Benin



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 Benin in the GII 2021.

### Strengths and weaknesses for Benin

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.2	Regulatory environment	76	2.3.3	Global corporate R&D investors, top 3, mn US\$	41
1.2.3	Cost of redundancy dismissal	37	2.3.4	QS university ranking, top 3	74
1.3	Business environment	81	3.2.1	Electricity output, GWh/mn pop.	124
1.3.1	Ease of starting a business	55	3.3	Ecological sustainability	131
2.1.5	Pupil-teacher ratio, secondary	39	5.2.5	Patent families/bn PPP\$ GDP	100
2.2.2	Graduates in science and engineering, %	68	5.3.1	Intellectual property payments, % total trade	121
2.2.3	Tertiary inbound mobility, %	52	6.1.3	Utility models by origin/bn PPP\$ GDP	76
3.2	General infrastructure	81	6.3	Knowledge diffusion	132
3.2.2	Logistics performance	75	6.3.3	High-tech exports, % total trade	127
3.2.3	Gross capital formation, % GDP	36	6.3.4	ICT services exports, % total trade	128
4.1.3	Microfinance gross loans, % GDP	19	7.1.2	Global brand value, top 5,000, % GDP	80
5.3.3	ICT services imports, % total trade	10	7.2.5	Creative goods exports, % total trade	130
6.1.4	Scientific and technical articles/bn PPP\$ GDP	82			

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$	GII 2020 rank
132	113	Lower middle	SSF	12.1	41.8	3,443	126

	Score/ Value	Rank		Score/ Value	Rank
 <b>Institutions</b>	58.5	84	 <b>Business sophistication</b>	17.0	113
<b>1.1 Political environment</b>	47.5	96	<b>5.1 Knowledge workers</b>	13.5	[115]
1.1.1 Political and operational stability*	60.7	97	5.1.1 Knowledge-intensive employment, %	n/a	n/a
1.1.2 Government effectiveness*	40.9	96	5.1.2 Firms offering formal training, %	⊙	20.0 78
<b>1.2 Regulatory environment</b>	62.1	76 ●	5.1.3 GERD performed by business, % GDP	n/a	n/a
1.2.1 Regulatory quality*	33.7	97	5.1.4 GERD financed by business, %	n/a	n/a
1.2.2 Rule of law*	29.2	106	5.1.5 Females employed w/advanced degrees, %	⊙	0.8 116
1.2.3 Cost of redundancy dismissal	11.6	37 ●	<b>5.2 Innovation linkages</b>	17.7	89
<b>1.3 Business environment</b>	65.8	81 ●	5.2.1 University-industry R&D collaboration†	39.0	83
1.3.1 Ease of starting a business*	90.6	55 ●	5.2.2 State of cluster development and depth†	38.8	106
1.3.2 Ease of resolving insolvency*	41.0	95	5.2.3 GERD financed by abroad, % GDP	n/a	n/a
			5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP ⊙	0.0	95
			5.2.5 Patent families/bn PPP\$ GDP	0.0	100 ⊙ ⊙
 <b>Human capital and research</b>	17.3	111	<b>5.3 Knowledge absorption</b>	19.7	93
<b>2.1 Education</b>	33.1	109	5.3.1 Intellectual property payments, % total trade	0.0	121 ⊙ ⊙
2.1.1 Expenditure on education, % GDP	2.9	99	5.3.2 High-tech imports, % total trade	3.3	123
2.1.2 Government funding/pupil, secondary, % GDP/cap ⊙	7.9	97 ⊙	5.3.3 ICT services imports, % total trade	2.9	10 ● ◆
2.1.3 School life expectancy, years	⊙	12.6 86	5.3.4 FDI net inflows, % GDP	1.5	93
2.1.4 PISA scales in reading, maths and science	n/a	n/a	5.3.5 Research talent, % in businesses	n/a	n/a
2.1.5 Pupil-teacher ratio, secondary	⊙	11.0 39 ● ◆	 <b>Knowledge and technology outputs</b>	2.7	131 ⊙ ⊙
<b>2.2 Tertiary education</b>	19.0	97	<b>6.1 Knowledge creation</b>	4.8	113
2.2.1 Tertiary enrolment, % gross	12.5	109	6.1.1 Patents by origin/bn PPP\$ GDP	0.1	104
2.2.2 Graduates in science and engineering, %	20.9	68 ●	6.1.2 PCT patents by origin/bn PPP\$ GDP	0.0	87
2.2.3 Tertiary inbound mobility, %	4.5	52 ● ◆	6.1.3 Utility models by origin/bn PPP\$ GDP	0.0	76 ⊙ ⊙
<b>2.3 Research and development (R&amp;D)</b>	0.0	[123]	6.1.4 Scientific and technical articles/bn PPP\$ GDP	10.5	82 ●
2.3.1 Researchers, FTE/mn pop.	n/a	n/a	6.1.5 Citable documents H-index	4.7	109
2.3.2 Gross expenditure on R&D, % GDP	n/a	n/a	<b>6.2 Knowledge impact</b>	3.1	[130]
2.3.3 Global corporate R&D investors, top 3, mn US\$	0.0	41 ⊙ ⊙	6.2.1 Labor productivity growth, %	n/a	n/a
2.3.4 QS university ranking, top 3*	0.0	74 ⊙ ⊙	6.2.2 New businesses/th pop. 15–64	0.5	94
			6.2.3 Software spending, % GDP	0.1	98
 <b>Infrastructure</b>	25.1	118	6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	1.1	104
<b>3.1 Information and communication technologies (ICTs)</b>	37.4	114	6.2.5 High-tech manufacturing, %	n/a	n/a
3.1.1 ICT access*	31.6	122 ⊙	<b>6.3 Knowledge diffusion</b>	0.3	132 ⊙ ⊙
3.1.2 ICT use*	12.0	127 ⊙	6.3.1 Intellectual property receipts, % total trade	0.0	100
3.1.3 Government's online service*	51.2	104	6.3.2 Production and export complexity	n/a	n/a
3.1.4 E-participation*	54.8	94	6.3.3 High-tech exports, % total trade	0.0	127 ⊙
<b>3.2 General infrastructure</b>	25.1	81 ●	6.3.4 ICT services exports, % total trade	0.1	128 ⊙
3.2.1 Electricity output, GWh/mn pop.	17.6	124 ⊙ ⊙	 <b>Creative outputs</b>	8.5	128 ⊙ ⊙
3.2.2 Logistics performance*	32.7	75 ●	<b>7.1 Intangible assets</b>	11.9	127 ⊙
3.2.3 Gross capital formation, % GDP	26.6	36 ●	7.1.1 Trademarks by origin/bn PPP\$ GDP	5.0	122
<b>3.3 Ecological sustainability</b>	13.0	131 ⊙ ⊙	7.1.2 Global brand value, top 5,000, % GDP	0.0	80 ⊙ ⊙
3.3.1 GDP/unit of energy use	5.0	115 ⊙	7.1.3 Industrial designs by origin/bn PPP\$ GDP	0.0	117
3.3.2 Environmental performance*	30.0	120	7.1.4 ICTs and organizational model creation†	39.2	115
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	0.1	126	<b>7.2 Creative goods and services</b>	0.3	[131]
			7.2.1 Cultural and creative services exports, % total trade ⊙	0.0	98
 <b>Market sophistication</b>	33.6	123	7.2.2 National feature films/mn pop. 15–69	n/a	n/a
<b>4.1 Credit</b>	19.5	124 ⊙	7.2.3 Entertainment and media market/th pop. 15–69	n/a	n/a
4.1.1 Ease of getting credit*	30.0	122 ⊙	7.2.4 Printing and other media, % manufacturing	n/a	n/a
4.1.2 Domestic credit to private sector, % GDP	17.6	116	7.2.5 Creative goods exports, % total trade	0.0	130 ⊙
4.1.3 Microfinance gross loans, % GDP	1.5	19 ●	<b>7.3 Online creativity</b>	9.8	94
<b>4.2 Investment</b>	42.0	[28]	7.3.1 Generic top-level domains (TLDs)/th pop. 15–69	0.6	103
4.2.1 Ease of protecting minority investors*	42.0	102	7.3.2 Country-code TLDs/th pop. 15–69	0.0	126
4.2.2 Market capitalization, % GDP	n/a	n/a	7.3.3 Wikipedia edits/mn pop. 15–69	31.5	99
4.2.3 Venture capital investors, deals/bn PPP\$ GDP	n/a	n/a	7.3.4 Mobile app creation/bn PPP\$ GDP	n/a	n/a
4.2.4 Venture capital recipients, deals/bn PPP\$ GDP	n/a	n/a			
<b>4.3 Trade, diversification, and market scale</b>	39.2	126 ⊙			
4.3.1 Applied tariff rate, weighted avg., %	9.9	116			
4.3.2 Domestic industry diversification	n/a	n/a			
4.3.3 Domestic market scale, bn PPP\$	41.8	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 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 Benin.

### Missing data for Benin

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)
2.3.1	Researchers, FTE/mn pop.	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
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
5.1.1	Knowledge-intensive employment, %	n/a	2019	International Labour Organization
5.1.3	GERD performed by business, % GDP	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.2.3	GERD financed by abroad, % GDP	n/a	2018	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.2.1	Labor productivity growth, %	n/a	2020	The Conference Board
6.2.5	High-tech manufacturing, %	n/a	2018	United Nations Industrial Development Organization
6.3.2	Production and export complexity	n/a	2018	Growth Lab, Harvard University

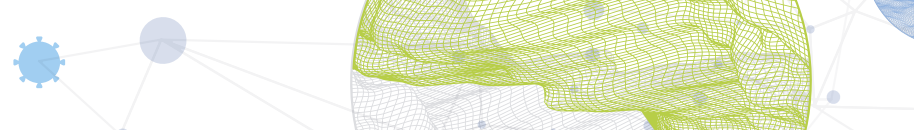




Code	Indicator name	Economy year	Model year	Source
7.2.2	National feature films/mn pop. 15–69	n/a	2017	UNESCO Institute for Statistics
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC
7.2.4	Printing and other media, % manufacturing	n/a	2018	United Nations Industrial Development Organization
7.3.4	Mobile app creation/bn PPP\$ GDP	n/a	2020	App Annie

### Outdated data for Benin

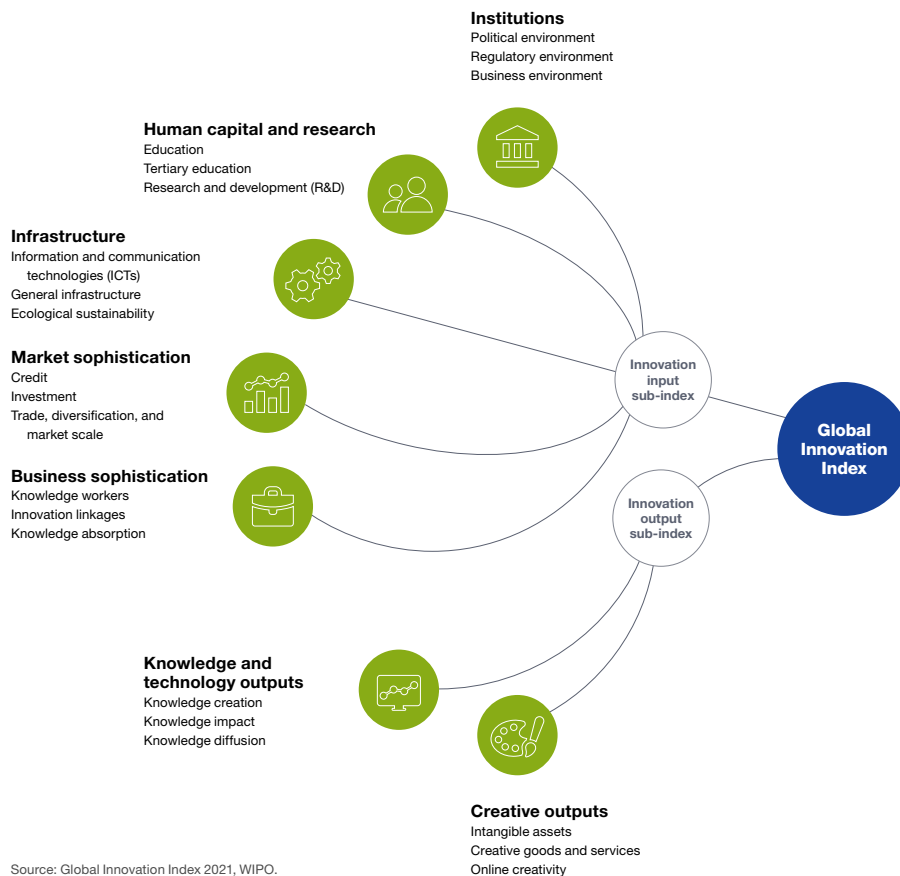
Code	Indicator name	Economy year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2017	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2016	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2016	2019	UNESCO Institute for Statistics
5.1.2	Firms offering formal training, %	2016	2019	World Bank
5.1.5	Females employed w/advanced degrees, %	2011	2019	International Labour Organization
5.2.4	Joint venture/strategic alliance deals/bn PPP\$ GDP	2019	2020	Refinitiv
7.2.1	Cultural and creative services exports, % total trade	2011	2019	World Trade Organization



## 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.