Global Innovation Index 2021

BOLIVIA (PLURINATIONAL STATE OF)

104th Bolivia ranks 104th 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 Bolivia 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 Bolivia in the GII 2021 is between ranks 100 and 109.

Rankings for Bolivia (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	104	95	111
2020	105	97	117
2019	110	102	113

- Bolivia performs better in innovation inputs than innovation outputs in 2021.
- This year Bolivia ranks 95th in innovation inputs, higher than both 2020 and 2019.
- As for innovation outputs, Bolivia ranks 111th. This position is higher than both 2020 and 2019.

18th Bolivia ranks 18th among the 34 lower middle-income group economies.

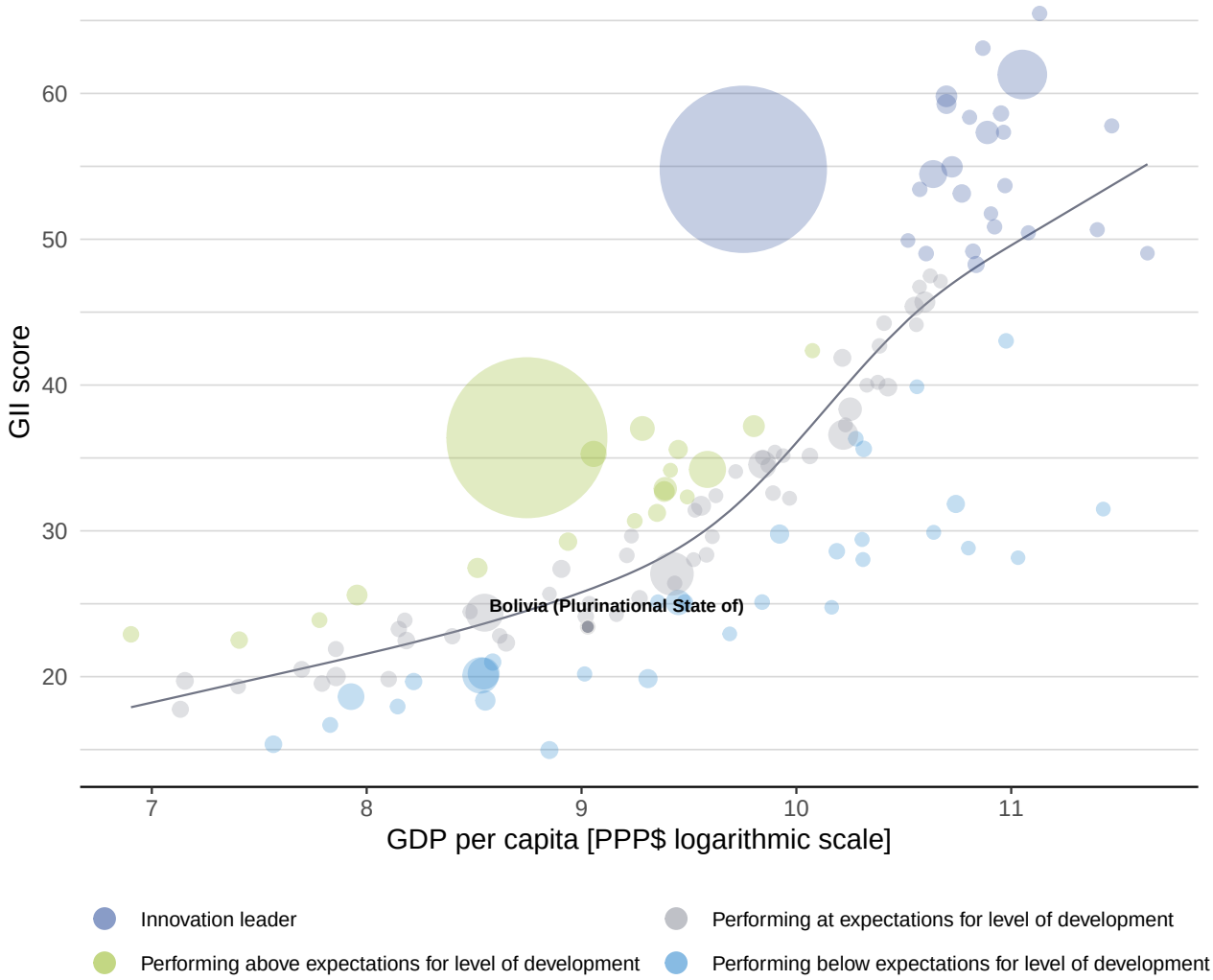
17th Bolivia ranks 17th among the 18 economies in Latin America and the Caribbean.

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

The positive relationship between innovation and development

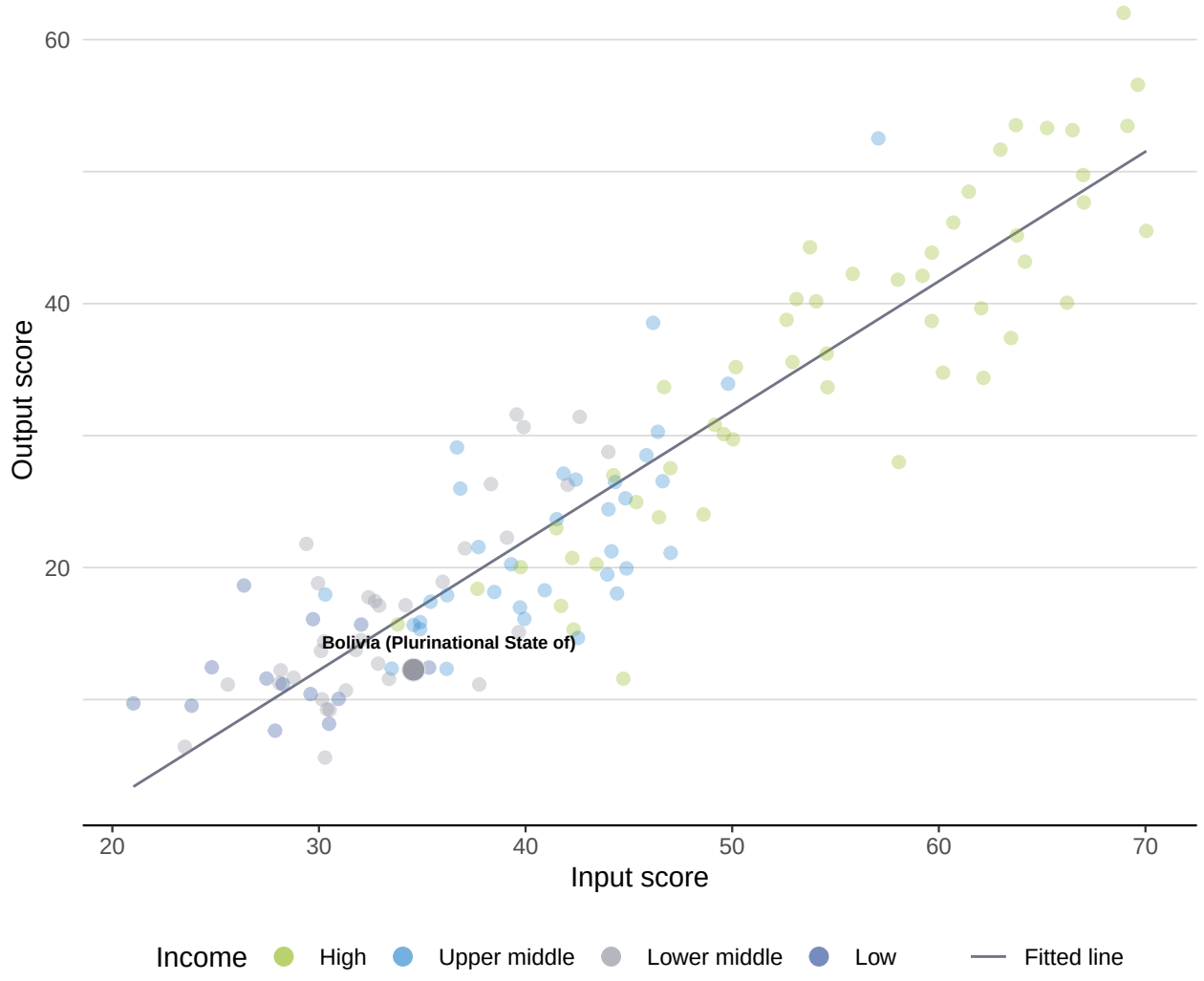


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Bolivia 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 LATIN AMERICA AND THE CARIBBEAN

The seven GII pillar scores for Bolivia

Lower middle-income group economies

Bolivia performs above the lower middle-income group average in three pillars, namely: Human capital and research; Market sophistication; and, Business sophistication.

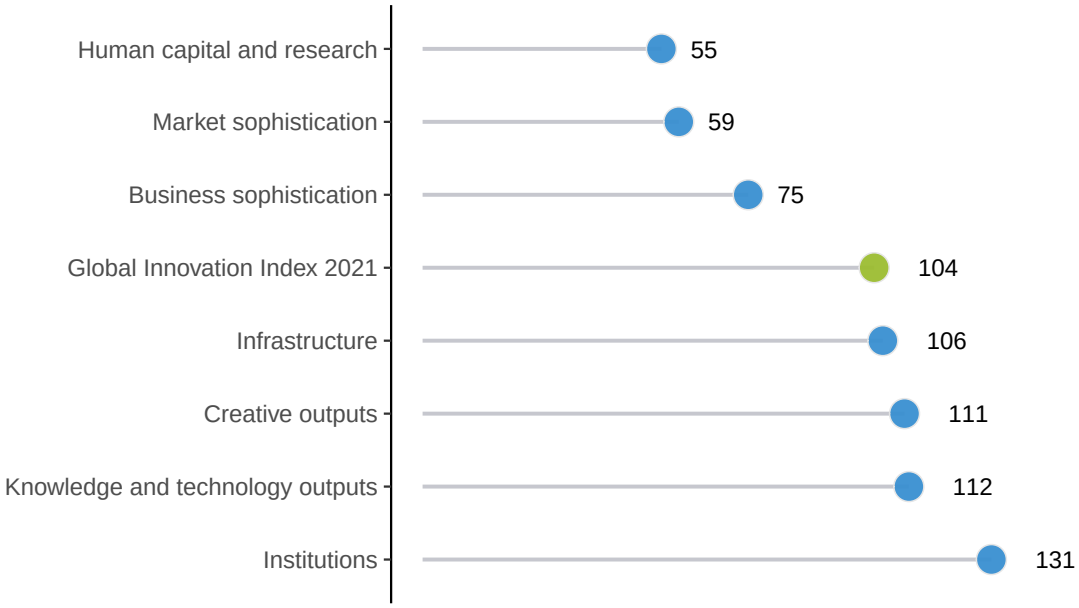
Latin America and the Caribbean

Bolivia performs above the regional average in two pillars, namely: Human capital and research; and, Market sophistication.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Bolivia performs best in Human capital and research and its weakest performance is in Institutions.

The seven GII pillar ranks for Bolivia



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 Bolivia in the GII 2021.

Strengths and weaknesses for Bolivia

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
4.1	Credit	47	1.1.1	Political and operational stability	123
4.1.2	Domestic credit to private sector, % GDP	46	1.2	Regulatory environment	132
4.1.3	Microfinance gross loans, % GDP	1	1.2.1	Regulatory quality	127
5.1.2	Firms offering formal training, %	18	1.2.2	Rule of law	128
5.3.1	Intellectual property payments, % total trade	60	1.3.1	Ease of starting a business	126
5.3.2	High-tech imports, % total trade	24	2.3.3	Global corporate R&D investors, top 3, mn US$	41
6.2.1	Labor productivity growth, %	57	2.3.4	QS university ranking, top 3	74
6.2.3	Software spending, % GDP	44	3.2	General infrastructure	126
6.3.1	Intellectual property receipts, % total trade	51	5.2.1	University-industry R&D collaboration	125
7.1.1	Trademarks by origin/bn PPP$ GDP	63	5.2.5	Patent families/bn PPP$ GDP	100
7.2.5	Creative goods exports, % total trade	44	5.3.5	Research talent, % in businesses	84
			7.1.2	Global brand value, top 5,000, % GDP	80
			7.1.4	ICTs and organizational model creation	122

Bolivia (Plurinational State of)

GII 2021 rank
104

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
111	**95**	**Lower middle**	**LCN**	**11.7**	**97.8**	**8,342**	**105**

		Score/ Value	Rank	
Institutions		**37.8**	**131**	○ ◇
1.1	**Political environment**	**40.1**	**119**	
1.1.1	Political and operational stability*	50.0	123	○ ◇
1.1.2	Government effectiveness*	35.1	112	
1.2	**Regulatory environment**	**17.4**	**132**	○ ◇
1.2.1	Regulatory quality*	17.5	127	○ ◇
1.2.2	Rule of law*	17.2	128	○ ◇
1.2.3	Cost of redundancy dismissal	n/a	n/a	
1.3	**Business environment**	**55.8**	**116**	
1.3.1	Ease of starting a business*	69.4	126	○ ◇
1.3.2	Ease of resolving insolvency*	42.3	92	
Human capital and research		**34.0**	**[55]**	
2.1	**Education**	**67.5**	**[10]**	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	18.5	90	
2.2	**Tertiary education**	**n/a**	**[n/a]**	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**0.6**	**110**	
2.3.1	Researchers, FTE/mn pop.	163.8	82	
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41	○ ◇
2.3.4	QS university ranking, top 3*	0.0	74	○ ◇
Infrastructure		**29.1**	**106**	
3.1	**Information and communication technologies (ICTs)**	**51.6**	**94**	
3.1.1	ICT access*	42.4	101	
3.1.2	ICT use*	46.0	89	
3.1.3	Government's online service*	58.2	90	
3.1.4	E-participation*	59.5	87	
3.2	**General infrastructure**	**12.5**	**126**	○ ◇
3.2.1	Electricity output, GWh/mn pop.	870.5	101	
3.2.2	Logistics performance*	14.5	117	
3.2.3	Gross capital formation, % GDP	16.0	110	◇
3.3	**Ecological sustainability**	**23.1**	**85**	
3.3.1	GDP/unit of energy use	9.0	81	
3.3.2	Environmental performance*	44.3	77	◆
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.5	83	
Market sophistication		**48.4**	**59**	●
4.1	**Credit**	**45.4**	**47**	●
4.1.1	Ease of getting credit*	35.0	118	◇
4.1.2	Domestic credit to private sector, % GDP	71.2	46	●
4.1.3	Microfinance gross loans, % GDP	28.5	1	● ◆
4.2	**Investment**	**38.0**	**[40]**	
4.2.1	Ease of protecting minority investors*	38.0	115	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Venture capital investors, deals/bn PPP$ GDP	n/a	n/a	
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, diversification, and market scale**	**61.7**	**87**	
4.3.1	Applied tariff rate, weighted avg., %	4.7	81	
4.3.2	Domestic industry diversification	72.3	93	
4.3.3	Domestic market scale, bn PPP$	97.8	85	

		Score/ Value	Rank	
Business sophistication		**23.7**	**75**	
5.1	**Knowledge workers**	**37.4**	**[48]**	
5.1.1	Knowledge-intensive employment, %	15.8	92	
5.1.2	Firms offering formal training, %	49.9	18	● ◆
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	Females employed w/advanced degrees, %	7.7	81	
5.2	**Innovation linkages**	**13.4**	**117**	
5.2.1	University-industry R&D collaboration†	24.1	125	○ ◇
5.2.2	State of cluster development and depth†	32.0	120	◇
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	107	
5.2.5	Patent families/bn PPP$ GDP	0.0	100	○ ◇
5.3	**Knowledge absorption**	**20.3**	**90**	
5.3.1	Intellectual property payments, % total trade	0.8	60	●
5.3.2	High-tech imports, % total trade	10.8	24	●
5.3.3	ICT services imports, % total trade	0.7	91	
5.3.4	FDI net inflows, % GDP	0.7	116	
5.3.5	Research talent, % in businesses	0.4	84	○
Knowledge and technology outputs		**11.1**	**112**	
6.1	**Knowledge creation**	**4.6**	**114**	
6.1.1	Patents by origin/bn PPP$ GDP	0.6	76	
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	54	
6.1.4	Scientific and technical articles/bn PPP$ GDP	3.1	121	
6.1.5	Citable documents H-index	6.7	93	
6.2	**Knowledge impact**	**22.0**	**93**	
6.2.1	Labor productivity growth, %	0.5	57	●
6.2.2	New businesses/th pop. 15–64	0.5	98	
6.2.3	Software spending, % GDP	0.3	44	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.2	86	
6.2.5	High-tech manufacturing, %	7.7	94	
6.3	**Knowledge diffusion**	**6.6**	**112**	
6.3.1	Intellectual property receipts, % total trade	0.1	51	●
6.3.2	Production and export complexity	19.8	111	
6.3.3	High-tech exports, % total trade	0.4	93	
6.3.4	ICT services exports, % total trade	0.8	88	
Creative outputs		**13.4**	**111**	
7.1	**Intangible assets**	**17.7**	**110**	
7.1.1	Trademarks by origin/bn PPP$ GDP	37.0	63	●
7.1.2	Global brand value, top 5,000, % GDP	0.0	80	○ ◇
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.2	105	
7.1.4	ICTs and organizational model creation†	31.7	122	○ ◇
7.2	**Creative goods and services**	**9.5**	**82**	
7.2.1	Cultural and creative services exports, % total trade	0.2	72	
7.2.2	National feature films/mn pop. 15–69	0.8	88	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	1.0	54	
7.2.5	Creative goods exports, % total trade	1.0	44	●
7.3	**Online creativity**	**8.8**	**102**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.8	82	
7.3.2	Country-code TLDs/th pop. 15–69	0.5	98	
7.3.3	Wikipedia edits/mn pop. 15–69	35.1	93	
7.3.4	Mobile app creation/bn PPP$ GDP	0.0	95	

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 Bolivia.

Missing data for Bolivia

Code	Indicator name	Economy year	Model year	Source
1.2.3	Cost of redudancy dismissal	n/a	2019	World Bank
2.1.1	Expenditure on education, % GDP	n/a	2017	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2017	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2018	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD Programme for International Student Assessment (PISA)
2.2.1	Tertiary enrolment, % gross	n/a	2018	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.2.3	Tertiary inbound mobility, %	n/a	2018	UNESCO Institute for Statistics
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
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
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	2020	World Intellectual Property Organization
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC

Code	Indicator name	Economy year	Model year	Source

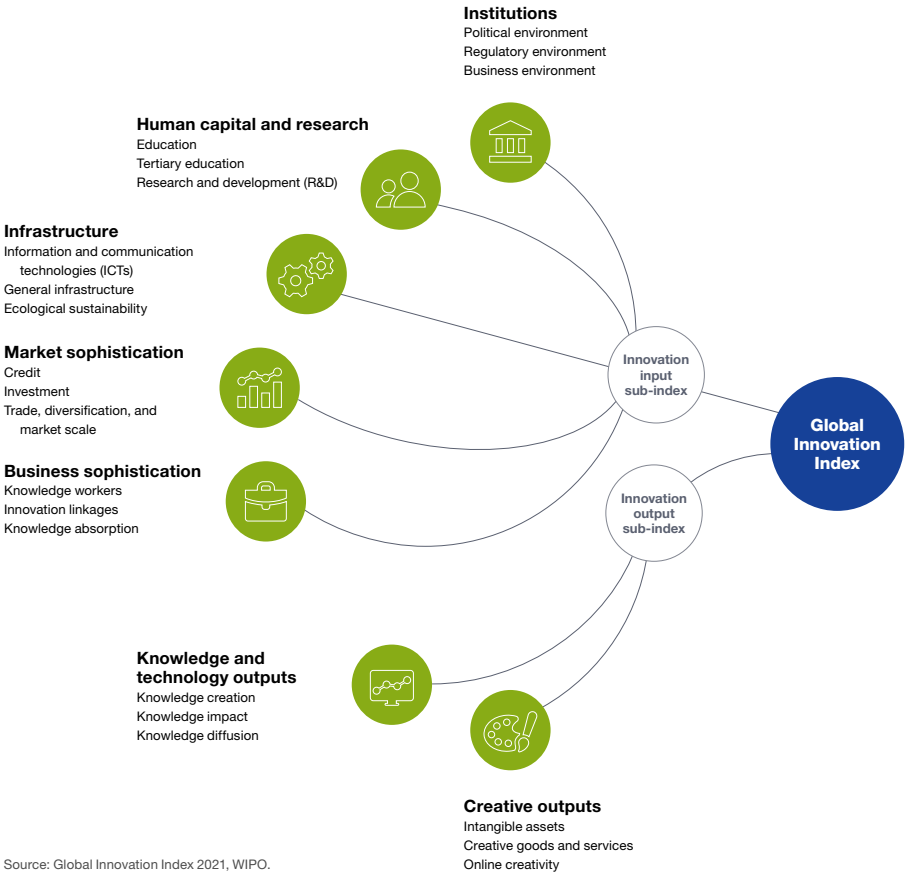
Outdated data for Bolivia

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2018	2019	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2010	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.3.2	Domestic industry diversification	2014	2018	United Nations Industrial Development Organization
5.1.2	Firms offering formal training, %	2017	2019	World Bank
5.3.2	High-tech imports, % total trade	2018	2019	United Nations, COMTRADE
5.3.5	Research talent, % in businesses	2010	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.1.1	Patents by origin/bn PPP$ GDP	2017	2019	World Intellectual Property Organization
6.1.3	Utility models by origin/bn PPP$ GDP	2017	2019	World Intellectual Property Organization
6.2.5	High-tech manufacturing, %	2014	2018	United Nations Industrial Development Organization
6.3.3	High-tech exports, % total trade	2018	2019	United Nations, COMTRADE
7.1.1	Trademarks by origin/bn PPP$ GDP	2017	2019	World Intellectual Property Organization
7.1.3	Industrial designs by origin/bn PPP$ GDP	2017	2019	World Intellectual Property Organization
7.2.4	Printing and other media, % manufacturing	2012	2018	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2018	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.



Source: Global Innovation Index 2021, WIPO.

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.