Global Innovation Index 2022

# ZIMBABWE

**107th** Zimbabwe ranks 107th among the 132 economies featured in the GII 2022.

**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 Zimbabwe 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 Zimbabwe in the GII 2022 is between ranks 96 and 126.

## Rankings for Zimbabwe (2020–2022)

| GIIYR | GII | Innovation inputs | Innovation outputs |
|---|---|---|---|
| **2020** | 120 | 123 | 108 |
| **2021** | 113 | 116 | 105 |
| **2022** | 107 | 120 | 93 |

- Zimbabwe performs better in innovation outputs than innovation inputs in 2022.
- This year Zimbabwe ranks 120th in innovation inputs, lower than last year but higher than 2020.
- As for innovation outputs, Zimbabwe ranks 93rd. This position is higher than both 2021 and 2020.

**23rd** Zimbabwe ranks 23rd among the 36 lower-middle-income group economies.

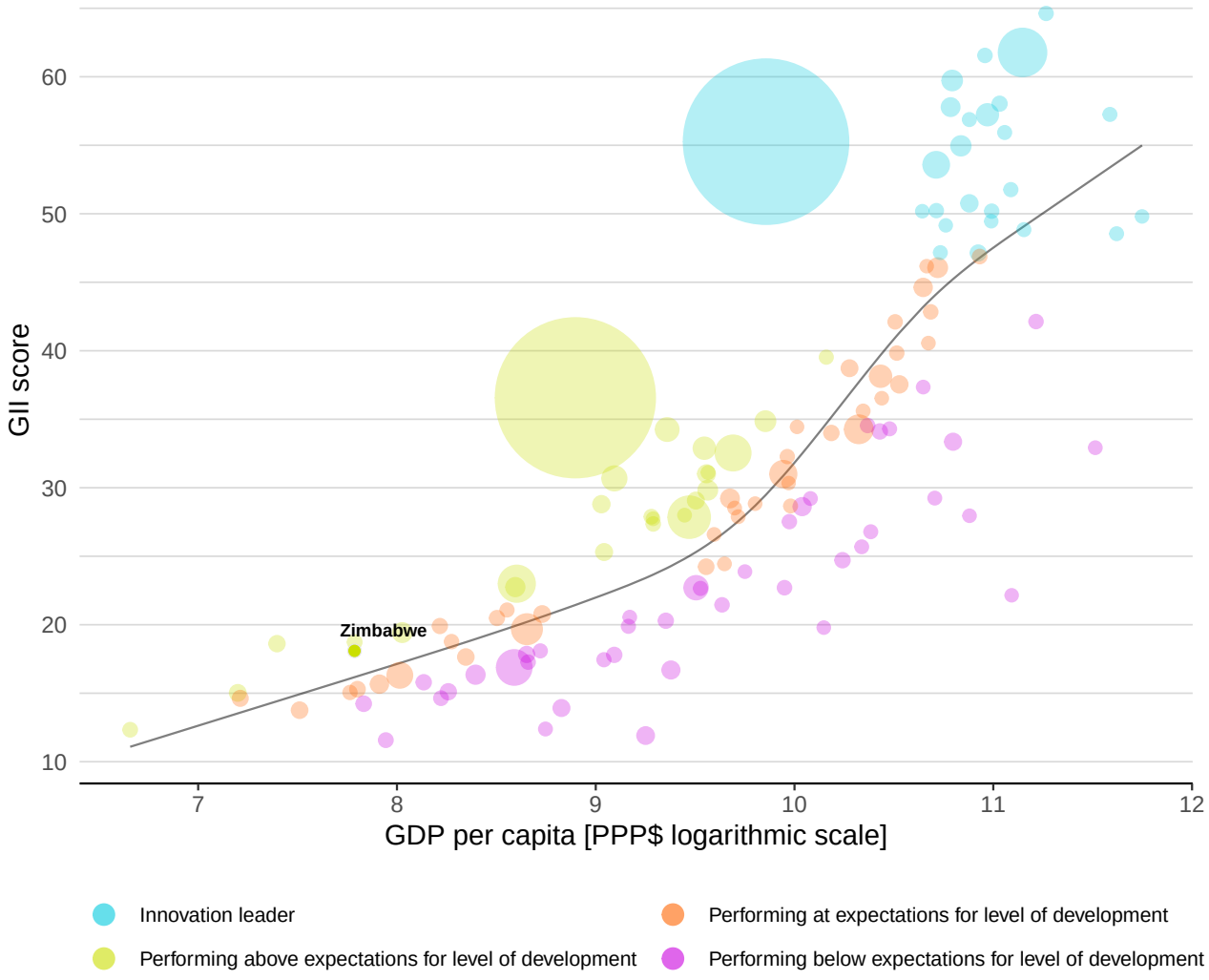
**11th** Zimbabwe ranks 11th among the 27 economies in Sub-Saharan Africa.

# 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, Zimbabwe's performance is above expectations for its level of development.

## The positive relationship between innovation and development

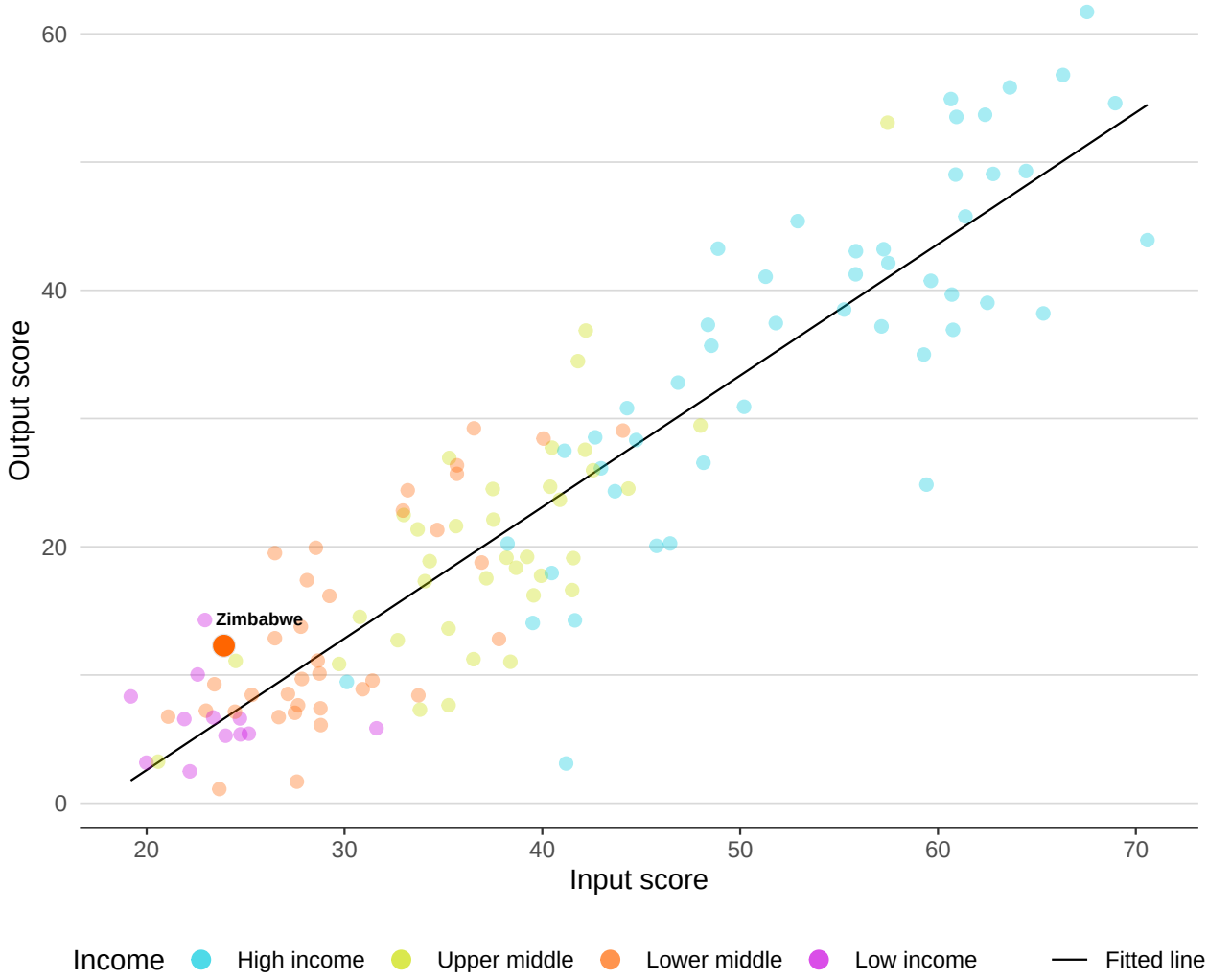


# EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

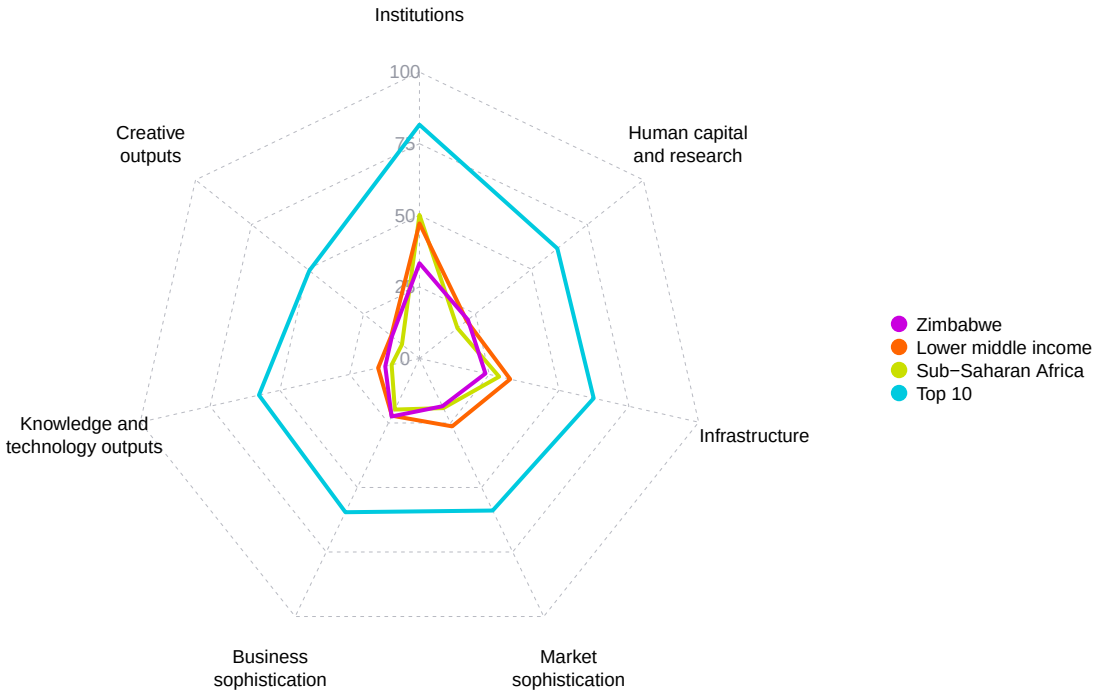
Zimbabwe produces more innovation outputs relative to its level of innovation investments.

## Innovation input to output performance



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

## The seven GII pillar scores for Zimbabwe




### Lower-middle-income group economies

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

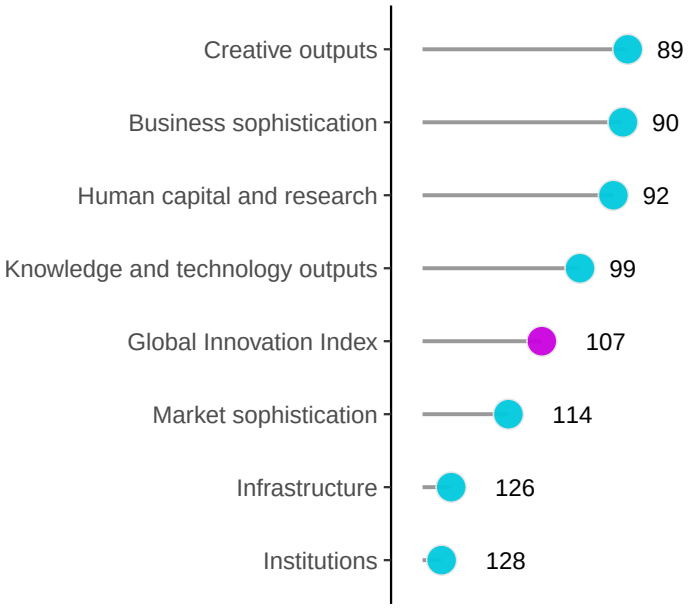
### Sub-Saharan Africa

Zimbabwe performs above the regional average in four pillars, namely: Human capital and research; Business sophistication; Knowledge and technology outputs; and, Creative outputs.

# OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Zimbabwe performs best in Creative outputs and its weakest performance is in Institutions.

## The seven GII pillar ranks for Zimbabwe




Note: The highest possible ranking in each pillar is 1.

**The full WIPO Intellectual Property Statistics profile for Zimbabwe can be found at:**

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=ZW.

# INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Zimbabwe in the GII 2022.

## Strengths and weaknesses for Zimbabwe

| Strengths | | | Weaknesses | | |
|---|---|---|---|---|---|
| **Code** | **Indicator name** | **Rank** | **Code** | **Indicator name** | **Rank** |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | 38 | 1.1.2 | Government effectiveness | 129 |
| 2.2.2 | Graduates in science and engineering, % | 17 | 1.2.1 | Regulatory quality | 130 |
| 3.3.2 | Environmental performance | 54 | 1.2.2 | Rule of law | 129 |
| 3.3.3 | ISO 14001 environmental certificates/bn PPP$ GDP | 58 | 2.3.3 | Global corporate R&D investors, top 3, mn USD | 38 |
| 5.2.4 | Joint venture/strategic alliance deals/bn PPP$ GDP | 28 | 2.3.4 | QS university ranking, top 3 | 72 |
| 5.3.2 | High-tech imports, % total trade | 53 | 3.3.1 | GDP/unit of energy use | 128 |
| 6.1.4 | Scientific and technical articles/bn PPP$ GDP | 43 | 4.1.2 | Domestic credit to private sector, % GDP | 128 |
| 6.2.2 | New businesses/th pop. 15–64 | 51 | 5.2.5 | Patent families/bn PPP$ GDP | 101 |
| 6.2.3 | Software spending, % GDP | 56 | 7.1.2 | Trademarks by origin/bn PPP$ GDP | 125 |
| 7.2.5 | Creative goods exports, % total trade | 23 | 7.1.3 | Global brand value, top 5,000, % GDP | 77 |

GII 2022 rank

# Zimbabwe

**107**

| Output rank | Input rank | Income | Region | Population (mn) | GDP, PPP$ (bn) | GDP per capita, PPP$ |
|---|---|---|---|---|---|---|
| 93 | 120 | Lower middle | SSA | 15.1 | 37.3 | 2,408 |

| | | Score/ Value | Rank |
|---|---|---|---|
| **Institutions** | | **33.3** | **128** ◇ |
| **1.1** | **Political environment** | 34.1 | 129 ○ ◇ |
| 1.1.1 | Political and operational stability* | 45.5 | 126 ◇ |
| 1.1.2 | Government effectiveness* | 22.8 | 129 ○ ◇ |
| **1.2** | **Regulatory environment** | 38.5 | 124 |
| 1.2.1 | Regulatory quality* | 9.4 | 130 ○ ◇ |
| 1.2.2 | Rule of law* | 13.0 | 129 ○ ◇ |
| 1.2.3 | Cost of redundancy dismissal | 25.3 | 106 |
| **1.3** | **Business environment** | 27.2 | [115] |
| 1.3.1 | Policies for doing business† 🕘 | 27.2 | 121 ◇ |
| 1.3.2 | Entrepreneurship policies and culture* | n/a | n/a |
| **Human capital and research** | | **21.6** | **92** |
| **2.1** | **Education** | 39.9 | 96 |
| 2.1.1 | Expenditure on education, % GDP 🕘 | 3.9 | 85 |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap 🕘 | 22.2 | 38 ● |
| 2.1.3 | School life expectancy, years 🕘 | 11.4 | 94 |
| 2.1.4 | PISA scales in reading, maths and science | n/a | n/a |
| 2.1.5 | Pupil-teacher ratio, secondary 🕘 | 22.5 | 99 |
| **2.2** | **Tertiary education** | 24.9 | 82 |
| 2.2.1 | Tertiary enrolment, % gross 🕘 | 8.9 | 116 |
| 2.2.2 | Graduates in science and engineering, % 🕘 | 30.2 | 17 ● |
| 2.2.3 | Tertiary inbound mobility, % 🕘 | 0.5 | 99 |
| **2.3** | **Research and development (R&D)** | 0.2 | 113 |
| 2.3.1 | Researchers, FTE/mn pop. 🕘 | 99.5 | 89 |
| 2.3.2 | Gross expenditure on R&D, % GDP | n/a | n/a |
| 2.3.3 | Global corporate R&D investors, top 3, mn USD | 0.0 | 38 ○ ◇ |
| 2.3.4 | QS university ranking, top 3* | 0.0 | 72 ○ ◇ |
| **Infrastructure** | | **23.6** | **126** ◇ |
| **3.1** | **Information and communication technologies (ICTs)** | 48.1 | 107 |
| 3.1.1 | ICT access* | 64.4 | 107 |
| 3.1.2 | ICT use* | 30.4 | 112 |
| 3.1.3 | Government's online service* | 52.3 | 99 |
| 3.1.4 | E-participation* | 45.2 | 108 |
| **3.2** | **General infrastructure** | 2.9 | 132 ○ ◇ |
| 3.2.1 | Electricity output, GWh/mn pop. 🕘 | 531.7 | 107 |
| 3.2.2 | Logistics performance* | 3.3 | 122 ◇ |
| 3.2.3 | Gross capital formation, % GDP | n/a | n/a |
| **3.3** | **Ecological sustainability** | 19.9 | 93 |
| 3.3.1 | GDP/unit of energy use | 3.4 | 128 ○ ◇ |
| 3.3.2 | Environmental performance* | 46.2 | 54 ● ◆ |
| 3.3.3 | ISO 14001 environmental certificates/bn PPP$ GDP | 1.5 | 58 ● ◆ |
| **Market sophistication** | | **18.5** | **114** |
| **4.1** | **Credit** | 2.1 | 129 ○ ◇ |
| 4.1.1 | Finance for startups and scaleups* | n/a | n/a |
| 4.1.2 | Domestic credit to private sector, % GDP | 6.5 | 128 ○ ◇ |
| 4.1.3 | Loans from microfinance institutions, % GDP | 0.3 | 49 |
| **4.2** | **Investment** | n/a | [n/a] |
| 4.2.1 | Market capitalization, % GDP | n/a | n/a |
| 4.2.2 | Venture capital investors, deals/bn PPP$ GDP | n/a | n/a |
| 4.2.3 | Venture capital recipients, deals/bn PPP$ GDP | n/a | n/a |
| 4.2.4 | Venture capital received, value, % GDP | n/a | n/a |
| **4.3** | **Trade, diversification, and market scale** | 34.9 | 110 |
| 4.3.1 | Applied tariff rate, weighted avg., % 🕘 | 5.0 | 90 |
| 4.3.2 | Domestic industry diversification 🕘 | 36.3 | 106 ◇ |
| 4.3.3 | Domestic market scale, bn PPP$ | 37.3 | 117 |

| | | Score/ Value | Rank |
|---|---|---|---|
| **Business sophistication** | | **22.5** | **90** |
| **5.1** | **Knowledge workers** | 24.1 | [81] |
| 5.1.1 | Knowledge-intensive employment, % 🕘 | 7.5 | 112 |
| 5.1.2 | Firms offering formal training, % 🕘 | 26.4 | 62 |
| 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, % 🕘 | 10.9 | 69 |
| **5.2** | **Innovation linkages** | 19.6 | 96 |
| 5.2.1 | University-industry R&D collaboration† 🕘 | 29.0 | 120 |
| 5.2.2 | State of cluster development and depth† 🕘 | 31.4 | 124 ◇ |
| 5.2.3 | GERD financed by abroad, % GDP | n/a | n/a |
| 5.2.4 | Joint venture/strategic alliance deals/bn PPP$ GDP | 0.1 | 28 ● ◆ |
| 5.2.5 | Patent families/bn PPP$ GDP | 0.0 | 101 ○ ◇ |
| **5.3** | **Knowledge absorption** | 23.8 | 94 |
| 5.3.1 | Intellectual property payments, % total trade 🕘 | 0.2 | 90 |
| 5.3.2 | High-tech imports, % total trade | 9.1 | 53 ● |
| 5.3.3 | ICT services imports, % total trade 🕘 | 0.9 | 89 |
| 5.3.4 | FDI net inflows, % GDP | 2.0 | 73 |
| 5.3.5 | Research talent, % in businesses | n/a | n/a |
| **Knowledge and technology outputs** | | **12.3** | **99** |
| **6.1** | **Knowledge creation** | 8.7 | 81 |
| 6.1.1 | Patents by origin/bn PPP$ GDP 🕘 | 0.2 | 98 |
| 6.1.2 | PCT patents by origin/bn PPP$ GDP | 0.0 | 86 |
| 6.1.3 | Utility models by origin/bn PPP$ GDP | 0.2 | 48 |
| 6.1.4 | Scientific and technical articles/bn PPP$ GDP | 21.0 | 43 ● |
| 6.1.5 | Citable documents H-index | 6.9 | 88 |
| **6.2** | **Knowledge impact** | 21.0 | 88 |
| 6.2.1 | Labor productivity growth, % | −0.8 | 100 ◇ |
| 6.2.2 | New businesses/th pop. 15–64 | 2.5 | 51 ● ◆ |
| 6.2.3 | Software spending, % GDP | 0.2 | 56 ● |
| 6.2.4 | ISO 9001 quality certificates/bn PPP$ GDP | 4.5 | 61 ◆ |
| 6.2.5 | High-tech manufacturing, % 🕘 | 17.5 | 68 |
| **6.3** | **Knowledge diffusion** | 7.0 | 114 |
| 6.3.1 | Intellectual property receipts, % total trade 🕘 | 0.0 | 81 |
| 6.3.2 | Production and export complexity | 20.2 | 102 |
| 6.3.3 | High-tech exports, % total trade | 0.2 | 105 |
| 6.3.4 | ICT services exports, % total trade 🕘 | 0.2 | 123 |
| **Creative outputs** | | **12.3** | **89** |
| **7.1** | **Intangible assets** | 17.7 | 85 |
| 7.1.1 | Intangible asset intensity, top 15, % | 28.0 | 69 |
| 7.1.2 | Trademarks by origin/bn PPP$ GDP 🕘 | 4.1 | 125 ○ |
| 7.1.3 | Global brand value, top 5,000, % GDP | 0.0 | 77 ○ ◇ |
| 7.1.4 | Industrial designs by origin/bn PPP$ GDP | n/a | n/a |
| **7.2** | **Creative goods and services** | 13.2 | [71] |
| 7.2.1 | Cultural and creative services exports, % total trade | n/a | n/a |
| 7.2.2 | National feature films/mn pop. 15–69 | 0.2 | 74 |
| 7.2.3 | Entertainment and media market/th pop. 15–69 | n/a | n/a |
| 7.2.4 | Printing and other media, % manufacturing 🕘 | 0.5 | 78 |
| 7.2.5 | Creative goods exports, % total trade | 2.3 | 23 ● |
| **7.3** | **Online creativity** | 0.8 | 105 |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69 | 0.5 | 109 |
| 7.3.2 | Country-code TLDs/th pop. 15–69 | 1.5 | 74 |
| 7.3.3 | GitHub commit pushes received/mn pop. 15–69 | 0.4 | 113 |
| 7.3.4 | Mobile app creation/bn PPP$ GDP | n/a | n/a |

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 appendices for details, including the year of the data, at https://www.wipo.int/global_innovation_index/en/2022. 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 indicators that are either missing or outdated for Zimbabwe.

## Missing data for Zimbabwe

| Code | Indicator name | Economy year | Model year | Source |
|---|---|---|---|---|
| 1.3.2 | Entrepreneurship policies and culture | n/a | 2021 | Global Entrepreneurship Monitor |
| 2.1.4 | PISA scales in reading, maths and science | n/a | 2018 | OECD, PISA |
| 2.3.2 | Gross expenditure on R&D, % GDP | n/a | 2020 | UNESCO Institute for Statistics |
| 3.2.3 | Gross capital formation, % GDP | n/a | 2021 | International Monetary Fund |
| 4.1.1 | Finance for startups and scaleups | n/a | 2021 | Global Entrepreneurship Monitor |
| 4.2.1 | Market capitalization, % GDP | n/a | 2020 | World Federation of Exchanges |
| 4.2.2 | Venture capital investors, deals/bn PPP$ GDP | n/a | 2021 | Refinitiv |
| 4.2.3 | Venture capital recipients, deals/bn PPP$ GDP | n/a | 2021 | Refinitiv |
| 4.2.4 | Venture capital received, value, % GDP | n/a | 2021 | Refinitiv |
| 5.1.3 | GERD performed by business, % GDP | n/a | 2020 | UNESCO Institute for Statistics |
| 5.1.4 | GERD financed by business, % | n/a | 2019 | UNESCO Institute for Statistics |
| 5.2.3 | GERD financed by abroad, % GDP | n/a | 2019 | UNESCO Institute for Statistics |
| 5.3.5 | Research talent, % in businesses | n/a | 2020 | UNESCO Institute for Statistics |
| 7.1.4 | Industrial designs by origin/bn PPP$ GDP | n/a | 2020 | World Intellectual Property Organization |
| 7.2.1 | Cultural and creative services exports, % total trade | n/a | 2020 | World Trade Organization and United Nations Conference on Trade and Development |
| 7.2.3 | Entertainment and media market/th pop. 15–69 | n/a | 2021 | PwC, GEMO |
| 7.3.4 | Mobile app creation/bn PPP$ GDP | n/a | 2021 | data.ia |

## Outdated data for Zimbabwe

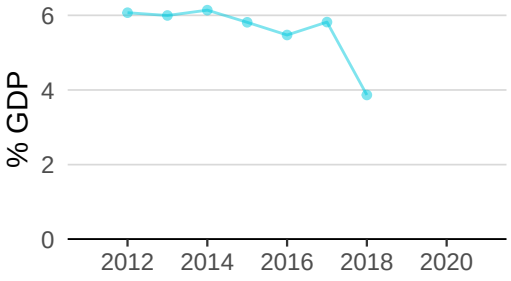
| Code | Indicator name | Economy year | Model year | Source |
|---|---|---|---|---|
| 1.3.1 | Policies for doing business | 2019 | 2021 | World Economic Forum, Executive Opinion Survey (EOS) |
| 2.1.1 | Expenditure on education, % GDP | 2018 | 2020 | UNESCO Institute for Statistics |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | 2013 | 2018 | UNESCO Institute for Statistics |
| 2.1.3 | School life expectancy, years | 2013 | 2019 | UNESCO Institute for Statistics |
| 2.1.5 | Pupil-teacher ratio, secondary | 2013 | 2019 | UNESCO Institute for Statistics |

| Code | Indicator name | Economy year | Model year | Source |
|---|---|---|---|---|
| 2.2.1 | Tertiary enrolment, % gross | 2017 | 2019 | UNESCO Institute for Statistics |
| 2.2.2 | Graduates in science and engineering, % | 2015 | 2020 | UNESCO Institute for Statistics |
| 2.2.3 | Tertiary inbound mobility, % | 2015 | 2019 | UNESCO Institute for Statistics |
| 2.3.1 | Researchers, FTE/mn pop. | 2012 | 2020 | UNESCO Institute for Statistics |
| 3.2.1 | Electricity output, GWh/mn pop. | 2019 | 2020 | International Energy Agency |
| 4.3.1 | Applied tariff rate, weighted avg., % | 2016 | 2020 | World Bank |
| 4.3.2 | Domestic industry diversification | 2018 | 2019 | United Nations Industrial Development Organization |
| 5.1.1 | Knowledge-intensive employment, % | 2019 | 2021 | International Labour Organization |
| 5.1.2 | Firms offering formal training, % | 2016 | 2019 | World Bank Enterprise Surveys |
| 5.1.5 | Females employed w/advanced degrees, % | 2019 | 2021 | International Labour Organization |
| 5.2.1 | University-industry R&D collaboration | 2019 | 2021 | World Economic Forum, Executive Opinion Survey (EOS) |
| 5.2.2 | State of cluster development and depth | 2019 | 2021 | World Economic Forum, Executive Opinion Survey (EOS) |
| 5.3.1 | Intellectual property payments, % total trade | 2017 | 2020 | World Trade Organization and United Nations Conference on Trade and Development |
| 5.3.3 | ICT services imports, % total trade | 2017 | 2020 | World Trade Organization and United Nations Conference on Trade and Development |
| 6.1.1 | Patents by origin/bn PPP$ GDP | 2016 | 2020 | World Intellectual Property Organization |
| 6.2.5 | High-tech manufacturing, % | 2017 | 2019 | United Nations Industrial Development Organization |
| 6.3.1 | Intellectual property receipts, % total trade | 2017 | 2020 | World Trade Organization and United Nations Conference on Trade and Development |
| 6.3.4 | ICT services exports, % total trade | 2017 | 2020 | World Trade Organization and United Nations Conference on Trade and Development |
| 7.1.2 | Trademarks by origin/bn PPP$ GDP | 2016 | 2020 | World Intellectual Property Organization |
| 7.2.4 | Printing and other media, % manufacturing | 2017 | 2019 | United Nations Industrial Development Organization |

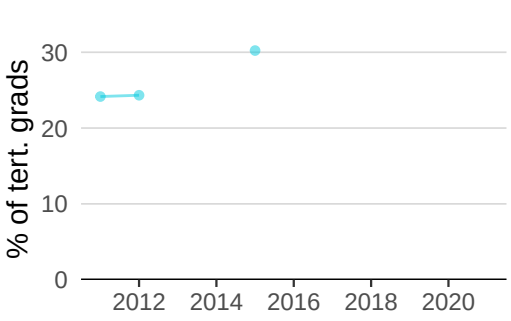
# ZIMBABWE'S INNOVATION SYSTEM

As far as practicable, the plots below present unscaled indicator data.

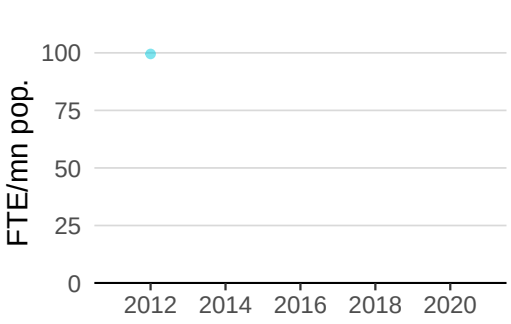
## Innovation inputs



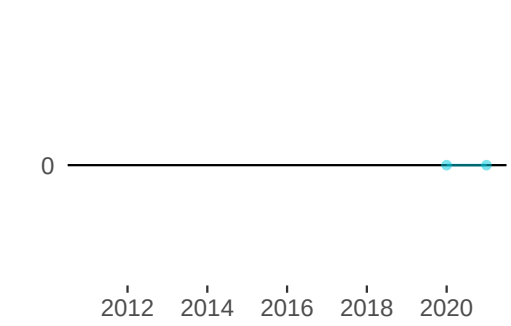

**2.1.1 Expenditure on education** was equal to 3.9% GDP in 2018–down by 34 percentage points from the year prior–and equivalent to an indicator rank of 85.



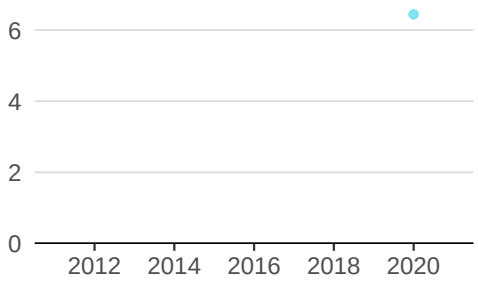

**2.2.2 Graduates in science and engineering** was equal to 30.2% of tert. grads in 2015 and equivalent to an indicator rank of 17.



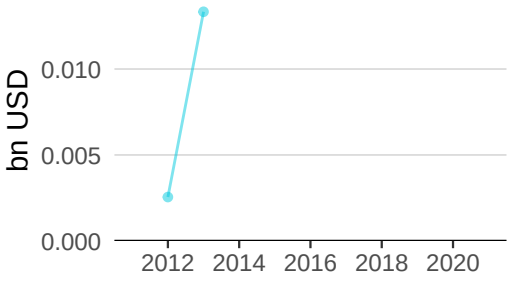

**2.3.1 Researchers** was equal to 99.5 FTE/mn pop. in 2012 and equivalent to an indicator rank of 89.



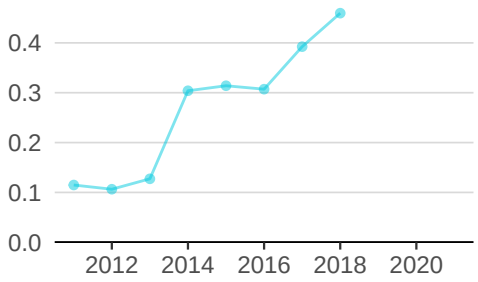

**2.3.4 QS university ranking** was equal to 0.0 in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 72.



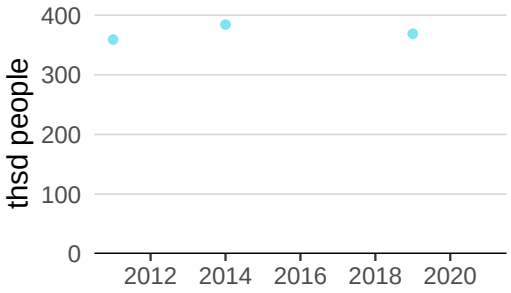

**3.1.1 ICT access** was equal to 6.4 in 2020 and equivalent to an indicator rank of 107.




**4.2.4 Venture capital received** was equal to 0.0 bn USD in 2013–up by 423 percentage points from the year prior.

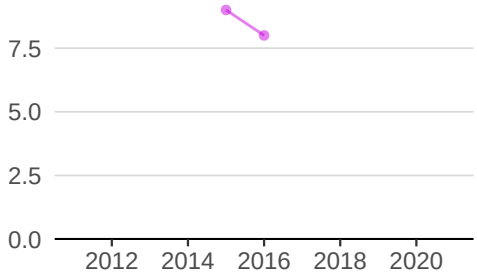



**4.3.2 Domestic industry diversification** was equal to 0.5 in 2018–up by 17 percentage points from the year prior–and equivalent to an indicator rank of 106.

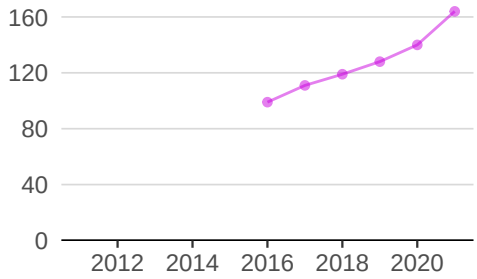



**5.1.1 Knowledge-intensive employment** was equal to 368.9 thsd people in 2019 and equivalent to an indicator rank of 112.

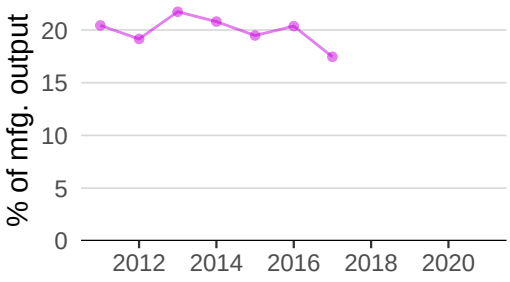
## Innovation outputs



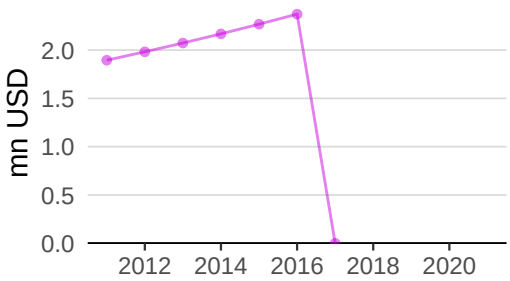

**6.1.1 Patents by origin** was equal to 8.0 in 2016–down by 11 percentage points from the year prior–and equivalent to an indicator rank of 98.



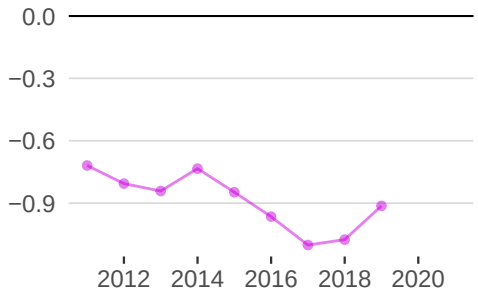

**6.1.5 Citable documents H-index** was equal to 164.0 in 2021–up by 17 percentage points from the year prior–and equivalent to an indicator rank of 88.



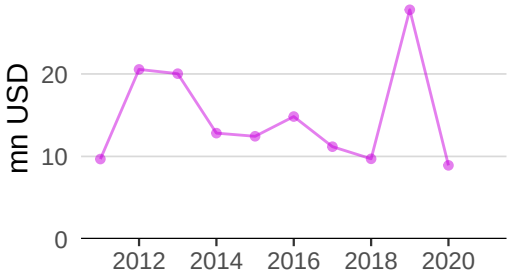

**6.2.5 High-tech manufacturing** was equal to 17.5% of mfg. output in 2017–down by 14 percentage points from the year prior–and equivalent to an indicator rank of 68.



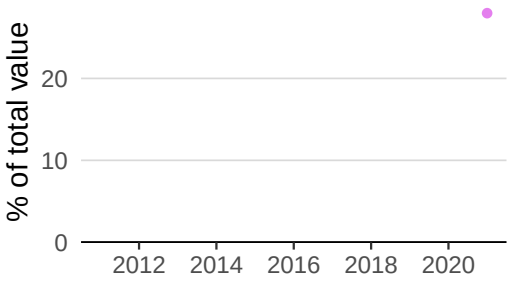

**6.3.1 Intellectual property receipts** was equal to 0.0 mn USD in 2017–down by 100 percentage points from the year prior–and equivalent to an indicator rank of 81.



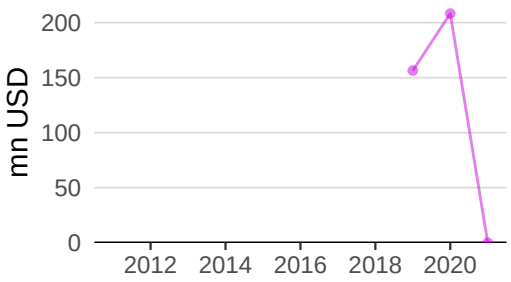

**6.3.2 Production and export complexity** was equal to -0.9 in 2019–up by 15 percentage points from the year prior–and equivalent to an indicator rank of 102.




**6.3.3 High-tech exports** was equal to 8.9 mn USD in 2020–down by 68 percentage points from the year prior–and equivalent to an indicator rank of 105.




**7.1.1 Intangible asset intensity** was equal to 28.0% of total value in 2021 and equivalent to an indicator rank of 69.




**7.1.3 Global brand value** was equal to 0.0 mn USD in 2021–down by 100 percentage points from the year prior–and equivalent to an indicator rank of 77.

# ZIMBABWE'S INNOVATION TOP PERFORMERS

## 2.3.3 Global corporate R&D investors

| Firm | Industry | R&D | R&D Growth | R&D Intensity | Rank |
|---|---|---|---|---|---|

No observations

Source: European Commission's Joint Research Centre (https://iri.jrc.ec.europa.eu/scoreboard/2021-eu-industrial-rd-investment-scoreboard).

## 2.3.4 QS university ranking

| University | Score | Rank |
|---|---|---|

No observations

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2022).

## 7.1.1 Intangible asset intensity, top 15

| Firm | Rank |
|---|---|
| DELTA | 1 |
| CBZ | 2 |
| OK ZIMBABWE | 3 |

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).
Note: Brand Finance only provides within economy ranks.

## 7.1.3 Global brand value, top 5,000

| Brand | Industry | Rank |
|---|---|---|

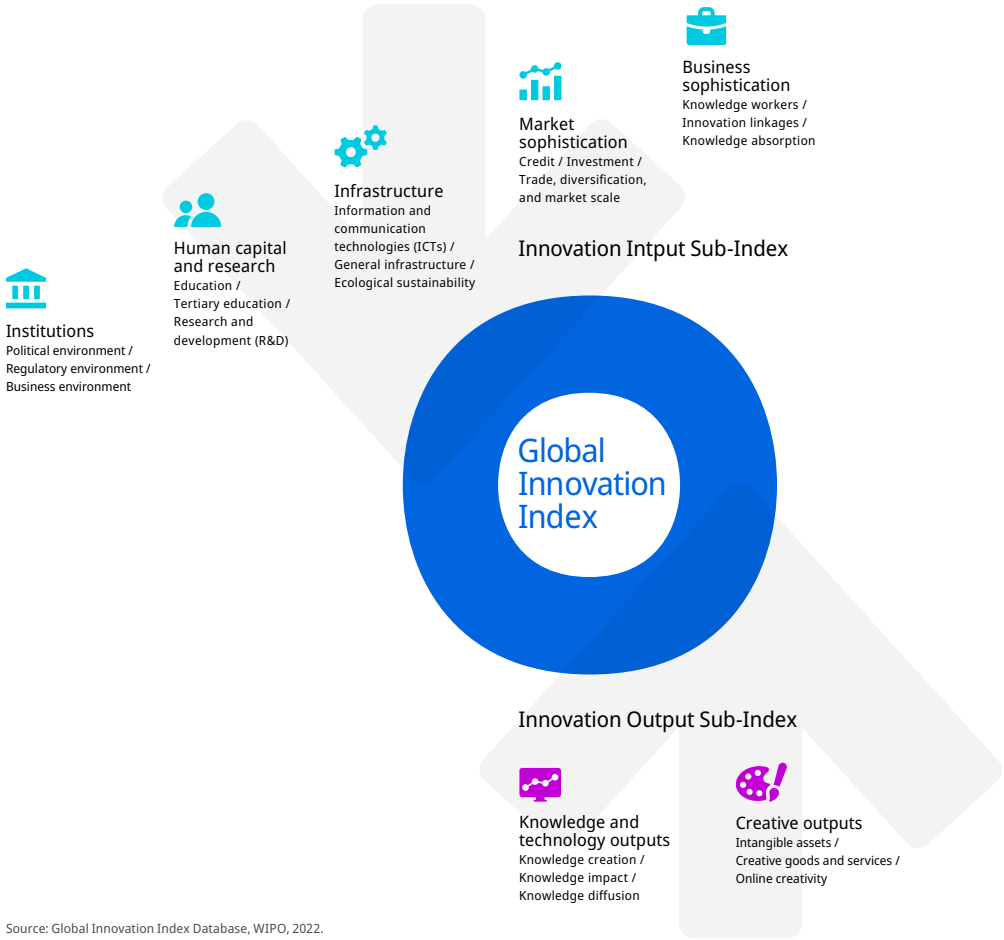
No observations

Source: Brand Finance (https://brandirectory.com).

# 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 Database, WIPO, 2022.

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.