

# Global Innovation Index 2023

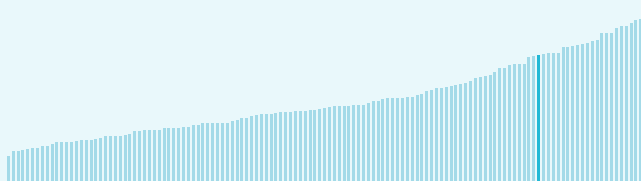


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

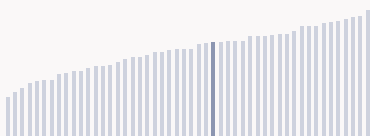
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

## Belgium ranking in the Global Innovation Index 2023

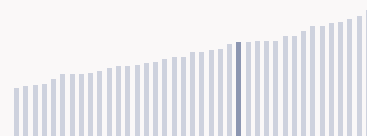
> Belgium ranks **23rd** among the 132 economies featured in the GII 2023.



> Belgium ranks **22nd** among the 50 high-income group economies.



> Belgium ranks **15th** among the 39 economies in Europe.



### > Belgium GII Ranking (2020-2023)

The table shows the rankings of Belgium over the past four years. 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 Belgium in the GII 2023 is between ranks 19 and 25.

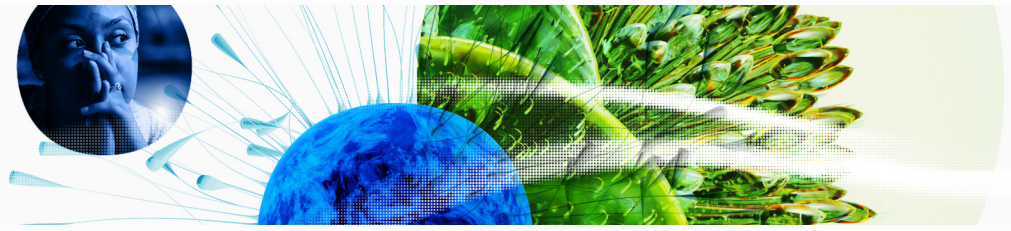
	GII Position	Innovation Inputs	Innovation Outputs
2020	22nd	21st	25th
2021	22nd	21st	26th
2022	26th	26th	24th
2023	23rd	23rd	22nd

Belgium performs better in innovation outputs than innovation inputs in 2023.

This year Belgium ranks 23rd in innovation inputs. This position is higher than last year.

Belgium ranks 22nd in innovation outputs. This position is higher than last year.

# Global Innovation Index 2023



## → Expected vs. observed innovation performance

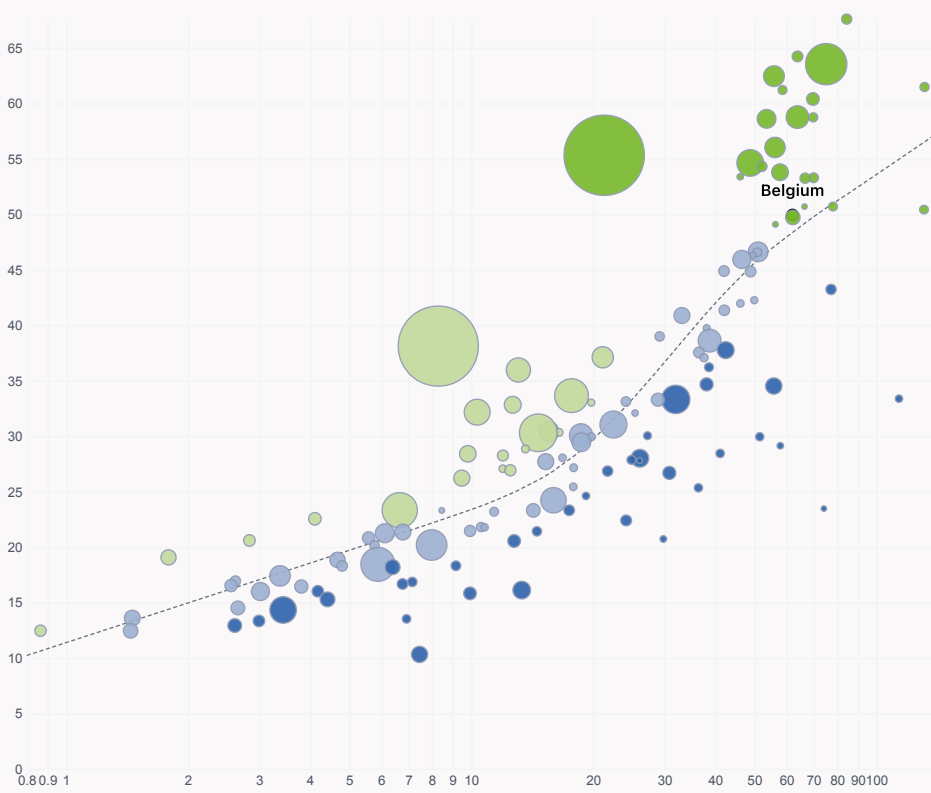
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.



> Belgium is an innovation leader, ranking in the top 25 of the GII.

## > Innovation overperformers relative to their economic development

↑ GII Score



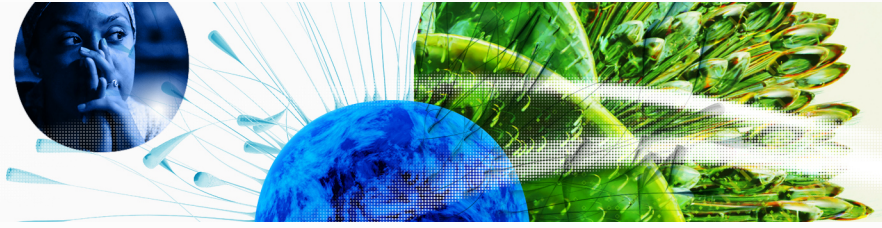
- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



→ GDP per capita, PPP logarithmic scale (thousands of \$)

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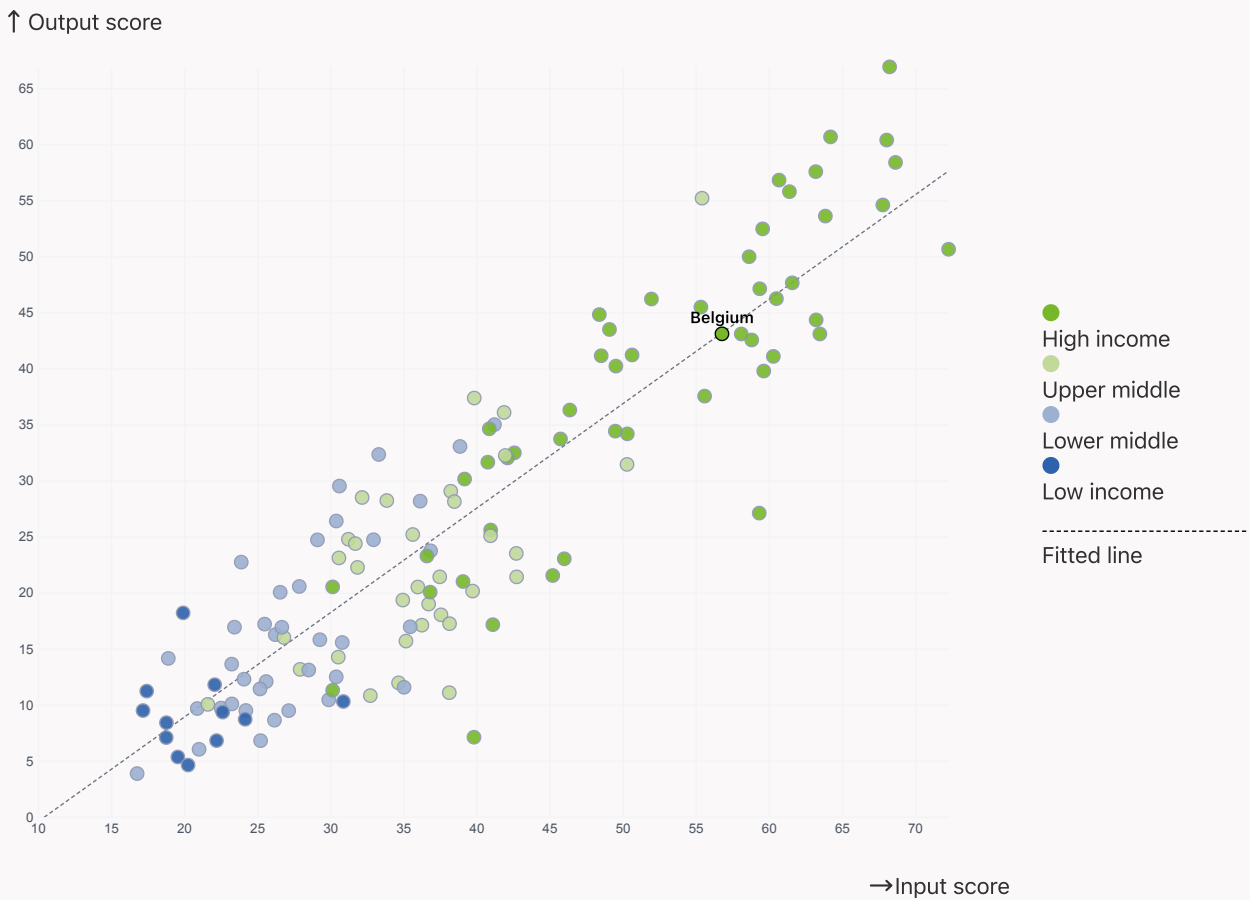
## → Effectively translating innovation investments into innovation outputs

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.

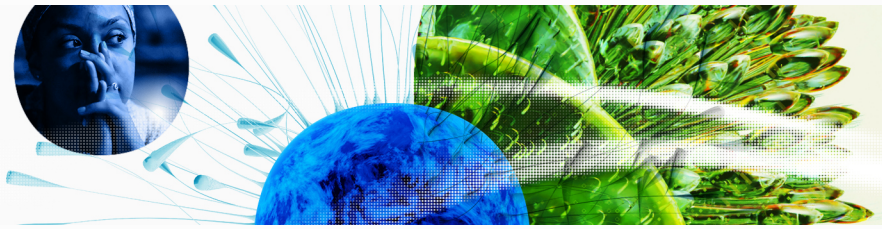


> Belgium produces more innovation outputs relative to its level of innovation investments.

### > Relationship between innovation inputs and outputs

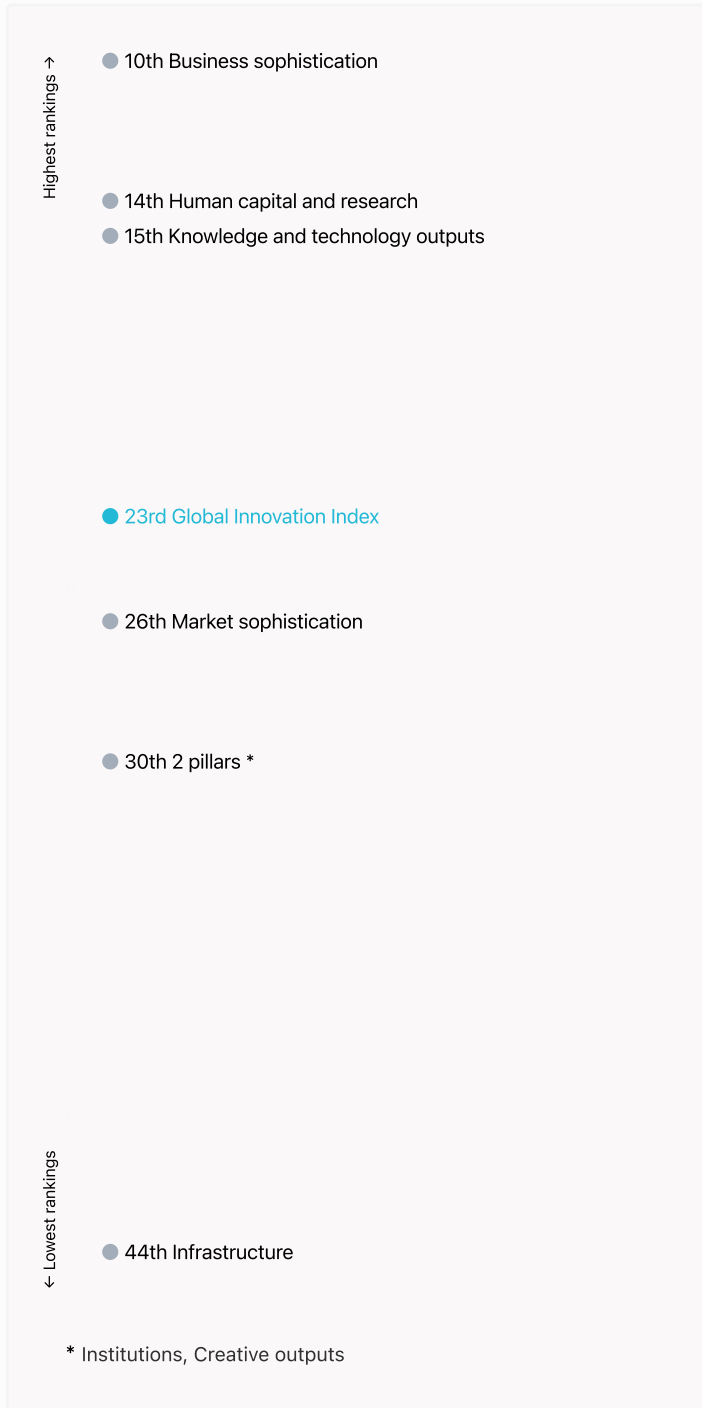


# Global Innovation Index 2023



## → Overview of Belgium's rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Belgium are those that rank above the GII (shown in blue) and the weakest are those that rank below.



### > Highest rankings



Belgium ranks highest in Business sophistication (10th), Human capital and research (14th) and Knowledge and technology outputs (15th).

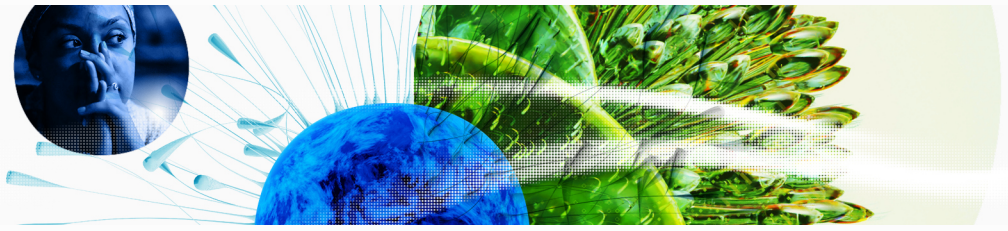
### > Lowest rankings



Belgium ranks lowest in Infrastructure (44th), Institutions, Creative outputs (30th) and Market sophistication (26th).

The full WIPO Intellectual Property Statistics profile for Belgium can be found on [this link](#).

# Global Innovation Index 2023



## → Benchmark of Belgium against other country groupings for each of the seven areas of the GII Index

The charts show the relative position of Belgium (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

### > High-Income economies

Belgium performs above the high-income group average in Knowledge and technology outputs, Business sophistication, Market sophistication, Human capital and research, Institutions.

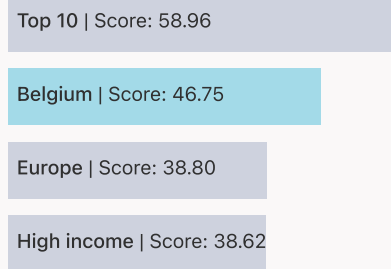


### > Europe

Belgium performs above the regional average in Knowledge and technology outputs, Business sophistication, Market sophistication, Human capital and research, Institutions.



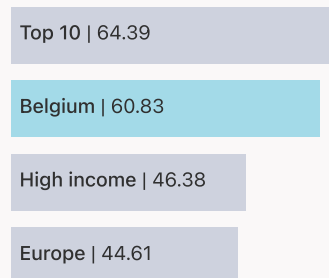
### Knowledge and technology outputs



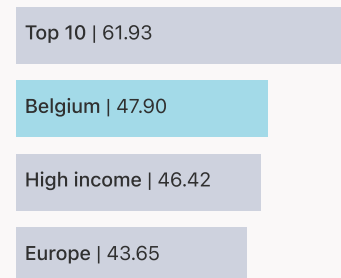
### Creative outputs



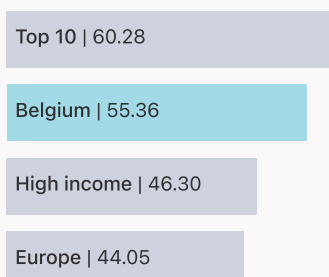
### Business sophistication



### Market sophistication



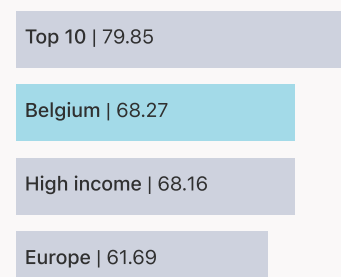
### Human capital and research



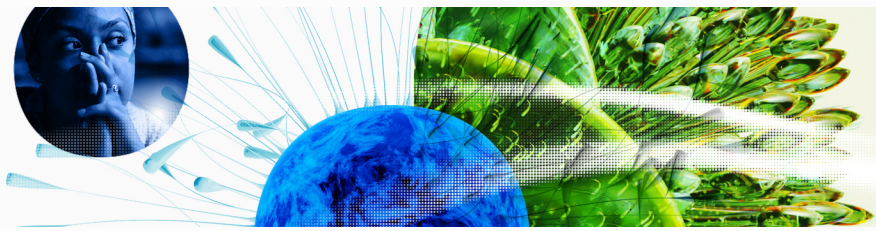
### Infrastructure



### Institutions



# Global Innovation Index 2023



## → Innovation strengths and weaknesses in Belgium

The table below gives an overview of the indicator strengths and weaknesses of Belgium in the GII 2023.



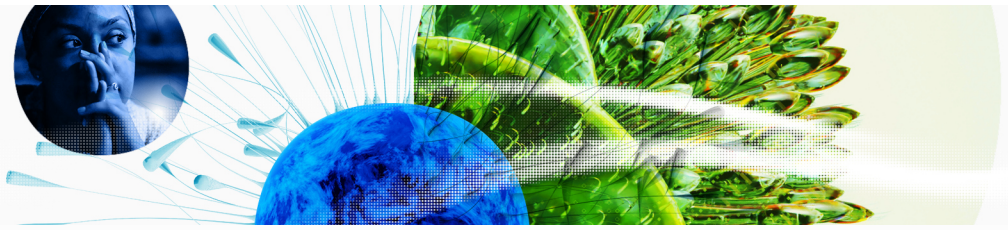
> Belgium's main innovation strengths are **GERD performed by business, % GDP** (rank 5), **GERD financed by abroad, % GDP** (rank 6) and **Gross expenditure on R&D, % GDP** (rank 6).

### Strengths

### Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
5	5.1.3	GERD performed by business, % GDP	127	5.3.4	FDI net inflows, % GDP
6	5.2.3	GERD financed by abroad, % GDP	95	6.2.1	Labor productivity growth, %
6	2.3.2	Gross expenditure on R&D, % GDP	89	2.2.2	Graduates in science and engineering, %
6	2.1.3	School life expectancy, years	85	1.2.3	Cost of redundancy dismissal
7	5.1.5	Females employed w/advanced degrees, %	83	3.1.4	E-participation
8	5.1.4	GERD financed by business, %	76	7.3.4	Mobile app creation/bn PPP\$ GDP
8	2.3.1	Researchers, FTE/mn pop.	70	7.1.2	Trademarks by origin/bn PPP\$ GDP
9	5.2.1	University-industry R&D collaboration	67	3.1.3	Government's online service
10	6.2.3	Software spending, % GDP	66	3.3.1	GDP/unit of energy use
			60	3.2.3	Gross capital formation, % GDP

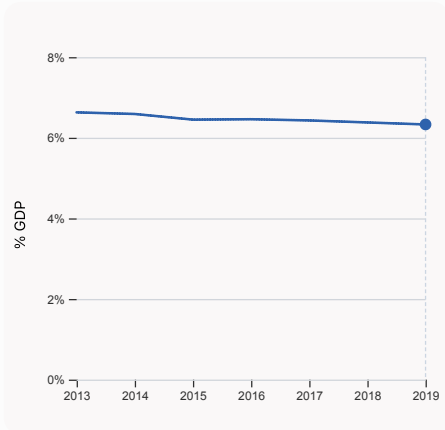
# Global Innovation Index 2023



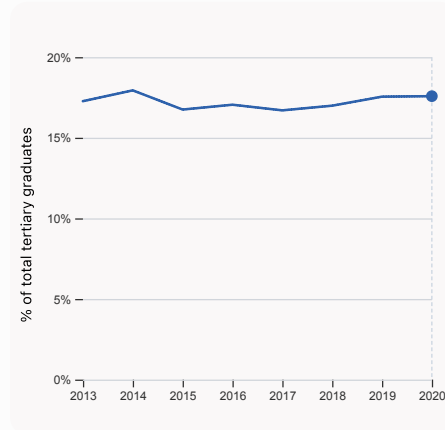
## → Belgium's innovation system

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

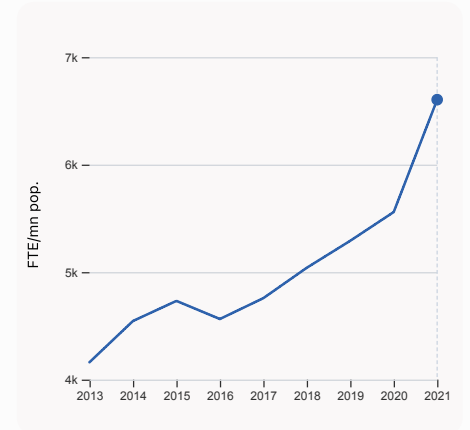
### > Innovation inputs in Belgium



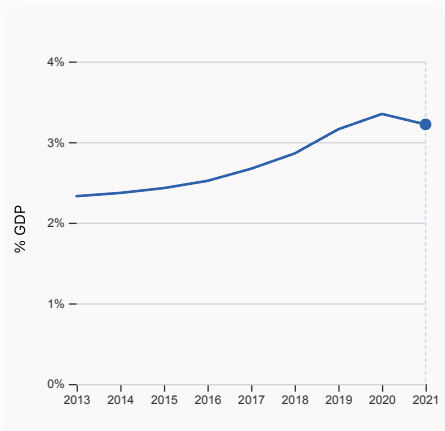
**2.1.1 Expenditure on education, % GDP** was equal to 6.33% GDP in 2019, down by 0.05 percentage points from the year prior – and equivalent to an indicator rank of 15.



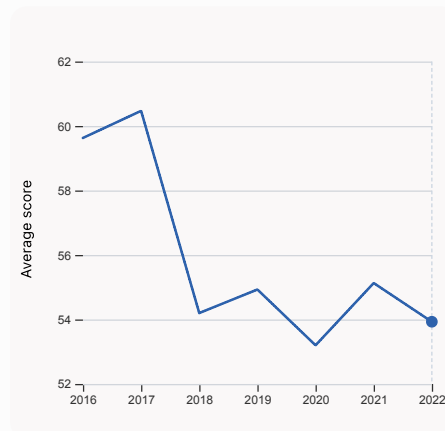
**2.2.2 Graduates in science and engineering, %** was equal to 17.58% of total tertiary graduates in 2020, up by 0.03 percentage points from the year prior – and equivalent to an indicator rank of 89.



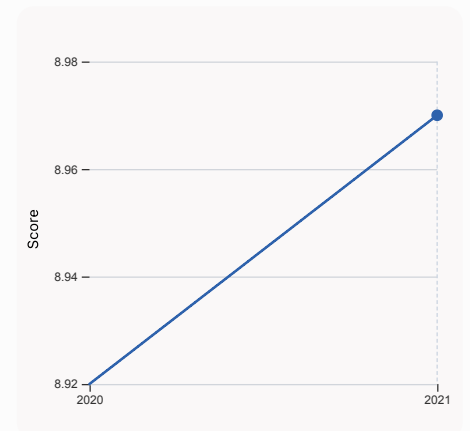
**2.3.1 Researchers, FTE/mn pop.** was equal to 6,604.37 FTE/mn pop. in 2021, up by 18.81% from the year prior – and equivalent to an indicator rank of 8.



**2.3.2 Gross expenditure on R&D, % GDP** was equal to 3.22% GDP in 2021, down by 0.13 percentage points from the year prior – and equivalent to an indicator rank of 6.

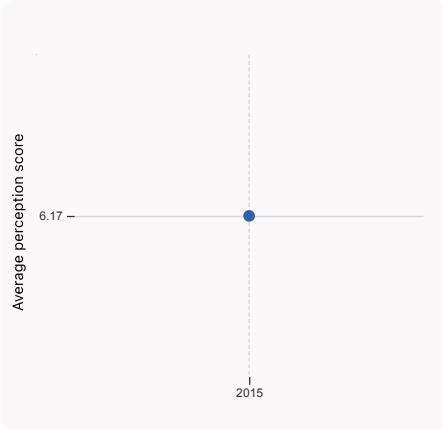
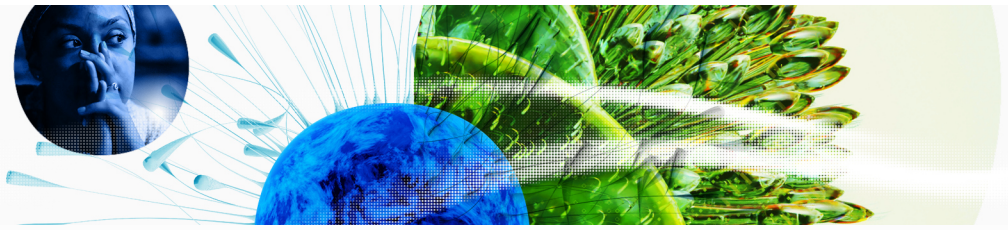


**2.3.4 QS university ranking, top 3** was equal to an average score of 53.93 for the top 3 universities in 2022, down by 2.18% from the year prior – and equivalent to an indicator rank of 17.

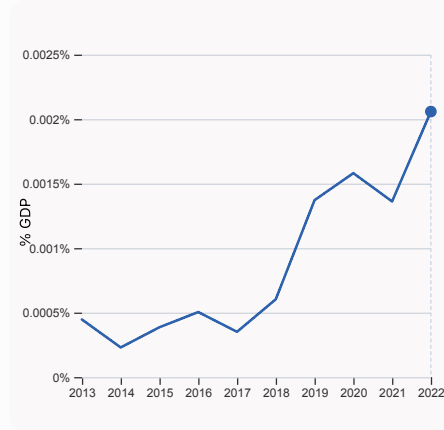


**3.1.1 ICT access** was equal to a score of 8.97 in 2021, up by 0.56% from the year prior – and equivalent to an indicator rank of 53.

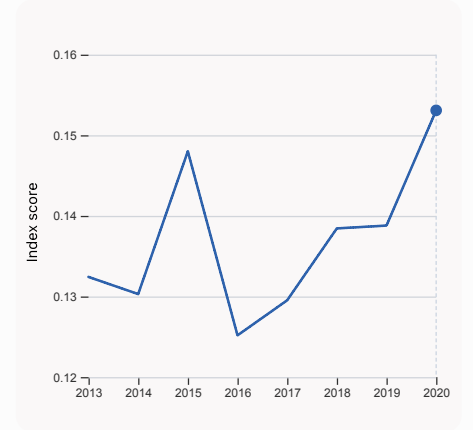
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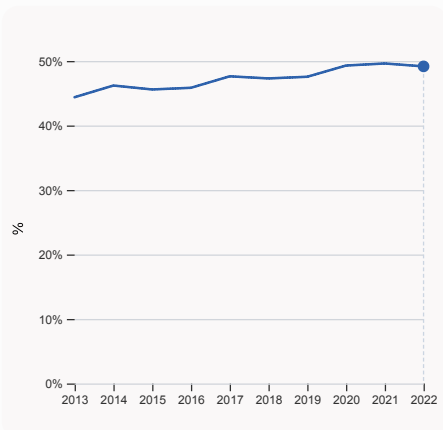
**4.1.1 Finance for startups and scaleups** was equal to an average perception score of 6.17 in 2015, equivalent to an indicator rank of 4.



**4.2.4 VC received, value, % GDP** was equal to 0.00206% GDP in 2022, up by 0.0007 percentage points from the year prior – and equivalent to an indicator rank of 36.



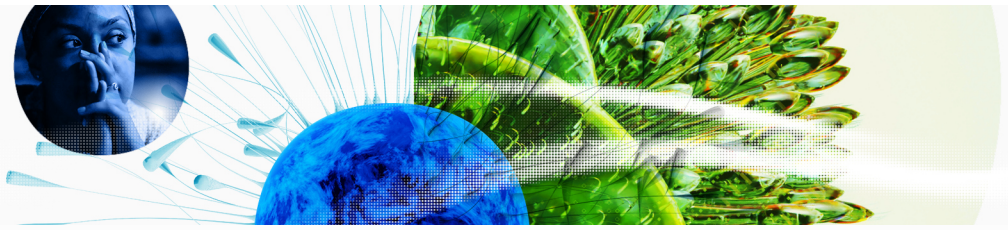
**4.3.2 Domestic industry diversification** was equal to an index score of 0.153 in 2020, up by 10.3% from the year prior – and equivalent to an indicator rank of 49.



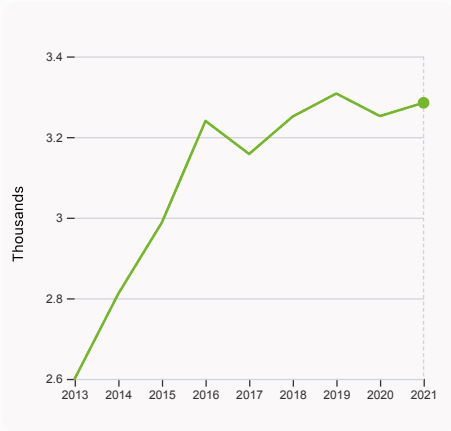
**5.1.1 Knowledge-intensive employment, %** was equal to 49.17% in 2022, down by 0.45 percentage points from the year prior – and equivalent to an indicator rank of 12.



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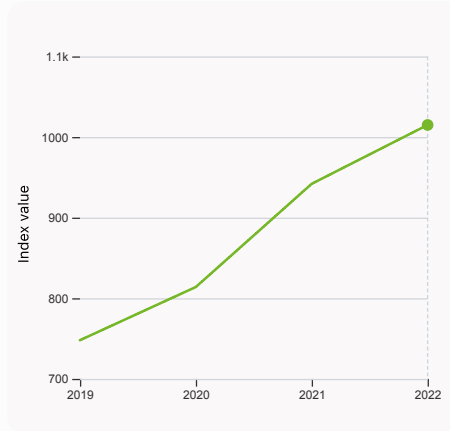


## > Innovation outputs in Belgium



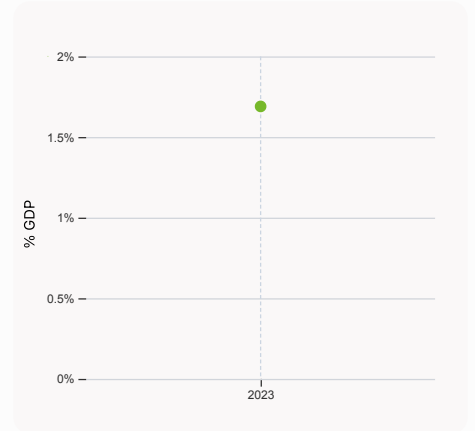
### 6.1.1 Patents by origin

was equal to 3.29 Thousands in 2021, up by 1.015% from the year prior – and equivalent to an indicator rank of 17.



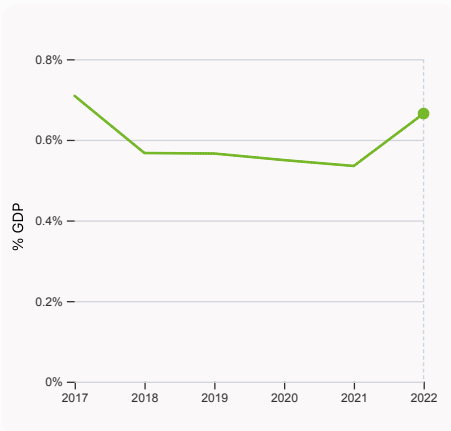
### 6.1.5 Citable documents H-index

was equal to an index value of 1,015 in 2022, up by 7.75% from the year prior – and equivalent to an indicator rank of 14.



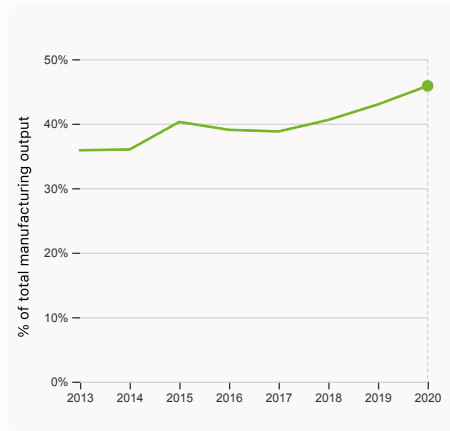
### 6.2.2 Unicorn valuation, % GDP

was equal to 1.69 % GDP in 2023 – and equivalent to an indicator rank of 26.



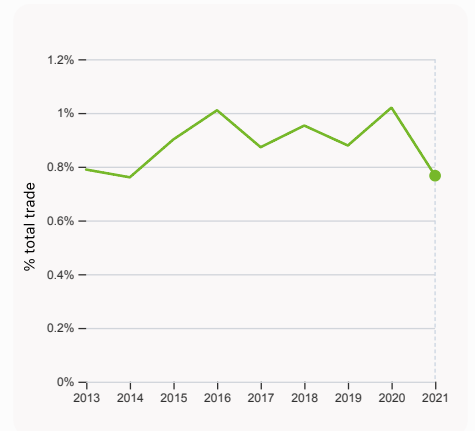
### 6.2.3 Software spending, % GDP

was equal to 0.665% GDP in 2022, up by 0.13 percentage points from the year prior – and equivalent to an indicator rank of 10.



### 6.2.4 High-tech manufacturing, %

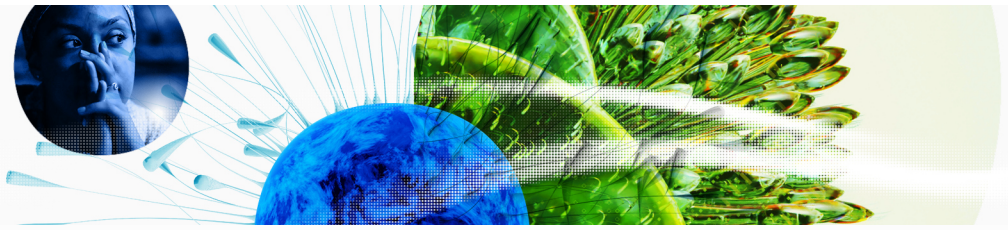
was equal to 45.86% of total manufacturing output in 2020, up by 2.87 percentage points from the year prior – and equivalent to an indicator rank of 18.



### 6.3.1 Intellectual property receipts, % total trade

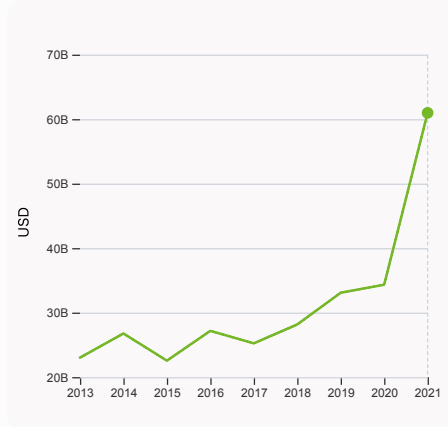
was equal to 0.766% total trade in 2021, down by 0.25 percentage points from the year prior – and equivalent to an indicator rank of 23.

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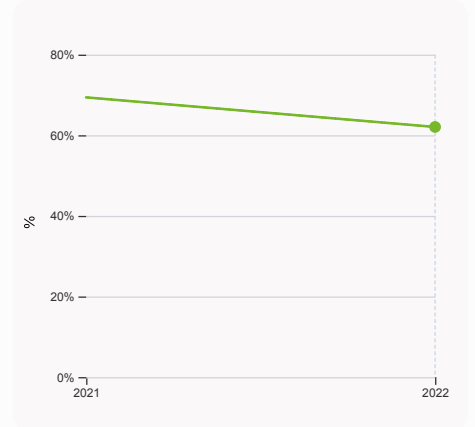
## 6.3.2 Production and export complexity

was equal to a score of 1.13 in 2020, down by 5.042% from the year prior – and equivalent to an indicator rank of 22.



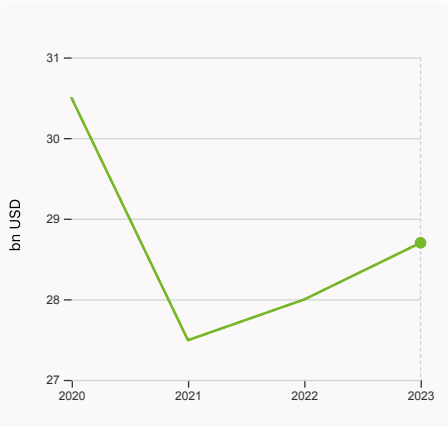
## 6.3.3 High-tech exports

was equal to 60,973,130,709 USD in 2021, up by 77.62% from the year prior – and equivalent to an indicator rank of 13.



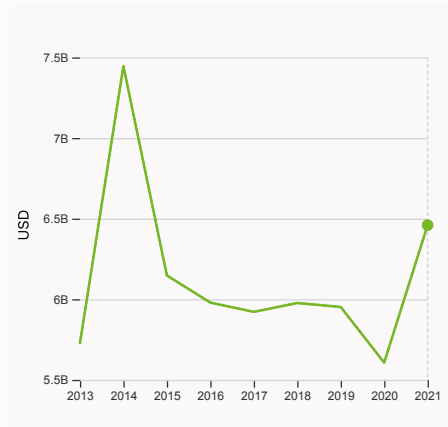
## 7.1.1 Intangible asset intensity, top 15, %

was equal to 62.06% in 2022, down by 7.34 percentage points from the year prior – and equivalent to an indicator rank of 34.



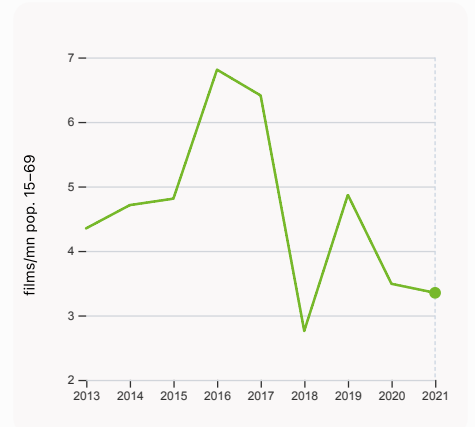
## 7.1.3 Global brand value, top 5,000

was equal to 28.701 bn USD in 2023, up by 2.51% from the year prior – and equivalent to an indicator rank of 35.



## 7.2.1 Cultural and creative services exports

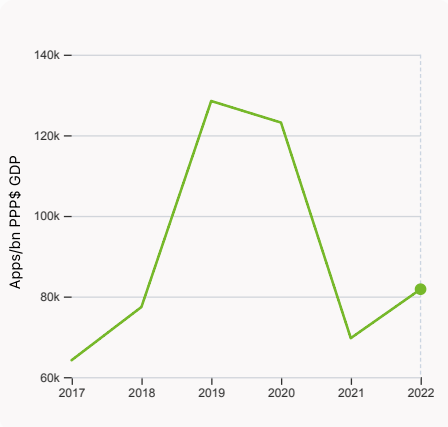
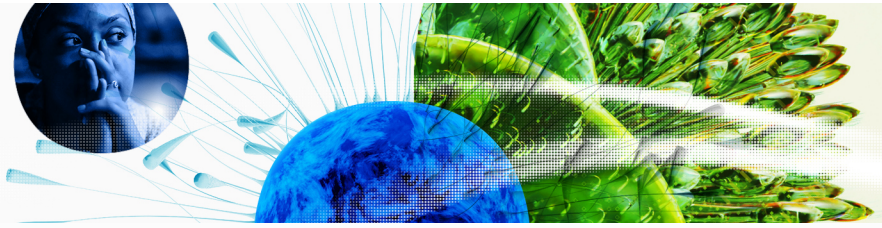
was equal to 6,459,866,000 USD in 2021, up by 15.21% from the year prior – and equivalent to an indicator rank of 22.



## 7.2.2 National feature films/mn pop. 15-69

was equal to 3.35 films/mn pop. 15-69 in 2021, down by 4.011% from the year prior – and equivalent to an indicator rank of 37.

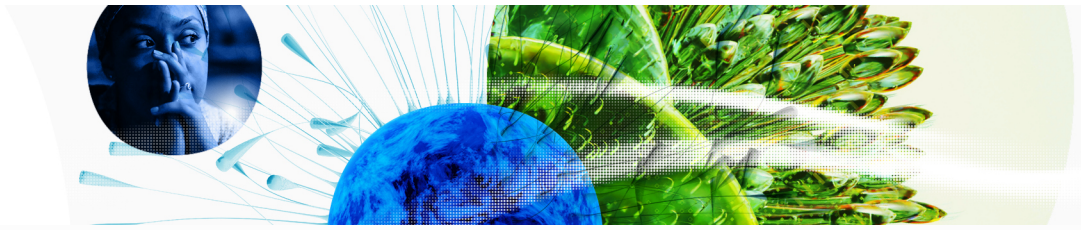
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## 7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 81,811.31 Apps/bn PPP\$ GDP in 2022, up by 17.42% from the year prior – and equivalent to an indicator rank of 76.

# Global Innovation Index 2023



## → Belgium's innovation top performers

### > 2.3.3 Global corporate R&D investors from Belgium

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
125	UCB	Pharmaceuticals & Biotechnology	1,519	1	28
609	SOLVAY	Chemicals	273	2	3
624	ANHEUSER-BUSCH INBEV	Beverages	263	1	1
636	KBC	Banks	258	110	3

Source: European Commission's Joint Research Centre (<https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard>).

Note: European Commission's Joint Research Centre ranks the top 2,500 firms by R&D investment annually.

### > 2.3.4 QS university ranking of Belgium's top universities

Rank	University	Score
76	KU LEUVEN	66.00
143	GHENT UNIVERSITY	51.60
195	UNIVERSITE CATHOLIQUE DE LOUVAIN (UCLouvain)	44.20

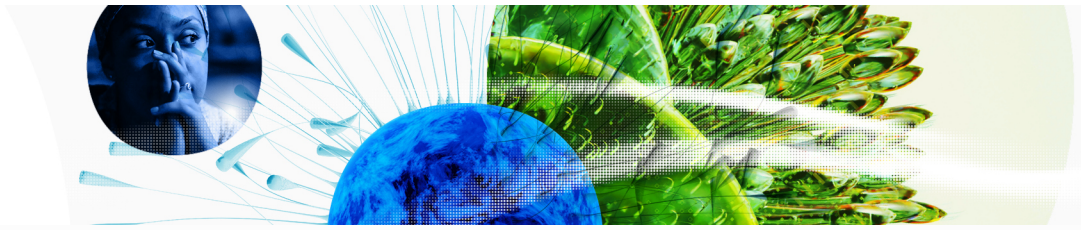
Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2023>).

Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x=" or a range "x-y".

### > 6.2.2 Top Unicorn Companies in Belgium

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	COLLIBRA	Data management & analytics	Brussels	5
2	ODOO	Internet software & services	Louvain-la-Neuve	3
3	DELIVERECT	Fintech	Ghent	1

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: <https://www.cbinsights.com/research-unicorn-companies>



## > 7.1.1 Top 15 intangible-asset intensive companies in Belgium

Rank	Firm	Intensity, %
1	ANHEUSER-BUSCH INBEV SA/NV	100.30
2	UCB SA	88.84
3	SOLVAY SA	56.35

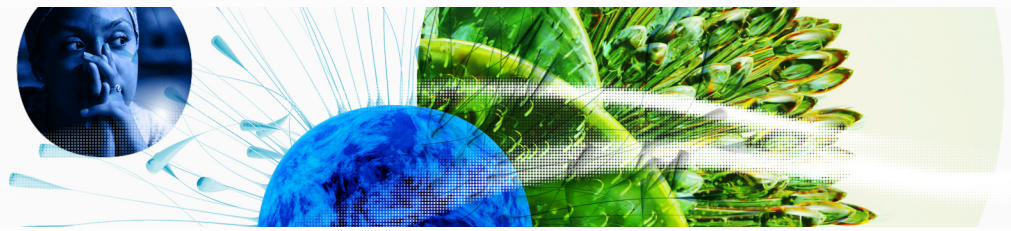
Source: Brand Finance (<https://brandirectory.com/reports/gift-2022>).  
Note: Brand Finance only provides within economy ranks.

## > 7.1.3 Top 5,000 companies in Belgium with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	KBC	Banking	5,392.5
2	BDO GLOBAL	Commercial Services	3,812.1
3	AB INBEV	Beers	2,188.0

Source: Brand Finance (<https://brandirectory.com>).  
Note: Rank corresponds to within economy ranks.

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GII 2023 rank

23

## Belgium

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
22	23	High	EUR	11.7	723.1	62,065.1
Score / Value Rank				Score / Value Rank		
<b>Institutions</b> 68.3 30				<b>Business sophistication</b> 60.8 10		
<b>1.1 Institutional environment</b> 68.6 29				<b>5.1 Knowledge workers</b> 74.2 4		
1.1.1 Operational stability for businesses* 69.4 29				5.1.1 Knowledge-intensive employment, % 49.2 12		
1.1.2 Government effectiveness* 67.8 27 ◇				5.1.2 Firms offering formal training, % 57.8 10		
<b>1.2 Regulatory environment</b> 77.3 31				5.1.3 GERD performed by business, % GDP 2.4 5 ●		
1.2.1 Regulatory quality* 76.9 22				5.1.4 GERD financed by business, % ● 64.3 8 ●		
1.2.2 Rule of law* 78.6 21				5.1.5 Females employed w/advanced degrees, % 28.3 7 ●		
1.2.3 Cost of redundancy dismissal 19.7 85 ○				<b>5.2 Innovation linkages</b> 61.0 13		
<b>1.3 Business environment</b> 58.9 35				5.2.1 University-industry R&D collaboration+ 85.1 9 ●		
1.3.1 Policies for doing business+ 66.1 31				5.2.2 State of cluster development+ 74.0 19		
1.3.2 Entrepreneurship policies and culture+ ● 51.6 33				5.2.3 GERD financed by abroad, % GDP ● 0.5 6 ●		
<b>Human capital and research</b> 55.4 14				5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.1 25		
<b>2.1 Education</b> 69.6 6				5.2.5 Patent families/bn PPP\$ GDP 2.5 15		
2.1.1 Expenditure on education, % GDP ● 6.3 15				<b>5.3 Knowledge absorption</b> 47.3 29		
2.1.2 Government funding/pupil, secondary, % GDP/cap 23.3 29				5.3.1 Intellectual property payments, % total trade 0.7 55		
2.1.3 School life expectancy, years 19.4 6 ●				5.3.2 High-tech imports, % total trade 9.2 47		
2.1.4 PISA scales in reading, maths and science 499.9 19				5.3.3 ICT services imports, % total trade 2.9 20		
2.1.5 Pupil-teacher ratio, secondary 8.7 19				5.3.4 FDI net inflows, % GDP -1.5 127 ○		
<b>2.2 Tertiary education</b> 34.9 48				5.3.5 Research talent, % in businesses 64.3 8		
2.2.1 Tertiary enrolment, % gross 80.9 23				<b>Knowledge and technology outputs</b> 46.8 15		
2.2.2 Graduates in science and engineering, % 17.6 89 ○ ◇				<b>6.1 Knowledge creation</b> 50.1 13		
2.2.3 Tertiary inbound mobility, % 10.4 24				6.1.1 Patents by origin/bn PPP\$ GDP 5.0 17		
<b>2.3 Research and development (R&amp;D)</b> 61.6 13				6.1.2 PCT patents by origin/bn PPP\$ GDP 1.8 17		
2.3.1 Researchers, FTE/mn pop. 6,604.4 8 ●				6.1.3 Utility models by origin/bn PPP\$ GDP n/a n/a		
2.3.2 Gross expenditure on R&D, % GDP 3.2 6 ●				6.1.4 Scientific and technical articles/bn PPP\$ GDP n/a n/a		
2.3.3 Global corporate R&D investors, top 3, mn US\$ 65.4 19				6.1.5 Citable documents H-index 54.1 14		
2.3.4 QS university ranking, top 3* 54.6 17				<b>6.2 Knowledge impact</b> 49.1 18		
<b>Infrastructure</b> 51.6 44 ◇				6.2.1 Labor productivity growth, % 0.2 95 ○		
<b>3.1 Information and communication technologies (ICTs)</b> 70.9 64 ◇				6.2.2 Unicorn valuation, % GDP 1.7 26		
3.1.1 ICT access* 84.7 53				6.2.3 Software spending, % GDP 0.7 10 ●		
3.1.2 ICT use* 88.8 24				6.2.4 High-tech manufacturing, % 45.9 18		
3.1.3 Government's online service* 65.7 67 ○ ◇				<b>6.3 Knowledge diffusion</b> 41.1 33		
3.1.4 E-participation* 44.2 83 ○ ◇				6.3.1 Intellectual property receipts, % total trade 0.9 23		
<b>3.2 General infrastructure</b> 50.3 17				6.3.2 Production and export complexity 76.3 22		
3.2.1 Electricity output, GWh/mn pop. 8,560.7 16				6.3.3 High-tech exports, % total trade 11.9 13		
3.2.2 Logistics performance* 86.4 7				6.3.4 ICT services exports, % total trade 3.5 33		
3.2.3 Gross capital formation, % GDP 24.6 60 ○				6.3.5 ISO 9001 quality/bn PPP\$ GDP 4.3 60		
<b>3.3 Ecological sustainability</b> 33.8 41				<b>Creative outputs</b> 39.4 30 ◇		
3.3.1 GDP/unit of energy use 10.1 66 ○				<b>7.1 Intangible assets</b> 39.3 44 ◇		
3.3.2 Environmental performance* 66.6 21				7.1.1 Intangible asset intensity, top 15, % 62.1 34		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 1.6 55				7.1.2 Trademarks by origin/bn PPP\$ GDP 34.3 70 ○		
<b>Market sophistication</b> 47.9 26				7.1.3 Global brand value, top 5,000 4.8 35 ◇		
<b>4.1 Credit</b> 56.0 23				7.1.4 Industrial designs by origin/bn PPP\$ GDP 2.2 40		
4.1.1 Finance for startups and scaleups+ ● 84.4 4				<b>7.2 Creative goods and services</b> 27.0 36 ◇		
4.1.2 Domestic credit to private sector, % GDP 75.3 45 ◇				7.2.1 Cultural and creative services exports, % total trade 1.3 22		
4.1.3 Loans from microfinance institutions, % GDP n/a n/a				7.2.2 National feature films/mn pop. 15-69 3.4 37		
<b>4.2 Investment</b> 22.5 32 ◇				7.2.3 Entertainment and media market/th pop. 15-69 50.5 17		
4.2.1 Market capitalization, % GDP ● 75.2 22				7.2.4 Creative goods exports, % total trade 0.9 47		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.3 20				<b>7.3 Online creativity</b> 52.0 22		
4.2.3 VC recipients, deals/bn PPP\$ GDP 0.1 31				7.3.1 Generic top-level domains (TLDs)/th pop. 15-69 24.7 26 ◇		
4.2.4 VC received, value, % GDP 0.0 36 ◇				7.3.2 Country-code TLDs/th pop. 15-69 63.7 13		
<b>4.3 Trade, diversification, and market scale</b> 65.2 27				7.3.3 GitHub commits/mn pop. 15-69 57.9 15		
4.3.1 Applied tariff rate, weighted avg., % 1.5 20				7.3.4 Mobile app creation/bn PPP\$ GDP 61.9 76 ○ ◇		
4.3.2 Domestic industry diversification 89.8 49						
4.3.3 Domestic market scale, bn PPP\$ 723.1 36						

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/gii-ranking>. 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 Belgium.



> Belgium has missing data for two indicators and outdated data for six indicators.

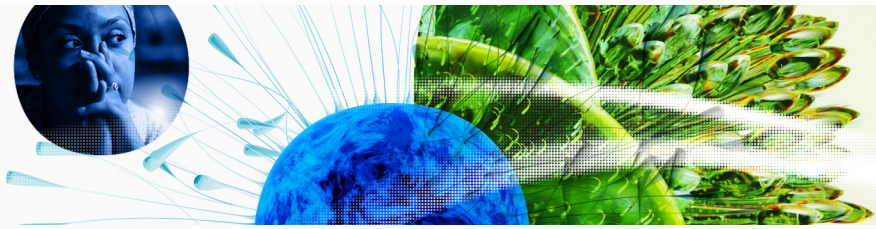
## > Missing data for Belgium

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund

## > Outdated data for Belgium

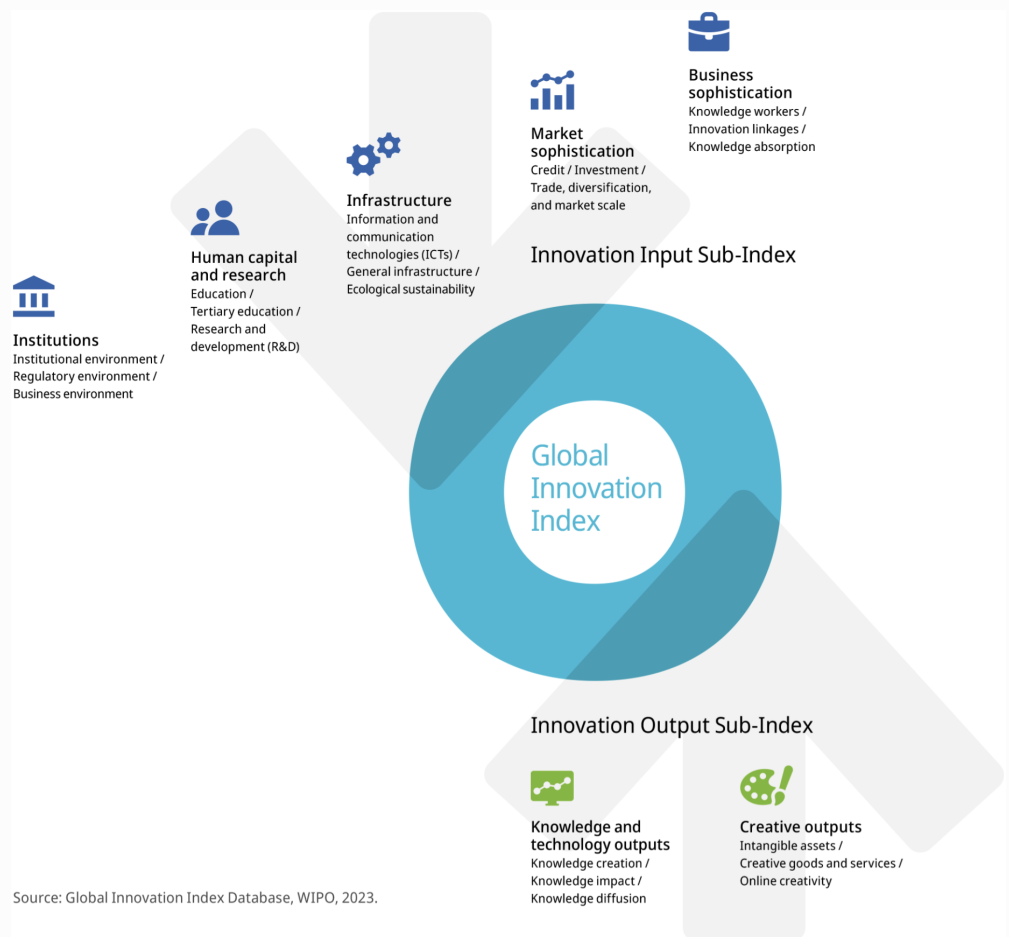
Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	2015	2022	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups	2015	2022	Global Entrepreneurship Monitor
4.2.1	Market capitalization, % GDP	2018	2020	World Federation of Exchanges; World Bank
5.1.4	GERD financed by business, %	2019	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	2019	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

# Global Innovation Index 2023



## → 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.