

| Belgium | Performance relative to EU in 2022 | Performance change 2015-2022 | Performance change 2021-2022 |
|--|------------------------------------|------------------------------|------------------------------|
| SUMMARY INNOVATION INDEX | 128.8 | 16.8 | 4.3 |
| Human resources | 129.6 | 4.8 | 0.0 |
| Doctorate graduates | 129.7 | 11.4 | 0.0 |
| Population with tertiary education | 159.3 | 0.0 | 0.0 |
| Lifelong learning | 93.3 | 0.0 | 0.0 |
| Attractive research systems | 157.9 | -0.8 | 19.0 |
| International scientific co-publications | 180.4 | 76.3 | 23.0 |
| Most cited publications | 126.2 | -18.4 | -2.5 |
| Foreign doctorate students | 189.7 | -34.1 | 62.3 |
| Digitalisation | 123.2 | 0.0 | 0.0 |
| Broadband penetration | 141.0 | 0.0 | 0.0 |
| People with above basic overall digital skills | 100.0 | 0.0 | 0.0 |
| Finance and support | 129.0 | 44.5 | 24.3 |
| R&D expenditures in the public sector | 121.2 | 33.9 | 17.7 |
| Venture capital expenditures | 106.6 | 48.5 | 23.9 |
| Government support for business R&D | 169.5 | 54.7 | 33.7 |
| Firm investments | 137.8 | 47.4 | 5.0 |
| R&D expenditure in the business sector | 167.6 | 70.5 | 15.5 |
| Non-R&D Innovation expenditures | 102.2 | 21.2 | 0.0 |
| Innovation expenditures per employee | 140.5 | 51.4 | 0.0 |
| Use of information technologies | 166.3 | 0.0 | -9.8 |
| Enterprises providing ICT training | 181.3 | 0.0 | -18.8 |
| Employed ICT specialists | 150.0 | 0.0 | 0.0 |
| Innovators | 146.5 | 32.7 | 17.8 |
| Product innovators (SMEs) | 134.5 | 22.0 | 34.5 |
| Business process innovators (SMEs) | 157.0 | 44.0 | 0.0 |
| Linkages | 174.0 | 1.9 | -9.8 |
| Innovative SMEs collaborating with others | 223.6 | -40.3 | -25.5 |
| Public-private co-publications | 271.5 | 117.4 | 39.4 |
| Job-to-job mobility of HRST | 93.8 | -11.8 | -17.6 |
| Intellectual assets | 87.1 | -3.5 | 0.3 |
| PCT patent applications | 95.4 | -7.8 | -0.2 |
| Trademark applications | 95.6 | 11.8 | 1.5 |
| Design applications | 66.8 | -10.0 | 0.0 |
| Employment impacts | 151.4 | 15.5 | 9.4 |
| Employment in knowledge-intensive activities | 139.0 | 0.0 | 0.0 |
| Employment in innovative enterprises | 161.4 | 29.7 | 18.0 |
| Sales impacts | 101.2 | 28.1 | -0.5 |
| Medium and high-tech goods exports | 93.2 | 14.0 | -1.2 |
| Knowledge-intensive services exports | 97.8 | 11.8 | 4.3 |
| Sales of innovative products | 115.5 | 65.5 | -5.1 |
| Environmental sustainability | 100.8 | 10.9 | -4.5 |
| Resource productivity | 128.1 | 29.2 | -2.6 |
| Air emissions by fine particulate matter | 103.0 | 7.6 | 1.1 |
| Environment-related technologies | 70.8 | 2.2 | -12.5 |

The second column shows performance relative to that of the EU in 2022. Colours next to the column show matching colour codes: dark green: above 125% of the performance of the EU in 2022; light green: between 100% and 125%; yellow: between 70% and 100%; orange: below 70%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data. The next columns show performance change over time between 2015 and 2022 and between 2021 and 2022, with scores relative to those of the EU in 2015. Positive performance changes are shown in green, negative performance changes in red.

BELGIUM is an **Innovation Leader** with performance at 128.8% of the EU average. Performance is below the average of the Innovation Leaders (134.4%). Performance is increasing (16.8%-points) at a rate higher than that of the EU (9.9%-points). The country's performance lead over the EU is becoming larger.

Relative strengths

- Public-private co-publications
- Innovative SMEs collaborating with others
- Foreign doctorate students
- Enterprises providing ICT training
- International scientific co-publications

Relative weaknesses

- Design applications
- Environment-related technologies
- Medium and high-tech goods exports
- Lifelong learning
- Job-to-job mobility of HRST

Strong increases since 2015

- Public-private co-publications
- International scientific co-publications
- R&D expenditure in the business sector

Strong decreases since 2015

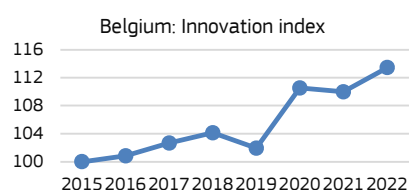
- Innovative SMEs collaborating with others
- Foreign doctorate students
- Most cited publications

Strong increases since 2021

- Foreign doctorate students
- Public-private co-publications
- Product innovators

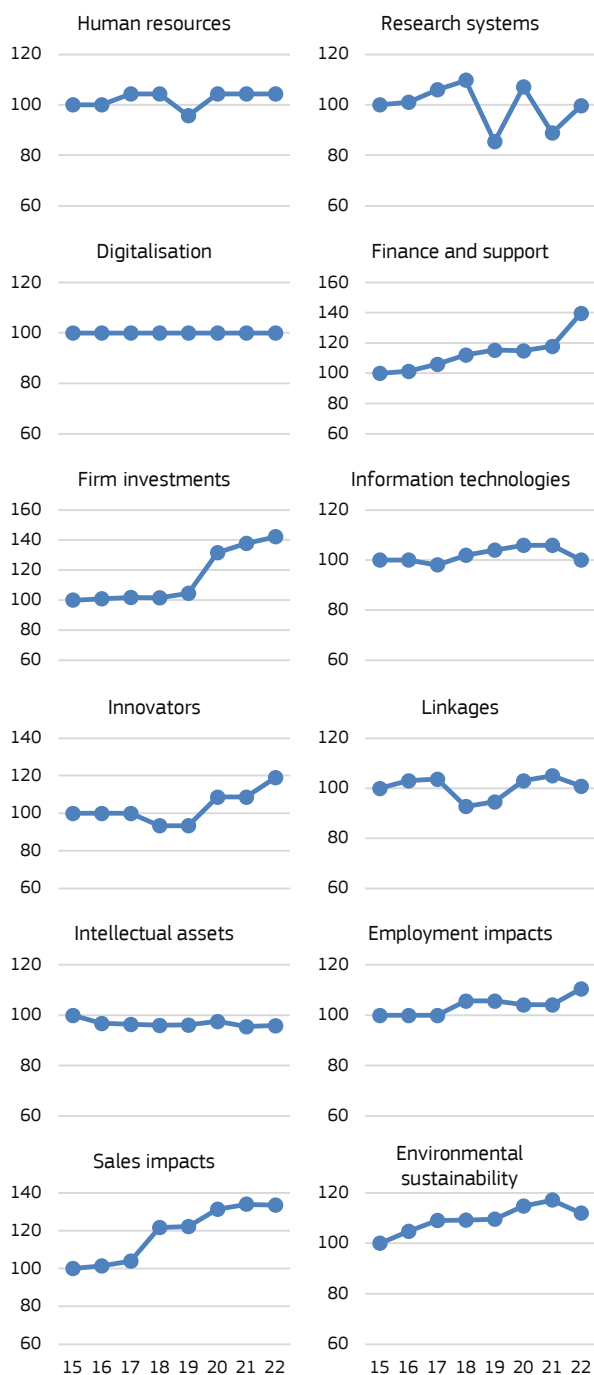
Strong decreases since 2021

- Innovative SMEs collaborating with others
- Enterprises providing ICT training
- Job-to-job mobility of HRST



The graph on the left shows the evolution of **innovation performance over time** against the performance of the country in 2015. Innovation performance increased slowly between 2015 and 2018, decreased in 2019, and accelerated between 2019 and 2020 and continued since.

The graphs below show the evolution of innovation performance in the different **innovation dimensions** against the performance of the country in 2015. Improvement has been continuous in most dimensions. In Human resources there was a temporary decline in 2019, for Linkages there was a strong decline in 2018 and a recovery in 2020. For Intellectual assets performance has decreased steadily over time, except for an increase in 2020.



Performance is measured relative to that of the country in 2015 (=100).

Structural differences with the EU are shown below:

- Belgium has higher per capita income but a slower growing economy. Both manufacturing and business services take up a smaller share of the economy, with SMEs accounting for a larger share of turnover.
- Top R&D spenders and buyer sophistication add positively to the innovation climate, entrepreneurial activities and FDI net inflows add negatively.
- Information on Innovation profiles is not available.
- It is more difficult to start a new business. Entrepreneurial training and government procurement are at par with the EU as drivers of research and innovation.
- Belgium shows a mixed performance on Climate change related indicators with a close to average share of material resources coming from recycled waste materials but a below average score on environmental innovation.

| | BE | EU |
|---|--------|--------|
| Performance and structure of the economy | | |
| GDP per capita (PPS) | 37,200 | 31,200 |
| Average annual GDP growth (%) | -0.3 | -0.4 |
| Employment share Manufacturing (NACE C) (%) | 12.0 | 16.4 |
| of which High and Medium high-tech (%) | 37.2 | 38.0 |
| Employment share Services (NACE G-N) (%) | 41.0 | 41.1 |
| of which Knowledge-intensive services (%) | 38.6 | 35.8 |
| Turnover share SMEs (%) | 37.5 | 34.8 |
| Turnover share large enterprises (%) | 37.8 | 48.2 |
| Foreign-controlled enterprises – share of value added (%) | 12.7 | 11.7 |
| Business and entrepreneurship | | |
| Enterprise births (10+ employees) (%) | 0.8 | 1.0 |
| Total Entrepreneurial Activity (TEA) (%) | 6.2 | 7.3 |
| FDI net inflows (% GDP) | -5.5 | 1.0 |
| Top R&D spending enterprises per 10 mln. population | 29.7 | 18.3 |
| Buyer sophistication (1 to 7 best) | 4.4 | 3.7 |
| Innovation profiles | | |
| In-house product innovators with market novelties | n/a | 10.7 |
| In-house product innovators without market novelties | n/a | 12.3 |
| In-house business process innovators | n/a | 11.0 |
| Innovators that do not develop innovations themselves | n/a | 11.6 |
| Innovation active non-innovators | n/a | 3.3 |
| Non-innovators with potential to innovate | n/a | 19.9 |
| Non-innovators without disposition to innovate | n/a | 31.3 |
| Governance and policy framework | | |
| Ease of starting a business (0 to 100 best) | 74.0 | 76.5 |
| Basic school entrepreneurial education and training | 3.3 | 3.5 |
| Govt. procurement of advanced tech. products | 3.5 | 3.5 |
| Rule of law (-2.5 to 2.5 best) | 1.4 | 1.1 |
| Climate change indicators | | |
| Circular material use rate | 12.4 | 12.2 |
| Greenhouse gas emissions intensity of energy consumption | 85.4 | 82.8 |
| Eco-Innovation Index | 82.1 | 100.0 |
| Demography | | |
| Population size | 11.5 | 447.0 |
| Average annual population growth (%) | 0.4 | 0.1 |
| Population density | 375.4 | 108.8 |