



European Innovation Scoreboard 2020

Brussels, 23 June 2020

What is the European Innovation Scoreboard?

The annual European Innovation Scoreboard (EIS) provides a comparative assessment of research and innovation performance of in EU countries, other European countries, and regional neighbours. It allows policy-makers to assess relative strengths and weaknesses of national research and innovation systems, track progress, and identify priority areas to boost innovation performance.

The EIS covers the EU Member States as well as Iceland, Israel, Montenegro, North Macedonia, Norway, Serbia, Switzerland, Turkey, Ukraine and the United Kingdom. On a more limited number of globally available indicators, the EIS compares the EU with Australia, Brazil, Canada, China, India, Japan, the Russian Federation, South Africa, South Korea, and the United States.

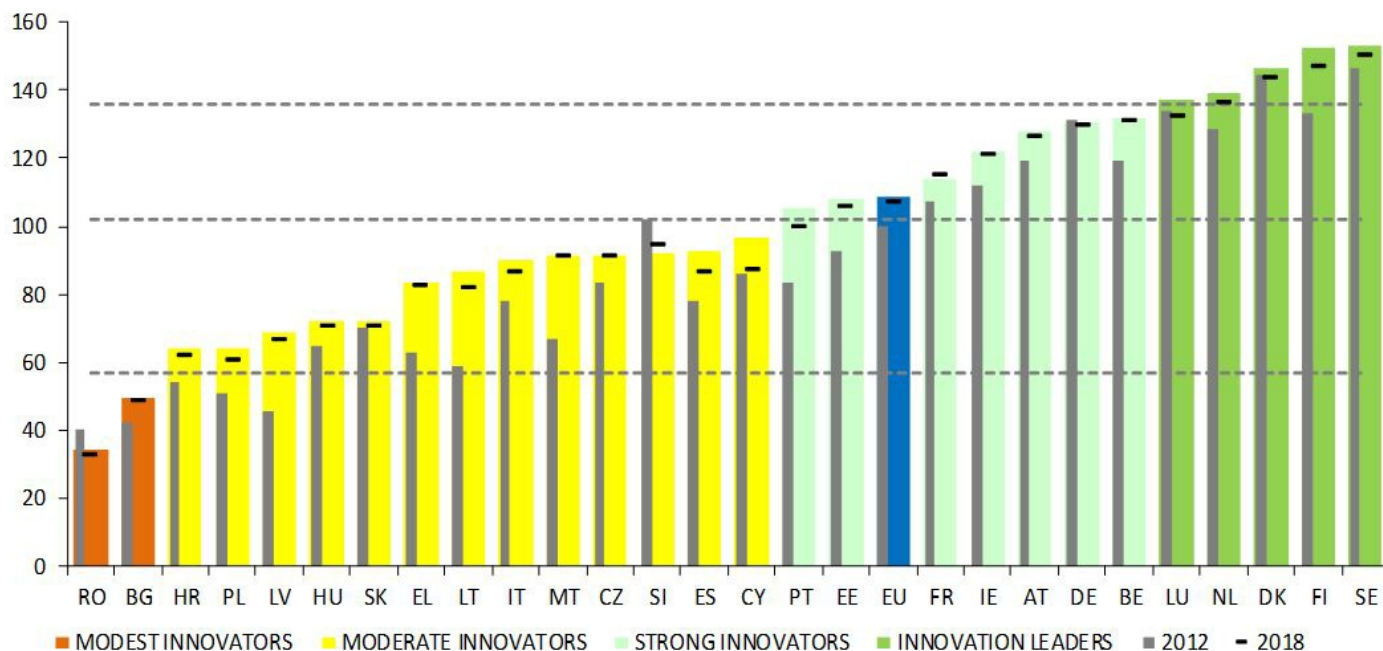
What is the latest innovation performance of EU countries?

Based on scores for 27 separate indicators, including innovation activities in companies, investment in research and innovation, and human resource and employment elements, EU countries fall into four performance groups:

- **Innovation Leaders** – Denmark, Finland, Luxembourg, the Netherlands, and Sweden perform significantly above the EU average;
- **Strong Innovators** – The innovation performance of Austria, Belgium, Estonia, France, Germany, Ireland, and Portugal is above or close to the EU average;
- **Moderate Innovators** – Croatia, Cyprus, Czechia, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, and Spain show an innovation performance below the EU average;
- **Modest Innovators** – The innovation performance of Bulgaria and Romania is below 50% of the EU average.

In this year's edition, Luxembourg (previously a Strong Innovator) joins the group of Innovation Leaders, while Portugal (previously a Moderate Innovator) joins the group of Strong Innovators. The relative innovation performance of Member States is shown in Figure 1.

Figure 1: Performance of EU Member States' innovation systems



Coloured columns show countries' performance in 2019, using the most recent data for 27 indicators, relative to that of the EU in 2012. The horizontal hyphens show performance in 2018, using the next most recent data, relative to that of the EU in 2012. Grey columns show countries' performance in 2012 relative to that of the EU 2012. For all years, the same measurement methodology has been used. The dashed lines show the threshold values between the performance groups.

EU performance leaders in specific areas of innovation:

The countries that have good overall innovation performance also perform well in most specific areas of innovation. However, some Strong and Moderate Innovators perform well on individual dimensions:

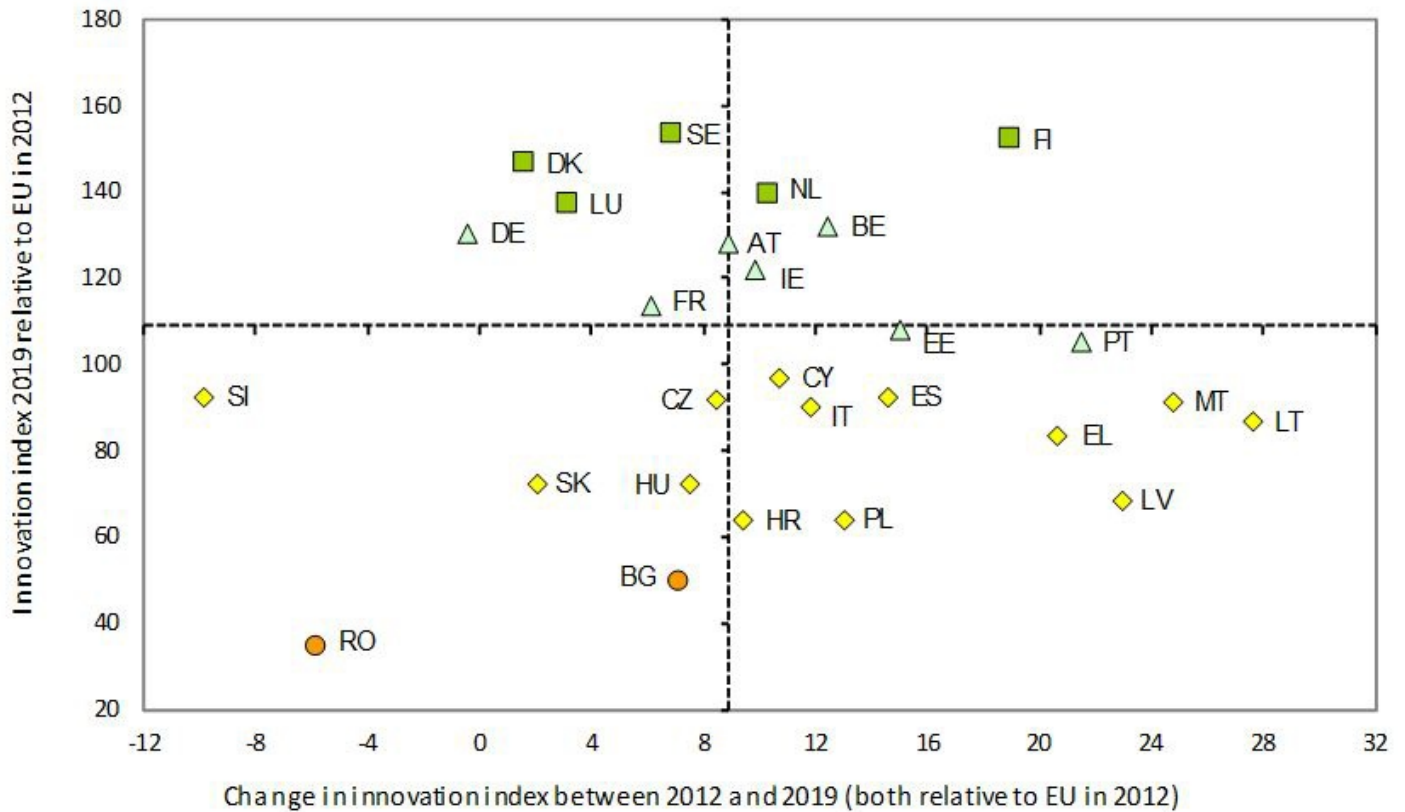
- **Attractive research systems – Luxembourg** continues to be the best performing country, followed by Denmark, the Netherlands and Sweden. These countries are open for cooperation with partners from abroad, researchers are well networked at international level, and the quality of research output is very high.
- **Innovation in small and medium-sized enterprises (SMEs) – Portugal** is the leader followed by Finland, Austria and Belgium. These countries are characterised by high shares of SMEs with innovative products and business processes. Ireland also leads in the employment impacts of innovation, (followed by Luxembourg, Malta and Sweden) and the sales impacts of innovation (followed by Germany, Slovakia and Belgium).
- **Innovation linkages and collaboration – Austria** is the top performer, followed by Belgium, Finland and the Netherlands. Companies in these countries have more versatile innovation capabilities, as they engage in innovation partnerships with other companies or public-sector organisations. The research systems in these countries are also geared towards meeting the demand from companies, as highlighted by private co-funding of public research.
- **In other innovation dimensions** measured by the Scoreboard, the EU leaders are: Sweden for human resources; Denmark for finance and innovation-friendly environment; Germany for firm investment; and Luxembourg for intellectual assets.

Have Member States improved their innovation performances?

The EIS 2020 shows an improved overall innovation performance. For the EU as a whole, it increased by 8.9 percentage points between 2012 and 2019. Over the same period, the performance improved for 24 Member States, most notably for Lithuania, Malta, Latvia, Portugal and Greece, where the innovation performance grew by more than 20 percentage points (Figure 2).

Compared to the last year's edition, performance has improved for 25 Member States, most notably for Cyprus, Spain, and Finland.

Figure 2: Change in Member States' innovation performance since 2012

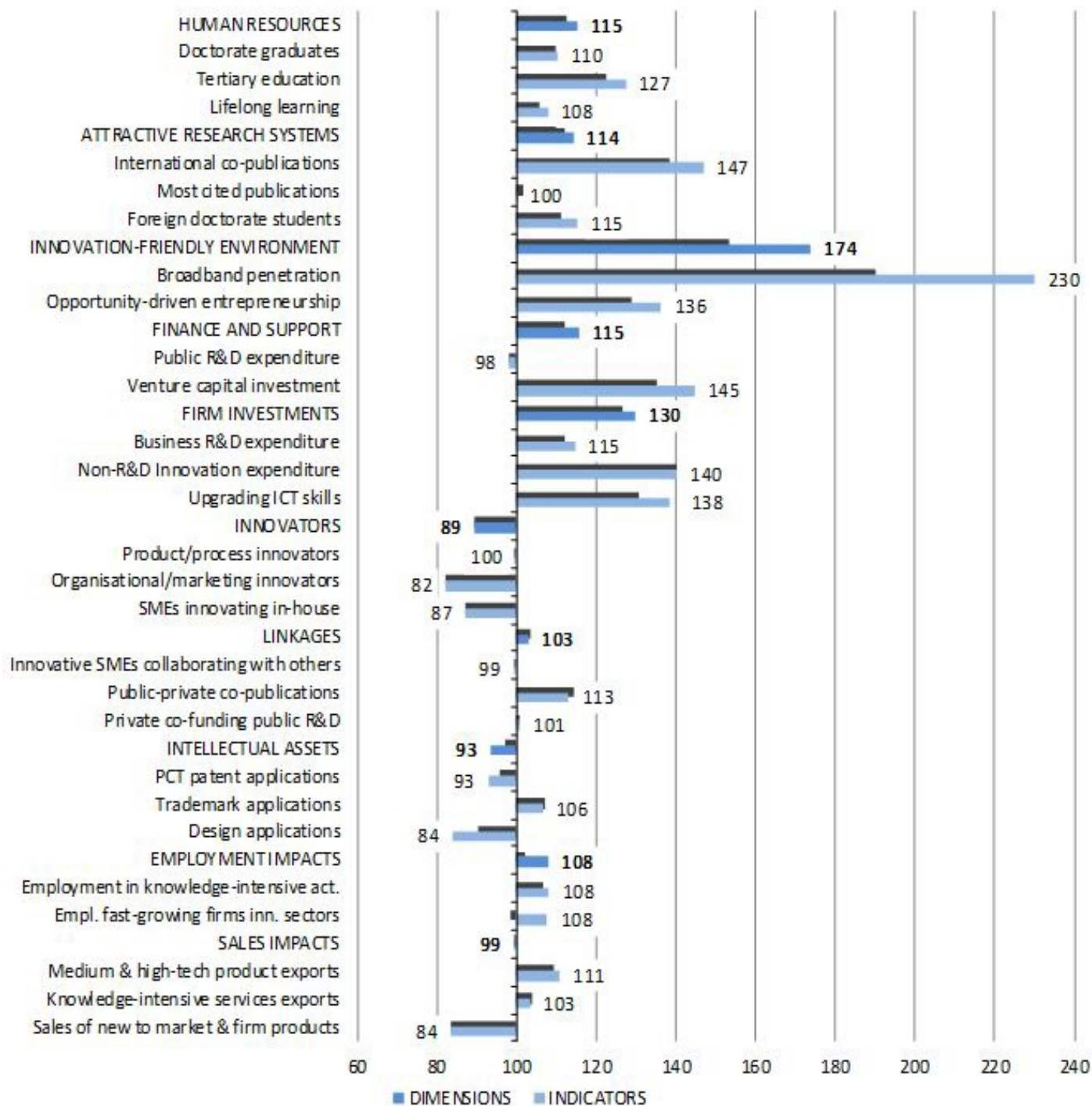


The vertical axis shows Member States' performance in 2019 relative to that of the EU in 2012. The horizontal axis shows the change in performance between 2012 and 2019 relative to that of the EU in 2012. The dashed lines show the respective scores for the EU.

In which dimensions has Europe improved?

For the EU as a whole, performance has improved the most in the innovation-friendly environment (notably in broadband penetration), followed by firm investments, (notably in non-R&D innovation expenditure), and finance and support (notably in venture capital expenditures). All the dimensions and indicators can be seen in Figure 3.

Figure 3: EU performance change by dimension and indicator since 2012



Normalised scores in 2019 (blue coloured bars) and 2018 (black coloured bars) relative to those in 2012 (=100)

What are the key drivers of innovation?

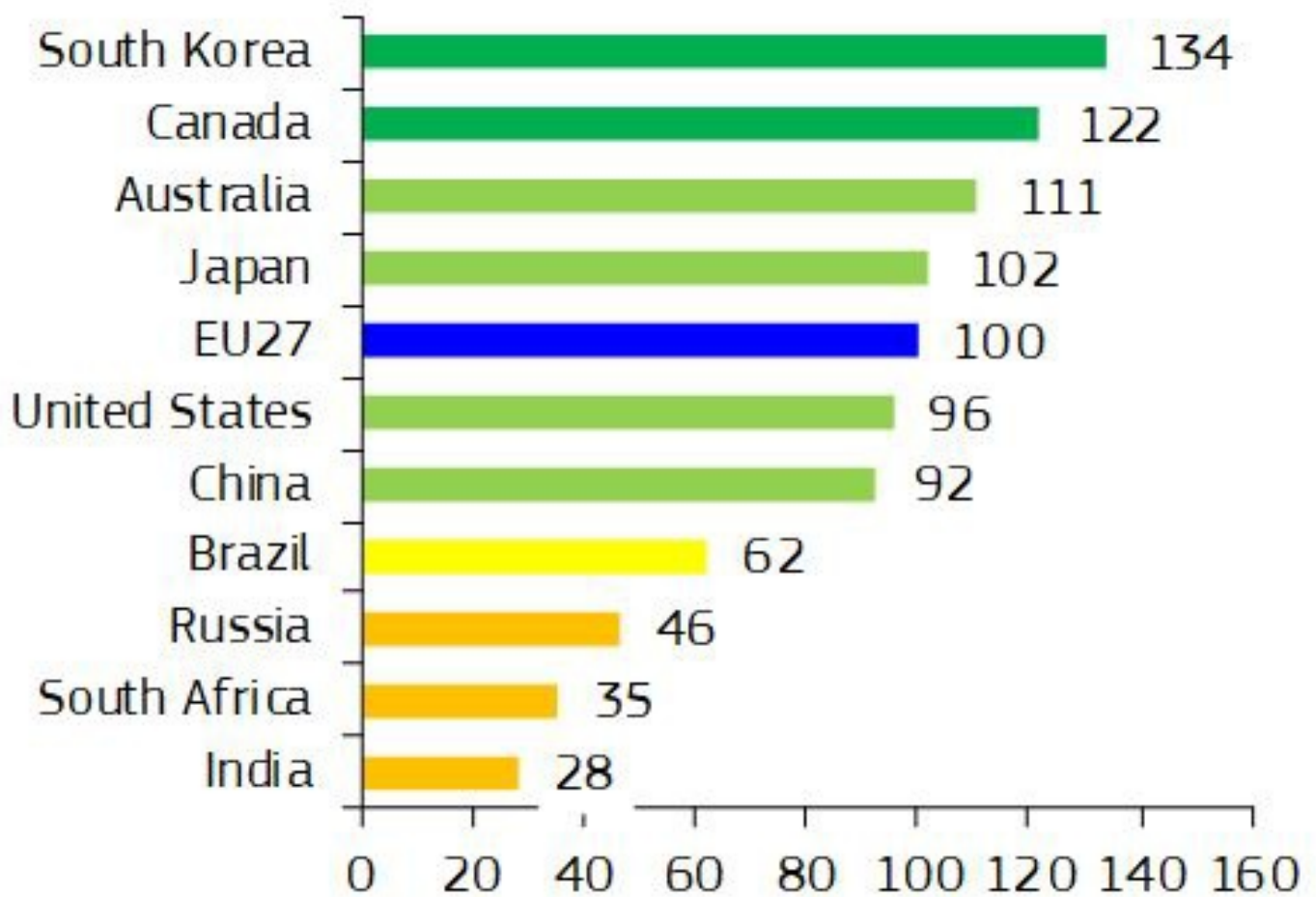
To achieve a high level of innovation performance, countries need a **balanced innovation system** performing well across all dimensions. They need an appropriate level of public and private investment in education, research and skills development, effective innovation partnerships among companies and with academia, as well as an innovation-friendly business environment, including strong digital infrastructure. These key areas correspond largely to the dimensions and indicators used for the European Innovation Scoreboard.

How does the EU's performance compare to other countries?

Comparing the EU average to a selection of global competitors, the EU continues to have a performance lead over the United States, China, Brazil, Russia, South Africa, and India (Figure 4). South Korea is the most innovative country, performing 34 per cent above the performance score of the EU in 2019. Since 2012 South Korea, Australia and Japan have increased their performance lead

over the EU, while the gap between the EU and the United States, China, Brazil, Russia and South Africa has become smaller.

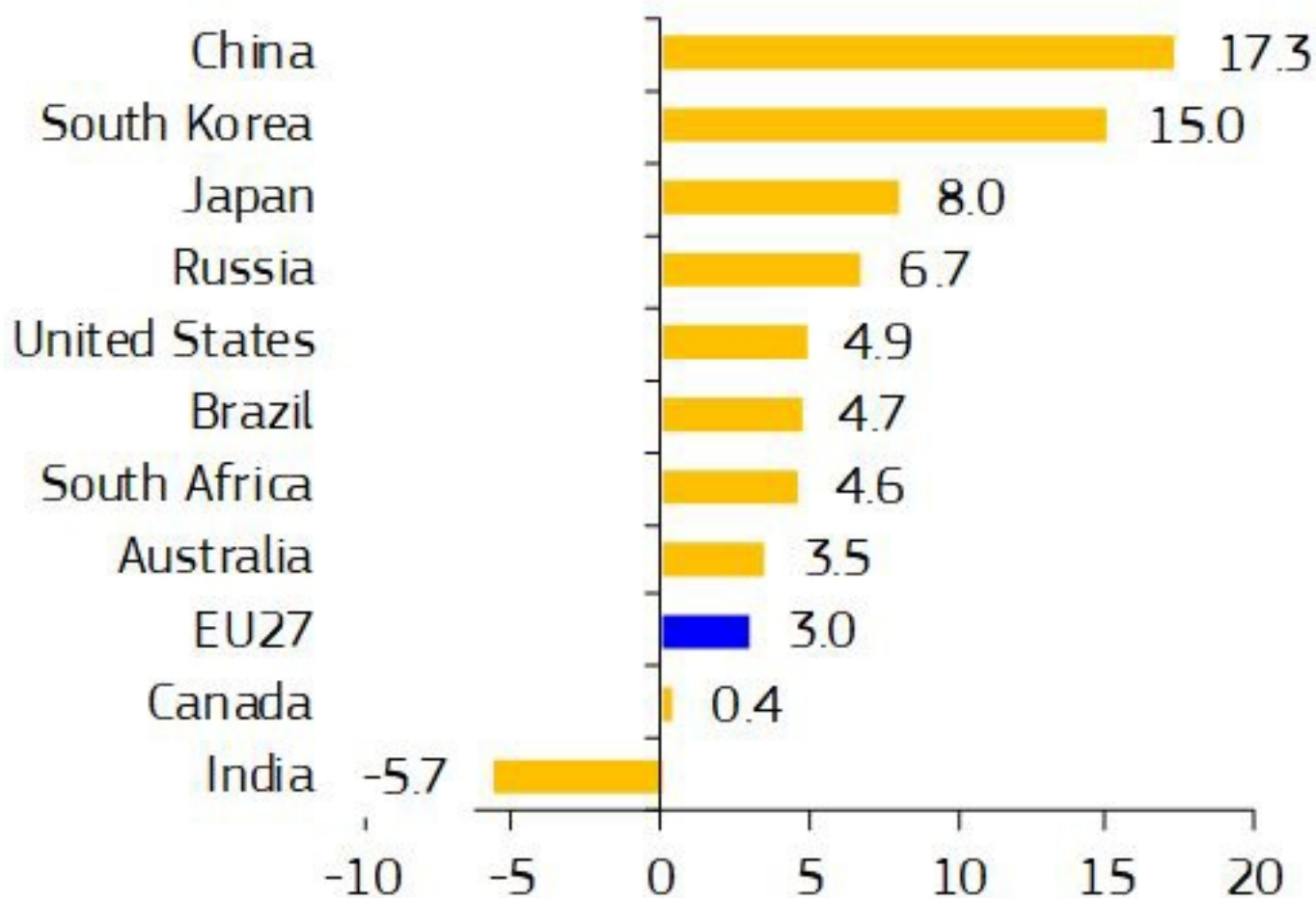
Figure 4: Current global performance



Bars show countries' performance in 2019 relative to that of the EU27 in 2019.

In terms of relative-to-EU performance in 2019, South Korea and Canada would be Innovation Leaders. Australia, China, Japan, and the United States would be Strong Innovators, Brazil would be a Moderate Innovator, and Russia, India, and South Africa would be Modest Innovators. With regard to innovation performance growth rate, China has had the largest increase since 2012, growing at more than five times that of the EU over the period (Figure 5). For Australia, Brazil, Japan, Russia, South Africa, and the United States, performance has also increased at a higher rate than the EU. For Canada and India, performance has decreased compared to the EU.

Figure 5: Change in global performance since 2012



Change in performance is measured as the difference between the performance in 2019 relative to the EU27 in 2012 and the performance in 2012 relative to the EU27 in 2012

How is innovation performance measured in the Scoreboard?

Innovation performance in the EIS 2020 is measured using 27 **performance indicators**, distinguishing between ten innovation dimensions in four main categories (for a full overview of the indicators, see Table 1 in the [Annex](#)):

- **Framework conditions** capture the main drivers of innovation performance and cover three innovation dimensions: human resources, attractive research systems, and innovation-friendly environment.
- **Investments** include public and private investment in research and innovation, distinguishing between external finance and support, and own-resource investments.
- **Innovation activities** capture the innovation efforts at the company level, covering three dimensions: innovators, linkages, and intellectual assets.
- **Impacts** illustrate how innovation translates into benefits for the economy as a whole: employment impacts and sales effects.

No changes have been made to the performance indicators since the in-depth review for the 2017 edition. However, due to data revisions for some indicators, **results are not comparable across editions**.

In response to a need for contextual analyses to better understand performance differences between the innovation indicators used in the main measurement framework, a set of **contextual indicators** was introduced to the country profiles in the 2017 edition and revised the following year. These contextual indicators include economic, demographic and governance dimensions such as sectoral employment, population, economic growth, and business environment conditions. For this year's report, no changes have been introduced and the report presents an analysis of structural differences in terms of economic structure and performance, business and entrepreneurship, demography, and governance and policy framework in a series of country profiles.

Full definitions of all performance indicators and contextual indicators are provided in the

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