Executive summary

The annual European Innovation Scoreboard (EIS) provides a comparative assessment of the research and innovation performance of EU Member States and selected third countries, and the relative strengths and weaknesses of their research and innovation systems. It helps countries assess areas in which they need to concentrate their efforts in order to boost their innovation performance.

The EIS 2021 report is the first edition published using the revised measurement framework including new indicators capturing digitalisation and sustainable innovation. All results for the EU are for the current 27 Member States. Most of the data used in this report are not recent enough to capture the impact of the Covid-19 pandemic.

Innovation performance has continued to increase for the EU and all Member States

On average, the innovation performance of the EU has increased by 12.5 percentage points since 2014, in particular due to strong performance increases in the following indicators: Broadband penetration, Venture capital expenditures, and International scientific co-publications. Since 2014, innovation performance increased in all EU Member States. Performance has increased the most in Cyprus, Estonia, Greece, Italy and Lithuania. The process of convergence within the EU, where lower performing countries are growing faster than higher performing countries, has continued in 2021.

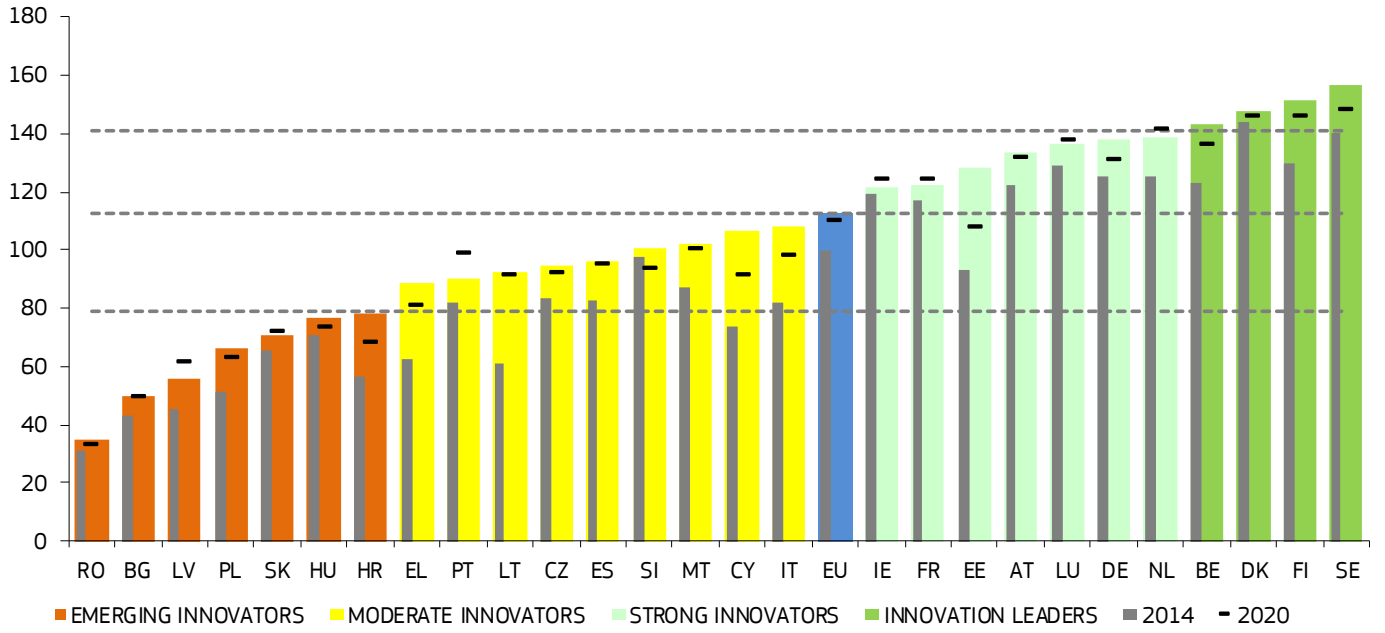
More recently, between 2020 and 2021, performance has improved for 20 Member States, most notably for Cyprus and Estonia, and performance has declined for seven Member States, including France, Ireland, Latvia, Luxembourg, Netherlands, Portugal and Slovakia.

Member States are classified into four performance groups based on their average performance scores

Based on their average performance scores as calculated by a composite indicator, the Summary Innovation Index, Member States fall into four different performance groups (**Figure 1**). In this year's edition, the thresholds for identifying the performance groups have been revised and one performance group has been renamed, making any comparisons with performance groups in previous EIS reports impossible.

Belgium, Denmark, Finland and Sweden are *Innovation Leaders* with innovation performance well above the EU average. Austria, Estonia, France, Germany, Ireland, Luxembourg and the Netherlands are *Strong Innovators* with performance above the EU average. The performance of Cyprus, Czechia, Greece, Italy, Lithuania, Malta, Portugal, Slovenia, and Spain is below the EU average. These countries are *Moderate Innovators*. Bulgaria, Croatia, Hungary, Latvia, Poland, Romania and Slovakia are *Emerging Innovators* with performance well below the EU average.

Figure 1: Performance of EU Member States' innovation systems



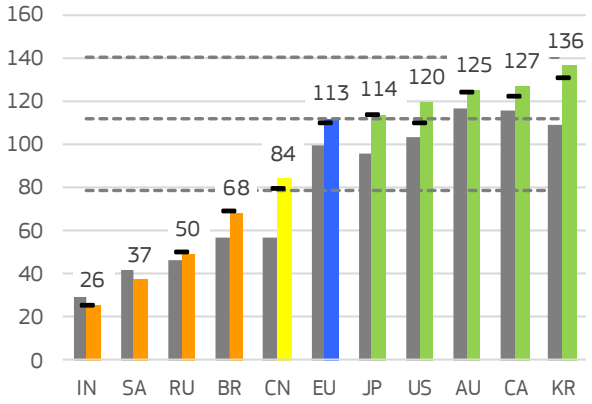
Coloured columns show countries' performance in 2021, using the most recent data for 32 indicators, relative to that of the EU in 2014. The horizontal hyphens show performance in 2020, using the next most recent data, relative to that of the EU in 2014. Grey columns show countries' performance in 2014 relative to that of the EU 2014. For all years, the same measurement methodology has been used. The dashed lines show the threshold values between the performance groups, where the threshold values of 70%, 100%, and 125% have been adjusted upward to reflect the performance increase of the EU between 2014 and 2021.

At the global level, the EU is closing the performance gap to Australia and Canada, two of its global competitors

In global terms, the EU has a performance lead over Brazil, China, India, Russia, and South Africa, and a performance gap with Australia, Canada, Japan, South Korea and the United States (**Figure 2**). Between 2014 and 2021, the EU has improved its relative position towards 6 of its global competitors: the performance gap with Australia and Canada has become smaller and the performance lead over Brazil, India, Russia and South Africa has increased. The EU has seen a worsening of its relative position towards 4 of its global competitors: the performance gap with Japan, South Korea and the United States has increased and the performance lead over China has become smaller.

More recently, between 2020 and 2021, the EU has closed part of its performance gap with Australia and Japan, but Canada, South Korea, and the United States managed to increase their performance lead.

Figure 2: Global performance



Coloured columns show performance in 2021 relative to that of the EU in 2014. The horizontal hyphens show performance in 2020 relative to that of the EU in 2014. Grey columns show performance in 2014 relative to that of the EU in 2014. For all years, the same measurement methodology has been used. The dashed lines show the threshold values between the performance groups, where the threshold values of 70%, 100%, and 125% have been adjusted upward to reflect the performance increase of the EU between 2014 and 2021.

Revision of the measurement framework

New policy developments and methodological issues with the measurement framework have required a revision of the EIS and its regional extension, the Regional Innovation Scoreboard (RIS). The revision process has included a number of reports and virtual workshops to discuss methodological improvements to existing indicators, redefine country performance groups, and identify additional innovation dimensions and indicators to be included in the EIS. The results of the revision process are implemented in the current 2021 editions of both the European Innovation Scoreboard and the Regional Innovation Scoreboard. The results in the current edition are therefore not comparable to those reported in previous editions of the EIS.

For this year's report, also additional indicators are introduced for the set of contextual indicators. The first set of seven indicators presents shares of different types of innovating and non-innovating enterprises, which have been developed using firm-level data from the Community Innovation Survey. The second set of indicators includes three indicators measuring performance on climate change related indicators.

The new EIS measurement framework distinguishes between four main types of activities, capturing 12 innovation dimensions and in total 32 different indicators. Framework conditions capture the main drivers of innovation performance external to the firm and cover three innovation dimensions: Human resources, Attractive research systems, and Digitalisation. Investments capture public and private investment in research and innovation and cover three dimensions: Finance and support, Firm investments, and Use of information technologies. Innovation activities capture the innovation efforts at the level of the enterprise, grouped in three innovation dimensions: Innovators, Linkages, and Intellectual assets. Impacts cover the effects of firms' innovation activities in three innovation dimensions: Employment impacts, Sales impacts, and Environmental sustainability.