



European and Regional Innovation Scoreboards 2021 – Questions and Answers

Brussels, 21 June 2021

What is the European Innovation Scoreboard?

The annual [European Innovation Scoreboard \(EIS\)](#) provides a comparative assessment of research and innovation performance of the EU and European countries. 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 Bosnia and Herzegovina, 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.

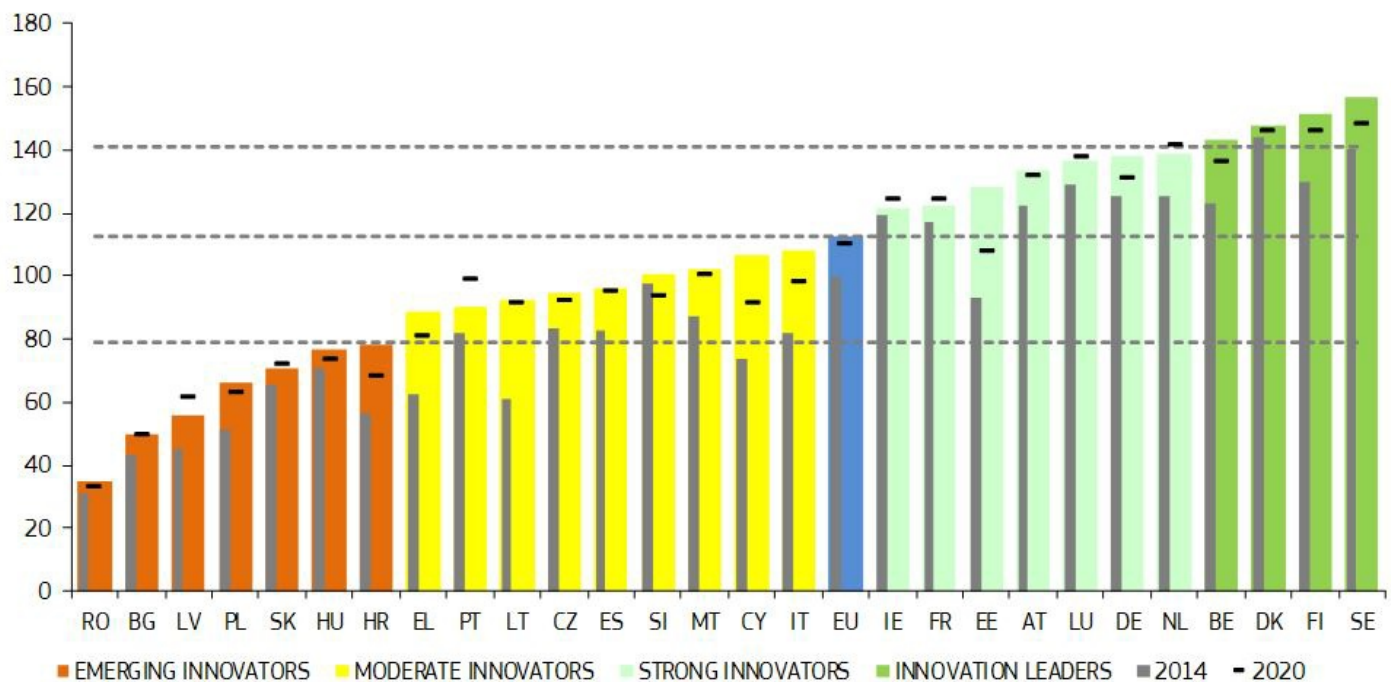
What is the latest innovation performance of EU countries?

Based on their scores, EU countries fall into four **performance groups**:

- The first group of **Innovation Leaders** includes four Member States where performance is above 125% of the EU average. The Innovation Leaders are (in alphabetical order) Belgium, Denmark, Finland, and Sweden.
- The second group of **Strong Innovators** includes seven Member States with a performance between 100% and 125% of the EU average. Austria, Estonia, France, Germany, Ireland, Luxembourg, and the Netherlands are Strong Innovators.
- The third group of **Moderate Innovators** includes nine Member States where performance is between 70% and 100% of the EU average. Cyprus, Czechia, Greece, Italy, Lithuania, Malta, Portugal, Slovenia, and Spain belong to this group.
- The fourth group of **Emerging Innovators** includes seven Member States that show a performance level below 70% of the EU average. This group includes Bulgaria, Croatia, Hungary, Latvia, Poland, Romania, and Slovakia.

The relative innovation performance of Member States is shown in Figure 1. In addition to the overall ranking, the graph also shows that **performance relative to 2014 has improved for all Member States**. Performance has also improved for 19 Member States during the past year. The performance groups tend to be geographically concentrated, with the Innovation Leaders and most Strong Innovators being located in Northern and Western Europe, and most of the Moderate and Emerging Innovators in Southern and Eastern Europe. A number of EU Member States among the Strong Innovators have scores on innovation performance comparable to countries which currently lead the EU as a whole.

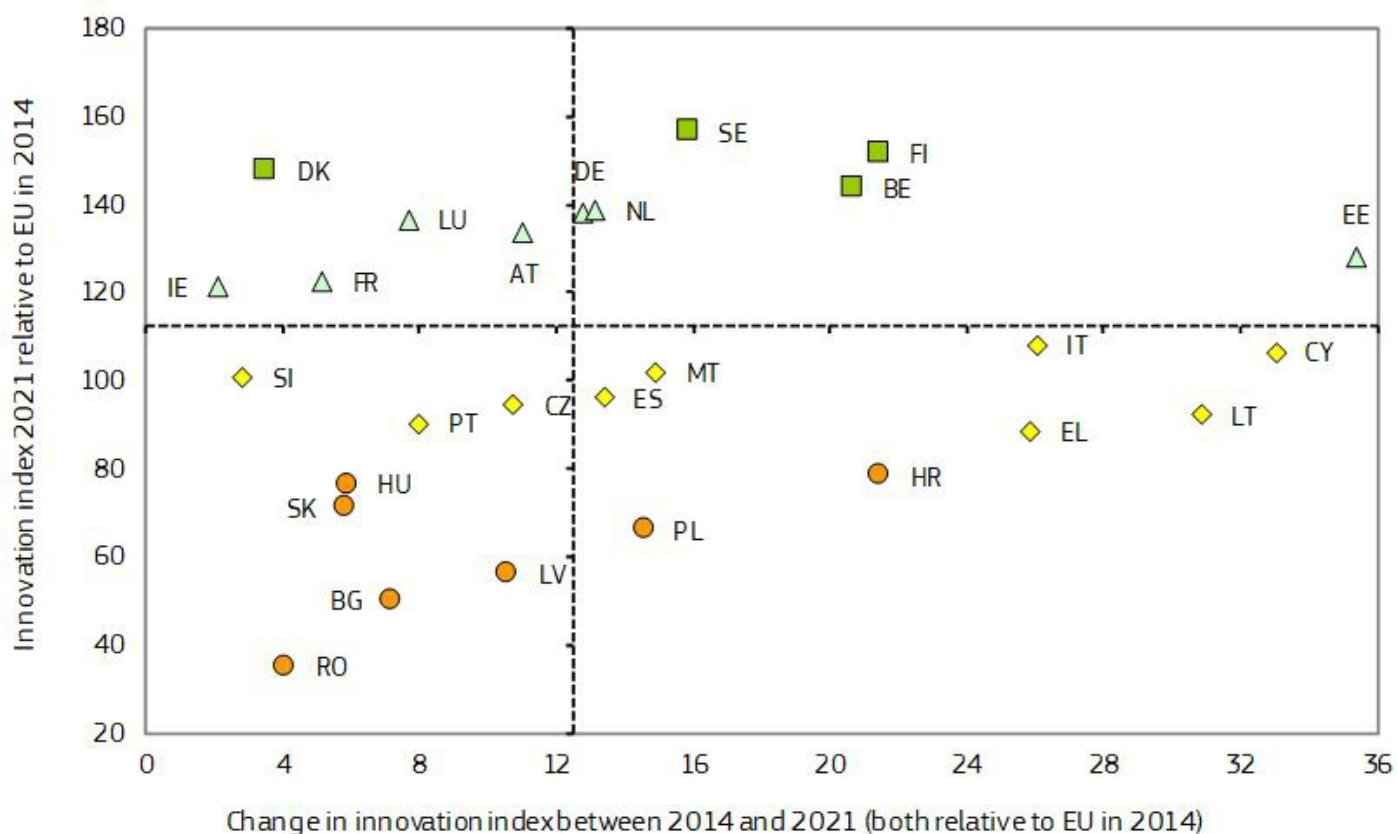
Figure 1: Performance of EU Member States' innovation systems



Have Member States improved their innovation performances?

The EIS 2021 shows that **the EU experienced a 12.5 percent improvement in innovation performance between 2014 and 2021**. This **improvement was spread across all 27 Member States**, as can be seen in Figure 2, with some countries showing large levels of improvement. Five Member States witnessed an improvement in performance of 25 percentage points or more (Cyprus, Estonia, Greece, Italy and Lithuania). Four Member States had a performance improvement of between 15 and 25 percentage points (Belgium, Croatia, Finland and Sweden). For eight Member States, performance improved between 10 and 15 percentage points (Austria, Czechia, Germany, Latvia, Malta, Netherlands, Poland and Spain). The remaining 10 Member States witnessed an improvement in performance of up to ten percentage points.

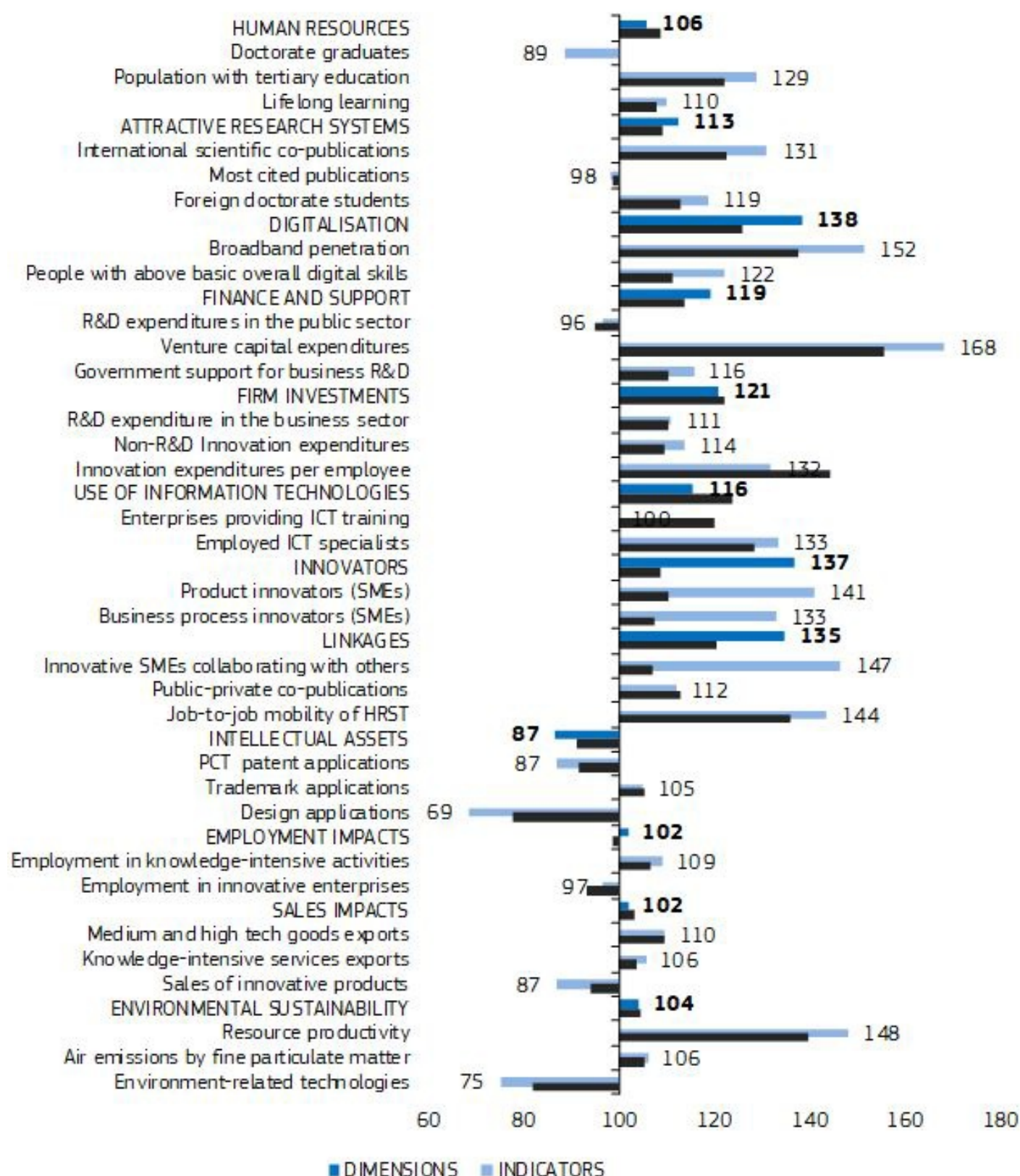
Figure 2: Change in Member States' innovation performance since 2014



Which innovation dimensions have improved over time in the EU?

For the EU, **performance has improved in most innovation dimensions** since 2014, as can be seen in Figure 3. The largest increase was seen in the Digitalisation dimension due to a large improvement in Broadband penetration. Performance also improved strongly for Innovators and Linkages dimensions. Most other dimensions also showed an improvement in performance, but less significant. Only in Intellectual assets did performance decrease, due to lower performance in both patent and design applications. Other indicators showing strong growth include Venture capital expenditures, Resource productivity, Innovative SMEs collaborating with others, Job-to-job mobility of Human Resources in Science and Technology, and Product innovators.

Figure 3: EU performance change by dimension and indicator since 2014



Normalised scores in 2021 (blue coloured bars) and 2020 (black coloured bars) relative to those in 2014 (=100)

What are the key drivers of innovation?

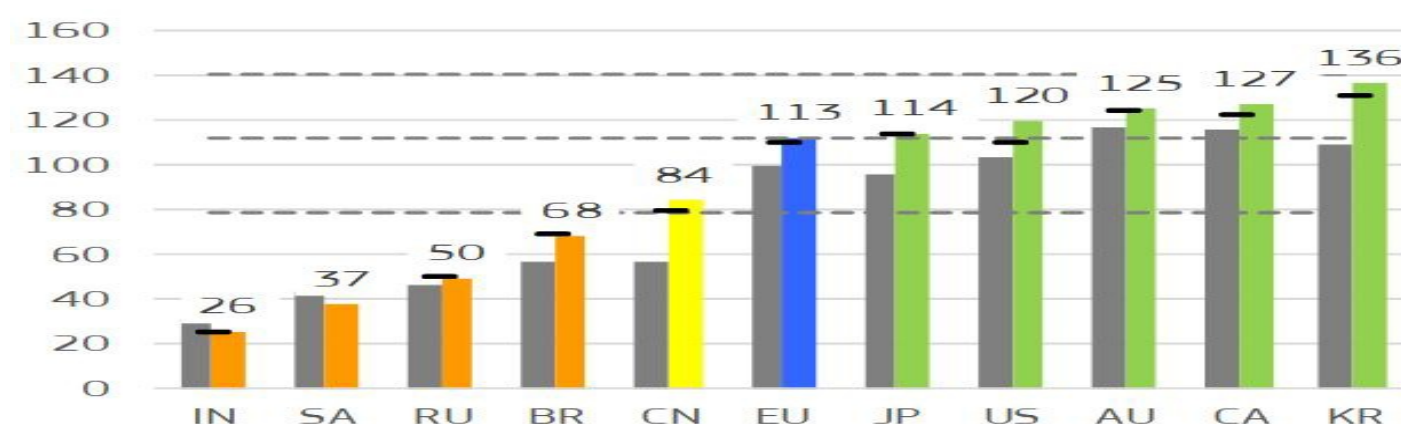
The most innovative countries generally perform best in a range of innovation areas. To achieve a high level of innovation performance, countries need a **balanced innovation system** performing well across all dimensions. They need an appropriate level of public and private investment in education, research and skills development, effective innovation partnerships among companies and with academia, as well as an innovation-friendly business environment, including strong digital infrastructure and skills. 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, it can be seen that **South Korea is the most innovative country**, performing 36% above the score of the EU in 2014 and 21% above the EU in 2021 (Figure 4). The EU is ahead of China, Brazil, South Africa, Russia, and India in this year's EIS, while Canada, Australia, the United States, and Japan have a performance lead over the EU.

Based on relative-to-EU performance in 2021, Australia, Canada, Japan, South Korea, and the United States would be Strong Innovators, China would be a Moderate Innovator, and Brazil, India, Russia, and South Africa would be Emerging Innovators.

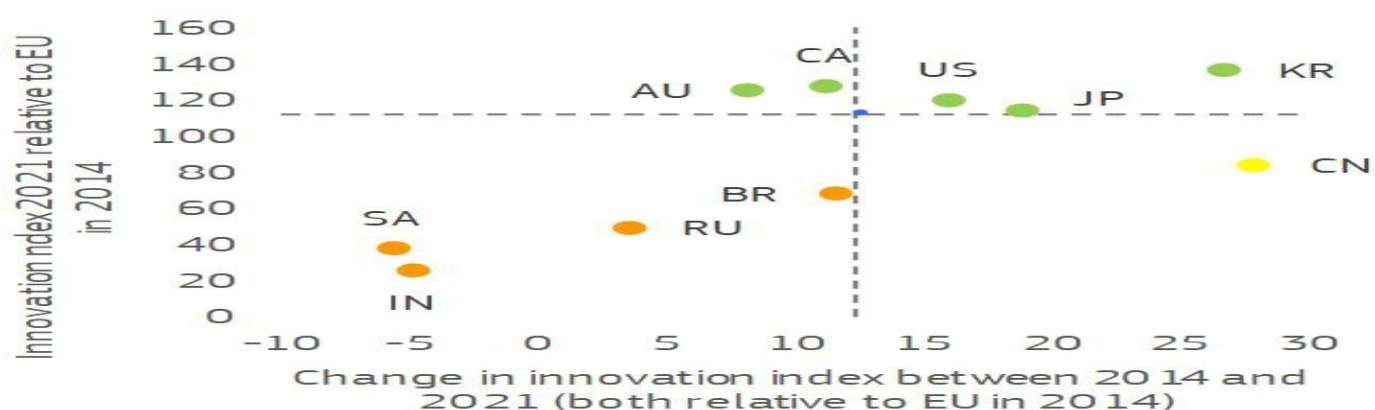
Figure 4: Current global performance



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. 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.

Performance since 2014 has increased most in China and South Korea (Figure 5). For Australia, Brazil, Canada, India, Russia, and South Africa, performance has decreased compared to the EU. Japan and the United States have seen a higher rate of increase than the EU. Combining current performance and growth rate shows that Japan, South Korea, and the United States have an increasing performance lead over the EU, while Australia and Canada have a decreasing performance lead. The EU has a decreasing performance lead over China, and an increasing performance lead over Brazil, India, Russia, and South Africa.

Figure 5: Change in global performance since 2014



The vertical axis shows countries' performance in 2021 relative to that of the EU in 2014. The horizontal axis shows the change in performance between 2014 and 2021 relative to that of the EU in 2014. The dashed lines show the respective scores for the EU.

Which indicators are used for the Scoreboard?

The main measurement framework of the EIS 2021 is composed of **32 performance indicators**,

distinguishing between 12 innovation dimensions in four main categories (for a full overview of the indicators, see Table 2 of the [European Innovation Scoreboard 2021](#)):

- **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 investments made in both the public and business sector and differentiates between three innovation dimensions: finance and support, firm investments, and use of information technologies.
- **Innovation activities** capture different aspects of innovation in the business sector and differentiates between three innovation dimensions: innovators, linkages, and intellectual assets.
- **Impacts** capture the effects of enterprises' innovation activities and differentiate between three innovation dimensions: employment impacts, sales impacts and environmental sustainability

Has the EIS measurement framework changed?

The 2021 edition of the EIS incorporates a **revised measurement framework**, developed following a series of dedicated reports and virtual workshops to review and revise the indicators, country performance groups, and innovation dimensions. The changes have been incorporated in the current EIS edition. It should not be compared directly with previous EIS editions for this reason. The full list of indicators can be found in in [Table 2 of the European Innovation Scoreboard 2021](#).

The EIS 2021 also includes a number of additional **contextual indicators**, complementing those from the previous edition and covering economic structure and performance, business and entrepreneurship, demography, and governance and policy framework in a series of country profiles.

A full description of the measurement framework is provided in the accompanying [EIS 2021 Methodology Report](#).

What is the Regional Innovation Scoreboard?

The [Regional Innovation Scoreboard \(RIS\)](#) is a regional extension of the European Innovation Scoreboard (EIS). It provides a comparative assessment of regional innovation systems, replicating the EIS methodology but with a reduced number of indicators due to the lower level of innovation data availability at the regional level.

This edition of the Regional Innovation Scoreboard provides a comparative assessment of performance of innovation systems across 240 regions of 22 EU Member States, Norway, Serbia, Switzerland, and the United Kingdom. Cyprus, Estonia, Latvia, Luxembourg and Malta are included at the country level, as for these countries NUTS 1 and NUTS 2 levels are identical to the country territory.

What are the most innovative regions?

Like the EIS, where countries are classified into four innovation performance groups, Europe's regions have been classified into regional Innovation Leaders (38 regions), regional Strong Innovators (67 regions), regional Moderate Innovators (68 regions), and regional Emerging Innovators (67 regions). Ten countries have regions in more than two different performance groups.

The most innovative region in Europe is **Stockholm** in Sweden, followed by **Etelä-Suomi** in Finland, and **Oberbayern** in Germany. **Hovedstaden** in Denmark is in fourth place, and **Zürich** in Switzerland is in fifth place.

Has regional performance improved over time?

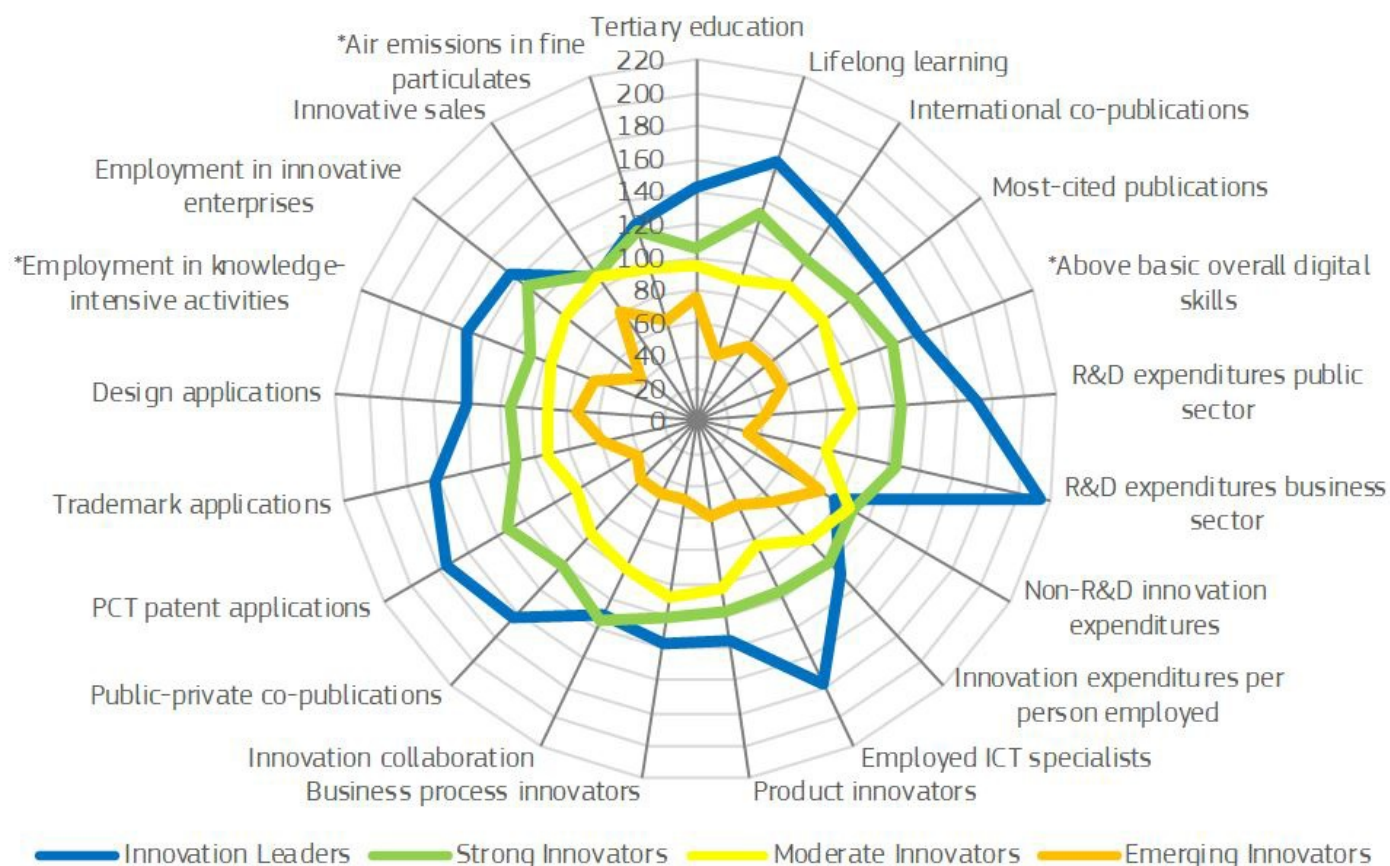
Innovation **performance has increased for 225 regions** out of the total of 240 regions over the period since 2014. There has been a process of **convergence in regional performance over time**, with decreasing performance differences between regions.

Results suggest that innovation performance has increased most due to increasing performance in those indicators measuring innovation activities in the business sector, with results over time having been calculated using the same methodology.

The most innovative regions are typically in the most innovative countries. The **Innovation Leaders perform best on almost all indicators**, in particular on those indicators measuring the performance of their research system and business innovation, as shown in the following radar graph (Figure 6). The line for the Innovation Leaders shows that these regions, on average, have the

highest performance on 19 indicators, except on Non-R&D innovation expenditures and in Sales of new-to-market and new-to-enterprise innovations, where the Strong Innovators have the highest average performance.

Figure 6: Average scores by RIS regional performance group



Average scores for each performance group relative to the EU average (=100). Scores are corrected and calculated excluding countries for which statistical regions at NUTS 1 and NUTS 2 do not exist (Cyprus, Estonia, Latvia, Luxembourg and Malta). Full details are provided in the RIS 2021 Methodology Report.

Has the RIS measurement framework changed?

The RIS 2021 follows the revised methodology of the EIS 2021 and uses data for 240 regions across Europe for **21 of the 32 indicators** used in the EIS 2021. Compared to the previous edition of the RIS, four new indicators have been included: Individuals who have above basic overall digital skills, Innovation expenditures per person employed, Employed ICT specialists, and Air emissions in Industry.

Profiles for all regions are [available online](#). Like the EIS country profiles, these also include tables with contextual data on the economic structure, business indicators and socio-demographic to illustrate possible impacts of structural differences on performance scores.

The list of indicators used in the RIS 2021 can be found in [Table 2 of the Regional Innovation Scoreboard 2021](#). A detailed description of the RIS measurement framework is provided in the accompanying [RIS 2021 Methodology Report](#).

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