**European Innovation**

**Scoreboard 2025**

Methodology report

**European Innovation Scoreboard 2025 – Methodology report**

European Commission

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EUROPEAN COMMISSION

**European Innovation Scoreboard 2025**

Methodology report

*Edited by*

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Directorate-General for Research and Innovation

2025 Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs EN2

**1. Introduction**

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

The first edition of the EIS was published in 2001. The EIS measurement framework was revised for the 2025 edition. There have been several methodology revisions to the EIS over time, with the latest prior major revision in 2021.

Section 2 discusses the measurement framework for the EIS 2025. Section 3 presents definitions for all the indicators. Section 4 provides a detailed discussion of the methodology used for calculating the Summary Innovation Index. Section 5 provides the definitions of the contextual indicators included in the EIS 2025 Country profiles.

All data and processed results are available in the EIS 2025 database.

**2. EIS Measurement Framework**

The EIS 2025 distinguishes between four main pillars – Framework conditions, Investments, Innovation activities, and Impacts – and 12 innovation dimensions, capturing in total 32 indicators. Each main pillar includes an equal number of indicators and has an equal weight in the Summary Innovation Index.

**Framework conditions** capture the main drivers of innovation performance external to the firm and differentiates between three innovation dimensions:

* The Human resources dimension includes three indicators and measures the availability of a high-skilled and educated workforce. It includes three indicators, New doctorate graduates in STEM, Population aged 25-34 with completed tertiary education, and Population aged 25-64 involved in lifelong learning activities.
* Attractive research systems measure the international competitiveness of the science base by focusing on International scientific co-publications, Most cited publications, and Foreign doctorate students.
* Digitalisation measures the level of digital technologies and includes two indicators, High-speed internet and (the supply of) Individuals with above basic overall digital skills.

**Investments** capture investments made in both the public and business sector and differentiates between three innovation dimensions:

* The Finance and support dimension is based on three indicators including private funding (Venture capital investments), R&D expenditures in universities and government research organisations, and Direct government funding and government tax support for business R&D.

3

* Firm investments measure R&D and Non-R&D investments that firms make to generate innovations, including Business R&D expenditures, Non-R&D innovation expenditures, and Innovation expenditures per person employed.
* Use of information technologies captures the use of information technologies based on two indicators: Cloud computing in enterprises and Employed ICT specialists.

**Innovation activities** capture different aspects of innovation in the business sector and differentiate between three innovation dimensions:

* The Innovators dimension includes two indicators measuring the introduction of innovations by SMEs on the market or within their organisations, covering both products and business process innovators.
* The Linkages dimension assesses the connections existing in the innovation ecosystem by measuring Collaboration efforts between innovating firms, Research collaboration between the private and public sector, and Job-to-job mobility of Human Resources in Science & Technology (HRST).
* Intellectual assets measure the performance in different forms of Intellectual Property Rights (IPR): PCT patent applications, Trademark applications, and Design applications.

**Impacts** capture the effects of enterprises’ innovation activities and differentiate between three innovation dimensions:

* Employment impacts measure the impact of innovation activities on employment based on two indicators: Sales of new-to-market and new-to-firm innovations and Employment in innovative enterprises.
* Sales impacts measure the economic impact of innovation and includes three indicators: Exports of medium and high-tech products, Exports of knowledge-intensive services, and High-tech imports from partners outside of the EU27.
* Environmental sustainability captures improvements towards the reduction of negative environmental impacts, based on three indicators: Resource productivity, Production-based CO2 productivity, and Labour productivity.

Chapter 3 provides the details on the definition, calculation and interpretation of each indicator. 4

*Figure 1 Indicators included in the EIS 2025 measurement framework* 5

**3. EIS Indicators**

This chapter provides the definition, interpretation and data source for each indicator. For data from Eurostat, the code used by Eurostat is also provided. For some indicators more than one data source has been used, e.g. R&D expenditure data are taken from Eurostat, but for countries not covered by Eurostat, data from the OECD, UNESCO or national sources have been used.

|  |  |
| --- | --- |
| Human Resources 1.1.1 New doctorate graduates in science, technology, engineering, and mathematics (STEM) per 1000 population aged 25-34 | |
| Numerator | Number of doctorate graduates in science, technology, engineering, and mathematics (STEM) |
| Denominator | Population between and including 25 and 34 years |
| Interpretation | The indicator is a measure of the supply of new second-stage tertiary graduates in all fields of training (ISCED 8). For most countries, ISCED 8 captures PhD graduates. There is a complex relation between STEM-graduates and innovation in the private sector. STEM-graduates do well as employees within firms with many of them taking up managerial positions. |
| Data source | Eurostat (variable code: educ\_uoe\_grad07); OECD Education and Training, https://stats.oecd.org, June 2025 |

And Report:  
  
**European Innovation**

**Scoreboard**

2025

**Independent Expert Report**

*Research and*

*Innovation*

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2025 Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs

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European Innovation Scoreboard

2025

FOREWORD

The European Innovation Scoreboard (EIS) has become a reference. It offers insights into where

the EU and its Member States stand in terms of innovation performance. It reflects recent

achievements and gives indications where further efforts are needed.

The 2025 edition documents the progress that Europe has achieved, as evidenced by the 12.6

percentage points increase in our innovation capacity since 2018. And while geographical

differences remain, it is encouraging to see European innovation accelerating in all Member

States and presenting fresh opportunities for us to grow stronger together.

Europe’s future prosperity will critically depend on our ability to innovate. Research and innovation

are key to boost productivity and competitiveness, drive sustainability and safeguard Europe’s

economic security. Innovation is a top priority for the Commission, alongside our commitment to

fighting climate change and strengthening resilience. Through the Competitiveness Compass –

the key policy document of the Commission – we are actively guiding policy efforts where they

matter most to create meaningful impact.

That is why we are launching ambitious initiatives like the Startups and Scaleups Strategy and

enhancing the Horizon Europe Programme. These initiatives are designed to boost productivity,

promote sustainability and ensure a secure and thriving economy.

The Annual Single Market and Competitiveness Report highlights areas to improve — such as

increasing R&D investment, expanding access to growth capital for startups and accelerating

digital adoption. We are addressing these challenges with the Single Market Strategy, aiming to

make it simpler, stronger and seamless. On the talent side, our Start-Up and Scale-Up Strategy

and Choose Europe for Science initiatives are bringing Europe’s brightest minds together and

attracting new talent. Looking ahead, the future EU Innovation Act promises to build on this

momentum by using the EIS as a benchmark to modernise research and innovation across the

Union.

Finally, resilience is the foundation of competitiveness and innovation. Addressing supply chain

dependencies, strengthening economic security and enhancing industrial resilience in critical

sectors are essential for EU businesses to thrive in a rapidly evolving global landscape. This

year’s Scoreboard introduces new insights on how European businesses are strengthening their

resilience, a sign of Europe’s adaptability and determination.

This report is a powerful tool and a call for action to boost our innovation performance. Let us

work together to translate its insights into action, ensuring that innovation remains at the heart

of Europe’s response to today’s challenges, and a cornerstone of our shared future.

Stephane Sejourne

Executive Vice-President

for Prosperity &

Industrial Strategy

Ekaterina Zaharieva

Commissioner for

Startups, Research &

Innovation

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**1. EXECUTIVE**

**SUMMARY**

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**1.1 A quarter of a century of tracking trends in innovation performance**

This year is the 25th anniversary of the European Innovation Scoreboard (EIS), first published

in 2001 (following a pilot edition in 2000). Over the past quarter of a century, the EIS has

become the central tool for monitoring innovation performance and supporting evidencebased

policymaking across the European Union (EU) as well as for neighbouring countries

and with respect to the EU’s global (partners and) competitors. It helps stakeholders assess

areas in which they need to concentrate their efforts to boost innovation performance,

considering the national socio-economic context, which is captured by a complementary

set of structural indicators to help interpret the results.

Over the last decades, the EIS indicator framework has evolved to better reflect the factors

influencing innovation performance, the changing socio-economic and geopolitical context,

and the corresponding policy responses. Based on a revision process undertaken in late

2024 and early 2025, the EIS 2025 applies a revised indicator framework to the one used

for 2021-2024. Five indicators were updated to align with new data and evolving EU R&I

policy priorities. These include two digitalisation indicators and measures of external hightech

dependence, CO₂ productivity, and labour productivity.

All performance scores described in this report are relative to that of the EU in 2018 and in

2025, facilitating the tracking of progress and trends and enabling policymakers to identify

specific areas requiring attention through strategies and programmes at national level.

**1.2 Europe’s innovation performance remains strong, but the growth has been**

**slowing down**

**Since 2018, the EU’s innovation performance has increased by 12.6%-points**

All countries within the EU have increased their innovation performance from the base

year of 2018; nonetheless, the scale of these increases varies widely, from Luxembourg

at +0.9%-points to Estonia at +30.0%-points. The innovation performance of 14 countries

has increased more significantly compared to the EU. Conversely, 13 countries have had a

smaller increase in their innovation performance in comparison to the EU.

**No significant change to the EU’s innovation performance since 2024**

The EU’s annual innovation performance has declined marginally at a rate of -0.4%-points

from 2024 to 2025, continuing **a trend of relative stability** observed over the past three

years. Thirteen Member States increased their score in comparison to last year, Malta and

Luxembourg the most by +7.6%-points and +5.0%-points, respectively. However, the score

of 14 members decreased more than that of the EU, with the most significant declines seen

in Czechia (-8.4%-points), and Cyprus (-14.6%-points).

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Figure 1: Change in performance of the EU over time

**A persistent innovation gap across Europe despite a slight reduction in disparities**

Based on their performance relative to the EU average in 2025, the EU27 Member States

fall into four different performance groups. In performance order, Sweden, Denmark, the

Netherlands, and Finland are **Innovation Leaders** with innovation performance above

125% of the EU average. Ireland, Belgium, Luxembourg, Austria, Germany, France and

Estonia perform above the EU average and are **Strong Innovators**. Malta, Slovenia, Italy,

Spain, Portugal, Cyprus, Lithuania, Czechia, Greece and Croatia are **Moderate Innovators**

with performance below the EU average. Hungary, Poland, Slovakia, Latvia, Bulgaria, and

Romania are **Emerging Innovators** with performance below 70% of the EU average.

The analysis of innovation performance across EU27 Member States **reveals a moderate**

**reduction in performance disparities from 2018 to 2025**, suggesting slight

convergence at the EU level. However, divergence persists within specific performance

groups. Innovation Leaders show growing disparities, driven by Denmark and Sweden pulling

ahead. The Strong and Moderate Innovators were both homogeneous, however recently

there has been a renewed divergence due to faster improvements in certain countries.

Similarly, the gaps between Emerging Innovators have slightly increased, as some countries

advance more quickly than others.

100

102

104

106

108

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2018 2019 2020 2021 2022 2023 2024 2025

Summary innovation index

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Figure 2: Innovation performance of the EU27 Member States in 2025, indexed to the EU

in 2018

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Hungary

Croatia

Greece

Czechia

Lithuania

Cyprus

Portugal

Spain

Italy

Slovenia

Malta

EU

Estonia

France

Germany

Austria

Luxembourg

Belgium

Ireland

Finland

Netherlands

Denmark

Sweden

0 20 40 60 80 100 120 140 160

Summary innovation index in 2025 (indexed to the EU in 2018)

Emerging innovators

Moderate innovators

Strong innovators

Innovation leaders

I Score in 2024

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*Note: All performance scores are relative to that of the EU in 2018. Coloured bars show countries’ performance*

*in 2025, using the most recent data for 32 indicators. The vertical bars show performance in 2024, using the*

*next most recent data.*

**1.3 Performance within the EU – Sweden in the top spot, Ireland and Croatia on**

**the rise**

**Sweden returns to the top spot of EU innovators**

Sweden regains its position as the most innovative Member State, ahead of Denmark,

which had been the leading EU Member State from 2020 to 2024. Sweden has increased

its score by 12.9%-points in comparison to 2018, and by 2.0%-points in the last year.

Sweden ranks first in eight of the 32 EIS indicators, including *R&D expenditure in the*

*business sector*, *Cloud computing in enterprises*, and *Production-based CO₂ productivity*.

**Ireland moves up to top the strong innovators group**

Ireland ranks top of the Strong Innovators group in 2025, although only just ahead of

Belgium by 0.5%-points. Ireland’s performance has grown by 13.3%-points from 2018, and

by 4.1%-points in the last year. Ireland has been on a steady upward trajectory since 2020.

Indicators significantly contributing to Ireland’s performance growth since 2018 include

*Cloud computing in enterprises*, *Production-based CO₂ productivity*, and *Innovative SMEs*

*collaborating with others*.

**Changes in performance groups: Croatia moves up, while Cyprus and Hungary**

**drop**

Croatia has improved its innovation performance by 19.4%-points from 2018 to 2025,

moving up from the Emerging Innovators group to the Moderate Innovators group. The

top three indicators contributing to this improvement over the past year are *Innovation*

*expenditures per person employed*, *Cloud computing in enterprises*, and *New doctorate*

*graduates*.

Cyprus has dropped from the Strong Innovators to the Moderate Innovators performance

group. While the Cypriot score increased by 17.6%-points since 2018, it fell by 14.6%-points

in the last year. This outcome can be attributed to large drops in several indicators, notably

*Innovative SMEs collaborating with others*, *SMEs introducing business process innovations*,

and *Employment in innovative enterprises*.

Hungary has dropped from the Moderate Innovators to the Emerging Innovators performance

group, despite increasing its score by 16.2%-points since 2018, and by 1.7%-points

since 2024. In comparison to last year, Hungary recorded a strong performance in *Cloud*

12 European Innovation Scoreboard 2025

*computing in enterprises*. However, *Non-R&D innovation expenditure* and *Venture capital*

*expenditures* decreased by around 20.0%-points*.*

**1.4 Performance of the EU’s neighbouring countries and global competitors**

**Switzerland is the most innovative European country, the UK becomes a Leader**

An extended analysis covering the EU27 and 12 other European countries finds that

Switzerland is, for the eighth year in a row, the most innovative European country due to

improving performance on several indicators, notably *Venture capital expenditures*, *Sales*

*of new-to-market and new-to-firm innovations*, and *Population involved in lifelong learning*.

The United Kingdom has moved up a group to become an Innovation Leader and is now

ranked 5th amongst European countries; this is driven by strong increases in *Venture capital*

*expenditure*, *High-speed internet access* and *Cloud computing*.

**Sustained progress for the majority of the Western Balkan countries**

Eight neighbouring countries are in the group of emerging innovators. An improvement in

innovation performance from 2024 to 2025 is observed for most of the Western Balkan

accession countries, namely Albania (+4.4%-points), Montenegro (+3.1%-points), Bosnia &

Herzegovina (+3.0%-points) and Serbia (+2.3%-points). Serbia has the strongest growth in

the group since 2018 (+10.9% points), followed by North Macedonia (+9.2%-points).

**China has overtaken the EU and USA and is fast catching South Korea in 2025**

South Korea remains the most innovative global competitor in 2025, outperforming

the EU by 35.2%-points. Four other competitors, Canada, China, the United States and

Australia lead the EU. Compared to EIS 2024, China has overtaken the EU and the US and

moved into equal second place globally. Since 2018, China has increased the most its

innovation performance (+44.7%-points), followed by South Korea (+25.8-%points). China’s

performance improvement can be partly explained by new data becoming available for

2017-2022 for *Direct and indirect government support of business R&D*, leading to a large

upward shift.

European Innovation Scoreboard 2025 13

Figure 3: Innovation performance change from 2018 to 2025 – EU versus global

competitors

*Note: Performance change is measured as the difference between 2025 and 2018 scores, relative to that of the*

*EU in 2018. Due to limited data availability for global competitors, scores are calculated using a smaller set of*

*indicators.*

1.5 The EIS: best-available data and a robust and replicable methodology

Data for the EIS is sourced primarily from Eurostat and other international statistical

providers, with input from national statistical offices where needed. The Scoreboard team

works closely with data providers to ensure the data included is as up to date and robust

as possible. Since the 2024 edition, the data collection and calculation process for the

EIS has been automated. The 2025 summary innovation index was calculated using the

COINr package developed by the European Commission’s Competence Centre for Composite

Indicators and Scoreboards. The approach provides a highly replicable and easy to follow

data pipeline that feeds into the COINr package and automatically provides the main

outputs of the EIS. Moreover, the European Commission’s Joint Research Centre audited the

statistical robustness of the SII composite indicator to ensure transparency and reliability.

EU average in 2025

Mexico

South Africa

Chile

India

Brazil

Japan

EU

Australia

United States

China

Canada

South Korea

0 20 40 60 80 100 120 140 160

Change in summary innovation index between 2018 and 2025

Positive change

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**2. INTRODUCING THE**

**EUROPEAN INNOVATION**

**SCOREBOARD**

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2.1 Innovation as a driver of competitiveness, sustainability and resilience

The year 2025 marks the **25th anniversary of the European Innovation Scoreboard**,

first published in 2001 (following a pilot edition in 2000). Over the past quarter of a century,

the EIS has become the central tool for monitoring innovation performance and supporting

evidence-based policymaking across the European Union (EU) as well as for neighbouring

countries and with respect to our global (partners and) competitors. This milestone offers

an opportunity to reflect not only on the progress made, but also on the changing role of

innovation in addressing Europe’s evolving strategic challenges.

In a world marked by rapid technological change, mounting geopolitical tensions, and

accelerating environmental and demographic transitions, **innovation is a strategic**

**imperative for the EU**. It is not only a key driver of productivity and global competitiveness,

but also a core enabler of the EU’s twin green and digital transitions, strategic autonomy,

and long-term resilience. The capacity to generate, adopt and scale new ideas – in business,

the public sector and society – will determine Europe's ability to safeguard its values,

address structural challenges, and seize new opportunities in an increasingly multipolar

world.

**Europe’s innovation imperative is shaped by a set of deeply interconnected**

**challenges.** Geopolitical volatility and global power competition have exposed Europe’s

strategic dependencies in critical technologies, raw materials and supply chains – from

semiconductors to clean energy systems. The climate and environmental crisis demands

urgent breakthroughs in energy efficiency, sustainable mobility, circularity and naturebased

solutions. The pandemic underlined the importance of strengths in health innovation

to react rapidly to protect well-being. Demographic pressures, skills mismatches, and

uneven digital readiness hold back innovation diffusion, especially among SMEs. Meanwhile,

global competition in frontier technologies is intensifying, with Europe at risk of being

left behind competitors despite strong scientific performance in fields such as artificial

intelligence, quantum computing or biotechnologies1. Lastly, the current geopolitical climate

has refocused attention on Europe’s defence and security leading to a reinforced attention

to dual-use technologies and innovations that can safeguard our future2.

On the one hand, innovation policy has evolved little over the last decades, there has been a

consistent attention given to boost SME innovation and co-operation, to improve intellectual

property management and knowledge transfer from Europe’s universities and research

centres, to increase access to finance, notably venture capital, supporting the scaling of

Europe’s start-ups, etc. On the other hand, **innovation policy is increasingly positioned**

**as a cross-cutting instrument to deliver on Europe’s strategic priorities**, reflecting

1 See: Eulaerts, O., Grabowska, M. and Bergamini, M., Weak signals in science and technologies 2024 – Technologies at an early stage of development

that could impact our future, Publications Office of the European Union, 2025, https://data.europa.eu/doi/10.2760/6571994

2 See: European Commission: Directorate-General for Research and Innovation, *Making the most of EU research and innovation investments –*

*Rethinking dual use*, Publications Office of the European Union, 2025, https://data.europa.eu/doi/10.2777/6637451

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a shift from addressing only market failures to a transformative innovation policy approach.

Innovation policy is now expected not only to boost competitiveness by closing the innovation

gap, as called for by the Competitiveness Compass3, but also to reorient innovation systems

to address societal and industrial challenges and enable deep, structural change. The Clean

Industrial Deal4 seeks to foster decarbonisation of energy intensive sectors and boost

the cleantech sector. The Horizon Europe Missions are mobilising innovation to accelerate

systemic transformations in areas such as climate-neutral cities, healthy soils, oceans and

waters, and cancer5. At the same time, the New European Innovation Agenda (2022)6 aimed

to scale up deep tech and foster interconnected innovation ecosystems and the 2025

EU Startup and Scaleup Strategy7, through instrument such as the European Innovation

Council8, improves conditions for startups and scaleups through access to finance, talent

and public procurement. The Strategic Technologies for Europe Platform (STEP) seeks to

focus funding from 11 European programmes towards digital and deep-tech innovation,

clean and resource-efficient technologies and biotechnologies9. Strategic autonomy and

industrial resilience are increasingly taking a central, with the Chips Act, Critical Raw

Materials Act, and industrial alliances working to reduce Europe’s external dependencies

and strengthen technological capacity10. In this context, innovation is a key lever for

developing alternatives to scarce inputs, improving resource efficiency, and reinforcing

supply chains. The forthcoming European Innovation Act is designed to bolster innovation

across the continent by addressing challenges like regulatory fragmentation, limited access

to venture capital, and inadequate coordination among Member States.

Responding to this evolving economic, social, environmental geopolitical and policy context,

this year’s **EIS adopts a revised indicator framework** (presented in more detail in the

next section). This framework is adopted by both the EIS and the accompanying Regional

Innovation Scoreboard (RIS) 2025. Along with the Eco-Innovation Index (EII, last published in

2024), the two scoreboards make up a suite of tools for assessing innovation performance

in Europe. To support the monitoring of the Startup and Scaleup Strategy, a pilot European

Start-up Scoreboard (ESS) is being developed in 2025. Several other monitoring platforms

contribute, along with the EIS, to supporting innovation policy, including: the EU Industrial

R&D Investment Scoreboard11, ERA Scoreboard and Monitoring Mechanism12, the Innovation

3 See: https://commission.europa.eu/topics/eu-competitiveness/competitiveness-compass\_en

4 See: https://commission.europa.eu/topics/eu-competitiveness/clean-industrial-deal\_en

5 See: https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missionshorizon-

europe\_en

6 See: https://research-and-innovation.ec.europa.eu/strategy/support-policy-making/shaping-eu-research-and-innovation-policy/new-europeaninnovation-

agenda\_en

7 See: https://commission.europa.eu/news-and-media/news/choose-europe-your-startup-and-scaleup-2025-05-28\_en

8 See: https://eic.ec.europa.eu/index\_en

9 See: https://strategic-technologies.europa.eu/index\_en

10 See: https://single-market-economy.ec.europa.eu/industry\_en

11 See: https://iri.jrc.ec.europa.eu/scoreboard/2024-eu-industrial-rd-investment-scoreboard

12 See: https://european-research-area.ec.europa.eu/era-monitoring

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Output Indicator (IOI)13 and the DESI dashboard for the Digital Decade14.

Figure 4: The European Innovation Scoreboard and related scoreboards and indicators

Scoreboards, like **the EIS and the RIS, are valuable tools for informing policy**

**monitoring and evaluation** by providing a structured, comparative overview of innovation

performance across countries and regions. They enable policymakers to monitor trends,

benchmark progress, and identify areas where interventions may be needed. By aggregating

a wide range of indicators into accessible composite indices, scoreboards help translate

complex innovation landscapes into actionable policy insights and support accountability

by tracking outcomes over time

While scoreboards are effective for descriptive benchmarking and highlighting performance

gaps, they should not be used alone to establish causality between specific policy

interventions and observed outcomes. The indicators and composite scores reflect

correlations and associations rather than cause-and-effect relationships.

For example, a country may show improved innovation performance, usually several years

after a policy change, but the EIS alone cannot prove that the policy was the direct cause of

the improvement, other factors or external influences may have played a role. Thus, while

scoreboards are essential for evidence-based policy monitoring and evaluation, they should

be **complemented with in-depth analyses to better understand the mechanisms**

**and effectiveness of policy actions**. At European level, reports such as the Science,

13 See: https://op.europa.eu/en/publication-detail/-/publication/923d0196-3133-11f0-8a44-01aa75ed71a1/language-en

14 See: https://digital-decade-desi.digital-strategy.ec.europa.eu/

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Research and Innovation Performance of the EU (SRIP15), published biennially, build on the

output of relevant scoreboards to provide a comprehensive assessment of the state of play.

2.2 How does the EIS measure innovation?

Measuring innovation is a complex process, as it goes far beyond counting the number of

new products or business processes that have been introduced on the market or brought

into use in society. Innovation activities include all developmental, financial, and commercial

efforts undertaken by an organisation to improve its performance. Innovation improves living

standards, and boosts long-term competitiveness and sustainable economic development.

*“The term ‘innovation’ can signify both an activity and the outcome of the activity. An*

*innovation is a new or improved product or process (or combination thereof) that differs*

*significantly from the unit’s previous products or processes and that has been made*

*available to potential users (product) or brought into use by the unit (process).”*

*Oslo Manual16*

The EIS considers a wide range of factors that affect innovation. In line with previous

editions, the methodological framework of the scoreboard is based on a total of 32

indicators, divided into four main categories and 12 dimensions, to assess the innovation

performance of the EU, its Member States and selected third countries (Figure 4).

**Framework conditions:** Innovation stems from knowledge-based activities, where

information and expertise come together to drive progress. The EIS assesses the prevalence

of tertiary education and science, technology, engineering and maths (STEM) doctorates,

the trend towards international collaboration and dissemination of research results, and

the extent of digitalisation, recognising that advanced digital skills and infrastructures are

instrumental in accessing information and nurturing innovation.

**Investments:** Financial resources play a vital role in developing new solutions and

facilitating their adoption by the market or firms. The EIS therefore evaluates the investments

directed towards R&D and innovation coming from diverse sources such as the public sector,

venture capitalists, and businesses. In addition, the EIS assesses the investment made by

businesses in their digitalisation through indicators on *Cloud computing* in enterprises and

*Employed ICT specialists*, reflecting the growing importance of advanced digital tools and

skills in Europe's innovation systems.

**Innovation activities:** To evaluate a country’s innovation activities, the EIS places an

15 See: https://research-and-innovation.ec.europa.eu/strategy/support-policy-making/support-national-research-and-innovation-policy-making/sripreport\_

en

16 OECD/Eurostat (2018), Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition, The Measurement of

Scientific, Technological and Innovation Activities, OECD Publishing, Paris/Eurostat, Luxembourg, https://doi.org/10.1787/9789264304604-en.

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emphasis on small and medium enterprises (SMEs), measuring their introduction of

novel products or business processes and the degree to which they collaborate or copublish

across different sectors. As highlighted before, an invention must be successfully

commercialised or exploited to be considered an innovation. Therefore, the EIS examines

how often companies translate inventions into marketed products or related assets. To

gauge the intellectual capital of a country, the EIS also quantifies the number of patents,

trademarks, or designs generated by innovators.

**Impacts:** Lastly, the EIS evaluates the impact of innovation activities on sales and

employment, trade, and *Resource and Labour productivity*. It includes indicators such as

*Employment in innovative enterprises*, *Sales of new-to-market and new-to-firm innovations*,

and the export value of medium- and high-tech products or knowledge-intensive services.

To reflect industrial and strategic resilience, the EIS now includes an indicator on hightech

imports from partners outside of the EU27, capturing Member States’ reliance on

external sources for high-tech goods and services. In addition, the EIS goes beyond purely

economic metrics by including environmental and social impacts, assessed through three

forms of productivity: *Resource productivity*, *Production-based CO₂* productivity, and *Labour*

*productivity*.

As part of a small-scale revision of the indicator framework for the EIS and RIS, five

indicators were updated in 202517. The revision fine-tuned the measurement framework

considering newly available data and to better reflect evolving European R&I policy priorities;

the new indicators are presented in Figure 4 and described in Box 1.

Box 1: Five new indicators in the 2025 EIS framework

**High-speed internet coverage** measures how many households have access to ultrafast

internet (via fibre or similar). It shows the quality of a country’s digital infrastructure.

**Cloud computing** assesses the share of businesses using advanced online services like

data storage, accounting, or customer management tools. It reflects the extent to which

enterprises are adopting more advanced digital technologies.

**High-tech imports from outside the EU** show how much a country relies on non-EU

countries for high-tech products and services. A higher share means greater dependence

on external suppliers18.

17 Reid, A., et al. (2025). European Innovation Scoreboard 2025: Technical report on the revision of the scoreboard methodology. Independent expert

report prepared for the European Commission, Directorate-General for Research and Innovation.

18 This indicator has been assigned a negative direction in the index calculation, meaning that lower reliance on high-tech imports from non-EU

countries results in a higher score (relative to the EU). This reflects the idea that less dependence indicates greater industrial resilience.

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**Production-based CO₂ productivity** evaluates how much economic value is

generated for each unit of CO₂ emitted. Higher scores mean greater efficiency and lower

environmental impact.

**Labour productivity** reflects how much economic value is created for each hour

worked. Higher scores reflect greater efficiency and innovation-driven growth.

The EIS draws on extensive data sourced, primarily, from European (Eurostat) and

international statistical services and other providers of specialised data (patents,

publications, and venture capital). While many indicators are based on data collected at

the firm level, the results are aggregated to provide comparable insights at both national

and international levels. Eurostat services provided the EIS team support in interpreting

statistics19 derived from the Community Innovation Survey (CIS)20, as well the Community

survey on Information and Communication Technologies (ICT) usage and e-commerce in

enterprises21. For countries that do not regularly transmit data to Eurostat, notably in the

Western Balkans, data is collected directly by the EIS team through cooperating with and

support from national statistical offices (NSOs). The EIS team is grateful for the support

of Eurostat and all data providers including Invest Europe, national statistical offices, etc.

In addition, the Joint Research Centre (JRC) Competence Centre on Composite Indicators

and Scoreboards carries out a statistical audit on the EIS and RIS to provide a statistical

assessment of the composite indicators and contribute to improving transparency and

reliability of the results. Further explanations on the methodology for collecting and

analysing data are found in section 7 of this report and in the EIS Methodology Report22.

19 See: European Commission: Eurostat, European business statistics methodological manual for statistics on business innovation – 2024 edition,

Publications Office of the European Union, 2024, https://data.europa.eu/doi/10.2785/0952308

20 See: https://ec.europa.eu/eurostat/cache/website/cis/library.html

21 See: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Statistics\_on\_ICT\_usage\_and\_e-commerce\_introduced#cite\_note-1

22 See: https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard\_en

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Figure 5: EIS measurement framework and underlying questions addressed by each

indicator

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2.3 How to interpret the EIS results?

The summary innovation index (SII) provides a single, comparable score that reflects the

overall innovation performance of each country. It is calculated as the unweighted average

of the 32 indicators, i.e. each indicator is assigned an equal weight. To ensure comparability,

scores present performance relative to the EU average rather than absolute values. For

example, a score of 110.0 in 2025 indicates that the country is performing 10.0%-points

above the EU average in 2018. To assess the innovation performance of a country over

time, SII scores are presented relative to the EU score for the baseline year (2018).

A comprehensive understanding of national innovation performance, and its evolution over

time, requires the consideration of multiple metrics and contextual factors. Countries are

grouped into performance categories (Emerging, Moderate, Strong, and Leader) based on

how their SII compares to the EU average in the current year. Country rankings, presented

either among EU27 Member States or including neighbouring countries, provide an

additional comparative perspective. Strengths and weaknesses are identified by comparing

a country’s indicator scores to the EU average, highlighting areas of relative advantage

or lag. Taken together, and complemented by structural indicators that provide relevant

context, these elements should enable a nuanced interpretation of innovation performance

within and across countries.

Users are encouraged to consult the interactive online tool23, explore individual country

profiles, and access the underlying data and methodology files to conduct their own analysis

or draw tailored insights. Figure 6 below provides further guidance on how to interpret

SII values, rankings, reference years, indicator classifications, and available supporting

resources.

23 See: https://projects.research-and-innovation.ec.europa.eu/en/statistics/performance-indicators/european-innovation-scoreboard/eis-2025#/

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Figure 6: How to use and interpret EIS results

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**How to assess a country:**

• Countries are assessed using the Summary Innovation Index (SII), a composite indicator based on 32 indicators

covering various aspects of innovation.

• Based on their SII score relative to the EU average, countries are classified into Innovation Leaders, Strong

Innovators, Moderate Innovators, or Emerging Innovators.

**Reference years:**

• Data can be indexed to the current year (2025) or the baseline year (2018). Always check which is used.

• Indexing to the current year shows performance relative to the 2025 EU average. E.g. Sweden performs at

120.0% of the EU average in 2025.

• Indexing to the baseline year shows performance change over 8 years. E.g. in 2025, Sweden performs at 151.8%

of the EU average in 2018. Indexing to the baseline year is especially useful for showing trends in line charts, or

changes from year to year.

**Indicators:**

• The SII is the unweighted average of 32 indicators, grouped into 12 dimensions and 4 pillars, covering key areas

like digitalisation, human resources, and intellectual assets.

• Structural indicators provide contextual information, but are not included in the SII calculation.

**Rankings:**

• Countries are ranked based on their SII score. E.g. Sweden ranks 1st in the EU in 2025; Switzerland ranks 1st

overall, including neighbouring countries.

• Each indicator can be ranked among EU Member States and neighbouring countries, showing relative performance.

• Within each country, the top three and bottom three indicators (based on scores) are identified as strengths and

weaknesses, highlighting what contributes most positively or negatively to overall performance.

**Resources:**

• Main report: EU-wide results, trends, and comparisons with global competitors.

• Online tool: Interactive data exploration and analysis.

• Country profiles: In-depth analysis with interpretation.

• Methodology report: Explanation of how data and scores were calculated. Data and replication files are also

available.

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**3. HOW ARE EU27 MEMBER**

**STATES PERFORMING IN**

**TERMS OF INNOVATION?**

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This section discusses the innovation performance of the 27 EU Member State and then

compares the performance of 12 neighbouring European countries.

3.1 What is the composition and characteristics of innovation groups?

Based on their SII in 2025, the EU27 Member States are categorised into four different

groups, namely Innovation Leaders, Strong Innovators, Moderate Innovators, and Emerging

Innovators. More specifically:

**• Innovation Leaders** are Member States with performance above 125% of the

EU average in 2025. This group includes four Member States, ranked by order of

performance: Sweden, Denmark, the Netherlands and Finland.

**• Strong Innovators** are Member States with a performance between 100% and

125% of the EU average in 2025. This group includes seven Member States, ranked

by order of performance: Ireland, Belgium, Luxembourg, Austria, Germany, France, and

Estonia.

**• Moderate Innovators** are Member States with performance between 70% and

100% of the EU average in 2025. This group includes 10 countries, ranked by order of

performance: Malta, Slovenia, Italy, Spain, Portugal, Cyprus, Lithuania, Czechia, Greece

and Croatia.

**• Emerging Innovators** are Member States that have a performance level below 70%

of the EU average in 2025. This group includes six Member States, ranked by order of

performance: Hungary, Poland, Slovakia, Latvia, Bulgaria, and Romania.

Three Member States have moved from one performance group to another:

**• Croatia** has improved its innovation performance by 19.4%-points during the period

of 2018 to 2025, resulting in its advancement from the Emerging Innovators to

the Moderate Innovators performance group. Between 2024 and 2025, Croatia

has particularly improved in the dimensions of: *Firm investments* (+35.5%-points);

*Investments in information technologies* (+28.7%-points); and *Human resources*

(+11.8%-points).

**• Cyprus** has dropped from the Strong Innovators to the moderate innovator’s

performance group. However, in comparison to 2018 it has still increased its score

by 17.6%-points. Cyprus particularly underperformed between 2024 and 2025, and

declined in dimensions such as: *Innovators* (-82.0%-points); *Linkages* (-76.8%-points);

and *Impact on sales and employment* (-52.5%-points).

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**• Hungary** has moved from the Moderate Innovators to the Emerging Innovators group,

despite an overall increase in its score of 16.2%-points since the 2018 baseline

and a small year-on-year gain of 1.7%-points. Hungary’s position has weakened

due to year-on-year declines in several dimensions, including *Finance and support*

(-21.0%-points), *Innovators* (-10.6%-points), and *Firm investments* (-7.7%-points).

**• Sweden** regains its position as the most innovative Member State, ahead of Denmark

which was the leading EU Member State from 2020-2024. Sweden has increased its

score by 12.9%-points in comparison to 2018, and 2.0%-points in the last year. While,

Ireland has become the leader of the Strong Innovators group in 2025, although only

ahead of Belgium by 0.5%-points. Ireland’s performance has grown by 13.3%-points

from 2018, and 4.1%-points in the last year.

Figure 7: Innovation performance of the EU27 Member States in 2025

Emerging innovators Moderate innovators Strong innovators Innovation leaders

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3.2 How do EU27 Member States compare to each other?

Figure 8 shows the scores for the SII for all EU27 Member States in 2025, relative to the EU

in 2018 and compares them to their SII score in 2024 (applying the new framework not the

EIS 2024 framework). The results show that 11 Member States rank above the EU average

and 16 below. Compared to 2024, the ranking in 2025 remains unchanged for 13 Member

States while 14 Member States have shifted positions upwards or downwards. Malta shifted

upwards by four positions between 2024 and 2025, while Cyprus dropped 5 positions.

Using 2018 as the base year, we see that Malta, Luxembourg, Ireland, Slovenia, Italy,

Portugal, Romania, Poland, Sweden, Spain, France, Hungary, and Latvia have increased

their innovation performance since 2024. The scores for the remaining Member States

decreased or remained stable. The changes range from Malta at +7.6%-points to Cyprus

at -14.6%-points. The EU’s score declined slightly by 0.4%-points, from 113.0 in 2024 to

112.6 in 2025.

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Figure 8: Innovation performance of the EU27 Member States, compared to 2024

*Note: All performance scores are relative to that of the EU in 2018. Horizontal coloured bars show countries’*

*performance in 2025, using the most recent data for 32 indicators. The vertical bars show performance in 2024,*

*using the next most recent data.*

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Croatia

Greece

Czechia

Lithuania

Cyprus

Portugal

Spain

Italy

Slovenia

Malta

EU

Estonia

France

Germany

Austria

Luxembourg

Belgium

Ireland

Finland

Netherlands

Denmark

Sweden

0 20 40 60 80 100 120 140 160

Summary innovation index in 2025 (indexed to the EU in 2018)

Emerging innovators

Moderate innovators

Strong innovators

Innovation leaders

I Score in 2024

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Compared to 2018, all EU27 Member States improved their innovation performance, with

increases ranging from 0.9%-points in Luxembourg to 30.0%-points in Estonia. The EU

average stood at +12.6%-points. Several countries recorded notably strong improvements

well above the average, including Croatia (+19.4%-points), Poland (+18.0%-points), Cyprus

(+17.6%-points), and Lithuania (+17.4%-points), followed closely by Slovenia, Malta,

Czechia, Hungary, and Italy, each posting gains of over 15.0%-points.

Several other Member States performed close to or slightly above the EU average, such

as Greece (+15.3%-points), Spain (+13.9%-points), Ireland (+13.3%-points), Sweden

(+12.9%-points), Denmark (+12.3%-points) and Belgium (+11.7%-points). More moderate

progress was observed in Portugal, Finland, Germany, Slovakia, Austria, Romania with

increases between 8.0%-points and 9.0%-points. Meanwhile, France (+7.4%-points),

Bulgaria (+6.3%-points), Latvia (+4.9%-points), and Luxembourg (+0.9%-points) recorded

the smallest improvements since 2018.

**Leading in the Strong Innovators – the case of Ireland:** Ireland’s performance

has increased by 13.3%-points between 2018 and 2025 and now ranks as the best

performing among the Strong Innovators for the first time. Indicators experiencing

an impressive growth of above 100.0%-points from 2018 include *Cloud computing*

(+221.5%-points), *High-speed internet access* (+169.2%-points), *Production-based*

*CO₂* productivity (+122.5%-points) and *Innovative SMEs collaborating with others*

(+117.7%-points). For *Cloud computing* the government has galvanised this through

the Digital Ireland Framework24, which promotes the adoption of digital technologies

across the economy. This is supported by a well-developed cloud infrastructure and the

presence of major tech firms like Amazon, Microsoft, and IBM, whose services are widely

used by businesses which helps enterprises gain access to *Cloud computing* solutions.

High speed internet success can be attributed to the National Broadband Plan which is

the Irish Government’s €2.7 billion initiative to deliver high-speed broadband to over

560,000 premises nationwide, primarily in rural and underserved areas, with over

125,000 connections completed as of 202525.

**Change in performance groups – the case of Cyprus:** Cyprus has fallen from Strong

to Moderate Innovators, despite an overall performance increase of 17.6%- points since

2018. Cyprus’ decline is the result of a combination of factors. A key driver was the

significant drop in several indicators based on the 2022 Community Innovation Survey

(CIS), in particular: Innovative SMEs collaborating with each other (-223.9%-points), SMEs

introducing business process innovations (-102%-points), and SMEs introducing product

innovations (-61.3%-points). In small economies like Cyprus, CIS results can be sensitive

to sampling composition, leading to large year-on-year variations. In addition, the revised

24 https://www.gov.ie/en/department-of-the-taoiseach/publications/harnessing-digital-the-digital-ireland-framework/

25 https://www.gov.ie/en/department-of-culture-communications-and-sport/publications/national-broadband-plan/

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measurement framework had a negative, though limited, impact on Cyprus’ performance,

notably related to the new indicator High-tech imports from partners outside the EU.

The country's relatively small market size and geographical location may help explain

its reliance on high-tech imports from non-EU partners. Together, these factors led to

the significant decline. However, the revision of the measurement framework alone

cannot explain the shift in performance group. Cyprus continues to record high gains

since 2018, through the successful development of Centres of Excellence via the Horizon

2020 and Horizon Europe "Widening" and "Teaming" programmes. For example, the KIOS

Centre of Excellence at the University of Cyprus has obtained over €40 million in EU and

national funds (2017–22), while the PHAETHON Energy centre of excellence received

€15 million from Horizon Europe and €30 million from government tapping into strategic

R&I infrastructure. Additionally, the Cyprus Space Exploration Organisation’s Strategic

Infrastructure Project, co-funded by the EU and the Research and Innovation Foundation

(RIF), was launched in late 2023 to establish a national space research hub.

**Drivers of change – the case of Croatia:** Croatia’s innovation performance has

increased by 19.4%-points between 2018 and 2025, moving the country from the

Emerging Innovators to the Moderate Innovators group. Indicators showing particularly

strong growth since 2018 include *Venture capital expenditures* (+190.4%-points),

*Cloud computing* (+184.2%-points), and *Innovation expenditures per person employed*

(+84.4%-points). Croatia’s progress is aided by a developing startup ecosystem,

supported through government-backed initiatives such as the World Bank–financed DIGIT

project, which aims to strengthen institutional research capacity, support applied R&D,

and accelerate digital transformation across firms. These efforts are complemented by

national programmes led by HAMAG-BICRO and the Digital Croatia Strategy 2032, which

seek to enhance digitalisation and incentivise private-sector investment in R&D

**Drivers of growth – the case of Poland:** Poland’s innovation performance has

improved by 18.0%-points between 2018 and 2025, placing it third in the EU27 in terms

of growth over this period. There have been significant improvements in key indicators

such as *Cloud computing* (+389.3%-points), *High-speed internet access* (+68.2%-points),

and *Government support for business R&D* (+57.0%-points). Poland’s improvements in

*Firm investments* and *Digitalisation* may be due, in part, to targeted national funding

initiatives. The government has launched the Critical Technology Support Fund (PLN 4

billion / ~€1 billion) to support business investments in biotechnology, digital technologies,

and resource-efficient innovations. An additional PLN 800 million (~€200 million) has

been allocated to the Digital and Environmentally Friendly Transformation Fund, aimed

at accelerating the shift towards Industry 4.0 and green technologies. These schemes

complement existing programmes such as Ścieżka Smart, which in 2025 alone will

provide over PLN 2.3 billion (~€800 million) in funding for R&D and commercialisation

projects, including dedicated calls for consortia of companies and research organisations.

European Innovation Scoreboard 2025 31

Figure 9: Evolution of the innovation performance of the EU27 Member States between

2018 and 2025

*Note: Performance change is measured as the difference between 2025 and 2018 scores, relative to that of the*

*EU in 2018.*

EU average in 2025

Romania

Bulgaria

Latvia

Slovakia

Poland

Hungary

Croatia

Greece

Czechia

Lithuania

Cyprus

Portugal

Spain

Italy

Slovenia

Malta

EU

Estonia

France

Germany

Austria

Luxembourg

Belgium

Ireland

Finland

Netherlands

Denmark

Sweden

0 20 40 60 80 100 120 140 160

Change in summary innovation index between 2018 and 2025

Positive change

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3.3 How do EU27 Member States differ in innovation dimensions?

This section explores how performance is changing within each pillar and how the EU and

EU27 Member States are performing within each pillar.

**Human Resources**

The *Human resources* dimension measures the availability of a high skilled and educated

workforce and includes three indicators: *New doctorate graduates, Population with*

*completed tertiary education and Population aged 25-64 involved in lifelong learning*

*activities.*

For this dimension, the best-performing Member States are three Innovation Leaders

– Sweden, Denmark and the Netherlands and two Strong Innovators, Luxembourg and

Ireland. Luxembourg holds the top position. The bottom five in the *Human resources*

dimension consist of two Moderate Innovators (Croatia and Italy) and three Emerging

Innovators (Romania, Bulgaria and Hungary). Nevertheless, all five improved their

performance since 2024. Croatia stands out with an increase of 11.8%-points.

All Innovation Leaders and Strong Innovators except for Germany exceed the EU average

in 2025 on the *Human resources* dimension. Moderate Innovators are equally split, with

five above the EU average (Spain, Slovenia, Portugal, Lithuania, Cyprus) and five below it

(Malta, Greece, Czechia, Croatia, Italy). Overall, the EU average stands approximately in the

middle of the distribution with 15 Member States scoring higher and 12 scoring lower than

the EU average.

Compared to 2024 the EU average for the *Human resources* dimension improved by

3.7%-points driven by increased performance by 21 Member States. Luxembourg

(+28.0%-points) has experienced the strongest improvement, followed by France

(+18.8%-points) and Slovenia (+17.9%-points). Performance decreased for six Member

States with strongest declines in Slovakia (-4.4%-points), Cyprus (-2.4%-points) and Austria

(-2.4%-points).

European Innovation Scoreboard 2025 33

Figure 10: Innovation performance of the EU27 Member States in the *Human resources*

dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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**Attractive research systems**

The *Attractive research systems* dimension measures the international competitiveness

and attractiveness of the national science base by considering the number of *International*

*scientific co-publications, the most cited scientific publications (among the top 10%) and*

*the presence of foreign doctorate students*.

The top five performers are three Innovation Leaders (Denmark, the Netherlands, Sweden),

one strong (Luxembourg) and one moderate innovator (Cyprus). The best performing

Member State is Luxembourg, followed by Denmark and the Netherlands. Cyprus, a

moderate innovator ranks fifth. In contrast, the bottom five Member States include four

Emerging Innovators (Latvia, Poland, Romania, Bulgaria) and one Moderate Innovator

(Croatia).

More than half of the Member States (15) rank higher than the EU in 2025. All Innovation

Leaders and Strong Innovators rank above the EU average. Among the *Moderate Innovators*

four rank above the EU average and six below it. Cyprus stands out by ranking fifth just

behind Sweden.

Between 2024 and 2025, the EU average for the *Attractive research systems* dimension

remained relatively stable with a 0.3%-point increase. The performance has increased for

21 Member States with Luxembourg (+11.2%-points), Cyprus (+10.9%-points) and Ireland

(+6.5%-points) experiencing the highest performance growth. Performance has decreased

for six Member States with the strongest decline experienced by Malta (-13.0%-points)

followed by Latvia (-6.2%-points) and Estonia (-2.6%-points).

Between 2018 and 2025, the EU average improved by 13.0%-points. This increase was

driven by improvements in the performance of 25 Member States. Cyprus recorded the

highest performance growth (+76.0%-points), followed by Malta (+71.6%-points) and

Estonia (+65.1%-points). Performance decreases are recorded for only two Member States,

Belgium (-27.6%-points) and France (-7.3%-points).

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Figure 11: Innovation performance of the EU27 Member States in the *Attractive research*

*systems* dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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**Digitalisation**

The *Digitalisation* dimension measures the penetration of digital technologies and includes

two indicators: *High-speed internet access and Individuals with above basic overall digital*

*skills*. This dimension has been revised by adapting one indicator, namely by replacing

Broadband penetration with *High-speed internet access*, which offers a more accurate

reflection of digitalisation, although measured at the household level.

The best performing Member States for this dimension are three Innovation Leaders, the

Netherlands, Denmark and Finland, followed by two Moderate Innovators Malta and Spain.

At the other end of the scale, Greece and Italy, are ranked at the bottom, below three

Emerging Innovators (Latvia, Bulgaria and Slovakia).

All Strong and Leading Innovators perform above the EU average in 2025, except for Austria

and Germany. Germany in particular scores below the EU average in both indicators under

the dimension of *Digitalisation* but especially in the case of *Individuals who have above*

*basic overall digital skills (at 67.7% of the EU average in 2025)*. Among the Moderate

Innovators, three Member States are above the EU average (Malta, Spain and Portugal) and

seven (Lithuania, Cyprus, Czechia, Slovenia, Croatia, Italy and Greece) below it. In the case

of Emerging Innovators only one Member State, Hungary, ranks above the EU average with

all other Member States ranking below it.

In comparison to 2024 the EU average improved by 9.7%-points. This increase was driven

by 22 Member States with an improved performance. Among those Cyprus (+34.8%-points),

Belgium (+30.4%-points) and Czechia (+24.4%-points) experienced the strongest increase.

On the other hand, performance has decreased for five Member States with the strongest

decline for Luxembourg (-7.9%-points), Croatia (-6.3%-points) and Latvia (-5.3%-points).

Between 2018 and 2025, the EU average improved by 43.2%-points driven by an improved

performance for all Member States but one, Luxembourg (-4.2%-points). The largest

performance increases are recorded for Cyprus (+93.0%-points), Ireland (+84.9%-points)

and Hungary (+76.3%-points).

European Innovation Scoreboard 2025 37

Figure 12: Innovation performance of the EU27 Member States in the *Digitalisation*

dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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**Finance and support**

The *Finance and support* dimension measures the financing capacity of innovation and

includes three indicators: *R&D expenditures in universities and government research*

*organisations, Venture capital expenditures and Direct government funding and tax support*

*for business R&D*.

The best performing Member States are two Strong Innovators, France and Belgium and

three Leading Innovators Sweden, Denmark and Finland. The bottom of the ranking includes

two Moderate Innovators (Cyprus and Malta) and three Emerging Innovators (Latvia,

Bulgaria and Romania). Among the Moderate Innovators Cyprus has experienced a decline

compared to 2024.

Only 10 Member States are above the EU average with the remaining 17 below the EU

average. Among these 10 we find Member States from three performance groups including

all Leading Innovators, four Strong Innovators (France, Belgium, Estonia, Austria) and two

Modest Innovators (Spain and Portugal).

The EU average in the *Finance and support* dimension declined by 4.4%-points between

2024 and 2025. Between 2024 and 2025, all Leading Innovators performance declined

ranging from -26.9%-points for Denmark, followed by the Netherlands with -25.5%-points

and Finland and Sweden with -7.5%-points and -7.1%-points, respectively. The decline

is driven by *Venture capital expenditures* in the case of all Leading Innovators26. Overall,

performance improved in only eight Member States, while in the remaining 19 performance

declined. Ireland stands out with a growth of 17.4%-points followed by Bulgaria with

4%-points and Malta with 3.8%-points.

Although the EU average in the *Finance and support* dimension declined between 2024 and

2025, compared to the base year of 2018, the EU grew by 13.2%-points. The countries

with the most pronounced increases in *Finance and support* since 2018 include Estonia

(+70.6%-points), Croatia (+51.7%-points) and Denmark (+47.9%-points). In contrast, Malta

(-62.7%-points), Hungary (-35.8%-points) and Latvia (-28.7%-points) experienced notable

declines.

26 The *Venture capital expenditures* indicator is defined as private equity raised for investment in companies. Management buyouts, management

buy-ins, and venture purchase of quoted shares are excluded. More specifically, buyouts are defined according to Invest Europe as financing provided

to acquire a company. A significant amount of borrowed capital may be used to meet the cost of acquisition, typically by purchasing majority or

controlling stakes. According to the raw data used for the EIS 2025 edition, total investments have increased but the overall decline in the indicator

comes from an increase in buyouts and an increase in GDP.

European Innovation Scoreboard 2025 39

Figure 13: Innovation performance of the EU27 Member States in the *Finance and*

*support* dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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**Firm investments**

The *Firm investments* dimension measures the innovation expenditures of the private

sector and includes the following indicators: *Business R&D expenditures, Non-R&D and*

*innovation expenditures as a percentage of turnover and Innovation expenditures per*

*person employed*27.

The best performing Member State in 2025 in this dimension is Sweden a Leading Innovator.

The top five Member States also include Germany and Belgium, both Strong Innovators

with a comparable performance, followed by Malta, a Moderate Innovator and Denmark, a

Leading Innovator.

Among the best performers in *Firm investments*, a diverse composition of Member

States is observed, representing three different performance groups: Leading, Strong and

Moderate Innovators. The Member States ranking at the bottom include a Strong Innovator,

Luxembourg, with a score of 43.7, or 57.0%-points below the EU average. Other Member

States with a low ranking include a Moderate Innovator, Cyprus, and three Emerging

Innovators, Bulgaria, Latvia and Romania.

Among the EU27 Member States, only nine ranked above the EU average in 2025. All

Innovation Leaders exceed the EU average in 2025 while among the Strong Innovators,

France, Estonia and with a notable distance Luxembourg, rank below the EU average.

Between 2024 and 2025, the EU average declined by 2.7%-points. Most of the EU27

Member States (19) experienced a decline in *Firm investments* with only eight Member

States recording growth. Among the Member States experiencing improvement, Malta

stands out with a 87.2%-point increase, followed by Croatia (+35.5%-points) and Sweden

(+10.4%-points).

27 The latter two indicators are obtained from the CIS survey data in 2022. While they represent the most recent data of the CIS survey conducted

every two years, the results are subject to a time lag of three years.

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Figure 14: Innovation performance of the EU27 Member States in the *Firm investments*

dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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The declines in *Firm investments* observed in many EU27 Member States over the past

year is also evident when compared to the 2018 baseline. Specifically, 17 Member States

experienced a decline, while 10 showed growth in their performance compared to 2018. The

largest increases were in Malta with an increase between 2018 and 2025 of 75.6%-points,

followed by Croatia with 19.1%-points and Belgium with 16.6%-points.

**Investments in information technologies**

The *Investments in information technologies* dimension captures business uptake of

information technologies and includes two indicators: *Cloud Computing* and *Employed ICT*

*specialists*.

In 2025, the top performing Member States in this dimension include three Leading

Innovators (Finland, Sweden and the Netherlands), followed by two Strong Innovators

(Estonia, Ireland). At the other end of the scale, France, a Strong Innovator, ranks fourth

from the bottom. The rest of the Member States with a comparatively low performance

include two Moderate Innovators, Greece and Spain, and two Emerging Innovators, Bulgaria

and Romania.

All Leading and Strong Innovators perform above the EU average, except for France. Among

the Moderate Innovators, three perform above the EU average (Malta, Cyprus and Italy)

while seven fall below it. The Emerging Innovators all rank below the EU average, except

for Poland, which ranks above it.

European Innovation Scoreboard 2025 43

Figure 15: Innovation performance of the EU27 Member States in the *Investments in*

*information technologies* dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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In comparison to 2024, the EU average has increased by 14.5%-points. This positive result is

driven by 26 Member States recording growth with only one exception, Cyprus (-6.4%-points).

The Member States with the most notable improvements in their performance include

Poland (+66.6%-points), Hungary (+49.3%-points) and Malta (+32.9%-points).

Between 2018, the base year, and 2025 all Member States experienced improvement, with

Poland (+126.7%-points), Cyprus (+110.3%-points) and Estonia (+103.6%-points) showing

the most significant increases.

**Innovators**

The *Innovators* dimension reflects SMEs' innovation activities in introducing innovations

in products and business processes. It includes two indicators, *SMEs introducing product*

*innovations* and *SMEs introducing business process innovations* from the CIS.

Although its performance decreased between 2024 and 2025, Greece ranks at the top

with a score of 181.4 relative to the EU in 2025. Among the top five performers, Greece is

joined by one Strong Innovator, Belgium, another Moderate Innovator, Italy, and two Leading

Innovators, Sweden and Finland.

Among EU27 Member States, all Leading Innovators and Strong Innovators apart from

Luxembourg perform above the EU average in 2025. In total 14 Member State rank above

the EU average in 2025.

In comparison to 2024, the EU average declined by -7.5%-points. Only seven Member

State’s performance increased between 2024 and 2025 most notably Italy (+36.4%-points),

Luxembourg (+13.3%-points) and Portugal (+7.3%-points). The largest declines are

observed in Cyprus (-82.0%-points), Croatia (-60.1%-points) and Czechia (-52.5%-points).

Over the longer run, compared to 2018, the EU27 has increased its performance by

15.7%-points driven by growth in innovation activities in 19 Member States. Countries

contributing the most include Greece (+64.5%-points), followed by Slovenia (+50.1%-points)

and Belgium (+47.5%-points). Performance has decreased in eight Member States with the

strongest declines in Portugal (-52.5%-points), Finland (-24.2%-points) and Luxembourg

(-19.5%-points).

European Innovation Scoreboard 2025 45

Figure 16: Innovation performance of the EU27 Member States in the *Innovators*

dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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**Linkages**

The *Linkages* dimension includes three indicators measuring innovation capabilities

by looking at *Collaboration between innovating firms, Research collaboration between*

*the private and public sector, and Job-to-job mobility of Human resources in Science &*

*Technology (HRST)*.

The top performing Member States in the *Linkages* dimension include all Innovation

Leaders, led by Finland and a Strong Innovator, Luxembourg. The Member States at the

bottom of the rank are all Emerging Innovators.

Overall, most of the Member States rank above the EU average (16) in 2025 including all

Leading and Strong Innovators as well as five Moderate Innovators. The 11 Member States

below the EU average include five Moderate Innovators and all six Emerging Innovators.

In comparison to 2024, the EU average has declined by -10.1%-points. Only nine Member

States record growth, with a majority (18) Member States declining. The Member States

with the highest improvements in performance since 2024 include Ireland (+48.2%-points),

Sweden (+31.5%-points) and Latvia (+17.8%-points). Notable declines are observed for

Cyprus (-76.8%-points), Greece (-36.2%-points) and Estonia (-35.5%-points).

Over the longer run, the EU average improved by 35.9%-points between 2018 and 2025.

Most Member States (24) showed improvement among which most notably Ireland

(+88.0%-points), Cyprus (+87.7%-points) and Luxembourg (+72.5%-points). The three

countries that declined were Denmark (-25.7%-points), Greece (-7.2%-points) and Romania

(-4.7%-points).

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Figure 17: Innovation performance of the EU27 Member States in the *Linkages* dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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**Intellectual assets**

The *Intellectual assets* dimension captures different aspects of Intellectual Property

Rights (IPR), as measured by *Patent Cooperation Treaty patent applications*, *Trademark*

*applications* and *Design applications*.

The top five Member States in the *Intellectual assets* dimension are a mix of Leading and

Strong Innovators with Austria, a Strong Innovator, in the lead, followed by Innovation

Leaders Sweden, Finland, and Denmark, as well as Luxembourg - a Strong Innovator.

More than half of EU27 Member States (16) perform below the EU average in 2025 and 11

above it. All Innovation Leaders exceed the EU average. Among the Strong Innovators, four

Member States are above the EU average in 2025 (Austria, Luxembourg, Estonia, Germany)

and three below it (Belgium, France and Ireland). Among the Moderate Innovators, three

(Italy, Malta, and Cyprus) are above the EU average in 2025 and the majority are below

it. The Emerging Innovators are all below the EU average with Bulgaria leading just below

the EU average.

The EU27 performance for *Intellectual assets* has declined by -6.3%-points compared to

2024. This result is due to the consistent decline across Member States except for three

Member States, namely Hungary (+0.2%-points), Latvia (+1.7%-points) and Romania

(+3.2%-points) with increases in their performance in 2025 compared to 2024. The countries

experiencing the sharpest decline are Malta (-27.6%-points), Denmark (-17.0%-points) and

Austria (-14.8%-points).

Looking back at the base-year of 2018, the decline in performance at the EU level is more

pronounced with -17.0%-points. This result is explained by a consistent decline across 21

Member States and only six with an increase in their performance. The Member States with

the sharpest declines in *Intellectual assets* since 2018 are Luxembourg (-45.2%-points),

Malta (-43.2%) and Denmark(-36.9%-points). Member states recording growth compared

to the 2018 base-year include Lithuania (+21.3%-points), Estonia (+10.2%-points) and

Croatia (9.7%-points).

European Innovation Scoreboard 2025 49

Figure 18: Innovation performance of the EU27 Member States in the *Intellectual assets*

dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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**Impact on Sales and Employment**

The impact of innovation activities for businesses is measured by the *Sales and employment*

*impacts* dimension that is based on two indicators: *Employment in innovative enterprises*

*and Sales of new-to-market and new-to-firm innovations*.

The label for this dimension was adjusted compared to previous editions of the EIS to better

reflect the scope of its indicators (see section 2.2).

The highest ranked Member States include Leading, Strong and Moderate Innovators.

Ireland, a Strong Innovator, is in the lead, followed by Greece and Italy, both Moderate

Innovators. Germany as a Strong Innovator and Finland as a Leading Innovator complete

the top five Member States.

The composition of countries below and above the EU average in 2025 is varied with a mix

of Member States from the different performance groups. Among the Leading Innovators,

the Netherlands ranks below the EU average as well as three Strong Innovators (Austria,

France and Luxembourg). Emerging Innovators all rank below the EU average.

Compared to 2024, the EU has declined by -4.4%-points. Most Member States (21) experience

declines, while only six show growth. The Member States with the sharpest declines include

Cyprus (-52.5%-points), Bulgaria (-31.6%-points) and Finland (-29.0%-points). In contrast,

the Member States with the highest growth are Italy (+20.7%-points), Spain (+9.6%-points)

and France (+8.1%-points).

Between 2018 and 2025, the trend for the EU average is positive with a small growth

of 1.5%-points. This result is due to nearly even distribution of changes among Member

States, with approximately half showing positive (15) and the other half negative (12)

growth. The Member States contributing to growth include Slovenia (+36.4%-points), Italy

(+26.1%-points) and Sweden (+22.4%-points). In contrast Luxembourg (-35.3%-points),

Slovakia (-24.6%-points) and Austria (-20.5%-points) experienced declines.

European Innovation Scoreboard 2025 51

Figure 19: Innovation performance of the EU27 Member States in the *Sales and*

*employment impacts* dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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**Trade impacts**

The *Trade impacts* dimension is composed of three indicators: *Exports of medium and hightech*

*products*, *Knowledge-intensive services exports* and *High-tech imports from outside*

*the EU*.

The label for this dimension has been changed to reflect the inclusion of the indicator

*High-tech imports from outside the EU* in the revised EIS framework. The change aims to

capture industrial resilience as an integral part of innovation performance and is based on

a technical report carried out as part of the EIS 202528.

The top performer in the *Trade impacts* dimension is Germany, a Strong Innovator. The top

five Member states represent different performance groups, namely Denmark and Sweden

as Leading Innovators, Slovenia, a Moderate Innovator and Ireland, a Strong Innovator. The

bottom five Member States include predominantly moderate Innovators (Greece, Cyprus,

Croatia and Lithuania) and one Emerging Innovator Latvia.

Among the Member States only Germany ranks above the EU average in the dimension

of *Trade impacts*. The remaining 26 Member States are all below the EU average. This is

explained by *Knowledge-intensive services exports*, for which the EU27 overall performance

is close to the top of the ranking29.

In comparison to 2024, the EU average has declined by 2.0%-points. The countries with

the highest growth compared to 2024 are Estonia (+8.2%-points), Denmark (+6.0%-points)

and Slovenia (+3.9%-points). The countries with the most notable declines include Cyprus

(-7.4%-points), Hungary (-5.9%-points) and Austria (-5.3%-points).

Between 2018 and 2025 the EU average increased by 1.6%-points. The largest increases

are recorded for Slovenia (+19.1%-points), the Netherlands (+17.5%-points) and Denmark

(+13.1%-points). In contrast most notable declines over the longer periods since 2018

are observed for Cyprus (-25.6%-points), Luxembourg (-13.9%-points) and Ireland

(-13.2%-points).

28 Kalanta et al (2025). European Innovation Scoreboard 2025 - Exploratory study on the linkages between innovation and resilience. European

Commission (Brussels). DOI: 10.2777/0663803

29 The EU27 score for *Knowledge-intensive services exports* is calculated using extra-EU service exports (consistent with the calculation for global

competitors) while scores of EU27 Member States include exports to other EU27 Member States, which may explain why the EU-wide score is

relatively higher than might be expected from an average of EU27 Member States.

European Innovation Scoreboard 2025 53

Figure 20: Innovation performance of the EU27 Member States in the *Trade impacts*

dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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**Resource and Labour productivity**

The *Resource and Labour productivity* dimension measures the impact of innovation activity

on economic output, decarbonisation of production and resource use. It includes three

indicators: *Resource productivity*, *Production-based CO₂ productivity* and *Labour productivity*.

The label for this dimension has been changed (previously Environmental Sustainability) to

better reflect the scope of the indicators it includes: 1) two new indicators on productivity

have been added, *Production-based CO₂ productivity* and *Labour productivity* and 2) two

indicators have been removed, *Air emissions by fine particulates PM2.5 in industry* and

*Development of environment related technologies*.

The countries leading in the *Resource and Labour productivity* dimension include three

Strong Innovators with Ireland at the top of the ranking followed by Luxembourg. Two

leading Innovators follow, Denmark and the Netherlands while France, a Strong Innovator,

completes the top five. The bottom five is composed of a mix of Strong (Estonia), Moderate

(Czechia) and Emerging (Romania, Poland, Bulgaria) Innovators.

Between 2024 and 2025, the EU average has increased by 12.4%-points. The Member

States are nearly evenly divided, with 12 countries above the EU average and 15 below.

The majority of the Leading and Strong Innovators are above the EU average with two

exceptions: Finland, a Leading Innovator and Estonia, a Strong Innovator.

Compared to 2024, all Member States improved their performance. The strongest

growth was experienced by Portugal (+20.9%-points), Spain (+20.1%-points) and France

(+16.0%-points). The countries with the most notable positive change compared to 2018

include Ireland (+84.8%-points), Denmark (+53.1%-points) and Malta (+47.2%-points).

The Member States which grew the least include Sweden (+13.7%-points), Cyprus

(+15.2%-points) and Bulgaria (+21.1%-points).

European Innovation Scoreboard 2025 55

Figure 21: Innovation performance of the EU27 Member States in the *Resource and*

*Labour productivity* dimension

*Note: All performance scores are relative to that of the EU in 2018 for each dimension. Horizontal coloured bars*

*represent countries’ performance in 2025, while diamonds and vertical bars indicate their performance in 2018*

*and 2024, respectively. The colours denote each country’s overall performance group based on the 2025 SII.*

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3.4 How are innovation groups performing in each dimension and over time?

*3.4.1 Innovation performance by group and dimension*

Despite overall progress, the 2025 data reveal persistent performance gaps between

innovation performance groups. The most striking disparities remain between the Moderate

and Emerging Innovators, while the gap between Innovation Leaders and Strong Innovators

is narrower but still evident in key dimensions. These gaps highlight the challenges many

countries face in catching up, particularly in areas such as research excellence, digitalisation,

and innovation finance.

In 2025, the average performance difference between the Innovation Leaders and Strong

Innovators is 18%-points, 28%-points between the Strong and Moderate Innovators, and

33%-points between the Moderate and Emerging Innovators (see Figure 22).

Looking at performance by dimension, Innovation Leaders maintain the highest average

score (136% of 2018 EU average) followed by Strong Innovators (118%), Moderate

Innovators (90%) and Emerging Innovators (57%). In most dimensions, each performance

group outperforms the performance group below them, however there are two exceptions:

**•** In *Trade impacts*, Emerging Innovators score slightly higher (87%) than Moderate

Innovators (86%)

**•** In *Resource and Labour productivity*, Strong Innovators outperform Innovation

Leaders, scoring 130% versus 123%

The gap between Innovation Leaders and Strong Innovators is relatively narrow in just two

dimensions: such as *Sales and employment impacts* (3%-points) and *Innovators* (4%-points).

However, the gap between these two groups is most apparent in three dimensions:

*Investment in information technologies* (35%-points), *Digitalisation* (29%-points) and

*Attractive research systems* (27%-points). Nonetheless, as previously stated, Strong

Innovators also lead in *Resource and Labour productivity*, with a 7%-point advantage over

Innovation Leaders.

Between Strong and Moderate Innovators, the smallest gap is seen in *Sales and*

*employment impacts* (5%-points). However, much larger differences exist in: *Finance and*

*support* (53%-points), *Attractive research systems* (41%-points), *Linkages* (41%-points),

and *Resource and Labour productivity* (40%-points). The Moderate Innovators group does

not outperform Strong Innovators in any dimension.

Finally, Moderate versus Emerging Innovators shows consistently wide gaps. The only

exception is *Trade impacts*, where Emerging Innovators score just 1%-point higher. The next

closest dimensions, *Digitalisation* (10%-points), *Investments in information technologies*

European Innovation Scoreboard 2025 57

(15%-points), and *Intellectual assets* (15%-points), still favour Moderate Innovators. The

largest gaps are seen in *Innovators* (73%-points), and *Sales and employment impacts*

(69%-points), again in favour of Moderate Innovators.

Figure 22: Innovation performance of the innovation groups per dimension

*Note: Average scores for each performance group are defined as the unweighted average of the relative-to-EU*

*scores of the Member States within that group. As these unweighted averages do not consider differences in*

*country size, results are not directly comparable. For this reason, average scores for the performance groups*

*have been adjusted such that the unweighted average of the four groups for each dimension equals 100.*

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141

85

119

42

151

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124

79

131

89

102

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148

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144

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122

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140

85

105

38

127

111

123

44

145

85

126

72

132

87

109

45

122

114

119

87

122

86

105

57

123

90

Resource and labour productivity 130

Trade impacts

Sales and employment impacts

Intellectual assets

Linkages

Innovators

Investments in information technologies

Firm investments

Finance and support

Digitalisation

Attractive research systems

Human resources

0 20 40 60 80 100 120 140 160

Adjusted score per dimension in 2025

Emerging innovators Moderate innovators Strong innovators Innovation leaders

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*3.4.2 Differences in innovation performance over time*

All comparisons presented in this section are based on the data published in the 2025

edition. While changes over time are discussed, these reflect the latest available data

series and methodological adjustments. As a result, some indicator values may differ from

those published in previous editions due to data revisions, updates in statistical sources, or

changes in national methodologies. To ensure consistency, all historical comparisons are

recalculated using the most recent dataset rather than comparing across editions directly.

**Innovation Leaders**

In 2025, Sweden (scoring 155.5% of the EU average in 2018) became the top performer

in the EU, with consistently strong results since 2018. Denmark (152.0%) follows closely,

despite a slight decline from its 2024 peak. The Netherlands (145.3%) and Finland (141.1%)

also remained firmly in the top tier, each showing stable and high innovation output over

the period.

**Innovation Leaders have strengthened their positions through investments in**

**digital technologies and venture capital, alongside improvements in efficiency and**

**sustainability outcomes, although there has been a decline in their performance**

**in *Intellectual assets.***

Since 2018, Innovation Leaders have made notable gains across several dimensions, with

the most pronounced improvements seen in *Investments in information technologies*,

*Firm investments*, and *Resource and Labour productivity*. In *Investments in information*

*technologies*, the Netherlands (+74.9%-points), Denmark (+56.3%-points), and Finland

(+29.5%-points) all recorded substantial increases. Sweden, while showing no change in

this area, still holds the highest overall score at 278.6.

In the *Finance and support* dimension, all Innovation Leaders improved their performance,

including Denmark (+47.9%-points), Sweden (+43.0%-points), Finland (+42.4%-points),

and the Netherlands (+11.5%-points). *Resource and Labour productivity* also saw strong

advances, with Denmark (+53.1%-points) again leading, followed by the Netherlands

(+37.9%-points), Finland (+21.1%-points), and Sweden (+13.7%-points).

At the more granular indicator level, similar trends emerge, with the most significant

improvements concentrated within the previously highlighted dimensions. *Venture*

*capital expenditures* have increased markedly across all four countries, with Sweden

(+244.8%-points) and Finland (+205.9%-points) more than tripling their scores since the

2018 baseline. Denmark also came close to tripling its performance (+179.2%-points),

while the Netherlands registered a improvement (+50.9%-points). *Cloud computing* in

enterprises has seen substantial growth, with the Netherlands (+243.1%-points) and

Denmark (+207.5%-points) more than tripling their scores, and Finland (+81.8%-points)

European Innovation Scoreboard 2025 59

almost doubling. Sweden’s score has remained stable since 2018 (and currently stands at

155.9% of the 2025 EU average), although it remains joint top in the EU for this indicator

alongside Denmark and Finland. Notable progress is also evident in *Production-based CO₂*

productivity, with Denmark more than doubling its score (+116.6%-points), the Netherlands

nearly doubling (+86.5%-points), and Finland making strong gains (+64.0%-points). Sweden

also improved, albeit more modestly (+16.6%-points).

However, there has been a pronounced decline in the *Intellectual assets* dimension among

the Innovation Leaders. Denmark experienced the sharpest drop (–36.9%-points), followed

by more moderate decreases in Sweden (–15.1%-points), Finland (–15.0%-points), and

the Netherlands (–11.7%-points). This decline has been primarily driven by a significant

reduction in *Design applications*, which nearly halved in Denmark (–87.3%-points), and fell

considerably in Sweden (–37.6%-points) and Finland (–29.8%-points). The Netherlands saw

a more modest decline in this indicator (–5.1%-points).

Box 2: Country level observations of Innovation Leaders

**Sweden’s** innovation performance increased consistently from 2018 to 2023, with a

slight dip from 2023 to 2024. However, Sweden has attained their highest score this

year at 155.5% of the EU average in 2018 and growth of 12.9%-points.

**Denmark** experienced year-on-year growth from 2018 to 2023, however a drop of

4.8%-points from 2024 to 2025 has seen them slip from being the leader to a score

of 152.0.

**The Netherlands** maintained steady growth with limited volatility, achieving a peak

of 148.2 in 2023. However, in the previous two years there was a slightly decline with

respect to the score which settled at 145.3 in 2025.

**Finland** demonstrated strong improvement between 2018 and 2023. Their quickest

increase in score came in the period of 2020 to 2023. However, in the past two years,

the scores have declined consecutively and now sit at 141.1.

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Figure 23: Performance Innovation Leaders

*Note: Performance is relative to that of the EU in 2018. The graph on the left shows the average performance of*

*the Innovation Leaders calculated as the unweighted average of the respective Member States. All vertical*

*scales in Figure 23-Figure 26 span a range of 70.0%-points to allow an easy comparison of the results between*

*the four performance groups.*

**Strong Innovators**

For the Strong Innovators, Ireland (138.6% of the EU average in 2018) now leads the

group, while Belgium (138.1%) dropped to second in 2025, closely followed by Luxembourg

(128.9%) and Austria (128.3%). Germany (125.1%) and France (122.3%) also remained

among the Strong Innovators, maintaining stable high-level performance. Estonia (118.0%)

stands out for its upward trajectory, significantly narrowing the gap with leading countries

through sustained innovation gains since 2018.

**Strong Innovators have seen notable progress in digital and collaborative**

**domains, though performance in *Intellectual assets* has lagged, particularly in**

**design-related outputs.**

Since the 2018 baseline, Strong Innovators have made steady progress in adopting digital

technologies, with most countries recording notable improvements in *Investments in*

*information technologies*. Estonia leads the group with a 103.6%-point increase, followed

by Austria (+85.0%-points), Germany (+79.4%-points), and Luxembourg (+63.2%-points),

Ireland (+62.7%-points) and Belgium (+55.7%-points) also posted solid gains, while France

(+6.1%-points) showed only marginal improvement over the baseline.

Under the *Digitalisation* dimension, nearly all Strong Innovators recorded substantial

advances. Ireland stands out with the highest increase (+84.9%-points), followed by

Austria (+66.1%-points), Germany (+60.6%-points), and France (+52.9%-points). Belgium

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130

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160

170

'18 '19 '20 '21 '22 '23 '24 '25

Summary innovation index

Denmark

Finland

Netherlands

Sweden

100

110

120

130

140

150

160

170

'18 '19 '20 '21 '22 '23 '24 '25

Summary innovation index

European Innovation Scoreboard 2025 61

(+47.6%-points) and Estonia (+45.9%-points) also improved strongly. Luxembourg was the

only country to register a decline in this dimension (–4.2%-points).

*Linkages* improved across the group, with Ireland again leading with an 88%-point increase.

Luxembourg (+72.5%-points), France (+39.9%-points), and Belgium (+30.1%-points)

also made strong gains. Estonia (+25.4%-points), Austria (+21.0%-points), and Germany

(+18.1%-points) posted more moderate improvements, ensuring that all countries advanced

in this dimension.

At the more detailed indicator level, the strongest improvements remain concentrated in

digital technologies and collaborative linkages. *Cloud computing* in enterprises has surged

across the group, with Estonia (+292.9%-points), Germany (+252.0%-points), Austria

(+241.2%-points), and Ireland (+221.5%-points) all more than tripling their baseline scores

since 2018. Belgium (+190.4%-points) and Luxembourg (+149.3%-points) also recorded

major gains, while France showed no change on this indicator, and is at 164.4% of the EU

average in 2025.

*High-speed internet access* similarly improved, with Ireland leading (+169.2%-points),

followed by Austria (+156.7%-points) and Germany (+132.1%-points). France

(+123.3%-points) and Belgium (+96.7%-points) also doubled in comparison to their baseline

or close to doubled. Estonia (+63.9%-points) posted large progress, while Luxembourg saw

a modest increase (+13.1%-points).

*Public-private co-publications* grew significantly in Luxembourg (+222.5%-points),

Austria (+123.5%-points). Ireland (+75.9%-points), Belgium (+71.5%-points) and Estonia

(+68.4%-points) also greatly strengthened their performance. Germany (+33.7%-points)

made modest gains, while France recorded only a slight improvement (+3.1%-points).

However, there has been a decline in the dimension of *Intellectual assets* among the

Strong Innovators. Luxembourg experienced the sharpest drop (–45.2%-points), followed

by Germany (–27.6%-points), Austria (–23.5%-points), Ireland (-17.2%-points), Belgium

(-13.1%-points) and France (–11.7%-points). Estonia was the only nation to increase their

score in this dimension at 10.2%-points. Much like the Innovation Leaders, this decline

has been primarily driven by a significant reduction in the indicator *Design applications*,

Luxembourg recorded the sharpest drop (–77.5%-points), followed by Germany

(–57.8%-points) and Austria (–48.4%-points). Moderate decreases were observed in France

(–17.7%-points), Belgium (–17.4%-points), and Ireland (–13.0%-points), while Estonia was

the only country in the group to improve slightly (+5.4%-points).

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Box 3: Country level observations of Strong Innovators

**Ireland** demonstrated strong upward momentum, moving from 125.3% of the EU

average in 2018 to 138.6% in 2025, with sustained growth particularly after 2020.

**Belgium** consistently improved its score from 126.4 in 2018 to a high of 138.9 in 2024,

with only a minor dip in 2025 (reaching 138.1).

**Luxembourg** fluctuated over the period, peaking in 2019 (130.1), declining through

2024, and recovering to 128.9 in 2025.

**Austria** saw gradual improvements in innovation performance from 2018 (120.1) to a

peak in 2024 (132.3), followed by a slight decline in 2025 (128.3).

**Germany** rose from 116.4 in 2018 to 127.8 in 2022, then stabilised around 127 before

a slight drop to 125.1 in 2025.

**France** experienced modest but steady progress, increasing from 114.9 in 2018 to

122.3 in 2025.

**Estonia** recorded the strongest relative growth, rising from 88.0 in 2018 to 118.0 in

2025, with its largest gains occurring between 2019 and 2022.

Figure 24: Performance of Strong Innovators

*Note: Performance is relative to that of the EU in 2018. The graph on the left shows the average performance of*

*the Strong Innovators calculated as the unweighted average of the respective Member States. All vertical scales*

*in Figure 23-Figure 26 span a range of 70.0%-points to allow an easy comparison of the results between the*

*four performance groups.*

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120

130

140

150

'18 '19 '20 '21 '22 '23 '24 '25

Summary innovation index

Austria

Belgium

Germany

Estonia

France

Ireland

Luxembourg

80

90

100

110

120

130

140

150

'18 '19 '20 '21 '22 '23 '24 '25

Summary innovation index

European Innovation Scoreboard 2025 63

**Moderate Innovators**

Among Moderate Innovators, Malta (at 107.0% of the EU average in 2018) and Slovenia

(106.6%) led the group in 2025, followed by Italy (104.7%), Spain (104.3%), and Portugal

(102.2%), all of which crossed the 100% threshold30. All other Member States in the group

have declined in performance, with Cyprus (94.7%), in particular, dropping from the Strong

Innovators to the Moderate Innovators group; while Lithuania (91.2%), Czechia (90.8%) and

Greece (85.3%) scores dropped compared to 2024, Croatia (80.6%) joined this group this

year, continuing a gradual upward trend.

**Moderate Innovators have made strong progress in *Digitalisation*, *Linkages,* and**

**research attractiveness, though performance in *Intellectual assets* has generally**

**declined.**

Since the 2018 baseline, Moderate Innovators made substantial progress in adopting

digital technologies, with most countries recording strong improvements in *Investments in*

*information technologies*. Cyprus leads the group with a 110.3%-point increase, followed

closely by Malta (+97.2%-points) and Italy (+96.4%-points). Lithuania (+81.9%-points) and

Croatia (+79.4%-points) also posted strong gains, while Czechia (+65.5%-points), Portugal

(+57.9%-points), and Spain (+39.8%-points) registered more moderate improvements.

Greece (+35.4%-points) and Slovenia (+31.2%-points) showed the smallest increases,

though both still advanced on their 2018 baselines.

Under the *Linkages* dimension the performance group achieved solid progress, with

only one country, Greece, experiencing a decline (–7.2%-points). Cyprus stood out with

an 87.7%-point increase, followed by Italy (+64.5%-points), Malta (+59.8%-points), and

Slovenia (+48.9%-points). Croatia (+47.8%-points), Spain (+46.7%-points), Lithuania

(+42.4%-points), and Portugal (+38.4%-points) also improved significantly. Czechia

recorded a smaller gain (+19.9%-points).

All Moderate Innovators improved their performance in *Attractive research systems* since

2018, though the pace of progress varies significantly across countries. Cyprus again tops

the dimension with a 76.0%-point improvement, followed closely by Malta (+71.4%-points)

and Slovenia (+40.9%-points). Czechia (+33.9%-points) and Lithuania (+29.9%-points)

made good progress, while Portugal (+15.9%-points), Greece (+14.1%-points), Croatia

(+13.5%-points), and Spain (+12.2%-points) recorded more modest growth. Italy

(+11.2%-points) posted the smallest gain in this dimension.

When analysing at the indicator level, strong improvements are concentrated within the

previously highlighted dimensions. In *Cloud computing* in enterprises, several countries have

30 These scores are referenced to the 2018 index and are the normalised scores of the countries.

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more than quadrupled their baseline scores since 2018, including Italy (+326.9%-points),

Malta (+313.9%-points), and Cyprus (+308.8%-points). Czechia (+238.9%-points), Croatia

(+184.2%-points), and Lithuania (+178.3%-points) also made substantial gains, while

even the lowest scoring countries in this group, such as Greece (+117.9%-points) and

Spain (+95.9%-points), saw impressive increases. *Public-private co-publications* have also

expanded, particularly in Cyprus (+212%-points), Malta (+124.1%-points), and Slovenia

(+79.0%-points), with improvements seen across all countries.

In terms of internationalisation of research, most countries saw growing shares of foreign

doctorate students since 2018, led by Malta (+293.8%-points), Cyprus (+137.0%-points),

and Slovenia (+84.4%-points). Czechia (+71.4%-points), Portugal (+44.1%-points), and

Lithuania (+42.3%-points) also saw steady increases, while Greece (+5.5%-points) and

Spain (+29.7%-points) made modest gains. Only two countries, Croatia (+3.8%-points) and

Italy (+2.5%-points), recorded small declines.

However, much like the Leading Innovators and Strong Innovators, the Moderate Innovators

have also declined in the dimension of *Intellectual assets* by 18.3%-points, one of two

dimensions they have fallen in, with the other being *Trade impacts* at only 0.5%-points.

*Design applications* was the largest driver of this drop in the *Intellectual assets* dimension.

While Lithuania (+21.3%-points) and Croatia (+9.7%-points) had moderate gains

since 2018 in that dimension, most countries declined. The sharpest drops in *Design*

*applications* were recorded in Malta (-128.5%-points) and Cyprus (-76.2%-points),

followed by Portugal (-41.5%-points) and Italy (-27.1%-points). Other countries, including

Czechia (+14.0%-points), Spain (+12.8%-points), Greece (+12.7%-points), and Slovenia

(+5.7%-points), also registered moderate decreases, pointing to a general downward trend

in the generation or registration of design-related intellectual property in this group.

Box 4: Country level observations of Moderate Innovators

**Malta** showed steady growth, moving from 90.3% of the EU average in 2018 to 107%

in 2025, with a minor dip in 2023.

**Slovenia** progressed from 89.8 in 2018 to 106.6 in 2025, with a particularly strong

performance post-2021.

**Italy** rose steadily to a high of 107.5 in 2022, then dipped in 2023 before recovering

to 104.7 in 2025.

**Spain** improved from 90.4 in 2018 to 104.3 in 2025, with stable gains from 2021

onward.

**Portugal** increased from 93.2 in 2018 to 102.2 in 2025, with a brief drop in 2021

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(reaching 89.5) before rebounding.

**Cyprus** recorded a sharp rise between 2020 and 2021 (from 80.3 to 104.6), peaking in

2023 (109.9), before falling to 94.7 in 2025.

**Lithuania** improved from 73.8 in 2018 to 94.7 in 2024, with a small decline to 91.2

in 2025.

**Czechia** increased from 74.4 in 2018 to 99.1 by 2023–2024, followed by a drop to

90.8 in 2025.

**Greece** experienced consistent growth between 2018 (70.0) and 2024 (88.2), with a

slight dip to 85.3 in 2025.

**Croatia** steadily improved its score from 61.2 in 2018 to a high of 81.6 in 2024,

followed by a slight decline in 2025 (reaching 80.6).

Figure 25: Performance Moderate Innovators

*Note: Performance is relative to that of the EU in 2018. The graph on the left shows the average performance of*

*the Moderate Innovators calculated as the unweighted average of the respective Member States. All vertical*

*scales in Figure 23-Figure 26 span a range of 70.0%-points to allow an easy comparison of the results between*

*the four performance groups.*

**Emerging Innovators**

In 2025, Hungary (at 78.3% of the EU average in 2018) was the highest-performing

emerging innovator and only marginally below the threshold of the moderate innovators,

reflecting strong recent momentum. Poland (74.2%) and Slovakia (70.5%) followed closely,

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'18 '19 '20 '21 '22 '23 '24 '25

Summary innovation index

Cyprus

Czechia

Greece

Spain

Croatia

Italy

Lithuania

Malta

Portugal

Slovenia

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80

90

100

110

120

'18 '19 '20 '21 '22 '23 '24 '25

Summary innovation index

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with Latvia (63.9%) maintaining a slower but stable trajectory. Bulgaria (51.6%) showed

moderate gains, while Romania (42.4%) remained the lowest-performing country in the EU,

despite incremental progress over the period.

**Driven by advances in digital technologies and efficiency, Emerging Innovators**

**continue to improve, with only a noteworthy drop in *Non-R&D innovation***

***expenditures* since 2018.**

Since the base year of 2018, Emerging Innovators have made notable gains across several

dimensions, with the most pronounced improvements seen in *Investments in information*

*technologies*, *Digitalisation* and resource labour and productivity. In *Investments in*

*information technologies*, Poland has more than doubled its score (+126.7%-points),

while Hungary (+88.6%-points) and Latvia (+86.6%-points) have almost doubled. Bulgaria

(+48.2%-points), Slovakia (+44.6%-points), and Romania (+30.1%-points) have all

substantially increased their result.

In the *Digitalisation* dimension, Hungary (+76.3%-points), Romania (+39.4%-points),

Slovakia (+36.4%-points), Bulgaria (+33.6%-points), and Poland (+28.5%-points) all

markedly improved on this dimension. However, Latvia (+0.9%-points) only marginally

improved compared to 2018. *Resource and Labour productivity* also saw strong and

convergent advances, with Hungary (+34.0%-points) leading, followed by the Romania

(+31.4%-points), and the remaining countries of Poland (+25.5%-points), Slovakia

(+25.5%-points), Latvia (+22.4%-points), and Bulgaria (+22.2%-points) all clustering

around the same improvements.

At the indicator level, these trends persist across key metrics. *Cloud computing* in enterprises

has seen incredible growth, with Poland (+389.3%-points) quintupling in this indicator, along

with Hungary (+268.4%-points) and Latvia (+224.5%-points) more than tripling their scores,

and Slovakia (+135.5%-points) more than doubling; finally, Romania (+91.1%-points) and

Bulgaria (+88.5%-points) also almost their baseline from 2018. *High-speed internet access*

improved greatly across all six countries, with Hungary (+136.1%-points) double their

baseline from 2018, along with Romania (+88.2%-points) and Slovakia (+77.4%-points)

almost doubling; Poland (+68.2%-points) and Latvia (+43.0%-points) also impressed in

comparison to 2018. Progress is also evident in *Production-based CO₂* productivity, with

Romania (+75.0%-points) making impressive progress here, and Hungary (+58.1%-points),

Latvia (+49.5%-points), and Bulgaria (+43.1%-points) making large improvements also;

Poland (+37.0%-points) was the worst performer, however still improved markedly.

While no major declines were recorded at the dimension level among Emerging Innovators,

a pronounced downward trend is evident across all countries in *Non-R&D innovation*

*expenditures* since 2018. Poland experienced the sharpest decline (-48.5%-points), followed

by Latvia (-46.3%-points) and Hungary (-41.9%-points), while Bulgaria (-18.2%-points),

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Slovakia (-17.8%-points), and Romania (-14.2%-points) all saw more moderate but

consistent drop.

Box 5: Country level observations for Emerging Innovators

**Hungary** showed strong and continuous progress, rising from 62.1%-of the EU average

in 2018 to 78.3% in 2025, with marked gains after 2021.

**Poland** recorded consistent growth over the period, improving from 56.1 in 2018 to 74.2

in 2025, with notable acceleration after 2022.

**Slovakia** moved from 62.2 in 2018 to a high of 71.6 in 2024, before a modest drop to

70.5 in 2025.

**Latvia** remained relatively stable, increasing gradually from 59.0 in 2018 to 63.9 in

2025, despite a small dip in 2021.

**Bulgaria** improved steadily from 45.2 in 2018 to a peak of 53.8 in 2024, before a slight

decline to 51.6 in 2025.

**Romania** progressed slowly, rising from 34.2 in 2018 to 42.4 in 2025, despite a slight

dip in 2023.

Figure 26: Performance Emerging Innovators

*Note: Performance is relative to that of the EU in 2018. The graph on the left shows the average performance of*

*the Emerging Innovators calculated as the unweighted average of the respective Member States. All vertical*

*scales in Figure 23-Figure 26 span a range of 70.0%-points to allow an easy comparison of the results between*

*the four performance groups.*

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'18 '19 '20 '21 '22 '23 '24 '25

Summary innovation index

Bulgaria

Hungary

Latvia

Poland

Romania

Slovakia

20

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70

80

90

'18 '19 '20 '21 '22 '23 '24 '25

Summary innovation index

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*3.4.3 Is there evidence of convergence in innovation performance between EU27*

*Member States?*

To analyse convergence in innovation performance across EU27 Member States and

within performance groups, the coefficient of variation was used, calculated as the ratio

of the standard deviation of the Summary Innovation Index to its mean. This metric helps

determine whether lower-performing countries are catching up to higher-performing

ones (indicating convergence), or whether the gap between top and bottom performers is

widening (indicating divergence). Understanding this convergence is particularly important

for the EU, as it carries significant implications for both economic and social cohesion.

The analysis indicates a moderate positive convergence trend at the EU level over the 2018-

2025 period, as shown by a slight, yet consistent, decrease in the coefficient of variation for

all EU27 Member States (Figure 27). The highest levels of divergence are observed among

countries at the extremes of the performance spectrum, namely the Innovation Leaders

and Emerging Innovators, while countries in the middle tiers, such as Strong and Moderate

Innovators, exhibit greater internal convergence around the EU average. As a result, it

points to lower variation and greater convergence within these middle-tier groups. However,

dynamics still take different trends across the performance groups:

**• Innovation Leaders:** This group displays the highest level of internal divergence.

After a phase of convergence from 2021 to 2023, the group has experienced a sharp

increase in disparities since 2023. This growing divergence is mainly driven by the

continued strong performance of Denmark and Sweden, which are pulling ahead of

other Innovation Leaders such as the Netherlands and Finland (Figure 23)**.**

**• Strong Innovators:** Among the four performance groups, Strong Innovators exhibit

the most consistent convergence trend. The internal variation within this group

declined steadily up to 2022, after which a plateau and slight uptick in divergence

is observed. This recent change is partly due to Ireland and Belgium increasing their

performance at a faster rate than the rest of the group (Figure 24).

**• Moderate Innovators:** This group shows a similar convergence pattern to the

Strong Innovators, but with a more noticeable reversal since 2024. While the group

had become increasingly homogeneous over time, divergence has increased in

the most recent period. This shift can be attributed to above-average performance

improvements in countries like Malta, Slovenia, Spain, and Portugal, which are pulling

away from the rest of the group (Figure 25).

**• Emerging Innovators:** This group has seen a marginal increase in divergence since

2018. Although countries such as Croatia, Poland, and Slovakia have significantly

improved their innovation performance, others like Romania, Bulgaria, and Latvia

have progressed at a much slower pace. As a result, the internal performance gap has

widened slightly, limiting convergence within the group (Figure 26).

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Figure 27: Convergence in innovation performance

*Note: Lines show the coefficient of variation of the summary innovation index. defined as the ratio of the*

*standard deviation to the mean, indexed to 2018.*

3.5 How do EU27 Member States perform compared to neighbouring countries?

The innovation performance of the 12 neighbouring (non-EU) European countries (Albania,

Bosnia and Herzegovina, Iceland, Moldova, Montenegro, North Macedonia, Norway, Serbia,

Switzerland, Turkiye, Ukraine and the United Kingdom) compared with that of the EU27

Member States is examined in this section. The performance progress concerns only the

indicators for which data is available as data availability varies across countries. The

neighbouring countries are strategic partners for the EU, with a mix of highly advanced

economies and economies in transition, some of which are on the path to EU accession.

Four of the neighbouring countries score above the EU average in 2025, namely Switzerland,

the UK, Norway, and Iceland. Switzerland ranks first in the enlarged ranking outperforming

all EU27 Member States in 2025. However, its innovation performance has seen a slight

decline, the country recording a 1.6%-point decrease compared to 2024 and an overall

1.7%-point decrease in performance since 2018. The United Kingdom outperforms 24

EU27 Member States with an improvement of 1.2%-point in 2025 marking a breakthrough

into the Innovation Leaders group. The UK’s performance reflects a long-standing positive

trend with a 12.2%-point increase in performance since 201831. Norway ranks third among

Strong Innovators group but registers a 0.9%-point decrease compared to 2024. Performing

at 121.6% of the EU average in 2025, it builds on a positive trend since 2018, with a strong

13%-point increase over the period. Finally, Iceland ranks sixth in the Strong Innovators

31 For the United Kingdom, data from 2020 is used, based on an earlier edition of the Community Innovation Survey (CIS).

0.0

0.2

0.4

0.6

0.8

1.0

1.2

1.4

1.6

1.8

2018 2019 2020 2021 2022 2023 2024 2025

Coefficient of variation

All EU Member States

Emerging innovators

Moderate innovators

Strong innovators

Innovation leaders

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group in 2025. It outperforms Germany, France and Estonia in the group despite a marginal

0.1%-point decrease in performance compared to 2024.

The other eight neighbouring countries are in the group of Emerging Innovators. Three EU27

Member States are heading the rankings of the group, i.e. Hungary, Poland and Slovakia.

Turkiye follows the trio and ranks 4th among Emerging Innovators in 2025, registering a

2.7%-point increase compared to 2024. Albania, Montenegro and Bosnia and Herzegovina

have registered the highest growth since 2024 in the group with a 4.4%, 3.1% and 3%-

point increase in performance respectively. Serbia ranks 6th in 2025 outperforming Bulgaria

and Romania and building on the strongest growth among EU neighbouring countries in

the group, with a 10.2%-point increase since 2018. Compared to 2024, Ukraine, North

Macedonia and Moldova register a decline of 1.3, 0.8 and 0.03%-points in performance

respectively. Finally, Bulgaria and Ukraine record the strongest decline compared to 2024,

as Bulgaria’s performance decreased by 2.2%-points ranking 32nd and 37th in EIS 2025

respectively.

Figure 28: Innovation performance of the EU27 Member States and neighbouring

countries in 2025

Emerging innovators Moderate innovators Strong innovators Innovation leaders

European Innovation Scoreboard 2025 71

Figure 29: Innovation performance of the EU27 Member States and neighbouring

countries (bar chart) (2025 vs 2024)

*Note: All performance scores are relative to that of the EU in 2018. Horizontal coloured bars show countries’*

*performance in 2025, using the most recent data for 32 indicators. The vertical bars show performance in 2024,*

*using the next most recent data.*

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Bosnia & Herzegovina

Ukraine

Romania

Albania

North Macedonia

Montenegro

Bulgaria

Serbia

Latvia

Türkiye

Slovakia

Poland

Hungary

Croatia

Greece

Czechia

Lithuania

Cyprus

Portugal

Spain

Italy

Slovenia

Malta

EU

Estonia

France

Germany

Iceland

Austria

Luxembourg

Norway

Belgium

Ireland

Finland

United Kingdom

Netherlands

Denmark

Sweden

Switzerland

0 20 40 60 80 100 120 140 160

Summary innovation index in 2025 (indexed to the EU in 2018)

Emerging innovators

Moderate innovators

Strong innovators

Innovation leaders

I Score in 2024

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Figure 30: Innovation performance change for the EU27 Member States and neighbouring

countries (2025 vs 2018)

*Note: Performance change is measured as the difference between 2025 and 2018 scores, relative to that of the*

*EU in 2018.*

EU average in 2025

Moldova

Bosnia & Herzegovina

Ukraine

Romania

Albania

North Macedonia

Montenegro

Bulgaria

Serbia

Latvia

Türkiye

Slovakia

Poland

Hungary

Croatia

Greece

Czechia

Lithuania

Cyprus

Portugal

Spain

Italy

Slovenia

Malta

EU

Estonia

France

Germany

Iceland

Austria

Luxembourg

Norway

Belgium

Ireland

Finland

United Kingdom

Netherlands

Denmark

Sweden

Switzerland

0 20 40 60 80 100 120 140 160

Change in summary innovation index between 2018 and 2025

Negative change Positive change

European Innovation Scoreboard 2025 73

3.6 What are the strengths and weaknesses of the neighbouring countries compared

to the EU?

The findings indicate that eight out of 12 of the EU neighbouring countries perform below

70% of the EU average, despite improvements over 2018-2025 period, notably in terms

of their *Attractive research systems* and *Investments in information technologies*. Figure 31

illustrates the performance of EU27 Member States and neighbouring countries in 2025

for all EIS indicators, relative to the EU average performance in the same year. Additional

information on trends in performance change as compared to 2018 and 2024 can be found

in Annex 1 (Figure 45 and Figure 46). The overview of differences in structural indicators

for both neighbouring countries and the EU27 Member States can be found in Annex 2

(Figure 47). This section presents the main developments across the 12 dimensions of the

EIS 2025.

On three dimensions, i.e. *Finance and support*, *Firm investments*, and *Trade impacts*

dimensions, the EU **neighbouring countries continue to face difficulties**, struggling

to mobilise sufficient funding and financial support for innovation activities, while the

challenging global context adds to the constraints in trade of innovative products. On

*Knowledge-intensive services exports*, only UK and Norway register a performance over

100% from the EU neighbouring countries. On *Exports of medium and high-tech products*,

the EU27 Member States are top performing countries, while Switzerland and UK despite

being Innovation Leaders perform below 100% of the EU average.

*Government support of business R&D* remains a challenge in Switzerland and Norway as

well as in seven EU neighbouring countries of Emerging Innovators group. At the same time,

the UK and Iceland are joined by Turkiye in performing above 125% of EU average on this

indicator, outperforming 21 EU27 Member States. However, the UK registered the lowest

performance on *R&D expenditure in public sector* among Innovation Leaders with below

70% of the EU average for this indicator in 2025.

*R&D and Non-R&D innovation expenditures* by firms are constrained across the EU and

neighbouring countries reflecting persistent economic volatility amid geopolitical tensions,

gaps in talent and skills32. For instance, Norway together with Luxembourg registered a

below 70% performance of EU average on *R&D expenditure in the business sector* – the

lowest results in the category of Strong Innovators. In contrast, North Macedonia performed

at above 125% of EU average on *Non-R&D innovation expenditure* by firms in 2025.

Despite challenges across *Finance and support* and *Firm investments* dimensions, the EU

neighbouring countries perform relatively similarly to the EU27 Member States on the

*Innovators* dimension. Indeed, Serbia, Montenegro and Bosnia and Herzegovina perform

above 125% of EU average on *SMEs introducing product innovations*, followed by Albania

32 European Commission (2024), The Draghi Report on EU Competitiveness. Available at: https://commission.europa.eu/topics/eu-competitiveness/

draghi-report\_en (Accessed: 23 June 2025).

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with over 100% performance which exhibits a positive trend on this indicator since 2018.

Furthermore, Switzerland, Norway, UK and Iceland register over 100% of EU results

on this indicator, joined by 17 EU27 Member States with equivalent performance. The

results on *SMEs introducing business process innovations* are slightly worse for the EU

neighbouring countries, as Switzerland performs below 70% of EU average together with

Moldova. Montenegro leads on this indicator in the Emerging Innovators group and among

EU neighbouring countries with 169.9% of EU performance, followed by Serbia with over

154.6% performance in 2025.

EU neighbouring countries, much like the EU27 Member States, have registered an increase

in *Investments in information technologies* since 2018. However, challenges persist in *Cloud*

*computing* with EU neighbouring countries performing below 70% on this indicator except

for Serbia (78.5%) in the Emerging Innovators group and Norway outperforming five EU27

Member States out of seven on this indicator in the Strong Innovators group.

Areas with significant **room for improvement** for EU neighbouring countries include

*Human resources*, coupled with sustained efforts on *Attractive research systems*, as well

as *Intellectual assets* and *Resource and Labour productivity*.

On *Human resources*, nine out of 12 EU neighbouring countries lag the EU27 Member

States with performance below 70% of EU average on *New doctorate graduates* indicator.

In 2025, only Switzerland and the UK lead the way with 125% performance compared

to EU average joining the EU27 Member States such as Sweden, Denmark and Finland in

Innovation Leaders group.

When it comes to *Attractive research systems*, the EU neighbouring countries with better

connected and resourced R&D frameworks, such as Switzerland, UK, Norway and Iceland,

perform above 100% of EU average on *Scientific publication among the top 10% most*

*cited* indicator. This is not the case for the rest of the EU neighbours which are in the

Emerging Innovators group and perform below the 70% EU average on this indicator

despite improvements since 2018. The situation is similar for *Foreign doctorate students*

*as a % of all doctorate students* indicator except for North Macedonia with 179.3% and

Moldova with 107.7% of EU performance in 2025.

On *Intellectual assets*, the UK performs the lowest in the Innovation Leaders’ group across all

three indicators of *Patent* (below 100% of EU average), *Trademark* and *Design applications*

(both below 70% EU average). Norway and Iceland perform similarly to the rest of the

Strong Innovators, and the eight Emerging Innovator countries of EU neighbourhood all

register a performance below 70% despite some improvements on *Trademark applications*

since 2018. Only Switzerland outperforms EU27 Member States on three indicators in

the Innovation Leaders’ group with 137.5% of EU average across the dimension, and this

despite a negative change in *Trademark* and *Design applications* it registered over 2018-

2025 period.

European Innovation Scoreboard 2025 75

Finally, most of the EU neighbouring countries, except for Switzerland, UK, Norway and

Iceland, demonstrate substantial gaps with the EU27 Member States in *Resource and*

*Labour productivity*. Available data on *Resource productivity* shows that Serbia, North

Macedonia, Albania, and Bosnia and Herzegovina perform at below 70% EU average on

this indicator, while Iceland and Turkiye register 95.7% and 75.6% of the EU average. Six

EU neighbouring countries have *Production-based CO₂ productivity* below 70% of the EU

average, placing them in the Emerging Innovators group. Only Albania stands out, reaching

94.4% of the EU level in 2025.

Note: Comparisons with neighbouring countries may have limitations as data availability

is lower compared to the EU Member States. Furthermore, the performance of some

countries on specific indicators may be more volatile due to their smaller size and should,

therefore, be interpreted with caution.

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Figure 31: Performance of EU27 Member States and neighbouring countries per indicator in 2025, compared to the EU average in 2025

CH SE DK NL UK FI IE BE NO LU AT IS DE FR EE MT SI IT ES PT CY LT CZ EL HR HU PL SK TR LV RS BG MEMK AL RO UA BA MD

4.3.3 Labour productivity

4.3.2 Production-based CO2 productivity

4.3.1 Resource productivity

**Resource and labour productivity**

4.2.3 High-tech imports from outside the EU

4.2.2 Knowledge-intensive services exports

4.2.1 Exports of medium and high-tech products

**Trade impacts**

4.1.2 Employment in innovative enterprises

4.1.1 Sales of new-to-market and new-to-firm innovations

**Sales and employment impacts**

3.3.3 Design applications

3.3.2 Trademark applications

3.3.1 PCT patent applications

**Intellectual assets**

3.2.3 Job-to-job mobility of HRST

3.2.2 Public-private co-publications

3.2.1 Innovative SMEs collaborating with others

**Linkages**

3.1.2 SMEs introducing business process innovations

3.1.1 SMEs introducing product innovations

**Innovators**

2.3.2 Employed ICT specialists

2.3.1 Cloud Computing

**Investments in information technologies**

2.2.3 Innovation expenditures per person employed

2.2.2 Non-R&D innovation expenditures

2.2.1 R&D expenditure in the business sector

**Firm investments**

2.1.3 Direct and indirect government support of business R&D

2.1.2 Venture capital expenditures

2.1.1 R&D expenditure in the public sector

**Finance and support**

1.3.2 Individuals with above basic overall digital skills

1.3.1 High speed internet access

**Digitalisation**

1.2.3 Foreign doctorate students as a % of all doctorate students

1.2.2 Scientific publications among the top 10% most cited

1.2.1 International scientific co-publications

**Attractive research systems**

1.1.3 Population involved in lifelong learning

1.1.2 Population with tertiary education

1.1.1 New doctorate graduates

**Human resources**

CH SE DK NL UK FI IE BE NO LU AT IS DE FR EE MT SI IT ES PT CY LT CZ EL HR HU PL SK TR LV RS BG MEMK AL RO UA BA MD

Below 70% Between 70 and 100% Between 100 and 125% Above 125% of EU performance

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**4. HOW IS THE EU**

**PERFORMING?**

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This section presents the innovation performance of the EU as a whole and compares it to

that of the main global economic competitors.

4.1 Has the EU improved compared to previous years?

The EU innovation performance for 2025 is equal to 112.6% of the EU average in 2018,

which means that it has improved by 12.6%-points between 2018 and 2025. There was

a slight increase in the EU performance between 2018 and 2021, followed by a period of

more rapid growth from 2022 to 2023, and slight increase from 2023 to 2024. Despite a

minor decrease from 2024 to 2025 (-0.4%-points), the EU remains on an upward trend in

terms of innovation performance.

**As a composite index, the 2025 EU innovation score aggregates multiple indicators**

**and dimensions, many of which have evolved unevenly over time.**

Between 2024 and 2025, performance for the EU has improved in five dimensions and

declined in the remaining seven.

The most significant performance increases are observed in *Investment in information*

*technologies* (+14.5%-points), *Resource and Labour productivity* (+12.4%-points) and

*Digitalisation* (+9.7%-points) dimensions.

The growth in the *Investments in information technologies* performance was driven largely

by a jump in enterprises using *Cloud computing* which rose by 35.7%-points from 2024 to

2025. Additionally, *ICT specialists* have grown 5.9%-points in the last year.

Within the *Resource and Labour productivity* dimension, the EU has seen positive

improvements in two indicators between 2024 and 2025, while the third (*Labour*

*productivity*) stayed the same. The increase in this dimension was largely driven by *Resource*

*productivity* (+16.5%-points), and *Production-based CO₂* productivity (+20.4%-points), while

the 3rd indicator remained constant with just 0.4%-points.

The performance increase of the EU in the *Digitalisation* dimension was driven by a notable

improvement in the *High-speed internet access* indicator (+17.7%-points), which measures

the share of households with a fixed very high-capacity network connection. The EU also

witnessed a slight increase in *Individuals with above basic overall digital skills* indicator, up

3.8%-points from last year.

On the other hand, the EU experienced a significant downturn in the *Linkages* dimension

(-10.1%-points) since 2024. This is mostly driven by the drop in the *Job-to-job mobility*

*of human resources in science & technology* indicator, which decreased by 23.5%-points

between 2024 and 2025. *Public-private co-publications* per million population also slightly

declined, falling by -1.2%-points in the same period. The last indicator of the *Linkages*

European Innovation Scoreboard 2025 79

dimension, the share of *Innovative SMEs collaborating with others* slightly increased by

0.9%-points between 2024 and 2025.

Another dimension that witnessed a considerable decline is the *Innovators* dimension, with

a decrease of -7.5%-points between 2024 and 2025. Both the share of *SMEs introducing*

*product innovations* and those introducing *business process innovations* have dropped over

the past year. The decline was most pronounced for *SMEs introducing product innovations*,

falling by -12.2%-points, while *SMEs introducing business process innovations* decreased

to a lesser extent at -3.2%-points.

**At the level of individual indicators, the EU performance has since 2024 increased**

**for 13 individual indicators, remained stable for five, four indicators have**

**declined by more than 10.0%-points, and 10 indicators have declined by less**

**than 10.0%-points.**

As noted above, the largest year-on-year increases were observed in *Cloud computing*

in enterprises (+35.7%-points), *Production-based CO₂* productivity (+20.4%-points), *Highspeed*

*internet access* (+17.7%-points), and *Resource productivity* (+16.5%-points), all of

which grew by more than 15%-points.

A second group of indicators showed more moderate growth, including *International scientific*

*co-publications* (+8.8%-points), *Population involved in lifelong learning* (+6.7%-points),

*Population with tertiary education* (+6.6%-points), *Employed ICT specialists* (+5.9%-points),

*Innovation expenditures per person employed* (+4.8%-points), and *Individuals with above*

*basic overall digital skills* (+3.8%-points).

In contrast, *Innovative SMEs collaborating with others* (+0.9%-points) and *Labour*

*productivity* (+0.4%-points) recorded only marginal increases.

The largest declines were recorded in *Venture capital expenditures* (-23.6%-points) and

*Job-to-job mobility of HRST* (-23.5%-points). EU venture capital as a share of GDP had

already started dropping the previous year, but was only just captured in the EIS since

the indicator uses a 3-year rolling average33. This was followed by a sharp drop in *Non-*

*R&D innovation expenditures* (-15.6%-points) and *SMEs introducing product innovations*

(-12.2%-points), suggesting weakening innovation activity among small and medium-sized

enterprises.

Moderate declines were observed in *Trademark applications* (-7.3%-points), *Design*

*applications* (-6.9%-points), and *Exports of medium and high-tech products* (-5.6%-points).

33 The underlying drivers of this drop are as follows: in the latest available year, total investments increased but were compensated by an even larger

increase in buyouts. In the year before that, it was driven by a drop in total investments larger than a drop in buyouts. Meanwhile, GDP (the

denominator of the indicator) increased, further reducing the final indicator.

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Additional decreases were seen in *PCT patent applications* (-4.8%-points), *Employment in*

*innovative enterprises* (-4.4%-points) *Sales of new-to-market and new-to-firm innovations*

(-4.1%-points), *Foreign doctorate students as a % of all doctorate students* (-4.1%-points),

*SMEs introducing business process innovations* (-3.2%-points), as well as a smaller decline

in *Scientific publications among the top 10% most cited* (-1.5%-points), and *Public-private*

*co-publications* (-1.2%-points).

**Compared to 2018, performance for the EU has improved in all dimensions, except**

***Intellectual assets*.**

*Intellectual assets* dimension over the 2018-2025 fell by 31.7%-points, and across all three

indicators since the base year. The drop in *Intellectual assets* was mainly driven by *Design*

*applications* (-31.7%-points), while *PCT patent applications* also fell by 12.8%-points, and

*Trademark applications* fell modestly by 3.7%-points.

Between 2018 and 2025, the EU has improved its performance the most in the *Investments*

*in information technologies* and *Digitalisation* dimensions.

Regarding the *Investments in information technologies* dimension, the EU’s performance

has surged by over 71.9%-points since 2018. Since 2018, *Cloud computing* in enterprises

has grown by 216.6%-points which is the main driver of the improvement, while *Employed*

*ICT specialists* have grown consistently in the same period by 14.7%-points. In a similar

vein, for the *Digitalisation* dimension, one indicator drives the growth of this dimension.

*High-speed internet access* has grown 93.4%-points, while *Individuals with above basic*

*overall digital skills* has grown modestly at 3.8%-points.

**The EU performance has increased since 2018 for 25 individual indicators and**

**has decreased for seven.**

As noted above, the most significant increases since 2018 were observed in *Cloud computing*

in enterprises (+216.6%-points), *High-speed internet access* (+93.4%-points), *Productionbased*

*CO₂* productivity (+58.1%-points), *Venture capital expenditures* (+45.3%-points),

*Job-to-job mobility of HRST* (4+1.2%-points), *Innovative SMEs collaborating with others*

+37.9%-points), *Resource productivity* (+37.8%-points), and *International scientific copublications*

(+36.4%-points), all of which grew by more than 35%-points.

A second group of indicators, including *Foreign doctorate students as a % of all doctorate*

*students* (+30.4%-points), *SMEs introducing business process innovations* (+27.4%-points),

*Population involved in lifelong learning* (+25.0%-points), *Public-private co-publications*

(+21.8%-points), and *Population with tertiary education* (+17.2%-points), all grew by over

15%-points.

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Additional modest gains were seen in *Employed ICT specialists* (+14.7%-points), *Innovation*

*expenditures per person employed* (+12.9%-points), *Direct and indirect government support*

*of business R&D* (+11.7%-points), *R&D expenditure in the business sector* (+8.2%-points),

and *Employment in innovative enterprises* (+7.0%-points).

In contrast, some indicators recorded smaller increases, such as *Labour productivity*

(+4.5%-points), *Knowledge-intensive services exports* (+4.3%-points), *Individuals with*

*above basic overall digital skills* (+3.8%-points), *SMEs introducing product innovations*

(+3.6%-points), *R&D expenditure in the public sector* (+1.7%-points), *Exports of medium and*

*high-tech products* (+0.9%-points), and *High-tech imports from outside the EU* improved

minimally (+0.2%-points).

The largest declines were seen in *Design applications* (-31.7%-points), *Non-R&D innovation*

*expenditures* (-21%-points), *PCT patent applications* (-12.8%-points), and *New doctorate*

*graduates* (-11.6%-points). Additional decreases were recorded in *Scientific publications*

*among the top 10% most cited* (-5.0%-points), *Sales of new-to-market and new-to-firm*

*innovations* (-4.1%-points), and *Trademark applications* (-3.7%-points).

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Figure 32: Innovation performance of the EU per dimension and indicator

*Note: Scores are indexed to the score of the EU in 2018 for each indicator. Dimensions are shown in dark blue*

*while indicators are displayed in light blue.*

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125. 0

136. 4

95. 0

130. 4

193. 4

103. 8

101. 7

145. 3

111. 7

108. 2

79. 0

112. 9

316. 6

114. 7

103. 6

127. 4

137. 9

121. 8

141. 2

87. 2

96. 3

68. 3

95. 9

107. 0

100. 9

104. 3

100. 2

137. 8

158. 1

104. 5

106. 8

113. 0

143. 2

113. 2

101. 1

171. 9

115. 7

135. 9

83. 0

101. 5

101. 6

133. 5

Labour productivity

Production-based CO2 productivity

Resource productivity

**Resource and labour productivity**

High-tech imports from outside the EU

Knowledge-intensive services exports

Exports of medium and high-tech products

**Trade impacts**

Employment in innovative enterprises

Sales of new-to-market and new-to-firm innovations

**Sales and employment impacts**

Design applications

Trademark applications

PCT patent applications

**Intellectual assets**

Job-to-job mobility of HRST

Public-private co-publications

Innovative SMEs collaborating with others

**Linkages**

SMEs introducing business process innovations

SMEs introducing product innovations

**Innovators**

Employed ICT specialists

Cloud Computing

**Investments in information technologies**

Innovation expenditures per person employed

Non-R&D innovation expenditures

R&D expenditure in the business sector

**Firm investments**

Direct and indirect government support of business R&D

Venture capital expenditures

R&D expenditure in the public sector

**Finance and support**

Individuals with above basic overall digital skills

High speed internet access

**Digitalisation**

Foreign doctorate students as a % of all doctorate students

Scientific publications among the top 10% most cited

International scientific co-publications

**Attractive research systems**

Population involved in lifelong learning

Population with tertiary education

New doctorate graduates

**Human resources**

0 50 100 150 200 250 300

I Score in 2024 Score (indexed to the EU in 2018)

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4.2 How does the EU compare to its global competitors?

In line with the priorities outlined in the Competitiveness Compass34, the EU is placing a

renewed strategic focus on innovation as a core driver of productivity, industrial leadership,

and competitiveness. Strengthening Europe’s capacity to innovate is essential to ensuring

its long-term economic strength, especially in areas such as advanced technologies, clean

industries, and digitalisation. As part of this effort, the EIS benchmarks the EU’s innovation

performance against that of key international competitors from North and South America

(Brazil, Canada, Chile, Mexico, and the United States), Asia (China, India, Japan, and South

Korea), Oceania (Australia), and Africa (South Africa). Due to limited data availability for the

global competitors compared to European countries, a more restricted set of 17 indicators

has been used for calculating the SII (see methodology report).

South Korea remains the most innovative country in 2025, with a summary innovation

index of 152.2% (relative to the EU in 2018). It is classified as an Innovation Leader, as its

performance exceeds 125% of the EU average in 2025 (152.2 vs 112.6 for the EU). Four

other competitors – Canada, China, the United States, and Australia – also outperform the

EU. China’s performance has continued to improve, overtaking the EU35 and is now on par

with Canada, both scoring 133.4%. These four countries are classified as Strong Innovators,

with innovation performance between 100% and 125% of the 2025 EU average.

On the other hand, the EU ties with Japan in 2025. Japan has continued an upward

trajectory, closing the gap with the EU since 2024. The EU continues to outperform Brazil,

India, Chile, South Africa, and Mexico, which are classified as Emerging Innovators, with

performance levels below 70% of the EU average, as was the case in 2024. Japan, Brazil,

India, Chile, and Mexico have all improved their innovation performance compared to 2024,

while South Africa has declined slightly (-1.5%-points).

34 European Commission (2025). A Competitiveness Compass for the EU. Report available at: https://commission.europa.eu/document/

download/10017eb1-4722-4333-add2-e0ed18105a34\_en

35 Under the 2024 EIS framework, China was lagging the EU in 2024. However, with the updated 2025 framework and revised indicator set, China is

now shown to outperform the EU both in 2025 and retrospectively in 2024. Nonetheless, China was behind the EU in 2018 based on the new

framework and overtook the EU between 2019 and 2020 (and the USA between 2023 and 2024). China recorded the largest improvement over

2018–2025 (+44.8%-points) among all global competitors, it now shares second place with Canada.

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Figure 33: Innovation performance of the EU and its global competitors

*Note: All performance scores are relative to that of the EU in 2018. Coloured bars show countries’ performance*

*in 2025 while the vertical bars show performance in 2024. Due to limited data availability for global*

*competitors, scores are calculated using a smaller set of indicators.*

Compared to 2024, most global competitors have improved their innovation performance.

Only Canada, the EU, and South Africa recorded a decline. South Korea shows the largest

annual improvement (+6.3%-points), followed by China (+6.0%-points) and Australia

(+3.8%-points). The gap between Australia and the United States is also narrowing.

Over the longer term (Figure 34), all global competitors have improved their innovation

performance between 2018 and 2025. Notably, the five countries that now outperform the

EU have all recorded faster growth than the EU itself, thereby widening the performance

gap. Among the six countries still lagging the EU, only Chile has increased its performance

at a higher rate than the EU since 2018, with a gain of 15.5%-points.

I

I

I

I

I

I

I

I

I

I

I

Mexico I

South Africa

Chile

India

Brazil

Japan

EU

Australia

United States

China

Canada

South Korea

0 20 40 60 80 100 120 140 160

Summary innovation index in 2025 (indexed to the EU in 2018)

Emerging innovators

Moderate innovators

Strong innovators

Innovation leaders

I Score in 2024

European Innovation Scoreboard 2025 85

Figure 34: Performance change between 2018 and 2025 for the EU and global

competitors

*Note: Performance change is measured as the difference between 2025 and 2018 scores, relative to that of the*

*EU in 2018.*

Figure 35 below compares the EU to its global competitors based on their innovation

performance in 2025 and the change in performance between 2018 and 2025. South

Korea, China, Canada, the United States, and Australia not only lead the EU but have also

improved at a faster rate over the long term. This was not the case in previous editions,

where countries outperforming the EU tended to show slower progress. Figure 35 also

illustrates the strong performance trajectory of China, placing it at the far right of the

graph due to its rapid growth since 2018. In contrast, Brazil, India, South Africa, and Mexico

appear in the lower-left quadrant, reflecting both lower overall performance and slower

growth. Chile stands out as the only country in this group that has grown faster than the

EU over the same period. Interestingly, while Japan matches the EU’s performance level

EU average in 2025

Mexico

South Africa

Chile

India

Brazil

Japan

EU

Australia

United States

China

Canada

South Korea

0 20 40 60 80 100 120 140 160

Change in summary innovation index between 2018 and 2025

Positive change

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in 2025, it has grown at a slower pace since 2018. A year-by-year analysis reveals that

Japan experienced two periods of decline (between 2020-2021 and 2022-2023), whereas

the EU recorded consistent year-on-year improvements until its first decline from 2024 to

2025 (see Figure 1).

Figure 35: The EU versus its global competitors

*Note: The horizontal and vertical lines indicate the score of the EU for each axis. Global countries are coloured*

*based on their overall innovation performance (SII) as per Figure 33. Note that this Figure presents the SII and*

*change in SII relative to the EU in 2018, while the subsequent figures present the score on the vertical axis*

*relative to the EU in 2025.*

Australia

Brazil

Canada

Chile

China

EU

India

Japan

South Korea

Mexico

United States

South Africa

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

0 10 20 30 40 50

Change in SII between 2018 and 2025 (%-points)

Summary innovation index (SII) in 2025

indexed to the EU in 2018

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Methodological Note: In Figures 32-36, the EU is plotted against its global competitors

in terms of performance in 2025 (vertical axis) and performance change from 2018 to

2025 (horizontal axis).

Performance scores (vertical axis) represent a percentage relative to the EU in 2018. For

example, a score of 110 means that the country, in 2025, is performing 10% above the

EU average in 2018. Performance change (horizontal axis) is measured as the difference

between 2025 and 2018 scores, relative to that of the EU in 2018.

The horizontal and vertical dashed lines show the performance of the EU and define four

meaningful quadrants on the graphs:

**•** Top-right quadrant: Competitor performs better than the EU in 2025 and has

improved at a faster pace than the EU since 2018.

**•** Top-left quadrant: Competitor performs better than the EU in 2025 but has

improved at a slower pace than the EU since 2018.

**•** Bottom-right quadrant: Competitor performs worse than the EU in 2024 but has

improved at a faster pace than the EU since 2018.

**•** Left-right quadrant: Competitor performs worse than the EU in 2025 and has

improved at a slower pace than the EU since 2018.

4.3 What are the strengths and weaknesses of the EU compared to its global competitors?

In 2025, the EU demonstrates strong performance in seven out of 17 indicators36 across

the four main categories (framework conditions, investments, innovation activities, and

impacts). This section provides a detailed analysis of how the EU competes with the global

competitors from North and South America (Brazil, Canada, Chile, Mexico, and the United

States), Asia (China, India, Japan, and South Korea), Oceania (Australia), and Africa (South

Africa) in each indicator, illustrating both EU strengths and areas for improvement.

Despite showing strong competitiveness in several key indicators, the EU still faces

challenges in areas such as the application of trademarks or collaboration among innovative

SMEs. Additionally, the EU has been overtaken by China in *Direct and indirect government*

*support of business R&D*, now ranking 5th for that indicator among global competitors.

36 Due to limited data availability for global competitors compared to European countries, a more restricted set of 17 indicators has been used for

calculating the summary innovation index for global comparisons.

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Overall, the EU shows strong performance, ranking in the top four globally for the following

indicators:

**•** *New doctorate graduates* (3rd)

**•** *International scientific co-publications* (4th)

**•** *R&D expenditure in the public sector* (4th)

**•** *Employed ICT specialists* (3rd)

**•** *SMEs introducing product innovations* (3rd)

**•** *SMEs introducing business process innovations* (4th)

**•** *Exports of medium and high technology products* (4th)

The EU performs moderately, between 5th and 8th, among global competitors for the

following indicators:

**•** *Population with tertiary education* (6th)

**•** *Scientific publications among the top 10% most cited* (5th)

**•** *Direct and indirect government support of business R&D* (5th)

**•** *R&D expenditure in the business sector* (5th)

**•** *Public-private co-publications* (5th)

**•** *PCT patent applications* (5th)

**•** *Design applications* (5th)

**•** *Knowledge-intensive service exports* (5th)

Finally, for the following indicators, the EU ranks between 9th and 12th, reflecting a weaker

performance compared to its global competitors:

**•** *Innovative SMEs collaborating with others* (last)

**•** *Trademark applications* (10th)

European Innovation Scoreboard 2025 89

The following pages provide more detailed comparisons for each main category and

indicator, contrasting the EU with its global competitors.

**Framework conditions**

The Framework Conditions category measures the availability of a high-skilled and

educated workforce, as well as competitiveness in science by focusing on international,

high-quality, and collaborative publications, all of which are crucial for innovation through

knowledge-based activities (Figure 36).

The EU has a high number of individuals graduating with doctoral degrees in science,

technology, engineering, or mathematics fields each year relative to its population, ranking

3rd just behind Australia and South Korea. However, the EU has shown the biggest decrease

in the number of *New doctorate graduates* since 2018. Canada and Japan have also

experienced a decrease in performance since 2018, although to a lesser extent than the

EU. All other global competitors have improved since 2018, albeit at different paces.

The EU performs moderately in terms of the *Share of Population with tertiary education*

compared to global competitors. South Korea leads in this indicator, and Canada, Japan,

Australia, and the United States lead over the EU. The EU has improved since 2018, but at

the 4th slowest pace (an improvement compared to last year), ahead of China, India, and

South Africa.

The EU demonstrates a strong performance in scientific publications, ranking 4th in

publications with at least one co-author abroad, with a notable increase since 2018

reflecting its strong tendency to disseminate research results collaboratively. The EU ranks

5th in the *percentage of EU publications in the top 10% most cited worldwide*, indicating

that the EU not only disseminates research widely but also provides high-quality sources

internationally. A decrease in performance for this indicator has been observed for most

countries, including the EU, since 2018; however, its decline is smaller than for the United

States, Canada, Australia, Brazil or Japan. China has achieved a significant improvement

compared to other competitors in this indicator.

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Figure 36: The EU versus its global competitors in framework conditions

*Note: As for Figure 35, the horizontal axis shows changes in performance between 2018 and 2025 (values*

*indexed to the EU average in 2018) and the y axis show the current performance (values indexed to the EU in*

*2025). Global countries are coloured based on the overall performance (SII) as per Figure 33. The colouring is*

*therefore the same in from Figure 36 to Figure 39.*

South Korea

Canada United States

Australia

EU

Japan

Brazil

India

Chile

South Africa

Mexico

0

20

40

60

80

100

120

140

160

-10 0 10 20 30

Change between 2018 and 2025

Performance in 2025

**1.1.1 New doctorate graduates**

South Korea

China

Canada

United States

Australia

EU

Japan

Brazil

India

Chile

South Africa

Mexico

0

20

40

60

80

100

120

140

160

180

200

0 10 20 30 40 50 60

Change between 2018 and 2025

Performance in 2025

**1.2.1 International scientific co-publications**

South Korea

China

Canada

United States

Australia

EU

Japan

Brazil

India

Chile

South Africa

Mexico

0

20

40

60

80

100

120

140

160

180

200

0 10 20 30 40 50 60

Change between 2018 and 2025

Performance in 2025

**1.1.2 Population with tertiary education**

South Korea

China

Canada

United States

Australia

EU

Japan

Brazil

India

Chile

South Africa

0 Mexico

20

40

60

80

100

120

140

160

-50 -40 -30 -20 -10 0 10 20 30 40 50 60

Change between 2018 and 2025

Performance in 2025

**1.2.2 Scientific publications among**

**the top 10% most cited**

European Innovation Scoreboard 2025 91

**Investments**

The Investments category captures investments made in both the public and business

sectors and differentiates between three innovation areas: *Finance and support*, *Firm*

*investments*, and *ICT labour employment* (Figure 37).

The EU maintains a strong overall performance in the area of *Finance and support*. It ranks

4th in *public R&D expenditure* and 5th in *business R&D expenditure*, with South Korea

leading both indicators by a significant margin. Canada and China surpass the EU in both

level and rate of increase, and Japan, though still lagging, has also increased its support

at a faster pace since 2018. In contrast, Australia is notably underperforming in this area,

having experienced a sharp decline since 2018.

Regarding business R&D expenditure, the EU ranks 5th, with only moderate improvement

since 2018 compared to other global competitors. The United States has shown particularly

strong progress on this indicator.

In terms of *ICT specialist employment*, the EU performs well, ranking 3rd, just behind Japan

and the United States. Australia is continuing to catch up and growing at a faster pace than

the EU, as observed last year, although the gap has not yet been closed. Chile, the USA,

Australia, South Korea, and Japan are all improving faster than the EU.

Figure 37: The EU versus its global competitors in investments

South Korea

China

Canada

United States

Australia

EU

Japan

India

Chile

South Africa

Mexico

0

20

40

60

80

100

120

140

160

-30 -20 -10 0 10 20 30 40

Change between 2018 and 2025

Performance in 2025

**2.1.1 R&D expenditure in the public sector**

South Korea

China

Canada

United States

Australia

EU

Japan

Brazil

Chile

South Africa Mexico

0

20

40

60

80

100

120

140

160

180

-40 -20 0 20 40 60 80 100 120

Change between 2018 and 2025

Performance in 2025

**2.1.3 Direct and indirect government**

**support of business R&D**

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*Note: As for Figure 35, the horizontal axis shows changes in performance between 2018 and 2025 (values*

*indexed to the EU average in 2018) and the y axis show the current performance (values indexed to the EU in*

*2025). Global countries are coloured based on the overall performance (SII) as per Figure 33. The colouring is*

*therefore the same in from Figure 36 to Figure 39.*

**Innovation activities**

The Innovation Activities category encompasses various facets of innovation, including the

introduction of products or business process innovations by SMEs, the level of collaboration

within the country, and the number of intellectual property rights (Figure 38).

The EU has a significant *percentage of SMEs introducing products* and *business processes*

*to the enterprise or to the market*, ranking 3rd and 4th respectively. While most competitors

have experienced a slower rate of innovation introduction since 2018, the EU shows a

moderate increase for both over time. The USA has improved the most in product

innovations, while also having the worst decrease in *business process innovations* since

2018. South Korea, despite being an Innovation Leader, ranks second last and last in those

indicators, respectively.

The EU has a weak performance in *SME collaboration with other organisations*, ranking

last. It is however one of two countries, with Chile, that shows an improvement since

2018, while all other countries are collaborating less than in 2018, especially Japan

with a significant decrease. However, the EU had moderate *public-private collaboration*

*for scientific publications*, with the 5th best performance in 2025 and the 5th largest

improvement since 2018.

South Korea

China

Canada

United States

Australia

EU

Japan

India

South Africa Chile

Mexico

0

50

100

150

200

250

-20 -10 0 10 20 30 40 50 60

Change between 2018 and 2025

Performance in 2025

**2.2.1 R&D expenditure in the business sector**

South Korea

United States

EU Australia

Japan

Brazil

Chile

Mexico

0

20

40

60

80

100

120

0 5 10 15 20 25 30 35 40

Change between 2018 and 2025

Performance in 2025

**2.3.2 Employed ICT specialists**

European Innovation Scoreboard 2025 93

In the area of intellectual property, the EU demonstrates moderate performance in patent

and *Design applications*, ranking 5th and 4th, respectively. However, as noted in previous

editions of the EIS, *trademarks* remain the weakest aspect of the EU’s research and

innovation profile, with the third-lowest score among global competitors. Moreover, the EU

has shown limited progress across all three types of *Intellectual assets* since 2018, ranking

either last or second last in terms of improvement.

Figure 38: The EU versus its global competitors in innovation activities

South Korea

Canada

United States

Australia EU

Japan

Brazil

India

Chile

0

20

40

60

80

100

120

140

-80 -60 -40 -20 0 20 40 60

Change between 2018 and 2025

Performance in 2025

**3.1.1 SMEs introducing product innovations**

South Korea

Canada

United States

Australia

EU

Japan

Brazil

India

Chile

0

100

200

300

400

500

600

700

-1400 -1000 -600 -200 200

Change between 2018 and 2025

Performance in 2025

**3.2.1 Innovative SMEs collaborating**

**with others**

South Korea

Canada

United States

Australia

EU

Japan

Brazil

India

Chile

0

20

40

60

80

100

120

140

160

180

200

-100 -80 -60 -40 -20 0 20 40 60 80

Change between 2018 and 2025

Performance in 2025

**3.1.2 SMEs introducing business**

**process innovations**

South Korea

China

Canada

United States

Australia

EU

Japan

Brazil

India

South Africa Chile

0 Mexico

20

40

60

80

100

120

140

160

180

200

0 10 20 30 40 50 60

Change between 2018 and 2025

Performance in 2025

**3.2.2 Public-private co-publications**

94 European Innovation Scoreboard 2025

*Note: As for Figure 35, the horizontal axis shows changes in performance between 2018 and 2025 (values*

*indexed to the EU average in 2018) and the y axis show the current performance (values indexed to the EU in*

*2025). Global countries are coloured based on the overall performance (SII) as per Figure 33. The colouring is*

*therefore the same in from Figure 36 to Figure 39.*

South Korea

China

Canada

United States

Australia

EU

Japan

Brazil

India

Chile

South Africa

0 Mexico

25

50

75

100

125

150

175

200

225

250

-25 -20 -15 -10 -5 0 5 10 15 20 25 30

Change between 2018 and 2025

Performance in 2025

**3.3.1 PCT patent applications**

South Korea

China

Canada

United States

EU Australia

Japan

Brazil

India

Chile

South Africa Mexico

0

50

100

150

200

250

300

350

-30 -20 -10 0 10 20 30

Change between 2018 and 2025

Performance in 2025

**3.3.3 Design applications**

South Korea

China

Canada

United States

Australia

EU

Japan

Brazil

India

Chile

South Africa

Mexico

0

100

200

300

400

500

600

700

800

900

0 50 100 150 200 250 300 350 400 450

Change between 2018 and 2025

Performance in 2025

**3.3.2 Trademark applications**

European Innovation Scoreboard 2025 95

**Impacts**

The Impacts category captures the effects of enterprises’ innovation activities. For global

competitors, only economic impacts are assessed (Figure 39). The EU performs strongly in

the *export of medium and high technology products*, ranking 4th behind South Korea, Japan,

and Mexico. It also shows the third strongest improvement among global competitors since

2018. South Korea leads on this indicator, followed by Japan; at the other end, Chile and

Australia rank last, well behind the EU, while Brazil has experienced a sharp decline in

performance since 2018.

The EU shows moderate performance in the *export of knowledge-intensive services*, ranking

5th among global competitors, with Japan and the United States close behind. Since 2018,

the EU has achieved only modest gains in this area. Notably, while Japan demonstrated

strong competitiveness in both product and service exports in the previous EIS edition,

leading in both, it has since been overtaken by South Korea in the former and now ranks

below the EU in the latter.

Figure 39: The EU versus its global competitors in impacts

*Note: As for Figure 35, the horizontal axis shows changes in performance between 2018 and 2025 (values*

*indexed to the EU average in 2018) and the y axis show the current performance (values indexed to the EU in*

*2025). Global countries are coloured based on the overall performance (SII) as per Figure 33. The colouring is*

*therefore the same in from Figure 36 to Figure 39.*

South Korea

China

Canada

United States

Australia

EU

Japan

Brazil

India

Chile

South Africa

Mexico

0

20

40

60

80

100

120

-15 -10 -5 0 5 10

Change between 2018 and 2025

Performance in 2025

**4.2.1 Exports of medium and**

**high technology products**

South Korea China

Canada

United States

Australia

EU

Japan

Brazil

India

Chile South Africa

Mexico

0

20

40

60

80

100

120

-10 0 10 20 30 40 50

Change between 2018 and 2025

Performance in 2025

**4.2.2 Knowledge-intensive services exports**

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Note on China: The 2024 EIS indicator framework included Air emissions by fine

particulates and Environment-related technologies in the Impacts dimension. These have

been replaced by *Production-based CO₂* productivity and *Labour productivity*, both of

which are unavailable globally. The boost in China’s performance observed in this EIS

edition is likely due to the exclusion of the former indicators. In 2024, China ranked

second last in Air emissions by fine particulates (at 38% of the EU average) and last in

Environment-related technologies (at around 29% of the EU average). China’s consistent

low scores on environment-related indicators in previous editions had a significant

dampening effect on its overall performance, so their removal likely contributed to the

notable improvement observed this year.

**Structural indicators comparison: the EU versus its global competitors**

To better understand the position of the EU in the global economic landscape, it is useful

to take account of key structural indicators – such as GDP per capita, population size, and

employment shares – with those of its global competitors (Figure 40).

**South Korea’s** population is 10 times smaller than the EU’s and a slightly lower GDP per

capita is than the EU’s. The share of the population engaged as nascent entrepreneurs

or owner-managers is nearly twice as high in South Korea as in the EU. Among top R&D

spending firms, South Korea invests about 30% more in R&D than the EU. However, the

number of unicorns in South Korea is nearly 10 times lower. Foreign investment in South

Korea, as a percent of GDP, has recently overtaken that of the EU, despite the EU having

led by a wide margin last year.

**China** is the largest competitor in terms of population but has a GDP per capita less than

half of the EU’s. China’s agricultural sector is, in relative terms, almost six times larger than

that of the EU. The country has the largest employment share in industry among global

competitors. There are half as many top R&D spending firms per million population in China

compared to the EU, but, based on the EU Industrial R&D Scoreboard, these firms spend

half as much on R&D as those in the EU. However, among strong and Leading Innovators,

China reports the highest level of perceived corruption and the lowest rule of law.

**Canada** presents a slightly higher GDP per capita than the EU, for a population twelve

times smaller. Canada’s top R&D spending firms spent near half as much than in the EU, but

foreign investments are higher. Entrepreneurial activities and basic-school entrepreneurial

education are at a much higher level than in the EU. Employment in agriculture is much

lower in Canada than in the EU.

The **United States** have the highest GDP per capita of all global competitors.

Entrepreneurial activities are at a much higher level than in the EU. The number of top USA

R&D spending enterprises is three times the EU’s (23 enterprises among the world’s top

European Innovation Scoreboard 2025 97

2,500 R&D spenders per 10 million people, compared to 7.8), but they spend, on average,

a comparable amount on R&D. FDI net inflows are lower than in the EU. The United States

has the highest number of unicorns of all global competitors, more than six times that of

the EU. The United States has the highest share of government procurement of advanced

technology products among global competitors, though China and India follow closely.

**Australia** has the second highest GDP per capita among all global competitors and has

the smallest population of all strong and leading global innovators. It receives the most

foreign investment (relative to GDP) of all strong and leading Innovators, albeit comparable

to Canada. Compared to the EU, Australia has less top R&D spending enterprises, which also

spends less towards R&D, and a low number of unicorns.

**Japan** has a GDP per capita twice as high as China. Japan has more top R&D spending

enterprises per capita than the EU among the top 2,500 worldwide. However, the share

of foreign investment in Japan is lower than in the EU, and similar to South Korea and

China. Japan is experiencing a significant population decline. Entrepreneurial activity and

education levels are comparable to those of the EU.

**Brazil** has nearly three times the level of entrepreneurial activity as the EU; however, it has

far fewer top R&D spending firms, which also invest five times less in R&D than EU firms.

Brazil has a relatively high share of employment in agriculture compared to the EU. Foreign

investment is relatively high in Brazil.

**India** has the lowest GDP per capita of all global competitors, but the highest average

annual GDP growth. India’s agricultural sector accounts for more than 40% of total

employment, the highest of all global competitors. Its service sector, on the other hand,

is the lowest among global competitors, less than half that of the EU. India has the third

largest number of unicorns among global competitors, behind the United States and the

EU. Entrepreneurial activities and training are higher in India than in the EU; basic-school

entrepreneurial education and training is the highest among global competitors.

**Chile** has the highest percentage of population who are either a nascent entrepreneur

or manager of a new enterprise among all global competitors, four times that of the EU.

Additionally, Chile receives the most foreign investments among global competitors, nearly

six times more than the EU.

**South Africa’s** entrepreneurial activities and training are higher than in the EU. South Africa

has the second highest employment share in agriculture among the global competitors

considered in this report, just behind China. Foreign investments are high in South Africa,

more than twice that of the EU. South Africa has the lowest number of unicorns among

all global competitors. South Africa also has the highest annual population growth among

Emerging Innovators, and third highest among global competitors.

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**Mexico** has a GDP per capita less than half of that of the EU, but an annual growth nearly

twice as fast. Foreign investments are higher compared to the EU. Mexico has the highest

employment share in knowledge-intensive services among Emerging Innovators, and third

highest among all global competitors. Among Emerging Innovators, Mexico reports the

highest level of perceived corruption and the lowest rule of law.

Figure 40: The EU versus its global competitors (structural indicators)

51 22 61 77 65 47 20 9.1 31 15 23

2 4.1 2.5 2.7 3.8 1.3 3 7.6 1.1 1.3 3.4

5.4 23 1.3 1.6 2.3 3 8.8 43 6.4 20 13

24 32 19 19 19 24 20 25 23 18 25

70 45 79 79 79 73 71 31 71 63 63

26 27 11 5.4 20 12 14 9 12 21

11 6.1 21 18 6.3 20 12 28 9.8 15

1.2 1.1 2.4 1.6 2.7 0.8 3.2 1.2 5.8 4.3 2.4

9 4.4 6.9 23 3.5 17 0.2 0.1

813 337 259 643 417 518 219 257

13 162 21 687 9 8 18 68 2 1 8

5 4.3 4.4 4.8 3.9 5 3.4 4.4 3.9 4 3.4

63 43 75 68 76 72 36 39 65 42 29

3.6 3.7 2.4 2.2 5.6 2.7 3 2.1

3.8 4.4 3.4 4.6 3.3 4 2.8 4.3 2.9 3 3.1

1.2 0 1.5 1.4 1.6 1.5 -0.3 0.1 0.7 0.1 -0.8

52 1412 39 333 26 125 2101426 20 62 129

0 -0.1 2.4 0.4 1.9 -0.5 0.4 0.8 0.5 1.4 0.8

530 150 4.3 36 3.4 345 25 476 26 51 66

56

2

4

24

72

15

7.1

1

7.8

616

111

3.6

63

2.4

3.4

1

448

0.2

112

EU KR CN CA US AU JP BR IN CL ZA MX

GDP per capita (in thousands)

Average annual GDP growth (2020-2022 average)

Employment share Agriculture

Employment share Industry

Employment share Services

Employment share Knowledge-intensive services

Total early-stage Entrepreneurial Activity (TEA)

FDI net inflows

Top R&D spending enterprises per 10 million population

Top R&D spending enterprises, average R&D spending

Number of unicorns

Buyer sophistication

Corruption Perceptions Index

Basic-school entrepreneurial education and training

Government procurement of advanced technology products

Rule of law

Population size (in millions)

Average annual population growth (2020-2022 average)

Population density

EU KR CN CA US AU JP BR IN CL ZA MX

EU Below EU Above EU

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**5. INDUSTRIAL RESILIENCE**

**IN A TURBULENT WORLD**

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The current decade is marked by significant events and challenges. The COVID-19

pandemic was a health crisis the world has not seen for over a century. Russia’s military

aggression against Ukraine has eroded expectations of Europe as a continent of peace.

Growing competition between geopolitical powers has threatened the world order based on

openness, cooperation and rules. As emphasised by President von der Leyen in her Special

Address at the World Economic Forum37, these challenges increasingly signal that Europe's

economic growth model, which benefits from free trade and cheap energy from Russia,

has been put under pressure and that leadership in mitigating climate change has become

more difficult to sustain.

While many of the challenges that have emerged in recent years have been most visible

in the context of product trade – such as disruptions related to health products, energy,

or critical raw materials – the EU’s structural weaknesses in technological performance

are just as relevant. These weaknesses may not always manifest as immediate supply

chain crises, but they are deeply consequential. They underpin the EU’s long-term strategic

dependencies and increasingly shape future risks in supply chains, competitiveness and

technological sovereignty. Deficiencies in the EU’s technological performance, notably in

relation to China and the USA, have been widely documented over recent years. Addressing

them is central to Europe’s economic security and strategic autonomy, as underlined by both

the European Commission and the European Council in their calls for strengthening Europe’s

technological leadership and reducing critical dependencies. Under these circumstances,

two words – innovation and resilience – have become more salient in academic and policy

discussions across Europe. The report delivered by Mario Draghi is explicit in this regard:

research and innovation should become the main drivers of productivity and people’s wellbeing

as it is key to pursuing the green and digital transitions, necessary to reinforce

Europe’s resilience, and to strengthen its position in global supply chains38.

This chapter addresses the issues of resilience and innovation. It is based on Exploratory

study on the linkages between innovation and resilience, commissioned by the EC39. The

following sections summarise key findings from this study and provides condensed empirical

evidence on innovation-driven industrial and economic resilience and key innovation-related

dependencies across Europe.

37 Ursula von der Leyen, ‘Special Address by President von Der Leyen at the World Economic Forum’, January 2025 https://ec.europa.eu/commission/

presscorner/detail/en/speech\_23\_232

38 Mario Draghi, The Future of European Competitiveness. Part B | In-Depth Analysis and Recommendations, 2024.

39 Kalanta et al (2025). European Innovation Scoreboard 2025 - Exploratory study on the linkages between innovation and resilience. European

Commission (Brussels). DOI: 10.2777/0663803

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5.1 The concept of resilience

For the purposes of the EIS, the study views resilience from a systems perspective and

defines it **in terms of the magnitude and duration the performance of the system**

**deviates from the target level**. It is assumed that the system is resilient if it can return

to its previous performance levels by **absorbing** the shock or by **recovering** from it, or

if it is able to move to a new equilibrium with similar performance levels by **adapting**

to the shock40. Following this approach the study focuses on **economic and industrial**

**resilience of the EU to geopolitical shocks, which is perceived as the capacity**

**of the EU economy and industries to withstand geopolitical turbulences arising**

**from international trade disruption and intensifying competition between the**

**global powers.** More specifically, the study explores how this capacity can be enhanced

with **innovation.**

Based on a thorough analysis of the existing evidence, the study finds that the EU economic

and industrial resilience to geopolitical shocks can be enhanced via improving its technology

capacities. One technology area is of special importance. It is deep tech, which is defined

as cutting-edge science, technology and engineering that combines advances in physical,

biological and digital spheres and which has the potential to deliver transformative

solutions41. Evidence shows that deep tech is key to EU industrial ecosystems when it

comes to their capacities to better absorb and recover from supply chain disruptions or,

if supply chain disruptions become persistent, to develop new capacities and engage in

new activities that are less exposed to these disruptions. Furthermore, in the long term,

improving deep tech capacities is key to pursuing EU’s strategic goals of twin (digital and

green) transition as well as strengthening its security.

Following these theoretical considerations, the key conceptual premise of the study is

that **improving deep tech capacities across EU’s industrial ecosystems is most**

**relevant for enhancing the EU’s economic and industrial resilience to geopolitical**

**shocks.** Within these capacities, three dimensions are of special relevance. As presented

in Figure 41, these are:

**• deep tech dependency,** which encompasses the dependency of the EU on deep tech

developed elsewhere;

**• deep tech development,** which focuses on the capacity of the EU to develop its own

deep tech;

40 Jakob Hafele and others, A Framework for Economic Resilience: Guiding Economic Policy through a Social-Ecological Transition (2022) https://zoeinstitut.

de/wp-content/uploads/2023/10/ZOE\_Economic\_Resilience\_Framework.pdf; Anna Rita Manca, Peter Benczur, and Enrico Giovannini, Building

a Scientific Narrative towards a More Resilient EU Society. Part 1: A Conceptual Framework (2017), doi:10.2760/635528; Lucia Alessi and others,

‘The Resilience of EU27 Member States to the Financial and Economic Crisis’, Social Indicators Research, 148.2 (2020), pp. 569–98, doi:10.1007/

s11205-019-02200-1; Ron Martin and Peter Sunley, ‘On the Notion of Regional Economic Resilience: Conceptualization and Explanation’, Journal of

Economic Geography, 15.1 (2015), pp. 1–42, doi:10.1093/jeg/lbu015.

41 European Commission, A New European Innovation Agenda, 2022 https://op.europa.eu/en/publication-detail/-/publication/e9058375-fe64-11ecb94a-

01aa75ed71a1/

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**• deep tech adoption,** which covers the extent of integration and utilisation of deep

tech across multiple industrial ecosystems for productivity, circularity and other

purposes and which enables individual firms to be better prepared for geopolitical

shocks.

Figure 41. Analytical dimensions of enhancing resilience through improving deep tech

capacity

*Source: authors’ compilation.*

This leads to the conclusion that **key to the EU’s economic and industrial resilience is**

**its capacity to reduce deep tech dependencies by strengthening its own deep tech**

**development abilities and by more extensively adopting transformative benefits**

**of these technologies across all industrial ecosystems.**

5.2 Capturing industrial and innovation resilience and innovation dependencies in the

EIS

The conceptual framework briefly summarised above presents resilience as an inherent

property of innovation. The higher the performance of innovation ecosystems is, the

more resilient industries, economies and societies become. This link between innovation

and the economic and industrial resilience is to some extent already captured in the EIS

through long-standing indicators that demonstrate countries’ capabilities to develop new

technologies and absorb these technologies across industries and throughout the economy.

Examples of such indicators include business and government R&D expenditure, *New*

*doctorate graduates*, patent application, and adoption of digital technologies. The rationale

behind giving these long-standing EIS indicators a resilience-based interpretation rests

on the assumption that higher rates of new technology development and adoption help

industries and economies to withstand geopolitical shocks easier. New technologies are

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conducive to faster recovery after the shock, but most importantly, these technologies are

key to adapting to changing geopolitical and geoeconomic realities.

The technology dependency dimension, however, was not at all captured by the existing EIS

indicators. To represent the extent to which EU innovation and industrial ecosystems depend

on knowledge and innovation developed abroad, two new indicators are proposed to be

included in the EIS. One of these indicators is **high-tech imports from partners outside**

**of the EU27 as a share of total high-tech use**42**.** This indicator demonstrates how

much EU27 Member States’ domestic use of high-tech products and services is dependent

on imports of these products and services from outside of the EU. In other words, the

indicator shows the share of high-tech products and services – used by firms, households,

and the government for intermediate or final consumption or for investment (gross fixed

capital formation) – that is supplied by non-EU countries43. This indicator is included in the

EIS indicator framework under *Trade impacts* dimension.

Another indicator is a well-established **Herfindahl-Hirschman Index (HHI) of non-EU**

**imports**. Calculated for high-tech goods44, this index shows how much EU27 Member States’

imports of these goods from outside of the EU are concentrated. The HHI complements

the first indicator by showing to what extent EU27 Member States rely for their high-tech

imports on a limited number of partners and sheds light on how vulnerable these imports

could become in an event of geopolitical shocks. This indicator is included among structural

indicators under the Economy dimension.

The two indicators newly included in the EIS build on the fact that high-tech products are

essential in all advanced economies. As they are used for a variety of purposes, having a

reliable supply of them is no less important. High-tech products rely on cutting edge science

and technology and require diverse skills and other resources. This means that no single

country can produce all what it needs; it must import at least some of them from other

countries. In a globalised and liberalised economy, this is not a problem as this not only

grants access to global supplies but also is considered as a source of efficiency.

The liberal global order, however, can be vulnerable to fragmentation because of various

types of tensions coming from supply chain disruptions due to natural disasters, scarcity of

natural resources or increasing geopolitical tensions between global powers. Many of these

42 While the study conceptually links resilience to deep-tech dependency, due to data availability issues, the selected indicators proxy deep-tech with

high-tech as the best available alternative. To represent deep-tech most closely, the operationalisation of high-tech includes products and services

and follows the Eurostat’s definitions of high-tech manufacturing and high-tech services (based on Nace rev. 2 2-digit level) to include: basic

pharmaceutical products and pharmaceutical preparations (C21); computer, electronic and optical products (C26); motion picture, video and television

programme production services, sound recording and music publishing; programming and broadcasting services (J59\_60); telecommunications

services (J61); computer programming, consultancy and related services; Information services (J62\_63); and scientific research and development

services (M72

43 See the EIS 2025 methodology report available at: https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/europeaninnovation-

scoreboard\_en

44 Unfortunately, existing trade statistical databases, which covers all trade partners, which is an essential condition for calculating HHI, do not include

services.

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trends are present currently. The two indicators aim at raising awareness of policy makers

about potential vulnerabilities EU27 Member States (and non-EU countries included in the

EIS) might face in the domain of accessing high-tech products and services from outside of

the EU. The indicators show this by identifying a share of high-tech products that a country

needs to import from non-EU countries to satisfy its domestic needs and how concentrated

these imports are.

Vulnerability, however, should not be equalled to resilience. Higher vulnerability does not

mean lower resilience and vice versa. Thus, higher indicators values do not suggest lower

resilience but that the country has strong import dependencies, which in a case of external

disruptions can become a source of potential vulnerability and internal disruptions. This

might hit strategic industrial and R&I ecosystems especially hard because they strongly rely

on high-tech products and services for their performance. To avoid these risks, the country

might take resilience into consideration more seriously and possibly consider reducing

import dependencies and/or concentration by higher diversification of partner countries,

finding supplies within the EU (or EFTA) or engaging in initiatives (also possibly together

with other EU countries) in developing some high-tech products and services domestically.

If successful, these actions will reduce import dependencies and lead to higher resilience of

strategic industrial and R&I ecosystems to shocks to global supply chains or international

trade.

5.3 Dependency of EIS countries on high-tech imports

Figure 42 below presents values of both indicators for EIS countries for 2022, the latest

available data. Columns demonstrate data on high-tech imports from partners outside

of the EU27 as a share of total high-tech use. For better complementarity with the

HHI indicator, the columns are split into goods and services. Markers show the HHI of

concentration of high-tech imports of goods45. The interpretation of the HHI is as follows:

values bellow 0.1 show low concentration (high diversification), values between 0.1 and

0.25 show moderate concentration, and values above 0.25 are a sign of high concentration

and strong dependency.

The figure shows that EIS countries exhibit a large variation in shares of high-tech imports

with some of them having values as high as around 50% and others as low as around 10%.

This suggests that some countries for the domestic use are more dependent on imports of

high-tech goods and services from outside the EU than others. While Croatia and Lithuania

have the lowest shares of only around 9 and 10% respectively, a completely different

situation exists in Ireland and Cyprus, each of which in 2022 imported around 50% of hightech

goods and services needed for their domestic use.

A deeper look into what these imports are, where they come from and for what purpose

45 Calculating HHI for high-tech services is not possible due to a lack of relevant data.

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they are used reveals more detail. The largest Ireland’s high-tech imports dependency is

on scientific research and development services imported from the USA. These imports

are solely used for gross fixed capital formation suggesting their key importance for Irish

knowledge- and technology-intense industries, while disruptions in these imports would be

especially harmful. A different situation exists in Cyprus. Here, the largest import dependency

is on computer programming, consultancy and related services from the Rest of the World,

a somewhat unexpected result because in the FIGARO database, this group mostly consists

of smaller developing economies. These imports are used as intermediary inputs mostly

in two sectors: in computer programming, consultancy and information service activities

and in publishing activities, which, given the explanation above, also suggests that the

destination of these imports are local subsidiaries of Israel-based parent firms.

Slovenia is yet another case with large high-tech import dependency but of a different

composition. It imports almost 39% of high-tech products used domestically but with goods

making four fifth of them. Furthermore, 66% of these goods are basic pharmaceutical

products and pharmaceutical preparations used for household consumption and as

intermediate inputs for further processing in the pharma industry. These goods are mostly

imported from two countries, China and Switzerland.

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Figure 42: Shares and concentration of non-EU imports in EU and neighbouring countries.

*Source: Eurostat FIGARO*

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0.1 0.2 0.3 0.4 0.5 0.6

Croatia

Lithuania

Romania

France

Denmark

Italy

Portugal

Sweden

Belgium

Bulgaria

United Kingdom

Latvia

Austria

Finland

Greece

Luxembourg

Spain

Norway

Germany

Malta

Netherlands

Poland

Hungary

Estonia

Czechia

Slovakia

Switzerland

Türkiye

Slovenia

Cyprus

Ireland

0 10 20 30 40 50 60

HHI of non-EU high-tech imports of GOODS

% of total high-tech use

I HHI of non-EU high-tech imports of GOODS

Non-EU high-tech imports of SERVICES as % of total high-tech use

Non-EU high-tech imports of GOODS as % of total high-tech use

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Some other Central Eastern European Members States, such as Czechia, Hungary, Poland

and Slovakia also exhibit a trend to be more dependent on high-tech goods rather than on

services. In contrast to Slovenia, in these countries, the largest dependency in 2022 was

on computer, electronic and optical products mostly used as intermediary inputs in the

electronics industry, for gross fixed capital formation and for household consumption. A

similar trend of being dependent on imports of computer, electronic and optical products

is observable in Germany too. Here, however, they were much less used as intermediary

inputs in the electronics industry and more as accumulation of inventories.

The data on concentration of non-EU imports of high-tech goods adds more nuances to

the picture. Again, the variation of the index between the countries is large; however, it is

only weakly correlated with the share of non-EU imports indicator. For EIS countries, values

of the HHI range from around 0.15 in Slovakia, Finland, Germany and Austria to around

0.3 in Cyprus, Slovenia, Turkiye, the Netherlands, Malta, Lithuania and Croatia to 0.5 and

above in Czechia and Greece. In general, the data tells that in EIS countries, imports of

high-tech goods from non-EU countries tend to be highly concentrated. No countries have

HHI values below 0.1, a threshold for well diversified imports. Roughly half of the countries

have moderate levels of concentration, not exceeding 0.25, while imports in the other half

are highly concentrated and exceed the value of 0.25.

In countries with high imports concentration, China is the sole individual import partner

responsible for most of it. For example, in 2022 Greece imported from China 74% of its

imported high-tech goods, while no other import partner accounted for more than 7% of

imports. Similarly, in Czechia, 70% of high-tech goods came from China, while no other

country exceeded 6%.

Nevertheless, it cannot be excluded that the concentration patterns displayed by Greece

and Czechia are a result of other factors beyond pure dependencies of their respective

economies. For example, Greek ports may play the role of major entry points in the EU for

Chinese imports, fostered by the operational control of some of these infrastructures by

Chinese companies.

In contrast, countries with lower levels of import concentration have achieved this by

counterbalancing the importance of China with larger import values from other countries.

For example, the concentration in Germany is lower because 90% of its imports come from

11 partners, among which China makes only 29%. Austria demonstrates a similar situation

with only 17% of its high-tech imports originating in China.

Some exceptions from China’s dominant role in high concentration of imports also exist.

These are Ireland, Malta and Latvia. The dominant Ireland’s high-tech goods import partner

in 2022 was the USA making almost 48% share. Most of these imports were comprised

of basic pharmaceutical products and pharmaceutical preparations and were used as

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intermediate inputs for further processing. While goods comprised only a small fraction of

Malta’s high-tech imports, around 53% of them came from Canada and mostly included

computer, electronic and optical products. In Latvia, imports of high-tech goods made a

much larger share in its total high-tech imports but otherwise the situation was similar

with 41% of these imports originating from Canada and computer, electronic and optical

products dominating.

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**6. COUNTRY**

**PROFILES**

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**Country:**

**ALBANIA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **37.9**

Change vs 2018: ▲ +7.4 Change vs 2024: ▲ +4.4

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 37.9 35 7.4 4.4**

**Human resources 36.5 34 28.2 10.7**

New doctorate graduates 21.6 34 11.6 11.6

Population with tertiary education 78 27 68.5 10.8

Population involved in lifelong learning 9.2 36 9.6 9.6

**Attractive research systems 25.6 38 -1.6 -6.2**

International scientific co-publications 6.1 38 8.3 0

Scientific publications among the top 10% most cited 45.2 30 13.3 17.3

Foreign doctorate students as a % of all doctorate students 13.7 35 -43.1 -62.9

**Digitalisation 13.1 36 18.8 18.8**

High speed internet access N/A N/A N/A

Individuals with above basic overall digital skills 16.1 34 16.7 16.7

**Finance and support 2.1 38 0 0**

R&D expenditure in the public sector 1.7 38 0 0

Venture capital expenditures N/A N/A N/A

Direct and indirect government support of business R&D N/A N/A N/A

**Firm investments 7 38 0.4 0**

R&D expenditure in the business sector 2.1 36 0.7 0

Non-R&D innovation expenditures 16.5 35 0 0

Innovation expenditures per person employed N/A N/A N/A

**Investments in information technologies 20.9 37 5 5**

Cloud Computing 34.7 31 0 0

Employed ICT specialists 5.9 38 6.8 6.8

**Innovators 89.8 26 33.5 33.5**

SMEs introducing product innovations 102.3 25 12.8 12.8

SMEs introducing business process innovations 80 25 53.5 53.5

**Linkages 40 34 -13.8 0**

Innovative SMEs collaborating with others 69.1 28 -27.5 0

Public-private co-publications 5.1 38 4.7 0

Job-to-job mobility of HRST N/A N/A N/A

**Intellectual assets 16.2 37 4.9 3.4**

PCT patent applications 24.2 38 10.9 4.9

Trademark applications 7.7 38 -8.5 5.8

Design applications 13.1 31 8.2 -0.1

**Sales and employment impacts 136.8 3 0 0**

Sales of new-to-market and new-to-firm innovations 195.4 1 0 0

Employment in innovative enterprises 85.6 22 0 0

**Trade impacts 0.5 39 -2.8 -1.9**

Exports of medium and high-tech products 0 37 0 0

Knowledge-intensive services exports 0.9 39 -6 -4.2

High-tech imports from partners outside the EU N/A N/A N/A

**Resource and labour productivity 77 20 15.2 -0.3**

Resource productivity 42.9 29 37 0

Production-based CO₂ productivity 94.4 21 -10.8 -0.8

Labour productivity N/A N/A N/A

Albania ranks 35th among

the EU and neighbouring

countries.

**Relative strengths**

• Sales of new-to-market and

new-to-firm innovations

• SMEs introducing product

innovations

• Production-based CO₂

productivity

**Relative weaknesses**

• Exports of medium and hightech

products

• Knowledge-intensive services

exports

• R&D expenditure in the

public sector

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• Sales of new-to-market and

new-to-firm innovations

• Production-based CO₂

productivity

• Employment in innovative

enterprises

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• Knowledge-intensive services

exports

• R&D expenditure in the

public sector

• Public-private co-publications

**Strong increases since 2018**

• Population with tertiary

education

• SMEs introducing business

process innovations

• Resource productivity

**Strong decreases since**

**2018**

• Foreign doctorate students

as a % of all doctorate students

• Innovative SMEs

collaborating with others

• Production-based CO₂

productivity

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

*the reference years differ between the*

*first column (2025) and the last two*

*columns (2018), scores cannot be*

*directly compared or subtracted across*

*columns. For a complete overview, refer*

*to the published country profiles.*

European Innovation Scoreboard 2025 111

**Country:**

**AUSTRIA Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **114**

Change vs 2018: ▲ +8.2 Change vs 2024: ▼ -4.0

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 114.0 8 8.2 -4.0**

**Human resources 109.8 12 6.1 -2.4**

New doctorate graduates 100.0 9 -11.6 -11.6

Population with tertiary education 100.0 15 11.3 4.0

Population involved in lifelong learning 131.5 8 28.8 4.8

**Attractive research systems 154.1 8 32.3 4.9**

International scientific co-publications 182.9 8 68.7 16.7

Scientific publications among the top 10% most cited 112.3 10 -5.7 -1.0

Foreign doctorate students as a % of all doctorate students 192.8 4 81.7 7.6

**Digitalisation 96.9 14 66.1 15.3**

High speed internet access 81.0 24 156.7 42.0

Individuals with above basic overall digital skills 120.2 10 -5.5 -5.5

**Finance and support 121.1 7 6.8 -17.9**

R&D expenditure in the public sector 148.3 2 15.3 6.8

Venture capital expenditures 38.6 16 -8.3 -52.7

Direct and indirect government support of business R&D 145.3 4 3.5 -31.8

**Firm investments 111.2 7 -1.6 -0.2**

R&D expenditure in the business sector 153.8 3 5.2 6.0

Non-R&D innovation expenditures 60.5 20 -28.0 -13.9

Innovation expenditures per person employed 101.2 10 14.1 5.7

**Investments in information technologies 105.2 14 85.0 14.2**

Cloud Computing 103.0 14 241.2 49.8

Employed ICT specialists 107.7 9 23.4 0.0

**Innovators 116.5 9 -16.4 -12.6**

SMEs introducing product innovations 115.1 10 -24.5 -12.4

SMEs introducing business process innovations 117.5 5 -8.7 -13.1

**Linkages 177.3 6 21.0 -6.5**

Innovative SMEs collaborating with others 149.6 7 -49.8 19.2

Public-private co-publications 395.5 4 123.5 1.8

Job-to-job mobility of HRST 110.4 11 32.4 -32.4

**Intellectual assets 135.2 1 -23.5 -14.8**

PCT patent applications 123.4 6 -14.9 -4.5

Trademark applications 130.6 6 -3.5 -14.1

Design applications 157.9 2 -48.4 -27.2

**Sales and employment impacts 99.8 13 -20.5 -20.1**

Sales of new-to-market and new-to-firm innovations 79.2 17 -20.4 -23.6

Employment in innovative enterprises 117.8 8 -20.7 -16.7

**Trade impacts 70.7 13 -7.2 -5.3**

Exports of medium and high-tech products 91.5 7 0.3 4.3

Knowledge-intensive services exports 51.5 21 6.0 -2.8

High-tech imports from partners outside the EU 67.1 15 -26.9 -17.5

**Resource and labour productivity 111.0 12 28.9 13.4**

Resource productivity 103.6 10 39.4 30.0

Production-based CO₂ productivity 101.2 14 39.5 7.8

Labour productivity 136.4 10 6.1 -0.3

Austria ranks 8th among EU

Member States, and 11th

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• Foreign doctorate students

as a % of all doctorate students

• International scientific copublications

**Relative weaknesses**

• Venture capital expenditures

• Knowledge-intensive services

exports

• Non-R&D innovation

expenditures

**Highest ranked indicators**

**among EU Member States**

• Design applications

• R&D expenditure in the

public sector

• R&D expenditure in the

business sector

**Lowest ranked indicators**

**among EU Member States**

• High speed internet access

• Knowledge-intensive services

exports

• Non-R&D innovation

expenditures

**Strong increases since 2018**

• Cloud Computing

• High speed internet access

• Public-private co-publications

**Strong decreases since**

**2018**

• Innovative SMEs

collaborating with others

• Design applications

• Non-R&D innovation

expenditures

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

*the reference years differ between the*

*first column (2025) and the last two*

*columns (2018), scores cannot be directly*

*compared or subtracted across columns.*

*For a complete overview, refer to the*

*published country profiles.*

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**Country:**

**BOSNIA & HERZEGOVINA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **25.7**

Change vs 2018: ▲ +6.1 Change vs 2024: ▲ +3.0

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 25.7 38 6.1 3**

**Human resources 8 39 -0.4 -0.4**

New doctorate graduates 13.6 37 4 0

Population with tertiary education 1.7 38 -2.6 0.7

Population involved in lifelong learning 8.5 37 -4.8 -1.9

**Attractive research systems 27.2 37 -1.6 4.9**

International scientific co-publications 21.6 35 16.3 0

Scientific publications among the top 10% most cited 27.2 36 -9 6.1

Foreign doctorate students as a % of all doctorate students N/A N/A N/A

**Digitalisation 9.9 37 7.4 7.4**

High speed internet access N/A N/A N/A

Individuals with above basic overall digital skills 12.3 36 6.8 6.8

**Finance and support 0 39 0 0**

R&D expenditure in the public sector 0 39 0 0

Venture capital expenditures 0 37 0 0

Direct and indirect government support of business R&D 0 36 0 0

**Firm investments 0.9 39 0 0**

R&D expenditure in the business sector 2.1 36 0 0

Non-R&D innovation expenditures 0 37 0 0

Innovation expenditures per person employed 0.5 34 0 0

**Investments in information technologies 33.7 35 45.7 33.7**

Cloud Computing 36.1 30 101.6 96.8

Employed ICT specialists 31 35 23.4 8.8

**Innovators 116.9 12 0 0**

SMEs introducing product innovations 167.2 5 0 0

SMEs introducing business process innovations 77.4 26 0 0

**Linkages 16.5 37 7.2 0**

Innovative SMEs collaborating with others N/A N/A N/A

Public-private co-publications 29.8 34 11.4 0

Job-to-job mobility of HRST N/A N/A N/A

**Intellectual assets 10.9 39 3.7 -1**

PCT patent applications 23.3 39 7.4 -2.7

Trademark applications 1.7 39 1.7 0

Design applications 1.1 37 0.7 0

**Sales and employment impacts 73.6 28 0 0**

Sales of new-to-market and new-to-firm innovations 70.6 23 0 0

Employment in innovative enterprises 76.1 25 0 0

**Trade impacts 18.3 37 12.4 3.3**

Exports of medium and high-tech products 29.6 33 18.2 6.6

Knowledge-intensive services exports 5.9 38 6.1 -0.5

High-tech imports from partners outside the EU N/A N/A N/A

**Resource and labour productivity 18.5 37 16.5 3.9**

Resource productivity 24.8 31 19.1 6.9

Production-based CO₂ productivity 7.9 38 12.5 0

Labour productivity N/A N/A N/A

Bosnia & Herzegovina ranks

38th among the EU and

neighbouring countries.

**Relative strengths**

• SMEs introducing product

innovations

• SMEs introducing business

process innovations

• Employment in innovative

enterprises

**Relative weaknesses**

• R&D expenditure in the

public sector

• Venture capital expenditures

• Direct and indirect

government support of

business R&D

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• SMEs introducing product

innovations

• Sales of new-to-market and

new-to-firm innovations

• Employment in innovative

enterprises

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• R&D expenditure in the

public sector

• Trademark applications

• PCT patent applications

**Strong increases since 2018**

• Cloud Computing

• Employed ICT specialists

• Resource productivity

**Strong decreases since**

**2018**

• Scientific publications among

the top 10% most cited

• Population involved in

lifelong learning

• Population with tertiary

education

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*compared or subtracted across columns.*

*For a complete overview, refer to the*

*published country profiles.*

European Innovation Scoreboard 2025 113

**Country:**

**BELGIUM Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **122.6**

Change vs 2018: ▲ +11.7 Change vs 2024: ▼ -0.9

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 122.6 6 11.7 -0.9**

**Human resources 120.5 11 -0.4 1.5**

New doctorate graduates 113.1 8 0.0 0.0

Population with tertiary education 137.3 10 -1.3 4.6

Population involved in lifelong learning 110.8 13 0.0 0.0

**Attractive research systems 137.1 9 -27.6 2.6**

International scientific co-publications 178.2 9 54.6 16.9

Scientific publications among the top 10% most cited 124.1 7 -22.0 -3.0

Foreign doctorate students as a % of all doctorate students 116.7 15 -117.9 0.9

**Digitalisation 119.1 9 47.6 30.4**

High speed internet access 129.2 5 96.7 58.0

Individuals with above basic overall digital skills 104.0 13 8.6 8.6

**Finance and support 141.7 2 32.9 -10.6**

R&D expenditure in the public sector 121.7 6 11.9 0.0

Venture capital expenditures 128.3 10 52.0 -51.9

Direct and indirect government support of business R&D 174.4 3 50.5 -2.3

**Firm investments 143.1 3 16.6 -1.8**

R&D expenditure in the business sector 160.7 1 47.0 0.0

Non-R&D innovation expenditures 97.1 8 -1.9 -6.1

Innovation expenditures per person employed 154.0 1 2.0 0.0

**Investments in information technologies 117.0 9 55.7 3.3**

Cloud Computing 116.5 11 190.4 -10.4

Employed ICT specialists 117.9 8 2.9 8.8

**Innovators 160.9 2 47.5 -0.2**

SMEs introducing product innovations 160.2 2 15.3 12.4

SMEs introducing business process innovations 161.7 2 78.7 -12.3

**Linkages 176.8 7 30.1 5.4**

Innovative SMEs collaborating with others 226.2 2 55.5 28.6

Public-private co-publications 277.7 8 71.5 12.7

Job-to-job mobility of HRST 93.8 18 -11.8 -17.6

**Intellectual assets 90.6 14 -13.1 -7.1**

PCT patent applications 107.2 8 -11.7 -4.8

Trademark applications 91.0 21 -9.8 -9.4

Design applications 64.2 17 -17.4 -8.6

**Sales and employment impacts 122.8 6 -8.9 -20.7**

Sales of new-to-market and new-to-firm innovations 83.1 16 -25.1 -36.7

Employment in innovative enterprises 157.1 1 7.0 -5.1

**Trade impacts 69.5 15 -9.4 -0.8**

Exports of medium and high-tech products 76.9 13 5.0 2.3

Knowledge-intensive services exports 96.0 9 5.0 0.9

High-tech imports from partners outside the EU 36.8 23 -37.1 -5.4

**Resource and labour productivity 127.6 8 38.4 3.1**

Resource productivity 142.7 7 54.8 -3.5

Production-based CO₂ productivity 92.8 17 52.3 12.7

Labour productivity 155.9 5 6.2 0.9

Belgium ranks 6th among EU

Member States, and 8th

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• Innovative SMEs

collaborating with others

• International scientific copublications

**Relative weaknesses**

• High-tech imports from

partners outside the EU

• Design applications

• Exports of medium and hightech

products

**Highest ranked indicators**

**among EU Member States**

• R&D expenditure in the

business sector

• Employment in innovative

enterprises

• Innovation expenditures per

person employed

**Lowest ranked indicators**

**among EU Member States**

• High-tech imports from

partners outside the EU

• Trademark applications

• Job-to-job mobility of HRST

**Strong increases since 2018**

• Cloud Computing

• High speed internet access

• SMEs introducing business

process innovations

**Strong decreases since**

**2018**

• Foreign doctorate students

as a % of all doctorate students

• High-tech imports from

partners outside the EU

• Sales of new-to-market and

new-to-firm innovations

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

114 European Innovation Scoreboard 2025

**Country:**

**BULGARIA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **45.8**

Change vs 2018: ▲ +6.3 Change vs 2024: ▼ -2.2

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 45.8 26 6.3 -2.2**

**Human resources 46.7 26 -4.8 5.0**

New doctorate graduates 47.7 21 -11.6 11.6

Population with tertiary education 79.7 19 0.0 0.0

Population involved in lifelong learning 10.0 27 0.0 0.0

**Attractive research systems 32.3 27 14.8 2.3**

International scientific co-publications 28.9 26 11.8 1.8

Scientific publications among the top 10% most cited 21.7 27 6.2 -1.3

Foreign doctorate students as a % of all doctorate students 52.4 21 36.8 10.6

**Digitalisation 76.0 24 33.6 4.2**

High speed internet access 116.6 9 76.7 9.8

Individuals with above basic overall digital skills 16.0 27 -0.4 -0.4

**Finance and support 20.3 24 6.0 4.0**

R&D expenditure in the public sector 26.7 24 13.6 6.8

Venture capital expenditures 35.4 19 5.2 4.4

Direct and indirect government support of business R&D 2.2 26 -3.4 0.0

**Firm investments 34.8 25 -5.5 -1.1**

R&D expenditure in the business sector 32.4 21 -3.7 0.0

Non-R&D innovation expenditures 65.8 19 -18.2 -7.8

Innovation expenditures per person employed 18.3 25 3.6 3.7

**Investments in information technologies 57.5 25 48.2 17.3**

Cloud Computing 28.0 27 88.5 38.6

Employed ICT specialists 89.8 19 32.2 8.8

**Innovators 31.0 26 3.5 -36.6**

SMEs introducing product innovations 49.3 24 12.8 -39.0

SMEs introducing business process innovations 16.7 26 -5.2 -34.3

**Linkages 31.2 26 14.9 -6.5**

Innovative SMEs collaborating with others 40.9 26 25.7 -18.7

Public-private co-publications 46.9 26 27.5 2.0

Job-to-job mobility of HRST 16.7 25 0.0 0.0

**Intellectual assets 97.7 12 -13.8 -0.5**

PCT patent applications 38.1 26 -7.2 1.4

Trademark applications 127.6 7 16.8 -0.9

Design applications 157.1 3 -44.0 -2.4

**Sales and employment impacts 25.0 26 -13.5 -31.6**

Sales of new-to-market and new-to-firm innovations 26.2 25 -17.6 -29.4

Employment in innovative enterprises 24.0 26 -9.2 -33.5

**Trade impacts 58.6 19 8.5 -1.9**

Exports of medium and high-tech products 42.0 25 4.7 -3.2

Knowledge-intensive services exports 65.5 13 21.7 -0.8

High-tech imports from partners outside the EU 69.3 14 0.6 -1.2

**Resource and labour productivity 26.4 27 22.2 12.6**

Resource productivity 13.5 26 18.6 4.6

Production-based CO₂ productivity 50.7 26 43.1 33.5

Labour productivity 9.7 27 5.9 1.2

Bulgaria ranks 26th among EU

Member States, and 32nd

among the EU and

neighbouring countries.

**Relative strengths**

• Design applications

• Trademark applications

• High speed internet access

**Relative weaknesses**

• Direct and indirect

government support of

business R&D

• Labour productivity

• Population involved in

lifelong learning

**Highest ranked indicators**

**among EU Member States**

• Design applications

• Trademark applications

• High speed internet access

**Lowest ranked indicators**

**among EU Member States**

• Labour productivity

• Population involved in

lifelong learning

• Individuals with above basic

overall digital skills

**Strong increases since 2018**

• Cloud Computing

• High speed internet access

• Production-based CO₂

productivity

**Strong decreases since**

**2018**

• Design applications

• Non-R&D innovation

expenditures

• Sales of new-to-market and

new-to-firm innovations

***Footnote:*** *Performance changes are*

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*published country profiles.*

European Innovation Scoreboard 2025 115

**Country:**

**SWITZERLAND Innovation Leader ●**

Summary innovation index (indexed to EU in 2025): **139.8**

Change vs 2018: ▼ -1.7 Change vs 2024: ▼ -1.6

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 139.8 1 -1.7 -1.6**

**Human resources 176.4 1 6.6 -4.4**

New doctorate graduates 191.5 1 0 0

Population with tertiary education 139 12 -8.6 -6

Population involved in lifelong learning 199.2 6 34.6 -9.6

**Attractive research systems 219.8 1 -3.1 -1**

International scientific co-publications 279.7 1 0 0

Scientific publications among the top 10% most cited 148 3 -15.4 -3.3

Foreign doctorate students as a % of all doctorate students 275.2 1 21.3 3.3

**Digitalisation 137.3 8 20.2 9.5**

High speed internet access 117.8 11 32.5 8.2

Individuals with above basic overall digital skills 165.9 6 10.8 10.8

**Finance and support 92.6 14 12.8 -1.1**

R&D expenditure in the public sector 135 4 -1.7 0

Venture capital expenditures 127.6 12 70.9 -5.9

Direct and indirect government support of business R&D 18.4 26 0.5 0

**Firm investments 170.8 1 14.8 0**

R&D expenditure in the business sector 152.4 4 14.2 0

Non-R&D innovation expenditures N/A N/A N/A

Innovation expenditures per person employed N/A N/A N/A

**Investments in information technologies 113.1 12 8.6 0**

Cloud Computing N/A N/A N/A

Employed ICT specialists 117.9 8 5.9 0

**Innovators 112.5 14 -25.7 0**

SMEs introducing product innovations 166.8 6 25.5 0

SMEs introducing business process innovations 69.8 30 -75.3 0

**Linkages 193.1 5 11.6 2.5**

Innovative SMEs collaborating with others 75.7 22 0 0

Public-private co-publications 484.2 1 0 0

Job-to-job mobility of HRST 170.8 5 26.5 5.9

**Intellectual assets 137.5 1 -25.7 -6.6**

PCT patent applications 160 1 0 0

Trademark applications 125.3 8 -14.9 -9.1

Design applications 115.8 7 -64.1 -12.5

**Sales and employment impacts 136.6 4 -4.3 0**

Sales of new-to-market and new-to-firm innovations 171.8 4 54.2 0

Employment in innovative enterprises 105.9 17 -61 0

**Trade impacts 70.1 17 -8.4 -5.3**

Exports of medium and high-tech products 68.8 20 -8.7 -1.8

Knowledge-intensive services exports 93.4 12 -2.2 3.7

High-tech imports from partners outside the EU 49.3 21 -13.8 -17.1

**Resource and labour productivity 190.5 1 7.2 0**

Resource productivity 170.3 1 0 0

Production-based CO₂ productivity 173 1 3.1 0

Labour productivity 246.5 3 19.5 0

Switzerland ranks 1st

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• International scientific copublications

• Foreign doctorate students

as a % of all doctorate students

**Relative weaknesses**

• Direct and indirect

government support of

business R&D

• High-tech imports from

partners outside the EU

• Exports of medium and hightech

products

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• Public-private co-publications

• International scientific copublications

• Foreign doctorate students

as a % of all doctorate students

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• SMEs introducing business

process innovations

• Direct and indirect

government support of

business R&D

• Innovative SMEs

collaborating with others

**Strong increases since 2018**

• Venture capital expenditures

• Sales of new-to-market and

new-to-firm innovations

• Population involved in

lifelong learning

**Strong decreases since**

**2018**

• SMEs introducing business

process innovations

• Design applications

• Employment in innovative

enterprises

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*columns. For a complete overview, refer*

*to the published country profiles.*

116 European Innovation Scoreboard 2025

**Country:**

**CYPRUS**

**Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **84.1**

Change vs 2018: ▲ +17.6 Change vs 2024: ▼ -14.6

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 84.1 17 17.6 -14.6**

**Human resources 101.2 15 11.4 -2.4**

New doctorate graduates 34.7 23 11.6 0.0

Population with tertiary education 190.4 3 8.6 -9.9

Population involved in lifelong learning 82.3 17 14.4 2.9

**Attractive research systems 165.0 5 76.0 10.9**

International scientific co-publications 241.1 3 167.6 10.6

Scientific publications among the top 10% most cited 116.3 9 9.0 -10.7

Foreign doctorate students as a % of all doctorate students 168.0 8 137.0 59.8

**Digitalisation 94.3 16 93.0 34.8**

High speed internet access 97.1 18 187.9 56.1

Individuals with above basic overall digital skills 89.9 18 17.9 17.9

**Finance and support 19.9 25 -2.4 -8.2**

R&D expenditure in the public sector 28.3 23 3.4 -1.7

Venture capital expenditures 13.0 25 -45.9 -38.7

Direct and indirect government support of business R&D 14.7 22 13.2 -0.2

**Firm investments 35.9 24 -3.1 -8.2**

R&D expenditure in the business sector 16.6 27 6.7 -0.7

Non-R&D innovation expenditures 83.1 12 -19.3 -19.6

Innovation expenditures per person employed 25.8 24 1.3 -5.9

**Investments in information technologies 110.2 10 110.3 -6.4**

Cloud Computing 119.7 10 308.8 21.6

Employed ICT specialists 100.0 14 32.2 -17.6

**Innovators 99.0 15 32.8 -82.0**

SMEs introducing product innovations 108.9 13 40.0 -61.3

SMEs introducing business process innovations 91.3 15 25.8 -102.0

**Linkages 164.3 10 87.7 -76.8**

Innovative SMEs collaborating with others 74.1 17 4.1 -223.9

Public-private co-publications 316.2 7 212.0 8.4

Job-to-job mobility of HRST 177.1 3 100.0 8.8

**Intellectual assets 101.8 11 -25.5 -14.5**

PCT patent applications 54.6 18 0.9 -0.6

Trademark applications 233.0 1 0.0 0.0

Design applications 36.0 21 -76.2 -42.1

**Sales and employment impacts 75.0 19 0.6 -52.5**

Sales of new-to-market and new-to-firm innovations 84.2 15 -12.8 -25.5

Employment in innovative enterprises 67.0 18 13.6 -78.8

**Trade impacts 50.9 24 -25.6 -7.4**

Exports of medium and high-tech products 45.9 23 -38.9 -18.0

Knowledge-intensive services exports 109.7 4 13.6 -4.5

High-tech imports from partners outside the EU 0.7 27 -47.5 0.7

**Resource and labour productivity 60.6 22 15.2 3.6**

Resource productivity 60.1 19 9.5 13.9

Production-based CO₂ productivity 54.7 24 27.6 -5.5

Labour productivity 70.1 13 9.6 1.0

Cyprus ranks 17th among EU

Member States, and 21st

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• International scientific copublications

• Trademark applications

**Relative weaknesses**

• High-tech imports from

partners outside the EU

• Venture capital expenditures

• Direct and indirect

government support of

business R&D

**Highest ranked indicators**

**among EU Member States**

• Trademark applications

• International scientific copublications

• Population with tertiary

education

**Lowest ranked indicators**

**among EU Member States**

• High-tech imports from

partners outside the EU

• R&D expenditure in the

business sector

• Venture capital expenditures

**Strong increases since 2018**

• Cloud Computing

• Public-private co-publications

• High speed internet access

**Strong decreases since**

**2018**

• Design applications

• High-tech imports from

partners outside the EU

• Venture capital expenditures

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

European Innovation Scoreboard 2025 117

**Country:**

**CZECHIA Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **80.6**

Change vs 2018: ▲ +16.3 Change vs 2024: ▼ -8.4

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 80.6 19 16.3 -8.4**

**Human resources 73.6 20 9.8 1.8**

New doctorate graduates 100.0 9 0.0 0.0

Population with tertiary education 40.1 24 -9.3 -1.3

Population involved in lifelong learning 79.2 19 48.1 8.7

**Attractive research systems 86.9 18 33.9 6.0**

International scientific co-publications 102.4 14 42.2 11.0

Scientific publications among the top 10% most cited 53.2 22 13.4 2.9

Foreign doctorate students as a % of all doctorate students 125.3 14 71.4 8.4

**Digitalisation 85.6 18 58.9 24.4**

High speed internet access 52.0 26 69.5 -8.9

Individuals with above basic overall digital skills 135.0 8 50.9 50.9

**Finance and support 63.7 18 1.5 -21.0**

R&D expenditure in the public sector 85.0 13 -1.7 -6.8

Venture capital expenditures 37.8 17 46.9 -86.8

Direct and indirect government support of business R&D 56.6 14 -17.9 -4.2

**Firm investments 80.4 12 9.7 -35.0**

R&D expenditure in the business sector 79.3 11 13.4 -1.5

Non-R&D innovation expenditures 105.0 7 -8.9 -68.9

Innovation expenditures per person employed 66.8 13 21.9 -38.7

**Investments in information technologies 96.3 16 65.5 12.0**

Cloud Computing 104.7 12 238.9 27.9

Employed ICT specialists 87.2 21 -2.9 5.9

**Innovators 96.0 18 11.1 -52.5**

SMEs introducing product innovations 103.0 17 7.0 -49.0

SMEs introducing business process innovations 90.4 16 14.9 -56.3

**Linkages 85.3 22 19.9 -10.9**

Innovative SMEs collaborating with others 108.3 11 9.2 -14.2

Public-private co-publications 129.9 18 25.7 -2.0

Job-to-job mobility of HRST 47.9 22 26.5 -11.8

**Intellectual assets 67.8 21 -4.9 -7.5**

PCT patent applications 54.5 19 -8.1 -8.7

Trademark applications 91.4 19 12.7 -3.8

Design applications 63.3 18 -14.0 -8.7

**Sales and employment impacts 94.4 15 1.1 -22.6**

Sales of new-to-market and new-to-firm innovations 109.9 9 6.1 -5.8

Employment in innovative enterprises 80.5 16 -4.0 -38.7

**Trade impacts 88.1 6 11.4 1.3**

Exports of medium and high-tech products 114.7 3 7.3 1.8

Knowledge-intensive services exports 55.8 19 10.1 -1.9

High-tech imports from partners outside the EU 90.7 6 16.8 3.4

**Resource and labour productivity 59.7 23 29.1 8.5**

Resource productivity 79.1 15 41.6 9.5

Production-based CO₂ productivity 51.7 25 39.9 15.1

Labour productivity 41.9 19 4.4 0.7

Czechia ranks 19th among EU

Member States, and 23rd

among the EU and

neighbouring countries.

**Relative strengths**

• Individuals with above basic

overall digital skills

• Public-private co-publications

• Foreign doctorate students

as a % of all doctorate students

**Relative weaknesses**

• Venture capital expenditures

• Population with tertiary

education

• Labour productivity

**Highest ranked indicators**

**among EU Member States**

• Exports of medium and hightech

products

• High-tech imports from

partners outside the EU

• Non-R&D innovation

expenditures

**Lowest ranked indicators**

**among EU Member States**

• High speed internet access

• Production-based CO₂

productivity

• Population with tertiary

education

**Strong increases since 2018**

• Cloud Computing

• Foreign doctorate students

as a % of all doctorate students

• High speed internet access

**Strong decreases since**

**2018**

• Direct and indirect

government support of

business R&D

• Design applications

• Population with tertiary

education

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

118 European Innovation Scoreboard 2025

**Country:**

**GERMANY Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **111.1**

Change vs 2018: ▲ \_t\_o\_ \_g\_e\_o\_p\_+8.7 Change vs 2024: ▼ -2.1

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 111.1 9 8.7 -2.1**

**Human resources 96.3 16 -3.9 -0.9**

New doctorate graduates 139.2 2 -23.1 -11.6

Population with tertiary education 76.3 20 19.9 13.2

Population involved in lifelong learning 68.5 23 0.0 0.0

**Attractive research systems 103.2 15 0.0 1.6**

International scientific co-publications 92.2 16 24.8 6.4

Scientific publications among the top 10% most cited 107.5 11 -11.7 -1.9

Foreign doctorate students as a % of all doctorate students 106.8 16 2.0 3.9

**Digitalisation 82.8 22 60.6 9.0**

High speed internet access 93.1 20 132.1 15.1

Individuals with above basic overall digital skills 67.7 23 4.2 4.2

**Finance and support 92.0 11 13.0 -6.4**

R&D expenditure in the public sector 133.3 4 -1.7 -1.7

Venture capital expenditures 94.5 12 62.0 -33.4

Direct and indirect government support of business R&D 41.9 16 6.7 2.3

**Firm investments 143.4 2 -0.7 -0.7**

R&D expenditure in the business sector 143.4 4 11.2 3.7

Non-R&D innovation expenditures 140.9 3 -15.9 -16.4

Innovation expenditures per person employed 145.0 5 0.3 8.0

**Investments in information technologies 105.8 13 79.4 20.9**

Cloud Computing 104.4 13 252.0 44.3

Employed ICT specialists 107.7 9 11.7 11.7

**Innovators 117.0 8 10.9 -31.0**

SMEs introducing product innovations 105.1 16 -22.2 -41.3

SMEs introducing business process innovations 126.6 4 43.0 -21.0

**Linkages 130.4 11 18.1 -11.2**

Innovative SMEs collaborating with others 88.2 16 31.1 -29.4

Public-private co-publications 188.5 12 33.7 -2.4

Job-to-job mobility of HRST 141.7 6 0.0 0.0

**Intellectual assets 119.3 7 -27.6 -9.2**

PCT patent applications 134.2 4 -14.7 -6.0

Trademark applications 102.3 17 -7.7 -11.2

Design applications 113.8 8 -57.8 -11.4

**Sales and employment impacts 125.3 4 -4.4 -8.5**

Sales of new-to-market and new-to-firm innovations 105.3 10 -7.1 -7.2

Employment in innovative enterprises 142.7 2 -1.7 -9.7

**Trade impacts 104.9 1 -2.6 -0.4**

Exports of medium and high-tech products 109.0 6 -3.5 -2.4

Knowledge-intensive services exports 103.8 7 5.6 5.0

High-tech imports from partners outside the EU 101.6 2 -9.4 -3.2

**Resource and labour productivity 117.4 11 40.7 15.5**

Resource productivity 127.4 9 57.7 22.8

Production-based CO₂ productivity 90.3 18 57.9 22.7

Labour productivity 141.6 7 4.3 -0.2

Germany ranks 9th among EU

Member States, and 13th

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• Innovation expenditures per

person employed

• R&D expenditure in the

business sector

**Relative weaknesses**

• Direct and indirect

government support of

business R&D

• Individuals with above basic

overall digital skills

• Population involved in

lifelong learning

**Highest ranked indicators**

**among EU Member States**

• Employment in innovative

enterprises

• New doctorate graduates

• High-tech imports from

partners outside the EU

**Lowest ranked indicators**

**among EU Member States**

• Individuals with above basic

overall digital skills

• Population involved in

lifelong learning

• Population with tertiary

education

**Strong increases since 2018**

• Cloud Computing

• High speed internet access

• Venture capital expenditures

**Strong decreases since**

**2018**

• Design applications

• New doctorate graduates

• SMEs introducing product

innovations

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

*the reference years differ between the*

*first column (2025) and the last two*

*columns (2018), scores cannot be directly*

*compared or subtracted across columns.*

*For a complete overview, refer to the*

*published country profiles.*

European Innovation Scoreboard 2025 119

**Country:**

**DENMARK**

**Innovation Leader ●**

Summary innovation index (indexed to EU in 2025): **135**

Change vs 2018: ▲ +12.3 Change vs 2024: ▼ -4.9

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 135.0 2 12.3 -4.9**

**Human resources 160.0 3 1.5 -0.4**

New doctorate graduates 126.1 6 -46.2 -11.6

Population with tertiary education 140.1 9 13.9 14.6

Population involved in lifelong learning 220.0 1 64.4 0.0

**Attractive research systems 189.2 2 17.2 2.1**

International scientific co-publications 279.7 1 79.1 0.0

Scientific publications among the top 10% most cited 141.5 3 -13.0 2.3

Foreign doctorate students as a % of all doctorate students 176.3 6 25.8 3.6

**Digitalisation 139.5 2 10.9 6.3**

High speed internet access 131.2 3 13.8 3.0

Individuals with above basic overall digital skills 151.7 4 8.9 8.9

**Finance and support 132.2 4 47.9 -26.9**

R&D expenditure in the public sector 158.3 1 0.0 0.0

Venture capital expenditures 168.7 5 179.2 -143.9

Direct and indirect government support of business R&D 75.9 11 40.1 0.0

**Firm investments 112.8 5 -8.4 -6.2**

R&D expenditure in the business sector 123.4 6 -14.2 5.2

Non-R&D innovation expenditures 77.1 15 1.3 -36.3

Innovation expenditures per person employed 124.3 6 -11.0 8.4

**Investments in information technologies 138.7 6 56.3 2.5**

Cloud Computing 155.9 1 207.4 17.0

Employed ICT specialists 120.4 7 -2.9 -2.9

**Innovators 119.0 7 40.6 -2.7**

SMEs introducing product innovations 132.6 7 39.0 0.0

SMEs introducing business process innovations 108.3 10 42.2 -5.2

**Linkages 189.9 3 -25.7 -32.2**

Innovative SMEs collaborating with others 55.1 22 -67.6 -87.3

Public-private co-publications 484.2 1 51.2 0.0

Job-to-job mobility of HRST 181.2 2 -26.5 0.0

**Intellectual assets 127.0 4 -36.9 -17.0**

PCT patent applications 144.6 3 -7.6 -4.7

Trademark applications 112.2 11 -15.7 -7.3

Design applications 115.2 7 -87.3 -38.9

**Sales and employment impacts 104.4 12 19.6 -5.9**

Sales of new-to-market and new-to-firm innovations 103.7 12 19.9 -16.4

Employment in innovative enterprises 104.6 13 19.1 4.0

**Trade impacts 98.8 2 13.1 6.0**

Exports of medium and high-tech products 78.9 12 8.6 2.0

Knowledge-intensive services exports 128.9 1 39.2 17.1

High-tech imports from partners outside the EU 90.7 6 -5.9 -0.1

**Resource and labour productivity 143.1 3 53.1 12.9**

Resource productivity 69.1 17 28.5 8.0

Production-based CO₂ productivity 173.0 1 116.6 24.5

Labour productivity 209.3 3 18.9 6.9

Denmark ranks 2nd among EU

Member States, and 3rd

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• International scientific copublications

• Population involved in

lifelong learning

**Relative weaknesses**

• Innovative SMEs

collaborating with others

• Resource productivity

• Direct and indirect

government support of

business R&D

**Highest ranked indicators**

**among EU Member States**

• Public-private co-publications

• International scientific copublications

• Population involved in

lifelong learning

**Lowest ranked indicators**

**among EU Member States**

• Innovative SMEs

collaborating with others

• Resource productivity

• Non-R&D innovation

expenditures

**Strong increases since 2018**

• Cloud Computing

• Venture capital expenditures

• Production-based CO₂

productivity

**Strong decreases since**

**2018**

• Design applications

• Innovative SMEs

collaborating with others

• New doctorate graduates

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

120 European Innovation Scoreboard 2025

**Country:**

**ESTONIA Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **104.8**

Change vs 2018: ▲ +30.0 Change vs 2024: ▼ -1.2

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 104.8 11 30.0 -1.2**

**Human resources 120.7 10 21.4 3.5**

New doctorate graduates 100.0 9 23.1 11.6

Population with tertiary education 92.1 18 -3.3 -5.3

Population involved in lifelong learning 175.4 5 47.1 1.0

**Attractive research systems 132.9 11 65.1 -2.6**

International scientific co-publications 160.5 11 74.0 -0.2

Scientific publications among the top 10% most cited 102.1 12 29.8 -7.9

Foreign doctorate students as a % of all doctorate students 155.1 10 134.2 7.3

**Digitalisation 111.2 11 45.9 18.6**

High speed internet access 96.8 19 63.9 2.0

Individuals with above basic overall digital skills 132.3 9 31.9 31.9

**Finance and support 123.4 6 70.6 2.4**

R&D expenditure in the public sector 106.7 7 32.2 0.0

Venture capital expenditures 270.0 1 273.4 0.0

Direct and indirect government support of business R&D 41.9 16 12.9 6.8

**Firm investments 84.5 11 -4.9 -9.5**

R&D expenditure in the business sector 70.3 12 32.1 5.2

Non-R&D innovation expenditures 138.0 4 -46.2 -30.1

Innovation expenditures per person employed 66.1 14 -5.9 -6.0

**Investments in information technologies 144.7 4 103.6 12.8**

Cloud Computing 134.3 8 292.9 8.4

Employed ICT specialists 156.2 4 29.3 14.7

**Innovators 111.9 10 37.3 -15.1**

SMEs introducing product innovations 121.6 8 48.0 12.1

SMEs introducing business process innovations 104.1 12 26.6 -41.8

**Linkages 168.5 9 25.4 -35.5**

Innovative SMEs collaborating with others 165.7 5 -58.1 -64.5

Public-private co-publications 204.5 11 68.4 10.5

Job-to-job mobility of HRST 156.3 4 76.5 -32.4

**Intellectual assets 120.7 6 10.2 -9.2**

PCT patent applications 51.9 20 -9.8 -12.5

Trademark applications 214.3 3 48.8 -7.6

Design applications 127.2 6 5.4 -6.4

**Sales and employment impacts 112.0 10 12.2 -1.8**

Sales of new-to-market and new-to-firm innovations 105.2 11 16.2 22.2

Employment in innovative enterprises 117.8 8 8.3 -25.5

**Trade impacts 54.1 22 10.4 8.2**

Exports of medium and high-tech products 56.4 20 3.3 0.7

Knowledge-intensive services exports 84.9 10 32.9 2.5

High-tech imports from partners outside the EU 22.7 24 -2.6 20.7

**Resource and labour productivity 41.3 26 33.8 7.0**

Resource productivity 24.8 24 22.5 1.0

Production-based CO₂ productivity 57.3 23 75.5 21.7

Labour productivity 42.7 18 6.3 -0.5

Estonia ranks 11th among EU

Member States, and 15th

among the EU and

neighbouring countries.

**Relative strengths**

• Venture capital expenditures

• Trademark applications

• Public-private co-publications

**Relative weaknesses**

• High-tech imports from

partners outside the EU

• Resource productivity

• Direct and indirect

government support of

business R&D

**Highest ranked indicators**

**among EU Member States**

• Venture capital expenditures

• Trademark applications

• Job-to-job mobility of HRST

**Lowest ranked indicators**

**among EU Member States**

• High-tech imports from

partners outside the EU

• Resource productivity

• Production-based CO₂

productivity

**Strong increases since 2018**

• Cloud Computing

• Venture capital expenditures

• Foreign doctorate students

as a % of all doctorate students

**Strong decreases since**

**2018**

• Innovative SMEs

collaborating with others

• Non-R&D innovation

expenditures

• PCT patent applications

***Footnote:*** *Performance changes are*

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*published country profiles.*

European Innovation Scoreboard 2025 121

**Country:**

**GREECE Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **75.8**

Change vs 2018: ▲ +15.3 Change vs 2024: ▼ -2.9

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 75.8 20 15.3 -2.9**

**Human resources 74.4 19 10.5 0.0**

New doctorate graduates 86.9 16 23.1 0.0

Population with tertiary education 102.3 14 2.0 0.0

Population involved in lifelong learning 30.0 26 0.0 0.0

**Attractive research systems 71.0 20 14.1 4.2**

International scientific co-publications 93.2 15 44.1 7.8

Scientific publications among the top 10% most cited 98.2 13 5.1 5.7

Foreign doctorate students as a % of all doctorate students 5.2 27 5.5 -3.0

**Digitalisation 46.5 27 22.7 11.1**

High speed internet access 31.5 27 61.0 34.8

Individuals with above basic overall digital skills 68.7 22 -7.5 -7.5

**Finance and support 71.9 15 36.0 -2.0**

R&D expenditure in the public sector 105.0 8 30.5 0.0

Venture capital expenditures 35.3 20 33.8 -3.0

Direct and indirect government support of business R&D 58.1 13 44.4 -3.8

**Firm investments 74.2 14 13.3 1.1**

R&D expenditure in the business sector 48.3 19 23.9 1.5

Non-R&D innovation expenditures 112.7 6 -13.2 -13.4

Innovation expenditures per person employed 76.1 12 25.9 13.5

**Investments in information technologies 40.0 26 35.4 8.6**

Cloud Computing 43.7 25 117.9 23.5

Employed ICT specialists 36.1 27 2.9 2.9

**Innovators 181.4 1 64.5 -9.5**

SMEs introducing product innovations 203.7 1 80.6 -9.7

SMEs introducing business process innovations 163.9 1 49.0 -9.5

**Linkages 92.8 21 -7.2 -36.2**

Innovative SMEs collaborating with others 103.8 12 -120.0 -79.3

Public-private co-publications 154.0 15 81.4 -4.0

Job-to-job mobility of HRST 58.3 20 47.1 -14.7

**Intellectual assets 52.9 24 -0.3 -6.5**

PCT patent applications 47.0 21 1.9 -6.3

Trademark applications 91.2 20 12.7 -8.1

Design applications 21.4 27 -12.7 -5.4

**Sales and employment impacts 137.3 2 12.0 -25.7**

Sales of new-to-market and new-to-firm innovations 140.8 3 4.8 -24.2

Employment in innovative enterprises 134.1 4 19.0 -27.2

**Trade impacts 53.9 23 -2.3 -0.3**

Exports of medium and high-tech products 19.7 27 7.1 1.8

Knowledge-intensive services exports 63.1 14 3.9 -8.9

High-tech imports from partners outside the EU 80.6 9 -17.5 5.5

**Resource and labour productivity 67.6 21 23.7 12.1**

Resource productivity 84.4 12 17.8 17.8

Production-based CO₂ productivity 69.9 21 53.8 17.6

Labour productivity 38.5 20 1.1 0.5

Greece ranks 20th among EU

Member States, and 24th

among the EU and

neighbouring countries.

**Relative strengths**

• SMEs introducing product

innovations

• SMEs introducing business

process innovations

• Public-private co-publications

**Relative weaknesses**

• Foreign doctorate students

as a % of all doctorate students

• Exports of medium and hightech

products

• Design applications

**Highest ranked indicators**

**among EU Member States**

• SMEs introducing product

innovations

• SMEs introducing business

process innovations

• Sales of new-to-market and

new-to-firm innovations

**Lowest ranked indicators**

**among EU Member States**

• Foreign doctorate students

as a % of all doctorate students

• Exports of medium and hightech

products

• Design applications

**Strong increases since 2018**

• Cloud Computing

• Public-private co-publications

• SMEs introducing product

innovations

**Strong decreases since**

**2018**

• Innovative SMEs

collaborating with others

• High-tech imports from

partners outside the EU

• Non-R&D innovation

expenditures

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

122 European Innovation Scoreboard 2025

**Country:**

**SPAIN**

**Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **92.7**

Change vs 2018: ▲ +13.9 Change vs 2024: ▲ +1.9

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 92.7 15 13.9 1.9**

**Human resources 121.9 8 2.6 1.8**

New doctorate graduates 100.0 9 -23.1 0.0

Population with tertiary education 148.0 8 27.2 4.0

Population involved in lifelong learning 119.2 11 16.3 1.9

**Attractive research systems 90.1 17 12.2 1.0**

International scientific co-publications 91.5 17 34.5 5.8

Scientific publications among the top 10% most cited 88.2 14 -5.5 -0.7

Foreign doctorate students as a % of all doctorate students 91.4 18 29.7 0.4

**Digitalisation 137.4 5 12.1 5.8**

High speed internet access 129.7 4 23.9 9.8

Individuals with above basic overall digital skills 148.6 5 2.6 2.6

**Finance and support 109.4 9 37.1 -2.0**

R&D expenditure in the public sector 88.3 11 18.6 6.8

Venture capital expenditures 133.3 9 87.2 -29.2

Direct and indirect government support of business R&D 117.1 7 34.2 0.9

**Firm investments 62.5 18 9.8 0.5**

R&D expenditure in the business sector 55.2 16 15.7 3.7

Non-R&D innovation expenditures 85.2 10 1.4 -10.5

Innovation expenditures per person employed 56.0 16 11.6 7.0

**Investments in information technologies 75.7 23 39.8 4.2**

Cloud Computing 60.4 23 95.9 -7.2

Employed ICT specialists 92.3 18 17.6 8.8

**Innovators 55.0 21 12.9 -1.6**

SMEs introducing product innovations 62.5 22 34.7 -3.5

SMEs introducing business process innovations 49.1 23 -8.3 0.5

**Linkages 93.9 19 46.7 -1.8**

Innovative SMEs collaborating with others 69.4 20 31.0 20.6

Public-private co-publications 123.6 19 49.1 10.4

Job-to-job mobility of HRST 102.1 14 58.8 -26.5

**Intellectual assets 82.4 17 -9.9 -3.2**

PCT patent applications 66.0 14 -8.5 -6.3

Trademark applications 110.2 12 -8.4 -6.4

Design applications 77.9 15 -12.8 2.6

**Sales and employment impacts 117.1 7 12.2 9.6**

Sales of new-to-market and new-to-firm innovations 191.1 2 32.3 12.7

Employment in innovative enterprises 52.6 21 -7.2 6.5

**Trade impacts 67.1 16 1.4 -2.6**

Exports of medium and high-tech products 63.2 18 -2.6 -1.3

Knowledge-intensive services exports 35.9 25 7.4 -0.3

High-tech imports from partners outside the EU 100.5 3 0.2 -6.2

**Resource and labour productivity 118.0 10 34.0 20.1**

Resource productivity 149.2 6 43.6 34.2

Production-based CO₂ productivity 106.8 12 54.0 22.7

Labour productivity 87.0 12 3.1 1.3

Spain ranks 15th among EU

Member States, and 19th

among the EU and

neighbouring countries.

**Relative strengths**

• Sales of new-to-market and

new-to-firm innovations

• Resource productivity

• Individuals with above basic

overall digital skills

**Relative weaknesses**

• Knowledge-intensive services

exports

• SMEs introducing business

process innovations

• Employment in innovative

enterprises

**Highest ranked indicators**

**among EU Member States**

• Sales of new-to-market and

new-to-firm innovations

• High-tech imports from

partners outside the EU

• High speed internet access

**Lowest ranked indicators**

**among EU Member States**

• Knowledge-intensive services

exports

• SMEs introducing business

process innovations

• Cloud Computing

**Strong increases since 2018**

• Cloud Computing

• Venture capital expenditures

• Job-to-job mobility of HRST

**Strong decreases since**

**2018**

• New doctorate graduates

• Design applications

• PCT patent applications

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

European Innovation Scoreboard 2025 123

**Country:**

**FINLAND Innovation Leader ●**

Summary innovation index (indexed to EU in 2025): **125.3**

Change vs 2018: ▲ +8.9 Change vs 2024: ▼ -3.7

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 125.3 4 8.9 -3.7**

**Human resources 137.3 6 -16.8 12.5**

New doctorate graduates 126.1 6 -34.7 11.6

Population with tertiary education 71.8 22 -6.6 -0.7

Population involved in lifelong learning 220.0 1 0.0 28.8

**Attractive research systems 156.9 7 34.9 5.7**

International scientific co-publications 222.4 5 79.1 26.4

Scientific publications among the top 10% most cited 133.0 5 11.3 -2.2

Foreign doctorate students as a % of all doctorate students 130.7 13 45.4 4.1

**Digitalisation 139.5 2 29.5 16.5**

High speed internet access 98.1 17 52.1 22.6

Individuals with above basic overall digital skills 200.3 1 11.5 11.5

**Finance and support 126.9 5 42.4 -7.5**

R&D expenditure in the public sector 145.0 3 13.6 10.2

Venture capital expenditures 233.3 3 205.9 -53.4

Direct and indirect government support of business R&D 32.2 19 -6.8 -6.1

**Firm investments 112.6 6 -0.5 -1.1**

R&D expenditure in the business sector 141.4 5 20.9 4.5

Non-R&D innovation expenditures 74.0 16 -33.0 -11.2

Innovation expenditures per person employed 108.4 8 6.1 2.0

**Investments in information technologies 162.1 1 29.5 2.2**

Cloud Computing 155.9 1 81.8 0.0

Employed ICT specialists 169.0 1 8.8 2.9

**Innovators 124.3 5 -24.2 -30.6**

SMEs introducing product innovations 142.0 6 -41.1 -21.9

SMEs introducing business process innovations 110.5 9 -7.5 -38.8

**Linkages 199.7 1 47.5 -9.4**

Innovative SMEs collaborating with others 213.7 3 47.8 -29.3

Public-private co-publications 332.2 5 71.7 18.1

Job-to-job mobility of HRST 133.3 8 35.3 -5.9

**Intellectual assets 128.1 3 -15.0 -7.8**

PCT patent applications 160.0 1 0.0 0.0

Trademark applications 107.3 13 -19.1 -12.5

Design applications 100.7 11 -29.8 -13.9

**Sales and employment impacts 123.7 5 5.5 -29.0**

Sales of new-to-market and new-to-firm innovations 125.3 5 34.3 -30.8

Employment in innovative enterprises 122.0 5 -22.7 -27.4

**Trade impacts 82.2 8 -2.4 -3.0**

Exports of medium and high-tech products 65.5 17 3.6 0.2

Knowledge-intensive services exports 104.1 6 2.4 -3.5

High-tech imports from partners outside the EU 78.7 11 -12.8 -6.2

**Resource and labour productivity 72.8 17 21.1 3.4**

Resource productivity 11.6 27 6.8 1.1

Production-based CO₂ productivity 90.2 19 64.0 10.6

Labour productivity 138.9 9 -4.7 -0.6

Finland ranks 4th among EU

Member States, and 6th

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• Venture capital expenditures

• International scientific copublications

**Relative weaknesses**

• Resource productivity

• Direct and indirect

government support of

business R&D

• Exports of medium and hightech

products

**Highest ranked indicators**

**among EU Member States**

• Population involved in

lifelong learning

• Individuals with above basic

overall digital skills

• Employed ICT specialists

**Lowest ranked indicators**

**among EU Member States**

• Resource productivity

• Population with tertiary

education

• Direct and indirect

government support of

business R&D

**Strong increases since 2018**

• Venture capital expenditures

• Cloud Computing

• International scientific copublications

**Strong decreases since**

**2018**

• SMEs introducing product

innovations

• New doctorate graduates

• Non-R&D innovation

expenditures

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*For a complete overview, refer to the*

*published country profiles.*

124 European Innovation Scoreboard 2025

**Country:**

**FRANCE Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **108.6**

Change vs 2018: ▲ +7.4 Change vs 2024: ▲ +1.7

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 108.6 10 7.4 1.7**

**Human resources 135.7 7 17.1 18.8**

New doctorate graduates 139.2 2 0.0 34.7

Population with tertiary education 152.5 7 20.5 9.9

Population involved in lifelong learning 113.1 12 40.4 2.9

**Attractive research systems 105.3 13 -7.3 -1.8**

International scientific co-publications 73.8 21 7.6 4.9

Scientific publications among the top 10% most cited 84.3 15 -16.6 -5.2

Foreign doctorate students as a % of all doctorate students 170.0 7 0.0 0.0

**Digitalisation 108.4 12 52.9 10.0**

High speed internet access 104.4 13 123.3 26.2

Individuals with above basic overall digital skills 114.2 11 -2.8 -2.8

**Finance and support 162.8 1 20.3 -8.6**

R&D expenditure in the public sector 98.3 9 -5.1 0.0

Venture capital expenditures 238.8 2 120.5 -45.4

Direct and indirect government support of business R&D 185.8 1 0.0 0.0

**Firm investments 91.4 10 -5.8 -3.3**

R&D expenditure in the business sector 96.6 9 -0.7 -2.2

Non-R&D innovation expenditures 47.8 22 -36.0 -9.0

Innovation expenditures per person employed 112.9 7 15.2 1.0

**Investments in information technologies 72.4 24 6.1 1.9**

Cloud Computing 51.9 24 0.0 0.0

Employed ICT specialists 94.9 17 8.8 2.9

**Innovators 110.5 11 3.8 2.4**

SMEs introducing product innovations 109.1 12 2.1 0.0

SMEs introducing business process innovations 111.9 6 5.6 5.0

**Linkages 118.9 14 39.9 -11.2**

Innovative SMEs collaborating with others 131.3 8 31.5 5.7

Public-private co-publications 108.9 21 3.1 1.3

Job-to-job mobility of HRST 112.5 10 64.7 -32.4

**Intellectual assets 87.7 15 -11.7 -3.6**

PCT patent applications 110.8 7 -10.9 -0.5

Trademark applications 71.8 24 -5.2 -4.5

Design applications 69.0 16 -17.7 -6.4

**Sales and employment impacts 87.8 17 -3.0 8.1**

Sales of new-to-market and new-to-firm innovations 52.1 21 -24.1 5.4

Employment in innovative enterprises 118.6 7 17.4 10.8

**Trade impacts 86.0 7 -8.3 -2.4**

Exports of medium and high-tech products 83.8 11 -8.1 0.1

Knowledge-intensive services exports 84.1 11 4.1 0.6

High-tech imports from partners outside the EU 90.0 8 -19.7 -7.6

**Resource and labour productivity 141.1 5 32.5 16.0**

Resource productivity 137.3 8 41.3 25.0

Production-based CO₂ productivity 145.8 5 57.7 21.5

Labour productivity 139.3 8 -2.5 0.4

France ranks 10th among EU

Member States, and 14th

among the EU and

neighbouring countries.

**Relative strengths**

• Venture capital expenditures

• Direct and indirect

government support of

business R&D

• Foreign doctorate students

as a % of all doctorate students

**Relative weaknesses**

• Non-R&D innovation

expenditures

• Cloud Computing

• Sales of new-to-market and

new-to-firm innovations

**Highest ranked indicators**

**among EU Member States**

• Direct and indirect

government support of

business R&D

• Venture capital expenditures

• New doctorate graduates

**Lowest ranked indicators**

**among EU Member States**

• Cloud Computing

• Trademark applications

• Non-R&D innovation

expenditures

**Strong increases since 2018**

• High speed internet access

• Venture capital expenditures

• Job-to-job mobility of HRST

**Strong decreases since**

**2018**

• Non-R&D innovation

expenditures

• Sales of new-to-market and

new-to-firm innovations

• High-tech imports from

partners outside the EU

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*For a complete overview, refer to the*

*published country profiles.*

European Innovation Scoreboard 2025 125

**Country:**

**CROATIA Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **71.6**

Change vs 2018: ▲ +19.4 Change vs 2024: ▼ -1.0

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 71.6 21 19.4 -1.0**

**Human resources 70.1 23 14.7 11.8**

New doctorate graduates 86.9 16 11.6 23.1

Population with tertiary education 73.4 21 21.2 4.0

Population involved in lifelong learning 46.9 25 12.5 1.9

**Attractive research systems 47.5 23 13.5 0.5**

International scientific co-publications 80.2 19 45.6 6.2

Scientific publications among the top 10% most cited 35.8 26 7.7 -2.4

Foreign doctorate students as a % of all doctorate students 33.9 23 -3.8 1.4

**Digitalisation 84.9 20 20.2 -6.3**

High speed internet access 81.4 23 80.7 20.7

Individuals with above basic overall digital skills 90.0 17 -27.5 -27.5

**Finance and support 73.9 14 51.7 -18.5**

R&D expenditure in the public sector 85.0 13 28.8 -3.4

Venture capital expenditures 150.6 6 190.4 -91.3

Direct and indirect government support of business R&D 7.9 24 7.6 0.1

**Firm investments 79.3 13 19.1 35.5**

R&D expenditure in the business sector 49.7 17 27.6 -0.7

Non-R&D innovation expenditures 80.2 13 -66.2 3.4

Innovation expenditures per person employed 107.4 9 84.4 99.9

**Investments in information technologies 99.7 15 79.4 28.7**

Cloud Computing 99.4 15 184.2 48.6

Employed ICT specialists 100.0 14 38.1 20.5

**Innovators 79.1 19 -7.8 -60.1**

SMEs introducing product innovations 68.9 19 -4.7 -81.5

SMEs introducing business process innovations 87.1 19 -10.9 -39.4

**Linkages 106.4 15 47.8 -1.8**

Innovative SMEs collaborating with others 91.6 15 20.3 -10.6

Public-private co-publications 146.3 17 55.1 -20.9

Job-to-job mobility of HRST 102.1 14 67.6 14.7

**Intellectual assets 50.2 26 9.7 -1.0**

PCT patent applications 45.6 22 4.1 1.3

Trademark applications 75.8 23 27.1 0.8

Design applications 30.4 23 3.3 -4.9

**Sales and employment impacts 79.6 18 6.5 -27.0**

Sales of new-to-market and new-to-firm innovations 102.1 13 38.5 -2.5

Employment in innovative enterprises 59.9 20 -24.6 -50.6

**Trade impacts 46.0 26 -1.3 -0.9**

Exports of medium and high-tech products 49.6 22 -3.1 0.0

Knowledge-intensive services exports 12.7 27 5.6 1.2

High-tech imports from partners outside the EU 73.5 12 -5.6 -3.6

**Resource and labour productivity 74.5 15 26.5 7.5**

Resource productivity 83.3 13 34.3 12.6

Production-based CO₂ productivity 94.7 16 42.3 9.4

Labour productivity 31.0 23 2.3 -0.7

Croatia ranks 21st among EU

Member States, and 25th

among the EU and

neighbouring countries.

**Relative strengths**

• Venture capital expenditures

• Public-private co-publications

• Innovation expenditures per

person employed

**Relative weaknesses**

• Direct and indirect

government support of

business R&D

• Knowledge-intensive services

exports

• Design applications

**Highest ranked indicators**

**among EU Member States**

• Venture capital expenditures

• Innovation expenditures per

person employed

• High-tech imports from

partners outside the EU

**Lowest ranked indicators**

**among EU Member States**

• Knowledge-intensive services

exports

• Scientific publications among

the top 10% most cited

• Population involved in

lifelong learning

**Strong increases since 2018**

• Venture capital expenditures

• Cloud Computing

• Innovation expenditures per

person employed

**Strong decreases since**

**2018**

• Non-R&D innovation

expenditures

• Individuals with above basic

overall digital skills

• Employment in innovative

enterprises

***Footnote:*** *Performance changes are*

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*published country profiles.*

126 European Innovation Scoreboard 2025

**Country:**

**HUNGARY Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **69.5**

Change vs 2018: ▲ +16.2 Change vs 2024: ▲ +1.7

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 69.5 22 16.2 1.7**

**Human resources 55.1 25 17.7 10.3**

New doctorate graduates 47.7 21 11.6 0.0

Population with tertiary education 33.3 25 -7.3 14.6

Population involved in lifelong learning 86.9 16 56.7 22.1

**Attractive research systems 81.3 19 44.0 2.9**

International scientific co-publications 64.2 23 36.1 10.5

Scientific publications among the top 10% most cited 57.5 20 16.3 -0.1

Foreign doctorate students as a % of all doctorate students 136.3 12 112.5 1.9

**Digitalisation 106.8 13 76.3 21.8**

High speed internet access 109.0 12 136.1 12.5

Individuals with above basic overall digital skills 103.5 14 29.4 29.4

**Finance and support 62.8 19 -35.8 -21.0**

R&D expenditure in the public sector 41.7 22 3.4 -1.7

Venture capital expenditures 51.0 15 -10.8 -20.6

Direct and indirect government support of business R&D 95.7 8 -99.3 -46.0

**Firm investments 63.4 17 -14.4 -7.7**

R&D expenditure in the business sector 66.2 14 -10.4 0.0

Non-R&D innovation expenditures 77.6 14 -41.9 -23.3

Innovation expenditures per person employed 52.3 19 5.3 -2.0

**Investments in information technologies 93.4 18 88.6 49.3**

Cloud Computing 99.0 16 268.4 151.9

Employed ICT specialists 87.2 21 17.6 8.8

**Innovators 46.7 24 18.2 -10.6**

SMEs introducing product innovations 64.6 21 21.1 -11.8

SMEs introducing business process innovations 32.9 25 15.4 -9.5

**Linkages 93.1 20 55.8 2.9**

Innovative SMEs collaborating with others 72.9 18 42.8 -7.0

Public-private co-publications 122.4 20 49.2 1.6

Job-to-job mobility of HRST 97.9 17 70.6 11.8

**Intellectual assets 56.8 22 -2.2 0.2**

PCT patent applications 69.2 13 -7.1 -0.8

Trademark applications 69.9 26 7.4 -1.0

Design applications 24.1 25 -3.7 2.1

**Sales and employment impacts 49.0 23 6.8 0.2**

Sales of new-to-market and new-to-firm innovations 70.5 19 11.3 10.5

Employment in innovative enterprises 30.2 25 2.7 -9.9

**Trade impacts 63.5 17 3.4 -5.9**

Exports of medium and high-tech products 117.3 1 6.0 -1.0

Knowledge-intensive services exports 62.6 15 6.4 -5.2

High-tech imports from partners outside the EU 8.6 25 -1.9 -11.7

**Resource and labour productivity 71.8 18 34.0 14.4**

Resource productivity 73.2 16 36.4 20.8

Production-based CO₂ productivity 96.9 15 58.1 21.5

Labour productivity 32.6 21 8.2 0.1

Hungary ranks 22nd among EU

Member States, and 26th

among the EU and

neighbouring countries.

**Relative strengths**

• Foreign doctorate students

as a % of all doctorate students

• Public-private co-publications

• Exports of medium and hightech

products

**Relative weaknesses**

• High-tech imports from

partners outside the EU

• Design applications

• Employment in innovative

enterprises

**Highest ranked indicators**

**among EU Member States**

• Exports of medium and hightech

products

• Direct and indirect

government support of

business R&D

• Foreign doctorate students

as a % of all doctorate students

**Lowest ranked indicators**

**among EU Member States**

• Trademark applications

• High-tech imports from

partners outside the EU

• Design applications

**Strong increases since 2018**

• Cloud Computing

• High speed internet access

• Foreign doctorate students

as a % of all doctorate students

**Strong decreases since**

**2018**

• Direct and indirect

government support of

business R&D

• Non-R&D innovation

expenditures

• Venture capital expenditures

***Footnote:*** *Performance changes are*

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*published country profiles.*

European Innovation Scoreboard 2025 127

**Country:**

**IRELAND**

**Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **123.1**

Change vs 2018: ▲ +13.3 Change vs 2024: ▲ +4.1

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 123.1 5 13.3 4.1**

**Human resources 151.8 4 5.9 5**

New doctorate graduates 139.2 2 11.6 11.6

Population with tertiary education 205.1 1 3.3 0

Population involved in lifelong learning 109.2 14 0 0

**Attractive research systems 160.6 6 36.5 6.5**

International scientific co-publications 187.7 7 87.9 19.2

Scientific publications among the top 10% most cited 124.8 6 -8.7 -2.1

Foreign doctorate students as a % of all doctorate students 190.9 5 87.5 13.2

**Digitalisation 137 6 84.9 14.8**

High speed internet access 113.9 11 169.2 10.5

Individuals with above basic overall digital skills 170.8 3 18.4 18.4

**Finance and support 74.1 13 -23.2 17.4**

R&D expenditure in the public sector 16.7 26 -16.9 5.1

Venture capital expenditures 69.3 13 -41.2 -0.7

Direct and indirect government support of business R&D 144.3 5 -22.1 42.5

**Firm investments 102 9 0.9 -3.1**

R&D expenditure in the business sector 91 10 1.5 1.5

Non-R&D innovation expenditures 33.3 24 -46.4 -11.9

Innovation expenditures per person employed 154 1 41.1 0

**Investments in information technologies 139.9 5 62.7 12.3**

Cloud Computing 146 6 221.5 35.3

Employed ICT specialists 133.2 6 0 2.9

**Innovators 102.5 14 -9.3 -20.8**

SMEs introducing product innovations 120.5 9 6.6 0

SMEs introducing business process innovations 88.4 18 -24.5 -40.8

**Linkages 172.5 8 88 48.2**

Innovative SMEs collaborating with others 178.1 4 117.7 79

Public-private co-publications 265.8 9 75.9 16.1

Job-to-job mobility of HRST N/A N/A N/A

**Intellectual assets 54.5 23 -17.2 -7**

PCT patent applications 69.7 12 -14.2 -3.8

Trademark applications 63.7 27 -26.9 -8.9

Design applications 22 26 -13 -9.3

**Sales and employment impacts 137.7 1 -17.4 -11.3**

Sales of new-to-market and new-to-firm innovations 195.4 1 0 0

Employment in innovative enterprises 87.1 15 -34.2 -22.3

**Trade impacts 94.8 4 -13.2 3.8**

Exports of medium and high-tech products 111.6 5 24.3 8.7

Knowledge-intensive services exports 128.8 2 -0.6 0

High-tech imports from partners outside the EU 45.4 20 -63.1 2.4

**Resource and labour productivity 187.8 1 84.8 11.9**

Resource productivity 156.8 5 90.8 33

Production-based CO₂ productivity 173 1 122.5 0

Labour productivity 256.2 1 41.2 0

Ireland ranks 5th among EU

Member States, and 7th

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• Labour productivity

• Population with tertiary

education

**Relative weaknesses**

• R&D expenditure in the

public sector

• Design applications

• Non-R&D innovation

expenditures

**Highest ranked indicators**

**among EU Member States**

• Labour productivity

• Population with tertiary

education

• Sales of new-to-market and

new-to-firm innovations

**Lowest ranked indicators**

**among EU Member States**

• Trademark applications

• R&D expenditure in the

public sector

• Design applications

**Strong increases since 2018**

• Cloud Computing

• High speed internet access

• Production-based CO₂

productivity

**Strong decreases since**

**2018**

• High-tech imports from

partners outside the EU

• Non-R&D innovation

expenditures

• Venture capital expenditures

***Footnote:*** *Performance changes are*

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*published country profiles.*

128 European Innovation Scoreboard 2025

**Country:**

**ICELAND Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **112.2**

Change vs 2018: ▲ +12.4 Change vs 2024: ▼ -0.1

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 112.2 12 12.4 -0.1**

**Human resources 123.6 11 8.8 -5.7**

New doctorate graduates 60.8 23 -23.1 -34.7

Population with tertiary education 115.3 16 35.1 22.5

Population involved in lifelong learning 204.6 4 30.8 9.6

**Attractive research systems 189.2 3 21.9 5.2**

International scientific co-publications 279.7 1 0 0

Scientific publications among the top 10% most cited 119.3 11 14.3 7.9

Foreign doctorate students as a % of all doctorate students 211.3 5 59 3.3

**Digitalisation 144.2 3 15.3 4.9**

High speed internet access 123.4 10 34.8 11.1

Individuals with above basic overall digital skills 174.9 4 0 0

**Finance and support 119.9 9 47.7 -2.9**

R&D expenditure in the public sector 90 13 -15.3 -10.2

Venture capital expenditures 74.6 16 59.5 9.4

Direct and indirect government support of business R&D 185.8 1 122.3 0

**Firm investments 91.2 13 16.2 2.7**

R&D expenditure in the business sector 133.8 7 46.3 7.5

Non-R&D innovation expenditures 98.6 11 0 0

Innovation expenditures per person employed 45.8 23 0 0

**Investments in information technologies 76.3 27 8.6 -12.5**

Cloud Computing N/A N/A N/A

Employed ICT specialists 79.6 29 5.9 -8.8

**Innovators 106.5 19 -3.5 0**

SMEs introducing product innovations 114.2 16 -24.2 0

SMEs introducing business process innovations 100.7 17 16.5 0

**Linkages 221.6 2 -2.9 0**

Innovative SMEs collaborating with others 184.8 6 -10.7 0

Public-private co-publications 484.2 1 5.5 0

Job-to-job mobility of HRST 143.8 9 0 0

**Intellectual assets 64.8 24 -6.1 -4.4**

PCT patent applications 93.8 11 -14.1 -3.9

Trademark applications 63.9 29 -17.5 -11

Design applications 21.2 30 11.9 0

**Sales and employment impacts 87.1 24 1.8 0**

Sales of new-to-market and new-to-firm innovations 40.9 32 0 0

Employment in innovative enterprises 127.2 7 3.9 0

**Trade impacts 27.1 36 -1.1 -2.1**

Exports of medium and high-tech products 0 37 0 0

Knowledge-intensive services exports 57.2 23 -2.4 -4.5

High-tech imports from partners outside the EU N/A N/A N/A

**Resource and labour productivity 142.1 7 41.8 9.5**

Resource productivity 95.7 14 35.8 11.8

Production-based CO₂ productivity 164.2 5 67.3 16.2

Labour productivity 178.4 6 23.1 0

Iceland ranks 12th among

the EU and neighbouring

countries.

**Relative strengths**

• Public-private co-publications

• International scientific copublications

• Foreign doctorate students

as a % of all doctorate students

**Relative weaknesses**

• Exports of medium and hightech

products

• Design applications

• Sales of new-to-market and

new-to-firm innovations

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• Public-private co-publications

• International scientific copublications

• Direct and indirect

government support of

business R&D

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• Exports of medium and hightech

products

• Sales of new-to-market and

new-to-firm innovations

• Design applications

**Strong increases since 2018**

• Direct and indirect

government support of

business R&D

• Production-based CO₂

productivity

• Venture capital expenditures

**Strong decreases since**

**2018**

• SMEs introducing product

innovations

• New doctorate graduates

• Trademark applications

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

European Innovation Scoreboard 2025 129

**Country:**

**ITALY**

**Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **93**

Change vs 2018: ▲ +15.4 Change vs 2024: ▲ +3.4

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 93.0 14 15.4 3.4**

**Human resources 69.1 24 12.9 3.9**

New doctorate graduates 100.0 9 11.6 11.6

Population with tertiary education 29.4 26 21.9 6.6

Population involved in lifelong learning 76.2 20 4.8 -11.5

**Attractive research systems 94.5 16 11.2 3.6**

International scientific co-publications 91.1 18 43.1 11.0

Scientific publications among the top 10% most cited 117.7 8 3.6 -3.1

Foreign doctorate students as a % of all doctorate students 60.2 20 -2.5 12.1

**Digitalisation 71.8 26 42.0 7.7**

High speed internet access 67.5 25 97.0 19.3

Individuals with above basic overall digital skills 78.1 19 -1.4 -1.4

**Finance and support 59.3 21 6.0 -2.0**

R&D expenditure in the public sector 66.7 20 3.4 -1.7

Venture capital expenditures 58.6 14 23.7 6.8

Direct and indirect government support of business R&D 51.1 15 0.1 -6.6

**Firm investments 58.2 20 -14.4 -13.8**

R&D expenditure in the business sector 49.7 17 -5.2 -3.7

Non-R&D innovation expenditures 67.1 18 -34.8 -29.2

Innovation expenditures per person employed 61.1 15 -5.8 -10.9

**Investments in information technologies 109.2 11 96.4 0.0**

Cloud Computing 141.6 7 326.9 7.5

Employed ICT specialists 74.4 25 5.9 -2.9

**Innovators 150.6 3 46.6 36.4**

SMEs introducing product innovations 154.1 4 26.4 31.3

SMEs introducing business process innovations 148.0 3 66.2 41.7

**Linkages 97.6 18 64.5 9.8**

Innovative SMEs collaborating with others 123.4 9 113.9 23.9

Public-private co-publications 160.3 14 73.8 5.4

Job-to-job mobility of HRST 50.0 21 17.6 0.0

**Intellectual assets 110.9 9 -13.9 -3.9**

PCT patent applications 78.1 11 -10.4 -7.7

Trademark applications 103.1 16 -2.2 -8.4

Design applications 167.9 1 -27.1 3.8

**Sales and employment impacts 131.9 3 26.1 20.7**

Sales of new-to-market and new-to-firm innovations 124.8 6 24.9 16.1

Employment in innovative enterprises 137.9 3 27.2 25.1

**Trade impacts 76.8 10 -6.0 -3.4**

Exports of medium and high-tech products 76.7 14 -2.2 -0.7

Knowledge-intensive services exports 57.4 17 -1.3 -1.7

High-tech imports from partners outside the EU 95.0 4 -14.2 -7.4

**Resource and labour productivity 128.4 7 26.0 10.1**

Resource productivity 170.3 1 36.9 11.7

Production-based CO₂ productivity 104.6 13 41.1 20.2

Labour productivity 100.5 11 -0.4 -1.7

Italy ranks 14th among EU

Member States, and 18th

among the EU and

neighbouring countries.

**Relative strengths**

• Resource productivity

• Design applications

• Public-private co-publications

**Relative weaknesses**

• Population with tertiary

education

• R&D expenditure in the

business sector

• Job-to-job mobility of HRST

**Highest ranked indicators**

**among EU Member States**

• Resource productivity

• Design applications

• SMEs introducing business

process innovations

**Lowest ranked indicators**

**among EU Member States**

• Population with tertiary

education

• High speed internet access

• Employed ICT specialists

**Strong increases since 2018**

• Cloud Computing

• Innovative SMEs

collaborating with others

• High speed internet access

**Strong decreases since**

**2018**

• Non-R&D innovation

expenditures

• Design applications

• High-tech imports from

partners outside the EU

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

130 European Innovation Scoreboard 2025

**Country:**

**LITHUANIA Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **81**

Change vs 2018: ▲ +17.4 Change vs 2024: ▼ -3.5

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 81.0 18 17.4 -3.5**

**Human resources 103.7 14 4.6 -0.7**

New doctorate graduates 60.8 20 0.0 0.0

Population with tertiary education 179.7 4 4.6 5.3

Population involved in lifelong learning 71.5 22 12.5 -8.7

**Attractive research systems 58.8 21 29.9 1.3**

International scientific co-publications 74.8 20 47.0 8.9

Scientific publications among the top 10% most cited 55.5 21 17.2 -6.1

Foreign doctorate students as a % of all doctorate students 48.5 22 42.3 11.4

**Digitalisation 96.9 14 32.0 7.4**

High speed internet access 98.8 16 56.1 0.3

Individuals with above basic overall digital skills 93.9 16 12.9 12.9

**Finance and support 77.4 12 39.1 -15.5**

R&D expenditure in the public sector 81.7 15 10.2 15.3

Venture capital expenditures 138.5 8 154.5 -113.0

Direct and indirect government support of business R&D 29.9 20 14.9 -3.4

**Firm investments 67.0 15 -7.3 -19.3**

R&D expenditure in the business sector 26.9 23 9.7 -7.5

Non-R&D innovation expenditures 156.9 2 -35.1 -39.3

Innovation expenditures per person employed 51.2 20 -0.5 -13.8

**Investments in information technologies 94.3 17 81.9 19.5**

Cloud Computing 82.1 18 178.3 39.4

Employed ICT specialists 107.7 9 44.0 11.7

**Innovators 97.5 16 -5.3 -23.5**

SMEs introducing product innovations 89.4 18 -14.8 -39.4

SMEs introducing business process innovations 104.1 12 4.3 -7.9

**Linkages 129.3 13 42.4 -10.9**

Innovative SMEs collaborating with others 92.6 14 -62.7 -34.1

Public-private co-publications 73.6 24 31.7 -3.2

Job-to-job mobility of HRST 183.3 1 138.2 5.9

**Intellectual assets 81.6 18 21.3 0.0**

PCT patent applications 38.8 25 -1.4 -7.1

Trademark applications 146.3 5 56.7 -2.1

Design applications 78.3 14 21.7 9.7

**Sales and employment impacts 98.0 14 -12.4 -7.8**

Sales of new-to-market and new-to-firm innovations 74.1 18 -42.5 -16.7

Employment in innovative enterprises 118.8 6 16.9 1.1

**Trade impacts 43.8 27 5.8 1.8**

Exports of medium and high-tech products 44.6 24 -0.5 -1.1

Knowledge-intensive services exports 40.3 24 28.7 11.0

High-tech imports from partners outside the EU 45.9 19 -8.8 -3.7

**Resource and labour productivity 73.4 16 25.0 10.3**

Resource productivity 50.4 22 13.8 11.9

Production-based CO₂ productivity 124.3 8 57.1 19.0

Labour productivity 31.9 22 6.0 -0.1

Lithuania ranks 18th among EU

Member States, and 22nd

among the EU and

neighbouring countries.

**Relative strengths**

• Job-to-job mobility of HRST

• Population with tertiary

education

• Non-R&D innovation

expenditures

**Relative weaknesses**

• R&D expenditure in the

business sector

• Direct and indirect

government support of

business R&D

• Labour productivity

**Highest ranked indicators**

**among EU Member States**

• Job-to-job mobility of HRST

• Non-R&D innovation

expenditures

• Population with tertiary

education

**Lowest ranked indicators**

**among EU Member States**

• PCT patent applications

• Knowledge-intensive services

exports

• Exports of medium and hightech

products

**Strong increases since 2018**

• Cloud Computing

• Venture capital expenditures

• Job-to-job mobility of HRST

**Strong decreases since**

**2018**

• Innovative SMEs

collaborating with others

• Sales of new-to-market and

new-to-firm innovations

• Non-R&D innovation

expenditures

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*For a complete overview, refer to the*

*published country profiles.*

European Innovation Scoreboard 2025 131

**Country:**

**LUXEMBOURG Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **114.5**

Change vs 2018: ▲ +0.9 Change vs 2024: ▲ +5.0

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 114.5 7 0.9 5.0**

**Human resources 172.3 1 33.7 28.0**

New doctorate graduates 178.4 1 80.9 46.2

Population with tertiary education 205.1 1 0.7 16.6

Population involved in lifelong learning 130.0 9 -4.8 11.5

**Attractive research systems 215.7 1 27.9 11.2**

International scientific co-publications 271.6 2 105.5 6.8

Scientific publications among the top 10% most cited 143.5 2 7.0 18.1

Foreign doctorate students as a % of all doctorate students 275.2 1 0.0 0.0

**Digitalisation 117.0 10 -4.2 -7.9**

High speed internet access 126.9 7 13.1 4.6

Individuals with above basic overall digital skills 102.3 15 -17.6 -17.6

**Finance and support 67.1 17 -19.2 0.4**

R&D expenditure in the public sector 71.7 17 -1.7 0.0

Venture capital expenditures 125.0 11 -92.1 2.8

Direct and indirect government support of business R&D 21.5 21 -3.7 -0.5

**Firm investments 43.2 23 -10.6 -2.2**

R&D expenditure in the business sector 29.7 22 -17.2 -3.7

Non-R&D innovation expenditures 46.9 23 -8.2 -10.4

Innovation expenditures per person employed 54.3 17 -6.0 6.5

**Investments in information technologies 121.9 8 63.2 8.4**

Cloud Computing 78.6 20 149.3 29.2

Employed ICT specialists 169.0 1 29.3 0.0

**Innovators 96.4 17 -19.5 13.3**

SMEs introducing product innovations 106.1 15 -18.9 15.1

SMEs introducing business process innovations 88.6 17 -20.1 11.5

**Linkages 190.7 2 72.5 7.2**

Innovative SMEs collaborating with others 117.8 10 56.3 49.0

Public-private co-publications 426.8 2 222.5 -14.5

Job-to-job mobility of HRST 154.2 5 14.7 -17.6

**Intellectual assets 121.3 5 -45.2 -4.1**

PCT patent applications 80.3 10 -10.0 -4.5

Trademark applications 172.8 4 -58.0 -12.4

Design applications 129.5 5 -77.5 2.9

**Sales and employment impacts 53.0 22 -35.3 1.8**

Sales of new-to-market and new-to-firm innovations 25.9 27 -8.5 0.2

Employment in innovative enterprises 76.6 17 -61.3 3.3

**Trade impacts 59.3 18 -13.9 1.3**

Exports of medium and high-tech products 60.5 19 -3.2 1.2

Knowledge-intensive services exports 116.5 3 -6.9 1.1

High-tech imports from partners outside the EU 4.2 26 -31.4 1.3

**Resource and labour productivity 171.2 2 39.4 11.3**

Resource productivity 170.3 1 48.6 23.1

Production-based CO₂ productivity 129.7 7 80.4 8.2

Labour productivity 233.3 2 -11.8 0.6

Luxembourg ranks 7th among

EU Member States, and 10th

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• Foreign doctorate students

as a % of all doctorate students

• International scientific copublications

**Relative weaknesses**

• High-tech imports from

partners outside the EU

• Direct and indirect

government support of

business R&D

• Sales of new-to-market and

new-to-firm innovations

**Highest ranked indicators**

**among EU Member States**

• Foreign doctorate students

as a % of all doctorate students

• Population with tertiary

education

• New doctorate graduates

**Lowest ranked indicators**

**among EU Member States**

• Sales of new-to-market and

new-to-firm innovations

• High-tech imports from

partners outside the EU

• Non-R&D innovation

expenditures

**Strong increases since 2018**

• Public-private co-publications

• Cloud Computing

• International scientific copublications

**Strong decreases since**

**2018**

• Venture capital expenditures

• Design applications

• Employment in innovative

enterprises

***Footnote:*** *Performance changes are*

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*published country profiles.*

132 European Innovation Scoreboard 2025

**Country:**

**LATVIA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **56.7**

Change vs 2018: ▲ +4.9 Change vs 2024: ▲ +1.5

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 56.7 25 4.9 1.5**

**Human resources 72.5 21 0.2 0.7**

New doctorate graduates 34.7 23 -11.6 0.0

Population with tertiary education 105.1 13 -3.3 -0.7

Population involved in lifelong learning 80.8 18 23.1 2.9

**Attractive research systems 44.5 24 12.8 -6.2**

International scientific co-publications 63.0 24 40.7 3.0

Scientific publications among the top 10% most cited 42.0 24 17.5 2.0

Foreign doctorate students as a % of all doctorate students 30.1 24 -24.4 -32.6

**Digitalisation 73.9 25 0.9 -5.3**

High speed internet access 87.5 21 43.0 28.5

Individuals with above basic overall digital skills 53.8 25 -32.2 -32.2

**Finance and support 35.5 23 -28.7 -1.5**

R&D expenditure in the public sector 68.3 19 32.2 1.7

Venture capital expenditures 24.2 22 -235.6 -14.9

Direct and indirect government support of business R&D 4.4 25 2.0 1.1

**Firm investments 25.6 26 -10.6 -0.7**

R&D expenditure in the business sector 17.9 26 14.2 0.7

Non-R&D innovation expenditures 58.6 21 -46.3 -8.2

Innovation expenditures per person employed 13.1 26 -4.4 4.3

**Investments in information technologies 85.9 20 86.6 27.3**

Cloud Computing 75.2 21 224.5 59.1

Employed ICT specialists 97.4 16 32.2 14.7

**Innovators 48.1 22 10.6 3.3**

SMEs introducing product innovations 45.6 25 6.7 0.0

SMEs introducing business process innovations 50.1 22 14.8 6.6

**Linkages 77.9 23 30.1 17.8**

Innovative SMEs collaborating with others 51.1 24 16.0 9.4

Public-private co-publications 108.6 22 75.1 2.8

Job-to-job mobility of HRST 87.5 19 20.6 32.4

**Intellectual assets 77.7 20 8.2 1.7**

PCT patent applications 60.3 16 3.5 2.2

Trademark applications 120.3 9 30.9 2.8

Design applications 59.4 19 -2.9 0.3

**Sales and employment impacts 39.7 25 -9.4 -2.8**

Sales of new-to-market and new-to-firm innovations 43.6 23 -17.4 -3.9

Employment in innovative enterprises 36.3 24 -1.8 -1.8

**Trade impacts 47.2 25 -4.8 -1.9**

Exports of medium and high-tech products 35.6 26 -4.4 -3.1

Knowledge-intensive services exports 70.3 12 10.5 -2.3

High-tech imports from partners outside the EU 37.4 22 -19.1 -0.5

**Resource and labour productivity 67.8 20 22.4 4.6**

Resource productivity 50.1 23 13.3 9.5

Production-based CO₂ productivity 111.0 10 49.5 3.5

Labour productivity 29.7 25 5.8 -0.1

Latvia ranks 25th among EU

Member States, and 30th

among the EU and

neighbouring countries.

**Relative strengths**

• Trademark applications

• Production-based CO₂

productivity

• Public-private co-publications

**Relative weaknesses**

• Direct and indirect

government support of

business R&D

• Innovation expenditures per

person employed

• R&D expenditure in the

business sector

**Highest ranked indicators**

**among EU Member States**

• Trademark applications

• Production-based CO₂

productivity

• Knowledge-intensive services

exports

**Lowest ranked indicators**

**among EU Member States**

• Innovation expenditures per

person employed

• R&D expenditure in the

business sector

• Exports of medium and hightech

products

**Strong increases since 2018**

• Cloud Computing

• Public-private co-publications

• Production-based CO₂

productivity

**Strong decreases since**

**2018**

• Venture capital expenditures

• Non-R&D innovation

expenditures

• Individuals with above basic

overall digital skills

***Footnote:*** *Performance changes are*

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*published country profiles.*

European Innovation Scoreboard 2025 133

**Country:**

**MOLDOVA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025):

**19** Change vs 2018: ▼ -1.0 Change vs 2024: ▲ 0

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 19 39 -1 0**

**Human resources 16.4 38 -0.4 0.2**

New doctorate graduates 9 39 -7.6 0.5

Population with tertiary education 33.9 35 12.6 0

Population involved in lifelong learning 5.8 38 -4.2 0

**Attractive research systems 33.9 35 18.5 -3.6**

International scientific co-publications 7.6 37 7.3 1.8

Scientific publications among the top 10% most cited 4 39 -2.5 -5.7

Foreign doctorate students as a % of all doctorate students 107.7 21 74.9 -4.4

**Digitalisation N/A N/A N/A**

High speed internet access N/A N/A N/A

Individuals with above basic overall digital skills N/A N/A N/A

**Finance and support 4.3 37 -4 -0.7**

R&D expenditure in the public sector 9.8 36 -8 -1.4

Venture capital expenditures 0 37 0 0

Direct and indirect government support of business R&D 0.9 35 -0.7 0

**Firm investments 14.1 37 -6.4 -2.7**

R&D expenditure in the business sector 0.1 39 -0.6 -0.1

Non-R&D innovation expenditures 58.9 26 -19.6 -9

Innovation expenditures per person employed 0.3 35 -0.6 -0.3

**Investments in information technologies 39.7 33 53.8 0**

Cloud Computing N/A N/A N/A

Employed ICT specialists 41.5 32 37.5 0

**Innovators 18.8 37 17.1 4.9**

SMEs introducing product innovations 24 37 17 4.5

SMEs introducing business process innovations 14.7 37 17.3 5.5

**Linkages 21.9 36 -29.7 -2.9**

Innovative SMEs collaborating with others 36.7 36 -56.6 -3.3

Public-private co-publications 4.8 39 4.5 -3.9

Job-to-job mobility of HRST N/A N/A N/A

**Intellectual assets 20.3 35 -2.7 -1.5**

PCT patent applications 25.2 36 -19.7 -4

Trademark applications 29.6 33 20 0

Design applications 2.9 34 0.8 0

**Sales and employment impacts 2.7 39 -36.2 -0.7**

Sales of new-to-market and new-to-firm innovations 5.7 38 -14 -1.7

Employment in innovative enterprises 0 37 -58 0

**Trade impacts 32.9 35 5.8 6.4**

Exports of medium and high-tech products 18.6 36 -0.7 1.6

Knowledge-intensive services exports 48.8 28 13.3 11.8

High-tech imports from partners outside the EU N/A N/A N/A

**Resource and labour productivity N/A N/A N/A**

Resource productivity N/A N/A N/A

Production-based CO₂ productivity N/A N/A N/A

Labour productivity N/A N/A N/A

Moldova ranks 39th among

the EU and neighbouring

countries.

**Relative strengths**

• Foreign doctorate students

as a % of all doctorate students

• Non-R&D innovation

expenditures

• Knowledge-intensive services

exports

**Relative weaknesses**

• Venture capital expenditures

• Employment in innovative

enterprises

• R&D expenditure in the

business sector

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• Foreign doctorate students

as a % of all doctorate students

• Non-R&D innovation

expenditures

• Knowledge-intensive services

exports

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• R&D expenditure in the

business sector

• Scientific publications among

the top 10% most cited

• Public-private co-publications

**Strong increases since 2018**

• Foreign doctorate students

as a % of all doctorate students

• Employed ICT specialists

• Trademark applications

**Strong decreases since**

**2018**

• Employment in innovative

enterprises

• Innovative SMEs

collaborating with others

• PCT patent applications

***Footnote:*** *Performance changes are*

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*published country profiles.*

134 European Innovation Scoreboard 2025

**Country:**

**MONTENEGRO Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **45.3**

Change vs 2018: ▲ +4.6 Change vs 2024: ▲ +3.1

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 45.3 33 4.6 3.1**

**Human resources 35 35 11.6 3.5**

New doctorate graduates 9.8 38 4.8 8.4

Population with tertiary education 79.1 26 32.5 0

Population involved in lifelong learning 16.9 33 -1 0

**Attractive research systems 44.7 30 6.8 -4.4**

International scientific co-publications 59.4 29 40.2 4.3

Scientific publications among the top 10% most cited 33.2 35 17.6 -10.1

Foreign doctorate students as a % of all doctorate students 48.6 28 -48.1 0

**Digitalisation 22.7 34 7 7**

High speed internet access N/A N/A N/A

Individuals with above basic overall digital skills 28.1 31 6.3 6.3

**Finance and support 13.1 33 4 0**

R&D expenditure in the public sector 31.7 29 8.5 0

Venture capital expenditures 0.5 36 0.7 0

Direct and indirect government support of business R&D 0 36 0 0

**Firm investments 20.4 34 0 0**

R&D expenditure in the business sector 0.7 38 0 0

Non-R&D innovation expenditures 42 31 0 0

Innovation expenditures per person employed 26.2 27 0 0

**Investments in information technologies 50.9 31 48.7 31.5**

Cloud Computing 64.6 26 157.7 111.8

Employed ICT specialists 36.1 33 5.9 0

**Innovators 169.9 2 0 0**

SMEs introducing product innovations 217.4 1 0 0

SMEs introducing business process innovations 132.6 4 0 0

**Linkages 73.3 31 -16.7 -2.2**

Innovative SMEs collaborating with others 146 11 0 0

Public-private co-publications 33 33 10.3 1

Job-to-job mobility of HRST 29.2 31 -44.1 -5.9

**Intellectual assets 15 38 -3.9 5.3**

PCT patent applications 24.7 37 -10.5 5.3

Trademark applications 14.9 37 1 11.9

Design applications 0 39 0 0

**Sales and employment impacts 98.7 17 0 0**

Sales of new-to-market and new-to-firm innovations 54.5 27 0 0

Employment in innovative enterprises 137 4 0 0

**Trade impacts 14.6 38 10.6 5.3**

Exports of medium and high-tech products 19.4 35 16.7 13

Knowledge-intensive services exports 9.5 37 4 -3.1

High-tech imports from partners outside the EU N/A N/A N/A

**Resource and labour productivity 50.2 31 -6.2 0**

Resource productivity N/A N/A N/A

Production-based CO₂ productivity 45 34 -6.5 0

Labour productivity N/A N/A N/A

Montenegro ranks 33rd

among the EU and

neighbouring countries.

**Relative strengths**

• SMEs introducing product

innovations

• Innovative SMEs

collaborating with others

• Employment in innovative

enterprises

**Relative weaknesses**

• Direct and indirect

government support of

business R&D

• Design applications

• Venture capital expenditures

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• SMEs introducing product

innovations

• Employment in innovative

enterprises

• SMEs introducing business

process innovations

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• Design applications

• R&D expenditure in the

business sector

• New doctorate graduates

**Strong increases since 2018**

• Cloud Computing

• International scientific copublications

• Population with tertiary

education

**Strong decreases since**

**2018**

• Foreign doctorate students

as a % of all doctorate students

• Job-to-job mobility of HRST

• PCT patent applications

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

European Innovation Scoreboard 2025 135

**Country:**

**NORTH MACEDONIA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **40**

Change vs 2018: ▲ +9.2 Change vs 2024: ▼ -0.8

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 40 34 9.2 -0.8**

**Human resources 34 36 10.3 5**

New doctorate graduates 21.6 34 0 11.6

Population with tertiary education 63.8 31 31.1 0

Population involved in lifelong learning 16.2 34 2.9 0

**Attractive research systems 75.8 24 19 -7**

International scientific co-publications 24.6 34 17.4 -0.3

Scientific publications among the top 10% most cited 42.5 31 13.8 -6.4

Foreign doctorate students as a % of all doctorate students 179.3 9 31.6 -15.1

**Digitalisation 14.4 35 0 0**

High speed internet access N/A N/A N/A

Individuals with above basic overall digital skills 17.8 33 0 0

**Finance and support 9.9 36 -5.1 -2.9**

R&D expenditure in the public sector 23.3 33 -10.2 -1.7

Venture capital expenditures 1.7 34 -1.9 0.7

Direct and indirect government support of business R&D 0 36 0 -6.1

**Firm investments 39.6 29 0 0**

R&D expenditure in the business sector 4.1 35 0 0

Non-R&D innovation expenditures 138.6 4 0 0

Innovation expenditures per person employed 14.2 31 0 0

**Investments in information technologies 24.1 36 30.4 0**

Cloud Computing 17.7 35 54.8 0

Employed ICT specialists 31 35 20.5 0

**Innovators 64.8 30 0 0**

SMEs introducing product innovations 54.4 32 0 0

SMEs introducing business process innovations 73 28 0 0

**Linkages 49.3 33 38.8 -18.1**

Innovative SMEs collaborating with others 44.5 34 0 0

Public-private co-publications 26.9 35 16.3 -2.4

Job-to-job mobility of HRST 62.5 26 82.4 -41.2

**Intellectual assets 21.5 34 5.1 5.1**

PCT patent applications 26.7 34 4.3 9.4

Trademark applications 33.2 32 15.3 5.6

Design applications 1.6 35 -1.2 -0.1

**Sales and employment impacts 36.2 35 0 0**

Sales of new-to-market and new-to-firm innovations 23.8 37 0 0

Employment in innovative enterprises 46.9 32 0 0

**Trade impacts 72.4 14 15.2 -0.6**

Exports of medium and high-tech products 95 7 5.2 -4.4

Knowledge-intensive services exports 48.2 29 27 3.7

High-tech imports from partners outside the EU N/A N/A N/A

**Resource and labour productivity 40 34 14.7 0.5**

Resource productivity 39.9 30 32.7 5.4

Production-based CO₂ productivity 31.1 35 -7.2 -5.5

Labour productivity N/A N/A N/A

North Macedonia ranks 34th

among the EU and

neighbouring countries.

**Relative strengths**

• Foreign doctorate students

as a % of all doctorate students

• Non-R&D innovation

expenditures

• Exports of medium and hightech

products

**Relative weaknesses**

• Direct and indirect

government support of

business R&D

• Design applications

• Venture capital expenditures

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• Non-R&D innovation

expenditures

• Exports of medium and hightech

products

• Foreign doctorate students

as a % of all doctorate students

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• Sales of new-to-market and

new-to-firm innovations

• Direct and indirect

government support of

business R&D

• Design applications

**Strong increases since 2018**

• Job-to-job mobility of HRST

• Cloud Computing

• Resource productivity

**Strong decreases since**

**2018**

• R&D expenditure in the

public sector

• Production-based CO₂

productivity

• Venture capital expenditures

***Footnote:*** *Performance changes are*

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*published country profiles.*

136 European Innovation Scoreboard 2025

**Country:**

**MALTA**

**Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **95**

Change vs 2018: ▲ +16.7 Change vs 2024: ▲ +7.6

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 95.0 12 16.7 7.6**

**Human resources 88.9 17 19.7 6.3**

New doctorate graduates 21.6 27 0.0 0.0

Population with tertiary education 115.8 11 26.5 4.6

Population involved in lifelong learning 137.7 7 44.2 19.2

**Attractive research systems 136.9 10 71.4 -13.0**

International scientific co-publications 113.9 13 60.2 -2.7

Scientific publications among the top 10% most cited 64.3 19 -25.2 -23.6

Foreign doctorate students as a % of all doctorate students 275.2 1 293.8 0.0

**Digitalisation 138.2 4 3.7 3.7**

High speed internet access 135.9 1 0.0 0.0

Individuals with above basic overall digital skills 141.4 6 6.6 6.6

**Finance and support 12.1 27 -62.7 3.8**

R&D expenditure in the public sector 25.0 25 10.2 8.5

Venture capital expenditures 5.8 27 -328.7 0.2

Direct and indirect government support of business R&D 1.2 27 -16.2 -0.3

**Firm investments 128.6 4 75.6 87.2**

R&D expenditure in the business sector 22.8 24 3.0 0.7

Non-R&D innovation expenditures 254.9 1 96.1 132.4

Innovation expenditures per person employed 154.0 1 130.4 134.9

**Investments in information technologies 131.3 7 97.2 32.9**

Cloud Computing 155.5 4 313.9 79.1

Employed ICT specialists 105.1 12 11.7 14.7

**Innovators 70.5 20 25.3 -2.9**

SMEs introducing product innovations 68.8 20 16.5 4.2

SMEs introducing business process innovations 71.9 20 33.7 -9.5

**Linkages 102.7 16 59.8 -12.0**

Innovative SMEs collaborating with others 52.4 23 45.6 -8.2

Public-private co-publications 170.2 13 124.1 40.9

Job-to-job mobility of HRST 116.7 9 41.2 -41.2

**Intellectual assets 109.8 10 -43.2 -27.6**

PCT patent applications 61.3 15 1.9 -13.9

Trademark applications 233.0 1 0.0 0.0

Design applications 55.0 20 -128.5 -63.7

**Sales and employment impacts 55.6 21 2.2 -3.5**

Sales of new-to-market and new-to-firm innovations 46.3 22 -16.4 -2.7

Employment in innovative enterprises 63.4 19 20.1 -4.3

**Trade impacts 54.9 21 -8.7 -2.3**

Exports of medium and high-tech products 91.1 9 5.0 -9.6

Knowledge-intensive services exports 26.1 26 -41.1 0.0

High-tech imports from partners outside the EU 44.5 21 6.7 3.5

**Resource and labour productivity 136.7 6 47.2 13.9**

Resource productivity 159.1 4 122.4 45.6

Production-based CO₂ productivity 160.3 4 1.4 -11.0

Labour productivity 67.3 14 5.7 2.2

Malta ranks 12th among EU

Member States, and 16th

among the EU and

neighbouring countries.

**Relative strengths**

• Foreign doctorate students

as a % of all doctorate students

• Non-R&D innovation

expenditures

• Trademark applications

**Relative weaknesses**

• Direct and indirect

government support of

business R&D

• Venture capital expenditures

• New doctorate graduates

**Highest ranked indicators**

**among EU Member States**

• Foreign doctorate students

as a % of all doctorate students

• Non-R&D innovation

expenditures

• Trademark applications

**Lowest ranked indicators**

**among EU Member States**

• Direct and indirect

government support of

business R&D

• Venture capital expenditures

• New doctorate graduates

**Strong increases since 2018**

• Cloud Computing

• Foreign doctorate students

as a % of all doctorate students

• Innovation expenditures per

person employed

**Strong decreases since**

**2018**

• Venture capital expenditures

• Design applications

• Knowledge-intensive services

exports

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

*the reference years differ between the*

*first column (2025) and the last two*

*columns (2018), scores cannot be directly*

*compared or subtracted across columns.*

*For a complete overview, refer to the*

*published country profiles.*

European Innovation Scoreboard 2025 137

**Country:**

**NETHERLANDS Innovation Leader ●**

Summary innovation index (indexed to EU in 2025): **129.1**

Change vs 2018: ▲ +11.0 Change vs 2024: ▼ -2.8

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 129.1 3 11 -2.8**

**Human resources 147.1 5 -1.3 1.5**

New doctorate graduates 86.9 16 0 0

Population with tertiary education 162.1 5 -3.3 4

Population involved in lifelong learning 200 4 -1 1

**Attractive research systems 187.6 3 20.3 1.6**

International scientific co-publications 193.1 6 55.2 15

Scientific publications among the top 10% most cited 159.2 1 -9 -3.4

Foreign doctorate students as a % of all doctorate students 227 3 51.8 0

**Digitalisation 160.3 1 13.9 0.7**

High speed internet access 133.1 2 31.8 1.6

Individuals with above basic overall digital skills 200.3 1 0 0

**Finance and support 117.3 8 11.5 -25.4**

R&D expenditure in the public sector 91.7 10 -1.7 -1.7

Venture capital expenditures 149.3 7 50.9 -108.3

Direct and indirect government support of business R&D 125.2 6 7.4 -12

**Firm investments 107.4 8 2.7 2.7**

R&D expenditure in the business sector 104.8 7 5.2 5.2

Non-R&D innovation expenditures N/A N/A N/A

Innovation expenditures per person employed 83.1 11 0 0

**Investments in information technologies 149.9 3 74.9 0.6**

Cloud Computing 148.9 5 243.1 -6.1

Employed ICT specialists 151.1 5 8.8 2.9

**Innovators 108.8 13 -9.8 0**

SMEs introducing product innovations 114 11 -38.1 0

SMEs introducing business process innovations 104.9 11 18 0.1

**Linkages 178.4 5 15.6 -11.2**

Innovative SMEs collaborating with others 154 6 49.6 6.1

Public-private co-publications 321.6 6 54.7 1.4

Job-to-job mobility of HRST 139.6 7 -32.4 -32.4

**Intellectual assets 115.2 8 -11.7 -5.3**

PCT patent applications 126 5 -19.4 -4.7

Trademark applications 106.4 14 -8.8 -6.4

Design applications 107.1 9 -5.1 -5.3

**Sales and employment impacts 93.8 16 -12.4 -0.6**

Sales of new-to-market and new-to-firm innovations 67.5 20 -13.9 -2.1

Employment in innovative enterprises 116.8 10 -10.8 1.1

**Trade impacts 81.1 9 17.5 -0.8**

Exports of medium and high-tech products 75.3 15 1.8 0.8

Knowledge-intensive services exports 102.4 8 0.4 0.3

High-tech imports from partners outside the EU 67 16 49 -3.1

**Resource and labour productivity 141.7 4 37.9 5.9**

Resource productivity 170.3 1 27.9 0

Production-based CO₂ productivity 108.3 11 86.5 19

Labour productivity 147.4 6 1.3 -0.3

The Netherlands ranks 3rd

among EU Member States, and

4th among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• Foreign doctorate students

as a % of all doctorate students

• Individuals with above basic

overall digital skills

**Relative weaknesses**

• High-tech imports from

partners outside the EU

• Sales of new-to-market and

new-to-firm innovations

• Exports of medium and hightech

products

**Highest ranked indicators**

**among EU Member States**

• Individuals with above basic

overall digital skills

• Resource productivity

• Scientific publications among

the top 10% most cited

**Lowest ranked indicators**

**among EU Member States**

• Sales of new-to-market and

new-to-firm innovations

• High-tech imports from

partners outside the EU

• New doctorate graduates

**Strong increases since 2018**

• Cloud Computing

• Production-based CO₂

productivity

• International scientific copublications

**Strong decreases since**

**2018**

• SMEs introducing product

innovations

• Job-to-job mobility of HRST

• PCT patent applications

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

138 European Innovation Scoreboard 2025

**Country:**

**NORWAY Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **121.6**

Change vs 2018: ▲ +13.0 Change vs 2024: ▼ -0.9

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 121.6 9 13.0 -0.9**

**Human resources 144.9 7 10.7 -4.2**

New doctorate graduates 100.0 11 0.0 -11.6

Population with tertiary education 171.8 6 11.9 1.3

Population involved in lifelong learning 167.7 9 26.9 1.9

**Attractive research systems 160.4 10 24.2 4.7**

International scientific co-publications 261.1 5 99.9 7.7

Scientific publications among the top 10% most cited 129.2 8 -6.1 2.6

Foreign doctorate students as a % of all doctorate students 111.0 20 20.2 6.6

**Digitalisation 155.1 2 51.5 36.4**

High speed internet access 124.2 9 71.1 36.7

Individuals with above basic overall digital skills 200.3 1 36.2 36.2

**Finance and support 105.1 13 -10.6 -39.3**

R&D expenditure in the public sector 113.3 8 -25.4 16.9

Venture capital expenditures 121.0 14 40.0 -197.1

Direct and indirect government support of business R&D 84.2 13 -18.5 -28.3

**Firm investments 91.7 11 8.7 13.8**

R&D expenditure in the business sector 69.7 17 -2.2 14.2

Non-R&D innovation expenditures 113.7 8 2.4 4.4

Innovation expenditures per person employed 99.9 11 25.7 21.8

**Investments in information technologies 135.2 7 64.9 10.9**

Cloud Computing 155.9 1 222.6 23.6

Employed ICT specialists 112.8 11 2.9 5.9

**Innovators 138.1 6 -19.5 -25.1**

SMEs introducing product innovations 168.6 4 -22.2 -27.3

SMEs introducing business process innovations 114.2 7 -16.6 -22.7

**Linkages 240.0 1 50.0 -11.2**

Innovative SMEs collaborating with others 238.9 1 78.6 0.0

Public-private co-publications 459.3 4 77.8 -24.6

Job-to-job mobility of HRST 150.0 8 11.8 -14.7

**Intellectual assets 48.4 30 -10.9 -9.2**

PCT patent applications 78.7 14 -21.4 -16.1

Trademark applications 40.8 31 -5.5 -8.9

Design applications 10.1 32 -2.2 -1.3

**Sales and employment impacts 92.7 22 -13.3 -6.1**

Sales of new-to-market and new-to-firm innovations 47.8 29 -7.2 2.7

Employment in innovative enterprises 131.9 6 -19.0 -14.6

**Trade impacts 61.8 23 -3.9 -1.0**

Exports of medium and high-tech products 0.0 37 0.0 0.0

Knowledge-intensive services exports 105.4 6 1.9 3.8

High-tech imports from partners outside the EU 84.6 11 -13.4 -6.6

**Resource and labour productivity 165.1 5 71.1 30.2**

Resource productivity 150.4 8 146.5 66.9

Production-based CO₂ productivity 117.7 13 55.6 17.6

Labour productivity 256.2 1 0.0 0.0

Norway ranks 9th among

the EU and neighbouring

countries.

**Relative strengths**

• Public-private co-publications

• International scientific copublications

• Labour productivity

**Relative weaknesses**

• Exports of medium and hightech

products

• Design applications

• Trademark applications

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• Labour productivity

• Innovative SMEs

collaborating with others

• Individuals with above basic

overall digital skills

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• Exports of medium and hightech

products

• Design applications

• Trademark applications

**Strong increases since 2018**

• Cloud Computing

• Resource productivity

• International scientific copublications

**Strong decreases since**

**2018**

• R&D expenditure in the

public sector

• SMEs introducing product

innovations

• PCT patent applications

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

European Innovation Scoreboard 2025 139

**Country:**

**POLAND Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **65.9**

Change vs 2018: ▲ +18.0 Change vs 2024: ▲ +2.6

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 65.9 23 18.0 2.6**

**Human resources 71.3 22 19.0 7.0**

New doctorate graduates 34.7 23 0.0 11.6

Population with tertiary education 109.0 12 25.8 -4.0

Population involved in lifelong learning 73.1 21 42.3 12.5

**Attractive research systems 40.8 25 19.0 4.2**

International scientific co-publications 47.3 25 32.2 6.9

Scientific publications among the top 10% most cited 53.0 23 15.4 2.0

Foreign doctorate students as a % of all doctorate students 14.5 25 14.6 6.5

**Digitalisation 89.8 17 28.5 13.7**

High speed internet access 103.9 14 68.2 34.1

Individuals with above basic overall digital skills 68.8 21 -2.6 -2.6

**Finance and support 61.0 20 35.5 2.0**

R&D expenditure in the public sector 71.7 17 39.0 10.2

Venture capital expenditures 20.1 23 -13.9 -7.0

Direct and indirect government support of business R&D 76.4 10 57.0 -4.1

**Firm investments 60.4 19 -7.1 -2.0**

R&D expenditure in the business sector 66.2 14 27.6 3.7

Non-R&D innovation expenditures 84.6 11 -48.5 -12.1

Innovation expenditures per person employed 40.4 22 -5.9 1.4

**Investments in information technologies 107.8 12 126.7 66.6**

Cloud Computing 126.8 9 389.3 221.1

Employed ICT specialists 87.2 21 23.4 5.9

**Innovators 41.0 25 26.8 -7.3**

SMEs introducing product innovations 28.5 26 7.6 -20.2

SMEs introducing business process innovations 50.8 21 45.3 5.1

**Linkages 73.9 24 27.5 -10.5**

Innovative SMEs collaborating with others 48.1 25 25.6 -1.4

Public-private co-publications 62.6 25 33.1 5.8

Job-to-job mobility of HRST 100.0 16 26.5 -26.5

**Intellectual assets 85.9 16 -13.6 -7.8**

PCT patent applications 41.4 24 -10.0 -2.8

Trademark applications 99.4 18 11.3 -0.4

Design applications 139.3 4 -35.9 -19.1

**Sales and employment impacts 40.4 24 12.2 -13.1**

Sales of new-to-market and new-to-firm innovations 28.7 24 -17.6 -27.5

Employment in innovative enterprises 50.7 22 41.4 1.0

**Trade impacts 70.0 14 3.5 -0.3**

Exports of medium and high-tech products 72.5 16 0.8 -1.0

Knowledge-intensive services exports 57.2 18 16.2 5.0

High-tech imports from partners outside the EU 79.4 10 -5.2 -4.2

**Resource and labour productivity 44.0 25 25.5 8.2**

Resource productivity 50.9 21 30.1 11.4

Production-based CO₂ productivity 46.3 27 37.0 10.2

Labour productivity 30.0 24 8.9 2.5

Poland ranks 23rd among EU

Member States, and 27th

among the EU and

neighbouring countries.

**Relative strengths**

• Design applications

• Cloud Computing

• Population with tertiary

education

**Relative weaknesses**

• Foreign doctorate students

as a % of all doctorate students

• Venture capital expenditures

• SMEs introducing product

innovations

**Highest ranked indicators**

**among EU Member States**

• Design applications

• Cloud Computing

• High-tech imports from

partners outside the EU

**Lowest ranked indicators**

**among EU Member States**

• Production-based CO₂

productivity

• SMEs introducing product

innovations

• Foreign doctorate students

as a % of all doctorate students

**Strong increases since 2018**

• Cloud Computing

• High speed internet access

• Direct and indirect

government support of

business R&D

**Strong decreases since**

**2018**

• Non-R&D innovation

expenditures

• Design applications

• Sales of new-to-market and

new-to-firm innovations

***Footnote:*** *Performance changes are*

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*published country profiles.*

140 European Innovation Scoreboard 2025

**Country:**

**PORTUGAL Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **90.7**

Change vs 2018: ▲ +9.0 Change vs 2024: ▲ +3.0

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 90.7 16 9.0 3.0**

**Human resources 104.5 13 3.7 15.5**

New doctorate graduates 100.0 9 0.0 11.6

Population with tertiary education 94.9 16 -17.9 11.3

Population involved in lifelong learning 120.0 10 34.6 26.9

**Attractive research systems 114.7 12 15.9 -1.6**

International scientific co-publications 133.9 12 60.8 10.1

Scientific publications among the top 10% most cited 79.8 16 -16.5 -5.6

Foreign doctorate students as a % of all doctorate students 151.3 11 44.1 -4.0

**Digitalisation 120.1 8 19.5 5.1**

High speed internet access 126.1 8 36.7 3.9

Individuals with above basic overall digital skills 111.2 12 6.2 6.2

**Finance and support 105.8 10 39.7 0.4**

R&D expenditure in the public sector 78.3 16 -8.5 -1.7

Venture capital expenditures 36.2 18 4.1 5.9

Direct and indirect government support of business R&D 185.8 1 120.9 0.0

**Firm investments 56.6 21 -9.5 0.2**

R&D expenditure in the business sector 70.3 12 32.8 0.7

Non-R&D innovation expenditures 69.1 17 -55.3 -6.9

Innovation expenditures per person employed 36.1 23 -12.0 6.1

**Investments in information technologies 91.9 19 57.9 22.3**

Cloud Computing 79.8 19 160.2 33.9

Employed ICT specialists 105.1 12 17.6 17.6

**Innovators 109.6 12 -52.5 7.3**

SMEs introducing product innovations 108.1 14 -65.2 8.4

SMEs introducing business process innovations 110.8 8 -40.2 6.4

**Linkages 98.1 17 38.4 -18.1**

Innovative SMEs collaborating with others 67.1 21 -12.5 25.8

Public-private co-publications 146.5 16 74.9 -6.4

Job-to-job mobility of HRST 104.2 13 64.7 -61.8

**Intellectual assets 78.3 19 -15.0 -6.8**

PCT patent applications 58.6 17 -2.0 -6.0

Trademark applications 103.7 15 0.0 -10.1

Design applications 81.4 13 -41.5 -5.4

**Sales and employment impacts 114.8 8 2.2 5.0**

Sales of new-to-market and new-to-firm innovations 133.0 4 54.1 15.7

Employment in innovative enterprises 98.8 14 -48.0 -5.2

**Trade impacts 56.2 20 0.9 -1.8**

Exports of medium and high-tech products 56.0 21 6.2 -1.1

Knowledge-intensive services exports 42.0 22 2.3 -0.3

High-tech imports from partners outside the EU 69.9 13 -5.9 -3.6

**Resource and labour productivity 85.9 13 46.1 20.9**

Resource productivity 60.6 18 29.3 27.1

Production-based CO₂ productivity 138.5 6 108.4 33.7

Labour productivity 45.6 17 3.7 1.0

Portugal ranks 16th among EU

Member States, and 20th

among the EU and

neighbouring countries.

**Relative strengths**

• Direct and indirect

government support of

business R&D

• Foreign doctorate students

as a % of all doctorate students

• Public-private co-publications

**Relative weaknesses**

• Innovation expenditures per

person employed

• Venture capital expenditures

• Knowledge-intensive services

exports

**Highest ranked indicators**

**among EU Member States**

• Direct and indirect

government support of

business R&D

• Sales of new-to-market and

new-to-firm innovations

• Production-based CO₂

productivity

**Lowest ranked indicators**

**among EU Member States**

• Innovation expenditures per

person employed

• Knowledge-intensive services

exports

• Exports of medium and hightech

products

**Strong increases since 2018**

• Cloud Computing

• Direct and indirect

government support of

business R&D

• Production-based CO₂

productivity

**Strong decreases since**

**2018**

• SMEs introducing product

innovations

• Non-R&D innovation

expenditures

• Employment in innovative

enterprises

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

*the reference years differ between the*

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*directly compared or subtracted across*

*columns. For a complete overview, refer*

*to the published country profiles.*

European Innovation Scoreboard 2025 141

**Country:**

**ROMANIA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **37.7**

Change vs 2018: ▲ +8.2 Change vs 2024: ▲ +2.7

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 37.7 27 8.2 2.7**

**Human resources 32.4 27 0.2 5.5**

New doctorate graduates 34.7 23 -23.1 0.0

Population with tertiary education 0.0 27 0.0 0.0

Population involved in lifelong learning 64.6 24 38.5 21.2

**Attractive research systems 40.6 26 25.0 4.4**

International scientific co-publications 25.5 27 16.6 1.6

Scientific publications among the top 10% most cited 66.4 18 38.9 8.1

Foreign doctorate students as a % of all doctorate students 13.6 26 2.0 -1.5

**Digitalisation 84.6 21 39.4 -0.2**

High speed internet access 127.5 6 88.2 -2.0

Individuals with above basic overall digital skills 21.3 26 1.1 1.1

**Finance and support 12.9 26 -8.2 0.9**

R&D expenditure in the public sector 13.3 27 -3.4 5.1

Venture capital expenditures 12.6 26 -20.2 -7.8

Direct and indirect government support of business R&D 12.3 23 -7.9 0.0

**Firm investments 14.2 27 -0.5 -0.4**

R&D expenditure in the business sector 19.3 25 3.7 2.2

Non-R&D innovation expenditures 15.5 26 -14.2 -0.9

Innovation expenditures per person employed 8.4 27 6.9 -2.9

**Investments in information technologies 36.8 27 30.1 14.2**

Cloud Computing 30.3 26 91.1 34.9

Employed ICT specialists 43.8 26 5.9 5.9

**Innovators 5.2 27 6.0 0.4**

SMEs introducing product innovations 11.8 27 12.3 0.8

SMEs introducing business process innovations 0.0 27 0.0 0.0

**Linkages 6.7 27 -4.7 -2.2**

Innovative SMEs collaborating with others 0.0 27 -7.0 -3.9

Public-private co-publications 36.5 27 14.1 -3.9

Job-to-job mobility of HRST 0.0 26 -11.8 0.0

**Intellectual assets 42.0 27 4.4 3.2**

PCT patent applications 25.6 27 -7.3 0.4

Trademark applications 71.6 25 20.3 4.1

Design applications 35.6 22 6.3 5.7

**Sales and employment impacts 12.2 27 -3.7 -5.7**

Sales of new-to-market and new-to-firm innovations 26.1 26 -7.6 -11.6

Employment in innovative enterprises 0.0 27 0.0 0.0

**Trade impacts 72.9 11 4.6 3.3**

Exports of medium and high-tech products 91.2 8 6.3 7.6

Knowledge-intensive services exports 61.9 16 13.2 2.0

High-tech imports from partners outside the EU 64.2 17 -4.7 0.1

**Resource and labour productivity 56.8 24 31.4 11.3**

Resource productivity 15.5 25 16.1 7.3

Production-based CO₂ productivity 123.3 9 75.0 27.6

Labour productivity 19.8 26 6.4 -0.5

Romania ranks 27th among EU

Member States, and 36th

among the EU and

neighbouring countries.

**Relative strengths**

• High speed internet access

• Production-based CO₂

productivity

• Exports of medium and hightech

products

**Relative weaknesses**

• Population with tertiary

education

• SMEs introducing business

process innovations

• Innovative SMEs

collaborating with others

**Highest ranked indicators**

**among EU Member States**

• High speed internet access

• Exports of medium and hightech

products

• Production-based CO₂

productivity

**Lowest ranked indicators**

**among EU Member States**

• Population with tertiary

education

• SMEs introducing business

process innovations

• Innovative SMEs

collaborating with others

**Strong increases since 2018**

• Cloud Computing

• High speed internet access

• Production-based CO₂

productivity

**Strong decreases since**

**2018**

• New doctorate graduates

• Venture capital expenditures

• Non-R&D innovation

expenditures

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*For a complete overview, refer to the*

*published country profiles.*

142 European Innovation Scoreboard 2025

**Country:**

**SERBIA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **51.5**

Change vs 2018: ▲ +10.2 Change vs 2024: ▲ +2.3

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 51.5 31 10.2 2.3**

**Human resources 49.4 32 2.6 3.5**

New doctorate graduates 47.7 25 -11.6 0

Population with tertiary education 61 32 18.5 16.6

Population involved in lifelong learning 38.5 31 6.7 -5.8

**Attractive research systems 42.6 32 12.5 -2.1**

International scientific co-publications 53.6 30 30.8 5.4

Scientific publications among the top 10% most cited 47.5 29 12.4 -5.3

Foreign doctorate students as a % of all doctorate students 23.6 33 -4.4 -2

**Digitalisation 25.4 32 -4.9 -4.9**

High speed internet access N/A N/A N/A

Individuals with above basic overall digital skills 31.4 29 -4.5 -4.5

**Finance and support 32.4 29 2.4 -4.6**

R&D expenditure in the public sector 61.7 26 -1.7 -5.1

Venture capital expenditures 13.3 30 16.8 -13.1

Direct and indirect government support of business R&D 10.9 30 0 0

**Firm investments 31.4 32 -41.7 -44.3**

R&D expenditure in the business sector 23.4 29 6 -1.5

Non-R&D innovation expenditures 71.3 21 -145.1 -145.1

Innovation expenditures per person employed 15 30 0 0

**Investments in information technologies 80.2 26 81.1 18.9**

Cloud Computing 78.5 23 227.5 66.5

Employed ICT specialists 82.1 27 23.4 0

**Innovators 154.6 4 78.5 78.5**

SMEs introducing product innovations 217.4 1 101.7 101.7

SMEs introducing business process innovations 105.3 13 56 56

**Linkages 79.7 27 39.5 9.8**

Innovative SMEs collaborating with others 91.9 19 34.3 34.3

Public-private co-publications 61.4 30 26.5 10.9

Job-to-job mobility of HRST 77.1 25 50 -11.8

**Intellectual assets 26.6 33 0.3 3.2**

PCT patent applications 44.2 29 2.6 8

Trademark applications 23.8 34 -0.3 -1

Design applications 3.1 33 -1.7 1.1

**Sales and employment impacts 100.5 15 15.3 15.3**

Sales of new-to-market and new-to-firm innovations 94 18 0 0

Employment in innovative enterprises 105.9 17 30.2 30.2

**Trade impacts 40.9 34 6.4 0**

Exports of medium and high-tech products 47.9 28 -0.7 -4.4

Knowledge-intensive services exports 76.5 16 21.7 4.9

High-tech imports from partners outside the EU 0 32 0 0

**Resource and labour productivity 7.3 38 4.9 -1.8**

Resource productivity 6.2 36 2.9 0

Production-based CO₂ productivity 9.3 37 5.9 -7

Labour productivity 6 31 6.3 0.8

Serbia ranks 31st among

the EU and neighbouring

countries.

**Relative strengths**

• SMEs introducing product

innovations

• Employment in innovative

enterprises

• SMEs introducing business

process innovations

**Relative weaknesses**

• High-tech imports from

partners outside the EU

• Design applications

• Labour productivity

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• SMEs introducing product

innovations

• SMEs introducing business

process innovations

• Knowledge-intensive services

exports

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• Production-based CO₂

productivity

• Resource productivity

• Trademark applications

**Strong increases since 2018**

• Cloud Computing

• SMEs introducing product

innovations

• SMEs introducing business

process innovations

**Strong decreases since**

**2018**

• Non-R&D innovation

expenditures

• New doctorate graduates

• Individuals with above basic

overall digital skills

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

*the reference years differ between the*

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*compared or subtracted across columns.*

*For a complete overview, refer to the*

*published country profiles.*

European Innovation Scoreboard 2025 143

**Country:**

**SWEDEN Innovation Leader ●**

Summary innovation index (indexed to EU in 2025): **138.1**

Change vs 2018: ▲ +12.9 Change vs 2024: ▲ +2.0

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 138.1 1 12.9 2.0**

**Human resources 170.7 2 -9.6 5.7**

New doctorate graduates 139.2 2 -46.2 11.6

Population with tertiary education 158.2 6 33.8 2.0

Population involved in lifelong learning 220.0 1 0.0 0.0

**Attractive research systems 172.6 4 14.6 5.7**

International scientific co-publications 236.0 4 61.1 20.7

Scientific publications among the top 10% most cited 136.6 4 -2.2 1.2

Foreign doctorate students as a % of all doctorate students 167.7 9 8.5 1.6

**Digitalisation 125.8 7 18.6 12.1**

High speed internet access 116.4 10 37.4 22.6

Individuals with above basic overall digital skills 139.4 7 3.7 3.7

**Finance and support 134.5 3 43.0 -7.1**

R&D expenditure in the public sector 133.3 4 -5.1 1.7

Venture capital expenditures 228.0 4 244.8 -47.4

Direct and indirect government support of business R&D 71.2 12 -1.5 2.7

**Firm investments 149.0 1 4.0 10.4**

R&D expenditure in the business sector 160.7 1 7.5 0.0

Non-R&D innovation expenditures 122.8 5 2.9 27.5

Innovation expenditures per person employed 154.0 1 1.5 6.2

**Investments in information technologies 162.1 1 0.0 0.0**

Cloud Computing 155.9 1 0.0 0.0

Employed ICT specialists 169.0 1 0.0 0.0

**Innovators 131.8 4 43.0 -16.6**

SMEs introducing product innovations 157.1 3 40.2 -7.7

SMEs introducing business process innovations 111.8 7 45.8 -25.3

**Linkages 181.1 4 56.5 31.5**

Innovative SMEs collaborating with others 238.9 1 181.9 158.6

Public-private co-publications 402.0 3 80.7 18.8

Job-to-job mobility of HRST 41.7 23 -61.8 -70.6

**Intellectual assets 131.8 2 -15.1 -3.7**

PCT patent applications 160.0 1 0.0 0.0

Trademark applications 118.8 10 -8.7 -12.1

Design applications 102.1 10 -37.6 -2.1

**Sales and employment impacts 112.2 9 22.4 -9.4**

Sales of new-to-market and new-to-firm innovations 111.9 8 42.5 9.8

Employment in innovative enterprises 112.4 12 2.9 -28.2

**Trade impacts 94.6 5 5.4 -0.1**

Exports of medium and high-tech products 87.6 10 3.6 0.8

Knowledge-intensive services exports 105.0 5 10.3 1.9

High-tech imports from partners outside the EU 91.7 5 2.9 -3.0

**Resource and labour productivity 126.6 9 13.7 3.4**

Resource productivity 57.0 20 12.5 6.8

Production-based CO₂ productivity 173.0 1 16.6 0.0

Labour productivity 161.9 4 11.6 2.5

Sweden ranks 1st among EU

Member States, and 2nd

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• Innovative SMEs

collaborating with others

• International scientific copublications

**Relative weaknesses**

• Job-to-job mobility of HRST

• Resource productivity

• Direct and indirect

government support of

business R&D

**Highest ranked indicators**

**among EU Member States**

• Innovative SMEs

collaborating with others

• Population involved in

lifelong learning

• Production-based CO₂

productivity

**Lowest ranked indicators**

**among EU Member States**

• Job-to-job mobility of HRST

• Resource productivity

• Direct and indirect

government support of

business R&D

**Strong increases since 2018**

• Venture capital expenditures

• Innovative SMEs

collaborating with others

• Public-private co-publications

**Strong decreases since**

**2018**

• Job-to-job mobility of HRST

• New doctorate graduates

• Design applications

***Footnote:*** *Performance changes are*

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*published country profiles.*

144 European Innovation Scoreboard 2025

**Country:**

**SLOVENIA Moderate Innovator ●**

Summary innovation index (indexed to EU in 2025): **94.7**

Change vs 2018: ▲ +16.8 Change vs 2024: ▲ +3.4

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 94.7 13 16.8 3.4**

**Human resources 121.1 9 -16.8 17.9**

New doctorate graduates 100.0 9 -69.4 11.6

Population with tertiary education 94.4 17 15.9 15.9

Population involved in lifelong learning 173.8 6 30.8 30.8

**Attractive research systems 105.3 13 40.9 6.0**

International scientific co-publications 165.7 10 77.6 32.2

Scientific publications among the top 10% most cited 67.7 17 5.0 -6.3

Foreign doctorate students as a % of all doctorate students 105.6 17 84.4 7.7

**Digitalisation 85.1 19 19.0 2.3**

High speed internet access 99.5 15 48.2 9.8

Individuals with above basic overall digital skills 63.8 24 -3.7 -3.7

**Finance and support 71.5 16 9.3 -6.2**

R&D expenditure in the public sector 86.7 12 25.4 6.8

Venture capital expenditures 27.3 21 30.7 -2.8

Direct and indirect government support of business R&D 84.3 9 -22.8 -24.6

**Firm investments 65.0 16 -18.4 3.1**

R&D expenditure in the business sector 98.6 8 -5.2 -0.7

Non-R&D innovation expenditures 32.0 25 -63.0 -0.5

Innovation expenditures per person employed 52.8 18 7.0 9.9

**Investments in information technologies 84.4 21 31.2 4.7**

Cloud Computing 86.8 17 147.9 -20.3

Employed ICT specialists 82.1 24 -14.7 14.7

**Innovators 119.7 6 50.1 -1.6**

SMEs introducing product innovations 153.6 5 86.2 5.3

SMEs introducing business process innovations 93.1 14 15.3 -8.3

**Linkages 130.1 12 48.9 3.6**

Innovative SMEs collaborating with others 97.5 13 -0.5 -12.1

Public-private co-publications 243.3 10 79.0 -4.5

Job-to-job mobility of HRST 110.4 11 76.5 20.6

**Intellectual assets 96.3 13 0.0 -0.2**

PCT patent applications 82.6 9 -0.7 -0.3

Trademark applications 121.5 8 9.1 -6.9

Design applications 90.8 12 -5.7 5.3

**Sales and employment impacts 106.2 11 36.4 -2.0**

Sales of new-to-market and new-to-firm innovations 96.6 14 28.0 -1.3

Employment in innovative enterprises 114.4 11 44.4 -2.8

**Trade impacts 95.1 3 19.1 3.9**

Exports of medium and high-tech products 117.0 2 28.1 9.5

Knowledge-intensive services exports 41.6 23 8.3 1.7

High-tech imports from partners outside the EU 122.5 1 19.7 0.0

**Resource and labour productivity 78.6 14 34.3 8.5**

Resource productivity 81.9 14 33.6 6.8

Production-based CO₂ productivity 85.0 20 63.0 19.2

Labour productivity 63.9 15 7.2 0.5

Slovenia ranks 13th among EU

Member States, and 17th

among the EU and

neighbouring countries.

**Relative strengths**

• Public-private co-publications

• Population involved in

lifelong learning

• International scientific copublications

**Relative weaknesses**

• Venture capital expenditures

• Non-R&D innovation

expenditures

• Knowledge-intensive services

exports

**Highest ranked indicators**

**among EU Member States**

• High-tech imports from

partners outside the EU

• Exports of medium and hightech

products

• SMEs introducing product

innovations

**Lowest ranked indicators**

**among EU Member States**

• Non-R&D innovation

expenditures

• Individuals with above basic

overall digital skills

• Employed ICT specialists

**Strong increases since 2018**

• Cloud Computing

• SMEs introducing product

innovations

• Foreign doctorate students

as a % of all doctorate students

**Strong decreases since**

**2018**

• New doctorate graduates

• Non-R&D innovation

expenditures

• Direct and indirect

government support of

business R&D

***Footnote:*** *Performance changes are*

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*published country profiles.*

European Innovation Scoreboard 2025 145

**Country:**

**SLOVAKIA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **62.6**

Change vs 2018: ▲ +8.3 Change vs 2024: ▼ -1.0

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**EU Member**

**States**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 62.6 24 8.3 -1.0**

**Human resources 76.0 18 -19.5 -4.4**

New doctorate graduates 73.9 19 -34.7 -11.6

Population with tertiary education 61.0 23 -15.2 -17.2

Population involved in lifelong learning 94.6 15 0.0 22.1

**Attractive research systems 54.6 22 23.4 5.2**

International scientific co-publications 66.3 22 27.4 4.0

Scientific publications among the top 10% most cited 42.0 24 17.2 6.0

Foreign doctorate students as a % of all doctorate students 63.0 19 33.1 4.9

**Digitalisation 80.6 23 36.4 -0.9**

High speed internet access 83.6 22 77.4 -7.2

Individuals with above basic overall digital skills 75.9 20 3.9 3.9

**Finance and support 38.4 22 14.1 -4.4**

R&D expenditure in the public sector 55.0 21 10.2 5.1

Venture capital expenditures 18.6 24 9.6 -7.1

Direct and indirect government support of business R&D 32.4 18 21.8 -15.6

**Firm investments 52.6 22 2.9 -5.8**

R&D expenditure in the business sector 37.2 20 13.4 1.5

Non-R&D innovation expenditures 94.5 9 -17.8 -20.6

Innovation expenditures per person employed 42.0 21 10.2 -0.5

**Investments in information technologies 80.4 22 44.6 4.5**

Cloud Computing 71.8 22 135.5 -14.1

Employed ICT specialists 89.8 19 8.8 11.7

**Innovators 47.3 23 14.9 -0.9**

SMEs introducing product innovations 53.2 23 14.2 6.0

SMEs introducing business process innovations 42.6 24 15.5 -7.8

**Linkages 53.9 25 15.6 5.8**

Innovative SMEs collaborating with others 71.2 19 12.0 20.3

Public-private co-publications 78.7 23 18.7 -13.2

Job-to-job mobility of HRST 29.2 24 17.6 2.9

**Intellectual assets 51.8 25 -1.0 -5.6**

PCT patent applications 45.0 23 -4.8 -7.3

Trademark applications 84.8 22 12.3 -0.3

Design applications 27.4 24 -6.6 -7.9

**Sales and employment impacts 72.9 20 -24.6 -10.7**

Sales of new-to-market and new-to-firm innovations 113.3 7 -50.0 -6.8

Employment in innovative enterprises 37.5 23 0.2 -14.6

**Trade impacts 71.8 12 4.8 2.4**

Exports of medium and high-tech products 114.2 4 3.6 -2.1

Knowledge-intensive services exports 51.6 20 20.7 8.0

High-tech imports from partners outside the EU 47.0 18 -8.5 2.3

**Resource and labour productivity 68.7 19 25.5 7.7**

Resource productivity 86.3 11 38.0 19.9

Production-based CO₂ productivity 61.6 22 24.9 0.0

Labour productivity 52.6 16 11.9 1.5

Slovakia ranks 24th among EU

Member States, and 28th

among the EU and

neighbouring countries.

**Relative strengths**

• Exports of medium and hightech

products

• Sales of new-to-market and

new-to-firm innovations

• Population involved in

lifelong learning

**Relative weaknesses**

• Venture capital expenditures

• Design applications

• Job-to-job mobility of HRST

**Highest ranked indicators**

**among EU Member States**

• Exports of medium and hightech

products

• Sales of new-to-market and

new-to-firm innovations

• Non-R&D innovation

expenditures

**Lowest ranked indicators**

**among EU Member States**

• Venture capital expenditures

• Design applications

• Job-to-job mobility of HRST

**Strong increases since 2018**

• Cloud Computing

• High speed internet access

• Resource productivity

**Strong decreases since**

**2018**

• Sales of new-to-market and

new-to-firm innovations

• New doctorate graduates

• Non-R&D innovation

expenditures

***Footnote:*** *Performance changes are*

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*published country profiles.*

146 European Innovation Scoreboard 2025

**Country:**

**TÜRKIYE Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **58**

Change vs 2018: ▲ +6.6 Change vs 2024: ▲ +2.7

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 58 29 6.6 2.7**

**Human resources 62.1 30 23.2 9.8**

New doctorate graduates 34.7 28 23.1 11.6

Population with tertiary education 95.5 21 31.1 10.6

Population involved in lifelong learning 57.7 29 14.4 5.8

**Attractive research systems 45.2 29 16.9 -3.9**

International scientific co-publications 16.2 36 18 4.6

Scientific publications among the top 10% most cited 74.3 21 26 -0.9

Foreign doctorate students as a % of all doctorate students 27.3 32 -3.1 -17.5

**Digitalisation 22.9 33 3.7 3.7**

High speed internet access N/A N/A N/A

Individuals with above basic overall digital skills 28.3 30 3.3 3.3

**Finance and support 77 17 31.8 6.6**

R&D expenditure in the public sector 63.3 25 -11.9 -1.7

Venture capital expenditures 1.3 35 1.5 -0.5

Direct and indirect government support of business R&D 145.2 7 104.5 21.5

**Firm investments 55.1 26 9.3 6.2**

R&D expenditure in the business sector 61.4 20 27.6 9

Non-R&D innovation expenditures 56 28 -14.6 -4.1

Innovation expenditures per person employed 48.7 22 11.7 12.4

**Investments in information technologies 18.2 38 16.2 13.1**

Cloud Computing 25.1 34 49.7 45.6

Employed ICT specialists 10.5 37 2.9 0

**Innovators 73.8 28 -59.4 10.6**

SMEs introducing product innovations 71.9 27 -62.4 0.6

SMEs introducing business process innovations 75.4 27 -56.6 20.4

**Linkages 77.3 29 -19.9 -2.5**

Innovative SMEs collaborating with others 72.9 24 -13.3 36.1

Public-private co-publications 16.2 36 12.5 3.2

Job-to-job mobility of HRST 106.3 17 -41.2 -38.2

**Intellectual assets 29.1 32 2.6 -1.4**

PCT patent applications 54.4 24 3.7 -3.4

Trademark applications 18.4 35 7 0.5

Design applications 1.5 36 -2.1 -0.4

**Sales and employment impacts 76 26 17 -11.5**

Sales of new-to-market and new-to-firm innovations 98.9 16 19.5 -29.3

Employment in innovative enterprises 55.7 29 14.5 5.7

**Trade impacts 67.7 20 -4.5 -2.3**

Exports of medium and high-tech products 51.7 26 0.3 1.1

Knowledge-intensive services exports 46.7 30 4 0

High-tech imports from partners outside the EU 104 3 -17.4 -7.8

**Resource and labour productivity 79.5 18 37.1 16.5**

Resource productivity 75.6 20 44 23.3

Production-based CO₂ productivity 65.7 27 27.2 7.6

Labour productivity N/A N/A N/A

Türkiye ranks 29th among

the EU and neighbouring

countries.

**Relative strengths**

• Direct and indirect

government support of

business R&D

• Job-to-job mobility of HRST

• High-tech imports from

partners outside the EU

**Relative weaknesses**

• Venture capital expenditures

• Design applications

• Employed ICT specialists

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• High-tech imports from

partners outside the EU

• Direct and indirect

government support of

business R&D

• Sales of new-to-market and

new-to-firm innovations

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• Employed ICT specialists

• Design applications

• International scientific copublications

**Strong increases since 2018**

• Direct and indirect

government support of

business R&D

• Cloud Computing

• Resource productivity

**Strong decreases since**

**2018**

• SMEs introducing product

innovations

• SMEs introducing business

process innovations

• Job-to-job mobility of HRST

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*published country profiles.*

European Innovation Scoreboard 2025 147

**Country:**

**UKRAINE Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **29**

Change vs 2018: ▲ +7.6 Change vs 2024: ▼ -1.3

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 29 37 7.6 -1.3**

**Human resources 69.3 28 -2.6 0**

New doctorate graduates 28 33 -6 0

Population with tertiary education 178 5 0 0

Population involved in lifelong learning 0 39 0 0

**Attractive research systems 12 39 9.6 2.3**

International scientific co-publications 5.7 39 5.5 0

Scientific publications among the top 10% most cited 18.2 38 14.2 6.4

Foreign doctorate students as a % of all doctorate students 7.8 37 2.5 -5

**Digitalisation N/A N/A N/A**

High speed internet access N/A N/A N/A

Individuals with above basic overall digital skills N/A N/A N/A

**Finance and support 16.4 32 6 0**

R&D expenditure in the public sector 5 37 -5.1 0

Venture capital expenditures 43.5 20 44.7 0

Direct and indirect government support of business R&D 11.1 29 0 0

**Firm investments 18.7 35 -11.1 -9.8**

R&D expenditure in the business sector 10.4 34 -1.5 1

Non-R&D innovation expenditures 36.5 32 -23.1 -23.1

Innovation expenditures per person employed N/A N/A N/A

**Investments in information technologies N/A N/A N/A**

Cloud Computing N/A N/A N/A

Employed ICT specialists N/A N/A N/A

**Innovators 0 39 0 0**

SMEs introducing product innovations 0 39 0 0

SMEs introducing business process innovations 0 38 0 0

**Linkages 8 38 -14.5 -18.1**

Innovative SMEs collaborating with others 7.6 37 -33 -33

Public-private co-publications 13.8 37 12.3 0

Job-to-job mobility of HRST N/A N/A N/A

**Intellectual assets 18.9 36 -4.9 0.3**

PCT patent applications 33.3 33 -13.1 0.9

Trademark applications 15.4 36 11 0

Design applications 0.5 38 -7.2 0

**Sales and employment impacts 3.1 38 3.1 0**

Sales of new-to-market and new-to-firm innovations 3.2 39 3.1 0

Employment in innovative enterprises N/A N/A N/A

**Trade impacts 77.9 11 50.4 2.6**

Exports of medium and high-tech products 72 19 63.5 5.1

Knowledge-intensive services exports 84.9 13 36.5 -0.2

High-tech imports from partners outside the EU N/A N/A N/A

**Resource and labour productivity 34.2 35 29.6 0**

Resource productivity N/A N/A N/A

Production-based CO₂ productivity 30.7 36 31.5 0

Labour productivity N/A N/A N/A

Ukraine ranks 37th among

the EU and neighbouring

countries.

**Relative strengths**

• Population with tertiary

education

• Knowledge-intensive services

exports

• Exports of medium and hightech

products

**Relative weaknesses**

• Population involved in

lifelong learning

• SMEs introducing product

innovations

• SMEs introducing business

process innovations

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• Population with tertiary

education

• Knowledge-intensive services

exports

• Exports of medium and hightech

products

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• Population involved in

lifelong learning

• SMEs introducing product

innovations

• Sales of new-to-market and

new-to-firm innovations

**Strong increases since 2018**

• Exports of medium and hightech

products

• Venture capital expenditures

• Knowledge-intensive services

exports

**Strong decreases since**

**2018**

• Innovative SMEs

collaborating with others

• Non-R&D innovation

expenditures

• PCT patent applications

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

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*columns (2018), scores cannot be*

*directly compared or subtracted across*

*columns. For a complete overview, refer*

*to the published country profiles.*

148 European Innovation Scoreboard 2025

**Country:**

**UNITED KINGDOM Innovation Leader ●**

Summary innovation index (indexed to EU in 2025): **125.5**

Change vs 2018: ▲ +12.2 Change vs 2024: ▲ +1.2

**Indicator**

**Performance**

**indexed to**

**the EU in**

**2025**

**Rank among**

**the EU and**

**neighbouring**

**countries**

**Performance**

**change**

**2018-2025**

**Performance**

**change**

**2024-2025**

**SUMMARY INNOVATION INDEX 125.5 5 12.2 1.2**

**Human resources 140 8 4.2 7.4**

New doctorate graduates 175.3 3 -3.8 17.4

Population with tertiary education 129.9 14 14.6 0

Population involved in lifelong learning 110 17 4.8 0

**Attractive research systems 161.5 8 2.6 -2.3**

International scientific co-publications 145.6 15 40 0

Scientific publications among the top 10% most cited 151.7 2 -6.8 -4.4

Foreign doctorate students as a % of all doctorate students 192.3 7 -12.6 0

**Digitalisation 111 15 158.9 24.6**

High speed internet access 93.1 23 180 27.9

Individuals with above basic overall digital skills N/A N/A N/A

**Finance and support 158.1 2 40.4 0**

R&D expenditure in the public sector 68.3 22 3.4 0

Venture capital expenditures 270 1 206 0

Direct and indirect government support of business R&D 185.8 1 0 0

**Firm investments 87.4 14 20.2 0**

R&D expenditure in the business sector 79.3 13 6 0

Non-R&D innovation expenditures 121.3 7 37.5 0

Innovation expenditures per person employed N/A N/A N/A

**Investments in information technologies 117.7 10 51 0**

Cloud Computing 120 11 150.6 0

Employed ICT specialists 115.3 10 11.7 0

**Innovators 99.4 21 0.9 0**

SMEs introducing product innovations 113.4 18 -13.2 0

SMEs introducing business process innovations 88.5 22 14.8 0

**Linkages 214.1 3 18.8 0**

Innovative SMEs collaborating with others 238.9 1 0 0

Public-private co-publications 213.2 14 42.1 0

Job-to-job mobility of HRST 193.8 1 23.5 0

**Intellectual assets 73.8 22 -25.5 -4.4**

PCT patent applications 99.8 10 -9.3 -6.2

Trademark applications 69.7 28 -30.1 -6.2

Design applications 38 22 -41.4 -0.9

**Sales and employment impacts 93.8 20 -32.5 0**

Sales of new-to-market and new-to-firm innovations 63.3 26 -59.4 0

Employment in innovative enterprises 120.3 9 -6.1 0

**Trade impacts 104.2 2 2.9 0.3**

Exports of medium and high-tech products 80.4 13 -7.7 0

Knowledge-intensive services exports 110.9 4 5.2 0.8

High-tech imports from partners outside the EU 122.4 2 11.7 -0.1

**Resource and labour productivity 168.5 4 45.6 7.5**

Resource productivity 170.3 1 23.1 0

Production-based CO₂ productivity 129 10 69.7 15.9

Labour productivity N/A N/A N/A

The United Kingdom ranks 5th

among the EU and

neighbouring countries.

**Relative strengths**

• Venture capital expenditures

• Innovative SMEs

collaborating with others

• Public-private co-publications

**Relative weaknesses**

• Design applications

• Sales of new-to-market and

new-to-firm innovations

• R&D expenditure in the

public sector

**Highest ranked indicators**

**among the EU and**

**neighbouring countries**

• Venture capital expenditures

• Innovative SMEs

collaborating with others

• Job-to-job mobility of HRST

**Lowest ranked indicators**

**among the EU and**

**neighbouring countries**

• Trademark applications

• Sales of new-to-market and

new-to-firm innovations

• High speed internet access

**Strong increases since 2018**

• Venture capital expenditures

• High speed internet access

• Cloud Computing

**Strong decreases since**

**2018**

• Sales of new-to-market and

new-to-firm innovations

• Design applications

• Trademark applications

***Footnote:*** *Performance changes are*

*indexed to the EU average in 2018. Since*

*the reference years differ between the*

*first column (2025) and the last two*

*columns (2018), scores cannot be directly*

*compared or subtracted across columns.*

*For a complete overview, refer to the*

*published country profiles.*

European Innovation Scoreboard 2025 149

**Country:**

**AUSTRALIA Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **111.1**

Change vs 2018: ▲ +15.7 Change vs 2024: ▲ +3.8

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 111.1 15.7

New doctorate graduates 147.1 15.8

Population with tertiary education 145.3 49.5

International scientific co-publications 181.8 35.3

Scientific publications among the top 10% most cited 159.3 -7.3

R&D expenditure in the public sector 104.6 -16.3

Direct and indirect government support of business R&D 80.4 -28.6

R&D expenditure in the business sector 60.0 -12.9

Employed ICT specialists 97.9 24.9

SMEs introducing product innovations 101.4 -73.5

SMEs introducing business process innovations 158.0 77.1

Innovative SMEs collaborating with others 326.7 -106.7

Public-private co-publications 200.0 43.6

PCT patent applications 65.1 -20.0

Trademark applications 450.0 144.9

Design applications 106.5 7.9

Exports of medium and high-tech products 4.8 -2.4

Knowledge-intensive services exports 6.2 6.4

Australia is the fifth most innovative global competitor,

classified as a Strong Innovator and performing at

111.1% of the EU average in 2025. The country's

relative strengths are Trademark applications,

Innovative SMEs collaborating with others, and Publicprivate

co-publications. Its relative weaknesses are

Exports of medium and high-tech products, Knowledgeintensive

services exports, and R&D expenditure in the

business sector.

**Structural differences AU EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 64850.4 56159.9

Average annual GDP growth (2021-23 average) 3.8 2

Employment share Agriculture (2021-23 average) 2.3 4

Employment share Industry (2021-23 average) 18.9 24.5

Employment share Services (2021-23 average) 78.9 71.6

Employment share Knowledge-intensive services (2021-23 average) 5.4 14.8

**Business and entrepreneurship**

FDI net inflows (2021-23 average) 2.7 1

Top R&D spending enterprises per 10 million population (2022-24 average) 3.4 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 416.6 616.4

Number of unicorns (January 2025) 9 111

Buyer sophistication (2015-17 average) 3.9 3.7

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 7.1

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 75.7 62.6

Government procurement of advanced technology products (2015-17 average) 3.3 3.4

Rule of law (2020-23 average) 1.6 1

Basic-school entrepreneurial education and training (2022-24 average) 2.4

**Demography**

Population size (2021-23 average, in millions) 26.1 447.7

Average annual population growth (2021-23 average) 1.9 0.3

Population density (2020-22 average) 3.4 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

150 European Innovation Scoreboard 2025

**Country:**

**BRAZIL Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **53.7**

Change vs 2018: ▲ +9.5 Change vs 2024: ▲ +0.9

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 53.7 9.5

New doctorate graduates 22.1 3.9

Population with tertiary education 41.5 27.9

International scientific co-publications 36.4 15.6

Scientific publications among the top 10% most cited 13 -8.4

R&D expenditure in the public sector N/A N/A

Direct and indirect government support of business R&D 44.6 -5.2

R&D expenditure in the business sector N/A N/A

Employed ICT specialists 32.6 14.3

SMEs introducing product innovations 59.7 -11.3

SMEs introducing business process innovations 184 -44.3

Innovative SMEs collaborating with others 120 -91.7

Public-private co-publications 10 4.7

PCT patent applications 11.6 -4.1

Trademark applications 391.7 294.6

Design applications 35.5 0.1

Exports of medium and high-tech products 21.7 -14.3

Knowledge-intensive services exports 102.5 2.9

Brazil is an Emerging Innovator, performing at 53.7% of

the EU average in 2025. The country's relative strengths

are Trademark applications, SMEs introducing business

process innovations, and Innovative SMEs collaborating

with others. Its relative weaknesses are Public-private

co-publications, PCT patent applications, and Scientific

publications among the top 10% most cited.

**Structural differences BR EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 19686.6 56159.9

Average annual GDP growth (2021-23 average) 3 2

Employment share Agriculture (2021-23 average) 8.8 4

Employment share Industry (2021-23 average) 20.5 24.5

Employment share Services (2021-23 average) 70.7 71.6

Employment share Knowledge-intensive services (2021-23 average) 12.5 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 19.7 7.1

FDI net inflows (2021-23 average) 3.2 1

Top R&D spending enterprises per 10 million population (2022-24 average) 0.2 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 219.2 616.4

Number of unicorns (January 2025) 18 111

Buyer sophistication (2015-17 average) 3.4 3.7

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 36 62.6

Basic-school entrepreneurial education and training (2022-24 average) 2.2 2.4

Government procurement of advanced technology products (2015-17 average) 2.8 3.4

Rule of law (2020-23 average) -0.3 1

**Demography**

Population size (2021-23 average, in millions) 210.3 447.7

Average annual population growth (2021-23 average) 0.4 0.3

Population density (2020-22 average) 25.1 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

European Innovation Scoreboard 2025 151

**Country:**

**CANADA Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **118.5**

Change vs 2018: ▲ +16.5 Change vs 2024: ▼ -0.1

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 118.5 16.5

New doctorate graduates 95.6 -2.5

Population with tertiary education 179.2 55.4

International scientific co-publications 167.3 51.6

Scientific publications among the top 10% most cited 120.4 -23.6

R&D expenditure in the public sector 103.1 -11.8

Direct and indirect government support of business R&D 117.9 23.5

R&D expenditure in the business sector 75 11.7

Employed ICT specialists N/A N/A

SMEs introducing product innovations 138.9 -34.6

SMEs introducing business process innovations 200 -11.8

Innovative SMEs collaborating with others 253.3 -193.5

Public-private co-publications 182 39.2

PCT patent applications 90.7 -6.6

Trademark applications 275 41.2

Design applications 90.3 19.1

Exports of medium and high-tech products 49.4 -6.8

Knowledge-intensive services exports 82.7 3.1

Canada is the second most innovative global

competitor, tied with China. It is classified as a Strong

Innovator, performing at 118.5% of the EU average in

2025. The country's relative strengths are Trademark

applications, Innovative SMEs collaborating with

others, and SMEs introducing business process

innovations. Its relative weaknesses are Exports of

medium and high-tech products, R&D expenditure in

the business sector, and Knowledge-intensive services

exports.

**Structural differences CA EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 60944.5 56159.9

Average annual GDP growth (2021-23 average) 2.5 2

Employment share Agriculture (2021-23 average) 1.3 4

Employment share Industry (2021-23 average) 19.3 24.5

Employment share Services (2021-23 average) 79.4 71.6

Employment share Knowledge-intensive services (2021-23 average) 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 20.6 7.1

FDI net inflows (2021-23 average) 2.4 1

Top R&D spending enterprises per 10 million population (2022-24 average) 6.9 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 259.2 616.4

Number of unicorns (January 2025) 21 111

Buyer sophistication (2015-17 average) 4.4 3.7

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 75 62.6

Basic-school entrepreneurial education and training (2022-24 average) 3.6 2.4

Government procurement of advanced technology products (2015-17 average) 3.4 3.4

Rule of law (2020-23 average) 1.5 1

**Demography**

Population size (2021-23 average, in millions) 39.1 447.7

Average annual population growth (2021-23 average) 2.4 0.3

Population density (2020-22 average) 4.3 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest*

*above or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

152 European Innovation Scoreboard 2025

**Country:**

**CHILE Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **38.9**

Change vs 2018: ▲ +15.5 Change vs 2024: ▲ +2.7

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 38.9 15.5

New doctorate graduates 13.2 0.0

Population with tertiary education 96.2 50.5

International scientific co-publications 92.7 39.3

Scientific publications among the top 10% most cited 24.1 -1.3

R&D expenditure in the public sector 1.5 1.6

Direct and indirect government support of business R&D 5.4 1.9

R&D expenditure in the business sector 2.5 -2.9

Employed ICT specialists 57.9 19.0

SMEs introducing product innovations 22.2 23.0

SMEs introducing business process innovations 34.0 43.3

Innovative SMEs collaborating with others 153.3 211.4

Public-private co-publications 26.0 11.7

PCT patent applications 25.6 -6.3

Trademark applications 483.3 182.9

Design applications 0.0 -9.3

Exports of medium and high-tech products 0.0 -2.4

Knowledge-intensive services exports 39.5 11.3

Chile is an Emerging Innovator, performing at 38.9% of

the EU average in 2025. The country's relative strengths

are Trademark applications, Innovative SMEs

collaborating with others, and Population with tertiary

education. Its relative weaknesses are Design

applications, Exports of medium and high-tech

products, and R&D expenditure in the public sector.

**Structural differences CL EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 30940.5 56159.9

Average annual GDP growth (2021-23 average) 1.1 2

Employment share Agriculture (2021-23 average) 6.4 4

Employment share Industry (2021-23 average) 22.6 24.5

Employment share Services (2021-23 average) 71 71.6

Employment share Knowledge-intensive services (2021-23 average) 9 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 28.4 7.1

FDI net inflows (2021-23 average) 5.8 1

Number of unicorns (January 2025) 2 111

Buyer sophistication (2015-17 average) 3.9 3.7

Top R&D spending enterprises per 10 million population (2022-24 average) 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 616.4

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 65.3 62.6

Basic-school entrepreneurial education and training (2022-24 average) 2.7 2.4

Government procurement of advanced technology products (2015-17 average) 2.9 3.4

Rule of law (2020-23 average) 0.7 1

**Demography**

Population size (2021-23 average, in millions) 19.6 447.7

Average annual population growth (2021-23 average) 0.5 0.3

Population density (2020-22 average) 26.2 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

European Innovation Scoreboard 2025 153

**Country:**

**CHINA Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **118.5**

Change vs 2018: ▲ +44.8 Change vs 2024: ▲ +6.0

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 118.5 44.8

New doctorate graduates N/A N/A

Population with tertiary education 81.1 14

International scientific co-publications 34.5 21.6

Scientific publications among the top 10% most cited 135.2 54.3

R&D expenditure in the public sector 76.9 20.7

Direct and indirect government support of business R&D 158.9 98

R&D expenditure in the business sector 135 21.1

Employed ICT specialists N/A N/A

SMEs introducing product innovations N/A N/A

SMEs introducing business process innovations N/A N/A

Innovative SMEs collaborating with others N/A N/A

Public-private co-publications 56 48.2

PCT patent applications 111.6 18.7

Trademark applications 833.3 431.5

Design applications 312.9 28.4

Exports of medium and high-tech products 92.8 2

Knowledge-intensive services exports 108.6 39.2

China is the second most innovative global competitor,

tied with Canada. It is classified as a Strong Innovator,

performing at 118.5% of the EU average in 2025. The

country's relative strengths are Trademark applications,

Design applications, and Direct and indirect

government support of business R&D. Its relative

weaknesses are International scientific co-publications,

Public-private co-publications, and R&D expenditure in

the public sector.

**Structural differences CN EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 22495.2 56159.9

Average annual GDP growth (2021-23 average) 4.1 2

Employment share Agriculture (2021-23 average) 22.8 4

Employment share Industry (2021-23 average) 31.7 24.5

Employment share Services (2021-23 average) 45.4 71.6

Employment share Knowledge-intensive services (2021-23 average) 27.3 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 6.1 7.1

FDI net inflows (2021-23 average) 1.1 1

Top R&D spending enterprises per 10 million population (2022-24 average) 4.4 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 336.9 616.4

Number of unicorns (January 2025) 162 111

Buyer sophistication (2015-17 average) 4.3 3.7

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 43.3 62.6

Government procurement of advanced technology products (2015-17 average) 4.4 3.4

Rule of law (2020-23 average) 0 1

Basic-school entrepreneurial education and training (2022-24 average) 2.4

**Demography**

Population size (2021-23 average, in millions) 1411.7 447.7

Average annual population growth (2021-23 average) -0.1 0.3

Population density (2020-22 average) 150.4 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

154 European Innovation Scoreboard 2025

**Country:**

**INDIA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **48.1**

Change vs 2018: ▲ +10.8 Change vs 2024: ▲ +0.8

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 48.1 10.8

New doctorate graduates 1.5 1.3

Population with tertiary education 32.1 13.1

International scientific co-publications 10.9 14.9

Scientific publications among the top 10% most cited 74.1 23.8

R&D expenditure in the public sector 46.2 -1.5

Direct and indirect government support of business R&D N/A N/A

R&D expenditure in the business sector 22.5 -3.4

Employed ICT specialists N/A N/A

SMEs introducing product innovations 36.1 -9

SMEs introducing business process innovations 16 -3.9

Innovative SMEs collaborating with others 546.7 -417.6

Public-private co-publications 2 2.4

PCT patent applications 25.6 -0.9

Trademark applications 83.3 50.8

Design applications 38.7 13.5

Exports of medium and high-tech products 51.8 7.7

Knowledge-intensive services exports 121 10.6

India is an Emerging Innovator, performing at 48.1% of

the EU average in 2025. The country's relative strengths

are Innovative SMEs collaborating with others,

Knowledge-intensive services exports, and Trademark

applications. Its relative weaknesses are New doctorate

graduates, Public-private co-publications, and

International scientific co-publications.

**Structural differences IN EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 9123.4 56159.9

Average annual GDP growth (2021-23 average) 7.6 2

Employment share Agriculture (2021-23 average) 43.5 4

Employment share Industry (2021-23 average) 25.2 24.5

Employment share Services (2021-23 average) 31.3 71.6

Employment share Knowledge-intensive services (2021-23 average) 13.7 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 11.9 7.1

FDI net inflows (2021-23 average) 1.2 1

Top R&D spending enterprises per 10 million population (2022-24 average) 0.1 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 256.5 616.4

Number of unicorns (January 2025) 68 111

Buyer sophistication (2015-17 average) 4.4 3.7

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 39 62.6

Basic-school entrepreneurial education and training (2022-24 average) 5.6 2.4

Government procurement of advanced technology products (2015-17 average) 4.3 3.4

Rule of law (2020-23 average) 0.1 1

**Demography**

Population size (2021-23 average, in millions) 1425.9 447.7

Average annual population growth (2021-23 average) 0.8 0.3

Population density (2020-22 average) 475.6 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

European Innovation Scoreboard 2025 155

**Country:**

**JAPAN Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **100**

Change vs 2018: ▲ +6.9 Change vs 2024: ▲ +1.6

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 100.0 6.9

New doctorate graduates 48.5 -2.5

Population with tertiary education 175.5 49.1

International scientific co-publications 63.6 20.9

Scientific publications among the top 10% most cited 24.1 -9.9

R&D expenditure in the public sector 93.8 4.5

Direct and indirect government support of business R&D 92.9 18.0

R&D expenditure in the business sector 187.5 -8.2

Employed ICT specialists 105.3 37.5

SMEs introducing product innovations 31.9 -18.7

SMEs introducing business process innovations 60.0 -38.7

Innovative SMEs collaborating with others 146.7 -1,226.3

Public-private co-publications 84.0 12.3

PCT patent applications 232.6 24.2

Trademark applications 191.7 108.0

Design applications 112.9 12.3

Exports of medium and high-tech products 114.5 -3.8

Knowledge-intensive services exports 96.3 1.7

Japan is a Strong Innovator, with performance matching

the EU average in 2025 (100%). The country's relative

strengths are PCT patent applications, Trademark

applications, and R&D expenditure in the business

sector. Its relative weaknesses are Scientific

publications among the top 10% most cited, SMEs

introducing product innovations, and New doctorate

graduates.

**Structural differences JP EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 47146 56159.9

Average annual GDP growth (2021-23 average) 1.3 2

Employment share Agriculture (2021-23 average) 3.1 4

Employment share Industry (2021-23 average) 23.7 24.5

Employment share Services (2021-23 average) 73.2 71.6

Employment share Knowledge-intensive services (2021-23 average) 20 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 6.3 7.1

FDI net inflows (2021-23 average) 0.8 1

Top R&D spending enterprises per 10 million population (2022-24 average) 17.2 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 517.5 616.4

Number of unicorns (January 2025) 8 111

Buyer sophistication (2015-17 average) 5 3.7

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 72.3 62.6

Basic-school entrepreneurial education and training (2022-24 average) 2.4 2.4

Government procurement of advanced technology products (2015-17 average) 4 3.4

Rule of law (2020-23 average) 1.5 1

**Demography**

Population size (2021-23 average, in millions) 125.1 447.7

Average annual population growth (2021-23 average) -0.5 0.3

Population density (2020-22 average) 344.8 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

156 European Innovation Scoreboard 2025

**Country:**

**SOUTH KOREA Innovation Leader ●**

Summary innovation index (indexed to EU in 2025): **135.2**

Change vs 2018: ▲ +25.8 Change vs 2024: ▲ +6.3

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 135.2 25.8

New doctorate graduates 129.4 32.6

Population with tertiary education 188.7 36.3

International scientific co-publications 96.4 44.2

Scientific publications among the top 10% most cited 77.8 11.8

R&D expenditure in the public sector 153.8 30.7

Direct and indirect government support of business R&D 178.6 -2.6

R&D expenditure in the business sector 250.0 12.2

Employed ICT specialists 87.4 30.7

SMEs introducing product innovations 29.2 -35.8

SMEs introducing business process innovations 12.0 -78.6

Innovative SMEs collaborating with others 126.7 -168.2

Public-private co-publications 146.0 60.3

PCT patent applications 232.6 27.8

Trademark applications 591.7 251.9

Design applications 312.9 28.4

Exports of medium and high-tech products 118.1 -1.4

Knowledge-intensive services exports 109.9 31.4

South Korea remains the most innovative global

competitor. It is classified as an Innovation Leader,

performing at 135.2% of the EU average in 2025. The

country's relative strengths are Trademark applications,

Design applications, and R&D expenditure in the

business sector. Its relative weaknesses are SMEs

introducing business process innovations, SMEs

introducing product innovations, and Scientific

publications among the top 10% most cited.

**Structural differences KR EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 50618.4 56159.9

Average annual GDP growth (2021-23 average) 2 2

Employment share Agriculture (2021-23 average) 5.4 4

Employment share Industry (2021-23 average) 24.4 24.5

Employment share Services (2021-23 average) 70.3 71.6

Employment share Knowledge-intensive services (2021-23 average) 25.6 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 11.3 7.1

FDI net inflows (2021-23 average) 1.2 1

Top R&D spending enterprises per 10 million population (2022-24 average) 9 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 813.1 616.4

Number of unicorns (January 2025) 13 111

Buyer sophistication (2015-17 average) 5 3.7

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 63.3 62.6

Government procurement of advanced technology products (2015-17 average) 3.8 3.4

Rule of law (2020-23 average) 1.2 1

Basic-school entrepreneurial education and training (2022-24 average) 2.4

**Demography**

Population size (2021-23 average, in millions) 51.7 447.7

Average annual population growth (2021-23 average) -0.1 0.3

Population density (2020-22 average) 530.3 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

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**Country:**

**MEXICO Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **27.8**

Change vs 2018: ▲ +3.0 Change vs 2024: ▲ +0.4

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 27.8 3

New doctorate graduates 13.2 5.2

Population with tertiary education 54.7 30.2

International scientific co-publications 25.5 11.3

Scientific publications among the top 10% most cited 1.9 1.8

R&D expenditure in the public sector 12.3 -17.8

Direct and indirect government support of business R&D 3.6 4

R&D expenditure in the business sector 0 0

Employed ICT specialists 2.1 1.4

SMEs introducing product innovations N/A N/A

SMEs introducing business process innovations N/A N/A

Innovative SMEs collaborating with others N/A N/A

Public-private co-publications 4 2.4

PCT patent applications 0 -8.9

Trademark applications 241.7 138.5

Design applications 41.9 8.3

Exports of medium and high-tech products 109.6 -0.2

Knowledge-intensive services exports 19.8 -8

Mexico is an Emerging Innovator, performing at 27.8%

of the EU average in 2025. The country's relative

strengths are Trademark applications, Exports of

medium and high-tech products, and Population with

tertiary education. Its relative weaknesses are R&D

expenditure in the business sector, PCT patent

applications, and Scientific publications among the top

10% most cited.

**Structural differences MX EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 22972.6 56159.9

Average annual GDP growth (2021-23 average) 3.4 2

Employment share Agriculture (2021-23 average) 12.6 4

Employment share Industry (2021-23 average) 24.8 24.5

Employment share Services (2021-23 average) 62.5 71.6

Employment share Knowledge-intensive services (2021-23 average) 21.1 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 14.9 7.1

FDI net inflows (2021-23 average) 2.4 1

Number of unicorns (January 2025) 8 111

Buyer sophistication (2015-17 average) 3.4 3.7

Top R&D spending enterprises per 10 million population (2022-24 average) 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 616.4

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 29.3 62.6

Basic-school entrepreneurial education and training (2022-24 average) 2.1 2.4

Government procurement of advanced technology products (2015-17 average) 3.1 3.4

Rule of law (2020-23 average) -0.8 1

**Demography**

Population size (2021-23 average, in millions) 128.7 447.7

Average annual population growth (2021-23 average) 0.8 0.3

Population density (2020-22 average) 65.7 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

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**Country:**

**UNITED STATES Strong Innovator ●**

Summary innovation index (indexed to EU in 2025): **113**

Change vs 2018: ▲ +17.8 Change vs 2024: ▲ +1.8

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 113.0 17.8

New doctorate graduates 92.6 9.2

Population with tertiary education 130.2 37.5

International scientific co-publications 103.6 26.5

Scientific publications among the top 10% most cited 138.9 -40.4

R&D expenditure in the public sector 92.3 3.0

Direct and indirect government support of business R&D 135.7 10.8

R&D expenditure in the business sector 197.5 58.2

Employed ICT specialists 104.2 18.4

SMEs introducing product innovations 59.7 45.8

SMEs introducing business process innovations 78.0 -88.5

Innovative SMEs collaborating with others 666.7 -509.2

Public-private co-publications 118.0 11.2

PCT patent applications 111.6 -6.3

Trademark applications 58.3 56.1

Design applications 54.8 13.4

Exports of medium and high-tech products 75.9 -2.9

Knowledge-intensive services exports 98.8 13.4

The United States is a Strong Innovator, performing at

113% of the EU average in 2025. The country's relative

strengths are Innovative SMEs collaborating with

others, R&D expenditure in the business sector, and

Scientific publications among the top 10% most cited.

Its relative weaknesses are Design applications,

Trademark applications, and SMEs introducing product

innovations.

**Structural differences US EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 77374.3 56159.9

Average annual GDP growth (2021-23 average) 2.7 2

Employment share Agriculture (2021-23 average) 1.6 4

Employment share Industry (2021-23 average) 19.3 24.5

Employment share Services (2021-23 average) 79.1 71.6

Employment share Knowledge-intensive services (2021-23 average) 10.5 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 17.7 7.1

FDI net inflows (2021-23 average) 1.6 1

Top R&D spending enterprises per 10 million population (2022-24 average) 23.3 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 642.9 616.4

Number of unicorns (January 2025) 687 111

Buyer sophistication (2015-17 average) 4.8 3.7

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 67.7 62.6

Basic-school entrepreneurial education and training (2022-24 average) 3.7 2.4

Government procurement of advanced technology products (2015-17 average) 4.6 3.4

Rule of law (2020-23 average) 1.4 1

**Demography**

Population size (2021-23 average, in millions) 333.4 447.7

Average annual population growth (2021-23 average) 0.4 0.3

Population density (2020-22 average) 36.3 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

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**Country:**

**SOUTH AFRICA Emerging Innovator ●**

Summary innovation index (indexed to EU in 2025): **29.6**

Change vs 2018: ▲ +5.1 Change vs 2024: ▼ -1.6

**Indicator Performance**

**in 2025**

**Change 2018-**

**2025**

Summary Innovation Index 29.6 5.1

New doctorate graduates 2.9 1.3

Population with tertiary education 9.4 11.1

International scientific co-publications 58.2 30.4

Scientific publications among the top 10% most cited 57.4 -2.3

R&D expenditure in the public sector 38.5 -3.3

Direct and indirect government support of business R&D 3.6 -0.1

R&D expenditure in the business sector 7.5 -11.3

Employed ICT specialists N/A N/A

SMEs introducing product innovations N/A N/A

SMEs introducing business process innovations N/A N/A

Innovative SMEs collaborating with others N/A N/A

Public-private co-publications 16 4.5

PCT patent applications 18.6 -10.6

Trademark applications 100 19.8

Design applications 38.7 -6.9

Exports of medium and high-tech products 43.4 -3.2

Knowledge-intensive services exports 39.5 32.1

South Africa is an Emerging Innovator, performing at

29.6% of the EU average in 2025. The country's relative

strengths are Trademark applications, International

scientific co-publications, and Scientific publications

among the top 10% most cited. Its relative weaknesses

are New doctorate graduates, Direct and indirect

government support of business R&D, and R&D

expenditure in the business sector.

**Structural differences ZA EU**

**Performance and structure of the economy**

GDP per capita (2021-23 average) 14555 56159.9

Average annual GDP growth (2021-23 average) 1.3 2

Employment share Agriculture (2021-23 average) 19.8 4

Employment share Industry (2021-23 average) 17.7 24.5

Employment share Services (2021-23 average) 62.5 71.6

Employment share Knowledge-intensive services (2021-23 average) 12.2 14.8

**Business and entrepreneurship**

Total early-stage Entrepreneurial Activity (TEA) (2021-23 average) 9.8 7.1

FDI net inflows (2021-23 average) 4.3 1

Number of unicorns (January 2025) 1 111

Buyer sophistication (2015-17 average) 4 3.7

Top R&D spending enterprises per 10 million population (2022-24 average) 7.8

Top R&D spending enterprises, average R&D spending (2022-24 average) 616.4

**Governance and policy frameworks**

Corruption Perceptions Index (2022-24 average) 41.7 62.6

Basic-school entrepreneurial education and training (2022-24 average) 3 2.4

Government procurement of advanced technology products (2015-17 average) 3 3.4

Rule of law (2020-23 average) 0.1 1

**Demography**

Population size (2021-23 average, in millions) 62.4 447.7

Average annual population growth (2021-23 average) 1.4 0.3

Population density (2020-22 average) 50.7 111.9

***Footnote:*** *Performance in 2025 is indexed to the EU in 2025. Performance change is indexed to the EU average in 2018. Since the reference years differ between columns,*

*scores cannot be directly compared or subtracted. Relative strengths (purple) and weaknesses (red) refer to the three indicators where the country's scores are furthest above*

*or below the EU average in 2025. These highlight the areas where the country stands out most positively or faces the greatest relative challenges compared to the EU.*

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**7. METHODOLOGY**

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7.1 Data sources, data availability and comparison with the EIS 2024.

The EIS uses the most recent statistics from Eurostat and other internationally recognised

sources, such as the OECD and the United Nations, available at the time of analysis, with

the cut-off date set end of May 2025. International sources have been used to improve

comparability between countries.

The data relates to the actual performance in 2024 for 11 indicators, 2023 for 10 indicators,

2022 for 10 indicators, 2020 for 1 indicator (these are the most recent years for which data

is available, cf. Annex E). Data availability is complete for 25 Member States. For Ireland,

data is not available for Job-to-job mobility in *Human resources* in Science & Technology

(indicator 3.2.3), while for the Netherlands, data is not available for *Non-R&D innovation*

*expenditures* (indicator 2.2.2).

Breaks in the data series are reported for 15 indicators counting at least one break for

each country, including EU, neighbouring and global competitors and 11 indicators for

EU27 only. The top five indicators with the highest number of countries experiencing such

breaks include:

**•** Percentage population aged 25-34 having completed tertiary education

**•** *ICT specialists* (as a percentage of total employment)

**•** *Population involved in lifelong learning*

**•** *Job-to-job mobility of Human resources in Science & Technology*

**•** *R&D expenditure in the business sector*

To address the lack of comparability across years, performance changes over time for

indicators impacted by breaks are based on the most recent data only. Performance

changes for the Summary Innovation Index (SII), which measures Member States’ average

innovation performance, are, therefore, on average, smaller than what they would have

been if there had been no breaks in series or new data series.

It must be stressed that comparisons with results from the EIS 2024 report are not possible,

not even for the same years in both reports. Results for the same year, are different due

to several reasons:

**•** By adding new data at the end of the time series for each indicator and removing

data at the start of the time series, the highest and lowest data scores used for

calculating normalised scores across all countries and all years for an indicator can

change, directly impacting these normalised scores.

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**•** Timeliness refers to the year for which the most recent data is available. For the

EIS 2025 23 indicators have been updated with at least one additional year of data

compared to their availability in the EIS 2024, while an additional five indicators

could not be compared to the EIS 2024 since they have been added as part of the EIS

2025.

**•** Breaks in series for indicators and individual countries impact the most recent year

used. As explained above there are 15 indicators in which a break in the series

impacts at least one country.

Consequently, one should only use the results for all years in this report to compare

performance over time. More details on data sources, timeliness and breaks are provided

in the EIS Methodology Report 2025.

7.2 Methodology for calculating innovation indexes

The overall performance of each national innovation system is summarised by a composite

indicator, the Summary Innovation Index (SII). The methodology used for calculating the

SII is outlined below. ‘All countries’ include all EU27 Member States, other European and

global competitors.

European benchmark

Step 1: Setting reference years

For each indicator, a reference year is identified based on data availability for all countries

for which data availability is at least 75%. For most indicators, this reference year will be

lagging one or two years behind the year to which the EIS refers (see Annex E).

Step 2: Imputing for missing values

If data for an intermediate year is not available, the missing values are replaced with the

previous year's values. If data is unavailable at the beginning of the time series, the missing

values are replaced with the next available year's values. If data is missing for all years, no

data is imputed, and, hence, the indicator does not contribute to the SII.

Step 3: Identifying and replacing outliers

Positive outliers are identified as those country scores which are higher than the mean

across all countries plus twice the standard deviation. Negative outliers are identified as

those country scores which are smaller than the mean across all countries minus twice the

standard deviation. These outliers are replaced by the respective maximum and minimum

values observed over all the years and all countries.

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Step 4: Transforming data if data is highly skewed

Most of the indicators are fractional indicators with values between 0% and 100%. Some

indicators are unbound indicators, where values are not limited to an upper threshold.

These indicators can be highly volatile and can have skewed data distributions (where most

countries show low performance levels, and a few countries show exceptionally high levels

of performance). For these indicators where the degree of skewness across the full eightyear

period is above one, data has been transformed using a square root transformation.

For the following indicators data has been transformed: *Non-R&D innovation expenditures*,

*PCT patent applications* and *Trademark applications*. A square root transformation uses the

square root of the indicator value instead of the original value.

Step 5: Determining Maximum and Minimum scores

The Maximum score is the highest score found for the eight-year period within all countries

excluding positive outliers. Similarly, the Minimum score is the lowest score found for the

eight-year period within all countries excluding negative outliers.

Step 6: Calculating re-scaled scores

Re-scaled scores of the country scores (after correcting for outliers and a possible

transformation of the data) for all years are calculated by first subtracting the Minimum

score and then dividing by the difference between the Maximum and Minimum score. The

maximum re-scaled score is thus equal to 1, and the minimum re-scaled score is equal

to 0. For positive and negative outliers, the re-scaled score is equal to 1 or 0, respectively.

Step 7: Calculating composite innovation indexes

For each year, a composite Summary Innovation Index is calculated as the unweighted

average of the re-scaled scores for all indicators where all indicators receive the same

weight (1/32 if data is available for all 32 indicators).

Step 8: Calculating relative to EU performance scores

Performance scores relative to the EU are then calculated as the SII of the respective

country divided by the SII of the EU multiplied by 100. Relative performance scores are

calculated for the full eight-year period compared to the performance of the EU in 2018

and for the latest year also to that of the EU in 2025. For the definition of the performance

groups, only the performance scores relative to the EU in 2025 have been used.

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Performance group membership

For determining performance group membership, the EIS uses the following classification

scheme with corresponding values for EIS 2025:

**•** Innovation Leaders are all countries with a relative performance in 2025 above 125%

of the EU average in 2025 (corresponding to a score of 140.7 when indexed to EU

2018).

**•** Strong Innovators are all countries with a relative performance in 2024 between

100% and 125% of the EU average in 2024 (corresponding to a range of scores from

112.6 to 140.7 when indexed to EU 2018).

**•** Moderate Innovators are all countries with a relative performance in 2025 between

70% and 100% of the EU average in 2025 (corresponding to a range of scores from

78.8 to 112.6 when indexed to EU 2018).

**•** Emerging Innovators are all countries with a relative performance in 2025 below 70%

of the EU average in 2025 (corresponding to a score below 78.8 when indexed to EU

2018).

International benchmark

The methodology for calculating average innovation performance for the EU and its

major global competitors is comparable to that used for calculating average innovation

performance for the EU27 Member States but using a smaller set of countries and a

smaller set of indicators.

Automation

The data collection and calculation process for the EIS has been automated for the 2025

release. The approach is summarised in the Figure below.

The construction of the summary index for 2025 has been performed using the COINr

package46 adapted and extended to the EIS. COINr is an open-source R package recently

developed by the European Commission’s Competence Centre for Composite Indicators and

Scoreboards47, and implements international guidelines and best practices in composite

indicator construction48. It allows highly detailed and flexible construction and analysis of

46 See: https://bluefoxr.github.io/COINr/

47 See: https://composite-indicators.jrc.ec.europa.eu/

48 Nardo M, Saisana M, Saltelli A, Tarantola S, Hoffmann A, Giovannini E. Handbook on Constructing Composite Indicators: Methodology and User Guide.

Paris (France): OECD publishing; 2008. JRC47008. https://publications.jrc.ec.europa.eu/repository/handle/JRC47008

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composite indicators, including imputation, normalisation, outlier treatment and sensitivity

analysis.

This approach provides a highly replicable and easy to follow data pipeline which feeds

into the COINr package and automatically provides the main outputs of the EIS. Since the

data collection, processing and outputs are largely based on code (using the R software), all

code is packaged together and hosted on GitHub which also facilitates the auditing process.

Figure 44: EIS automation process

7.3 Contextual analysis on the impact of structural differences between countries

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 is included in the country profiles available on the EIS website and

online tool. As an introduction, the following sections discuss the relevance of these

structural aspects to provide a better understanding of differences between countries

in the performance of individual indicators. Full definitions of all performance indicators

and contextual indicators are provided in the EIS 2025 Methodology Report. The list of

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contextual indicators, the years for which average performance has been calculated, and

data sources used are shown in Table 1.

Table 1: Contextual indicators in the European Innovation Scoreboard – European

countries

DIMENSION/INDICATOR PERIOD SOURCE

**Performance and structure of the economy**

GDP per capita (PPS) Average 2022-

2024

Eurostat

Average annual GDP growth (%) Average 2022-

2024

Eurostat

Employment share Manufacturing (NACE

C) (%)

Average 2022-

2024

Eurostat

of which High and Medium high tech (%) Average 2022-

2024

Eurostat

Employment share Services (NACE G-N)

(%)

Average 2022-

2024

Eurostat

of which Knowledge-intensive sectors (%) Average 2022-

2024

Eurostat

Turnover share SMEs (%) Average 2018-

2020

Eurostat

Turnover share large companies (%) Average 2018-

2020

Eurostat

Foreign-controlled enterprises - share of

value added (%)

Average 2018-

2020

Eurostat

Herfindahl-Hirschman Index of non-EU

imports of high-tech goods

Average 2022-

2024

COMEXT

**Business and entrepreneurship**

Enterprise births (10+ employees) (%) Average 2018-

2020

Eurostat

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DIMENSION/INDICATOR PERIOD SOURCE

Total early-stage Entrepreneurial Activity

(TEA) (%)

Average 2022-

2024

Global

Entrepreneurship

Monitor

FDI net inflows (% GDP) Average 2021-

2023

World Bank: World

Development

Indicators

Top R&D spending enterprises per 10

million population

Average 2022-

2024

EU Industrial

R&D Investment

Scoreboard

Buyer sophistication (1 to 7 best) Average 2015-

2017

World Economic

Forum

Digital Intensity Index 2024 Eurostat

Young High Growth Enterprises 2022 Eurostat

**Innovation profiles**

In-house product innovators with market

novelties

2018-2020 Eurostat, National

Statistical Offices

In-house product innovators without

market novelties

2018-2020 Eurostat, National

Statistical Offices

In-house business process innovators 2018-2020 Eurostat, National

Statistical Offices

Innovators that do not develop

innovations themselves

2018-2020 Eurostat, National

Statistical Offices

Innovation active non-innovators 2018-2020 Eurostat, National

Statistical Offices

Non-innovators with potential to innovate 2018-2020 Eurostat, National

Statistical Offices

Non-innovators without disposition to

innovate

2018-2020 Eurostat, National

Statistical Offices

Horizon Europe funding intensity per

researcher

Average 2022-

2024

Horizon Europe;

Eurostat

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DIMENSION/INDICATOR PERIOD SOURCE

**Governance and policy framework**

Corruption Perceptions Index Average 2022-

2024

Transparency

International

Basic-school entrepreneurial education

and training (1 to 5 best)

Average 2022-

2024

Global

Entrepreneurship

Monitor

Innovation procurement as a share of

total public procurement

2023 Tenders Electronic

Daily and

National Public

Procurement data

Rule of law (-2.5 to 2.5 best) Average 2021-

2023

World Bank:

Worldwide

Governance

Indicators

**Environment**

Circular material use rate Average 2021-2023 Eurostat

Greenhouse gas emissions intensity of

energy consumption

Average 2018-2020 European

Environment

Agency (EEA),

Eurostat

Eco-Innovation Index 2024 EC, DG

Environment

**Demography**

Population size (millions) Average 2022-2024 Eurostat

Average annual population growth (%) Between 2022-2024 Eurostat

Population density (inhabitants / km2) Average 2021-2023 Eurostat

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**Performance and structure of the economy**

GDP per capita in purchasing power standards (PPS)49 is a measure for interpreting real

income differences between countries. Higher income can increase the demand for new

innovative goods and services. Economic growth is captured by the average annual growth

rate of GDP for 2022-2024. In economies that grow faster, increasing demand may provide

more favourable conditions for enterprises to sell their goods and services.

Differences in economic structures are important. Differences in the share of manufacturing

industry in GDP, and in high-tech activities in manufacturing and services, are important

factors that explain why countries can perform better or worse on indicators like business

R&D expenditures, PCT patents, and innovative enterprises. Medium-high and high-tech

industries have higher technological intensities than other industries. These industries, on

average, will have higher R&D expenditures, more patent applications, and higher shares

of innovative enterprises. Countries with above-average shares of these industries are

expected to perform better on several EIS indicators. For example, for the EU on average,

85% of R&D expenditures in manufacturing are accounted for by medium-high and high

technology manufacturing industries50 51. Also, the share of enterprises that introduced a

product and/or business process innovation is higher in medium-high and high- technology

manufacturing industries compared to all core industries covered in the Community

Innovation Survey52.

49 The purchasing power standard (PPS) is an artificial currency unit. Theoretically, one PPS can buy the same amount of goods and services in each

country. However, price differences across borders mean that different amounts of national currency units are needed for the same goods and

services depending on the country. PPS are derived by dividing any economic aggregate of a country in national currency by its respective purchasing

power parities. PPS is the technical term used by Eurostat for the common currency in which national accounts aggregates are expressed when

adjusted for price level differences using PPPs. Thus, PPPs can be interpreted as the exchange rate of the PPS against the Euro.

50 Based on NACE Rev. 2 three-digit level, manufacturing industries can be classified into high-technology, medium-high technology, medium-lowtechnology,

and low-technology. The high-technology and medium-high technology industries include: Chemicals and chemical products (20); Basic

pharmaceutical products and pharmaceutical preparations (21); Weapons and ammunition (25.4\*); Computer, electronic and optical products (26);

Electrical equipment (27); Machinery and equipment not elsewhere classified (28); Motor vehicles, trailers and semi-trailers (29); Other transport

equipment (30) excluding Building of ships and boats (30.1); Air and spacecraft and related machinery (30.3); and Medical and dental instruments

and supplies (32.5\*\*). If data is only available at the NACE Rev. 2 two-digit level, industries identified with an \* are classified as medium-lowtechnology,

and industries identified with an \*\* are classified as low-technology, and thus excluded from the high-technology and medium-high

technology industries (Source: http://ec.europa.eu/eurostat/statistics-explained/index.php/ Glossary: High-tech classification\_of\_manufacturing

51 Average results for 2015-2017 for 24 Member States for which data is available for at least one year. Data were extracted from Eurostat (Business

enterprise R&D expenditure in high-tech sectors - NACE Rev. 2 [htec\_sti\_exp2]

52 In accordance with Commission Regulation No 995/2012, the following industries and services are included in the Core target population covered

in the CIS: Core Industry (excluding construction): Mining and quarrying (B), Manufacturing (C) (10-12: Manufacture of food products, beverages

and tobacco; 13-15: Manufacture of textiles, wearing apparel, leather and related products; 16-18: Manufacture of wood, paper, printing and

reproduction; 20: Manufacture of chemicals and chemical products; 21: Manufacture of basic pharmaceutical products and pharmaceutical

preparations; 19-22 Manufacture of petroleum, chemical, pharmaceutical, rubber and plastic products; 23: Manufacture of other non-metallic

mineral products; 24: Manufacture of basic metals; 25: Manufacture of fabricated metal products, except machinery and equipment; 26: Manufacture

of computer, electronic and optical products; 25-30: Manufacture of fabricated metal products (except machinery and equipment), computer,

electronic and optical products, electrical equipment, motor vehicles and other transport equipment; 31-33: Manufacture of furniture; jewellery,

musical instruments, toys; repair and installation of machinery and equipment, Electricity, gas, steam and air conditioning supply (D), Water supply,

sewerage, waste management and remediation activities (E) (36: Water collection, treatment and supply; 37-39: Sewerage, waste management,

remediation activities). Core Services: Wholesale trade, except of motor vehicles and motorcycles (46), Transport and storage (H) (49-51: Land

transport and transport via pipelines, water transport and air transport; 52-53: Warehousing and support activities for transportation and postal and

courier activities); Information and communication (J) (58: Publishing activities; 61: Telecommunications; 62: Computer programming, consultancy

and related activities; 63: Information service activities), Financial and insurance activities (K) (64: Financial service activities, except insurance and

pension funding; 65: Insurance, reinsurance and pension funding, except compulsory social security; 66: Activities auxiliary to financial services and

insurance activities), Professional, scientific and technical activities (M) (71-73: Architectural and engineering activities; technical testing and analysis;

Scientific research and development; Advertising and market research).

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Foreign ownership, including ownership from both other EU27 Member States and non-

Member States, is important as, on average, about 30% of business R&D expenditures in

EU27 Member States is made by foreign affiliates, which is significantly higher compared

to Japan and the United States and comparable to Australia and Canada53. The share of

foreign-controlled enterprises in value-added serves as a proxy for differences in the impact

of foreign ownership on the economy.

In addition, structural vulnerabilities in trade dependencies are increasingly relevant for

innovation and resilience. The Herfindahl-Hirschman Index (HHI), calculated specifically for

non-EU imports of high-tech goods, measures the concentration of trade value across

export partners. Higher values indicate stronger reliance on a limited number of partners,

highlighting exposure to potential supply chain disruptions. Conversely, lower values

suggest greater diversification and reduced dependency. The HHI thus complements existing

indicators, such as *High-tech imports from outside the EU*27, by capturing the dispersion of

trade relationships within countries’ high-tech trade profiles.

**Business and entrepreneurship**

Entrepreneurship is important for introducing new innovations on the market. The degree

of entrepreneurship is measured by two contextual indicators measuring the share of new

enterprise births in the economy and total entrepreneurial activity. The former is measured

by the share of new enterprise birth in the economy. The latter is measured by the adult

population aged 18-64 years who are in the process of starting a business (a nascent

entrepreneur) or who started a business which is not older than 42 months at the time of

the respective survey (owner manager of a new business).

A complementary indicator is the share of young high-growth enterprises, which provides

insights into the capacity of economies to support the scale-up of innovative firms. These

Gazelles are particularly important in high-tech sectors, where rapid firm expansion often

reflects strong innovation dynamics and favourable ecosystem conditions.

The Digital Intensity Index (DII) is another relevant contextual indicator, capturing the

extent to which businesses adopt digital technologies. Composed of 12 variables across

four areas, digital skills, infrastructure, business digital transformation, and digital public

services, the DII provides a composite view of digital uptake. Higher digital intensity is

typically associated with increased innovation capacity and competitiveness, particularly

among SMEs.

53 Average results for 2010-2016 for 14 Member States for which data were available (Austria, Belgium, Czechia, Finland, France, Germany, Hungary,

Ireland, Italy, Netherlands, Poland, Slovenia Spain, and Sweden). Source of the data: OECD Main Science and Technology Indicators, Volume 2018

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Inflows of new technologies are important as they add to a country’s economic and

technological capacities. Inward Foreign direct investment (FDI) can have a positive impact

on innovation performance, although there are differences depending on the complexity of

the receiving industry, political and economic framework conditions as well as the quality of

the institutions of the receiving countries. Inward FDI flows are measured over a three-year

period, as average net inflows of investments to acquire a lasting management interest

(10 percent or more of voting stock) in an enterprise operating in an economy other than

that of the investor.

Enterprise characteristics are important for explaining differences in R&D spending and

innovation activities. Large enterprises, defined as enterprises with 250 or more employees,

account for almost 80 percent of EU business R&D expenditures, whereas SMEs, defined

as enterprises with 10 to 249 employees, account for only one-fifth. The presence of large

R&D spending enterprises is captured by the EU Industrial R&D Investment Scoreboard,

which provides economic and financial data and analysis of the top 1000 corporate R&D

investors from the EU and top 2500 corporate R&D investors elsewhere in the world54.

Demand is an important driver of innovation. According to the Oslo Manual55, demand

factors shape innovation activity in two major ways: for the development of new products,

as firms modify and differentiate products to increase sales and market share and for the

improvement of the production and supply processes to reduce costs and lower prices.

A robust indicator measuring the demand for innovation is currently not available. The

Executive Opinion Survey of the World Economic Forum includes an indicator that provides

a measure of the preferences of individual consumers for innovative products. The degree

of Buyer sophistication measures, on a scale from 1 (low) to 7 (high), whether buyers focus

more on price or quality of products and services, with higher quality being the result of

product innovations.

**Innovation profiles**

Innovation is a highly diverse activity. Enterprises can innovate through product or business

process innovation, with the latter including process, marketing and organisational

innovation. Enterprises can adopt new technologies developed by other enterprises or they

engage in intensive in-house research and innovation activities. The capabilities needed

by enterprises to innovate are very different in kind and size. Building on earlier work

by academics and the OECD, Eurostat, UNU-MERIT (Maastricht University), ZEW – Leibniz

Centre for European Economic Research, in collaboration with national statistical offices,

developed a taxonomy of innovating and non-innovating enterprises based on CIS micro

54 https://iri.jrc.ec.europa.eu/scoreboard/2024-eu-industrial-rd-investment-scoreboard

55 The Oslo Manual is the foremost international source of guidelines for the collection and use of data on innovation activities in industry. OECD/

Eurostat (2018), Oslo Manual: Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition, OECD Publishing, Paris. DOI: https://www.

oecd.org/science/oslo-manual-2018-9789264304604-en.htm

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data. The following characteristics were used to identify seven mutually exclusive detailed

innovation profiles: The degree of novelty of product innovations, own in-house capacities

to innovate, and R&D activities. Of these, four innovation profiles capture different types

of enterprises that have introduced an innovation (product or business process) and three

innovation profiles capture non-innovators, of which one profile captures non-innovators

with innovation activities, one profile captures non-innovators with an interest in innovation,

while the other captures non innovators without any innovation activities or interest:

**•** In-house product innovators with market novelties, including all enterprises that

introduced a product innovation that was developed by the enterprise and that was

not previously offered by competitors.

**•** In-house product innovators without market novelties, including all enterprises that

introduced a product innovation that was developed by the enterprise but that is

only new to the enterprise itself. In-house business process innovators, including all

enterprises without a product innovation, but that did introduce a business process

innovation that was developed by the enterprise.

**•** Innovators that do not develop innovations themselves, including all enterprises that

introduced an innovation of any kind but did not develop it themselves (enterprises

without significant own innovation capabilities).

**•** Innovation active non-innovators, including all enterprises that did not introduce any

innovation but that either had ongoing or abandoned innovation activities.

**•** Non-innovators with potential to innovate, including all enterprises that did not

introduce any innovation, and which had no ongoing or abandoned innovation

activities but that did consider innovating.

**•** Non-innovators without disposition to innovate, including all other enterprises, those

that neither introduced an innovation nor had any ongoing or abandoned innovation

activities nor considered to innovate.

Data on Innovation profiles should not be interpreted as more is better. Instead, the data

should be used to better understand differences in the composition of different types of

enterprises in a country, thereby helping policy makers to design policies that better target

different enterprises. To complement this view, Horizon Europe funding per researcher (FTE)

is proposed as a new indicator. It measures the net EU contribution received under Horizon

Europe per full-time equivalent researcher. This provides insight into how effectively

countries access and benefit from EU-level research programmes and reflects the intensity

of competitive R&D funding per researcher.

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**Governance and policy framework**

Institutional and legal differences between countries may make it more difficult to engage

in business activities. The Corruption Perceptions Index is a composite index based on a

combination of surveys and assessments of corruption from 13 different sources and

scores, and ranks countries based on how corrupt a country’s public sector is perceived

to be, with a score of 0 representing a very high level of corruption and a score of 100

representing a low level of corruption. The CPI is published by Transparency International,

and the data is included in the EU Sustainable Development Goals indicator set to monitor

progress on SDG Goal 16 on Peace, justice and strong institutions.

Entrepreneurial skills are important for successfully transforming ideas and inventions into

innovations. These skills can be acquired on the job but also by formal schooling. Basicschool

entrepreneurial education and training measures the extent to which training in

creating or managing SMEs is incorporated within the education and training system at

primary and secondary levels.

Trust is important for creating a business environment for undertaking risky innovative

activities. Measures of the rule of law capture differences in the extent to which people

have confidence in and abide by the rules of society. The Rule of law Index measures

differences in the quality of contract enforcement, property rights, the police, the judicial

system, as well as the prevalence of crime and violence.

**Environment**

As the natural environment increasingly suffers from the loss of biodiversity, pollution

and climate change, the relationship between innovation performance and environment

sustainability grows in importance. EU level policy developments, such as the European

Green Deal and the Recovery plan for Europe, underline the need to take account of

the pivotal role of research and innovation in contributing to societal challenges. Three

indicators are included in the Contextual indicators relevant for measuring climate change

and the role of innovation.

The circular material use rate measures, in percentages, the share of material recovered

and fed back into the economy - thus saving extraction of primary raw materials - in

overall material use. It covers households, the private and the public sector. A higher

circular material use rate indicates more secondary materials substituting for primary raw

materials, thereby avoiding the environmental impacts of extracting primary material.

Greenhouse gas emissions intensity of energy consumption is an indicator that is part of

the EU Sustainable Development Goals (SDG) indicator set. It is used to monitor progress

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towards Goal 13 on climate action and SDG 7 on affordable and clean energy. The

indicator is calculated as the ratio between energy related GHG emissions and gross inland

consumption of energy. It expresses how many tonnes CO₂ equivalents of energy related

GHGs are being emitted in a certain economy per unit of energy that is being consumed.

Lower scores on this indicator imply an improvement in environmental performance.

**Demography**

Structural data also includes population size and the average annual growth rate of

population for 2022-2024. Increasing demand following an increasing population may

provide more favourable conditions for enterprises to sell their goods and services.

Densely populated areas are more likely to be more innovative for several reasons. Firstly,

knowledge diffuses more easily when people and enterprises are located closer to each

other. Secondly, in more densely populated areas there tends to be a concentration of

government and educational services. Densely populated areas provide better training

opportunities and employ above-average shares of highly educated people. Furthermore,

the amount of natural assets per capita tends to decline with population density. This

positively impacts on the share of Medium and high-tech product exports and the share of

employment in knowledge intensive activities.

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**Annex 1 Performance change of EU27 Member States and neighbouring countries compared to 2018 and 2025**

Figure 45: Performance change between 2018 and 2025 per indicator for EU27 Member States and neighbouring countries

EU CH SE DK NL UK FI IE BE NO LU AT IS DE FR EE MT SI IT ES PT CY LT CZ EL HR HU PL SK TR LV RS BGMEMK AL ROUA BAMD

4.3.3 Labour productivity

4.3.2 Production-based CO2 productivity

4.3.1 Resource productivity

**Resource and labour productivity**

4.2.3 High-tech imports from outside the EU

4.2.2 Knowledge-intensive services exports

4.2.1 Exports of medium and high-tech products

**Trade impacts**

4.1.2 Employment in innovative enterprises

4.1.1 Sales of new-to-market and new-to-firm innovations

**Sales and employment impacts**

3.3.3 Design applications

3.3.2 Trademark applications

3.3.1 PCT patent applications

**Intellectual assets**

3.2.3 Job-to-job mobility of HRST

3.2.2 Public-private co-publications

3.2.1 Innovative SMEs collaborating with others

**Linkages**

3.1.2 SMEs introducing business process innovations

3.1.1 SMEs introducing product innovations

**Innovators**

2.3.2 Employed ICT specialists

2.3.1 Cloud Computing

**Investments in information technologies**

2.2.3 Innovation expenditures per person employed

2.2.2 Non-R&D innovation expenditures

2.2.1 R&D expenditure in the business sector

**Firm investments**

2.1.3 Direct and indirect government support of business R&D

2.1.2 Venture capital expenditures

2.1.1 R&D expenditure in the public sector

**Finance and support**

1.3.2 Individuals with above basic overall digital skills

1.3.1 High speed internet access

**Digitalisation**

1.2.3 Foreign doctorate students as a % of all doctorate students

1.2.2 Scientific publications among the top 10% most cited

1.2.1 International scientific co-publications

**Attractive research systems**

1.1.3 Population involved in lifelong learning

1.1.2 Population with tertiary education

1.1.1 New doctorate graduates

**Human resources**

EU CH SE DK NL UK FI IE BE NO LU AT IS DE FR EE MT SI IT ES PT CY LT CZ EL HR HU PL SK TR LV RS BGMEMK AL ROUA BAMD

Negative performance change No performance change Positive performance change between 2018 and 2025

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Figure 46: Performance change between 2024 and 2025 per indicator for EU27 Member States and neighbouring countries

EU CH SE DK NL UK FI IE BE NO LU AT IS DE FR EE MT SI IT ES PT CY LT CZ EL HR HU PL SK TR LV RS BGMEMK AL ROUA BAMD

4.3.3 Labour productivity

4.3.2 Production-based CO2 productivity

4.3.1 Resource productivity

**Resource and labour productivity**

4.2.3 High-tech imports from outside the EU

4.2.2 Knowledge-intensive services exports

4.2.1 Exports of medium and high-tech products

**Trade impacts**

4.1.2 Employment in innovative enterprises

4.1.1 Sales of new-to-market and new-to-firm innovations

**Sales and employment impacts**

3.3.3 Design applications

3.3.2 Trademark applications

3.3.1 PCT patent applications

**Intellectual assets**

3.2.3 Job-to-job mobility of HRST

3.2.2 Public-private co-publications

3.2.1 Innovative SMEs collaborating with others

**Linkages**

3.1.2 SMEs introducing business process innovations

3.1.1 SMEs introducing product innovations

**Innovators**

2.3.2 Employed ICT specialists

2.3.1 Cloud Computing

**Investments in information technologies**

2.2.3 Innovation expenditures per person employed

2.2.2 Non-R&D innovation expenditures

2.2.1 R&D expenditure in the business sector

**Firm investments**

2.1.3 Direct and indirect government support of business R&D

2.1.2 Venture capital expenditures

2.1.1 R&D expenditure in the public sector

**Finance and support**

1.3.2 Individuals with above basic overall digital skills

1.3.1 High speed internet access

**Digitalisation**

1.2.3 Foreign doctorate students as a % of all doctorate students

1.2.2 Scientific publications among the top 10% most cited

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1.1.3 Population involved in lifelong learning

1.1.2 Population with tertiary education

1.1.1 New doctorate graduates

**Human resources**

EU CH SE DK NL UK FI IE BE NO LU AT IS DE FR EE MT SI IT ES PT CY LT CZ EL HR HU PL SK TR LV RS BGMEMK AL ROUA BAMD

Negative performance change No performance change Positive performance change between 2024 and 2025

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**Annex 2 Overview of structural differences of EU27 Member States and neighbouring countries economies**

Figure 47: Differences in structural indicators between EU27 Member States and neighbouring countries

154 113 129 134 100 105 221 118 183 244 120 133 116 99 81 107 91 98 90 80 95 88 90 69 75 77 78 73 70 70 49 64 51 42 36 77 35

0.4 3.1 0.5 -0.5 -2.2 1.1 0.2 -1 -0.3 1.3 -1.7 6.3 1.9 0.7 2.9 2.3 3.1 1.6 0.5 2.3 3.6 -0.2 1.6 2.1 1.2 2.3 1.6

12 9.6 11 8.2 13 11 11 7 2.9 16 9 18 11 17 9.9 22 18 12 17 6.3 16 25 9.9 17 21 19 23 20 13 20 18 19 20

49 47 46 35 38 38 37 31 39 20 51 35 24 28 39 34 33 23 15 17 42 16 21 44 28 46 21 16 29 24 36 13

42 41 38 43 40 43 41 37 42 41 39 38 40 40 46 37 42 45 40 50 40 35 44 40 37 36 34 34 40 36 42 38 35

40 42 33 39 32 34 32 35 57 28 35 28 32 24 33 31 28 23 25 34 25 28 27 26 26 26 22 19 20 26 22 20 19

18 12 15 16 12 14 12 15 16 14 14 17 9.7 10 24 21 16 16 14 15 18 16 14 17 16 14 14 14 19 13 17 16 19 14 17

38 54 43 37 53 46 56 39 38 44 29 61 59 19 16 34 37 44 23 34 46 33 37 44 45 43 24 40 31 35 20 44 30

15 14 17 13 55 16 13 23 17 12 8.3 18 20 18 8.2 12 14 6.5 16 28 6.5 18 31 18 24 20 24 20 13

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165 178 133 181 121 109 175 177 141 144 116 99 122 150 127 113 98 115 126 91 97 64 70 99 115 59 80

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222 26 141 522 18 77 385 15 255 110 3.8 236 108 32 1731 105 198 96 116 102 46 139 80 69 105 120 111 111 30 59 46 74 99 81

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100

0.8

16

38

40

28

13

50

13

0.8

7.1

1

3.6

12

14

18

6.1

4.2

18

31

6.2

63

2.4

34

0.8

1

12

83

128

448

0.4

109

9.2

EU CH SE DK NL UK FI IE BE NO LU AT IS DE FR EE MT SI IT ES PT CY LT CZ EL HR HU PL SK TR LV RS BGMEMK AL RO UA BA MD

GDP per capita

Average annual GDP growth

Employment share Manufacturing

Employment share High and Medium high-tech

Employment share Services

Employment share Knowledge-intensive services

Turnover share SMEs

Turnover share large enterprises

Foreign-controlled enterprises – share of value added

Enterprise births

Total Entrepreneurial Activity

FDI net inflows

Buyer sophistication

Digital Intensity Index

Young High Growth Enterprises

In-house product innovators with market novelties

In-house product innovators without market novelties

In-house business process innovators

Innovators that do not develop innovations themselves

Innovation active non-innovators

Non-innovators with potential to innovate

Non-innovators without disposition to innovate

HEU funding intensity per researcher (in thousands)

Corruption Perceptions Index

Basic-school entrepreneurial education and training

Rule of law

Innovation procurement as a share of total public procurement

Circular material use rate

Greenhouse gas emissions intensity of energy consumption

Eco-Innovation Index

Population size (in millions)

Average annual population growth

Population density

EU CH SE DK NL UK FI IE BE NO LU AT IS DE FR EE MT SI IT ES PT CY LT CZ EL HR HU PL SK TR LV RS BGMEMK AL RO UA BA MD

EU average Below EU average Above EU average

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This study provides the results of the 2025 edition of the European

Innovation Scoreboard. The EIS provides a comparative analysis of the

innovation performance of the European Union (EU), the 27 Member

States, 12 neighbouring European countries and 11 global competitors.

*Studies and reports*