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European Commission

Europe unveils plan to supercharge its science facilities

From lasers to life sciences, Europe's new plan for research and technology infrastructures aims to turn world-class science into everyday impact.

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The European Commission has introduced a new strategy for research and technology infrastructures to give innovation and competitiveness a long-term boost.

Unveiled at this year's Research and Innovation Days in Brussels on 16-17 September, the new strategy comes at a time when global competition for talent, technology and resources has never been fiercer.

As Europe boasts some of the world's most advanced scientific facilities, research and technology infrastructures serve as the backbone of European scientific excellence and industrial strength.

Resilience in a changing world

The new strategy has been welcomed by many in the scientific community.

"Strengthening these infrastructures now is essential because the world is changing fast," said Antje Keppler, co-chair of the ERIC Forum, the coordination platform for European Research Infrastructure Consortia (ERICs).

"By giving scientists sustainable access to the best shared tools, essential data and knowledge, we can respond more quickly to crises, develop green solutions and drive medical breakthroughs."

For Keppler, stronger infrastructures mean a more resilient and competitive Europe, delivering real benefits for citizens' well-being, security and prosperity.

The message of the new strategy is clear: Europe intends to stay ahead by investing more, opening access and boosting research impact for scientists, innovators and society as a whole.

The power behind progress

The new strategy reminds us that behind every medical breakthrough, climate model, or discovery about the universe, there's a research infrastructure powering the work. These aren't just buildings or machines – they are hubs of knowledge and collaboration where scientists tackle some of the biggest challenges of our time.

Take the Extreme Light Infrastructure based in Czechia, Hungary and Romania. Its world-leading laser facilities allow researchers to explore what matter is made of, develop advanced medical therapies, and pioneer new materials – work that would be impossible without such precise tools.

Allen Weeks, director-general of the ELI ERIC infrastructure network and co-chair of the ERIC Forum alongside Keppler, explained that these infrastructures, of which there are over 100 in Europe, bring people together.

"They're not just physical spaces, they are networks that enable collaboration across different fields, institutions and borders," he said.

Another prime example is the European Molecular Biology Laboratory, which provides cutting-edge facilities for studying genes, cells and how life works at the molecular level. Its research drives innovation in health, agriculture and biotechnology.

In Grenoble, France, the European Synchrotron Radiation Facility produces extremely bright X-ray beams that allow researchers to see matter at the atomic level. From understanding new materials to tracking how diseases progress, the facility's insights underpin discoveries across physics, chemistry and the life sciences.

These infrastructures matter because no single country or university could build and operate them alone. By pooling expertise and resources, Europe is creating world-class facilities that keep it competitive, attract global talent and deliver innovations that improve lives.

"We're in a very competitive world these days. To compete in sports, industry or science, you need the right tools. European research infrastructures are key strategic assets," said Weeks.

Why a new strategy now?

Europe faces a triple challenge – strong global competition, rapid technological shifts, and the need for resilience in critical areas like energy, health and digital technologies.

Recent high-level reports commissioned by the EU all underline the same point: Europe must close its innovation gap, build an integrated research ecosystem, and strengthen control over key technologies and research data.

That means taking a comprehensive approach from basic research to technology development so that ideas move faster from the lab to the market. Technology infrastructures accelerate this market uptake of research results. And it also means ensuring Europe remains a magnet for talent and partnerships worldwide.

The new strategy focuses on several priorities designed to make Europe's research landscape stronger, more connected and more impactful.

First, it significantly increases investment in new world-class facilities, something welcomed by Weeks.

"Having a more coordinated funding approach will enable better planning and provide access to a broader range of users. The more people that can use these assets, the more competitive Europe will be," he said.

Connecting research with industry

The strategy also introduces joint development roadmaps to keep facilities aligned with emerging scientific needs and industrial trends.

Jesús Valero, president of the European Association of Research and Technology Organisations (EARTO), highlighted how important technology infrastructures are.

“Technology infrastructures are where innovation becomes reality. They provide the essential facilities and expertise that help companies, especially small ones, develop, test and scale up new technologies,” he said.

He welcomed the new strategy for providing clarity and ambition in how such infrastructures are supported across Europe. “This is how we bridge the gap,” he said. “Through hands-on collaboration, shared facilities and targeted support.”

Wider access

Access and visibility are another key focus. Researchers, startups and companies across Europe and beyond will find it easier to use these infrastructures and benefit from what they offer. As well as securing long-term stable access opportunities for top scientists and pioneering developers of new services and products, this is about boosting innovation and creating opportunities for businesses and entrepreneurs.

Europe already offers something unique in its interconnected network of research infrastructures that spans borders and different scientific fields. The new strategy builds on that strength and ties in with the “Choose Europe” initiative launched in May 2025.

A key ambition is to make Europe a global hub for science and innovation. By promoting interconnected facilities, the EU aims to attract top talent worldwide.

“Anyone knows you can increase the odds of discovery if you have access to the very best tools, information and people,” said Weeks. “That’s what European infrastructures do – they attract top talent and create a positive cycle of innovation.”

Keeping Europe at the forefront

Building talent is central to the strategy. The EU aims to train the next generation of experts and ensure infrastructures have the right skills to serve a growing and diverse user base. At the same time, managing these facilities will be simplified through better EU-level coordination, making it more efficient and user-friendly.

Going digital is another priority. Research infrastructures will integrate advanced digital tools and AI, linking to initiatives such as the European Strategy for AI in Science, which launches later in 2025.

Finally, the strategy reinforces Europe’s control over critical research data and strengthens the role of world-class infrastructures in science diplomacy, building bridges internationally while supporting European interests.

The new strategy is already shaping actions under Horizon Europe, the EU’s flagship research programme that runs until 2027, and it will serve as the blueprint for a brand-new pillar dedicated to research and technology infrastructures in the next programme (2028–2034).

The goal is clear: to keep Europe at the forefront of science, technology and innovation – for everyone’s benefit.

What are research and technology infrastructures?

Research and technology infrastructures are Europe's shared laboratories, technology platforms and research facilities that provide scientists, startups and companies with the tools they need to turn ideas into scientific advances and real-world solutions.

- **Research infrastructures (RIs)** are places where mostly scientists can explore fundamental questions about the world using the most advanced equipment and information available – from supercomputers to advanced lasers or vast shared databases of biological or genetic information.

Well-known facilities include CERN in Geneva and the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany, with six other sites across Europe. But there are many more, in all different areas of scientific research.

- **Technology infrastructures (TIs)** on the other hand are closer to industry. They help companies test, validate and scale up new technologies like cleaner batteries, renewable energy solutions, or smarter digital tools.

They are often run by major applied research centres such as Fraunhofer in Germany, VTT in Finland, or TECNALIA in Spain.

RIs and TIs are a key part of Europe's research ecosystem – a network of high-level facilities spread across all 27 EU countries and connecting researchers and innovators worldwide.

More info

- Commission launches new strategy to strengthen Europe's research and technology infrastructures
- European Research and Innovation Days
- Towards a European Strategy on Research and Technology Infrastructures
- European Strategy Forum on Research Infrastructures (ESFRI)
- European Research Infrastructures
- European Technology Infrastructures
- European Strategy for AI in Science