PARIS —
— SACLAY
SUMMIT —
CHOOSE SCIENCE

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Grégoire de Lasteyrie,
President of the Paris-Saclay
Urban Community

A summit to restore trust in science

The reasons behind launching the Paris-Saclay Summit in 2024 remain just as relevant in 2025. And they are based on three key pillars:

First, to foster meaningful dialogue on the role, potential and also the limits of science today.
Second, to lay the foundations for a new Age of Enlightenment, in order to address, among other things, the growing scepticism among part of the population regarding science and its possibilities.
Third, to contribute—through this collective reflection—to the international influence of Paris-Saclay, the prominence of French research, and the scientific renewal of our country.

To these three pillars, I would like to add a fourth.

Through around sixty debates, interviews and personal accounts over the course of two days, we hope in our own way to help re-enchant the world— to lift it out of its gloom, to rediscover the joy and passion of research… and perhaps even to rekindle a taste for a few good things on the horizon.

Contents

The annual gathering of stakeholders committed to science

The Paris-Saclay Summit is a major international event dedicated to examining the role of science in addressing the great challenges of the 21st century. This high-level gathering brings together renowned researchers, academics, policymakers, business leaders, entrepreneurs, students, and citizens to engage in collective reflection on science, research, and progress in the service of the common good.
As a true showcase of the Paris-Saclay ecosystem, the summit highlights the region's scientific, technological, and intellectual excellence. Representing over 20% of all French research, Paris-Saclay stands as a key player in scientific innovation. The Paris-Saclay Summit thus underscores the central role of science in shaping a sustainable future.

Alain Aspect,
Nobel Prize in Physics (2022), Professor at the Institut d'Optique Graduate School – Université Paris-Saclay, Professor at École Polytechnique – Institut Polytechnique de Paris, Emeritus Research Director at CNRS, and Member of the French Academy of Sciences

Gilles Brassard,
pioneer in quantum computing, Professor in the Department of Computer Science and Operations Research at the University of Montreal

"If you have ideas that may seem outlandish and are dismissed by your peers, don't give up too quickly. Perhaps your ideas really are far-fetched, but perhaps they're the beginning of something great.

Gilles Brassard, pioneer in quantum computing, Professor in the Department of Computer Science and Operations Research at the University of Montreal

Debating societal challenges

Repositioning the contribution of science at the heart of responses to the major challenges of our time is the core ambition of the Paris-Saclay Summit.
Through round tables, keynote speeches, and open discussions, the Paris-Saclay Summit offers a unique forum for dialogue across disciplines, generations, and societal stakeholders. Over the course of two days, the event brings together diverse perspectives, intersects fields of expertise, and fosters collective reflection on key societal issues such as climate, health, artificial intelligence, and energy.
Once again, the summit welcomed speakers from around the world to rekindle a constructive dialogue between science and society. In the questions it raises and the potential answers it provides, science remains a vital lever to help us better understand both current and future challenges.
By placing science, research, and innovation at the centre of the conversation, the event also highlights actionable solutions that address the intensity of the major shifts transforming our societies.

Cécilia Samieri,
Research Director at Inserm, specialising in epidemiology and public health

Jeanne Neuffer,
Lecturer at Université Paris-Saclay, AgroParisTech, INRAE

Reflecting on the great challenges of the century

In the face of today's major challenges—climate crisis, resource scarcity, biodiversity decline, rising chronic diseases, energy transition, and cybersecurity—our world must embrace profound transformations across health, social, societal, and environmental dimensions. The scientific community has illuminated these urgent issues, demanding collective, adaptive, and visionary responses.

The Paris-Saclay Summit is part of this momentum, bringing together experts, researchers, and citizens around a shared goal: to explore, debate, and co-develop the solutions for a sustainable future.

This gathering showcases the most promising scientific advances, celebrates inspiring journeys, and highlights the next generation of talent. By cultivating a passion for science and encouraging open dialogue across fields, the summit works to rebuild confidence in the ability of research to shape a better world.

120 internationally renowned speakers

Arisa Ema,
Professor at the University of Tokyo, Member of the United Nations Secretary-General's Advisory Body on Artificial Intelligence

Françoise Combes,
Professor at the Collège de France, Vice-President of the French Academy of Sciences, and CNRS Gold Medal recipient (2020)

Sharing scientific and technological advances

The Paris-Saclay Summit gathers French and international scientists to share the results of their work and the transformative potential of their discoveries.

The event is far more than just a platform for scientific exchange: it serves as a dynamic showcase for the real-world applications of scientific and technological breakthroughs.
Through presentations, live demonstrations, and field insights, the event offers a window into how research fuels innovation in critical sectors. By highlighting the practical uses and societal implications of these innovations, the Summit helps bridge the gap between science, industry, and society.

3,500 in-person attendees

33,000 online participants

65 conferences

20% international speakers

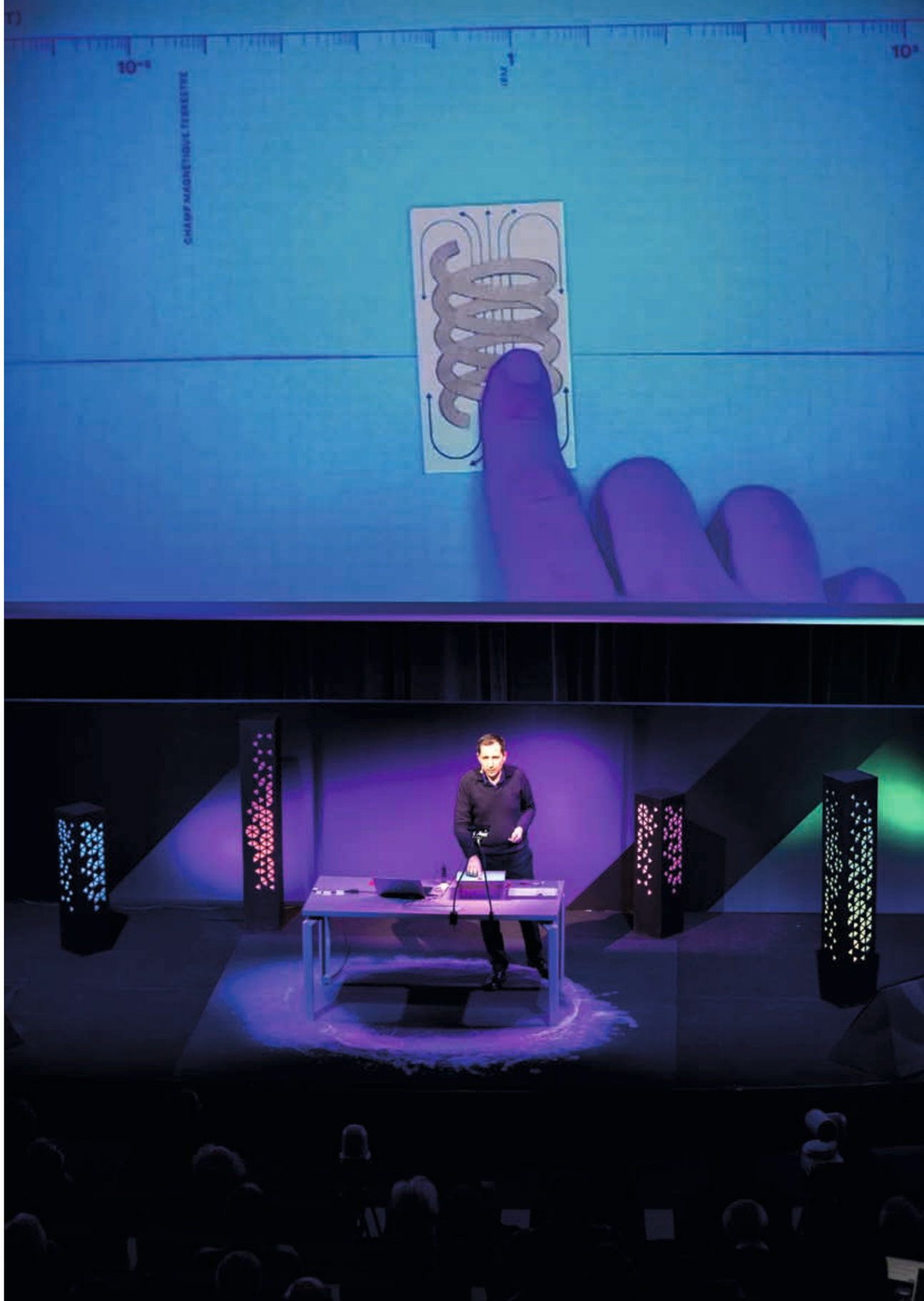
3 Nobel prize laureates

2 Turing prize laureates

3 CNRS Medal Recipients

Fostering dialogue between science and society

Julien Bobroff,
University Professor at Université Paris-Saclay and Researcher at the Laboratory of Solid State Physics (LPS – Université Paris-Saclay/CNRS)



"The Paris-Saclay Summit gathers thousands of participants to explore how deep scientific research fuels innovation. This is the place to be if you want to stay at the forefront of what's next.

Dag Rune Olsen,
Rector of the University of Tromsø

Encouraging exchange and connection

Beyond its conference sessions, the Paris-Saclay Summit cultivates a dynamic environment that promotes meaningful interaction among participants. It provides valuable opportunities to extend discussions, foster open dialogue, and build connections among stakeholders who rarely intersect in their daily work. These convivial moments are an integral part of the summit's richness, allowing researchers, business leaders, entrepreneurs, students, and public officials to share perspectives and explore new forms of collaboration.
By creating a space for dialogue and meaningful encounters, the Paris-Saclay Summit becomes a true catalyst for initiatives, partnerships, and meaningful connections.

Understanding the great challenges of the century

In what ways can science illuminate today's critical challenges while also contributing to practical solutions? This dual role, understanding and acting, is precisely what the Paris-Saclay Summit seeks to highlight each year. Far from being a mere showcase of scientific excellence, the event demonstrates how research not only rigorously identifies and documents the most pressing societal and environmental issues, such as climate change, energy transitions, biodiversity preservation or public health, but also contributes to the development of innovative, actionable solutions.

Drawing on the expertise of leading specialists and the dialogue between academics, decision-makers, and industry actors, the Summit demonstrates that science extends beyond observation. It is a strategic tool that informs policy, fuels technological advancement, and guides societal progress.

By making the link between research and its real-world impact more visible, the event reinforces confidence in our shared ability to shape solutions for a sustainable future.

Antje Boetius, marine biologist, Director of the Alfred Wegener Institute, Head of the Deep-Sea Ecology and Technology Group, and Professor at the University of Bremen

Olivier Poivre d'Arvor, Special Envoy of the President of the French Republic for the United Nations Ocean Conference, and France's Ambassador for the Poles and Oceans

Understanding and treating the diseases of today and tomorrow

Renowned for its expertise in healthcare, especially in the field of oncology, the Paris-Saclay area is home to major biotechnology players, positioning it as a hub of innovation in the life sciences.
In this context, health holds a prominent place at the Paris-Saclay Summit, with world-renowned scientists invited to share their perspectives on current and emerging health challenges, as well as the major innovations that will help address them.

Key topics include the re-emergence of infectious diseases driven by climate change, the growing burden of chronic conditions, and the evolution of integrated "global health" policies. Researchers are advancing this agenda by exploring root causes, promoting interdisciplinary collaboration, and pioneering innovations that enable more precise and personalised patient care.

Infectious diseases on the rise due to global warming

Francine Ntoumi, Professor of Molecular Epidemiology of Infectious Diseases, spoke about the fight against malaria, which continues to cause 630,000 deaths each year. As one of the world's oldest infectious diseases, malaria remains extremely difficult to eradicate. A major challenge lies in the biological diversity of malaria parasite species, which complicates the development of universal vaccines or treatments. Climate change further contributes to the disease's geographic spread by creating conditions more favourable to the proliferation of mosquito vectors, particularly through rising temperatures and the expansion of humid areas. Regions once unaffected are now increasingly exposed, significantly broadening the global risk of infection.

Two vaccines recently prequalified by the WHO: R21 and RTS,S, represent major advances, particularly effective against severe forms of malaria. Currently administered primarily for children, research is under way to adapt them for pregnant women.

With global funding under pressure—especially as U.S. support for infectious disease efforts declines —scientists are increasingly highlighting the vital need for sustained national investment in health research and innovation.

Francine Ntoumi, President of the Congolese Foundation for Medical Research, and Professor of Molecular Epidemiology of Infectious Diseases at the Institute of Tropical Medicine, University of Tübingen, Germany

> " Injectable treatments are now available. A single injection, twice a year, offers nearly 100% protection. This is a major breakthrough.
>
> **Francine Ntoumi,** President of the Congolese Foundation for Medical Research

Cancer: Major Research Efforts to Improve Detection and Treatment

433,136: that's the number of new cancer cases recorded in mainland France in 2023, nearly double the figure in 1990. This increase is driven by population ageing, a range of environmental and behavioural factors, as well as significant progress in cancer screening methods.

"Improving cancer detection and monitoring" is the shared ambition of three leading voices: Pierre Mezeray, Executive Director at Roche Diagnostics, Benjamin Verret, oncologist, and Marie Morfouace, scientific lead at Gustave Roussy. Together, they are advancing liquid biopsy, an innovation that is transforming oncology. This method—based on the analysis of circulating tumour DNA (ctDNA) obtained from a simple blood draw—enables precise genomic profiling of the tumour, the identification of genetic anomalies, and personalised treatment strategies.

Liquid biopsy's minimally invasive nature allows for ongoing monitoring of treatment efficacy, early identification of resistance mechanisms, and timely therapeutic adjustments. It also supports earlier relapse detection and more informed decisions regarding treatment discontinuation.

France has rapidly positioned itself as a global leader in this field, just behind the United States, with growing uptake among patients. Gustave Roussy, a leading cancer research and treatment centre, was the first institution in France to internalise this technology, demonstrating the country's strong integration of fundamental and clinical research.

Pierre Mezeray, Executive Director for Health Transformation and Diagnostic Solutions at Roche Diagnostics France

Benjamin Verret, Oncologist at Gustave Roussy

Marie Morfouace, Scientific Lead for Liquid Biopsy at Gustave Roussy

Connecting health ecosystems to boost R&D and innovation for the benefit of patients

The PASREL project (PAris-Saclay foRmation rEcherche & hôpitaL) was launched following the approval of the construction of the new hospital on the plateau. Led by the CEA and Université Paris-Saclay, the project is grounded in a firm belief: that progress in healthcare stems from ongoing dialogue between researchers, healthcare professionals, engineers, entrepreneurs, and patients. By placing interdisciplinarity at the heart of its approach, PASREL aims to build an integrated ecosystem that brings together research, hospitals, and industry to foster idea generation and accelerate the technological development of innovations that serve patients.
The project offers an open space where researchers, clinicians, students, and innovators can test ideas and technologies while benefiting from tailored support. Backed by the University, PASREL has already supported 26 projects in just two years.

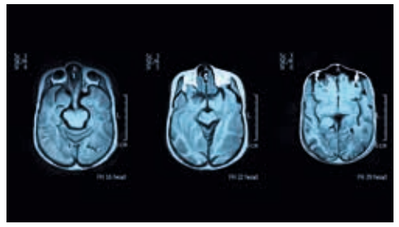
Located right next to the new Paris-Saclay Hospital, opened in June 2024, the PASREL building is scheduled to open in 2027. As a flagship hub bridging care and research, and a showcase for the region's medical technologies, it will embody this space of collaboration where healthcare professionals, researchers, and entrepreneurs come together to co-develop health innovation.

The Paris-Saclay Hospital, opened in June 2024, will host the physical site of the PASREL project starting in 2027.

A multidisciplinary approach to advancing research on chronic diseases

Integrated approaches that span the full healthcare continuum, from prevention to treatment, are increasingly called upon to address the growing prevalence of chronic diseases. Collaborative work between research institutions, the health industry, and even the food sector, which plays a key role in disease prevention, is critical to achieving meaningful outcomes.

Reflecting this model, Danone's fermentation-focused R&D centre on the Saclay plateau collaborates with public research entities and industrial partners to advance long-term scientific initiatives. Notably, Danone is a partner in the French Gut project, a citizen science initiative launched by INRAE in 2022. The project seeks to enhance chronic disease prevention and treatment by accelerating research into the human gut microbiome.



The world's most powerful MRI scanner

Located at the CEA-Paris-Saclay site, the Iseult MRI produces images with a resolution of up to 0.2 mm, a level of precision never before achieved, allowing researchers to observe previously unseen details of the human brain.

This technological breakthrough is paving the way for a deeper understanding and mapping of brain structures and functions, opening up new possibilities in the fields of healthcare and neuroscience.

Rising energy needs and the climate imperative: what balance for tomorrow?

Backed by major institutions such as the CEA, CNRS, and Université Paris-Saclay, and bringing together a rich ecosystem of public and private research, energy is recognised as a strategic sector within the Paris-Saclay region. The Paris-Saclay Summit, held for the second year at EDF's R&D centre, placed particular emphasis on rising energy demand amid global decarbonisation imperatives.

Across sectors such as transport, construction, and industry, fossil fuels are increasingly being replaced by electricity. While essential to reaching climate goals, this shift is placing huge pressure on energy systems not yet ready for the scale of demand, think electric vehicles, battery production, and data storage. Replacing existing energy sources with low-carbon alternatives therefore introduces a new challenge: significantly scaling up electricity production.

In response to this anticipated surge in electrification, speakers emphasised the critical role of research and innovation in developing the technical solutions that will shape a sustainable energy future.

The climate challenge: A global, multidisciplinary approach is essential

With the climate crisis growing more urgent, a critical question arises: can we fully comprehend and effectively respond to the multifaceted dimensions of the climate crisis? Beyond the complexity of global climate phenomena, this question raises concerns about our ability to grasp the issue in a holistic and cross-cutting way, moving beyond siloed approaches to implement effective solutions. Annie Levasseur, Canada Research Chair in Measuring the Impact of Human Activities on Climate Change and Professor at École de technologie supérieure de Montréal, stressed the need to tackle the climate crisis through an interdisciplinary lens, incorporating more than just technical viewpoints.

She outlined several key actions:
Ensuring coherence across government departments so that climate is not viewed exclusively as an environmental issue.
Engaging governments in public awareness and education to explain the reasons behind climate shifts.
Implementing concrete policies aimed at reducing energy and resource demand, alongside the transition to renewable energy.

EDF's Research & Development Centre
on the Saclay Plateau

> "The greatest illusion is the belief that renewable energy is infinitely available. (...) Reducing our energy consumption is unavoidable.
>
> | **Annie Levasseur**

Can we curb climate change while meeting rising energy demands?

Demand for low-carbon energy is rising steadily. According to Bernard Salah, Chief Technical Officer and Head of R&D, EDF Group, "Electricity currently accounts for about 25% of the energy consumed in France. By 2050, the target is closer to 50%. That means we'll need to produce much more."

To meet the growing needs of electrification, EDF is relying on a diversified energy mix combining nuclear, solar, and particularly offshore wind power. Beyond the technical challenges, such as the need for optimised and robust floating platforms for offshore wind, there are other major industrial and societal hurdles. These include the intermittency of renewable energy and the corresponding need for large-scale storage solutions, the substantial water requirements of nuclear power plants in a context of increasing scarcity, and the ageing of infrastructure.

To overcome these obstacles, two key levers are being advanced: technological innovation to resolve engineering and performance limitations, and systemic reductions in energy consumption, which Annie Levasseur underscores as indispensable in efforts to combat climate change.

Electrification alone won't solve environmental challenges

Transport is the largest CO^2-emitting sector and represents one of the key levers for reducing carbon impact. In this context, rail development stands out as a promising solution to decarbonise mobility. Yet, despite its ecological advantages, the rail sector still faces major environmental challenges, as highlighted by Carole Desnost, Vice President for Technologies, Innovation and Group Projects at SNCF.

Indeed, infrastructure-related activities, such as the construction of high-speed rail lines and the maintenance of rail networks, carry a significant ecological cost. In response, rail companies like SNCF have developed methods for calculating carbon footprints that cover the entire life cycle of rolling stock, from rail construction to end-of-life recycling.

"There's a clear market and need for hydrogen trains, which offer greater autonomy than hybrids. But the real issue is securing enough green hydrogen at an affordable cost.

Carole Desnost, Vice President for Technologies, Innovation and Group Projects, SNCF

Research and innovation play a crucial role in reducing the rail sector's carbon footprint. Thanks to scientific advances, new low-impact materials such as the "green rail", made from energy-efficient steel, are being used to build more sustainable infrastructure. Additionally, emerging propulsion technologies, including hybrid, battery-electric, and hydrogen-powered trains, offer viable alternatives to combustion engines. Their scalability, however, remains dependent on the availability of sufficient, clean, and cost-effective energy.

In response to growing energy demands and decarbonisation objectives, SNCF has launched its own renewable energy subsidiary, SNCF Renouvelables, aiming to produce 20 to 30% of its electricity by 2030 through solar panel installations, particularly along disused trackside areas. The ability to store this energy, especially to cover peak demand periods in the morning and evening, is a key component of this sustainable energy strategy.

Rémi Delaporte-Mathurin,
nuclear fusion researcher at MIT, who completed his PhD in France at the Magnetic Fusion Research Institute (CEA)

"While budgetary concerns are valid, the real issue is whether we want to move forward or not. The fundamental question is: do we have a clear strategic vision? If so, we must be willing to invest for the long term.

Rémi Delaporte-Mathurin, nuclear fusion researcher at MIT, who completed his PhD in France at the Magnetic Fusion Research Institute (CEA)au CEA

Nuclear fusion: A serious scientific prospect to meet growing energy needs?

Rémi Delaporte-Mathurin is a nuclear fusion researcher at the Plasma Science and Fusion Center at the Massachusetts Institute of Technology (MIT). Having completed his PhD in France at the CEA's magnetic fusion research institute, he underscored the long-term promise of nuclear fusion as a clean, intrinsically safe, and virtually inexhaustible energy source.
Based on the fusion of two isotopes, deuterium and tritium, this technology presents a key advantage: it is dispatchable, unaffected by weather conditions, and capable of continuous power generation.
While deuterium is stable and readily available, ensuring a reliable supply of tritium remains a significant challenge. Radioactive and rare, tritium is currently produced only in limited quantities as a by-product of fission reactors.
To address this, research is focusing on the implementation of a closed tritium cycle within fusion reactors, wherein tritium is regenerated in situ through neutron capture, thereby enhancing self-sufficiency and long-term feasibility.

Beyond the significant technical hurdles, the industrial integration of fusion must be further developed, particularly in terms of converting the thermal energy generated by fusion into electricity and feeding it into the grid.
As part of a broader strategy of energy diversification and complementarity, fusion should not be perceived as a universal solution but rather as a credible and strategic avenue for future low-carbon energy production.
More than a technological challenge, Rémi Delaporte-Mathurin identifies France's still-uncertain position on fusion as a major barrier to increased investment in the field, especially in contrast to countries such as the United States and Japan, which are actively accelerating their efforts.

Environment: A common good between desire and neglect

Earth is unique in the universe—which is precisely why it must be protected. This was the central message from Michel Mayor, Nobel Laureate in Physics, and Pierre Bibring, Emeritus Professor at Université Paris-Saclay and astrophysicist. Both underscored the extraordinarily rare combination of physical and chemical conditions that gave rise to life on our planet, highlighting the singular nature of Earth in the cosmos.

The preservation of terrestrial and marine biodiversity, along with the associated environmental, economic, and geopolitical challenges, featured among the key issues addressed at the Paris-Saclay Summit. In the context of the Year of the Ocean and the International Ocean Summit taking place in June 2025, ocean-related challenges emerged as a central theme of the 2025 edition, particularly through a strong partnership with Ifremer.

Science plays a vital role in preserving biodiversity. Whether oceans, forests, polar regions, or agricultural landscapes, each ecosystem presents its own specific challenges and demands a nuanced understanding of its dynamics. Such knowledge forms the foundation for actionable, sustainable strategies that leverage ecosystem services and strengthen collective conservation efforts.

> "Life is not autonomous: it depends on constant interactions with the rest of the world. If you sever those connections, life ceases to exist.
>
> **Jean-Pierre Bibring,**
> Emeritus Professor at Université Paris-Saclay, Institut d'Astrophysique Spatiale

Olivier Poivre d'Arvor, Special Envoy of the President of the French Republic for the United Nations Ocean Conference, and Antje Boetius, marine biologist, speaking as part of the conference "Can the Arctic Still Be Saved?"

"The ocean remains poorly documented. In the same year we will see the third United Nations Ocean Conference, the 30th United Nations Climate Conference will also take place.

Olivier Poivre d'Arvor, Special Envoy of the President of the French Republic for the United Nations Ocean Conference, and France's Ambassador for the Poles and Oceans

Understanding the oceans better and building global governance to protect them

The Arctic, vital to our planet, is experiencing a rapid degradation of its ecosystems. Several key figures presented at the Summit illustrate the gravity of the challenges facing polar regions: with global warming approaching 1.5°C, scientists estimate that over half of the world's glaciers could vanish by 2100. Polar areas are warming, on average, four times faster than the rest of the globe, and the rate of ice melt has increased by 65% over the past 30 years.

The melting of ice has profound consequences: it affects the habitats of countless species, diminishes the planet's climate regulation capacity, raises sea levels, leading to the submersion of coastal cities, and disrupts ocean salinity by mixing freshwater with seawater, thus threatening global freshwater resources.

In light of these findings, Antje Boetius, a world-leading expert on ice ecosystems, and Olivier Poivre d'Arvor, Special Envoy of the President of the French Republic for the United Nations Ocean Conference, shared their perspectives on the urgency of the situation and highlighted the significant lag in our scientific understanding of the oceans and their role in maintaining planetary equilibrium.

Scientific knowledge is gradually advancing, and with it, a framework for international governance is beginning to emerge, particularly in relation to the high seas. This includes the ratification of an international treaty addressing plastic pollution, illegal fishing, the decarbonisation of maritime transport, and deep-sea mining, an activity that, as Olivier Poivre d'Arvor reminded the audience, France is actively seeking to ban.

New economic opportunities that could jeopardise protection efforts

While the Arctic represents an area of extreme ecological fragility, it is also at the centre of intense geopolitical dynamics. Eight nations share this territory, each defending interests that are at times conflicting. The accelerated melting of ice is profoundly shifting the balance: new, shorter maritime routes could reshape global trade, particularly between Asia and Europe.
At the same time, easier access to previously inaccessible resources is reviving extractive ambitions. In the face of these transformations, the Arctic emerges as both a coveted and vulnerable region, a space where economic ambition, environmental urgency, and governance questions converge, and one that plays a crucial role in regulating the global climate.

"Those who will 'possess' the Arctic, in the best sense of the word, are those who have knowledge of these territories. Science is what truly matters: knowledge and the sharing of information. When you have knowledge, you can share it, redistribute it, and help dissuade any territorial conquest.

Olivier Poivre d'Arvor, Special Envoy of the President of the French Republic for the United Nations Ocean Conference, and France's Ambassador for the Poles and Oceans

"The ocean lies at the heart of a number of issues that affect our daily lives. It provides half of the oxygen we breathe, absorbs 90% of the heat generated by human activity, and plays a crucial role in the carbon cycle. It also delivers countless services: 90% of goods are transported by sea, and the data we use travels through underwater cables.

Romain Charraudeau, Director of Partnership and Innovation Transfer at IFREMER

Innovating to protect and restore

To address the urgent need for deeper understanding and preservation of marine ecosystems, several scientific and technological innovations were showcased at the Summit:

Though invisible to the naked eye, nanoplastic pollution is a major threat to marine biodiversity and public health. **The start-up Nanotrap has developed a molecular net capable of capturing particles** smaller than one micron directly at the source: within factories or wastewater treatment plants.

In a world where 95% of the oceans remain unexplored, **the start-up Cosma has developed AI-powered autonomous underwater drones** capable of mapping the seabed on a large scale with centimetre-level accuracy. Cosma's technology enhances our knowledge of the deep sea, protects fragile ecosystems, and accelerates offshore renewable energy projects.

With maritime transport accounting for 3% of global greenhouse gas emissions, **Bluefins offers an innovative solution to reduce cargo ship emissions** by harnessing wave energy to assist propulsion. Inspired by the motion of whale fins, this technology can reduce fuel consumption by up to 20%.

"We need to adopt
a science-based,
community-centred
approach. With strong
ecological knowledge and the
support of local communities,
we can develop strategies
that reconcile conservation
with sustainable development.

Ricardo Rocha, Professor in the Department
of Biology at the University of Oxford

"I'm both very optimistic...
and very pessimistic.
Yes, biodiversity is in decline.
But we're becoming
increasingly effective when
it comes to restoration. [...]
We can clearly see that if we
take action—if we give nature
space—it can regenerate.

Ricardo Rocha, Professor in the Department
of Biology at the University of Oxford

Restoring key ecosystem functions through deeper understanding

Long considered utopian, ecological restoration is increasingly recognised as a credible response to biodiversity loss. Given time and space, certain degraded ecosystems show a remarkable capacity for resilience. This is particularly true of secondary tropical forests, as studied by Ricardo Rocha, biologist and researcher at the University of Oxford, during the conference "Can We Repair Nature?". He demonstrated that with a sound strategy for restoration and conservation, secondary forests in disturbed landscapes can once again host sensitive species, deliver essential ecosystem services such as carbon sequestration and water cycle regulation, and contribute to the well-being of local communities.

However, restoring an ecosystem does not mean recreating a past state. The goal is to re-establish robust ecological functioning, pollination, seed dispersal, pest control, processes that science helps to evaluate by studying the functional traits of species. Bats, for example, are both indicators of ecosystem health and key agents of regeneration.

Successful ecological restoration is impossible without a deep understanding of living systems and their dynamics. Long-term fieldwork shows that biodiversity can recover, provided scientific knowledge is used as a foundation, simplistic approaches are avoided, and local communities are fully involved in the process.

The rise of AI: between international competition and ethical responsibility

In the context of the Global Summit on AI Action hosted in Paris, the Paris-Saclay Summit occupies a strategic position within a region renowned for its scientific and technological excellence in AI. Paris-Saclay alone hosts two of the nine national AI clusters, reinforcing its status as a leader in pioneering advanced technologies. This unique position imposes a particular responsibility on the ecosystem to foster a collective dialogue about the opportunities and challenges presented by AI.

Today, artificial intelligence is undergoing an unprecedented acceleration, described by some as a new industrial revolution. The growing capabilities of AI models in reasoning, solving complex problems, and developing autonomous strategies are reshaping the boundaries of human intelligence. Such rapid progress raises significant issues, not only regarding technological sovereignty but also in terms of ethics, safety, and regulation.

In an era of intensified international competition, the presentations and debates at the Paris-Saclay Summit underscore the need for global, inclusive, and responsible governance of artificial intelligence. Both French and international experts are advocating for strengthened scientific, industrial, and political collaborations to ensure that AI development is carried out within an ethical framework that serves the common good. As a result, the Summit stands as a vital forum for discussion and commitment, dedicated to nurturing an AI landscape that is trustworthy, controlled, transparent, and aligned with the transformative goals of our societies.

Is European competitiveness being held back by regulation?

At the Paris-Saclay Summit, a recurring observation emerged: "The United States innovates, Europe regulates." Though provocative, the phrase captures a growing tension between rapid technological advancement and democratic caution.
In favour of regulation, Yoshua Bengio, Professor at the University of Montreal and lead author of the international scientific report on advanced AI safety, emphasized the need for science-based, globally coordinated regulation. Such a framework, he argued, is essential to prevent harmful misuse and limit the concentration of technological power in the hands of a few companies or countries.

The AI Act, championed by the European Union, embodies this desire to establish a democratic and protective framework. However, it also raises concerns: some argue that overly anticipatory legislation could hinder Europe's technological competitiveness. Yann Le Cun, Chief AI Scientist at Meta, warned against rules driven by implausible worst-case scenarios: "We're creating laws to restrict AI based on imagined risks, this is counterproductive."

Nevertheless, European regulation is part of a broader vision, one that aims to build an ethical, sovereign, and collective approach to AI. As Olivier Micheli, CEO of Data4, pointed out, this involves pooling efforts around sovereign cloud solutions, shared infrastructures, and a common vision. Europe aims to chart a third way: ensuring fair access to digital resources while building AI that serves diverse and inclusive societies.

Yoshua Bengio,
Full Professor at the University of Montreal

This ethical imperative was a central theme in the panel featuring Arisa Ema (member of the UN AI Advisory Body), Lyse Langlois (Executive Director of the International Observatory on the Societal and Ethical Impacts of AI and Digital Technology), and Nathalie Collin (Deputy CEO of La Poste Group, Head of the Consumer and Digital Division). For them, AI must be treated as a common good and its governance must be shaped by cultural context and democratic values. Arisa Ema distinguished between the technical responsibility of building transparent and accountable AI systems and the human responsibility of ensuring their ethical use.

Yann Le Cunn,
Chief AI Scientist at Meta, artificial intelligence researcher, and 2019 Turing Award laureate

Laura Chaubard,
Director General and Interim President of École Polytechnique – Institut Polytechnique de Paris

Security and European sovereignty at risk

The emergence of artificial intelligence in the field of cybersecurity is disrupting established balances. On one hand, AI enables automated anomaly detection, real-time threat anticipation, and enhanced response capabilities. On the other, it equips cybercriminals with unprecedented tools to industrialise their attacks - from generating malicious code to voice and visual impersonation, and adaptive threats. AI thus functions both as a shield and a source for new vulnerabilities.

Adding to this dynamic is the rise of quantum computing, which could ultimately undermine the very foundations of modern encryption. Traditional algorithms may become obsolete in the face of vastly increased computational power. This dual shift - AI and quantum - demands a radical rethinking of cybersecurity strategies.

In this context, Laura Chaubard, Director General and Interim President of École Polytechnique, has called for keeping AI under human control and strengthening European sovereignty in this increasingly strategic domain. Achieving this requires enhanced cooperation between public institutions, industry, and the scientific community to anticipate threats, develop resilient technologies, and maintain trust in digital infrastructure.

Cybersecurity is thus entering a new era where adaptability and expert command of disruptive technologies are the real keys to resilience.

Integrating AI into academic programs and learning models

Artificial intelligence is profoundly reshaping expectations of the academic world. According to Joseph Aoun, President of Northeastern University, institutions must now train individuals capable of coexisting with AI, by cultivating three core dimensions: understanding the technology itself, being able to critically assess its outputs, and developing the uniquely human skills that machines cannot replicate, such as creativity, critical thinking, and empathy.

But AI is not just a subject to be taught, it is also becoming a powerful pedagogical tool. Integrated into academic programs, it enables personalised learning pathways, real-time student support, and enhanced insights into educational outcomes.

In this evolving landscape, the role of universities is changing. The aim is no longer solely to prepare students for existing professions, but to anticipate future skills needs, with an emphasis on adaptability, interdisciplinarity, and ethical responsibility. To teach AI is also to teach with AI, an imperative that calls for a fundamental rethinking of educational models.

> "Historically, higher education has been built around three great domains: the physical sciences, the humanities, and the social sciences. Today, for the first time, a new world is emerging—that of artificial intelligence. A non-physical, entirely artificial world. It is essential to understand how it works, grasp its implications, and learn to integrate it with the others.
>
> | **Joseph Aoun,** President of Northeastern University, Boston

Joseph Aoun,
President of Northeastern University, Boston

Aerial View of the Paris-Saclay Innovation Cluster

Paris-Saclay's academic hubs at the forefront of AI development

The Paris-Saclay region is a thriving centre for artificial intelligence, bringing together researchers, students, major industry players, and experts in this cutting-edge field. During the second edition of the Summit, SNCF and École Polytechnique showcased a joint initiative that illustrates the high-value collaborations emerging between industry and academia.

Through their partnership, they have established the "Artificial Intelligence and Optimisation for Mobility" chair, which funds the recruitment and training of researchers, PhD students, postdoctoral fellows, and engineers. The goal is to develop innovative AI-based technologies to improve public transport services, streamline freight logistics, and facilitate the transition to more sustainable mobility models.

Paris-Saclay is also emerging as a key player in the French national AI strategy, hosting two of the nine state-accredited AI clusters, led respectively by Université Paris-Saclay and the Institut Polytechnique de Paris. These clusters are built on an exceptional concentration of talent and infrastructure, with a large community of AI researchers, leading academic institutions, and an innovation-friendly economic ecosystem.

Their mission is to foster ecosystems where fundamental research, industrial innovation, and entrepreneurship interact on a daily basis, to address strategic themes rooted in societal needs—such as health, energy, climate, and defence.

The Université Paris-Saclay cluster, anchored in the DATAIA centre, focuses on applying AI in health, environment, and energy. It brings together leading institutions such as CEA, Inria, and CentraleSupélec.
The Institut Polytechnique de Paris cluster, built around the interdisciplinary Hi! PARIS institute in partnership with HEC Paris, develops AI approaches at the intersection of digital technologies, economics, social sciences, and regulatory challenges.

> "This collaboration allows us to develop innovative projects that combine the power of artificial intelligence technologies with the robustness of operational research methods. We also aim to integrate the outcomes of our research into our teaching programs, to train the talent of tomorrow.
>
> | **Sonia Vanier,** Professor in the Computer Science Department at École Polytechnique

Moving from talk to action

By establishing itself as a key moment for reflection and action on the major challenges shaping the future of science and research, the Paris-Saclay Summit offers a platform for speakers to share insights, exchange ideas, and propose pathways for concrete action.

The Summit initiates a collective dialogue and sustained reflection—one that must continue over time to generate impactful responses to the structural challenges confronting science and research.

Among the major themes addressed over the course of the first two editions, three in particular have given rise to specific proposals for action:

— Women's access to science
— The attractiveness of scientific careers
— Science diplomacy

Women's access to science

The scientific field continues to suffer from a marked underrepresentation of women, who account for less than 30% of engineers and researchers in science and technology in France and across Europe. The imbalance is even more pronounced in IT-related fields, where women occupy just 13% of positions.

This disparity partly rooted in deep-seated cultural and social norms raises serious issues of technological ethics and inclusivity. Increasing the participation of women in science in France is a strategic priority for fostering diversity in research, innovation, and the professions of the future.

In light of this, there is a pressing need to multiply initiatives that support better access for women to scientific fields and careers.

"Today, when we look at the needs emerging from new technologies —across all sectors, from health to the environment to ecology—we need science, and we need women to be part of it.

Sylvie Retailleau, physicist and former Minister for Higher Education and Research

Initiatives to encourage girls to pursue science from an early age

Girls remain underrepresented in engineering and scientific pathways, often held back from an early age by gender stereotypes and a lack of visible female role models in science and technology. This reality was widely acknowledged during a panel discussion featuring several prominent advocates on the issue: Sylvie Retailleau, physicist, professor at Université Paris-Saclay and former Minister for Higher Education and Research; Marie-Luce Godinot, Deputy CEO for Innovation at Bouygues Group; and Amandine Aftalion, Director of Research at CNRS. Together, they highlighted the urgency of addressing the social and cultural mechanisms that influence educational choices, as well as the lack of information and positive representation of women in scientific careers.

Despite these persistent barriers, a growing number of initiatives are emerging to promote girls' access to science. Led by both public and private actors, these efforts are paving the way—and deserve to be scaled up. For example, Marie-Luce Godinot presented the Girls@Tech initiative by Bouygues Telecom. Through its women's network Bouygt'elles, the program raises awareness among girls aged 13 to 18 about technical and technological careers.

In parallel, academic institutions in the Paris-Saclay region are stepping up their efforts. Université Paris-Saclay has launched the Women & Science mentoring program, connecting female students with experienced women scientists. This initiative offers inspirational guidance, boosting young women's confidence and ambition as they shape their professional paths. The Institut Polytechnique de Paris, through its Equal Opportunities Centre, organises annual events to promote scientific careers among secondary school girls, helping to dismantle stereotypes by showcasing the diversity of female success stories in science.

Amandine Aftalion,
Director of Research at CNRS, Orsay Mathematics Laboratory

Marie-Luce Godinot,
Deputy CEO for Innovation, Sustainable Development and Information Systems, Bouygues Group

Sylvie Retailleau,
Physicist, Professor at Université Paris-Saclay, and former Minister for Higher Education and Research

Proposals to strengthen women's access to science

To improve women's access to science, several complementary strategies must be supported, all centred on a common objective: making science more accessible, attractive, and inclusive. This starts with recognition and visibility - presenting science not only as a field of excellence, but also as one that is meaningful and open to everyone. Critical to this transformation are education and communication. Raising awareness among the media and science journalists on these issues could help reshape public narratives around science by spotlighting diverse career trajectories and amplifying the visibility of female role models, thereby reinforcing science as a viable and inspiring path for women.

In addition, a coherent approach throughout the entire school journey is essential. From primary school onwards, teachers must receive multidisciplinary training that enables them to present science in all its dimensions and foster a broad, accessible scientific culture. As students progress through their education, initiatives such as mentoring become especially valuable, offering young women personalised support and tangible role models to help them navigate scientific pathways.

Achieving gender parity in science cannot rest on fragmented or short-term interventions. Rather, it requires a systemic and integrated framework of educational, cultural, and institutional strategies designed to operate in synergy and generate enduring transformation.

Highlighting Inspirational Figures

As Laura Chaubard reminded attendees during the first edition of the Paris-Saclay Summit, presenting role models in science, engineering, and entrepreneurship is essential for inspiring women to pursue similar paths. In this spirit, Julia Carpenter and Gaëlle Andreatta, co-founders of Apheros, a young impact-driven start-up focused on decarbonising data centres efficiently and sustainably, shared their innovation journey, offering a compelling example of entrepreneurship led by two researchers and PhD graduates.

Gaëlle Andreatta, who holds an Executive MBA from the University of St. Gallen and has over 16 years of experience in deep tech, technology transfer, and innovation, was awarded the L'Oréal-UNESCO For Women in Science Young Talent Prize for her PhD research in physical chemistry conducted at CEA Paris-Saclay. Alongside Julia Carpenter, who earned her PhD in materials science from ETH Zurich, she co-developed a patented process for producing an innovative metal foam that significantly improves heat conduction. This material outperforms current commercial foams, delivering about 10% improved thermal exchange efficiency directly on the chip and reducing the energy required to cool data centres. In recognition of this innovation, Julia Carpenter was named one of MIT Technology Review's "35 Innovators Under 35" in 2024.

During their talk, they stressed the importance of studying and working in environments that foster creativity and innovation, creating the conditions needed to develop solutions rooted in scientific research.

When asked, "*What advice would you give to students who, like you, want to start their own company?*", they emphasised the importance of taking the time to explore, grasping opportunities as they arise, and finding partners who share your vision, values, and working style.

Gaëlle Andreatta,
CTO and Co-founder of Swiss start-up Apheros, Member of the Innosuisse Innovation Council, and PhD in Physical Chemistry from CEA Paris-Saclay

Julia Carpenter,
CEO and Co-founder of Apheros, named Innovator of the Year by MIT Technology Review

"I was very lucky. I completed my PhD in a group where four start-ups had already been created before mine, so I was able to observe their growth and the steps they took. It was a highly inspiring entrepreneurial environment.

Gaëlle Andreatta, Co-founder of Apheros, Member of the Innosuisse Innovation Council, PhD in Physical Chemistry from CEA Paris-Saclay

They were present at the Paris-Saclay Summit

"The science of tomorrow is interdisciplinary, and girls have a vital role to play in it.

Amandine Aftalion,
Director of Research at CNRS

The attractiveness of scientific careers and talent

In the face of today's major global challenges, and within an increasingly competitive international landscape, strengthening the appeal of scientific careers and research roles is vital to ensuring economic sovereignty, scientific competitiveness, and Europe's capacity for innovation.

This attractiveness must be understood in a broad sense. It means encouraging more young people to pursue science-related fields by dismantling lingering stereotypes, attracting talent from across the globe, and retaining researchers by offering clear, fulfilling, and well-supported career pathways.

In a context where knowledge production has become a strategic asset, it is imperative to implement a coherent and ambitious policy framework aimed at promoting and elevating scientific disciplines.

"Education isn't just about training for a job; it's about giving young people the ability to build a career and adapt throughout their lives. That means designing programs that provide strong fundamentals butalso address all the transversal skills.

Isabelle Demachy, Vice-President for Academic Affairs at Université Paris-Saclay

Secondary school students from the Paris-Saclay area as part of the "Recherche en baskets" program

High school girls and boys from the region taking part in science outreach sessions as part of the "Recherche en baskets" program

"Events like this spark curiosity because they create a dynamic that encourages people to ask questions and explore new paths.

Alix Chazottes, PhD student at the Digital Vision Centre, Université Paris-Saclay

Renewing the image of scientific careers

Scientific fields still suffer from a stereotypical image: they are often seen as difficult to access, or even reserved for men, an impression that discourages many young people, particularly women, from entering these domains. This perception is further reinforced by a persistent lack of awareness about career opportunities. Many remain unaware of the wide range of scientific professions and their central role in tackling major societal issues, from ecological transition and the digital revolution to public health.
These fields demand advanced skills, particularly in science, technology, engineering, and mathematics (STEM, not only to better understand complex challenges, but also to design innovative solutions to address them.

The Paris-Saclay Summit is committed to bringing science closer to society. The aim of the event is also to make science accessible to all secondary school pupils, high school students, university students, PhD candidates, and postdoctoral researchers by offering a variety of activities and awareness-raising formats for young audiences:

Meetings and discussions between high school students and PhD candidates through an interactive, engaging, and educational approach to discovering research. Informal roundtables allowed doctoral students to share their academic paths, daily routines, and research topics, helping pupils gain a clearer understanding of scientific careers. A total of 16 disciplines were represented.

Visits and workshops to explore the scientific process at the Centre for Nanoscience and Nanotechnology (C2N – CNRS / Université Paris-Saclay / Université Paris-Cité).
Mini-conferences aimed at lower secondary pupils, led by researchers from Inria Saclay and the Maison d'Initiation et de Sensibilisation aux Sciences in Orsay
An immersive experience in energy-related professions with the Yookan association, which offers digital tools and virtual reality resources.
Guided tours of the EDF Lab showroom, a space dedicated to R&D innovation, and of the Connex Lab, which focuses on digital innovations.

Engineers: A uniquely French model

In higher education, training engineers with a strong sense of social responsibility has become a growing priority—particularly in fields such as artificial intelligence and cybersecurity. It is no longer sufficient to master technical fundamentals networks, systems, computing, and cybersecurity; future engineers must also be equipped to anticipate the societal implications of technology. Cybersecurity, often seen as overly technical or lacking appeal, deserves renewed attention: it is a strategic, human-centric, and multidisciplinary field, offering career paths that intersect with law, geopolitics, and the digital economy.

To compete in an increasingly global and competitive landscape, France must leverage its distinctive multidisciplinary engineering model and invest further in education and research to consolidate Europe's digital and technological sovereignty. The emergence of AI is reshaping required skillsets. While technical expertise, especially in system architecture, remains critical, the true challenge lies in making cybersecurity education more attractive, so as to cultivate engineers capable of understanding, anticipating, and advancing an ethical digital future.

Laura Chaubard,
Director General and Interim President of École Polytechnique – Institut Polytechnique de Paris

"The 'French-style' engineer is a rather unique model. They have this ability to take a multidisciplinary approach, to see the bigger picture when it comes to technical issues. I believe it's a real strength we can rely on.

Laura Chaubard, Director General and Interim President of École Polytechnique – Institut Polytechnique de Paris

Patrick Cramer,
President of the Max Planck Society

Edith Heard,
geneticist specialising in epigenetics, Director General of the European Molecular Biology Laboratory (EMBL), Professor at the Collège de France, CNRS Gold Medal recipient (2024), and Member of the French Academy of Sciences

Antoine Petit,
Chairman and CEO of the CNRS

Making Europe a destination of choice for global talent

While Europe is globally recognised as a hub of scientific excellence, many speakers at the Paris-Saclay Summit highlighted the challenges of attracting and retaining researchers over the long term—particularly in a context of growing international competition, especially from the United States. Yet Europe has significant assets, foremost among them an exceptional education and training ecosystem, which fuels high-level expertise across cutting-edge sectors.

The issue of researcher salaries, often cited in discussions on the "brain drain," offers only a partial explanation. According to Antoine Petit, CEO of the CNRS, it is above all the density of researchers, advanced equipment, and infrastructure that determines a location's attractiveness. Scientists thrive in environments that enable them to collaborate with peers, access world-class facilities, and pursue ambitious research and innovation.

Proposals to enhance the attractiveness of scientific careers

Reaching a critical mass of researchers and giving them the means to establish themselves in Europe is a major challenge. This could be addressed through the development of support schemes, financial resources, and practical assistance, such as relocation support, funding to launch or continue research programs, help with administrative procedures, and streamlined access to national and European funding calls. In the current geopolitical climate, Edith Heard stressed that Europe has a unique opportunity to welcome researchers whose work is at risk elsewhere, and to position itself as a haven for free, high-quality scientific inquiry.

"Europe is attractive - and it must assert this by developing a 'European brand' that showcases the diversity and quality of its research, its capacity to collaborate with leading scientists, and the independence that defines its scientific work.

Science diplomacy: the importance of international cooperation

At a time when research is increasingly undermined by growing mistrust—both across the Atlantic and within Europe—scientific cooperation and dialogue between countries and institutions are more vital than ever.

Despite being weakened by internal political dynamics in the United States, collaborations between American and European researchers remain strong. They are particularly essential given that many major challenges, such as health, climate, and energy, require global approaches. Science diplomacy plays a key role in sustaining research careers and projects that are currently under threat.

Whether through public–private partnerships, cooperation between European research institutes, or collaborations with countries beyond the EU, scientific partnerships are essential to advancing research and reflection that serve society. The Paris-Saclay Summit highlights this fundamental dimension of research and innovation through projects, programs, people, and networks and reinforces the importance of international cooperation.

"Europe needs to be in the picture.

| **Patrick Cramer**, Max Planck

New EUROCONTROL Innovation Centre on the Saclay Plateau – Opening Planned for 2028

A european culture of cooperation to be valued

"European history is shaped by the richness of collaborations and exchanges, by our ability to work together across our differences." For Edith Heard, Director General of the European Molecular Biology Laboratory (EMBL), cooperation is part of Europe's DNA and represents a genuine differentiating strength—one that must be harnessed to maintain and advance European scientific excellence.

Alongside Patrick Cramer, President of the Max Planck Society, and Antoine Petit, Chairman and CEO of the CNRS, Edith Heard shared her insights into the key challenges and actionable strategies needed to ensure that Europe remains a global centre of excellence in research.

"Aviation is one of the rare sectors where Europe is in the lead—it's yesterday's research funding that made today's success possible.

Lauren Renou, Head of Innovation Division at EUROCONTROL

Proposals that emerged

Develop a coherent European research policy with increased funding: "Research funding should be doubled, as recommended by Mario Draghi (economist and former President of the European Central Bank)," urged Patrick Cramer, President of the Max Planck Society.

Preserve transatlantic cooperation: Despite being weakened by U.S. domestic politics

Support fundamental research, which is the starting point of innovation and technology transfer: fundamental research and its associated skills are essential ingredients for European competitiveness: without them, there can be no applied research.

Eurocontrol: A Symbol of European Success

Created in 1960 with just seven founding member states, the organisation responsible for managing air traffic across European airspace now brings together 42 European countries.

In a context where each country has its own rules and infrastructure, Eurocontrol has successfully harmonised practices through centralised coordination on behalf of the European Commission. This model of cooperation stands as a flagship example of European success, combining shared governance and strategic vision with technological sovereignty—and is now inspiring other world regions, such as Southeast Asia.

This achievement is based on several success factors: a clear political vision led by the European Union (sovereignty, competitiveness, sustainability, resilience), structured funding combining public and private investments (notably via the Clean Aviation and SESAR programs, and a deeply rooted European culture of flight safety.

Key topics that defined the 2025 edition

The 2025 edition of the Paris-Saclay Summit featuring the Summit for Action on Artificial Intelligence highlighted the growing role of science in the major technological balances of our time. Through panels, debates and shared experiences, the discussions revealed several key lines of thought shaping the future. Among the many topics addressed, two stood out in particular:

Open research, which raises questions about how technologies can remain open, accessible, and driven by collective dynamics.

Technology transfer, which concerns the transition from research to practical application, with the goal of strengthening the industrial ecosystem, accelerating the ecological transition, and reinforcing economic sovereignty.

This selection of "highlights" revisits these key themes and showcases the ideas, initiatives, and perspectives that emerged throughout the discussions.

Open Research: Open Science as a Driver of Innovation

Accelerating innovation while ensuring the ethical development of technologies: this is the ambition of open science, which is founded on the sharing of data, publications, and scientific protocols. This model aims to break down silos between institutions, disciplines and countries in order to maximise the impact of research, reinforce scientific reproducibility, and pool efforts to address common challenges.

However, the implementation of open science is fraught with tension. Between the imperative for transparency and competitive strategies among stakeholders, access to knowledge and data remains tightly controlled. While Europe has made it a cornerstone of its scientific policy through initiatives like Horizon Europe, other countries such as the United States or China may adopt a more selective, even restrictive, approach to sharing their results or strategic datasets.

This European vision of research was strongly defended at the Summit by several leading figures, including Edith Heard, Director General of the European Molecular Biology Laboratory, who underscored the importance of knowledge sharing. Institutions within the Paris-Saclay ecosystem are also deeply committed to open science and advocate for the broadest possible access to scientific outputs, including articles, code, and datasets.

These debates took on particular significance at the Paris-Saclay Summit, especially in high-impact application areas such as artificial intelligence. In this field, the sharing of programming code and datasets is a major driver of innovation and development. However, it also raises issues of competition and transparency, with sector stakeholders adopting differing strategies — as highlighted by Yann Le Cun, Chief AI Scientist at Meta, who shared his views on AI during the Summit.

> "Europe's philosophy is free and open research. We share, and that's how knowledge accelerates.
>
> **Edith Heard,** geneticist and Director General of the European Molecular Biology Laboratory

YANN LE CUN, THE INTERVIEW

Open research and the role of France and Europe in the development of AI

During his remarks at the Paris-Saclay Summit, Yann Le Cun addressed the role that France and Europe could play in the development of AI, by defending the open-source model. His intervention also served as a platform to articulate a position that diverges from that of fellow AI pioneer Yoshua Bengio, renowned for his focus on the ethical and societal impacts of artificial intelligence. While Bengio urges increased vigilance around the potential systemic dangers of powerful, under-regulated AI systems, Le Cun countered with a more optimistic perspective arguing that such concerns are speculative and, in his words, "belong to science fiction."

> "The rivalry is not between countries, but between two visions: that of open and shared research (the open-source model) and that of proprietary technologies.
>
> **Yann Le Cun,** Chief AI Scientist at Meta, artificial intelligence researcher, Turing Award laureate 2019

From your perspective, what role could France and Europe play in the development of AI over the next 10 years?

There are three key levers to building and sustaining a high-performing AI ecosystem: talent, computing power, and data.

When it comes to talent, France has a strong foundation. The real challenge lies in retaining this talent—or bringing it back. That means creating an attractive environment: favourable working conditions that support productivity and offering competitive compensation.

On computing power, France acted early, allocating public resources to support development. More recently, the President of the Republic announced significant investments in computing infrastructure moves that are heading in the right direction.

Lastly, on data: large models are trained using public datasets. The most costly aspect is not access to the data, but the experts required to fine-tune these models—and we have that expertise in France. One standout example is the launch of Llama, here in Paris, which highlights the depth of talent available.

What are the main obstacles you see today?

I see two primary obstacles. First, European regulation is being introduced too prematurely. Take Meta's smart glasses, for example: some of their features can't be used in Europe due to regulatory uncertainty.
Second, there's the fear of AI, promoted by certain researchers, which have convinced governments that AI is inherently dangerous and might get out of control. But this is science fiction, there is no solid evidence for such risks. And yet, laws are being introduced to limit the power of AI systems based on these claims. The Biden administration, for instance, has adopted an executive order along these lines an approach I believe is highly counterproductive.

What are the right questions to ask when thinking about the future of AI?

Too often, AI is framed as a geopolitical race between China, Europe, and the United States. That's a misleading debate, because talent exists everywhere. The real question is whether we can offer the right environment for that talent to thrive and establish itself within our borders.

The rivalry is not between countries, but between two visions: one of open and shared research (the open-source model), and one of proprietary technologies.

Some proprietary companies believe they've taken the lead and are now locking down their models, despite having greatly benefited from open research—such as OpenAI, Anthropic, and to some extent, Google.

In contrast, other players continue to freely publish their code, research, and prototypes, like the open-source Llama platform which has significantly contributed to shaping the global AI ecosystem.

In a word, why is an event like the Paris-Saclay Summit important?

Because it offers a constructive and even optimistic vision of AI's future. While public discourse often focuses on risks and biases, I believe this technology should be embraced, not resisted. The media tends to adopt a cautious, sometimes contradictory view of the tech industry's societal impact. But at the Summit, the reactions were overwhelmingly positive. It also helps position France as a key player, both in Europe and globally, through concrete initiatives and by showcasing the depth of European talent.

An interview conducted by Impulse Partners

Promoting technology transfer: A major challenge for European sovereignty

The capacity of European research to generate innovation and economic impact is regularly called into question. Despite world-class scientific output, several participants highlighted the difficulty in converting research into tangible innovation often referred to as the "European paradox." For instance, nearly 95% of patents filed in Europe reportedly remain unused, never reaching the stage of commercial application.

Several reasons are put forward to explain this paradox. On the one hand, the European innovation ecosystem suffers from chronic underinvestment. The European Union invests less in research and development than its competitors: private funding accounts for just 1.3% of GDP, compared with 2.4% in the United States, according to the European Competitiveness Report by Mario Draghi. This lack of dedicated funding for the economic valorisation of research limits the ability to convert scientific breakthroughs into market-ready solutions.

On the other hand, some stakeholders point to overly restrictive regulations and a fragmented European market. Strict standards, complex procedures, or legal differences between countries can discourage entrepreneurs and investors alike.

The biotechnology sector provides a striking example of this paradox. Despite considerable scientific potential, Europe continues to struggle in converting research into breakthrough industrial applications. Although European excellence in bioengineering, genomics, and biopharma is widely recognised, Europe has yet to see the emergence of global leaders in this strategic field.

During their interventions, Stéphane Boissel, CEO of SparingVision, and Laurent Arthaud, Head of the Biotech division at Bpifrance, offered a nuanced perspective. While the foundations are strong—high-level researchers, outstanding training programs, competitive development costs, and public mechanisms such as the research tax credit or Bpifrance's support major structural barriers remain. Among them: a massive lack of infrastructure, a regulatory framework seen as inflexible, and, above all, a deep-seated aversion to scientific and financial risk, which hampers scaling-up efforts.

> "There is an aversion to scientific and financial risk, which prevents Europe from excelling in biotech.
>
> | **Stéphane Boissel,** CEO of SparingVision

THE PERSPECTIVE OF APHEROS' COFOUNDERS

Innovation and Technology Transfer

Doctors in physical chemistry and materials science, Gaëlle Andreatta and Julia Carpenter presented their innovative data centre cooling solution at the Paris-Saclay Summit—an opportunity to highlight the industrial application of their research-based innovation.

Gaëlle Andreatta,
CTO and cofounder of the Swiss start-up Apheros, member of the Innosuisse Innovation Council, PhD in physical chemistry from CEA Paris-Saclay

Julia Carpenter,
CEO and cofounder of Apheros, named Innovator of the Year in 2024 by the MIT Technology Review

You mentioned data centres as one of your priority areas. What motivated your interest in this field?

We quickly identified an opportunity in this area, as the development of artificial intelligence is closely linked to the growth of data centres. The increasing computational power generates a significant amount of heat, making cooling ever more complex. Our technology directly addresses this issue.

Your project was born from fundamental research. What challenges did you face in the technology transfer to an industrial application?

We found that launching a start-up is one of the fastest and most effective ways to transfer a technology to industry. Large companies don't necessarily have the flexibility to absorb risk and experiment quickly. For us, one of the major challenges was scaling up.

From the start, it was clear that our technology was scalable. It didn't require tens of millions of euros in complex infrastructure to reach industrial-level deployment. The real challenge was logistical: establishing a robust supply chain, ensuring the quality and availability of materials in large quantities, testing different suppliers and making sure they were reliable.

We would have preferred to source everything within Europe, but in our field, that's often not possible.

What other challenges have you faced?

A fundamental challenge is having a clear sense of purpose when engaging in technology transfer. Start-ups are often the best positioned for this, because industry players are not always aware of the innovations emerging from research.

Did you immediately identify the industrial potential of your technology?

Fairly early on, yes. There were two key questions: can we produce this technology at a reasonable cost? And is there a market for it? Both answers were positive from the beginning.

We had to prioritise possible applications—thermal filtration, cooling, catalysis, and more. While all were viable, investors expect a precise value proposition. They want to know exactly what problem you're solving. So we made strategic decisions based on existing demand and technical feasibility.

An interview conducted by Impulse Partners

Those who make dialogue possible

This edition of the Paris-Saclay Summit would not have been possible without the commitment of its partners.

Institutions, companies, laboratories and local stakeholders all contributed to making this event a space for dialogue, reflection, and perspective on the major scientific and technological challenges of our time.

See you in February 2026

à traduire

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