



Press release  
July 2023

## France 2030 plan: launch of the “Networks of the Future” research program

**A new research program (PEPR), “Networks of the Future” led by CNRS, the CEA and Institut Mines-Télécom (IMT) was launched on 10 July in the presence of Jean-Noël Barrot, Minister Delegate for the Digital Transition and Telecommunications. As part of the France 2030 plan and its “5G and Networks of the Future” acceleration strategy, the CEA, CNRS and IMT are leading “upstream” research aimed at supporting the development of 5G and 6G while assessing their environmental impacts. This program has a budget of €65 million provided by France 2030 over six years.**

Within France 2030, 5G and future telecom network technologies have been identified as a target market with high growth potential in which France has strong capabilities. In July 2021, the French government launched a dedicated acceleration strategy to make 5G a tool for industrial competitiveness and bring France to the forefront of future networks technologies. As part of this strategy, the government has decided to support R&D activity through the “Networks of the Future” research program.

With a budget of €65 million provided by France 2030, ten target projects and three rounds of calls for projects and expressions of interest, the CEA, CNRS and IMT have adopted a multidisciplinary, multi-sector approach covering the entire value chain for 5G and networks of the future, supporting cutting-edge research and development in France. In addition to working on telecommunication aspects to support the coming digital revolution with intelligent networks, the research will incorporate environmental and societal impacts.

This program is based on four priorities: developing 5G uses making the French economy more competitive; developing sovereign French solutions; consolidating research and development on future network generations; enhancing training offerings and attracting international talent.

It is divided into 4 project groups:

- Network architectures and services
- End-to-end systems
- Technological components
- Platforms and demonstrators for future networks

The various projects launched through the program will be run by the National Research Agency.

The French government has earmarked €3 billion of the France 2030 plan for research conducted through ambitious research programs (PEPRs), led by research institutions, in order to consolidate French leadership in key fields related or potentially related to technological, economic, societal, health and environmental transformation, and which are considered to be priority at the national or European level.

## **Meeting the challenges of transforming services and uses**

5G will form the future backbone of the economy by overcoming the physical constraints of networks and optimizing their performance, while reducing their energy consumption. It brings together a wide range of technologies and sectors of activity. The coming paradigm shift in the telecoms world is huge. This program therefore inaugurates a new cross-sector value chain, from core telecom operations to sectors of activity considered to be technological partners. The energy, transport, industry of the future, healthcare and logistics sectors will explore new services and innovative uses for decentralized architectures. The participants in the PEPR will focus on the design, roll-out and operation of digital systems, from networks in the broadest sense, to hardware and network and service architectures. They will work on consolidating the hardware base needed for 5G roll-out, with next-generation antennas and new concepts for base stations providing high-frequency mobile coverage.

Research teams will integrate the full potential of 5G and work on network convergence (communication, computing, control, localization, sensors, IoT), ensuring efficiency (secure, tailored to needs) and creating new uses. They will also work on non-terrestrial networks – NTN – to connect 5G mobile networks and satellites for better internet connectivity for remote industrial sites or areas without access to mobile networks (such as at sea or in the mountains), for example. At the international level, investments have already been made to develop seamless global coverage, radically transforming the telecoms sector, where France will have a voice through its future 5G patents.

## **Managing future 5G- 6G networks and the challenges of responsible energy use**

The program seeks to develop the standards for the new generation of digital technology to roll out high value-added services, drawing on the infrastructure of a variety of industries in a concerted effort.

The issue of energy consumption will be incorporated into experiments and pilot programs to meet responsible energy use objectives, which will be assessed based on key performance indicators; digital technology is set to become a key tool for reducing the environmental impact of all industrial sectors.

*Daniel KOFMAN, co-director of the Networks of the Future PEPR (IMT): "Since it was founded, Institut Mines-Télécom has led and contributed to impactful research, innovation and training in this field, at both the national and European levels. Working with the main academic and economic players, we have developed a vision, which, together with those of our partners, has been a driving force for designing the 5G and Networks of the Future PEPR. Networks of the future in the broadest sense of the term – including new paradigms such as network-cloud-sensing convergence and strong technological interactions with vertical sectors – opens up a wide array of opportunities, which the PEPR will help transform into value. Since the field is central to the profound transformations facing society, the PEPR will also address social aspects through a multidisciplinary approach. We will therefore help make France more competitive and strengthen French sovereignty."*

*Dimitri KTENAS, co-director of the Networks of the Future PEPR (CEA): "For over twenty years, CEA has been conducting technological research in the field of telecommunications in order to develop new concepts and assess their effectiveness to give rise to new products and services. In particular, we work on key 6G technologies, whether for lower layers and hardware or for network and software aspects. In addition to drawing on CEA's diverse, complementary expertise, the 5G PEPR can also rely on our ability to lead ecosystems bringing together academic and industry partners, and to support technology transfer to industry."*

*Serge VERDEYME, co-director of the Networks of the Future PEPR (CNRS): "CNRS leads a significant number of research activities in the field of telecommunications, both on its own and in conjunction with partner universities and engineering schools. From engineering to computer science, to physics, humanities and social sciences, many of CNRS' disciplinary fields are involved in this project. This multidisciplinary approach allows us to work on end-to-end telecommunication systems, incorporating technical and technological issues as well as socio-economic and environmental impacts. With this new program, scientists will benefit from proactive support to help transfer their research results to industry, leveraging the existing expertise of CNRS and its partners in this field."*

## **ABOUT FRANCE 2030**

Introduced on 12 October 2021 by the French President, the **France 2030 plan**:

- ✓ **Has a two-fold aim: Sustainably transform key sectors** of our economy (energy, the automotive industry, healthcare, aeronautics and space) through technological and industrial innovation, and **make France not only a participant, but a leader in the world of tomorrow**. From fundamental research to the emergence of an idea, to producing a new product or service, France 2030 supports the entire innovation life cycle through to commercial production.
- ✓ **Is unprecedented in scale: €54 billion** will be invested to help our companies, universities and research organizations achieve their transitions in these strategic industries. The goal is to enable them to **competitively meet the ecological and attractiveness challenges** of the world to come, and bring out the future champions in our fields of excellence to **strengthen French sovereignty and independence** in key sectors. 50% of this investment will be dedicated to the decarbonization of the economy, and 50% to emerging players who drive innovation without a negative impact on the environment (in keeping with the *Do No Significant Harm* principle).
- ✓ **Will be implemented collectively:** the plan is designed and implemented **in consultation with the economic, academic, local and European stakeholders** who took part in determining strategic priorities and key actions. **Project leaders** may submit applications through open, demanding, selective procedures to benefit from support from the French government.
- ✓ **Is managed by the General Secretariat for Investment** on behalf of the Prime Minister and implemented by the Ecological Transition Agency (**ADEME**), the National Research Agency (**ANR**), the French Public Investment Bank (**Bpifrance**) and the **Bank of Territories**.

For more information see: [france2030.gouv.fr](https://france2030.gouv.fr) | [@SGPI\\_avenir](https://twitter.com/SGPI_avenir)

#### About CEA :

The CEA's role is to inform public decision-making and provide the scientific and technological resources that will enable companies and local authorities to better master the major changes taking place in society: energy transition, digital technology, healthcare of the future, defense and global security. The Group's 20,000 employees work at the heart of local communities in 9 centers equipped with major research infrastructures, within the framework of academic and industrial partnerships in France, Europe and the rest of the world. For further information : [www.cea.fr](https://www.cea.fr)

#### About CNRS

The Centre national de la recherche scientifique is one of the world's most renowned public research institutions. For over 80 years, it has been committed to excellence in recruitment, and has developed multidisciplinary and interdisciplinary research throughout France, Europe and the rest of the world. Committed to the common good, it contributes to France's scientific, economic, social and cultural progress. The CNRS is first and foremost 33,000 men and women and 200 professions. Its 1,000 laboratories, most of which are shared with universities, schools and other research organizations, employ over 120,000 people. They advance knowledge by exploring life, matter, the Universe and the workings of human societies. The close links forged between our research activities and their transfer to society make us a key player in innovation today. Partnerships with companies are the cornerstone of our commercialization policy. This is reflected in over 200 joint structures with industrial players and the creation of around 100 start-ups every year, testifying to the economic potential of our research. CNRS makes its research work and data accessible to a variety of audiences: scientific communities, the media, decision-makers, economic players and the general public. [www.cnrs.fr](https://www.cnrs.fr)

#### About Institut Mines-Telecom - [www.imt.fr](https://www.imt.fr)

Institut Mines-Telecom is the leading public group of French engineering and management schools to be placed under the supervisory authority of the Ministry of the Economy, Finances and Industrial and Digital Sovereignty. It is a public research and higher education institution made up of eight public graduate schools: IMT Atlantique, IMT Mines Albi, IMT Mines Alès, IMT Nord Europe, Institut Mines-Telecom Business School, Mines Saint-Étienne, Telecom Paris and Telecom SudParis as well as two subsidiary schools: EURECOM and InSIC. It leads and develops a rich ecosystem of partner schools and economic, academic and institutional partners and players in training, research and economic development.

Created to meet France's needs in economic and industrial development since the 19th century, Institut MinesTelecom's graduate schools have supported all the communications and industrial revolutions. Through its research and its training of engineers, managers and PhD students, Institut Mines-Telecom tackles the major industrial, digital, energy and environmental challenges in France, Europe and around the world.

Today, Institut Mines-Telecom and its 10 schools are imagining and building a world that combines science, technology and economic development with a respect for the planet and the people who live on it. It is double Carnot certified and trains 13,300 students every year.



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