FONDAZIONE BRUNO KESSLER
MAGAZINE

ECHO-TWIN kicked off in Naples

May 13, 2026

FBK is among the partners in the project dedicated to developing intelligent ecosystems and advanced digital solutions to support research and industry.

From May 5 to 7, the launch event for the **ECHO-TWIN (Edge-Cloud-HPC Optimized Twins based on Workflow-enhanced Inference Networks)** project was held in Naples at the Department of Engineering of the University of Naples Federico II in Piazzale Tecchio. The event marked the operational start of an ambitious new national initiative in advanced computing and digital twins, coordinated by the ICSC Foundation. ECHO-TWIN aims to develop intelligent ecosystems based on Digital Twins by expanding the Supercomputing Cloud infrastructure of the ICSC National Center with low-energy edge AI systems. These resources will enable the implementation of an Edge-Cloud-HPC continuum designed to support advanced applied research and accelerate the transfer of cutting-edge digital solutions to industry. The project focuses on strategic sectors including healthcare, digital technologies, climate and the environment, and sustainable mobility, with the goal of strengthening competitiveness while ensuring data security, sovereignty, and control.

The project is funded by the **Ministry of University and Research (MUR)** under the **National Research, Innovation and Competitiveness Plan 2021–2027 (PN Ric 2021–2027)**, a program designed to consolidate and extend the investments and results achieved through PNRR initiatives supporting research and innovation, with **contributions from the European Union.** Within this framework, the **ICSC – National Research Center in High Performance Computing, Big Data and Quantum Computing** serves as **project lead and coordinator**, building on the infrastructure, expertise, and results developed through national and European research and innovation initiatives. The project further strengthens ICSC's position as a national reference point for next-generation computing infrastructure and services.

ECHO-TWIN brings together a **broad public-private partnership** that includes **universities, public research organizations, national infrastructures,** and **small and medium-sized enterprises**. The project benefits from a strong concentration of scientific and technological excellence distributed across Italy, particularly in Southern Italy. This network is a key factor in ensuring the impact of ECHO-TWIN and the transferability of its results to industry.

“FBK is strongly committed to the research and development of Digital Twins capable of capturing the social dimensions of cities and regions. In recent years, within the framework of the National Centre, we developed with the City of Bologna a Digital Twin for urban mobility. In addition to traffic dynamics and pollution, this Digital Twin can analyze the impact of social dynamics and individual behaviors on mobility and, conversely, assess how changes in mobility infrastructure and services affect society, for example by limiting the right to mobility and access to services, particularly for vulnerable citizens. ECHO-TWIN aims to develop mature intelligent ecosystems based on Digital Twins. Our participation in the project gives us the opportunity to further advance the Digital Twin for urban mobility, evolve it into an intelligent ecosystem, and promote its adoption by new cities and industrial partners,” said **Marco Pistore,** scientific project manager for Fondazione Bruno Kessler.

Overall, ECHO-TWIN represents a strategic enhancement of the ICSC National Center infrastructure through an integrated vision built around the entire **computing continuum — Edge, Cloud, and HPC.** This approach will ensure greater efficiency, security, data sovereignty, and control, while increasing the ability to transfer advanced digital solutions from research to industry in sectors that are strategic for the country.

“The ECHO-TWIN project once again confirms the value of the work carried out over the past four years by the ICSC National Centre, which led to the creation of a public Supercomputing Cloud infrastructure and the consolidation of a strategic public-private platform capable of enabling research and innovation while promoting technological sovereignty. It also demonstrates the effectiveness of PNRR investments in supporting the competitiveness and growth of the country. Recognition of these results prompted the MUR to launch measures aimed at ensuring continuity and long-term sustainability, making the work of the National Center even more impactful in the medium term. Through ECHO-TWIN, ICSC aims to strengthen its ability to respond to the needs of research, industry, and public administration through scalable computing resources and the development of advanced skills, platforms, and solutions for data management and analysis throughout the entire data lifecycle ,” ICSC National Center President **Antonio Zoccoli** said.

Another defining feature of the initiative is the **geographical distribution of investments,** which will be concentrated primarily in **Southern Italy.** The creation of new laboratories and data centers, together with dedicated training programs, will help increase the competitiveness of companies in these regions, support their integration into European and global innovation networks, and reduce regional disparities in access to infrastructure and advanced digital skills.

ECHO-TWIN activities will be developed along three closely integrated lines of action:

ECHO-TWIN-RISE (Research and Innovation for Scalable Edge-computing): focused on industrial research and experimental development of methodologies, models, and technologies for creating intelligent ecosystems based on Digital Twins capable of operating across the Edge-Cloud-HPC continuum with high levels of performance, reliability, security, and energy efficiency.

ECHO-TWIN-NET (Networking for Excellence and Technology Transfer): aimed at strengthening and expanding the Innovation Hub connected to the ICSC National Centre through the networking of existing infrastructures, the creation of new hardware and software laboratories focused on low-energy edge solutions, and the development of advanced technology transfer services for companies and public administrations.

ECHO-TWIN-UP (Upskilling for Progress): dedicated to strengthening skills for companies, particularly in Southern Italy, through advanced training programs and networking activities linking research institutions and industry, with a focus on edge computing, cloud technologies, HPC, artificial intelligence, and Digital Twins.

With ECHO-TWIN, the ICSC National Centre further strengthens its role as an enabling infrastructure for innovation, laying the foundations for sustainable, inclusive, and impact-driven technological development capable of supporting Italy through the major digital, ecological, and industrial transitions.

The ECHO-TWIN partnership

Led by the ICSC National Centre, the project includes the participation of the National Research Council (CNR), the National Institute of Nuclear Physics (INFN), the National Institute of Astrophysics (INAF), **Fondazione Bruno Kessler (FBK)**, the University of Bologna, the University of Turin, the University of Naples Federico II, the University of Salento, the University of Bari Aldo Moro, the Polytechnic University of Bari, the University of Catania, and the University of Calabria.
The following companies are also part of the partnership: Istituto Oncologico del Mediterraneo S.p.A., Net Service S.p.A., Nurjana Technologies, Planetek Italia, and Parsec 3.26.

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ECHO-TWIN

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