

Towards next-generation edge-AI technologies: EU consortium opens services to external customers

The European Union consortium **PREVAIL**, created to accelerate the development of next-generation edge-AI technologies, will open its services to external customers in June 2025. Coordinated by the EU's four leading research and technology organizations (RTOs) - [CEA-Leti](#) in France, [Fraunhofer-Gesellschaft](#) in Germany, [imec](#) in Belgium and [VTT](#) in Finland, the [PREVAIL project](#) provides a networked, multi-hub platform for prototype chip fabrication in advanced artificial intelligence (AI) technology to EU stakeholders.

The PREVAIL project aims to position Europe with an accessible, advanced manufacturing infrastructure that allows users to create early research samples of innovative and reliable Edge AI products, accelerating their path to commercialization. By advancing their cutting-edge technologies to higher maturity levels and enabling users to fabricate and evaluate AI demonstrators, the RTOs benefit from technological cross-fertilization.

In most cases, the technology offerings will be based on commercial foundry processes, complemented with advanced technology modules added by post-processing made in the clean rooms of the project partners. The main technology modules offered are eNVM (Embedded Non-Volatile-Memories), Silicon Photonics processes, and Si interposer with advanced 3D Assembly and Packaging technologies.

During the first two years of the project, the consortium achieved several key milestones, including the acquisition of essential equipment, the setup of clean room facilities, and the design of initial demonstrators. Currently, efforts are focused on the installation and deployment of the equipment to develop innovative technological modules, and in collaboration with selected industry partners, Prevail has started the fabrication of one of the early demonstrators at the RTOs facilities.

The demonstrators are early-stage design concepts intended to serve as test cases ensuring that a diverse range of applications, needs and technological requirements are addressed, laying the groundwork for robust and scalable manufacturing processes.

This collaborative effort will gradually open access for EU designers in June 2025, providing access to Process Design Kits (PDKs) and Design Rule Manuals (DRMs) compatible with standard commercial CAD tools and all the elements necessary for full chip design and virtual or real device demonstrators. A user interface team has been set up to manage relationships between the developers of next-generation Edge-AI solutions and the consortium. Technical inquiries can be submitted via the project website.

A call for the EU-funded "Low Power Edge-AI" project is planned to be launched in July 2025. The EU has allocated €20 million to help select a set of customers co-financing their use of the new multi-hub TEF Edge AI Hardware. Current and future customers of the pilot lines, whether participating in European Commission-funded projects or operating independently of EU subsidies, could design their own Edge-AI chip using one of the following four shared platforms made available by the RTOs through PREVAIL: Embedded Non-Volatile Memories (eNVMs), 3D-integration, and Silicon Photonics & Connectivity, and RF network.

Further information:

Detailed information about the technical offer, demonstrators, access and calendar can be found on the website and will be specifically presented at the webinar "*PREVAIL: Opening Access to Test Facilities for Edge AI Hardware Design and Fabrication*" organized by the RTOs on June 6th, 2025.

www.prevail-project.eu

PREVAIL's founding members

CEA: The French research organization having a key role in transferring scientific knowledge and innovation from research to industry. This high-level technological research is carried out in particular in electronic and integrated systems, from microscale to nanoscale. It has a wide range of industrial applications in the fields of transport, health, safety and telecommunications, contributing to the creation of high-quality and competitive products.

CEA-Leti: A technology research institute at CEA, is a global leader in miniaturization technologies enabling smart, energy-efficient and secure solutions for industry. Founded in 1967, CEA-Leti pioneers micro- & nanotechnologies, tailoring differentiating applicative solutions for global companies, SMEs and startups. CEA-Leti tackles critical challenges in healthcare, energy and digital migration. From sensors to data processing and computing solutions, CEA-Leti's multidisciplinary teams deliver solid expertise, leveraging world-class pre-industrialization facilities. With a staff of more than 2,000 talents, a portfolio of 3,200 patents, 11,000 sq. meters of cleanroom space and a clear IP policy, the institute is based in Grenoble, France, and has offices in Silicon Valley, Brussels, Tokyo, Taipei, Taiwan, and Seoul, South Korea. CEA-Leti has launched 80 startups and is a member of the Carnot Institutes network. Follow us on www.leti-cea.com and @CEA_Leti.

Fraunhofer-Gesellschaft: Four Fraunhofer units in the Fraunhofer Group for Microelectronics and in the Research Fab Microelectronics Germany (FMD) are participating in the initial phase of the PREVAIL project: **Fraunhofer IPMS's Center Nanoelectronic Technologies (CNT)**, and **Fraunhofer IZM-ASSID, the Center All Silicon System Integration Dresden**, which will contribute with its 300 mm fabrication lines for CMOS compatible nanoelectronic technologies and advanced 3D wafer-level system integration. **Fraunhofer EMFT** will contribute chip-to-foil integration and physical analysis for trust, and **Fraunhofer IIS** will contribute by designing, measuring and testing CMOS integrated circuits enabled by its design and test experience in advanced semiconductor technologies down to 22nm.

imec: With about 12,000 m² of cleanroom space, including a fully equipped 300 mm infrastructure, imec provides world-leading R&D on next-generation technology nodes serving the entire semiconductor ecosystem. The institute is applying its memory, 3D and photonics departments and unit process module department to help define PREVAIL's technical offering.

VTT: Technical Research Center of Finland operates in several research fields. Its Microelectronics and Quantum Technologies research area, and the Safe and Connected Society unit are participating in the consortium's work by updating its [5G/6G test network](#) with state-of-art commercial MEC/AI units and ORAN technology. VTT test network enables demonstrations and proof-of-

concepts of 5G Advanced and early 6G technology, advanced services, performance measurements, HW and SW product testing, compatibility and interoperability tests.

Co-funded by the European Union

In addition to support from the European Commission, this work received funding from:

- the [French National Research Agency](#) as part of the France 2030 plan (ANR-22-PVIL-001)
- the Flemish Government (EWI department, project #VV023/11)
- the German Federal Ministry of Education and Research under the project reference number 16ME0834
- the [Business Finland](#) as part of the Finnish Sustainable Growth and Next Generation EU programs (decision 4614/31/2022)

