Press Release

Keysight Coordinates Pan-European 6G Testbed

- Company joins forces with sixteen organizations to create 6G-SANDBOX – a project funded by Smart Networks and Services Joint Undertaking (SNS JU) under Horizon Europe
- Project enables experimentation and validation of 5G-Advanced and 6G capabilities

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BRUSSELS, Belgium, – Keysight Technologies, Inc. (NYSE: KEYS), a leading technology company that delivers advanced design and validation solutions to help accelerate innovation to connect and secure the world, announced the company joins forces with sixteen organizations to create 6G-SANDBOX, a pan-European testbed for 6G experimentation and validation of 5G-Advanced and 6G capabilities. As a part of 6G-SANDBOX, Keysight will act as the project coordinator.

Funded by Horizon Europe, 6G-SANDBOX is one of 35 new projects launched by Smart Networks and Services Joint Undertaking (SNS JU), which the European Commission (EC) established in 2021 to support the development of smart communication components, systems, and networks considered essential in building out a first-class European supply chain for advanced 5G and 6G technologies. The project aims to develop EU-wide experimentation platforms to test promising technical 6G enablers, including zero-touch management, flexible multi-tenancy architecture, network intelligence, security, digital twins, artificial intelligence (AI), and reconfigurable intelligent surfaces.

The 6G testbed will combine digital and physical nodes to deliver fully configurable, manageable, and controllable end-to-end networks for validating new technologies and research advancements for 6G. The project offers organizations opportunities to conduct trials at four experimental platforms located in Malaga, Spain; Berlin, Germany; Oulu, Finland; and Athens, Greece.

“Keysight is pleased to partner with leading service providers, vendors, research institutes, and universities to drive a key EC-funded research, innovation, and trial project designed to support the development and deployment of next generation network technologies and connected devices,” said Michael Dieudonne, 6G-SANDBOX Project Coordinator, representing Keysight. “As an open 6G experimentation environment, 6G-SANDBOX will underpin an accelerated pan-European green and digital transformation, in line with the United Nation’s sustainable development goals (SDGs).”

The 6G-SANDBOX project participants include: COSMOTE; Eurescom; FOGUS Innovations & Services P.C.; Fraunhofer FOKUS; INFOLYSIS P.C.; Institute of Software Engineering and Technologies (ITIS) at the University of Malaga; Keysight Technologies Inc.; Lenovo; National Centre for Scientific Research (NCSR) Demokritos; Nokia eXtended Reality Lab; OpenNebula; OWO; Queen's University Belfast; Telefonica, and University of Oulu.

Giampaolo Tardioli, Vice President of Keysight's 6G and Next Generation Technology program, said: "Keysight's innovative spirit is at the heart of where multiple technologies will converge to support an intelligent, secure, cloud-native, and sustainable 6G network architecture. Well-established partnerships across 5G ecosystems, combined with a unique set of capabilities derived from advanced and scalable technology platforms, enable Keysight to underpin the creation of an open testbed for 6G research."

Dr. George Lyberopoulos, Head of R&D Fixed and Mobile, COSMOTE, a subsidiary of OTE Group, said: "As part of a leading technology company in Greece, the OTE Group, COSMOTE utilizes technology to create new prospects for sustainability and digitalization and fulfil its vision to create a better world for all. Through our participation in the 6G-SANDBOX project, whose objectives are directly linked to our vision, we aim to demonstrate at the Athens experimentation testbed the 6G technological advances that will be developed in the project and experience their revolutionary impact in the realization of niche use cases and new markets."

Anastasius Gavras, Programme Manager at Eurescom, said: "Experimentally driven research has been at the forefront of European innovation of new networks. Testbeds enable the trial and evaluation of service concepts, technologies, system solutions, and business models to a point where risks associated with launching these commercially are minimized. Therefore, Eurescom firmly believes that operational 6G testbeds, such as 6G-SANDBOX, need to be an inherent part of the 6G ecosystem for the industry to innovate."

Dr. Dimitris Tsolkas, Deputy Technical Manager of the 6G-SANDBOX project and Managing Director of Fogus Innovations & Services P.C., said: "By providing an open testbed where 6G candidate technologies are tested and 6G use cases are evaluated, 6G-SANDBOX is expected to play a pivotal role towards a pan-European 6G experimentation ecosystem. At FOGUS Innovations and Services P.C., we embrace this potential, and we are really committed to contribute, by bringing expertise on network intelligence and openness (e.g., standardized API management services and AI network enablers)."

Prof. Dr. Thomas Magedanz, Director of the Software-Based Networks business unit at Fraunhofer FOKUS, said: "We are proud to offer one of four 6G-SANDBOX experimental platforms distributed across Europe at our institute in Berlin. Our goal in this project is to create a virtualized 6G-ready test platform that can be built with the push of a button according to the requirements of each use case. For this purpose, we will further develop our Open5GCore towards 6G."

Vaios Koumaras, Managing Director and Co-Founder of INFOLYSIS P.C., said: "As a Greek small to medium enterprise (SME) specialized in chatbots, IoT, and 5G, INFOLYSIS P.C. is pleased to participate in 6G-SANDBOX. Along with sixteen European organizations, we will support trials and experimentation aimed at strengthening the European information, communication, and technology (ICT) ecosystem based on 5G-advanced and 6G technologies. In line with our research and development strategy, the 6G-SANDBOX Athens experimental

platform gives us the opportunity to develop new technologies for non-terrestrial, beyond 5G networks, and contribute to the EU-wide 6G vision."

Pedro Merino, Technical Manager of 6G-SANDBOX and Director of Institute of Software Engineering and Technologies (ITIS) at the University of Malaga, said: “Project 6G-SANDBOX allows ITIS to continue research, that started more than ten years ago in areas including software, protocols, and advanced configurations for 4G and 5G, to create joint a 6G testbed. We look forward to collaborating with universities and companies in areas such as internet of senses, zero-touch management, machine learning, and digital twins."

Dr. Apostolis Salkintzis, Network Architecture Standards Lead at Lenovo, said: “Lenovo is pleased to contribute to the EC-funded project 6G-SANDBOX alongside key European partners from industry and academia towards the development and deployment of next generation network technologies and connected devices. The 6G experimentation environment of 6G-SANDBOX promoting open, inclusive, and collaborative development of 6G technologies across Europe is aligned with Lenovo’s Intelligent Transformation and is key to maximizing the digital potential in achieving a green, sustainable, digital society towards United Nations Sustainable Development Goals.”

Dr. Harilaos Koumaras, Research Associate Professor at National Centre for Scientific Research (NCSR) Demokritos, said: “We are excited to participate in the 6G-SANDBOX project and contribute to the Athens 6G experimentation platform (ex-5GENESIS Athens Platform), where we will have the chance to evolve our automated experimentation-as-a-service framework developed as part of the 5GENESIS project. We will leverage the openness of the Athens platform to integrate and assess innovative 6G technologies and build on the experience of NCSR Demokritos team to execute field trials from various vertical industries.”

Alvaro Villegas, Head of Nokia eXtended Reality Lab, said: “We are excited to contribute to the success of 6G-SANDBOX with the experience of our eXtended Reality Lab team in Spain, focusing on enriching the platform to support XR use cases and demonstrate them during the project execution. Nokia strongly believes in Horizon Europe as the best collaboration tool across countries and organizations in Europe to produce the research needed for the new era of human communications based on 6G, which should target a more productive, sustainable, and inclusive world based on better communications.”

Alfonso Carrillo, Vice President of Telco Cloud and Edge Computing at OpenNebula Systems, said: “OpenNebula is the European Edge to Cloud continuum open source platform that underpins the deployment of containers and virtual machines for both VNF and CNF, and is the engine for orchestration and federation of computing resources that will be made available for research and development of 6G applications in the 6G-SANDBOX. OpenNebula actively participates in cloud and edge computing EU research-oriented projects with an open source Telco Cloud stack that reverts the results of said findings in the advancement of European technology.”

Dr. Dmitry Zelenchuk, Principal Investigator of 6G-SANDBOX at the Queen's University Belfast, said: "Queen's University Belfast is excited to join the 6G-SANDBOX consortium and contribute with expertise in mmWave and sub-THz physical layer wireless. This will help to push the frontiers of the advanced 5G and 6G wireless networks. The Centre for Wireless Innovations at Queen's set a mission to develop truly disruptive, end-to-end physical layer wireless technologies and techniques that will assist in the creation of a data-driven, hyper-connected society. We see the 6G-SANDBOX project as an opportunity to develop the future of 6G networks."

David Artuñedo, Connectivity Innovation at Telefonica, said: "As a key partner participating in the set-up of the Malaga-located 6G-SANDBOX testbed, Telefonica will lead the development and adoption of open application programming interface (API) specifications in the 6G-SANDBOX platform, enabling third parties to create new innovative use cases."

Professor Tarik Taleb, Faculty of Information Technology and Electrical Engineering at the University of Oulu, said: "The University of Oulu is delighted to be a member of the 6G-SANDBOX consortium. The project's activities are consistent with the university's general research goals and will undoubtedly contribute to the 6G Flagship program's continued success."

Resources

- Press Release: Europe scales up 6G research investments and selects 35 new projects worth €250 million
- 6GSNS: Project Portfolio
- 6GSANDBOX: Overview

6G-SANDBOX project has received funding from the Smart Networks and Services Joint Undertaking (SNS JU) under the European Union's Horizon Europe research and innovation program under Grant Agreement No 101096328.

About Keysight Technologies

Keysight delivers advanced design and validation solutions that help accelerate innovation to connect and secure the world. Keysight's dedication to speed and precision extends to software-driven insights and analytics that bring tomorrow's technology products to market faster across the development lifecycle, in design simulation, prototype validation, automated software testing, manufacturing analysis, and network performance optimization and visibility in enterprise, service provider and cloud environments. Our customers span the worldwide communications and industrial ecosystems, aerospace and defense, automotive, energy, semiconductor and general electronics markets. Keysight generated revenues of $5.4B in fiscal year 2022. For more information about Keysight Technologies (NYSE: KEYS), visit us at www.keysight.com.

Additional information about Keysight Technologies is available in the newsroom at https://www.keysight.com/go/news and on Facebook, LinkedIn, Twitter and YouTube.

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