

6G-SANDBOX Signs Memorandum of Understanding with European Space Agency (ESA) to Integrate Satellites with 5G and 6G Communications

On 6 June 2023, **6G-SANDBOX**, a pan-European testbed for 6G experimentation funded by Smart Networks and Service Joint Undertaking under Horizon Europe announced the signing of a memorandum of understanding (MoU) with the **European Space Agency (ESA)**, to advance innovation used to integrate satellites with terrestrial networks built on 5G and future 6G technologies by connecting 6G-SANDBOX testbeds with **ESA 5G/6G Hubs**.

The collaboration with **ESA** means the **6G-SANDBOX** project will add the integration of non-terrestrial network (NTN) capabilities to the testbed by incorporating satellite connectivity across a range of different orbits, including Geostationary (GEO) and Low Earth Orbit (LEO). This ensures that the **6G-SANDBOX testbed** will enable validation of novel NTN topologies equipping it with necessary additional 5G and 6G test capabilities. With the creation of an Open Innovation Laboratory (OIL), the parties aim to establish interconnected facilities, which will expand the testing capability of 6G Sandbox over hybrid terrestrial/satellite networks.

ESA is an intergovernmental organisation with a mission to provide for and to promote cooperation among European states in space research and technology and their space applications, which includes building out ubiquitous connectivity for Earth. Since 2021, ESA's 5G/6G Hub has showcased terrestrial and non-terrestrial network convergence, providing market solutions enabled by 5G and upcoming 6G over satellite. The Hub is part of **ESA's Space for 5G/6G and Sustainable Connectivity Strategic Programme**, established to promote space networks in 5G/6G standards and support the space industry in developing technologies, products and services that bridge the digital divide.

6G-SANDBOX was launched in January 2023, with Keysight Technologies as the project's coordinator, along with sixteen other organisations (COSMOTÉ; Eurescom; FOGUS Innovations & Services P.C.; Fraunhofer FOKUS; ICTFICIAL OY, INFOLYSIS P.C.; Institute for Software Engineering and Technologies (ITIS) at the University of Malaga; Lenovo; IS-Wireless (ISR), National Centre for Scientific Research "DEMOKRITOS" (NCSR); Nokia eXtended Reality Lab; OpenNebula Systems SL; OWO; Queen's University Belfast; Telefonica, and University of Oulu.).

6G-SANDBOX combines digital and physical nodes to deliver fully configurable, manageable and controllable end-to-end networks for validating **new technologies and research advancements for 6G**. It will enable entities across the European Union (EU) to test promising technical 6G enablers, including network automation, cybersecurity, digital twins, and Artificial Intelligence (AI), as well as technologies that streamline energy consumption.

6G-SANDBOX is part of the **6G SNS-JU Phase 1** program and has as its main objective to develop a large-scale EU-wide experimental platform for 6G emerging technologies. **6G-SANDBOX** will provide an evolvable experimental infrastructure for the duration of the SNS programme, where companies and research institutions can test and validate their new technologies. Experimenters can use the platform by contacting the consortium <https://6g-sandbox.eu/>.

"The significance of this agreement lies in the cooperation among European research, technology, and innovation programmes," stated Javier Benedicto, Acting Director of Connectivity and Secured Communications at **ESA**. "Through the combined efforts of the **European SNS programme**, concentrating on 5G/6G terrestrial networks, and ESA's endeavours in exploring the role of satellites in future networks, we aim to facilitate the integration and interoperability between terrestrial and space-based networks."

"For **6G-SANDBOX**, the cooperation with **ESA** will reinforce the interest to support experimentation on integrated terrestrial/satellite systems as part of the evolution towards 6G," stated Michael Dieudonné, **6G-SANDBOX** coordinator. "In line with the goals of the SNS JU, this will further enable the competitiveness of Europe's communications industry through advances in 6G technologies."

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

Follow us!



www.6g-sandbox.eu

Co-Funded by
European Union



6GSNS

<https://smart-networks.europa.eu/>