PRESS RELEASE

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6G-XR DEMONSTRATES NEXT STEP TOWARD IMMERSIVE, INTEROPERABLE, AND HUMAN-CENTRIC 6G INFRASTRUCTURE

The **6G-XR Impact Day**, held at **NEXTONIC** (formerly 5TONIC) in Leganés (Madrid), Spain on 28 October 2025, convened leaders from telecommunications, media, manufacturing, energy, automotive and standardization bodies to showcase advances in next-generation immersive services, edge intelligence, and cross-domain infrastructure federation. The event highlighted the groundwork research for the computing and connectivity continuum that will define 6G.

Funded by the **Smart Networks and Services Joint Undertaking (SNS JU)**, the **6G-XR project** has developed a European multisite testbed platform supporting *real-time holographic communication, distributed XR collaboration, dynamic edge resource allocation, and energy-aware network optimization*. Over its three years, the project has also delivered several **key achievements**, including a unified and modular testbed architecture federating multiple sites across Finland and Spain, a web-based trial controller that enables external users to run experiments end-to-end through a single interface, and two complete holographic communication pipelines, including native IMS-based augmented reality calling—recognized among the *top ten achievements of the SNS JU programme*. Through its three Open Calls, the platform has supported 30 external innovation projects, demonstrating technical maturity, successful SME uptake, and deployment-readiness for real operational environments.

> *"6G will not arrive as a single technological leap. It will emerge through the alignment of networks, computing, intelligence, and data governance into one interoperable continuum. Today's demonstrations show that this foundation is real"* – ***Dr. Jussi Haapola, 6G-XR Project Coordinator, University of Oulu.***

Deploying immersive connectivity across industrial sectors

A cross-sector panel moderated by *Aurora Ramos (Capgemini Engineering)* highlighted that, while XR, AI, and edge-cloud capabilities have matured significantly, scalability is now shaped by organizational and architectural factors. The panel examined their adoption potential in automotive manufacturing, industrial energy and utilities, live media production, and regulated infrastructure sectors.

- In **manufacturing and Industry 4.0**, XR and AI tools must **integrate safely** with established production workflows and operator routines | *Francisco Javier Martínez Borreguero (Telefónica Tech).*
- In the **energy sector**, scaling solutions across multiple facilities requires **shared data architectures** and avoiding vendor lock-in | *Luis Manuel Díaz de Téran (Capgemini Engineering).*
- In **media production**, cloud-based pipelines are increasingly viable but must align with **broadcast-grade continuity** and workflow culture | *Jesús Luque (MediaPro).*
- In the **sector of automotive manufacturing**, the key challenge remains with the level of **data quality and effective value extraction** from that data | *Diego Mallada (Gestamp).*
- For **critical infrastructure sectors**, **runtime compliance, data locality, and federated edge deployment** are essential due to safety and regulatory constraints | *Dirk Trossen (Datacom Industry Association).*

Across sectors, panelists converged on the conclusion that interoperability, data governance, and operator trust will determine real adoption. Immersive connectivity is technically ready, but scaling depends on interoperability, open architectures, data control, and workforce-aligned deployment models.

Demonstrations: Real 6G-XR capabilities in operation

Participants experienced **five demonstrations** showing real-time orchestration across distributed testbeds:

Demo	Highlights	Developed by
Congestion-Aware Holographic Communication	Real-time holographic call adapts dynamically to network congestion using AI-assisted rate control and QoS prioritization	i2CAT, Ericsson, Capgemini
Automated Edge Selection for Multi-User XR	Service intelligently selects the optimal edge node per user to minimize latency and support lightweight XR devices	i2CAT, Vicomtech, Capgemini, Ericsson
Native IMS-Based Holographic Calling	Holographic telepresence integrated directly into the phone dialer using IMS Data Channels — no external apps required	MATSUKO, Telefónica, Ericsson
Co-Creative Digital Twin Cyber Studio over 5G O-RAN	Multi-user collaborative 3D design environment controlling real fabrication equipment through XR interfaces	University of Oulu
Energy-Aware RAN and Application Optimization	AI-driven orchestration aligns RAN behavior and application quality with renewable energy availability	VTT Technical Research Centre of Finland

These demos validated **automation, interoperability, and continuity across European infrastructure domains** — key prerequisites for real-world 6G deployment. Find out more details in the **6G-XR Impact Day brochure.**

Standards, interoperability, and data governance for immersive services in 6G

Moderated by Chathura Sarathchandra (InterDigital), this session examined how European regulation and standardization will shape large-scale immersive services. Speakers emphasized that **data provenance, representational transparency, and traceability** are now central architectural requirements — not optional analytical layers — particularly in regulated environments and cross-provider collaborations. As BDVA Secretary General, *Ana García Robles,* explained "data provenance is not just compliance—it is the basis for trust and accountability across shared data ecosystems."

With immersive media, telepresence, and distributed XR, open standards alone are not enough. **Reference implementations and open-source software ecosystems** must evolve in parallel to ensure interoperability in real deployments. "Standards must be driven by real use cases and deployed software. Interoperability happens when standards and open-source evolve together", says *Jordi Joan Giménez*, Head of Technology at 5G-MAG.

This panel underscored that Europe's success in 6G will depend on aligning technical architectures and regulatory frameworks from the start**.**

Closing outlook

The 6G-XR Impact Day demonstrated that immersive communication, real-time network intelligence, and coordinated cloud–edge computing are no longer conceptual — they are entering deployment-ready maturity. The project's federated testbed will continue to operate beyond its formal end, supporting further experimentation, replication, and collaboration across Europe. As the continent advances toward 6G, the focus of innovation is now shifting from technology development to **adopting, integrating and scaling these capabilities into real operational environments**.

> *"The innovations demonstrated here now move into open ecosystems, standardization efforts, and future deployment scenarios. This is how Europe builds technological sovereignty, competitiveness, and resilience in the 6G era." – Dr. Jussi Haapola, University of Oulu."*

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