eNewsletter #5

Distributed Artificial Intelligence-Driven Open & Programmable Architecture for 6G Networks

June 2025

Co-funded by the European Union

6GSNS

ADROIT6G project 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 Grand Agreement No 101095363.

Welcome to the 5th ADROIT6G's eNewsletter!

At the mid of 2025, ADROIT6G partners are proud of the current release of our 5th newsletter. The present issue serves multiple purposes, especially in showcasing our great progress on the project's implementations and our advancements in 6G era. Following to the successful compilation of the ADROIT6G complete architecture and the major achievements on the 6G system components.

The ADROIT6G Project, during the first half of 2025 has proceeded successfully in providing the core deliverables, updated the list of publications with high quality methodologies and results for the transition to 6G networks, as well as our partners were active in the 6G ecosystem, providing insights and sharing knowledge, through major global events and research conferences.

ADROIT6G (Distributed Artificial Intelligence-Driven Open & Programmable Architecture for 6G Networks) is a Smart Networks and Services Joint Undertaking (SNS JU) project supporting the European Commission's 6G policy by implementing the first phase of the 6G SNS roadmap towards the evolution of a 6G architecture. Briefly, ADROIT6G is an EU-funded project. The world moves from the 5G to the 6G era, 5G application types need to be redefined by morphing the classical service classes of URLLC, eMBB, and mMTC and introducing new services. ADROIT6G radical technological innovations, functionalities and performance will be validated through a set of representative extreme 6G use cases.

In particular, to evolve the existing service-based architectures of 5G mobile networks, and design, implement, and validate a fundamentally new approach for a future-proof, cognitive, next-generation 6G architecture by adopting a fully distributed AI-driven dynamic paradigm, with functional elements automatically deployed on-demand as virtual functions in cloud-native environments, across the far-edge, edge and cloud domains, operated by different stakeholders. This will ultimately lead to improved performance, a higher level of control, increased transparency in interactions with digital services, support of future-looking applications, and social acceptance.

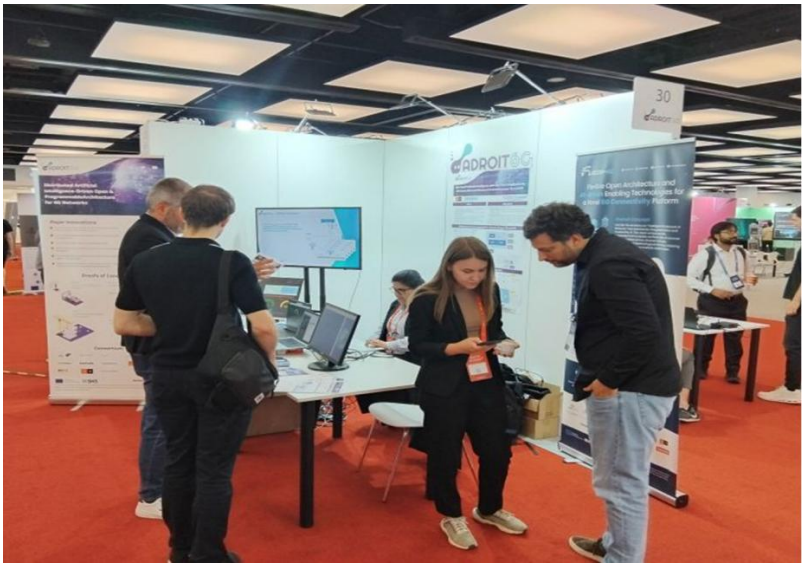
For more information about the project, please visit our website **adroit6g.eu**

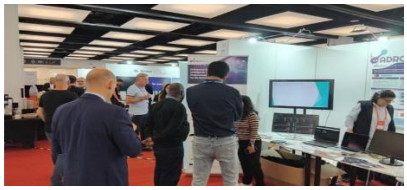
ADROIT6G @ EUCNC 2025

ADROIT6G actively participated, from the 3rd to the 6th of June 2025, in EUCNC and 6G Summit 2025, one of the major European events in Telecommunications, in Poznan, Poland.

The 2025 EuCNC & 6G Summit builds on putting together two successful conferences in the area of telecommunications: EuCNC (European Conference on Networks and Communications), supported by the European Commission, and the 6G Summit, originated from the 6G Flagship programme in Finland, one of the very first in its area. The conference is sponsored by the IEEE Communications Society (ComSoc), the European Association for Signal Processing (EURASIP) and the European Association on Antennas and Propagation (EurAAP) and focuses on all aspects of telecommunications ranging from 5G deployment and mobile IoT to 6G exploration and future communications systems and networks, including experimentation and testbeds, and applications and services.

ADROIT6G showcased its disruptive innovations in the architecture of emerging 6G mobile networks that will make fundamental changes to the way networks are designed, implemented, operated, and maintained. The project was successfully presented at booth 30 with live demonstrations of technological advancements as well as presentations of the developments and its PoCs' progress towards novel network optimization.





All information about ADROIT6G's activities during IEEE CAMD 2024 is accessible in our **News & Events** and on our **Linkedin** pages!

ADROIT6G at the EuCNC & 6G Summit, 2025

During the 2nd Day of the EuCNC & 6G Summit, 2025 one of the most prestigious events, at its peak, gathered technology enthusiasts, exhibitors and industry leaders. At the booth of ADROIT6G, a set of demos and technological innovations in the architecture of emerging 6G mobile networks that will make fundamental changes to the way networks were presented. ADROIT6G's partners designed, implemented, operated, and maintained an innovative architecture for 6G and showcased the Proof of Concept (PoC) focusing on the integration and components of the ADROIT6G modern architecture. Our visitors experienced live demonstrations of the technologies exploited within the testing framework of ADROIT6G.

More specifically, ADROIT6G partners showcased enhanced Federated Learning Schemes in Non-Terrestrial Network Applications through a series of demos and solutions for flexible FL framework that adapts its learning strategy based on SLA metrics, ensuring more efficient, compliant, and responsive network management. In addition, partners of the ADROIT6G project participated in several Sessions presenting and discussing the key achievements, the strategies employed for large-scale and experimental technology deployment, and share insights into decision-making processes when addressing major risks and challenges, such as

- Flexible Open Architecture and AI-Driven Enabling Technologies for a Novel 6G Connectivity Platform
- Energy-Efficient Intra-Domain Network Slicing for Multi-Layer Orchestration in Intelligent-Driven Distributed 6G Networks: Learning Generic Assignment Skills with Unsupervised Reinforcement Learning.
- Value Approach of 6G: The Role of Key Value Indicators in Design and Societal Impact

ADROIT6G will be @IEEE NFV-SDN 2025

ADROIT6G Partners will participate actively at the **IEEE NFV-SDN 2025 conference** which will be held in Athens, Greece from 10–12 November 2025. The 11th IEEE Conference on Network Functions Virtualization and Software-Defined Networking (IEEE NFV-SDN 2025) Conference is an important forum for the ongoing exchange of the latest ideas, developments, and results amongst ecosystem partners in both academia and industry. The conference fosters knowledge sharing and discussion on new approaches and works addressing gaps and improvements in virtualized-enabled architectures, algorithms, and operational frameworks for virtualized network functions and infrastructures.

IEEE NFV-SDN
IEEE Conference on Network Function Virtualization and Software Defined Networks
10–12 November 2025 // Athens, Greece

Network virtualization has transformed how our infrastructures are connected, built, and operated. Network services often rely on the disaggregation and reconstitution of Network Functions through Network Function Virtualization or NFV. When combined with dynamic and automated network configuration concepts, or Software Defined Networks (SDN), advantages of overall improved performance, reduced vendor lock-in, more rapid adoption of new features, and increased operational efficiency are realized.

Over the past decade, network operators around the globe have demonstrated the advantages of virtualization in portions of the network; yet much work remains to bring these benefits across the communication infrastructure. Research and development of virtualization technologies, from the Radio Access Network to the network core, has the potential to increase resiliency, security, and power efficiency and provide more effective operationalization through automation and Artificial Intelligence.

More information about IEEE NFV-SDN 2025 conference CFP flyer is accessible **here**.

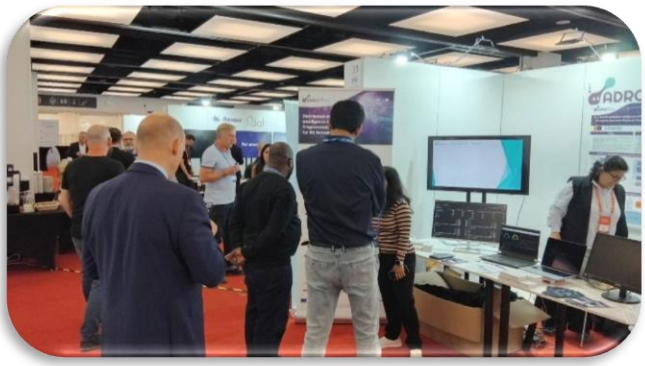
ADROIT6G's 3rd Plenary Meeting

The 3rd ADROIT6G plenary meeting was successfully held in Thessaloniki from the 11th to the 12th of March 2025. During the meeting, our dedicated project partners engaged in insightful discussions and shared valuable insights. We discussed the progress made so far, as well as future actions and goals for the project, which focuses on 6G architecture.

In addition to the plenary meeting, Proof of Concept (PoC) workshops took place, where emphasis was given to the integration and components of the ADROIT6G architecture. These workshops facilitated collaborative brainstorming sessions among the participants, enabling a comprehensive exploration of the specific needs and challenges within the framework. The outcomes of these discussions will shape the next steps, focusing on refining the integration process and aligning efforts towards the upcoming development milestones.

Stay tuned on the ADROIT6G PoCs for real-life 6G implications **here**!

Project's News and Events



ADROIT6G at the 2025 EuCNC & 6G Summit ADROIT6G at the 2025 EuCNC & 6G Summit on Future Telecoms. Read more **here**.

IEEE INFOCOM Workshop on Intelligent Cloud Computing and Networking CNIT presented the latest advancements of ADROIT6G. Read more **here**.

ADROIT6G AT THE Cloud Native Days (CNDs)
ORANGE has prepared a talk on ADROIT6G Architecture and major achievemnts. Read more **here**.

ADROIT6G at Spring School 2025
ADROIT-6G was presented by ORANGE in two WorkShops, including testbed demos. Read more **here**.

ADROIT6G - 3rd Plenary Meeting, March 2025
The 3rd ADROIT6G plenary meeting was successfully held in Thessaloniki. Read more **here**.

ADROIT6G at MWC2025, in Barcelona!
Our team discussed the future of 6G intelligence, ultra-reliable wireless communication, and secure networking solutions.. Read more **here.**

Project's News and Events

ADROIT6G at ISE 2025, Barcelona, 2025
AIquadrat showcased how ADROIT6G is shaping the future of intelligent networks. Read more **here**.

ADROIT6G at the DefCamp, Bucharest, 2024
ADROIT6G was showcased its high-level architecture, platform features, and use cases. Read more **here**.

ADROIT6G participated in the INFOCOM World 2024
ISI/ATH showcased a VR Demo over 6G at the INFOCOM World 2024. Read more **here**.

ADROIT6G Organised a Special Session in CAMAD 2024
ADROIT6G co-organised with CENTRIC a Special Session in CAMAD 2024. Read more **here**.

ADROIT6G at IEEE ICMLCN
OULU presented ADROIT6G at IEEE ICMLCN on 5-8 May 2024. Read more **here.**

ADROIT6G Demo at the ETSI Conference & Hackfest
Nextworks S.r.l participated in the conference and presented a Demo. Read more **here**.

Project's Scientific Publications

Please find below the latest papers submitted and accepted during the period 2024, that acknowledge of ADROIT6G project. For the complete list of research papers, please visit our dedicated webpage **here**.

Journal Publications

Title	Journal	Partner	Year
A Survey on Satellite Computing: Connecting the Dots Between Networks and Applications	IEEE Communications Surveys & Tutorials	SIE	2025
MOSE: A Novel Orchestration Framework for Stateful Microservice Migration at the Edge	IEEE Transactions on Network and Service Management	CNIT/ POLITO	2025
On the Performance Analysis of UE-VBS-Based Wireless Communications: Network Outages, Resource Utilization and Optimization	IEEE ACCESS	CYENS	2025
Enhancing 5G and 6G networks through a dynamic dual-stage machine learning heuristic framework for selecting UEs as UE-VBSs	Ad Hoc Networks	CYENS	2025
DSTL: A Dual-Step Transfer Learning-Based Prediction Model for Next-Generation Intelligent Cellular Networks	Intelligent and Converged Networks	CYENS	2025

Conference Publications

Title	Journal	Partner	Year
Towards Accelerating the Network Performance on DPUs by optimising the P4 runtime	32nd Euromicro International Conf. on PDP 2024	CYENS	2024
Performance Evaluation of Machine Learning Cluster Metrics for Mobile Network Augmentation	International Conference WISPNET 2024	CYENS	2024
Balancing Energy Efficiency and Distributional Robustness in Over-the-Air Federated Learning	IEEE International Conference ICMLCN 2024	OULU	2024
Fed-Sophia: A Communication-Efficient Second-Order Federated Learning Algorithm	IEEE International Conference on Communications 2024	OULU	2024

Project's Deliverables & White Papers

After the compilation of the successful Interim Review, ADROIT6G has released the 1st series of public technical deliverables, that include the core frameworks of ADROIT6G, a) the System Architecture, b) Distributed AI for Crowdsourcing and c) its AI-driven Management, Orchestration and Control Framework. For the complete list of the published deliverables, please visit our dedicated webpage **here**.

Deliverables		Lead Partner
D6.1	Project website and social media presence	eBOS
D2.1	Requirements, use cases and system architecture - Initial	CAFA/ IQU
D2.2	System Architecture	IQU
D3.2	Distributed AI framework for CrowdSourcing AI - initial	CNIT
D4.1	AI-driven Management & Orchestration and Control frameworks - Initial	NWX
D6.2	Dissemination, communication, standardisation, exploitation, IPR, clustering – Initial	eBOS
D2.3	Requirements, use cases and system architecture - Final	IQU
D3.2	Distributed AI framework for CrowdSourcing AI - initial	CNIT
D4.1	AI-driven Management & Orchestration and Control frameworks - Initial	NWX
D5.1	Reports on integration and testbeds deployment in lab settings - Initial	SIEMENS

Stay tuned on the updates of the developments of ADROIT6G for awareness of the recent developments in the 6G era.

Whitepapers

Title	Journal / Magazine / Blog	Partner	Year
European Vision for the 6G Network Ecosystem	6G-IA Vision Working Group	ORO	2024
Network & Service Management Advancements - Key frameworks and Interfaces towards open, Intelligent and reliable 6G networks	6G SoftNet White Paper	ORO	2024
AI/ML as a Key Enabler of 6G Networks - Methodology, Approach and AI-Mehcanisms in SNS JU	SNS JU	CYENS	2025
6G KPIs - Definitions and Target Values	SNS JU	NOVA	2025
6G KVIS – SNS PROJECTS INITIAL SURVEY RESULTS 2025	SNS JU	NOVA	2025

Meet our ADROIT6G Partners

ISI/ATH (ATHINA-EREVNITIKO KENTRO KAINOTOMIAS STIS TECHNOLOGIES TIS PLIROFORIAS, TON EPIKOINONION KAI TIS GNOSIS)

CYENS (CYENS CENTRE OF EXCELLENCE)

CNIT (CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE TELECOMUNICAZION)

EURE (EURECOM GIE)

OULO (OULUN YLIOPISTO)

MLNX (MELLANOX TECHNOLOGIES LTD – MLNX)

NOVA (NOVA TELECOMMUNICATIONS SINGLE MEMBER SA)

SIEMENS (SIEMENS AKTIENGESELLSCHAFT)

ORO (ORANGE ROMANIA SA)

CAFA (CAFA TECH OU)

eBOS (EBOS TECHNOLOGIES LIMITED)

IQU (IQUADRAT INFORMATICA SL)

NXW (NEXTWORKS)

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