NEWSLETTER

ISSUE 8

October – December 2025

SAFE-6G

A SMART AND ADAPTIVE FRAMEWORK FOR ENHANCING TRUST IN 6G NETWORKS

SAFE-6G 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 Grant Agreement No 101139031

ISSUE HIGHLIGHTS

- ✓ SAFE-6G PROJECT INTRODUCTION
- ✓ COMMUNICATION & DISSEMINATION ACTIVITIES
- ✓ PERIOD DELIVERABLES
- ✓ SNS JU NEWS

The 8th issue of SAFE-6G Newsletter presents the project's activities during the third period October – December 2025. This specific issue focuses on the dissemination and communication activities of the period, along with SNS JU/6G SNS News, Period and Upcoming Deliverables.

In numbers, the activities of SAFE-6G during this 3-month period are:

1 Journal Paper

2 White Papers

Athena Workshop

SNS JU Technology Board

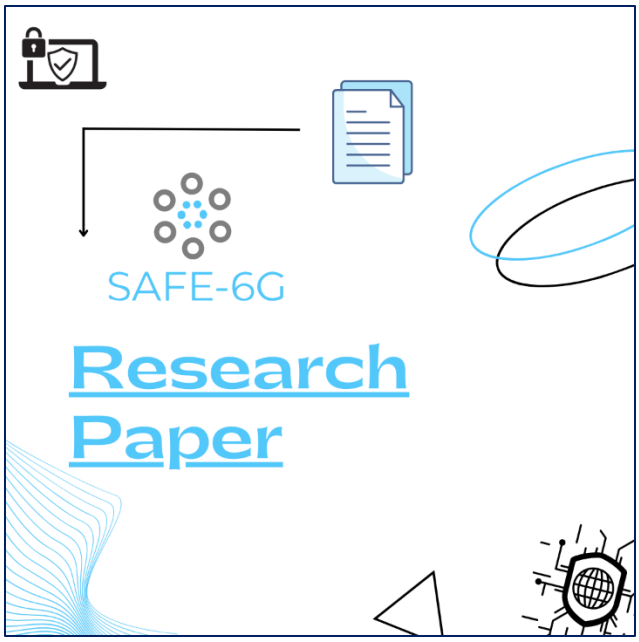
4 Deliverables

COMMUNICATION & DISSEMINATION ACTIVITIES

Journal Paper

AI-Driven Dynamic Network Slicing Optimization Leveraging Temporal Graph Networks

As 5th Generation (5G) and Beyond 5G (B5G) networks evolve, dynamic resource allocation and management is crucial for supporting the diversity of devices and the mixed data traffic types. Network slicing enables the logical segmentation of an infrastructure to meet specific Quality of Service (QoS) requirements posed by applications, but factors such as fluctuating traffic, user mobility, and cross-slice interference pose challenges towards proactive resource allocation. Traditional methods struggle with these factors, leading to inefficiencies. Therefore, this letter explores the concept of an AI-driven network performance prediction and resource allocation framework using Temporal Graph Networks (TGNs). By integrating TGN with the NS-3 simulator, the work in this letter demonstrates an efficient approach to predict network throughput. The proposed solution advances spatiotemporal Artificial Intelligence (AI) techniques enabling more accurate prediction of network performance and adaptive resource optimization, supporting dynamic network slicing. Find more information here: https://ieeexplore.ieee.org/document/11193687



White Papers

White paper on 6G for Media & Entertainment

The Media & Entertainment (M&E) sector is experiencing a deep technological and structural shift. Audiences increasingly favor on-demand, immersive, and interactive experiences, while AI and generative media are becoming core elements of content creation and distribution. At the same time, live events are being transformed through digital augmentation. In this context, 6G technologies enabled by advances in AI, edge computing, non-terrestrial networks, sensing, and distributed intelligence are expected to fundamentally reshape how media is produced, delivered, and consumed.

Within this rapidly evolving ecosystem, the Smart Networks and Services Joint Undertaking (SNS JU) plays a key role in advancing Europe's technological leadership. Through 22 projects and 46 use cases, SNS JU is designing and validating the network capabilities, architectural building blocks, and experimental platforms required to make 6G-enabled M&E applications technically viable, economically sustainable, and socially acceptable.

Collectively, SNS JU projects target the demanding performance requirements of next-generation M&E services, including ultra-high data rates, sub-millisecond latency, massive device connectivity, distributed computing, high-precision positioning, integrated sensing, and robust security

Find the White Paper online here: https://zenodo.org/records/17607664

6G Security and Trust: Insights from European SNS Projects

The move from 6G concepts to concrete network architectures brings security and trust challenges that significantly exceed those of 5G, driven by extreme decentralization, AI-native operation, and highly heterogeneous devices. Future 6G networks will span cloud, edge, and end devices, requiring a shift away from static and isolated security approaches toward dynamic, cross-layer, and continuously monitored mechanisms. This evolution demands security and trust to be embedded directly into network design and orchestration rather than treated as add-on functions.

This white paper synthesizes the work of key European SNS JU projects, highlighting a collective shift toward proactive, explainable, and sustainable security architectures. Core innovations include predictive security using digital twins, dynamic trust management based on behavior and context, and architectural support for privacy-preserving and confidential data processing across distributed environments. The work also introduces measurable metrics for trustworthiness and sustainability, ensuring that 6G security solutions are not only robust and transparent but also energy-efficient and suitable for highly dynamic, multi-domain networks.

Find the White Paper here: https://6g-ia.eu/wp-content/uploads/2025/11/6g-ia_security-wg_white-paper_nov25_final.pdf

ATHENA workshop

The paper entitled “B5G Core Network Openness: A Proof-of-Concept Implementation of Location Reporting via Network Exposure Function” was presented last week by NCSR “DEMOKRITOS” at the 2nd edition of the ATHENA Workshop, co-located with IEEE NFV-SDN 2025. The presentation showcased a proof-of-concept implementation highlighting openness and programmability aspects of Beyond 5G core networks, contributing to ongoing research efforts in network exposure and advanced service enablement within the Horizon Europe framework.

In addition, the paper entitled “Prototyping an AI-Driven Cognitive Coordinator for Mapping User Intent to Trustworthiness in 6G Networks” was presented by Harilaos Koumaras at the same workshop. This work focuses on the use of AI-driven mechanisms to translate user intent into measurable trustworthiness attributes in 6G networks, addressing key challenges in automation, security, and intelligent network management. Both contributions reflect continued research excellence and active engagement in European and international 6G research and standardization initiatives.

SNS JU Technology Board

The SAFE-6G project was represented at the 4th face-to-face meeting of the SNS JU Technology Board, hosted by Telefónica in Madrid. The meeting brought together Technical Managers from 78 active SNS JU projects for an intensive exchange on research-and-innovation–to-standards roadmaps, AI model sharing and reuse, and the strategic planning of the next phase of Technology Board activities. The FRONT Research Group of NCSR "DEMOKRITOS" is proud to contribute to this collaborative ecosystem, supporting European leadership in 6G innovation by strengthening impact, trust, and technical excellence across the SNS JU portfolio.

SNS JU NEWSFLASH/NEWSLETTER

- ✓ **SNS JU Newsletter (October 2025):** https://smart-networks.europa.eu/sns-ju-october-2025-newsletter/
- ✓ **SNS JU Newsflash (October 2025):** https://smart-networks.europa.eu/sns-ju-october-2025-newsflash/
- ✓ **SNSJU Newsflash (November 2025):** https://smart-networks.europa.eu/sns-ju-november-2025-newsflash/
- ✓ **SNSJU Newsflash (December 2025):** https://smart-networks.europa.eu/sns-ju-december-2025-newsflash/

PERIOD & UPCOMING DELIVERABLES

D3.1 User-centric Distributed 6G Core over Edge-Cloud Continuum with MLOps supporting Metaverse pilots– M16 (PUB)

D6.3 Dissemination, Communication and 6G-IA/SNS Engagement Activities (Intermediate) – M18 (PUB)

D6.4 Standarisation, innovation, Exploitation and technology Transfer Activities (Intermediate) – M18 (PUB)

D4.1 Cognitive coordinator, AI agents and user-centric functions – M18 (PUB)

You can find all the Deliverables here => https://safe-6g.eu/deliverables//

Call: Reliable Services and Smart Security
Topic: HORIZON-JU-SNS-2023-STREAM-B-01-04
Type of action: RIA
Duration: 36 months
Start date: 1 January 2024

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