NEWSLETTER

ISSUE 1

January – March 2024

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 1st issue of SAFE-6G Newsletter introduces the project and presents the project's activities during the first period January - March 2024. This specific issue focuses on the initial communication and dissemination activities including the Kick-off Meeting.

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

1 Kick-off Meeting

2 Project Presentations

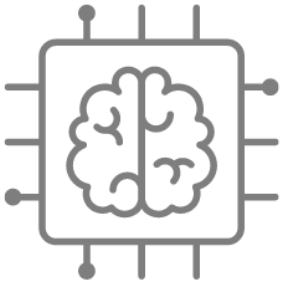
2 Publications including 1 EuCNC 2024 accepted paper.

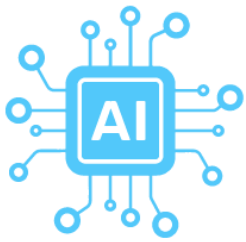
6 Period and Upcoming Deliverables

SAFE-6G PROJECT INTRODUCTION

OBJECTIVES

Establish the 6G trustworthiness requirements considering the various risks of a human-centric 6G ecosystem (safety, security, privacy, resilience, reliability) in order to design, build and release a zero-touch holistic E2E cognitive trustworthiness framework for user-centric distributed 6G architectures over the (far) edge-cloud continuum, capable of enabling and supporting the deployment of trusted instances/slices of the user/human centric 6G system driven by the user's intent and utilizing distributed AI/ML techniques across the entire ecosystem.



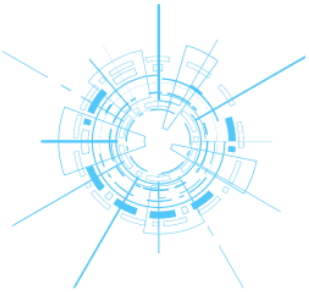


Design, implementation and evaluation of a cognitive coordination framework of the distributed FL-driven (X)AI techniques that realise the Level of Trust (LoT) at each user-centric 6G System instance both for the USN and NSN planes across the edge-cloud continuum, together with an MLOps training framework that continuously assesses and optimises the distributed AI/ML models.

The cloud-native paradigm over the edge-cloud continuum will be followed for the whole design and development of the whole SAFE-6G framework components and the user-centric distributed 5G/6G core network over the edge-cloud continuum. Moreover, compatibility with currently developing edge-cloud continuum MetaOS, such as the one of aerOS Horizon Europe project, will be pursued, reassuring interoperability, compatibility and sustainability of the proposed SAFE-6G framework in future deployments.

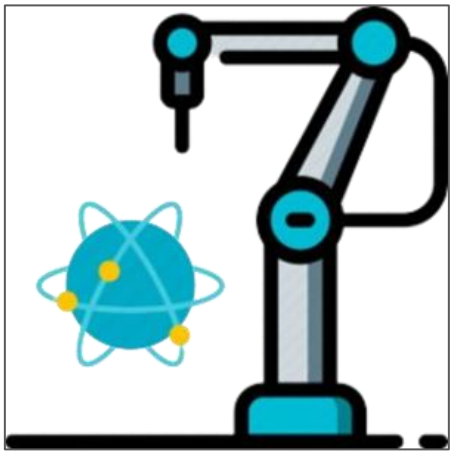
Design and development of the five AI-assisted user-centric functions (safety, security, privacy, resilience and reliability) that altogether in a zero-trust approach and under cognitive coordination realize the native trustworthiness of a user-centric distributed 6G ecosystem. The functions will consider all the lifecycle phases of the USN and NSN functions, i.e. a) before service deployment, b) during service deployment (operation), c) after service deployment (decommitment), establishing an elastic and scalable trustworthiness regime.

Maximization of impact and adoption of SAFE-6G results through wide dissemination, communication, capacity building, standardisation and exploitation measures, as well as successful demonstration of the proof-of-concept system to relevant stakeholders, including industry partners and regulatory bodies.

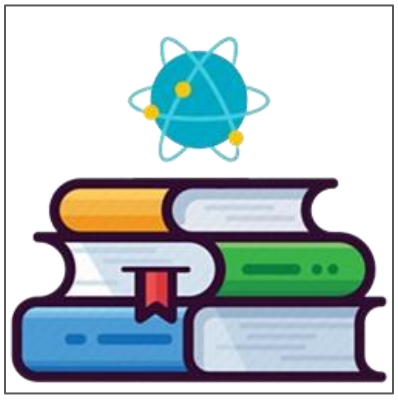


Verifying and validating the proposed SAFE-6G framework using two Metaverse-based pilots, where the immersive-applications will be tested considering different 6G system setups, different service flavors and deployments, under various threats and attacks, setting different trust levels as defined by user-requirements, verifying a number of different AI/ML methods, as well as the cognitive coordinator performance.

USE CASES



1 The first use-case is based on the Digital Twin (DT) of an industrial production line. DTs are powerful tools for industries to reflect on their existing installations and processes in order to gain flexibility within factories while optimizing production times. DT help organizations achieve predictive maintenance by providing detailed insights into equipment performance, enabling them to detect and anticipate issues before they become costly failures. Within SAFE-6G, this use-case aims to explore how a production line team could benefit from XR+AI services to take full advantage of the different capacities of their factory DT. In particular, we will focus on the adaptation and rescheduling of machines and workers when an issue or change arises. XR components (based on the Unity framework) will be used to visualize simulated 3D workflows and machine/worker reorganization that will be generated by the AI. Besides, this use-case also involves remote collaboration between users to take decisions over these simulations and update the DT. In this use case, LoT is crucial as sensible factory data needs to be shared among users. Security risks directly involve production lines and physical safety of workers. An adapted architecture mostly based on on-premise services will be adopted and tested. Besides, we will consider existing tools such as Nvidia XR Cloud and Nvidia Omniverse, which are computing platforms that enable the development of Universal Scene Description-based 3D workflows and applications.



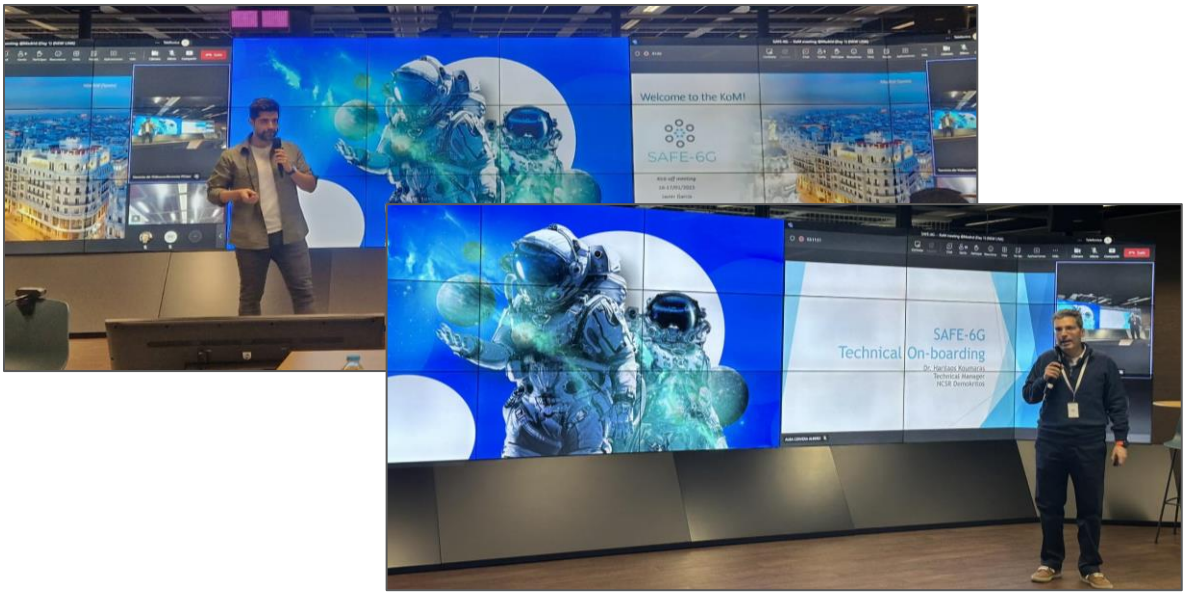
2 The goal of this second use-case is to explore the capacities of 6G for a metaverse application for education. The recent consumer accessibility to VR and AR devices combined with the COVID-19 pandemic both encouraged the development of hybrid teaching sessions. This use-case is based on a project by IMM to conceive an hybrid, persistent classroom workspace to help remote and co-located students to follow lessons and work together in XR seamlessly. The focus is thus put on the feeling of (tele)presence and real-time collaboration. Besides, use-case 2 also includes XR+AI features in Unity applications through the lens of conversational virtual agents to support teachers and students and tailor their teaching experience.

COMMUNICATION & DISSEMINATION ACTIVITIES

EVENTS

Kick-off Meeting

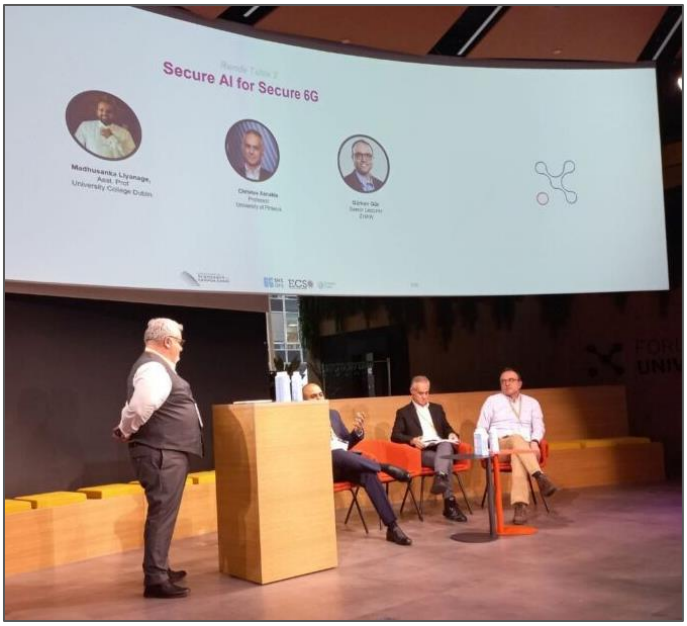
The SAFE-6G kick-off meeting took place on the 16th-17th of January 2024 at Telefonica premises in Madrid, Spain. Our Project Coordinator, Javier Garcia Rodrigo gave the introductory speech, followed by the Technical Manager, Dr. Harilaos Koumaras, and the rest of the partners. Fruitful discussions took place, clarifying the several aspects of the project and the upcoming activities. This event marked the first face-to-face meeting of representatives from the 13 partnering organizations.



6Gsec Common Path and Cardinal Points "6Gsec CP²" Event

On the 23rd January the *'6Gsec Common Path and Cardinal Points "6Gsec CP²"'* event was held in Paris, France, hosted by PTTC (Transfer Programme at the Cyber Campus). In this context, Christos Xenakis (InQbit – The Q-Bit Innovation) represented our project by participating in the *"Crypto-based technologies application in 6G"* panel session.

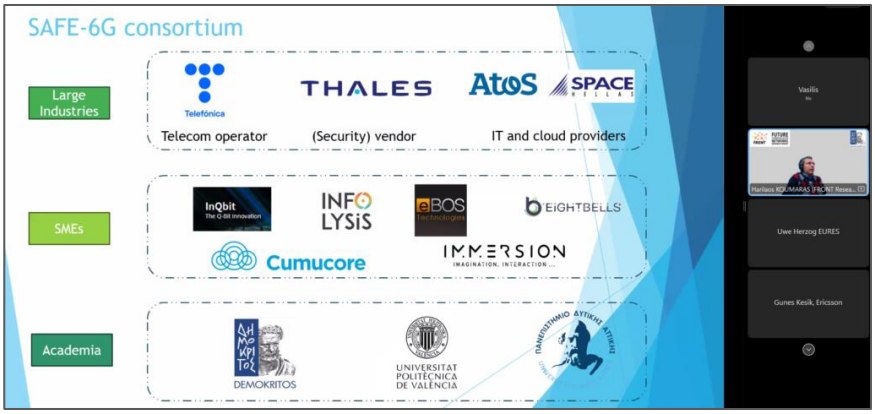
The event was organized by the SNS OPS project, ECSO and Networld Europe.



You may find more information here: https://smart-networks.europa.eu/event/6gsec-common-path-and-cardinal-points-6gsec-cp%C2%B2-save-the-date/

SNS Webinar – "Introducing the Call 2 SNS projects"

Dr. Harilaos Koumaras, from NCSRD presented the fundamental elements of our project during the SNS Webinar – Introducing the Call 2 SNS projects which took place on March 7th, 2024.



The European Smart Networks and Services Joint Undertaking (SNS JU) is a Public-Private Partnership that aims to facilitate and develop industrial leadership in Europe in 5G and 6G networks and services. The SNS JU funds projects that shape a solid Research and Innovation (R&I) roadmap and deployment agenda by engaging a critical mass of European stakeholders and facilitating international cooperation on various 6G initiatives.

In January 2024, the second phase of its 6G projects was launched, which is critical in establishing a solid R&I foundation for Europe, defining the next-generation networks. You can watch the event here => https://www.youtube.com/watch?v=HWYqTX7V0XU

PUBLICATIONS

1. EuCNC 2024 & 6G Summit:

N. Gkatzios (INFOLYSIS P.C.), H. Koumaras (NCSR "DEMOKRITOS"), D. Fragkos (NCSR "DEMOKRITOS"), V. Koumaras (INFOLYSIS P.C.*), "A Proof-of-Concept Implementation of an AI-assisted User-Centric 6G Network"*, EuCNC 2024 & 6G Summit, Antwerp, Belgium 2024. (Accepted Paper).

2. European SME Expertise in 5G and Beyond 2023

In February of 2024 the *'European SME Expertise in 5G and Beyond 2023'* Brochure was published by NETWORLD Europe SME WG and 6G-IA. Our partners, INFOLYSiS, CUMUCORE, eBOS, and 8BELLS contributed to this brochure.

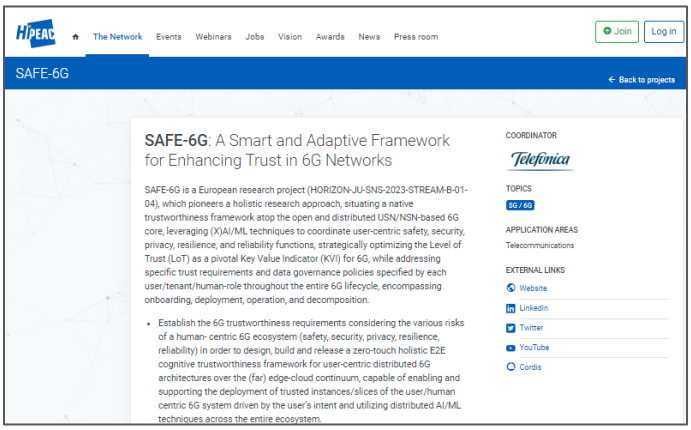
Link: https://bscw.sns-ju.eu/pub/bscw.cgi/d111258/sme-brochure-02-2024.pdf

PRESS RELEASES

1. SAFE-6G announced at IMMERSION website: https://www.immersion.fr/en/safe-6g-building-user-confidence-for-6g-networks/
2. SAFE-6G announced at NCSR 'Demokritos' website: https://www.iit.demokritos.gr/projects/a-smart-and-adaptive-framework-for-enhancing-trust-in-6g-networks/
3. SAFE-6G announced at eBOS website: https://ebos.com.cy/safe-6g-a-smart-and-adaptive-framework-for-enhancing-trust-in-6g-networks/
4. SAFE-6G General Press Release: https://safe-6g.eu/wp-content/uploads/2024/02/SAFE-6G-Press-Release.docx
5. SAFE-6G announced at Hipeac's website: https://www.hipeac.net/network/projects/7231/safe-6g/
6. SAFE-6G announced at SNS project portfolio at: https://smart-networks.europa.eu/phase-2-stream-b/#NATWORK

SAFE-6G announced at HiPEAC website

In February 2024 the SAFE-6G project was announced at the Hipeac platform! HiPEAC (High Performance, Edge and Cloud computing) is the premier focal point for networking, dissemination, training, and collaboration activities in Europe for researchers, industry, and policy related to computing systems. Today, its network, the biggest of its kind in Europe, numbers over 2,000 specialists. HiPEAC's mission is to advance computer architecture and computing systems research and development as a discipline in Europe.



HiPEAC objectives are to:

1. Secure and strengthen a leading position for Europe in computing systems that support all aspects of modern society by advancing computing systems as a discipline.
2. Prepare the next generation of world-class computing systems scientists and engineers in Europe by supporting their academic and professional development.
3. Build a dynamic ecosystem for the design and implementation of computing systems in Europe by bringing together European research, industry, SMEs, and policy.
4. Align research efforts in computing systems and strengthen research impact in Europe by identifying long-term challenges in computing systems and articulating their impact on modern society.

For more information => https://www.hipeac.net/network/projects/7231/safe-6g/

PERIOD & UPCOMING DELIVERABLES

D7.1 OEI - Requirements No. 1 – M1 (SEN)

D1.1 Project Management Handbook – M3 (SEN)

D1.2 Ethics, Legal Aspects and Data Management Plan - M3 (SEN)

D6.1 Dissemination, Communication, and 6G-IA/SNS Engagement Plan – M6 (PUB)

D2.1 Definition of Technical Requirements for user-centric 6G Trustworthiness – M8 (PUB)

D6.2 Standardization, innovation, Exploitation and technology Transfer Plan – M8 (PUB)

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

SNS JU NEWSFLASH/NEWSLETTER

- ✓ **SNS JU Newsflash (January 2024):** https://smart-networks.europa.eu/sns-ju-january-2024-newsflash/
- ✓ **SNS JU Newsflash (February 2024):** https://smart-networks.europa.eu/sns-ju-february-2024-newsflash/
- ✓ **SNS JU Newsflash (March 2024):** https://smart-networks.europa.eu/sns-ju-march-2024-newsflash/
- ✓ **6GSNS Newsletter (January 2024):** https://smart-networks.europa.eu/sns-ju-january-2024-newsletter/

For more information: https://smart-networks.europa.eu/sns-newsflash-newsletters/

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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