Supporting Architectural and technological Network evolutions through an intelligent secureD and twinning enaBled Open eXperimentation facility.

'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' START DATE: 01/01/2023
The 2nd issue of 6G-SANDBOX Newsletter presents the project’s activities during the second period April-June 2023. This specific issue focuses on the initial communication and dissemination activities including our participation in EuCNC 2023 and the MoU between the project and ESA, along with participation in 5G FORUM and in two OpenNebula Events.

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

- EuCNC Participation
- 1 signed Memorandum of Understanding
- 2 Forums participation
- 3 Presentations
- 2 Events
- 1 Panel Discussion
- 1 White Paper
- Period and Upcoming Deliverables
Communication & Dissemination Activities

On the 6th - 9th June and in the context of the EuCNC & 6G Summit, which was held in Gothenburg, Sweden, 6G-SANDBOX project had a very successful participation with a variety of activities. Along with our participation in two Workshops, and our presence in Keysight’s booth, 6G-SANDBOX, successfully organized a co-located event with the aim to inform about our 1st Open Call. Read below all the activities described in detail.

6G-SANDBOX through the Keysight and SNS JU booths

6G-SANDBOX project was successfully represented at the Keysight booth. Our Project Coordinator, Michael Dieudonne, from Keysight, our Technical Coordinator Prof. Pedro Merino Gomez from University of Malaga, David Artuñedo from Telefonica (right photo), but also representatives of other partners were there to provide all the relevant information and discuss about 6G-SANDBOX project. In the booth the large poster of the project attracted the attention of the public. Moreover, 6G-SANDBOX was also present with communication material in the 6G-IA/SNS JU booth.
EuCNC co-located Event

Workshop: 6G-SANDBOX Overview and Open Call Info Session

On the 7th of June, 6G-SANDBOX organized a workshop entitled ‘6G-SANDBOX Overview and Open Call Info Session’ which was held as a co-located hybrid event! The aim of this workshop was to inform the participants on our 1st Open Call. Our Project Coordinator, Michael Dieudonne from Keysight, presented the open call opportunity to at least 30 participants.

At the end of the presentation there was a Q&A session, during which participants had the opportunity to address questions directly to the PC or through the MS TEAMS chat.

Several 6G-SANDBOX partners physically attended and supported this initiative: Keysight, UMA, Telefonica, INFOLYSIS, Lenovo, FOGUS, NCSR Demokritos and Eurescom.

If you have missed it but you wish to learn more about our 1st Open Call click on this link: https://www.youtube.com/watch?v=yNYRGTwmSPc

Also, you can check out the presentation here
EuCNC Workshop 2

The Role of AI in Edge 6G topologies

In the context of the EuCNC & 6G Summit, Adam Filikowski from IS-Wireless Partner, represented 6G-SANDBOX in Workshop 2, 'The Role of AI in Edge 6G topologies', with a presentation entitled 'Edge resources management for a disaggregated open RAN 6G networks'.

'The goal of this workshop was to discuss the close synergy between Artificial Intelligence (AI) and edge computing, as two key enabling technologies shaping 6G, and identify the roadmap for more holistic, sustainable and future-proof design of AI- and edge-enabled solutions. The use of AI can significantly support, accelerate and augment human decision-making processes in the context of 6G in two broad directions. On the one hand, AI can play a key role in the efficient management, automation and optimization of the immensely complex 6G ecosystem, whereas, on the other hand, it is leveraged to deliver emerging services, such as XR, autonomous driving, smart manufacturing, etc. Applying such concepts at the edge, where resources and architectures are highly heterogeneous and constrained is more challenging, but the rewards can be significant: efficiently exploiting data locality can lead to reducing latency, increasing energy efficiency, enhancing security, etc. Furthermore, the deployment of edge applications, especially AI applications, is sometimes hampered by its energy consumption. Thus, the workshop will also focus on how AI can be leveraged to optimise the RAN configuration from an application perspective in order to provide energy consumption savings. This workshop will discuss the current vision in evolving edge computing architectures and “AI at the edge” design, presenting the perspective of 5 EU-funded R&D projects, namely BRAINE, VERGE, ACES, SmartEdge and BeGREEN and invited experts in the field. In addition to exposing the different approaches of each project, the workshop will aim to provide a more holistic view on how to design open, secure and modular edge computing architectures, empowered by trustworthy and interoperable AI'. EuCNC Source: https://www.eucnc.eu/programme/workshops/workshop-2/
EuCNC Workshop 7

Aligning European NTN Convergence and Integration

On Tuesday the 6\textsuperscript{th}, in the context of EuCNC & 6G Summit and during the Workshop 7 ‘Aligning European NTN Convergence and Integration’, which was organized by European Space Agency (ESA) and our Partner Eurescom, David Artuñedo from Telefonica partner, presented the 6G-SANDBOX project and the abstract paper which was accepted in the EuCNC & 6G Summitt Proceedings entitled ‘6G-SANDBOX: Technology Validation and Measurement Campaigns for Non-Terrestrial Networks’.

Finally, our recent signed Memorandum of Understanding with European Space Agency (ESA) was also presented. In the workshop SNS projects, ESA projects and National NTN Projects participated.

‘3GPP has completed Release-17 of the global fifth generation (5G) wireless technology standard, making Non-Terrestrial Networks (NTN) and satellite segments part of the 5G/6G connectivity infrastructure and ecosystem. NTN multi-layer systems and terrestrial networks must work in harmony to fulfil the vision of a connected, sustainable B5G/6G architecture and support sustainable connectivity and fulfilment of the social and sustainable development goals. The NTN family includes satellite communication networks, high altitude platform systems (such as HAPS, UAVs), and air-to-ground networks. Satellites complement 5G networks nicely and specifically help improving the value of 5G networks by addressing coverage challenges and complex use-cases that ground-based infrastructures cannot address efficiently alone. Given the proliferation of new projects in the European context with the shared goal of integrating NTN with 5G and 6G Terrestrial Networks (TN), the ambition of the workshop is to create an overview of the activities and see how the various initiatives can all contribute to a coherent strategy to achieve NTN/TN convergence in Europe. Achievements here are given more importance because of the IRIS\textsuperscript{2} (Infrastructure for Resilience, Interconnectivity and Security by Satellite) initiative of the EU for a new EU Secure Satellite Constellation.’

EuCNC source: https://www.eucnc.eu/programme/workshops/workshop-7/
6G-SANDBOX Signs Memorandum of Understanding with European Space Agency (ESA) to Integrate Satellites with 5G and 6G Communications.

On the 6th of June, 6G-SANDBOX gained momentum with the announcement of the Memorandum of Understanding which was signed between the project and 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.

You can read and download the Press Release [here](#).

You can also read the Press Release [here](#) issued by Keysight partner.
OpenNebula TECH DAY WORKSHOP

On the 8th of May OpenNebula partner and 6G-SANDBOX co-organized the TechDay Madrid focusing on the use of Opensource for Europe’s next-gen Edge Cloud. In more detail, the OpenNebula Systems team, in collaboration with the 6G-SANDBOX consortium, held a hands-on workshop about using, planning, and deploying a private cloud. The workshop was divided into two parts. The first part covered the main components of a Cloud and the basics of deploying Virtual Machines (VMs). Then, the second part described more advanced concepts on storage, networking, multi tenancy, and capacity management. The workshop ended with a description of the architecture and deployment of Telefonica’s 6G-SANDBOX testbed based on OpenNebula.

NOKIA in 5G FORUM

On the 8th - 12th of May, the 5G FORUM was held in Seville calling all the 5G Leaders to the largest national conference, around mobile technology, which is celebrated every year in Spain. The 5G Forum gathers the full ecosystem of stakeholders: network providers, telcos, startups, content providers, etc. Participation includes keynotes from the most relevant players, networking and demonstrations. Our partner NOKIA had its own booth with several demos provided by the XRLab team, around advanced applications leveraging 5G high bandwidth and AI offloaded to the Edge. Also, a poster of 6G-SANDBOX was presented in the stand, which triggered questions about 6G from visitors and the event organizer, who showed interest in knowing what 6G will bring. Media impact was very high, including an interview for TV focused specifically on 6G.

For more information you can read here: www.5gforum.es/en/
PRESENTATION AT THE SME WG PLENARY MEETING

On the 8th of May, our Project Coordinator, Michael Dieudonne, was invited by the NetworldEurope SME WG to present our Open Call opportunity in the General Assembly meeting.

The 1st 6G-SANDBOX Open Call

- Submission deadline: 3 July 2023, 17:00 CET
- Info session: June 7th 2023 (at EUCNC and online)

- Feasibility check
  - Proposers are encouraged to verify the feasibility of the planned implementations until 23 June 2023, 17:00 EST
  - To do so, a brief description of planned implementation must be sent to info@6g-sandbox.eu
  - Otherwise, feasibility check will be performed right after the submission deadline

- Submission
  - Must be done through the online submission portal
  - The mandatory proposal template must be used
  - Proposers must provide Declaration of Honour
  - Proposal language: English

- All information and links available at https://6g-sandbox.eu/opencall/open-call-1/

DEMO COMMON DAYS by NCSR DEMOKRITOS

On the 25th of May, and in the context of the Demo Common Days ‘Smart networks and Services - 5th and 6th generation technologies’ organized by our partner NCSR DEMOKRITOS, Dr. Harilaos Koumaras, presented 6G-SANDBOX, the 5G/6G Athens Experimentation Platform and the 1st Open Call of the project. During the day, representatives from EVOLVED-5G project and aerOS project also delivered presentations.
OpenNebula 10th Edition CONFERENCE

On the 20th – 22nd of June the 10th Edition of the OpenNebula Conference took place as a virtual event. In this context our partner OpenNebula and 6G-SANDBOX co-organised two Special Sessions entitled ‘Leveraging NFV Capabilities for Telco Edge Clouds’ and ‘Deploying Kubernetes on an OpenNebula Multi-Cloud’ respectively. In these sessions, David Artuñedo and Jesús Macías Portela from Telefonica partner along with Alfonso Carrillo and Marco Mancini from OpenNebula presented. In case you have missed this especially informative event you can watch all the presentations here.

‘At OpenNebulaCon2023, you’ll get a chance to discuss burning ideas and meet industry experts to learn about the recent advancements in the cloud computing world. Whether you’re looking for the best way to build your own private cloud or how to secure your existing one, OpenNebulaCon has something for everyone.’
SPLORO INFO DAY

On the 23rd of May, Prof. Pedro Merino Gomez from University of Malaga, presented the 1st Open Call in the context of the SPLORO INFO DAY on Cascade Funding.

CYBERSEC FORUM/EXPO 2023


WHITE PAPER

6G-SANDBOX and COSMOTE partner, contributed as editors in the 6G Smart Networks and Services Industry Association White Paper '5G and Beyond 5G Ecosystem Business Modelling'. In case you are interested to read the paper find the link here: https://5g-ppp.eu/wp-content/uploads/2023/05/White-Paper-5G-Business-Models_Final.pdf

WHITE PAPER

6G-SANDBOX and Keysight partner, contributed as editors in the Test, Measurement and KPIs Validation Working Group White Paper 'Beyond 5G/6G KPI Measurement'. In case you are interested to read the paper find the link here: https://5g-ppp.eu/wp-content/uploads/2023/06/white_paper_b5g_6g_kpi_measurement_FINAL.pdf
IEEE CLOUDNET’23 WORKSHOP

On Intelligent Cloud Continuum for B5G Services

On the context of the IEEE International Conference on Cloud Networking, which will take place on the 1st–3rd November 2023 in New York, USA, four EU-funded projects 6G-SANDBOX, EU Charity, EU RIGOUROUS, and aerOS co-organize a workshop entitled ‘On Intelligent Cloud Continuum for B5G Services’.

‘Beyond 5G (B5G) applications and services offer unprecedented opportunities for innovation and progress. Nonetheless, achieving such a vision requires a new breed of intelligent mechanisms, protocols and autonomous architectures capable of truly taking advantage of the entire edge-to-cloud computing spectrum.’ To learn more about the workshop click here

Important Dates:

- Paper Submission Deadline: August 20, 2023
- Notification of Acceptance: September 20, 2023
- Camera-Ready Paper Deadline: September 25, 2023

To learn more about IEEE International Conference on Cloud Networking click here.
1st PLENARY MEETING

On the 9th -10th of May, the 1st 6G-SANDBOX Plenary meeting took place in Madrid at the amazing premises of Telefonica. On the 1st day of the meeting the Project Coordinator, Michael Dieudonne, from Keysight, initiated the meeting and presentations started by indicating the project's status and further elaborating the 6G-SANDBOX architecture and technologies. The 2nd day, presentations and discussions continued further.

We would like to thank all the partners for their detailed presentations and excellent talks, which will help the project move forward successfully.
PERIOD DELIVERABLES

D2.1 Ecosystem analysis and 6G-SANDBOX facility design – M6 Public

For more information visit our website: https://6g-sandbox.eu/dissemination/deliverables/

5GPPP/6GSNS ACTIVITIES

THE ‘PASSING THE TORCH’ EVENT

On the 25th of May, the 'Passing the Torch' Event from 5GPPP to SNS JU took place. 'The objective of this event was to bring forward the good results from the 5G-PPP into the future activities of the SNS JU and give the new undertaking an accelerated start in its collaborative activities'.

For more info: https://6g-ia.eu/event/5g-ppp-to-sns-ju/

5GPPP/6GSNS Newsletter

➢ April 2023 https://5g-ppp.eu/newsletter-29-April-2023/

5GPPP/6GSNS Newsflash

➢ April 2023 #75 https://5g-ppp.eu/newsflash-april-2023/
➢ May 2023 #76 https://5g-ppp.eu/newsflash-may-2023/

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Call: HORIZON-JU-SNS-2022
Type of action: HORIZON-JU-RIA
Duration: 36 Months

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