6G BLUR

6G BLUR-JOINT: The Blurring RAN - Joint RAN and transport network control/orchestration mechanisms

6G-BLUR-JOINT

Grant No. TSI-063000-2021-57

E2: Communication, dissemination, and exploitation report

cttc

Financiado por la Unión Europea NextGenerationEU
Plan de Recuperación, Transformación y Resiliencia
UNICO I+D
GOBIERNO DE ESPAÑA
cttc Centre Tecnològic de Telecomunicacions de Catalunya

Abstract

Document including the communication events, publications in international conferences and relevant journals to disseminate the results of the project, and including the exploitation done by the companies

Document properties

Document number	E2
Document title	Communication, dissemination, and exploitation report
Document responsible	Katerina Koutlia (CTTC), Josep Mangues-Bafalluy (CTTC)
Document editor	Katerina Koutlia (CTTC)
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Target dissemination level	Confidential
Status of the document	Final
Version	3.0
Delivery date	31 December 2025
Actual delivery date	31 December 2025

Document history

Revision	Date	Issued by	Description
1.0		Josep Mangues-Bafalluy (CTTC), Katerina Koutlia (CTTC)	Initial ToC
2.0		Katerina Koutlia (CTTC), Sandra Lagen (CTTC)	Update content
3.0		Katerina Koutlia (CTTC), Sandra Lagen (CTTC), Josep Mangues-Bafalluy (CTTC)	Final Version

Disclaimer

This document has been produced in the context of the 6G BLUR Project. The research leading to these results has received funding from the Ministerio de Asuntos Económicos y Transformación Digital (MINECO), under grant TSI-063000-2021-57.

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1 Introduction

6G-BLUR project, funded by the UNICO MINECO program, has successfully delivered its vision for next generation networks focusing on key challenges that arise as the different segments of mobile networks (i.e., core, Radio Access Network (RAN)) evolve into highly virtualized, distributed, and intelligent systems.

Next-generation RANs target to provide higher spectral efficiency, lower power consumption, resource pooling, scalability, and cross-layer interworking. To meet these demands, leading standardization bodies such as 3GPP and O-RAN are moving toward disaggregated architectures in which core network functions and base station functions are virtualized in logical nodes and flexibly distributed across the network, interconnected through links known as the fronthaul, midhaul, and backhaul. This leads to blurring the network borders across core and RAN, since processing for a single cell can now be split across multiple entities, processing of multiple cells can be centralized and shared, or the distribution of mobile core entities can also be distributed across the network, and everything depending on network conditions and following operator policies. Although this paradigm brings clear operational and energy-efficiency benefits, it also introduces significant challenges such as fronthaul capacity limitations, need for improved RAN control architecture, higher degrees of centralization involving longer fronthaul distances and delays that need to be accounted for, automated orchestration strategies to exploit the gains of disaggregation and the resource availability during network deployment, appropriate monitoring tools and the creation of digital twins to perform intelligent close-loops or configure the network according to the current requirements.

6G-BLUR, through its two subprojects, 6G-BLUR Joint and 6G-BLUR Smart, has tackled such challenges by designing, developing and demonstrating end-to-end disaggregated architectures, evolved deployments methods based on cloud-native principles pursuing flexibility, portability, and dynamic capabilities, intelligent decision-making mechanisms, and resource management procedures for such virtualized, disaggregated and adaptive networks.

Throughout the project duration, we have continuously performed activities of communication, dissemination and exploitation to promote the visibility and impact of the project results and achievements. In this document, we report on communication events, exhibitions, scientific publications in international conferences and relevant journals to disseminate the results of the project, scientific demonstrations, synergies with other projects, social media communication, open-source contributions, as well as the exploitation plans of the different partners.

The exploitation activities carried out during the project duration and targeted to be carried out after the project end, ensure that the generated outcomes, knowledge and algorithms will continue to be leveraged, enhanced, and transferred into new research initiatives, industrial collaborations, and standardization efforts.

2 Communication, Dissemination and Exploitation Plan

2.1. Communication Plan

The goal of 6G-BLUR Joint project's communication plan is to promote the project's results, innovative ideas and to attract a wide range of stakeholders who can benefit by the project's achievements. In particular, the communication strategy, aligned with the dissemination plan (described in the next section), follows a multidimensional approach that includes broad visibility through media channels, targeted outreach to specific audiences, and participation in key events and networks. All communication activities will include the 6G-BLUR logo, ensuring a unified visual identity to effectively maximize the visibility and recognition of the project across relevant communities and initiatives. All consortium partners have been actively contributing to the communication efforts at both national and international levels (whenever possible), leveraging their networks to enhance visibility and ensure sustained impact.

- Website: 6GBLUR project public website included in CTTC domain (see Section 3.1).
- Social Media (see Section 3.2):
  - Partners have published with the corporative/personal accounts 6GBLUR content.
  - Online Social Media Channels: LinkedIn, YouTube.
  - Videos related to the project's objectives, defined PoCs and final outcomes.
- Project communication material (see Section 3):
  - Results posters/roll-up
  - Internal Events
  - Communication Videos
- News (see Section 3.3.3):
  - Press Releases
- Lecture material/Tutorials (see Section 3.5):
- Synergies with other projects (see Section 3.6):
  - Coordination for all CTTC's UNICO-5G and UNICO-infrastructure projects
  - SNS and other projects

2.2. Dissemination Plan

The primary objective of 6G-BLUR Joint project's dissemination strategy is to effectively maximize the project's impact and to communicate and promote the project's framework and results to well-defined target audiences, thereby enabling them to build upon the knowledge generated within the project and further advance their technological, scientific, business, and policy activities through the adoption of the projects' framework and results. The dissemination activities are carried out within **WP1** and are led by **CTTC**, with the

active contribution of all consortium partners according to their respective areas of expertise. Industrial partners use their peer and client networks to maximize outreach and exploitation potential, while academic and research partners will focus on disseminating the project outcomes within the European and international scientific communities. The 6G-BLUR Joint dissemination plan includes the following objectives:

- Scientific Publications and Technical Dissemination
  - Scientific publications including journals, conferences and workshops, including Open Access publications (see Table in Section 4.1).
  - Technology Demonstrations (see Table in Section 4.3.2).
  - Participation in scientific events (see Section 4.3.1).
- Events organization (see Section 4.2)
- Bachelor, Master, PhD Thesis, and Internship (see Section 4.4)

2.3. Exploitation Plan

CTTC is a research center with a strong commitment to the research community that actively participates in several European, National and Industrial projects, including various UNICO projects. As such, one of the 6G-BLUR Joint project's exploitation targets is to promote technology transfer and exploit the project's results so that other projects can be benefit. Moreover, CTTC is a 6G-IA member and member of standardization bodies, such as ETSI and IEEE, therefore it will actively participate in the standardization efforts and in the dissemination of the 6GBLUR Joint results.

- Standardization (see Section 5.1).
- Patents and Licensing (see Section 5.2).
- Open source (see Section 5.3).
- Products and services (see Section 5.4).

3. 6GBLUR Communication Activities

3.1. Web

A website has been created for the 6GBLUR Joint project, including project information, publications, deliverables, and related news. The web page of the project can be found at the following link:

https://6g-blur.cttc.es/

An example of the 6G-BLUR website is depicted below:

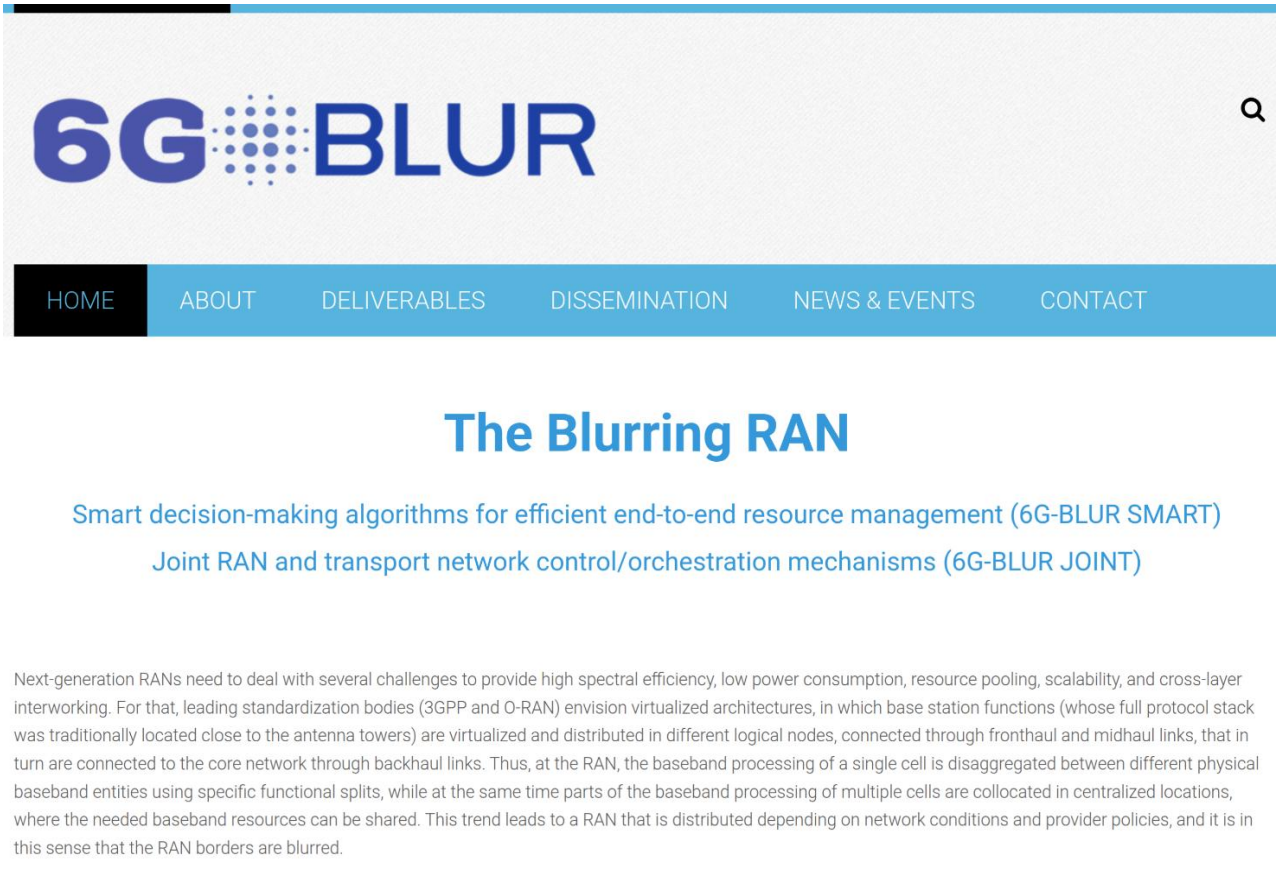


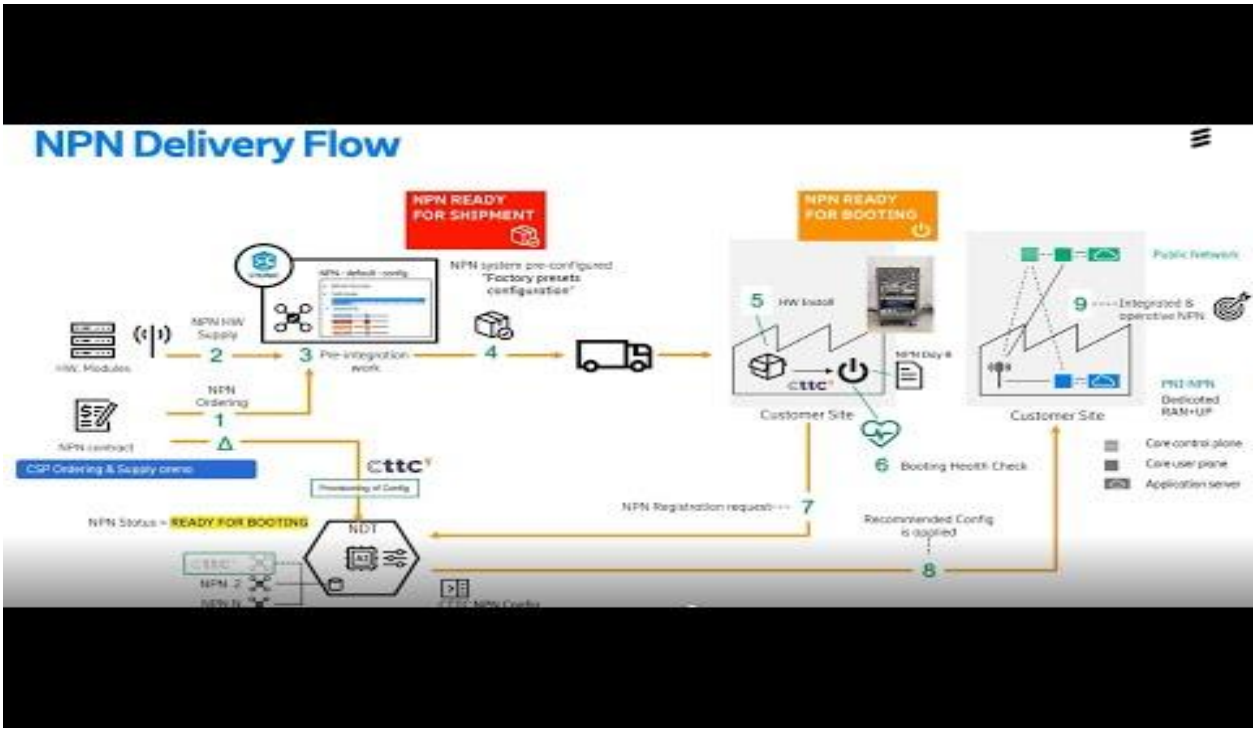
Figure 1: Home page of the 6G-BLUR website

3.2. Social media

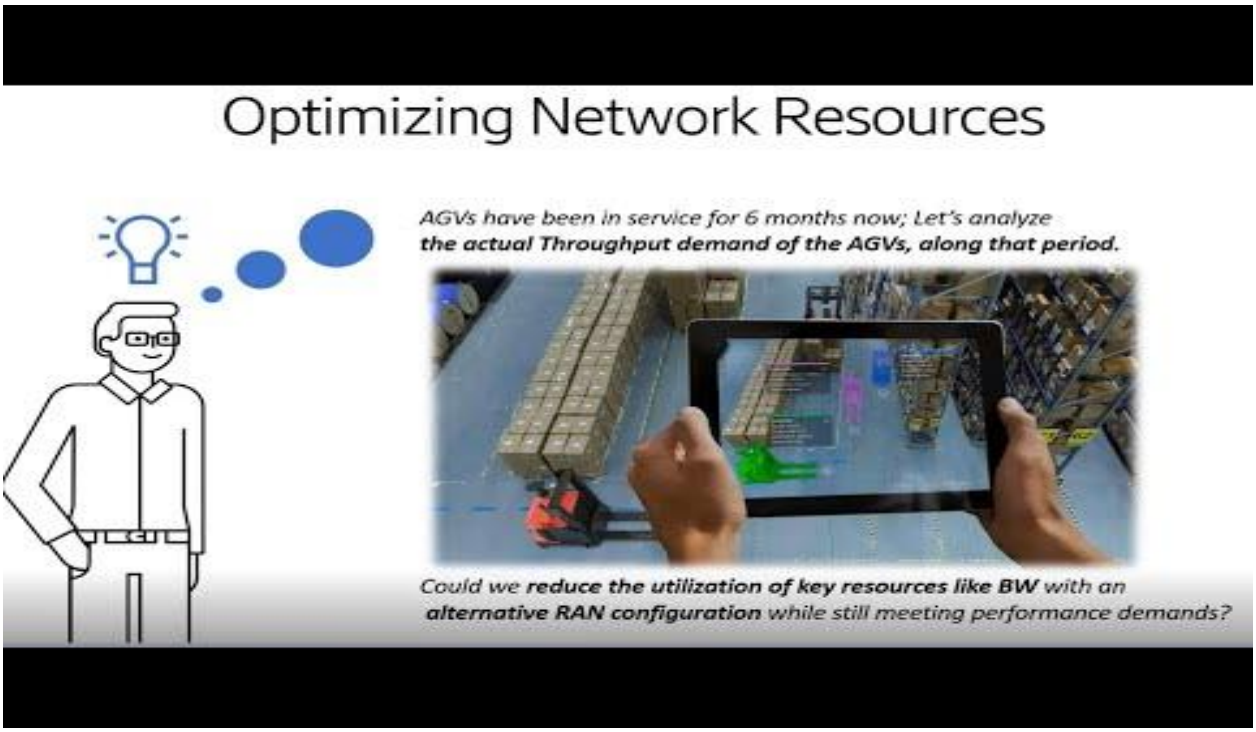
YouTube Communication Videos:

6G BLUR at the Keysight booth during Mobile World Congress 2025: link

6G-BLUR PoC: Zero-Touch Non-Public Networks - Ericsson - Telefónica - CTTC: link

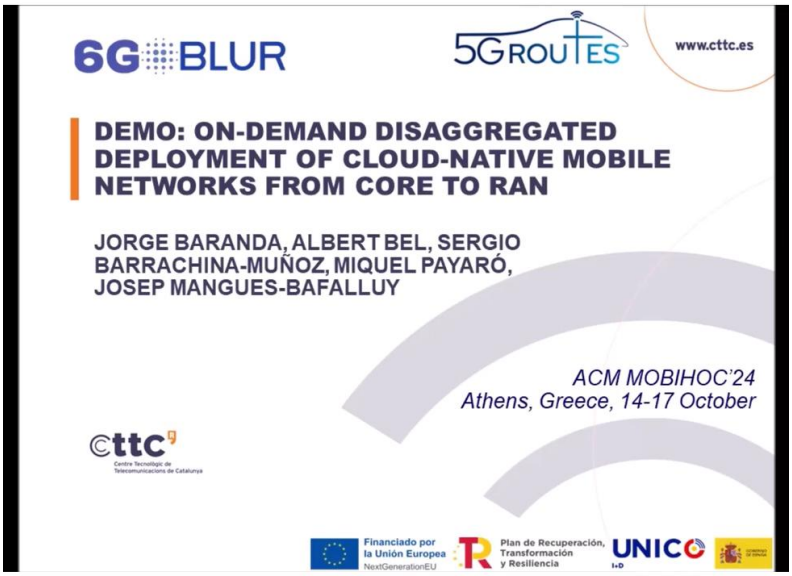


6G BLUR PoC: NPN Validation and Data driven RAN optimization - Ericsson- Telefónica - Keysight- CTTC: link

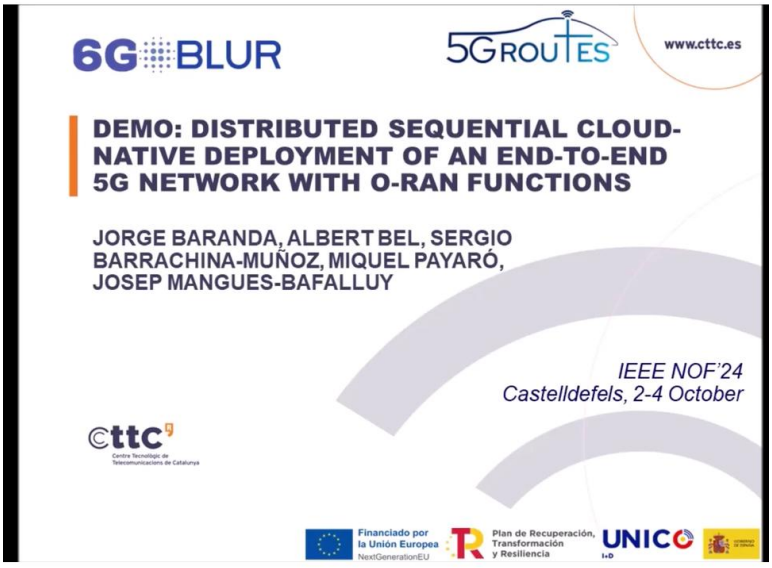


6G-BLUR PoC: Zero-Touch Distributed O-RAN Based Mobile Network – Telefonica – SRS- CTTC: link

6G-BLUR: Demonstration at ACM Mobihoc'24. Demo: On-demand disaggregated deployment of cloud-native mobile networks from Core to RAN: link



6G-BLUR: Demonstration at IEEE NoF'24. Demo: Distributed Sequential Cloud-Native Deployment of an End-to-End 5G Network with O-RAN Functions: link



LinkedIn Posts:

Link

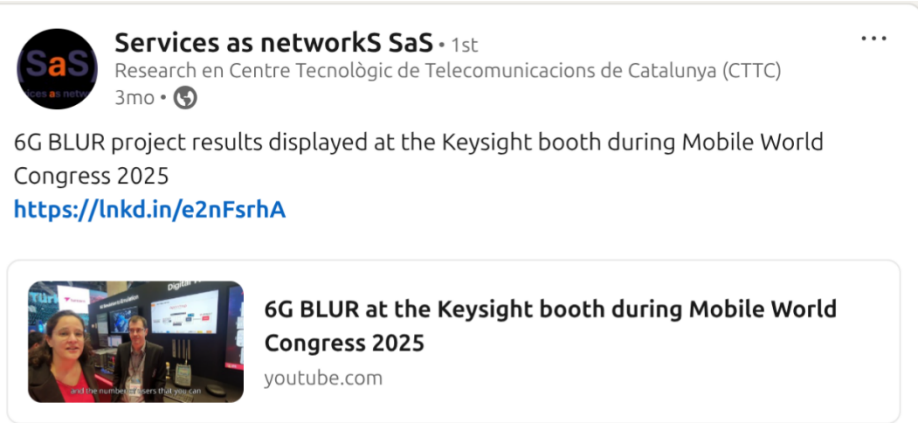


Figure 2: LinkedIn Post for 6G-BLUR results in the MWC 2025

Link

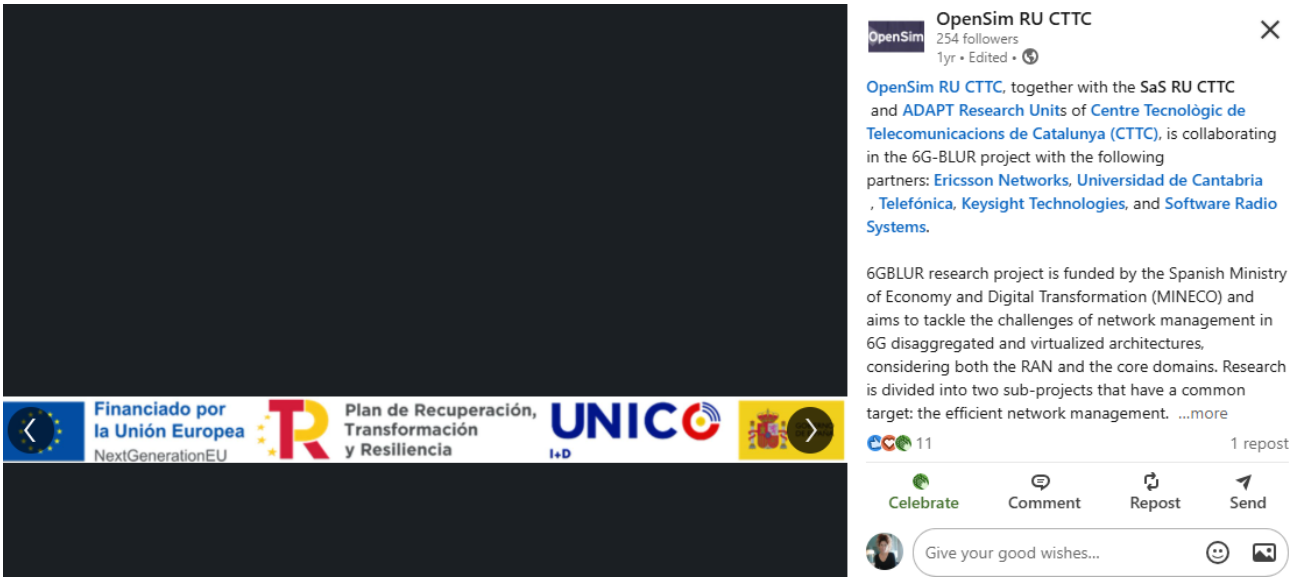


Figure 3: LinkedIn Post for 6G-BLUR

Link

Figure 4: LinkedIn Post for 6G-BLUR by CTTC in the MWC 2023

Link

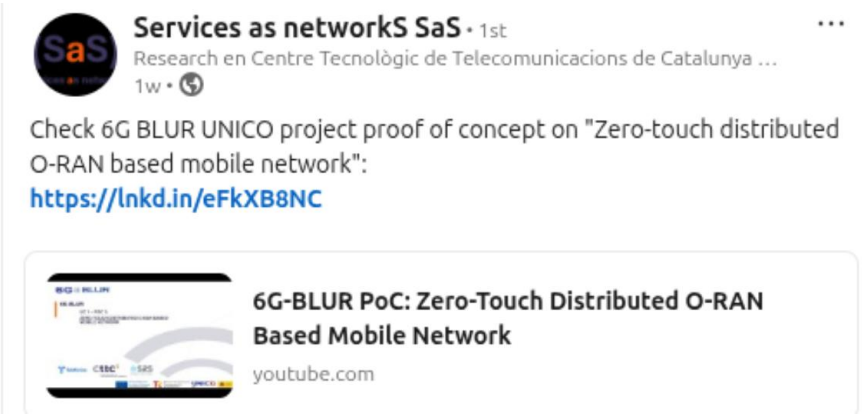


Figure 5: LinkedIn Post for PoC Zero-Touch Distributed O-RAN Based Mobile Network

Link

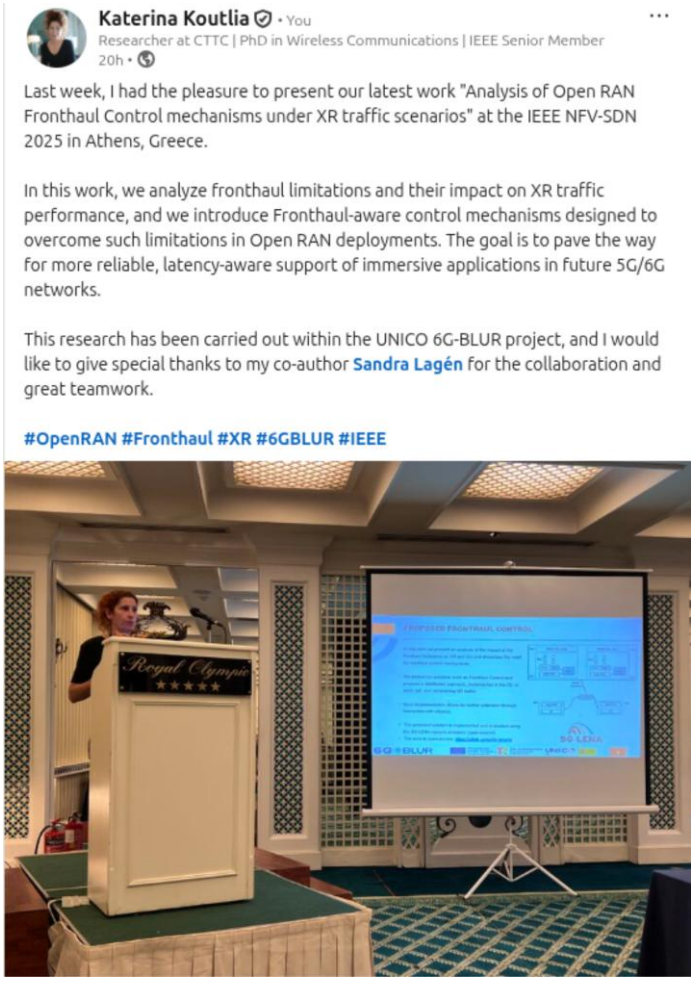


Figure 6: LinkedIn Post of the presentation in IEEE NFV-SDN 2025 of the Analysis of Open RAN Fronthaul Control mechanisms under XR traffic scenarios.

Link

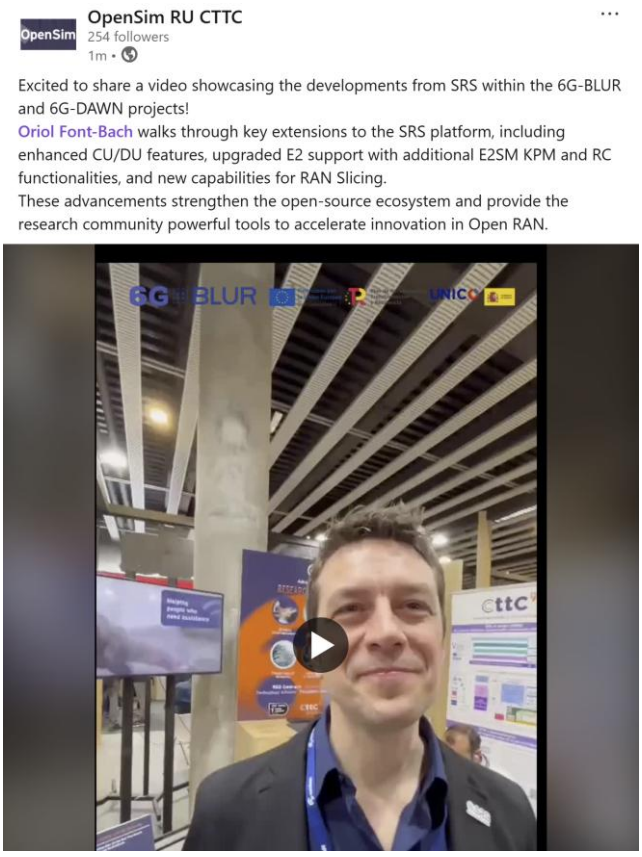


Figure 7: LinkedIn Post of the MWC 2025 video of SRS developments within the 6G-BLUR and 6G-DAWN projects.

Link

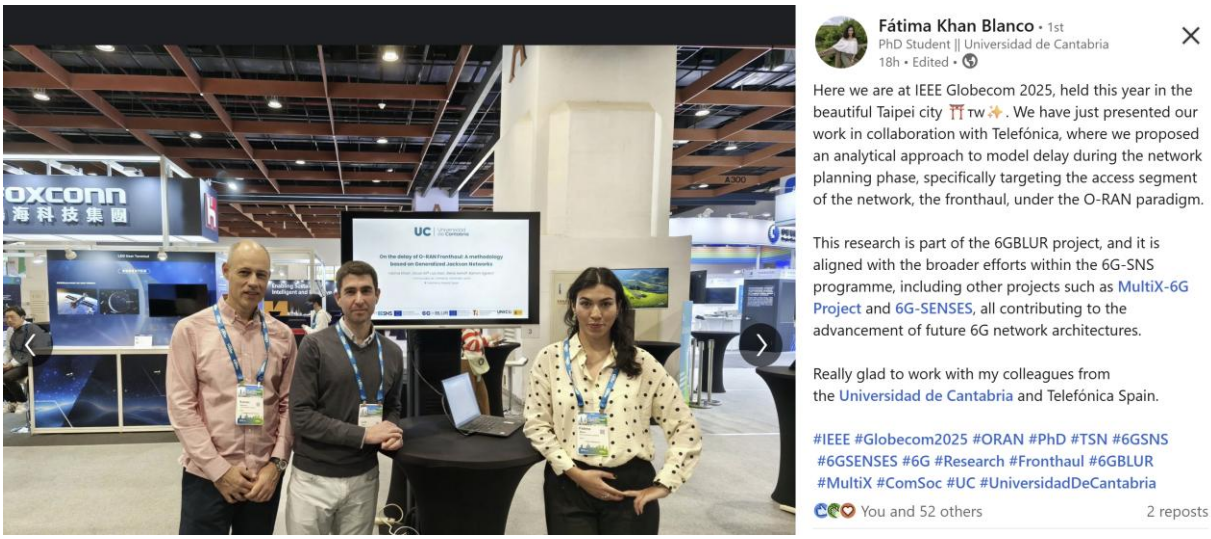


Figure 8: LinkedIn Post of the presentation in IEEE GLOBECOM 25 of the work resulted from collaboration of UC and TEF

3.3 Project communication material

3.3.1 Posters/Roll-Up

Figure 9: A roll-up with the project logo was exhibited inside SRS meeting room at MWC 2024, Barcelona, Spain.

Most of technical demonstrations in scientific conferences were supported with a poster. Those posters were generated to provide additional information and when the conference gave the possibility. Figure 10 below presents a set of them.

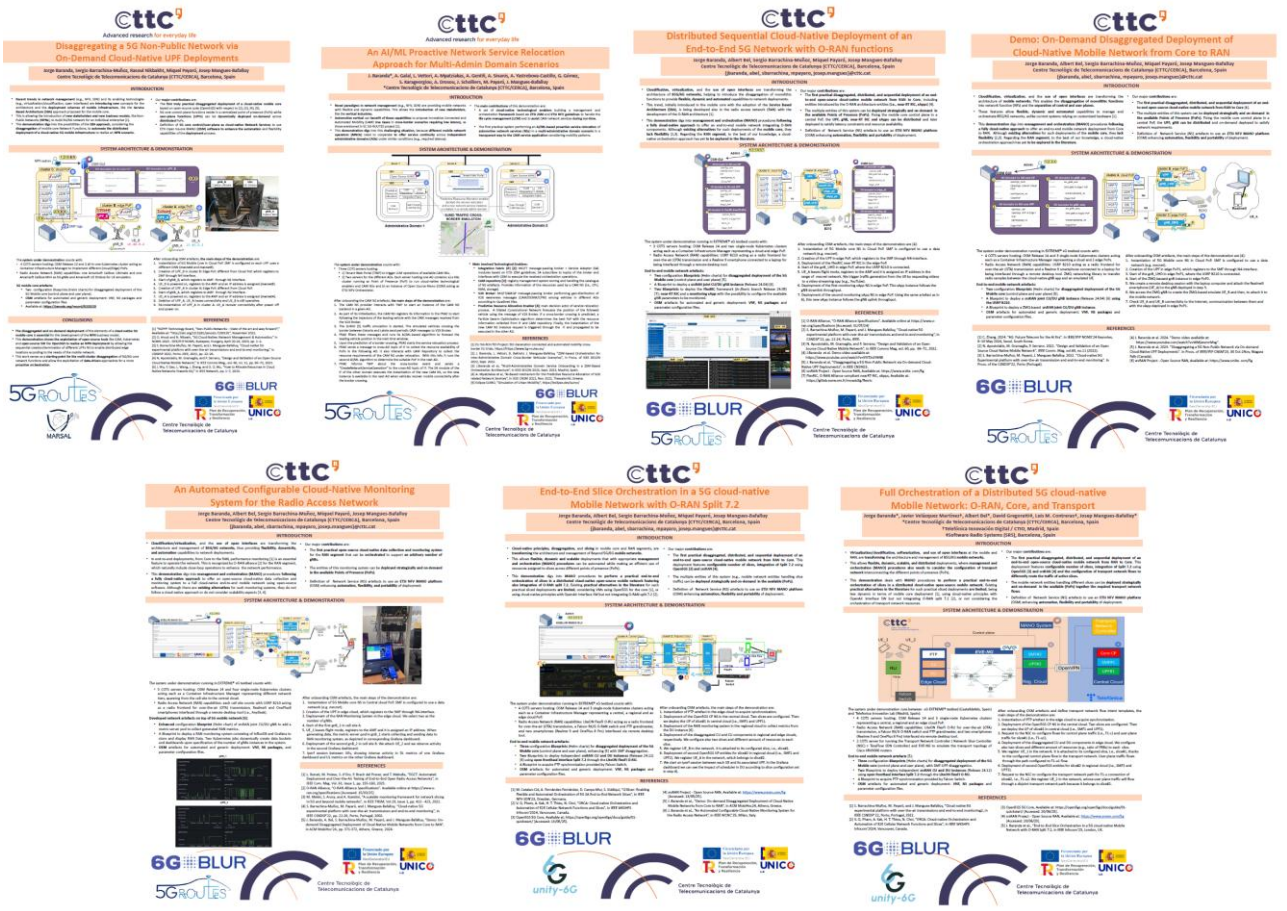


Figure 10: Sample of posters displayed in demonstration session of different scientific conferences (e.g., CNSM'23, NOMS'24, NoF'24, Mobihoc'24, WMNC'25, Infocom'25, Netsoft'25)

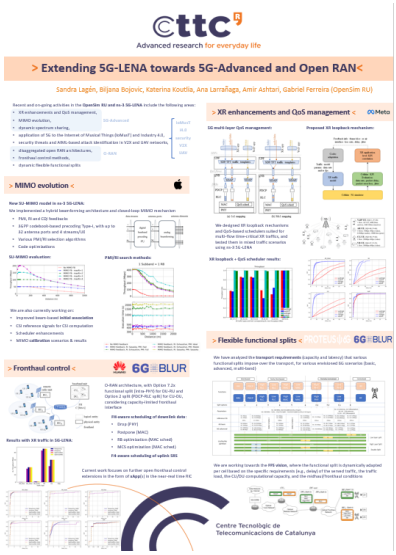


Figure 11: Sample of poster displayed in demonstration session of CTTC Workshop

Keysight presented a poster about the work done in UC2-PoC1 at its internal dissemination event, Keysight Technology Conference (KTC) 2025, celebrated April 2025 in the US.

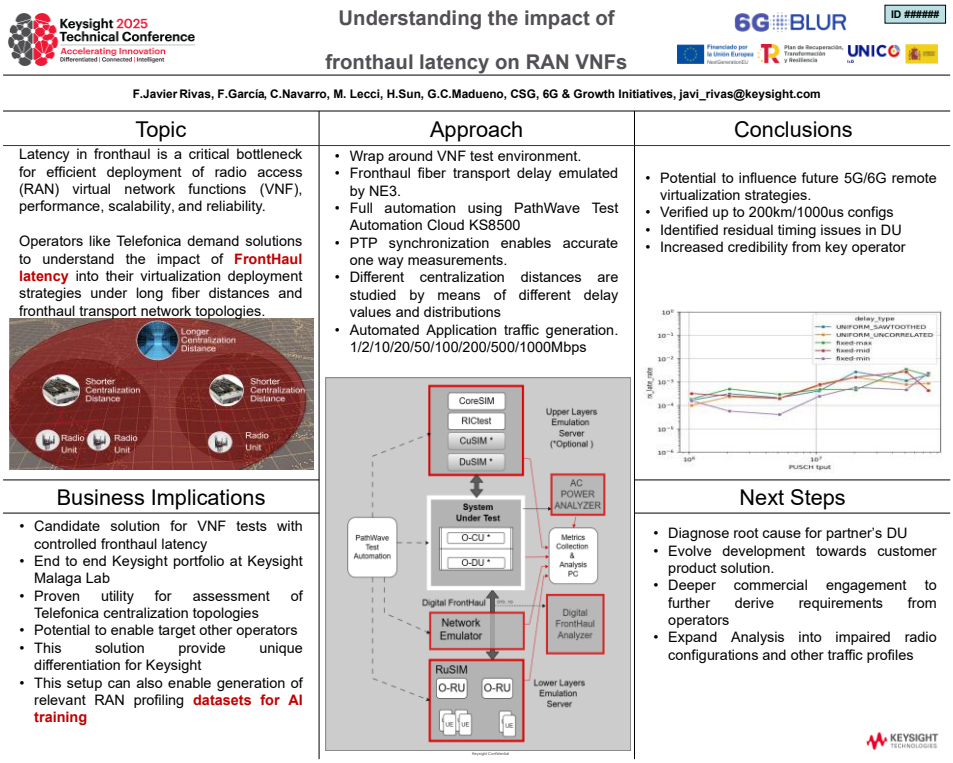
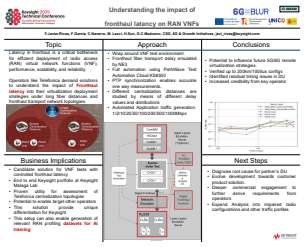


Figure 12: Poster presented by KEY at Keysight Technology Conference 2025

3.3.2 Internal events

Internal Ericsson-wide dissemination of results, to Ericsson Research and to the broad Ericsson R&D community	Jose Luis Jimenez, Saravanan k. Manuel Lorenzo	Number of internal workshops	Nov/Dec 2024	Ericsson	Link to Internal page not available: 
Understanding the impact of fronthaul latency on RAN VNFs (Poster presentation)	F.Javier Rivas, F.García, C.Navarro, M. Lecci, H.Sun, G.C.Madueno	Keysight Technology Conference 2025	April 2025	KEY	Internal company event, no link available 

3.3.3 Communication videos

- 6G BLUR at the Keysight booth during Mobile World Congress 2025, showing project results related to network dimensioning, testbed, centralization of open DUs, and challenges associated to extra-long fronthauls: link
- 6G-BLUR PoC: Zero-Touch Non-Public Networks - Ericsson - Telefónica - CTTC: link
- 6G BLUR PoC: NPN Validation and Data driven RAN optimization - Ericsson-Telefónica - Keysight- CTTC: link
- 6G-BLUR PoC: Zero-Touch Distributed O-RAN Based Mobile Network: link
- 6G-BLUR at the SRS booth in Mobile World Congress 2025, describing the work carried out related to the CU/DU, E2 and network slicing extensions: link

3.4. News: Press releases

N	Title	Media	Date	Partners involved	Link
1	Ericsson y CTTC definen conjuntamente el futuro del 5G privado	Ericsson	Oct 09, 2024	CTTC	link
2	6G-BLUR: Blurring the open RAN into the end-to-end network	CTTC	April 30, 2024	CTTC, UC, KEY, Ericsson, SRS, TEF	link
3	Ericsson y CTTC se unen para abordar los retos del slicing a gran escala de las redes 5G avanzadas y 6G	Ericsson	Oct 10, 2023	CTTC	link

3.5. Lecture materials/Tutorials

N	Title	Partners involved	Link, if available
1	Exploring the use of the NR-RIC through the E2 in srsRAN	SRS	Link
2	*Utilizing LLMs for Understanding, Monitoring, and Control of 6G Networks*	CTTC	Link
3	25th May 2024 Albert Bel, researcher at CTTC, has presented the 6GBLUR project during the IoT session he has given in the postgraduate course in Data Protection and Information Security at the UPF-Barcelona School of Management. 	CTTC	

4	"Towards ns-3 6G-LENA: Evolving research and simulations through open-source collaborative developments", talk in ONE6G OPEN LECTURES 2022 – 6G TESTBED/SIMULATION	CTTC	Link

3.6. Synergies with other projects and stakeholders

Project	Activities	Partners involved	Related Publications
Coordination between 6G-BLUR subprojects (SMART-JOINT)	Coordination with the SMART subproject of the same global project 6G-BLUR, which have aligned activities.	CTTC, SRS, TEF, E//, KEY, UC	See publications list
6G-DAWN	End-to-end orchestration of multi-domain networks (6G-DAWN decentralized, 6G-BLUR centralized). Application of AI for resource management.	CTTC, SRS, E//	Joint publications, e.g., Link
SNS PROTEUS6G	Implementation and further algorithm derivation and use case application for FFSs.	CTTC	IEEE Communications Magazine paper: Link Open Access Link
UNITY-6G	Development and validation of architectures to perform multi-domain (i.e., RAN, core, transport) orchestration of mobile networks.	CTTC, SRS, TEF	Demo paper 1: IEEE Infocom 2025 Link Demo paper 2: IEEE Netsoft 2025 Link
6G-TENET	Project to generate knowledge, from the AEI, Spanish Government. Starting in September 2025. It will continue activities performed within the 6G-BLUR project, including Digital Twinning, native AIML integration and development, among others.	CTTC	Project just started. Expected to generate publications exploiting 6G-BLUR concepts
ANEMONE	Project to generate knowledge, from the AEI, Spanish Government, spanning from September 2022 to August 2026. CTTC members were the same as in the 6G-BLUR project, and activities were aligned.	CTTC	Multiple papers have both ACKs (list omitted)
5G-ROUTES	Development of technical skills for the creation of cloud-native artefacts for automated orchestration of mobile networks	CTTC	6 demo papers: Demo Paper 1: IEEE SECON'22 Open Access Link Demo Paper 2: IEEE CNSM '23 Open Access Link

			Demo Paper 3: IEEE NOMS 2024 Open Access Link Demo Paper 4: IEEE NoF 2024 Open Access Link Demo Paper 5: ACM Mobihoc'24 Open Access Link Demo Paper 6: IEEE WCNC'25 Link
5Growth	Design, development, and evaluation of orchestration techniques for the automated deployment of mobile networks	CTTC	1 journal, 1 conference, 1 demo paper Journal paper 1: IEEE TNSM'23 Open Access Link Conference paper 1: IEEE ISCC22 Open Access Link Demo paper 1: IEEE ISCC'22 Open Access Link
6G-SENSES	During the project lifespan, UC has been collaborating in two European projects that are strongly related to the research that has been done in 6G-BLUR. In 6G-SENSES (SEamless integratioN of efficient 6G wireleSs tEchnologies for communication and Sensing) project UC is looking into the integration of sensing information (ISAC) into the O-RAN architecture. We aim at exploiting such information to improve the behavior of resource management procedures, such as the MAC scheduling mechanisms that were proposed in 6G-BLUR.	UC	
MULTIX	Advancing 6G-RAN through multi-technology, multi-sensor fusion, multi-band and multi-static perception, the focus is on appropriately handling sensing information, ensuring the strict delay requirements are met, and that other flows are not hindered by the additional overhead. We plan to broaden the solutions proposed in 6G-BLUR to manage fronthaul traffic.	UC	
MARSAL	Exploration of orchestration techniques for the automated deployment of mobile networks considering selection and relocation of UPF and vertical applications	CTTC	1 Journal, 2 Demo papers: Demo paper 1: IEEE NFV-SDN Open Access Link

			Journal paper 1: IET Networks 2023 Open Access Link Demo paper 2: IEEE ISCC 2024 Open Access Link
Open SNS Workgroup Workshop	SaS/CTTC is WIDE OPEN. On Openness scales	CTTC	Presentation of some of the 6G-BLUR open architecture concepts

4 6GBLUR Dissemination Activities

4.1. Publications and Technical Dissemination

N	Title	Authors	Venue	Date	Partners involved	Open Access Link[1]
1	ns-3 and 5G-LENA Extensions to Support Dual-Polarized MIMO	B. Bojovic, Z. Ali, and S. Lagen	Workshop on ns-3 (WNS3 '22)	22-23 June	CTTC	Link Open Access Link
2	Enabling NGMN Mixed Traffic Models for ns-3	B. Bojovic and S. Lagen	Workshop on ns-3 (WNS3 '22)	22-23 June 2022	CTTC	Link Open Access Link
3	Demo: Automated Multi-Site E2E Orchestration of Hybrid Network Services Mixing PNF, VNF and CNFs	Jorge Baranda, Luca Vettori, Josep Mangues-Bafalluy, Ricardo Martínez and Engin Zeydan	IEEE ISCC'22	30June -03 July 2022	CTTC	Link Open Access Link
4	Enabling the SLA Management of Federated Network Services through Scaling Operations	Jorge Baranda, Josep Mangues-Bafalluy, Luca Vettori, Ricardo Martínez and Engin Zeydan	IEEE ISCC'22	30June -03 July 2022	CTTC	Link Open Access Link
5	ZSM-based Orchestration for Inter-Administrative Domain Cross-Border Vehicular Scenarios	Jorge Baranda, Luca Vettori, Bahador Bakhshi, Josep Mangues-Bafalluy	IEEE SECON'22	20-23 September 2022	CTTC	Open Access Link
6	Calibration of the 5G-LENA System Level Simulator in 3GPP Reference Scenarios	K. Koutlia, B. Bojovic, Z. Ali, S. Lagén	Elsevier, SIMPAT	September 2022	CTTC	Link Open Access Link
7	Fronthaul Compression Control for Shared Fronthaul Access Networks	S. Lagén, X. Gelabert, A. Hansson, M. Requena, L. Giupponi	IEEE Communications Magazine	October 2022	CTTC	Link Open Access Link

[1] Although CTTC's policy requires papers to be published as Open Access in Zenodo platform, there are some papers that cannot be published as Open Access due to embargo periods imposed by the publishing entities. Such papers do not indicate an Open Access Link.

8	Intent-Based Orchestration for Application Relocation in a 5G Cloud-native Platform	S. Barrachina-Muñoz, J. Baranda, M. Payaró and J. Mangues-Bafalluy	IEEE NFV-SDN	November 2022	CTTC	Link Open Access Link
9	Resource Abstractions in NFV Management and Orchestration: Experimental Evaluation	R. Martínez, L. Vettori, J. Baranda, J. Mangues-Bafalluy, E. Zeydan and B. Bakhshi	IEEE TNSM	March 2023	CTTC	Link Open Access Link
10	System Analysis of QoS Schedulers for XR Traffic in 5G NR	K. Koutlia, B. Bojovic, S. Lagén, X. Zhang, P. Wang, and J. Liu	Elsevier SIMPAT	May 2023	CTTC	Link Open Access Link
11	Enhancing 5G QoS Management for XR Traffic Through XR Loopback Mechanism	B. Bojović, S. Lagén, K. Koutlia, X. Zhang, P. Wang and L. Yu	IEEE JSAC	June 2023	CTTC	Link Open Access Link
12	Enabling QoS Provisioning Support for Delay-Critical Traffic and Multi-Flow Handling in ns-3 5G-LENA.	Katerina Koutlia, Sandra Lagen, and Biljana Bojovic	Workshop on ns-3 (WNS3 '23)	28-29 June 2023	CTTC	Link Open Access Link
13	Deploying cloud-native experimental platforms for Zero Touch management 5G and beyond networks	S. Barrachina-Muñoz, R. Nikbakht, J. Baranda, M. Payaró, J. Mangues-Bafalluy, P. Kokkinos, P. Soumplis, A. Kretsis, E. Varvarigos	IET Networks	July 2023	CTTC	Link Open Access Link
14	O-RAN NearRT-RIC and xApp	SRS	Online	7 August 23		Link
15	Disaggregating a 5G Non-Public Network via On-demand Cloud-Native UPF Deployments	J. Baranda, S. Barrachina-Muñoz, R. Nikbakht, M. Payaró, J. Mangues-Bafalluy	IEEE/IFIP CNSM	30 October-2 November 2023	CTTC	Link Open Access Link

16	QoS Management for XR Traffic in 5G NR: A Multi-Layer System View & End-to-End Evaluation	S. Lagen, B. Bojovic, K. Koutlia, X. Zhang, P. Wang and Q. Qu	IEEE Communications Magazine	December 2023	CTTC	Link Open Access Link
17	An AI/ML Proactive Network Service Relocation Approach for Multi-Admin Domain Scenarios	Jorge Baranda, Josep Mangues	IEEE NOMS'24	6-10 May 2024	CTTC	Link Open Access Link
18	Extending QoS-aware scheduling in ns-3 5G-LENA: A Lyapunov based solution	Neco Villegas, Ana Larrañaga, Luis Diez, Katerina Koutlia, Sandra Lagén, and Ramón Agüero	Workshop on ns-3 (WNS3 '24)	5 June, 2024	UniCan, CTTC	Link Open Access Link
19	DEMO: On-Demand 5G/6G Edge Verticals via Third-Party UPF Selection and Cloud-Native Relocation	Sergio Barrachina-Muñoz, Rasoul Nikbakht, Albert Bel, Jorge Baranda, Miquel Payaró, Josep Mangues-Bafalluy	IEEE ISCC 2024	26-29 June 2024	CTTC	Link Open Access Link
20	QoS-Aware scheduling policies for Open Fronthaul transport networks	Fátima Khan, Luis Diez, Luis M. Contreras, Óscar Gil, Elena Serna, David Gregoratti, Ramón Agüero	2024 IEEE MeditCom	July 2024	UniCan, Telefonica	Link Open Access Link
21	On the impact of Open RAN Fronthaul Control in scenarios with XR Traffic	Katerina Koutlia, Sandra Lagén	Elsevier, Computer Networks	August 2024	CTTC	Link
22	Distributed Sequential Cloud-Native Deployment of an End-to-End 5G Network with O-RAN Functions	J. Baranda, A. Bel, S. Barrachina, M. Payaró, J. Mangues-Bafalluy	IEEE NoF 2024	2-4 October 2024	CTTC	Link Open Access Link
23	Demo: On-demand Disaggregated Deployment of Cloud-Native Mobile Networks from Core to RAN	J. Baranda, A. Bel, S. Barrachina, M. Payaró, J. Mangues-Bafalluy	ACM Mobihoc'24	14-17 October 2024	CTTC	Link Open Access Link

24	GenOnet: Generative Open xG Network Simulation with Multi-Agent LLM and ns-3	F. Rezazadeh, A. Ashtari, S. Lagen, J. Mangues, D. Niyato, L. Liu	2024 3rd 6GNet	October 2024	CTTC	Link Open Access Link
25	3GPP-Compliant Single-User MIMO Model for High-Fidelity Mobile Network Simulations	B. Bojovic, S. Lagén	Elsevier Computer Networks	Jan. 2025	CTTC	Link
26	AI-Powered Data Synthesis for Advanced Simulation in 5G/6G mmWave IntegratedAccess and Backhaul Networks	A. Ashtari, F. Rezazadeh, M. Giordani, S. Lagen, L. Liu, A. Lutu, M. Zorzi	2025 IEEE/IFIP Wireless On-Demand Network Systems and Services Conf.	Jan. 2025	CTTC	Link Open Access Link
27	Fronthaul/Midhaul Networks: Capacity and Latency Requirements Imposed by 6G Disaggregated RANs	A. Larrañaga, S. Lagen, J. M. Fabregas, J. M. Rivas-Moscoso, J. P. Fernández-Palacios, I. Tomkos, Raul Muñoz	IEEE Communications Magazine	Feb 2025	CTTC	Link Open Access Link
28	Novel Fronthaul Control Method to Address the Fronthaul/Air Interface Tradeoff	A. Larrañaga, N. Villegas, K. Koutlia, L. Diez, R. Aguero, S. Lagen	IEEE Wireless Commun. and Networking Conf. Workshops	March 2025	CTTC, UniCan	Link Open Access Link
29	An Automated Configurable Cloud-Native Monitoring System for the Radio Access Network	J. Baranda, A. Bel, S. Barrachina, M. Payaró, J. Mangues-Bafalluy	IEEE WCNC'25	March 2025	CTTC	Link

30	End-to-End Slice Orchestration in a 5G cloud-native Mobile Network with O-RAN Split 7.2	J. Baranda, A. Bel, S. Barrachina, M. Payaró, J. Mangues-Bafalluy	IEEE INFOCOM 2025	May 2025	CTTC	Link
31	End-to-end delay analysis in disaggregated O-RAN Fronthaul Networks	Fátima Khan, Óscar Gil, Luis Diez, Elena Serna, Luis M. Contreras, Ramón Agüero	IEEE ICC	June 2025	UniCan, Telefonica	Link
32	DRL-based Dynamic MAC Scheduler Reconfiguration in O-RAN	N. Villegas. J.L. Herrera, Luis Diez, D. Scotece, L. Foschini, R. Agüero	IEEE ICC	June 2025	UniCan	Link
33	Full Orchestration of a Distributed 5G cloud-native Mobile Network: O-RAN, Core, and Transport	Jorge Baranda, Javier Velázquez Martínez, Albert Bel, David Gregoratti, Luis M. Contreras, Josep Mangues-Bafalluy	IEEE Netsoft	June 2025	CTTC, Telefonica, SRS	Link Open Access Link
34	Analysis and optimizations of PMI and rank selection algorithms for 5G NR	G. Carvalho, S. Lagén	Elsevier SIMPAT	June 2025	CTTC	Link Open Access Link
35	Improving 5G-LENA: Multiple Panel Antenna Support, Kronecker Beamforming and RSRP-Based Attachment	A. Ashtari, G. Carvalho, B. Bojovic, S. Lagén	International Conference on ns-3	August 2025	CTTC	Link
36	Flexible Channel Model Configuration for Scalable 5G-LENA Simulations	J. Albuquerque, B. Bojovic, S. Lagén, G. Carvalho, A. Ashtari, A. Klautau	International Conference on ns-3	August 2025	CTTC	Link

37	Evolving 5G-LENA Towards 6G: Integrating AI for Intelligent Scheduling of Multi-Flow Traffic	Hyerin Kim, Katerina Koutlia, Biljana Bojović, Amir Ashtari, and Gabriel Ferreira	ICNS3 '25	August 2025	CTTC	Link Open Access Link
38	DRILL-Q: Delay-Responsive Intelligent Learning for Latency-sensitive QoS	H. Kim, K. Koutlia, B. Bojovic, A. Ashtari and G. Carvalho	ICCCN 2025	August 2025	CTTC	Link
39	Analysis of different functional split options for XR traffic in 5G-LENA	A. Larrañaga, N. Villegas, K. Koutlia, L. Diez, R. Agüero, S. Lagén	Elsevier SIMPAT	October 2025	CTTC, UniCan	Link
40	Design and Evaluation of an Orchestrated E2E Cloud-Native Mobile Network with O-RAN	Jorge Baranda, Albert Bel, Sergio Barrachina-Muñoz, Miquel Payaró, Josep Mangues-Bafalluy	IEEE WiMob	October 2025	CTTC	Accepted, but not published yet
41	Analysis of Open RAN Fronthaul Control mechanisms under XR traffic scenarios	K. Koutlia, S. Lagén	IEEE NFV-SDN	November 2025	CTTC	Accepted, but not published yet
42	Optimizing QoS MAC Scheduling in 5G NR: A Lyapunov Approach Evaluated with XR Traffic	Neco Villegas, Ana Larrañaga, Luis Diez, Katerina Koutlia, Sandra Lagén, Ramón Agüero	IEEE Transactions on Network and Service Management	November 2025	UniCan, CTTC	Link
43	Lyapunov-Based PDU Set-Aware Scheduling for XR Traffic in 5G-Advanced Networks	N. Villegas, A. Larrañaga, L. Diez, K. Koutlia, S. Lagén, R. Agüero	IEEE GLOBECOM 2025	December 2025	UniCan, CTTC	Accepted, but not published yet
44	Evaluating Fronthaul Network Performance under the O-RAN Paradigm: A novel	F. Khan, O. Gil, L. Diez, E. Serna, L. M. Contreras, R. Agüero	IEEE Transactions on Network and		UniCan, Telefonica	Under minor revision

	methodology based on queuing theory		Service Management			
45	On the delay of O-RAN Fronthaul: A methodology based on Generalized Jackson Networks	F. Khan, O. Gil, L. Diez, E. Serna, R. Agüero	IEEE GLOBECOM 2025	December 2025	UniCan, Telefónica	Accepted, but not published yet
46	Assessing the Feasibility of Extended Fronthaul Networks in Centralized Open RAN Architectures	O. Gil, E. Serna, H. Sun, M. Lecci, F. Khan, D. Gregoratti, J. Velázquez, F. J. Rivas, L. Diez, C. Navarro, R. Agüero	IEEE ICC 2026		Telefónica, Keysight, UniCan, SRS	Submitted to ICC 2026

4.2. Events organization

N	Title	Venue	Date	Partners involved	Link
1	1st srsRAN Workshop	Arlington, USA	23-24 October 2023	SRS	Link
2	IEEE International Conference - Machine Learning for Communication and Networking Panel “NAVIGATING THE FUTURE: AI-DRIVEN ZERO TOUCH SERVICE MANAGEMENT IN B5G/6G NETWORKS”	Stockholm, Sweden	05-08 May 2024	CTTC (Engin Zeydan), Ericsson (Peter Öhlén)	Link
3	5TONIC Steering Board	Madrid, Spain	October 9th	5TONIC whose membership includes	Link

				Ericsson and Telefónica among others	
4	Ericsson Imagine Days 2024	Madrid, Spain	25th-28th November, 2024	Ericsson, CTTC	Link

	 Innovación e I+D en España: Casos de éxito				

4.3. Exhibitions and Technology Demonstration

4.3.1. Participation in Exhibitions, Venues and Events

<table>
<tr><td colspan="2">Software and Standards for Smart Networks & Services 2026</td><td>Location</td><td>ETSI, Sophia Antipolis, France</td><td>Date</td><td>2-5 February, 2026</td></tr>
<tr><td colspan="6">CTTC will represent 6G-BLUR in the ETSI Event Software & Standards for Smart Networks & Services 2026 with the demo titled: Full multi-domain orchestration of a distributed 5G cloud-native mobile network integrating ETSI SDG projects. This work is a collaboration between CTTC, TID and SRS, also collaborating in SNS project UNITY-6G, to further disseminate the results presented in IEEE Netsoft 2025.</td></tr>
<tr><td>Partners involved</td><td>CTTC, TID, SRS</td><td></td><td></td><td>Link</td><td>Link</td></tr>
<tr><td colspan="2">MWC 2025 Keysight Booth</td><td>Location</td><td>Barcelona, Spain</td><td>Date</td><td>3-6 March, 2025</td></tr>
<tr><td colspan="6">6G BLUR at the Keysight booth during Mobile World Congress 2025
 
</td></tr>
<tr><td>Partners involved</td><td>Keysight, CTTC</td><td></td><td></td><td>Link</td><td>Link</td></tr>
<tr><td colspan="2">Ericsson Imagine Days 2024</td><td>Location</td><td>Madrid, Spain</td><td>Date</td><td>25th-28th November, 2024</td></tr>
<tr><td colspan="6">Madrid R&D Demos at Imagine Live 2024

For along 4 intense days last week (the Ericsson Imagine Live week in Spain) major outcomes of most innovation projects in Europe that Ericsson runs at 5TONIC were showcased to hundreds of visitors meeting us in Torre Suecia building.
Customers from all operators in Spain, as well from new market segments that Ericsson is targeting too now, academic and research partners, technology firms, government</td></tr>
</table>

representatives, University students and Ericsson staff were all delighted with our menu of innovation demos!!

Imagine Live 2024 [November 25 - 28]

For along 4 intense days last week (the Ericsson Imagine Live week in Spain) major outcomes of most innovation projects in Europe that Ericsson runs at 5TONIC, as well as the great innovation work carried out by our CNS colleagues, were showcased to hundreds of visitors meeting us in Torre Suecia building.
Customers from all operators in Spain as well from new market segments that Ericsson is targeting too now, academic and research partners, technology firms, government representatives, University students and Ericsson staff were all delighted with our menu of innovation demos!!

Demo Recordings

5G SA mmW Private Network system

Trustworthy AI: Accelerating Intelligent RAN automation

ML-based Exposure for 5G Private Networks

On-demand Network Slicing for B2C upselling

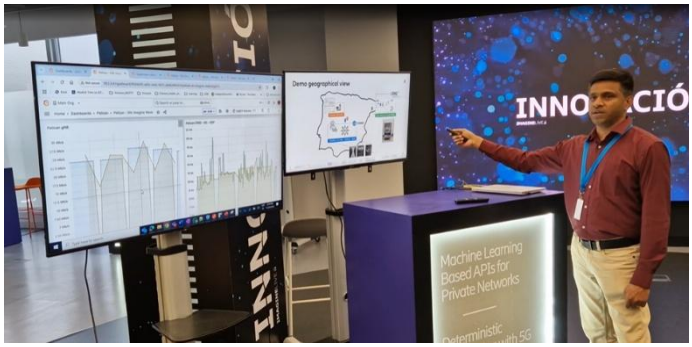
Immersive Streaming

Smart Predictive maintenance for Wind farms

Demos

The R&D innovation teams were ready to demonstrate what their projects were all about. It was possible to count with 5 internal R&D teams and with 2 external partner teams. Here the list with the topics and presenters:

1. 5G SA mmW Private Network system by Marcos Blázquez, Alejandro Ramiro & Fernando Beltrán
2. Trustworthy AI: Accelerating Intelligent RAN automation by Miguel Familiar-Cabero & Antonio Diaz Cano
3. ML-based Exposure for 5G Private Networks by JoseLuis Jiménez, Miguel A López Serrano, Saravanan Kalimuthu & Carlos Soleto
4. On-demand Network Slicing for B2C upselling by Fernando Cifuentes
5. Immersive Streaming by Alvaro Gutierrez,



Partners involved	Ericsson, CTTC			**Link**	Link
MWC 2024 SRS Meeting Room		**Location**	Barcelona, Spain	**Date**	February 2024

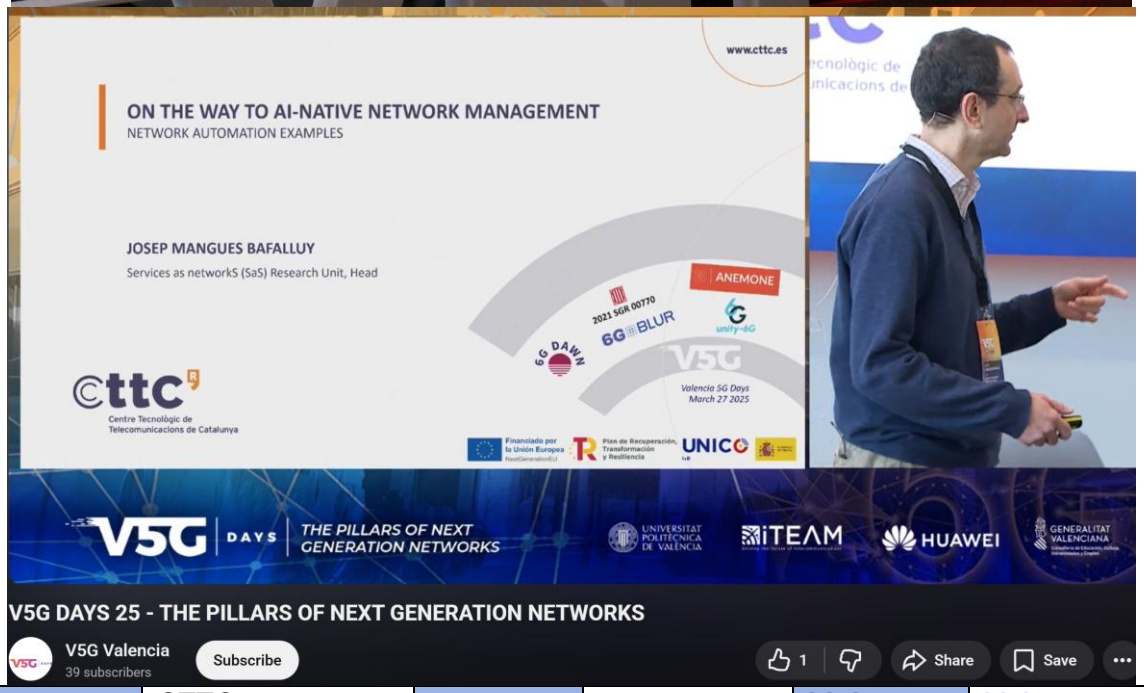
A roll-up with the project logo was exhibited inside SRS meeting room at **MWC 2024**

Partners involved	SRS			**Link**	
Valencia 5G Day: *La visión del CTTC en ÚNICO I+D*		**Location**	Valencia, Spain	**Date**	30 May 2022

Valencia 5G Days workshop, organized by iTEAM (UPV) on the challenges of 6G networks.

Josep Mangues participates in the Pitch Session: **«Proyectos programa UNICO 6G I+D».** Moderated by Narcís Cardona. Some of the main results of 6G-BLUR were explained in this presentation.

Program available at: https://v5g.es/v5g-days-2025/#programa



Partners involved	CTTC			**Link**	Link

4.3.2. Demos

6G-BLUR present in IEEE NOMS'24		**Location**	Seoul, South Korea	**Date**	6-10 May, 2024
6G-BLUR participated to IEEE/IFIP Network Operations and Management Symposium which took place on 6-10 May 2024 in Seoul, South Korea. The participation was achieved through Jorge Baranda (CTTC Researcher) presentation of the demo titled "*An AI/ML Proactive Network Service Relocation Approach for Multi-Admin Domain Scenarios*".					
Partners involved	CTTC			**Link**	Link
6G-BLUR present in IEEE ISCC'24		**Location**	Paris, France	**Date**	26-29 June, 2024
6G-BLUR was represented by CTTC Researcher Rasoul Nikbakht during one of the demo sessions held in IEEE ISCC 2024 with the work titled *DEMO: On-Demand 5G/6G Edge Verticals via Third-Party UPF Selection and Cloud-Native Relocation*.					
Partners involved	CTTC			**Link**	Link
6G-BLUR present in IEEE NoF'24		**Location**	Castelldefels, Spain	**Date**	2-4 October, 2024
On the 3rd of October 2024, 6G-BLUR was present in the IEEE NoF'24 conference with the demo "*Distributed Sequential Cloud-Native Deployment of an End-to-End 5G Network with O-RAN Functions*". This work covers aspects enabling the smart management and intelligent decision-making at the RAN segment while keeping a holistic point of view of an end-to-end mobile architecture, including the joint management of the RAN and core segments. Moreover, our researchers Rasoul Nikbakht and Albert Bell presented a tutorial on the 2nd of October, under the tittle "*Utilizing LLMs for Understanding, Monitoring, and Control of 6G Networks*", drawing significant attention from industry professionals and academic participants alike. This tutorial has covered: • Introduction to LLMs and recent trends (cost, context length, Elo rating). • Key LLM applications in telecom. • TelecoDoc Assistant for telecom documentation (e.g., 3GPP). • TSpec-LLM: structured 3GPP dataset for LLM fine-tuning. • Telecom Foundation Model (TFM): pre-training, LoRA adapters, structured output, data curation, and Digital Twin. • Live O-RAN network deployment demo in SAS LAB.					
Partners involved	CTTC			**Link**	Link
6G-BLUR showing new advancements in ACM Mobihoc'24		**Location**	Athens, Greece	**Date**	14-17 October, 2024
6G-BLUR was present in the ACM Mobihoc'24 conference held in Athens between 14th and 17th of October with the demo titled: "*Demo: On-demand Disaggregated Deployment of Cloud-Native Mobile Network from Core to RAN*". Jorge Baranda, researcher from CTTC, presented this work showing the deployment of an end-to-end mobile architecture including the joint management of the RAN and core segments.					

Partners involved	CTTC			**Link**	Link
6G-BLUR presents a demo in IEEE WCNC'25		**Location**	Milan, Italy	**Date**	24-27 March
During the demo session held on Tuesday 25 March, Jorge Baranda, CTTC researcher, represented 6G-BLUR project with the demo titled: "*An Automated Configurable Cloud-Native Monitoring System for the Radio Access Network*".					
Partners involved	CTTC			**Link**	Link
6G-BLUR presents a demo in IEEE INFOCOM'25		**Location**	London, UK	**Date**	19-22 May 2025
Last 20th of May, Jorge Baranda, researcher from CTTC, represented 6G-BLUR at IEEE INFOCOM 2025, held in London between the 19th and 22th of May. Jorge presented the demo titled: "*End-to-End Slice Orchestration in a 5G cloud-native Mobile Network with O-RAN Split 7.2*" related with one of the Proof of Concepts defined for a 6G-BLUR use case. This distinguishing features of this work consist of an end-to-end cloud-native deployment of a mobile network enabling the configuration of slices and the use of O-RAN Split 7.2 for over-the-air transmission using commercial equipment.					
Partners involved	CTTC			**Link**	Link
6G-BLUR presence at IEEE Netsoft'25		**Location**	Budapest, Hungary	**Date**	23-27 June 2025
6G-BLUR was present in the IEEE Netsoft'25 conference held in Budapest, Hungary from 23rd to 27th of June with the demo "*Full Orchestration of a Distributed 5G cloud-native Mobile Network: O-RAN, Core, and Transport*". Jorge Baranda, researcher from CTTC, presented this work showing the final proof of concept developed in collaboration with SRS and Telefonica. Based on previous work presented in INFOCOM'25, this demonstration considers also the on-demand configuration of transport network flows to differently route the traffic of active slices between computing sites in a distributed deployment of an end-to-end mobile network.					
Partners involved	CTTC, TID, SRS			**Link**	Link

4.4. Bachelor, Master, PhD Thesis, and Internship

The following activities were carried out:

- As part of his PhD thesis within the project, *Neco Villegas* conducted research on 5G MAC scheduling, focusing on the development of a Lyapunov-based scheduler that ensures QoS requirements, queue stability, and efficient use of radio resources. The MAC scheduler was implemented in ns-3 5G-LENA and evaluated with XR traffic, contributing to publications in conferences and a high-impact journal. Related papers can be found in Link, Link, Link, Link.
- As part of her PhD thesis within the project, *Fátima Khan* has characterized and modeled Open Fronthaul traffic, validating it analytically and through a real testbed. She has also

studied its interaction with legacy mobile traffic and demonstrated how different scheduling policies can ensure performance and service differentiation. Finally, she has proposed a holistic methodology combining queueing theory and simulation to support Open Fronthaul network planning. Related papers can be found in Link, Link.

- *Hyerin Kim* successfully caried out her GSoC project, related to Reinforcement Learning schedulers, resulting in two publications (Link, Link).
- *Joao Alburquerque* successfully caried out his GSoC project, related to alternative and more effective channel models for MIMO simulations in ns-3, resulting in one publication (Link).
- Farhad Rezazadeh, a PhD student at CTTC, defended his thesis in Nov. 2023. Some of the concepts analyzed in his thesis were related to 6G-BLUR and generated publications (e.g., on the application of artificial intelligence for managing O-RAN networks).

4.5. Internal Dissemination activities

Due to confidentiality constraints some dissemination activities have not been public to the broader community, therefore internal dissemination activities are presented in this section.

4.5.1. Ericsson España

• Overview of the Project presented F2F to Ericsson Research VP along with all Ericsson Spain Senior and Principal Experts (7 Nov 2023)

• Overview of the projects presented to Ericsson Spain President & CEO and to the whole Leadership Team of Ericsson Spain (13 Nov 2023)

• Round table on the evolution of I4.0-5G NPNs at the Outside-Insight event of December 2023, dedicated to “Innovation Trends in I4.0 enabled by 5G-and-Beyond Networks”, organized by the Head of Technology and Innovation of Ericsson Spain in Madrid (19 Dec 2023).

4.5.2. Keysight Technologies

- The testbed used for UC2-PoC1 is permanently displayed at the 6G Research and Innovation Laboratory that Keysight (together with Universidad de Málaga, UMA) has in the Ada Byron building, UMA campus. The lab receives frequent visits from Keysight customers and cooperation partners (academic and industrial), as well as from governmental bodies and authorities.

Figure 13: The 6G-BLUR testbed used in UC2-PoC1, as currently displayed at Keysight's 6G Research and Innovation lab in Málaga.

5. 6GBLUR Exploitation Activities

5.1. Standardization Activities

N	Title	Standardization Body	Date	Partners involved	Link Repository
1	Network Slice Controller (NSC) accepted as new Module Development Group (MDG) in the TeraflowSDN ecosystem.	ETSI Software Development Group TeraFlowSDN	TeraflowSDN Hackfest#7	TID	Link
2	Internet-Draft "5QI to DiffServ DSCP Mapping Example for Enforcement of 5G End-to-End Network Slice QoS"	IETF TEAS WG	IETF#119 (March 2024), IETF#120 (July 2024), IETF#123 (November 2025)	TID (and other external partners)	Link
3	Updates of the European OTIC in Madrid (EOMA)	O-RAN	February 2024 and February 2025	TID	N/A

5.2. Patents and Licensing

N	Title	Submission Date	Type: patent, licensing	Partners involved	Link Repository
1	WO2025195614A1 - First node, second node, fourth node, communications system and methods performed thereby for handling a change of status - Google Patents (2025-09-25)	22nd March 2024	Patent	Ericsson	Link

5.3. Open Source

N	Title	Repository	Date	Partners involved	Link Repository
1	srsRAN_Project 23.10	Github		SRS	Link
2	srsRAN Project 24.04	GitHub	April 2024	SRS	Link
3	5G-LENA Network Simulator Releases 3.0, 3.1, 3.2, 3.3	GitLab	Feb 2024	CTTC	Link
4	5G-LENA Network Simulator Releases 4.0, 4.1, 4.1.1	GitLab	May 2025	CTTC	Link
5	srsRAN Project 24.10	GitHub	October, 2024	SRS	Link
6	srsRAN Project 25.04	GitHub	July, 2025	SRS	Link
7	6G-BLUR JOINT Repo	GitLab	October 2025	ALL	Link
9	srsRAN Project 25.10	GitHub	November, 2025	SRS	Link
10	NSC Release 5.0	Gitlab	April 2025	TID	Link

5.4. Products and Services

N	Products/ Services	Partners involved
1	srsRAN Enterprise	SRS
2	**ML/AI-based Exposure for NPN systems**: how an Enterprise customer deploying a small 5G private network can very easily design, deploy and optimize 5G connectivity use cases relying on Exposure capabilities that go far beyond what the standard gives us, i.e far beyond a NEF. **Beyond standards:** **- Extended NEF functionality** with unique NPN Exposure APIs (standard compliant)	Ericsson

	- **Network Digital Twin for NPNs:** Field/Operations-data based AI-trained model	
3	**Private 5G Networks: Zero Touch deployment:** NPN incorporates now self-configuration and self-integration capabilities; We call it Zero-touch as it is extremely easy for the Enterprise to get dedicated 5G connectivity with minimum effort by the CSP; Customer will receive a big Plug & Play box, we call it carrito/ flight rack, that includes the Radio and UPF. A previous pre-integration work (factory configuration) together with some auto-configuration capabilities will do the magic to integrate the private network with the Operator public network.	Ericsson
4	**PathWave Test Automation / Network Emulator 3:** based on the work on UC2-PoC1, a plugin extension to Keysight's test sequencer (PathWave Test Automation) was developed in order to control the main functionalities of the Network Emulator 3 instrument. The plug-in, developed using OpenTAP framework, allows for orchestrating the instrument automatedly from Keysight's test automation products, whether locally from a PC connected to the network or remotely via a web-based UI.	Keysight

6. Partners Individual Exploitation Plans after the end of the project

6.1. CTTC Exploitation Plan

CTTC will continue exploiting the project results after the end of the project, by incorporating the developed algorithms, architectural frameworks, and orchestration mechanisms into its ongoing research on 6G networks and projects. The outcomes will strengthen CTTC's work on Open RAN, end-to-end resource management, digital twins, and intelligent control mechanisms, allowing the extension of its expertise and competitiveness, as well as the extension of the research lines and the support of future proposals such as in Horizon Europe and SNS-JU, and the future EU work programme, among others.

The validated concepts and software components that have been integrated into CTTC's experimental platforms, such as the 5G-LENA network simulator and the EXTREME Testbed, will allow improving their capabilities and ensuring future collaborations with the academia and the industry. In parallel, CTTC will exploit the project achievements for potential contributions to standardization bodies and contributions to open-source initiatives, given that CTTC's researchers have a strong commitment with standardization efforts and the open-source communities.

Finally, the project outcomes will be used to strengthen CTTC's industrial collaborations, training activities, and technology transfer initiatives.

6.2. Telefonica Exploitation Plan

Telefónica aims to leverage the knowledge and expertise gained through this project to define the next generation of network architectures. By doing so, the company intends to contribute to the advancement of communication technologies while maintaining a strong focus on practicality and real-world applications. In addition, the project will offer a comprehensive assessment of the maturity levels of various technological components required for these future networks. This approach will help identify opportunities for collaboration with partners and stakeholders, thereby accelerating the pace of technological development and deployment.

In the short term, the insights and outcomes obtained from the project are expected to stimulate new research and innovation activities within the Telefónica Group. These initiatives will have a direct impact on future studies concerning the evolution of network technologies, particularly in the areas of centralization of network functionalities. The short-term goal is to establish a strong foundation for ongoing innovation and to foster a culture of continuous improvement within the company's research ecosystem.

Over the medium to long term, Telefónica plans to collaborate closely with its industrial partners and other key stakeholders to design and develop technically feasible and scalable commercial products/services inspired by the project's findings. These efforts will be directed toward the realization of practical applications and solutions that align with the vision of the next-generation 6G networks. Ultimately, Telefónica's long-term ambition is to translate research results into viable products and services that will drive future connectivity, enhance user experiences, and strengthen the company's leadership in the telecommunications industry in its markets.

Also, leveraging that Telefónica is an active member of several key standardization bodies, including 3GPP, ETSI, IETF and O-RAN Alliance, the company plans to contribute the developments, insights, and technical knowledge gained throughout this project to these standardization forums. By sharing the project's outcomes, Telefónica will help promote the creation of new standards and frameworks that will influence the design, interoperability, and performance of future network technologies, particularly in the context of 6G.

6.3. ERICSSON Exploitation Plan

Confidential

6.4. Keysight Exploitation Plan

Confidential

6.5. SRS Exploitation Plan

The achievements of 6G-BLUR have contributed to the development of SRS's products and will certainly foster new business opportunities. First, all of SRS's contributions to 6G-BLUR have been included in srsRAN Project, SRS's open-source O-CU/O-DU solution, which is freely available to the public under the AGPLv3 license. Not only does this approach benefit the R&D community by

granting access to a full RAN stack with no entry fees, but it also helps SRS to attract more competitive funds and to engage with future innovative projects. SRS aims to continue expanding and improving srsRAN Project through interactions with, and feedback from, 6G-BLUR partners.

Second, SRS's commercial product, srsRAN Enterprise 5G, has also been significantly enhanced during the course of the project. Built on the same code as srsRAN Project with additional commercial-specific features, srsRAN Enterprise 5G has inherited all the advancements stemmed from 6G-BLUR, and is now a completer and more stable O-RAN solution that will attract more commercial opportunities for SRS.

Third, the proof of concepts and demonstrations developed within 6G-BLUR have been the perfect vehicle to showcase, together with the achievements of the project, the flexibility, scalability and interoperability of srsRAN as a platform to implement smart and disaggregated O-RAN based network solutions. The demonstrations have appealed to a number of relevant stakeholders, strengthening SRS visibility as a RAN provider, and will continue to do so as several 6G-BLUR partners will still be developing their proofs of concepts on top of srsRAN after the end of the project.

Finally, being a member of the O-RAN Alliance, SRS have developed their O-CU/O-DU solution to be compliant with their specifications. SRS monitors the activities of the relevant O-RAN Working Groups and plans to influence future O-RAN Specifications with extensions and interface developments inspired by the work in 6G-BLUR.

6.6. UniCan Exploitation Plan

As a higher education institution, the most straightforward way of exploiting the results of the 6G-BLUR project is to integrate the knowledge and expertise that has been acquired during the project lifespan into our lecturing and training activities. In this sense, some of the topics related to 6G networks, in particular disaggregated architectures and O-RAN, will be included in the syllabus of some of our courses dealing with wireless networks. In addition, various BSc and MSc thesis will also be aligned with topics related to the research that we have carried out during the project. Furthermore, at the time of writing, three PhD candidates are working on aspects that are clearly related to 6G-BLUR.

On the other hand, the knowledge and expertise acquired during the project will allow University of Cantabria to strengthen its collaboration in related research initiatives. Future collaborations within the SNS framework on topics related to 6G-BLUR will be fostered. In addition, more specific cooperation, with interested stakeholders, will be also promoted.

Last, University of Cantabria will also leverage the experience gathered during the project to foster their dissemination-related activities, and to promote open science, by contributing to the development of solutions and techniques to assess the performance of solutions related to 6G-BLUR, in particular: resource management, traffic dimensioning and control, as well as network planning.

7. Conclusions

This document provides an overview of the communication, dissemination, and exploitation activities performed throughout the project duration, as well as the actions planned after the project end, in order to increase the visibility and impact of the project results, and achievements. Through well-coordinated outreach efforts across the project's partners, including high-quality and open access publications, active participation in exhibitions, and the organization of key events, the project has effectively promoted its achievements and innovations. In parallel, the exploitation activities carried out during the project execution and those planned to be conducted after the project end, will ensure that the generated outcomes will continue creating impact after the project end. Overall, this document demonstrates that the project has established a solid foundation for continuing the advancement and collaboration in next-generation network technologies.