

Maximizing the Impact of European 6G
Research through Standardization

5G-STARDUST

Mohamed El Jaafari

Thales Alenia Space France

6G SNS

5G  stardust

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1. Project Overview



- **Project Name:** 5G-STARDUST (www.5g-stardust.eu)
- **Stream:**
 - A-01-02 Ubiquitous Radio Access



- **Members:**
 - DLR (Project Coordinator), AW2S, CNIT, CTTC, Fraunhofer Fokus, Hispasat, Martel Innovate, Orange, SRS, Thales Alenia Space (F and Lux)



- **Objective:**
 - **5G-STARDUST** – **S**atellite and **T**errestrial **A**ccess for **D**istributed, **U**biquitous, and **S**mart Telecommunications
 - The main goal of 5G-STARDUST is to design, develop and demonstrate a deeper integration of TN and NTN: Target TRL 5 with lab demonstrations reproducing a variety of verticals (e.g., maritime, automotive, railway, PPDR, entertainment, etc.)

2. Technical Information



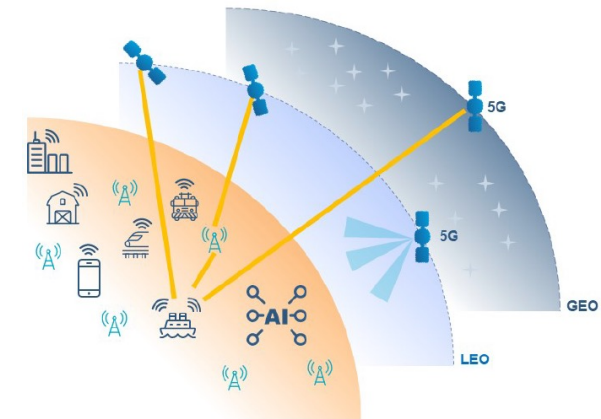
• Project Key Objectives:

- Study, design, a 5G-based satellite network, implementing onboard processing and storage capabilities towards effective networking and mobile computing in the sky.
- Define, design data-driven management system components, building on AI/ML based solutions for resource allocation and service provision in highly dynamic integrated hybrid networks.
- Design, implement, and demonstrate (TRL 5) E2E services over a fully integrated TN-NTN advanced network architecture with regenerative space nodes.
- Contribute to the development of a European Research and Technology roadmap to ensure strategic positioning and global competitiveness of Europe in integrated TN-NTN communications.



• Key technologies used/investigated:

- Regenerative payloads for GEO and NGSO systems
- Converged TN/NTN multi-tenant networks
- E2E AI-Driven Network Design



3. Planned Standardization Activities

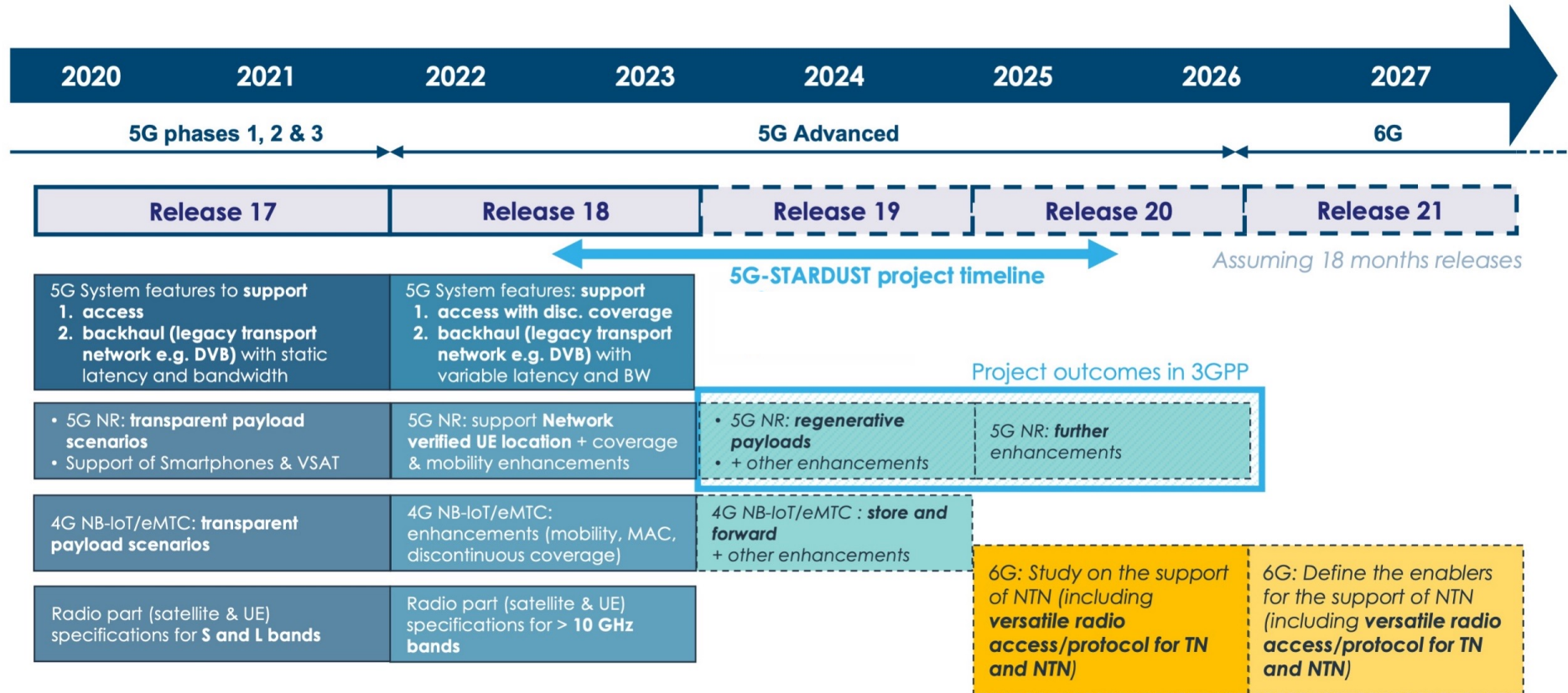


- **Standardization plans / objectives:**
 - 5G-STARDUST will contribute to the inclusion of regenerative satellite systems and the related 5G NR enhancements as expected in the roadmap of 3GPP Rel. 19 and 20
 - To influence Rel. 20 and following in what regards the convergence of 6G and NTN
- **Project activities / technologies that may lead to standardization:**
 - Architecture design for integrated TN/NTN implementing regenerative payloads
 - a unified radio interface towards a cost-effective TN-NTN network integration
 - Multi-connectivity models to ensure effective data distribution through terrestrial and non-terrestrial networks
 - AI-driven networking operations
- **Potential targeted standardization bodies / groups:**
 - 3GPP

3. Planned Standardization Activities



- **Standardization planning and estimated time plan:**
 - Throughout the entire duration of the project 2023–2025



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