

CELTIC-NEXT

Project Proposal Pitch

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***Enhancing Drone Connectivity in Smart
Agriculture with Sustainable Open RAN and NTN***

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Teaser

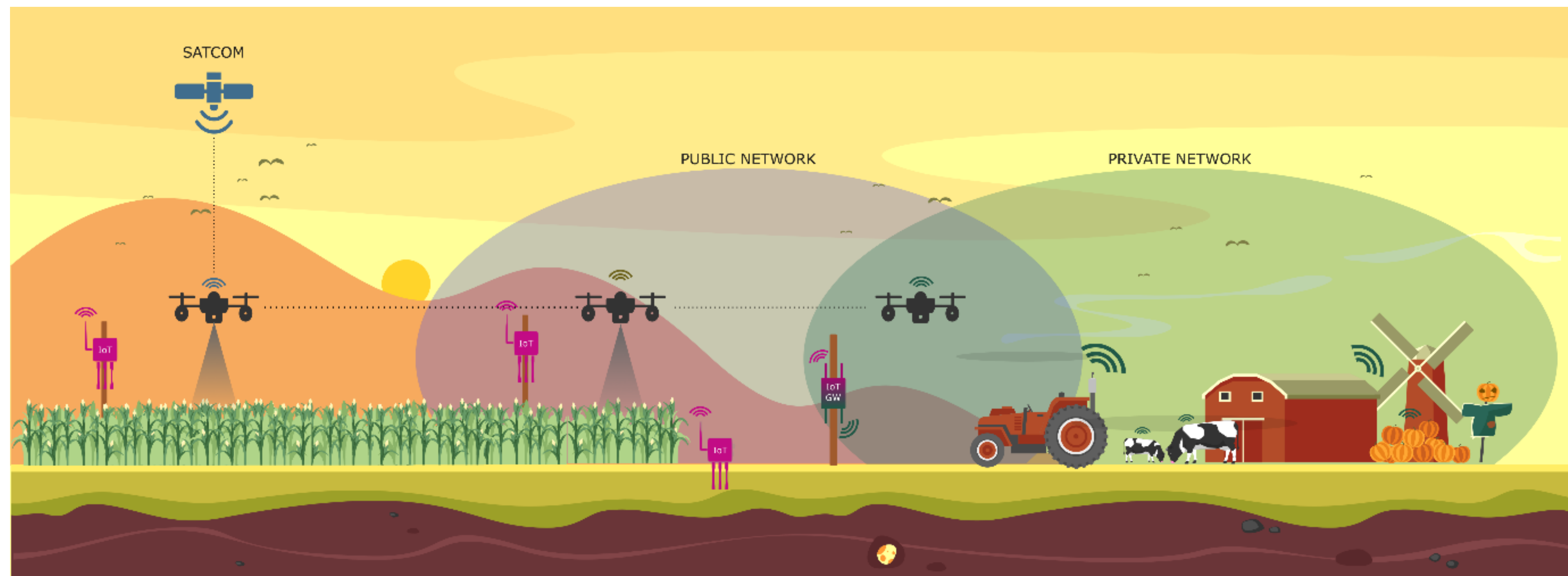
- **Objectives:** To implement a comprehensive connectivity solution for autonomous lightweight drones in smart agriculture using Open RAN ensuring seamless command, control, and uninterrupted telemetry data transmission.
- **What makes the added value?**
 - *Boosts agricultural efficiency* through real-time data from drones.
 - Quick *anomaly detection and reporting* in fields.
 - *Innovative and scalable connectivity* solutions via Open RAN and NTN.
 - Real-time decision-making through *edge computing*.
- **Why should I participate in the project?**
 - Positioning as a *leader in modern agricultural* connectivity solutions.
 - *Collaborative innovation* with diverse stakeholders.
 - *Knowledge acquisition* in Open RAN, NTN, edge computing, and drone technology.
 - Potential for *developing commercial applications*.
 - Contribution to *sustainable agriculture* practices.
 - Early mover advantage in *leveraging new connectivity solutions*.

Organisation Profile

- The Satellite Applications Catapult (SAC) is a dynamic, not-for-profit innovation and technology company.
- Our mission: Drive economic growth through space exploration.
- We're committed to making the UK a global leader in satellite and 5G integration.
- SAC actively participates in OFCOM forums and standardisation entities (3GPP, ORAN Alliance).
- Our Future Networks and Development Centre (FNDC) at Westcott Innovation Park offers state-of-the-art facilities.
- Industry and academia collaborate here to accelerate market development and launch new products.
- We focus on Hybrid and Ubiquitous connectivity, bringing together Terrestrial Networks (TN) and 5G Non-Terrestrial Networks (NTN).

Proposal Introduction

Smart farming is related to managing farms using recently emerged technologies to enhance and optimize production. The Internet of Things (IoT) has enabled farmers to monitor different activities and get useful data in real-time. However, when problems like pests or watering issues pop up, fast checks on the ground are needed. Drones can perform many farm-related monitoring and checks, but they need seamless connectivity to work well across large farms. Our aim is to use Open Radio Access Network (Open RAN) and Non-Terrestrial Networks (NTN), facilitated by IoT sensors and edge computing, to keep drones connected and working efficiently to optimise farming maintenance and ultimately production.



Proposal Introduction

- **Expected Outcomes:**
 - Development and implementation of a robust Open RAN and NTN based connectivity framework for drones.
 - Demonstrated seamless command, control, and telemetry data transmission across diverse networks.
 - Real-time anomaly detection and reporting in agricultural fields.
 - Lightweight drone operation – edge computing.
- **Impacts:**
 - Enhanced agricultural productivity and sustainability.
 - Prevention of potential losses through swift anomaly detection.
 - Set a new standard for drone connectivity solutions in agriculture.
- **Schedule:**
 - **0-12 Months:** Research, design, and initial testing of connectivity frameworks.
 - **13-24 Months:** Development, integration, and field testing of drone and connectivity solutions.
 - **25-36 Months:** Evaluation, optimization, and documentation for future scalability and commercial application.

Partners

- Existing Consortium:
 - UK: SAC, UAV Engineering, Agri-Epi, University of Cranfield.
 - Turkey: Istanbul Technical University.
- Looking for non-UK (Other Verticals/Application Areas welcome):
 - Expertise: Network Engineering (Open RAN, NTN), Drone Technology, Edge Computing, Agriculture (other verticals) Technology, Data Analytics-AI.
 - Partners: Research Institutes, Agricultural (and other verticals) Entities, Technology Organisations.

Contact Info

For more information and for interest to participate please contact:



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Presentation available via:



Join Consortium Building Session

18th of March 9-9.30 CET

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