

U-space Implementation Handbook

Supporting Drone Strategy 2.0: results from U-space Digital Sky Demonstrators

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Agenda

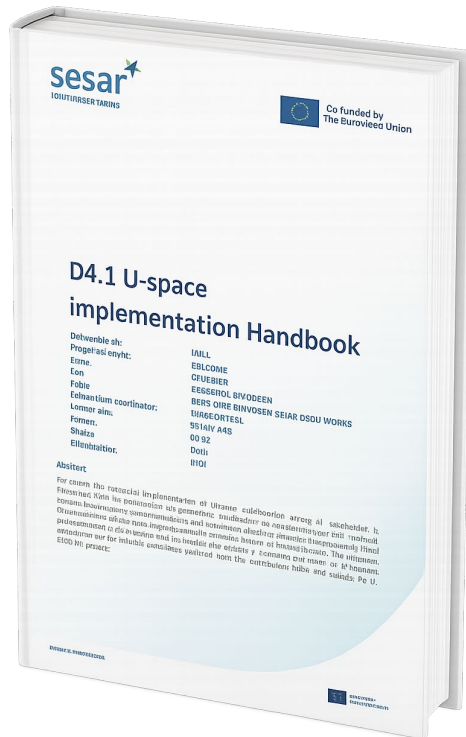
U-space Implementation Handbook introduction

Technical discussions (main Lessons learned and challenges)

- Discussion A: Surveillance systems to support U-space
- Discussion B: E-conspicuity
- Discussion C: Dynamic Airspace Reconfiguration

What is the U-space Implementation Handbook?

A **HANDBOOK** IS DEFINED AS A BOOK THAT CONTAINS **INSTRUCTIONS OR ADVICE ON HOW TO DO SOMETHING**, OR **THE MOST IMPORTANT AND USEFUL INFORMATION ABOUT A SUBJECT**.



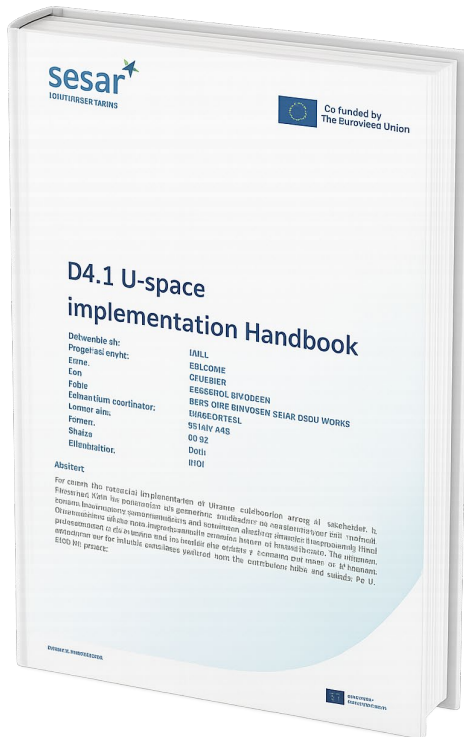
The “U-space implementation handbook” compiles **experience** gained **within and outside the U-ELCOME project** to help stakeholders implement U-space services and operate them safely **within U-space airspace**.

This document provides:

- a clear **theoretical and regulatory foundation**
- **practical knowledge** from the U-ELCOME project, other DSDs, and real-life experiences.

It will be **available** once it is reviewed by SJU (around November)

What is **NOT** the U-space Implementation Handbook?



The “U-space implementation handbook”:

- In **no case** is a maxim
- It is **not intended** to replace any regulatory document
- is **not a formal description of any SESAR Solution**, but a combination of inputs from different SESAR solutions aiming to implement U-space throughout Europe.

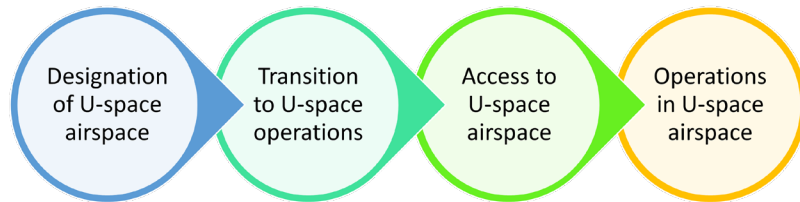
How was U-space Implementation Handbook built?



What is the content of U-space Implementation Handbook?

Theoretical and Regulatory Framework

where the process of U-space Implementation is explained supported by regulation



U-SPACE IMPLEMENTATION HANDBOOK



+ 70 Lessons Learned

+ 70 Recommendations

Technical Appendices regarding:

Deployment solutions

Architecture

Transition to U-space ops

Coordination mechanisms

U-space impact on SORA

Social acceptance

TECHNICAL DISCUSSIONS

Lessons learnt and remaining challenges

Discussion A: Surveillance systems to support U-space

WHAT?

Technologies and infrastructures that monitor, detect, identify, and track both **UAS and manned aircraft** operating in an airspace

WHY?

Improve **situational awareness, redundancy, safety, security**

WHERE?

Any airspace, especially **U-space airspace** and surroundings of critical infrastructures

HOW?

Different technologies:
ADS-B in antennas
Passive RF antennas
EO/IR cameras



Discussion A: Surveillance systems to support U-space

Why is surveillance essential for U-space safety?



Javier Camacho
UTM/UAS R&D Principal Engineer
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Richard Beaulieu
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THALES LAS FRANCE



Jean-Pierre de Muyt
Head of Regulatory Affairs
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Discussion A: Surveillance systems to support U-space

What is the main differentiator of traditional aviation surveillance systems and the ones deployed in our DSDs?



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Discussion A: Surveillance systems to support U-space

Who should fund, deploy, and maintain surveillance infrastructure, and can U-space act as a driver for broader market adoption?



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Discussion B: E-conspicuity

WHAT?

use of electronic means to make **aircraft, drones, or other vehicles visible** to other airspace users.

WHY?

enhance **safety** by reducing the **risk of collisions** between **manned and unmanned** aircraft.

WHERE?

According to Regulation 2021/666, manned aircraft operating in airspace as a U-space airspace and **not provided with an air traffic control service** by the ANSP, shall continuously make themselves electronically conspicuous to the U-space service providers.

HOW?

Different technologies:

- ADS-B
- ADS-L over SRD 860
- ADS-L over Mobile



Discussion B: E-conspicuity

Which solutions and procedures from your project proved most effective for integrating manned aircraft into U-space?



Daniel García Monteavaro
Head of Drone Business
Development Department **ENAIRE**

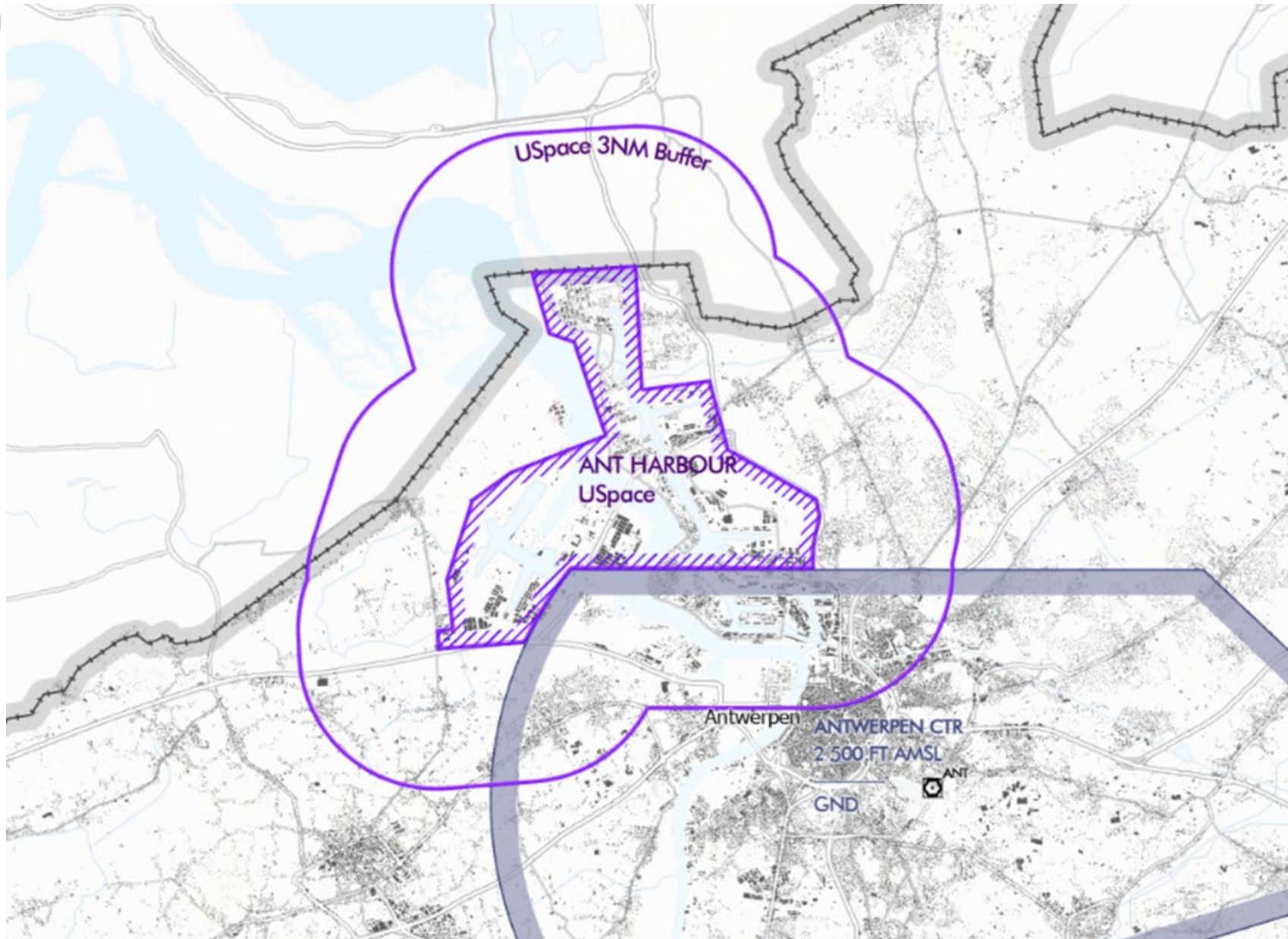


Luigi Brucculeri
Head of Research and Business
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BURDI approach



Discussion B: E-conspicuity

Without clear specs for e-conspicuity data sharing, how should regulation and industry develop consistent procedures?



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Discussion C: Dynamic Airspace Reconfiguration

WHAT?

temporary
modification of the U-
space airspace

WHY?

accommodate **short-term** changes in
manned traffic
demand

WHERE?

Inside **controlled airspace**
where
U-space airspace
has been designated

HOW?

Adjusting the
geographical limits of that
U-space airspace



Discussion C: Dynamic Airspace Reconfiguration

How did your project implement DAR in practice (sectorization, procedures) and what are the roles involved?



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Compliance Monitoring Manager
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Discussion B: Dynamic Airspace Reconfiguration

What challenges emerged from ATCO feedback (workload) and from notifying operators, and what open points remain?



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THANK YOU!