U-space compatible ✓

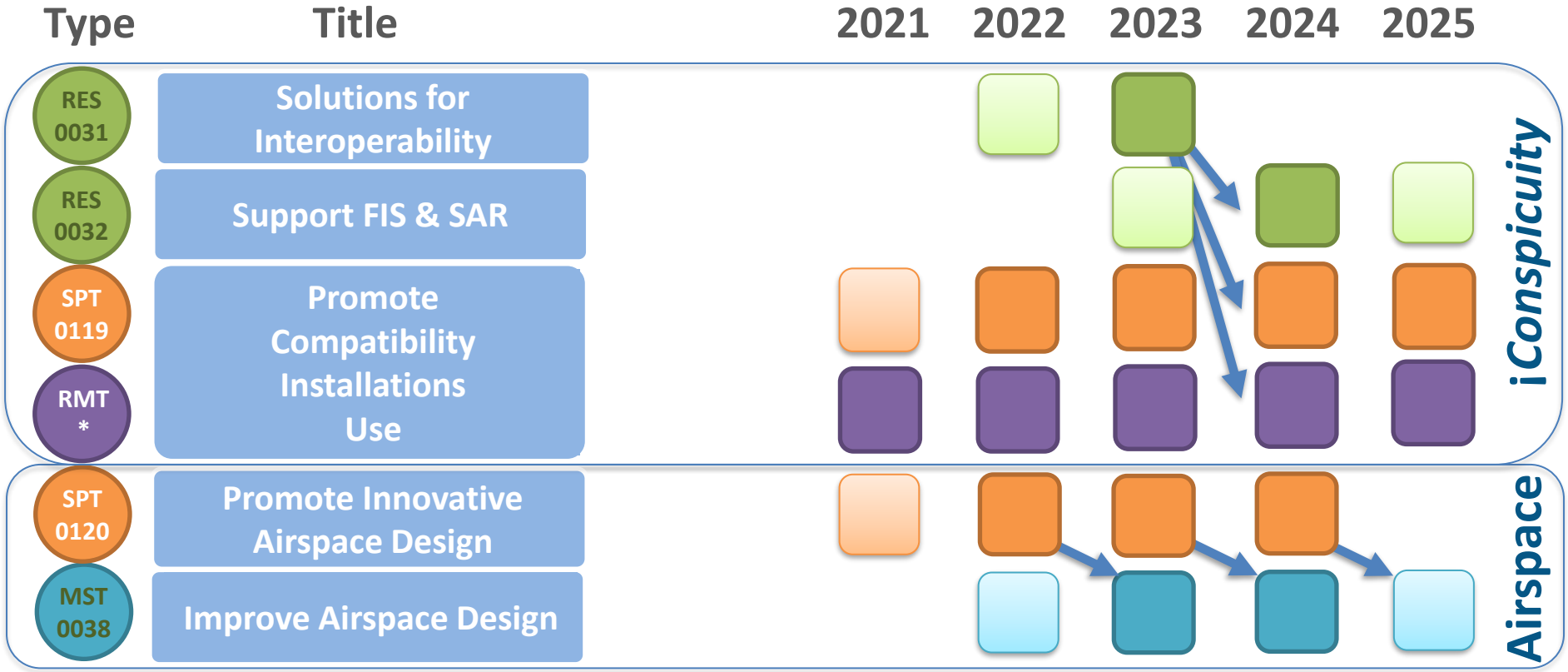
¡Conspicuity

Connected aircraft …

… for better situational awareness



EPAS Actions – ¡*Conspicuity*



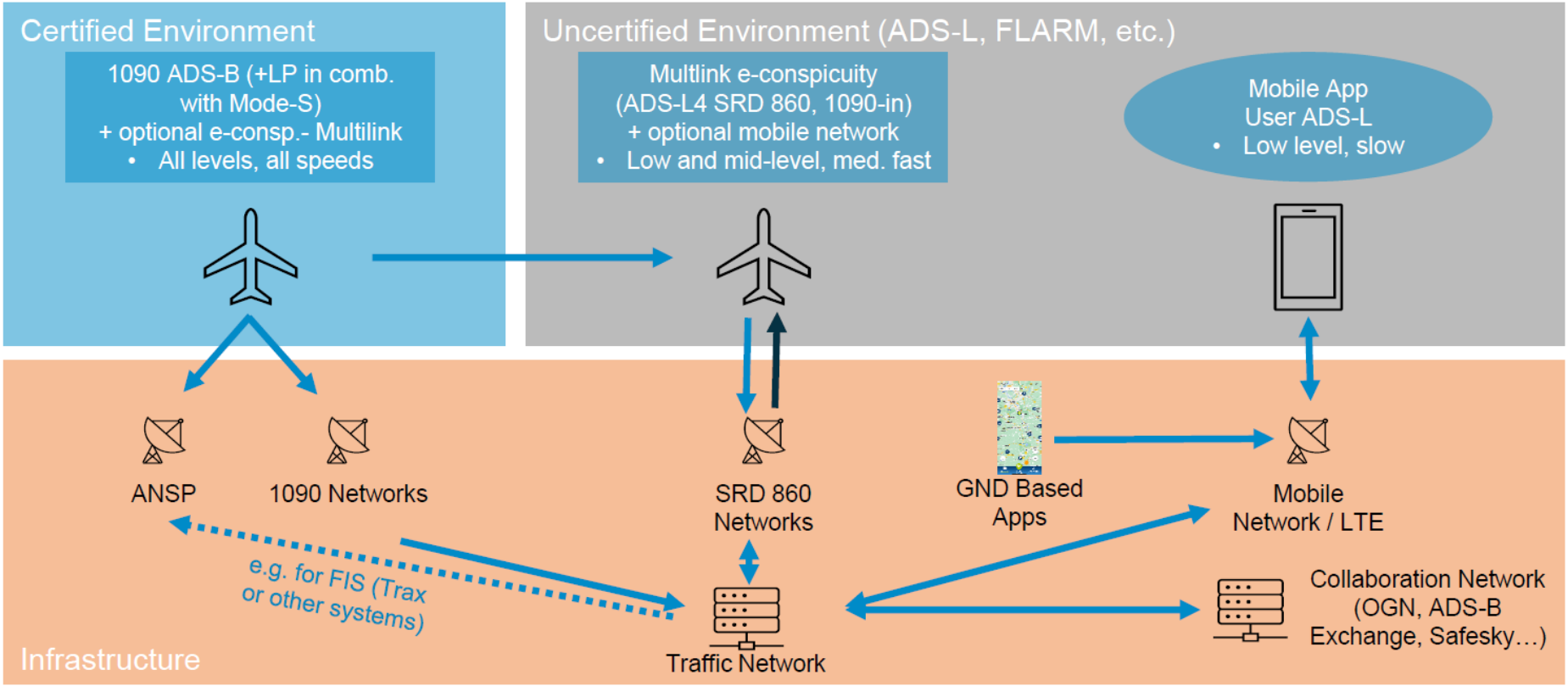
*RMT.0690 (CS-STAN), RMT.0230 (U-space), RMT.0519 (CS-ACNS)

RES.0031 – Completed in Q2 2024



EASA
European Union Aviation Safety Agency

Future ¡*Conspicuity* Outline



¡*Conspicuity*

Joint High-Level Roadmap

Use Cases

Reduce the risk of mid-air collisions by enhancing the pilot's situational awareness to assist in avoidance of collision and/or mitigation of other airborne hazards

It is not intended to serve as a collision avoidance system (i.e., ACAS), nor as a surveillance tool in support of Air Traffic Control (ATC)

Enable electronic conspicuity for manned aircraft in U-space without ATC service

Electronic conspicuity in U-space is only required to operate air-to-ground and where U-space is established without ATC. U-space is expected to be established in environments with higher levels of air-traffic (manned and/or UAS).

Possible additional objectives (subject to further research)

Complement the Flight Information Service (FIS) and Search and Rescue without requiring changes to existing ATM/ANS principles and/or operational practices

Target Situation

Simple system design, providing **interoperability** and **affordability**

Solution objective: **‘one language’** & **‘one link’**

One language

A common ‘language’ is needed to ensure interoperability

ADS-B and ADS-L are considered as good candidates for a common interoperable language(s)

One link

Air-Ground transmission for conspicuity in U-space

Direct air-to-air capable radio link(s) will be required for pilot awareness

Complementary link, may be used for additional use cases

Candidate Enablers

ADS-B 1090 MHz	ADS-B UAT (978 MHz)	SRD 860	Mobile Telecom
- In ops use for ATS worldwide - Protected spectrum - Requires certification - Requires radio licensing - Affordability tbc - RF sustainability to be assessed	- In ops use for ATS in USA - Protected spectrum - Requires certification - Requires radio licensing - Requires frequency planning - Affordability tbc - Enables other Use cases -> FIS-B	- Unprotected, unlicenced but regulated, standardised spectrum - Frequency risk by ITU > ~2030 - Need to upgrade the currently non-harmonised systems for interop	- Possible complementary link for lower altitude where terrestrial network is available. Expanded coverage TBD. - Does not support direct air-to-air - Requires ground network - Needs Spec of COM requirements

A properly updated ADS-L could converge with a simplified ADS-B (e.g. low-power) for low-end aircraft

Approach

- **Address the defined use cases**
  - **Pilot situational awareness, Europe-wide at all altitudes**
  - **U-space conspicuity**, initially **geographically limited & low altitude**
- **Taking into account**
  - U-space will initially only be introduced in areas of higher air traffic density (manned and/or unmanned)
  - Voluntary equipage for pilot situational awareness
  - Different needs within the Aviation communities - Glider vs aircraft operating under IFR
  - Existing overlapping solutions: ADS-B enabling both ATC service and conspicuity
- **Assess the candidate enabler technologies, to support stakeholder decision in short term**
  - Choice of ‘one link’ to be based on a comparative assessment of options, taking into account:
    - Operational & Technical assessment and Business case for ground-based stakeholders and airspace users
- **Communication - ensure that stakeholders implement the appropriate solutions**
  - Clear strategy and communication campaign

Milestones to implementation

1. Review and **consolidation** of use cases and related performance
2. '**One language**' proposal **by Q1 2025** (draft Q4 2024) considering the following:
   a) ADS-L 4 SRD-860 Issue 2 (expected in Q2 2024) and Draft ADS-L 4 MOBILE Issue 1
      Information forward and uplink using SRD860 and aerial cellular
      - RES.0031 research on ¡Conspicuity interoperability to be completed by Q2 2024
      - RES.0032 research on ¡Conspicuity for FIS and SAR task to start in Q4 2024
   b) Definition of ADS-L enabled on 1090 and UAT reduced capability equipment (RCE/Low power)
3. Comparative **assessment** of options **by 2025**
   Operational & Technical assessment, Business Case incl. constraint mitigation for affordability
4. Consolidation of '**one link**' proposal **by 2026**, including transitional arrangements
5. Community **awareness and endorsement** of the concept
   to avoid proliferation of technologies in the absence of a clear target and intermediate steps
6. Implementation

¡*Conspicuity* Declaration

Voluntary Policy Statement (Just Culture for GA)

Scope: All ¡*Conspicuity* related data/information (ADS-L, ADS-B, transponders, trackers …)

Excluded: Criminal acts or willful misconduct or serious lack of professional diligence where flight safety is seriously compromised

¡*Conspicuity* Declaration

Key Principles

→No treatment of individuals

→Big data approach (deidentified)

→All affected stakeholders involved

→Jointly agreed actions

→Transparent monitoring