Supporting European Aviation

EUROCONTROL

Safe operation of VTOL and UAS in urban environment

Integration of Advanced/Innovative Air Mobility (A/IAM) in U-Space/UTM

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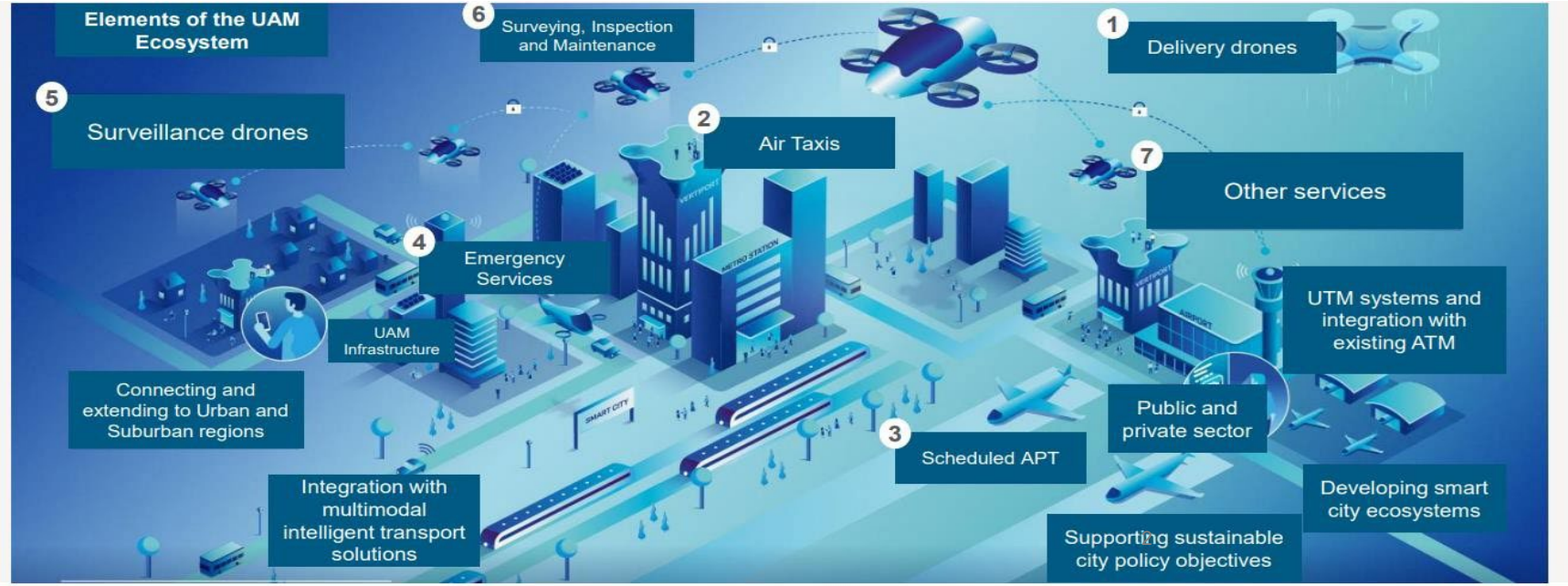
CONSORTIUM COORDINATOR sesar DEPLOYMENT MANAGER

FOUNDING MEMBER sesar JOINT UNDERTAKING

NETWORK MANAGER

What ***might*** the future look like in urban environment?



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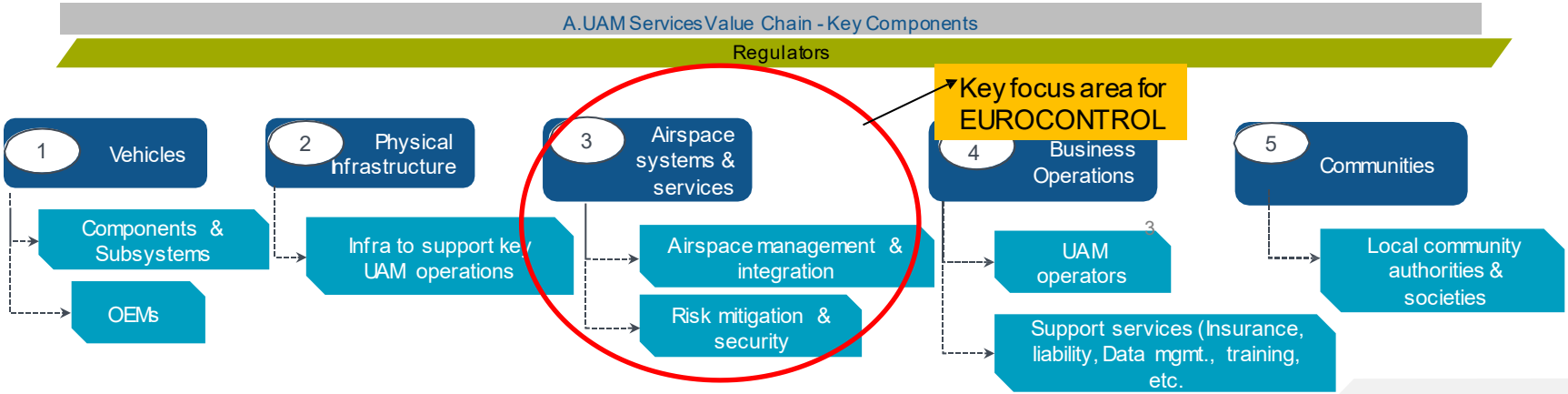
Needs for air transportation in an urban environment

- Unmanned traffic in urban environment requires **on-demand**, highly automated, passenger or cargo-carrying air transportation services within and around a metropolitan environment in all types of weather
- Industry vision: (source: MITRE)
  - leverage new vehicle designs and system technologies
  - Develop new airspace management constructs and operational procedures
  - Embrace the sharing and services economy to enable a new transportation service network



Challenges to integrate A/IAM operations in airspace

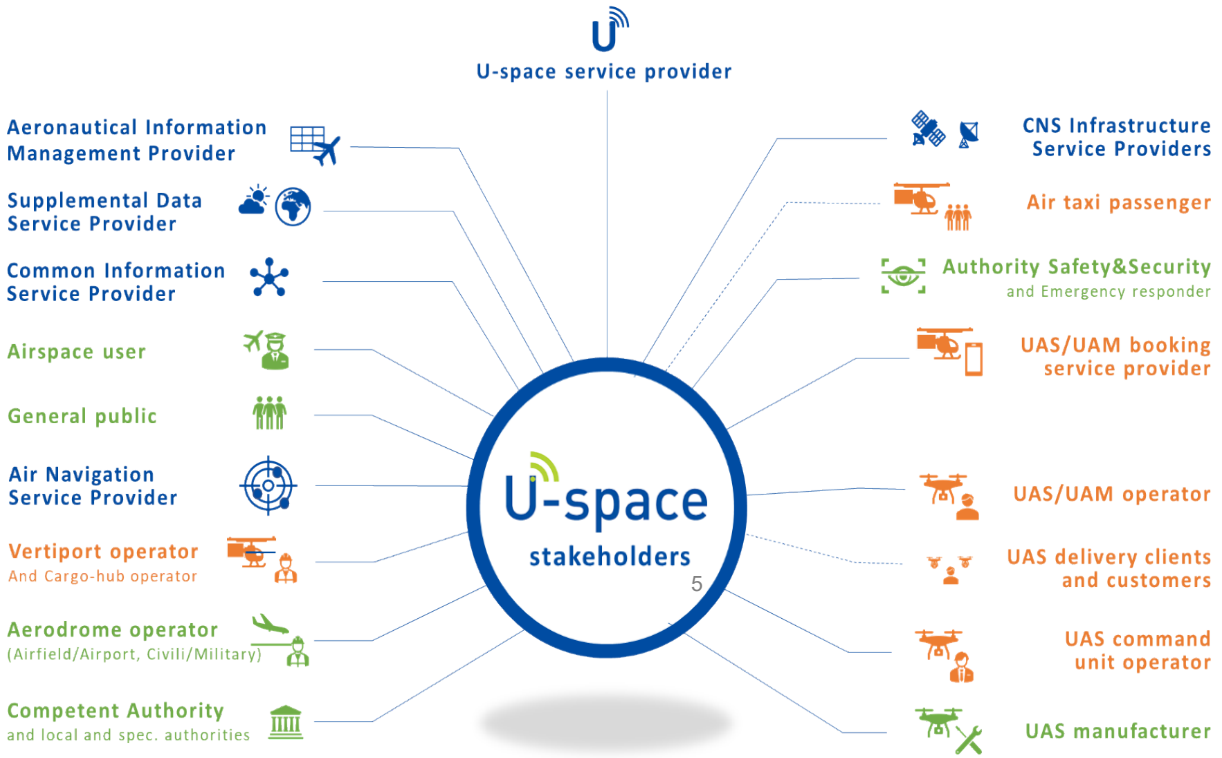
Data exchanges	• Between U-space and ATM, e.g., for Strategic & Tactical de-confliction • Within U-space/xTM
Rules of air	• Existing rules of the air do not incorporate A/IAM operations
Altitude Reference System	• Altitude reference system for conventional aviation is not suitable for flying VTOLs and UAS
CNS	• Current aviation CNS is unsuitable for A/IAM operations • Low altitude operations mean signals have shorter horizons. • Current airborne equipment is often too heavy / bulky / power-hungry / expensive
Risk mgnt	• The performance requirements for passenger operations need to be quantified • Passenger operations qualified service providers need to come forward

U-Space brings all stakeholders together

Many actors from aviation and non-aviation sectors

Different terminology with **different expectations**

Coordination between stakeholders is *the* key!!

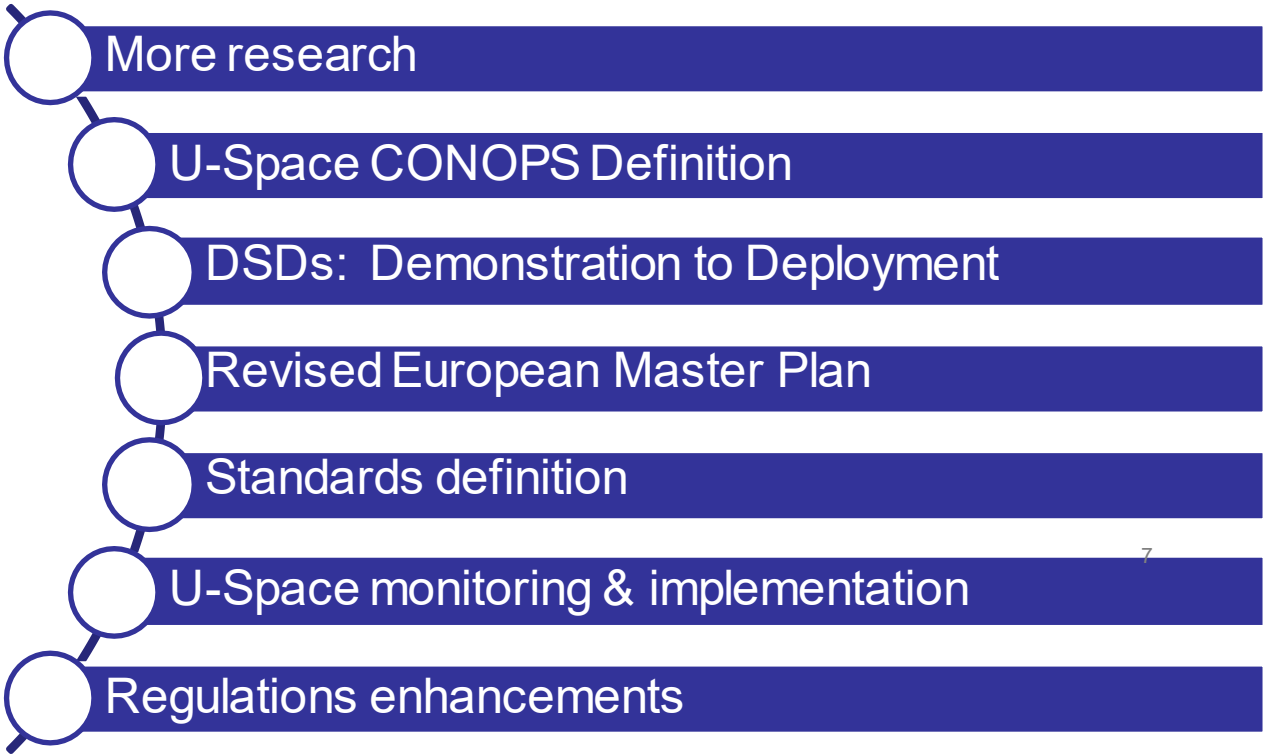


Technical and operational aspects

Role of U-Space

- Enables Exchange of data between conventional aviation and A/IAM operations
- Provides Strategic and tactical de-confliction with ATM traffic
- Detect and avoid capability as an ultimate fallback safety net → standardization needed
- Enhanced rules of the air to integrate VTOLs and UAS in airspace
- Integrates enhanced CNS services for managing traffic unmanned traffic
- Common Altitude reference system for manned and unmanned traffic
- Complements Operational risk assessment approach for unmanned operations

But we are not there yet – Ongoing and Next Steps



Role of EUROCONTROL for safe integration of VTOLs/UAS in urban environment

Research

- Exploratory
- Industrial
- DSD

Development

- CONOPs
- Regulation
- Standards
- Guidance material
- Generic safety cases

Technical Support

- Support to Member States for monitoring & deploying U-Space
- Simulation
- Data hub

Leadership & Promotion

- EU Drone Strategy 2.0
- Public Awareness Campaigns
- Share lessons learned

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