

Dron Konferencja es Expo

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ECOSYSTEM

by THALES

Table of contents

1/ Large Scale International
initiatives

2/ Situations observed in EU

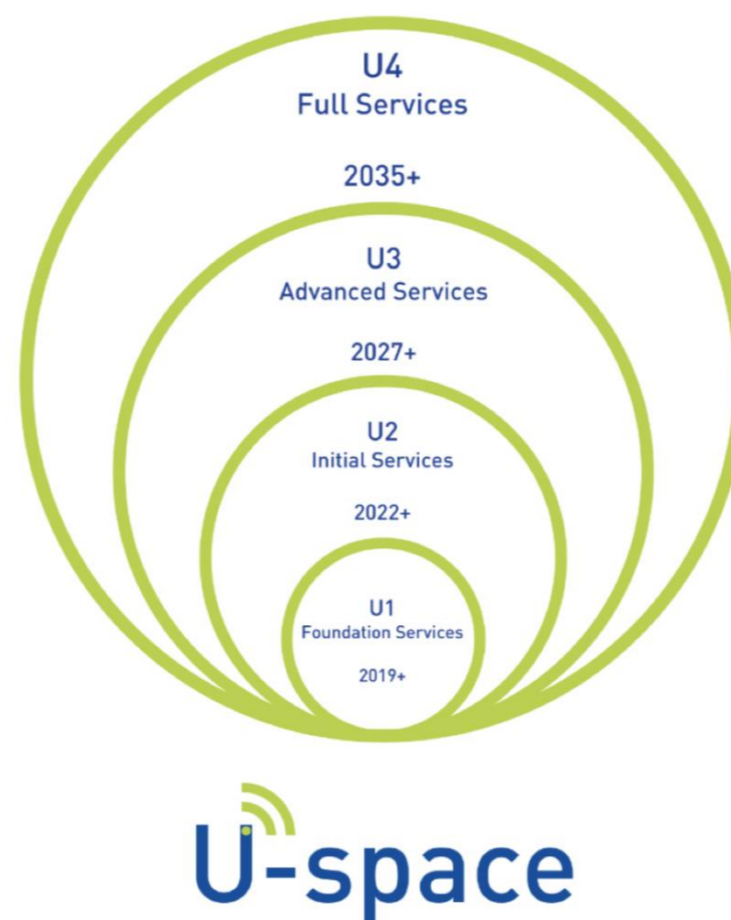
3/ Best practices, proposal

1

Large Scale International Initiatives

1

Europe – U-Space features



Foundation

- e-registration
- e-identification
- geofencing



Initial

- planning & approval
- tracking
- airspace dynamic information
- procedural interface with ATC



Enhanced

- capacity management
- assistance for conflict detection



Full

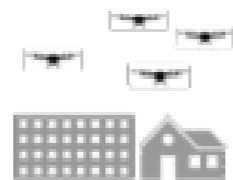
- integrated interfaces with manned aviation
- additional new services

1

Europe – U-Space Network

1

USA – NASA Technical Capability Level



TCL1

Remote Population

Low Traffic Density

Rural Applications

Multiple VLOS
Operations

Notification-based
Operations

TCL 2

Sparse Population

Moderate-Low Traffic
Density

Rural / Industrial
Applications

Multiple BVLOS
Operations

Tracking and
Operational Procedures

TCL 3

Moderate Population

Moderate Traffic Density

Suburban Applications

Manned/Unmanned BVLOS
Operations

Detect and Avoid
Public Safety Operations

TCL 4

Dense Population

High Traffic Density

Urban Applications

Dense Urban BVLOS
Operations

Large Scale Contingency
Management

1

USA – FAA Low Altitude Authorization & Notification



2

Situations observed in EU (but not only)

Regulation

- **No regulation does not work**
- **Too simple regulation does not truly answer to the concerns of UAS operators and authorities**
- **Too complex regulation make it costly to apply both for UAS operators and authorities**
- **But regulatory framework is key to enable UAS operations**

Standards

- **Discussions between supporter of Aviation standards and non-aviation standards (mobile network, etc.)**
- **Standardization activities have started in various groups (Eurocae, etc.)**
- **Focusing on e-identification, UAS positioning and geo-fencing**
- **Standardization will take times...**

UTM – Concept of operations

- **Fully centralized UTM services**
 - ❑ All the UTM services are provided by a single entity having a mandate from the CAA
- **Partially centralized UTM services**
 - ❑ Only « core » services are provided by a single entity in a single area having a mandate from the CAA
 - ❑ All « non-core » services are provided by various actors in the same area with less constraints than for the « core » services
- **Fully decentralized UTM services**
 - ❑ All UTM services are provided by multiple actors in the same area

UTM – Deployment

- **Limited services, nation based**
- **Limited services, nation based + extended services tested in large scale test bed**
- **Extended services, nation based**

3

Best Practices, proposal

Regulation

- **Regulator should not restrict itself...**
- **...Only if UTM services are deployed in parallel of regulation roll-out**
- **UTM services and UAS on-board capability can make the regulation almost transparent for the users, whatever the complexity is**
- **International harmonisation is a long run, it should not be a key dependency**

Standards

- **Technologies related to mobile network will in a way in another fit for purpose**
- **Where mixity of manned and unmanned traffic is important, aviation technologies should be preferred (eg miniaturized ADS-B-)**
- **Standards for geo-fencing remain key and complex, however building robust data source can be done now**

UTM – Concept of Operations

- **One size does not fit all, the concept of operation may vary from a country to another**
- **« Core » services impacting safety and security should be delegated to a single and certified organization**
- **Access to « core » services by third party application should be facilitate via qualification process and open APIs**
- **« Non core » services should be based on open market principles**

UTM – Deployment

- **Initial services can be set up now (UAS registration, automated operation authorizations, etc.)**
- **Some other need further works, large scale and representative test bed should be set up for maturing more complex services with the involvement of all stakeholders**
- **It is not a one shot approach, UTM services will be roll-out step by step**



*Enabling safe, secured
and efficient airspace
management for manned
and unmanned
operations*

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