



DRONE ENABLE

Towards a common framework for UTM
The Italian experience

Montreal, 22 September 2017





Presentation

1. Setting the scene
2. Italian implementation of UTM
3. First achievements
4. Roadmap for future growth
5. Conclusions

Setting the scene



Challenges related to Drones

	Airspace safety & reliability	Rapid growth of drones, without proper regulation and dedicated supporting services, impacts airspace safety and reliability
	Airspace accessibility	Drones need to be safely accommodated
	Creation Of Public Value	Strong concerns about security and privacy Urgency to unlock the enormous potentials promised by full exploitation of drone based services
	Financial sustainability	Innovative services offered to new kind of users need to be financially sustainable and can generate new revenue streams



Setting the scene – ENAC and ENAV work

Regulatory framework

- Geographic limitations for flying drones
- Operating condition for safe operations in VLOS
- Qualification of pilots
- Recognition of commercial operators
- Security provisions
- Registration and E-Identification of drones
- Technical and operational conditions to operate a drone in BVLOS

Setting the scene – ENAC and ENAV work

Airspace and UAV Traffic Management

- Development of CONOPS for BVLOS Operations
- UTM development and deployment as a key answer to the Drones development and integration
- Role and level of engagement of ANSPs in the UTM
- Implementation of UTM concept in the Italian Airspace

Implementing the UTM



Participation to international activities (ICAO, EASA, GUTMA, ...)



Partnership with the National Aviation Authority



Collaborative environment to launch BVLOS operations



Development and deployment of the Italian UTM solution



Partnership in the national framework

ENAC and ENAV agreement - August 2016

1. Registration and E-Identification

Provide a system for web registration (www.d-flight.eu). ENAV is indicated as the Provider of the Registration and e-identification services for drones (currently only those for professional use) on behalf of ENAC

2. BVLOS regulatory framework

Sets a collaborative framework to enable BVLOS operations:

- BVLOS concept of operations (2016)
- BVLOS validation campaign (2017, ongoing)
- Setting of regulations and standards

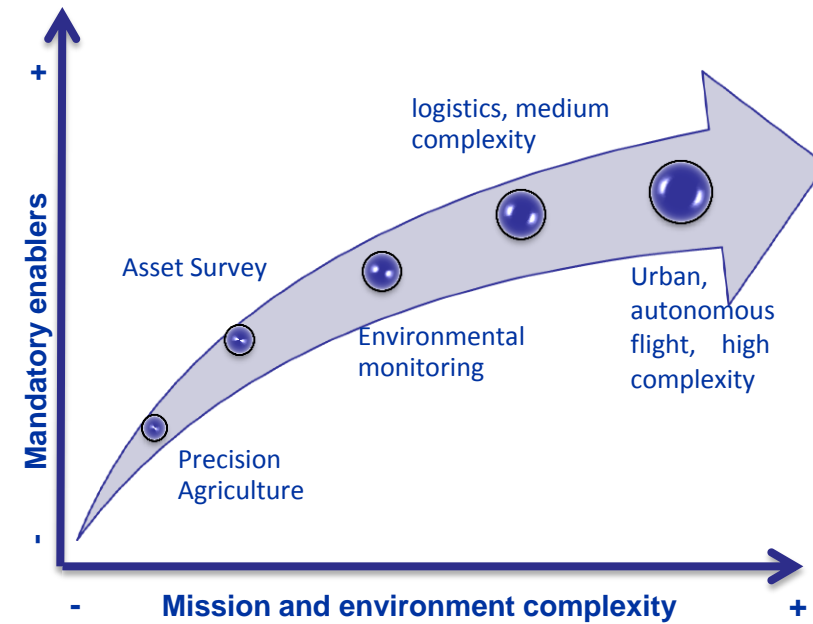
3. Infrastructure

ENAV commits to the development and deployment of the UTM system infrastructure in Italy



Collaborative environment to launch BVLOS operations

- Face to face meetings and activities involving ENAC, ENAV, and key national industrial players, public entities and drones operators
- BVLOS concept of operations released
- Ongoing validation campaign on the field
- Focus on the Asset Survey

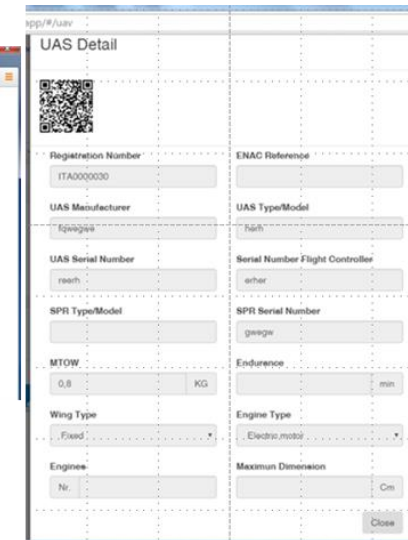
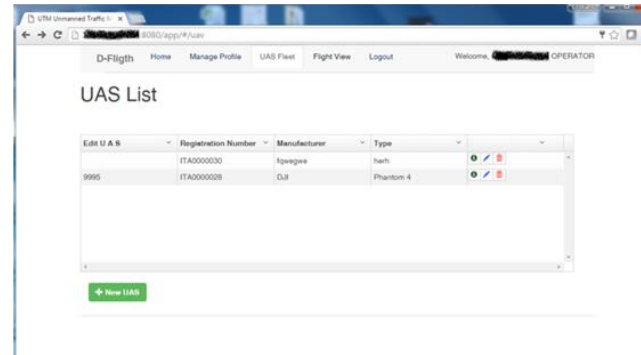
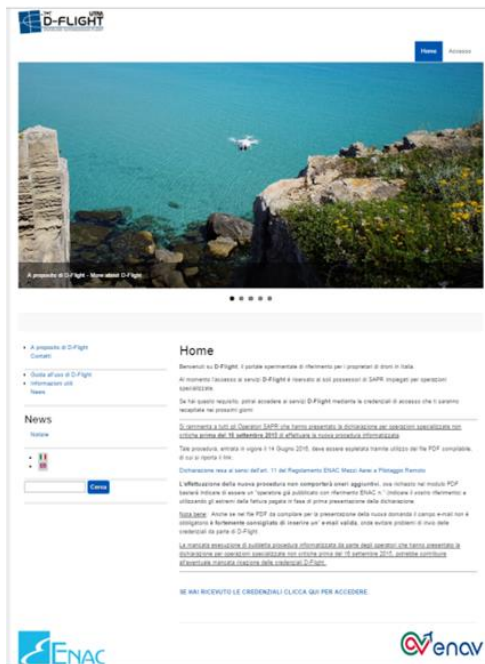




Development and deployment of the Italian UTM solution: the first achievement

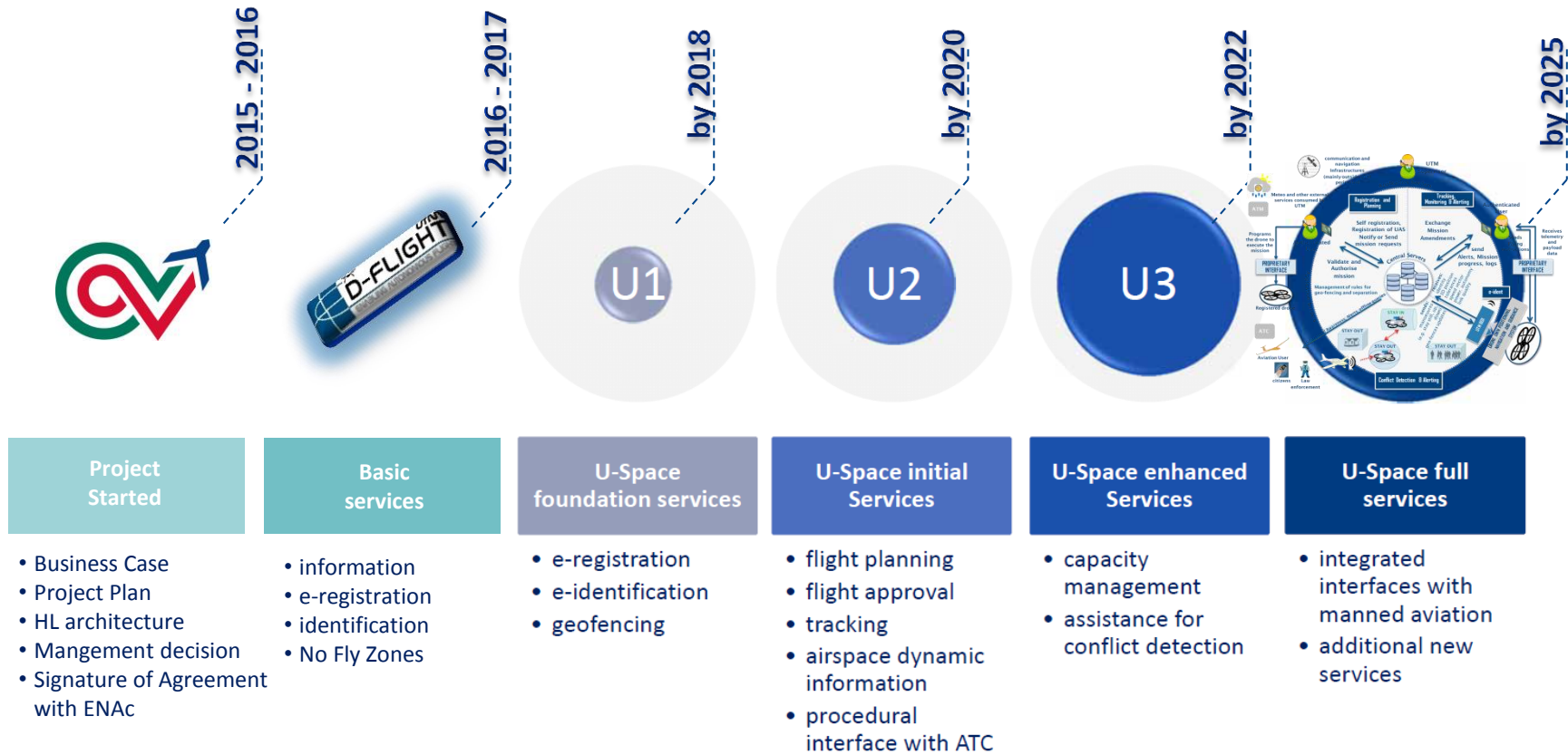
D-Flight WEB portal (www.d-flight.eu) – July 2016

- Useful public information about drones
- Maps and No Fly Zones (beta testing)
- Registration and (static) identification of drones





Development and deployment of the Italian UTM solution: the roadmap





Development and deployment of the Italian UTM solution: identification and e-identification

Static: before flight, a QR code encoding the registration number (**UIC**) has to be attached on the drone frame;

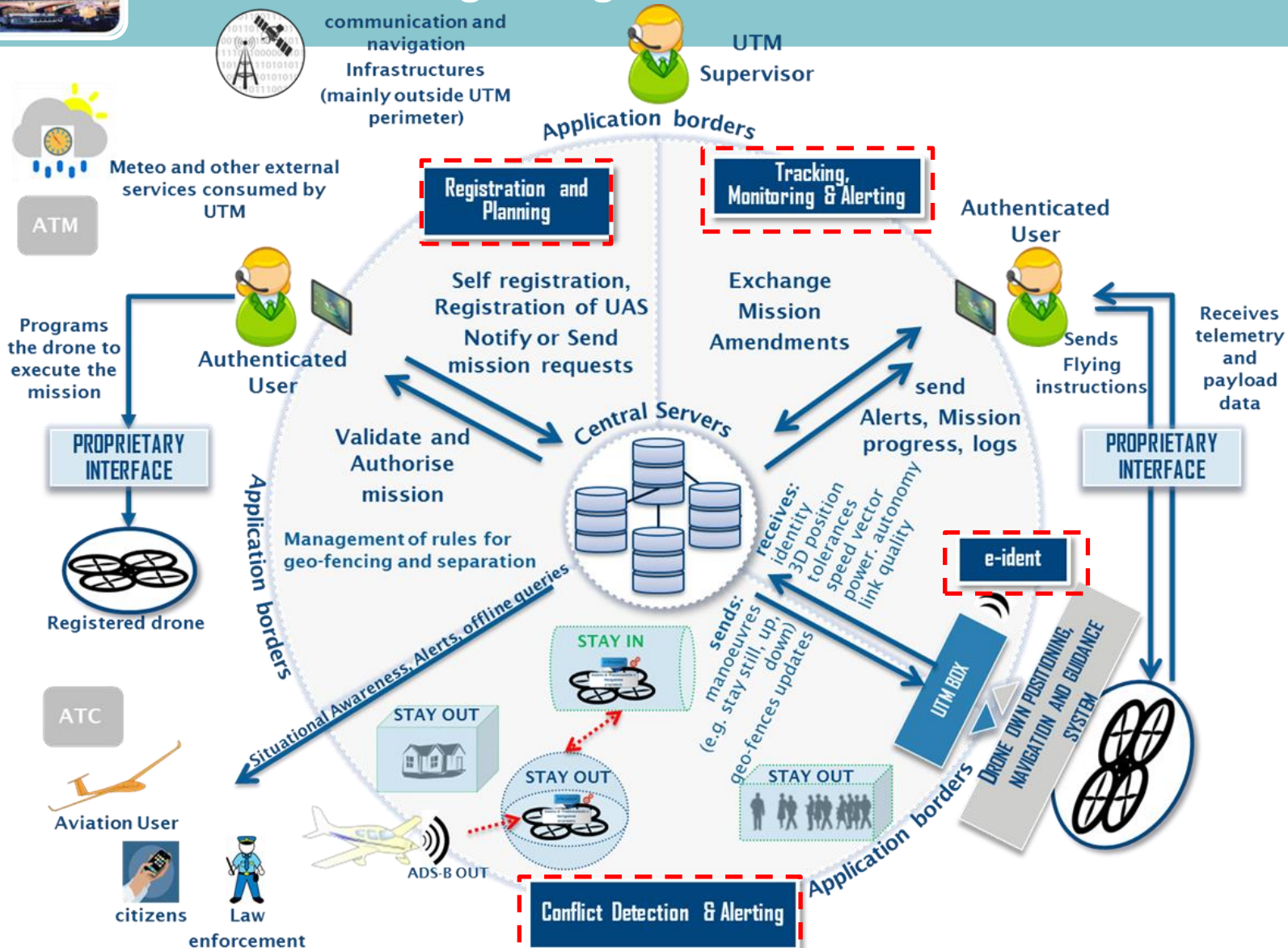
Dynamic: the drone broadcasts its encoded **UIC** in the surrounding portion of airspace, e.g. by RF.

Whoever concerned should be able to read the **UIC** and decode it with e.g. a smartphone. The identification process can be completed by querying www.d-flight.it, using the **UIC** as the key. The level of information accessible will depend upon the permissions granted to the *identifier*.

E-identification should be possible regardless the availability of mobile communication means



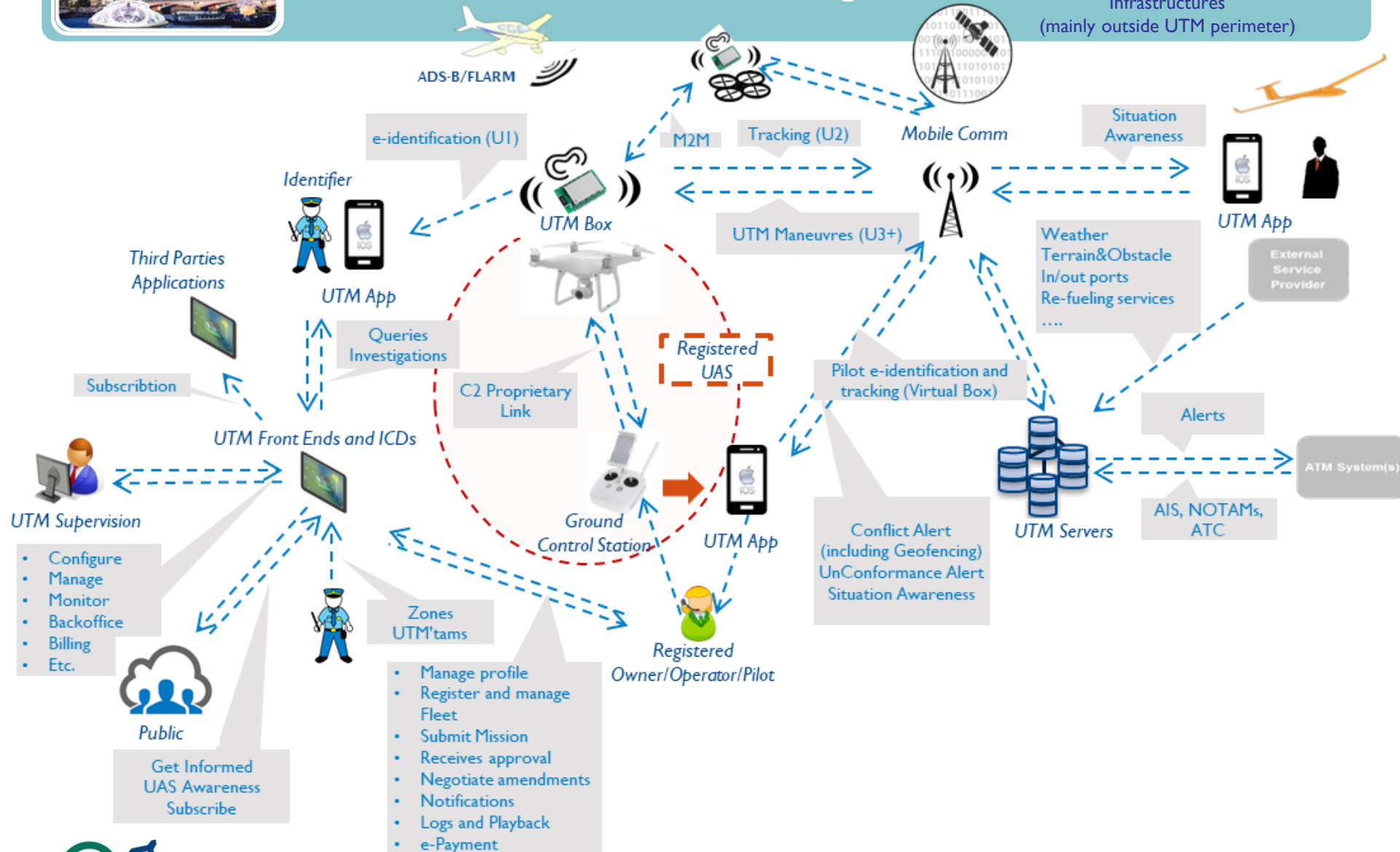
Development and deployment of the Italian UTM solution: d-flight target architecture





Development and deployment of the Italian UTM solution: the contextual diagram

communication and navigation Infrastructures (mainly outside UTM perimeter)





Development and deployment of the Italian UTM solution: financial sustainability

In early 2016, a **Business Case** has been developed, based on available market outlooks

Main assumptions:

- Registration, e-identification, Tracking, Geofencing and Mission declaration/approval will be regulated services provided by one single Italian UTM provider
- Users will be charged based on services they use
- A set of more advanced and business oriented services, not subject to regulation, will be proposed by the UTM provider, at competitive prices in the open market.

On such assumptions, the Business Case yields a positive ROI within a 3/5 years period, depending on best and worst expected growth, in particular of BVLOS operations



Development and deployment of the Italian UTM solution: the PPP

D-Flight will be further developed and deployed by a Public Private Partnership (PPP), between ENAV and an industrial partner, being selected through an open competitive tender

- Selection process is ongoing:
 - it was started in August 2016
 - it will be finished by 2017
- The industrial partner will act as the main technological supplier
- ENAV will retain control of the PPP



Conclusions

- UTM is a key element to answer the challenges related to Drones
- Institutions, States and Stakeholders have to cooperate to:
 - respond to market and social demand
 - timely support full exploitation of drones potentials and benefits
 - ensure safe and secure integration of drones in the airspace
 - identify a financially sustainable framework
- ENAC and ENAV have started the development and deployment of UTM in Italy