

U-space

Regulatory framework

Workshop

14-15 May 2019

Your safety is our mission.



Welcome & Keynote address

Patrick Ky

EASA Executive Director



General and workshop information

- Visitors' badge
- Workshop name badges
- Location
- Lunch and coffee breaks

- Agenda
- Speakers
- Working document
- End of meeting

09:00 H – 09:30 H	REGISTRATION OF PARTICIPANTS
09:30 H – 09:40 H	WELCOME & KEYNOTE ADDRESS Patrick KY, EASA Executive Director
09:40 H – 10:00 H	INTRODUCTION & SCENE SETTING Koen DE VOS, DG MOVE, EC Maria ALGAR RUIZ, EASA
10:00 H – 10:50 H	WHAT IS THE U-SPACE AND WHY A SEPARATE REGULATION (Q1 & Q2) Introduction : Koen DE VOS, DG MOVE, EC
10:50 H – 11:15 H	COFFEE BREAK
11:15 H – 11:45 H	HOW CAN WE ESTABLISH THE U-SPACE (Q3) * Introduction: Ron VAN DE LEIJGRAAF, Ministry of Infrastructure and the Environment, The Netherlands
11:45 H – 12:15 H	WHAT IS THE RELATION BETWEEN U-SPACE AND ATM (Q4) * Introduction : Nicolas MARCOU, DGAC France
12:15 H – 13:15 H	LUNCH BREAK
13:15 H – 13:45 H	WHAT ARE THE U-SPACE SERVICES (Q5) * Introduction: Francine ZIMMERMANN, FOCA Switzerland
13:45 H – 14:15 H	WHO CAN BECOME U-SPACE SERVICE PROVIDERS (Q6) * Introduction: Francine ZIMMERMANN, FOCA Switzerland
14:15 H – 14:45 H	WHAT RULES WOULD APPLY IN THE U-SPACE (Q7) * Introduction : Ron VAN DE LEIJGRAAF, Ministry of Infrastructure and the Environment, The Netherlands
14:45 H – 15:15 H	COFFEE BREAK
15:15 H – 15:45 H	FINANCING OF THE U-SPACE SERVICES (Q8) * Introduction : Darowska MALGORZATA, CAA POLAND
15:45 H – 16:00 H	DRAFT REGULATION RULE STRUCTURE Ken ENGELSTAD, EASA
16:00 H – 16:30 H	CONCLUSIONS & NEXT STEPS EC/EASA

U-Space: Which way to go?

DG MOVE E4
Member State and Industry Consultation Meeting
14-15 May 2019

U-Space – what's next?

What to regulate – some basics



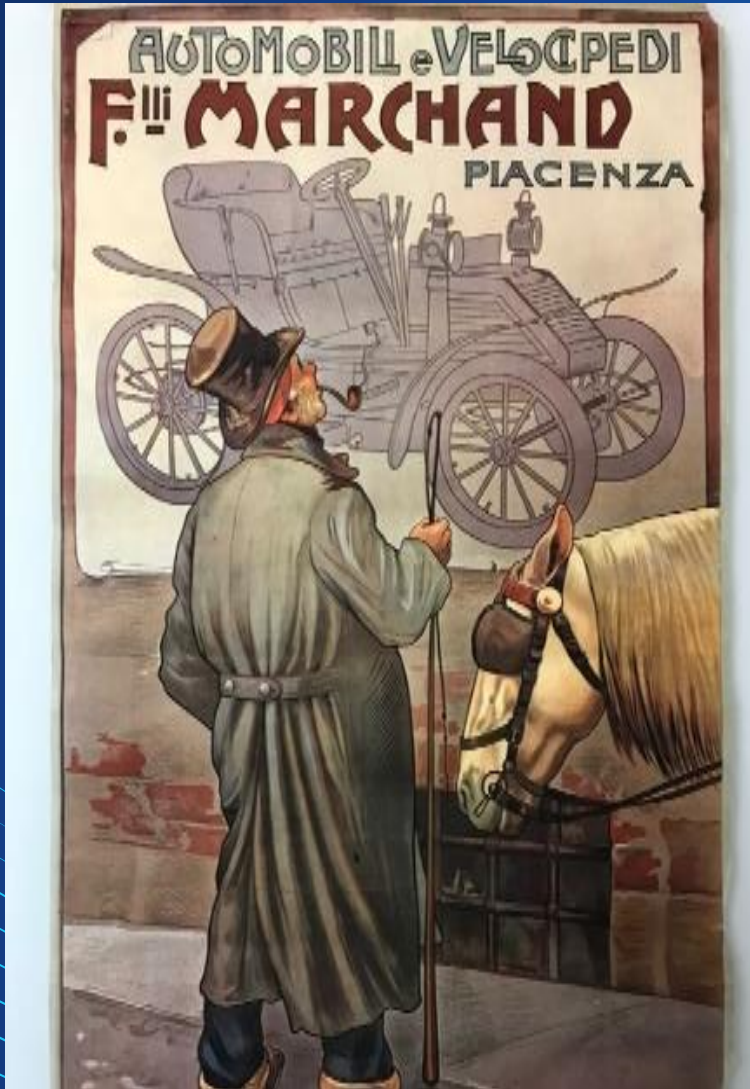
- Drones = combination of technologies that drive **automation** – especially smart phone features (battery, autopilot, sensors...).
- **Digital** technologies develop **FAST**



European
Commission

U-Space – what's next?

Disruptive



@Bulc_EU

Mobility and
Transport



European
Commission

U-Space – what's next?

Disruptive



**MOTHERS LOOK OUT FOR YOUR CHILDREN!
ARTISANS, MECHANICS, CITIZENS!**

When you leave your family in health, must you be hurried home to mourn a

DREADFUL CASUALTY!

PHILADELPHIANS, your RIGHTS are being invaded! regardless of your interests, or the LIVES OF YOUR LITTLE ONES. THE CAMDEN AND AMBOY, with the assistance of other companies without a Charter, and in VIOLATION OF LAW, as decreed by your Courts, are laying a

LOCOMOTIVE RAIL ROAD!

Through your most Beautiful Streets, to the RUIN of your TRADE, annihilation of your RIGHTS, and regard less of your PROSPERITY and COMFORT. Will you permit this? or do you consent to be a

SUBURB OF NEW YORK !!

Rails are now being laid on BROAD STREET to CONNECT the TRENTON RAIL ROAD with the WILMINGTON and BALTIMORE ROAD, under the pretence of constructing a City Passenger Railway from the Navy Yard to Fairmount!!! This is done under the auspices of the CAMDEN AND AMBOY MONOPOLY!

RALLY PEOPLE in the Majesty of your Strength and forbid THIS

OUTRAGE!



@Bulc_EU

Mobility and
Transport

U-Space – what's next?

... and fast

Easter morning 1900: 5th Ave, New York City. Spot the automobile.



Source: US National Archives.



@Bulc_EU

Mobility and
Transport

U-Space – what's next?

... and fast

**Easter morning 1913: 5th Ave, New York City.
Spot the horse.**



Source: George Grantham Bain Collection.



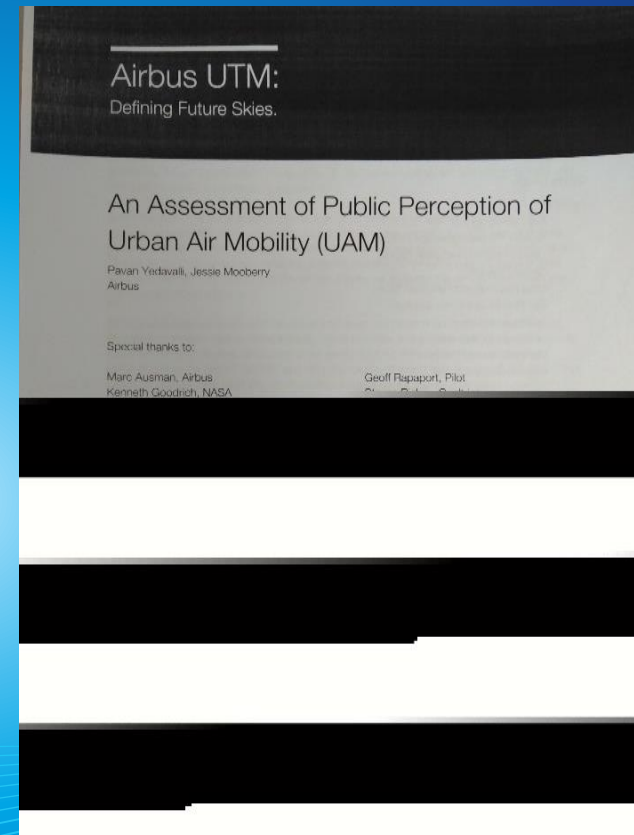
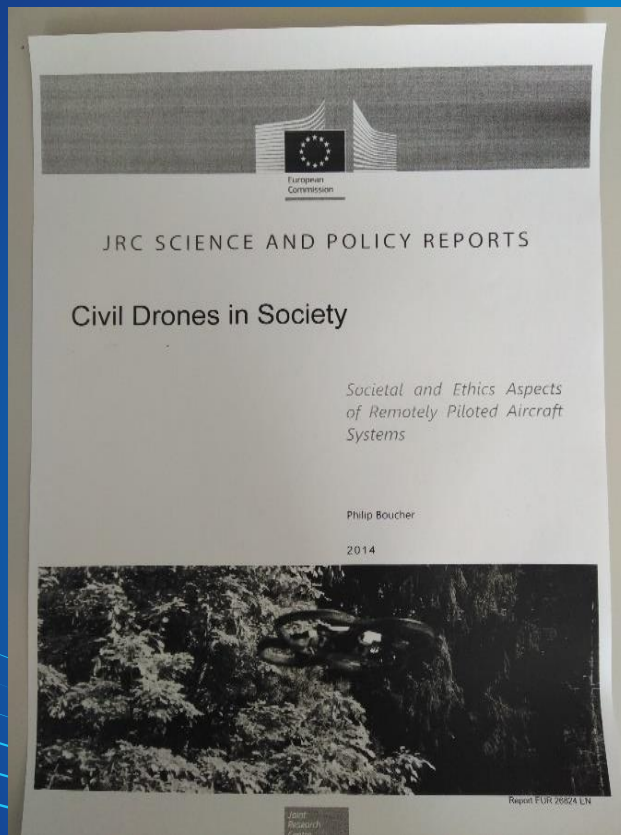
U-Space – what's next?

Burden or a boon?



U-Space – what's next?

A burden: Societal concerns:



The regulatory framework



	Drone rules (Airworthiness, Competence, Operations)	Drone airspace rules (Types of airspace and modalities)	U-Space (Access to airspace)
Principles	EP and Council EASA regulation 11/09/2018 ✓	EP and Council EASA regulation YES ✓	EP and Council EASA regulation YES ✓
Implementing rules	Drone operating Regulations May 2019 ✓	Rules of the Air Mid 2020	U-Space Regulation Mid 2020
Compliance	Standards / AMC	Standards / AMC	Standards / AMC
	Operation Centric Approach	Adapt to local characteristics	Fair access to airspace

U-Space – what's next?

Drones extend the aviation scope



- EU rules reflect “Operation centric approach”
 - Open category: buy and fly – strict limits
 - Specific category: assess the risk
 - Certified category: traditional certification

CREATING A DRONE SERVICES MARKET

What is the problem?

➤ Take a leap:

Now – by 2035:
30k flights – 20k flights
in EU – over 1 city
per 24 h – per 1 h



**We need a digital system automating
air navigation service provision**

U-Space – what's next?

U-space as ENABLER for drone services market & mitigate air risk





CREATING A DRONE SERVICES MARKET

How wants Europe deliver the U-Space?

Working group
Prepare opinion
Consult





INTRODUCTION & SCENE SETTING (II)

Topics being discussed during the WG's meeting:

- What is U-space, objective of the regulation?
- Why a separate regulation?
- Link between U-space and ATM
- Applicability of SERA in the U-space, flight rules and airspace classification
- What are the services that needed to be regulated?
Performance requirements?
- Approval scheme of U-space service providers
- Who pay?

Let's discuss them during the workshop



INTRODUCTION & SCENE SETTING (III)

- What are the important points that need to be resolved from a **safety point of view**?
 - Clear regulation with clear roles and responsibilities – safety accountabilities
 - Clear applicability: airspace, airspace users, which services
 - Well defined regulated services, and performance requirements
 - Clear requirements for services providers to be met to become a provider and to be met to provide services in a continuous manner
 - Clear requirements for airspace users to be met
 - Clear interface with ATM as needed



WHAT IS THE U-SPACE? (Q1) WHY A SEPARATE REGULATION? (Q2)

Koen De Vos, EC - DGMOVE



Coffee break



HOW CAN WE ESTABLISH THE U-SPACE? (Q3)

- Regulation as a the legal basis to establish the U-space framework
- Responsibility of the Member States for designating the volume of airspace where U-space services should be provided
 - Consideration for State and MIL operations
- Local authorities have a role in the establishment of U-space
 - Considerations for local and urban needs
- Service level (performance) requirements as an important criteria to establish the U-space

Let's discuss!



WHAT IS THE RELATION BETWEEN U-SPACE AND ATM ?(Q4)

- Both ATM and U-space systems seen as being complementary
- Strong interactions and robust interface needed
- Exchange of data between both systems to achieve high level of safety

Let's discuss!



Lunch break



WHAT ARE THE U-SPACE SERVICES ? (Q5)

- Regulation to enable operators to take credits for services by establishing some approval processes for basic common services to open the U-space service market
- Standards are needed
- Services need to be performance-based
- Services need to mitigate the risks
- Services need to be defined by how many operators/operations will benefit from them
- Services will need to have the ability to evolve overtime

Let's discuss!



WHAT ARE THE U-SPACE SERVICES ? (Q5)

The U-space basic services shall meet the following objectives:

- (a) To support user registration
- (b) To identify and track the unmanned aircraft
- (c) To support communication and connectivity
- (d) To support navigation of the UAS
- (e) To ensure the flight authorisation of each individual UAS flight
- (f) To provide traffic information and awareness
- (g) To provide Minimum Weather information
- (h) To avoid Terrain collision
- (i) To avoid airspace Infringement Avoidance
- (j) To avoid Mid-air Collision



WHO CAN BECOME U-SPACE SERVICE PROVIDERS ? (Q6)

- Any organisation meeting the requirements
- Approval by the competent authority
- Quality of services and safety criticality essential criteria based on the risks

Let's discuss!



WHAT RULES WOULD APPLY IN THE U-SPACE ? (Q7)

- Specific rules for U-space seen as most appropriate
 - Priority on air traffic, airspace classes
 - For both manned and unmanned operations
 - SERA to be used a source of inspiration for U-space?
- Today, SERA cannot be applied for UAS operations
- Rules to facilitate harmonised application of U-space while considering local needs

Let's discuss!



FINANCING OF THE U-SPACE SERVICES (Q8)

- Principle: users of the U-space services to pay for the service
- Costs will depend on:
 - types of UAS operations
 - Need for quality of services
- U-space market subject to competition in the same volume of airspace
- U-space costs expected to be lower than current ATM costs
 - Use of existing infrastructure
 - Digitalised services mainly

Let's discuss!



Next steps and envisaged timeline

- **7 June 2019: Working group meeting #6**
- **September:** *draft opinion published - focused consultation*
- **October:** *Adoption of Opinion*



DRAFT REGULATION RULE STRUCTURE

U-space Regulation (EU) xxx/xxxx

Chapter I
Principles and
general
requirements

Chapter II
Establishment of
the U-space

Chapter III
U-space actors

Chapter IV
U-space
services
provision

Chapter V
U-space service
providers
approval

Chapter VI
Competent
authorities

Chapter VII
Pricing of U-space
services

Chapter VIII
Final provisions



Closure

END OF WORKSHOP

THANK YOU FOR ATTENDING THIS EVENT

HIGHLY APPRECIATED!

