

The Unmanned Aircraft Systems Traffic Management (UTM) Regulation

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1. Introduction

It is of strategic importance that the European UTM industrial base has a forum to identify and develop a coordinated strategy and action plan. It is also critical that an open dialogue is maintained with its stakeholders, such as; the European Commission (e.g. DG MOVE), the European Aviation Safety Agency (EASA), EUROCONTROL, SESAR Joint Undertaking, air navigation service providers, standardisation bodies, national governments (e.g. national aviation authorities) and other institutions including international bodies. As a result, the AeroSpace and Defence Industries Association of Europe (ASD) has created a working group dedicated to UTM topics. The newly established UTM Sub-Group will represent the interests of ASD Members (companies and associations) regarding civil UTM research and initiatives, by developing policies, formulating strategies and projecting one voice to UTM stakeholders. To this end, it will:

- develop industry positions which will support the enhancement of European UTM civil capabilities and the related European industrial base;
- obtain political support for common European and, where possible, global requirements related to UTM;
- be the common European forum for this industry sector and ensure that areas of common interest are identified and that necessary actions are developed and performed; and
- be the recognised reference within ASD for public and private institutions on issues pertinent to UTM.

This Position Paper has been prepared by the ASD UTM Sub-Group and contains Industry's common views on the U-Space Regulation and the future of UTM in Europe.

About ASD

The AeroSpace and Defence Industries Association of Europe represents the aeronautics, space, defence and security industries in Europe in all matters of common interest with the objective of promoting and supporting the competitive development of the sector. Its membership comprises major European aerospace and defence companies as well as national associations.

2. Welcome UTM Regulation

New types of aircraft are seeking access to the airspace in order to provide new services and businesses to society. These include urban air mobility (UAM) vehicles and small unmanned delivery vehicles (UAS). The integration of these new air vehicles will place additional pressure on the existing aviation system and is one of the critical issues that the aviation industry will face in the future. ASD welcomes the European Commission's desire to provide Europe with legislation on UTM. The successful development and implementation of UTM should be based on a new regulatory framework developed in close co-operation with regulatory authorities (EASA and national aviation authorities), service providers, standards bodies, international associations and the aerospace industry (including start-ups).

It is essential that new regulations are built on the basis of the knowledge already acquired by the different stakeholders and that they are aligned with the technological vision developed with the support of the European Commission within the Single European Sky ATM Research Joint Undertaking (SESAR-JU).

This new regulatory framework should support the development of a sector which brings together a large number of stakeholders with very different operations. Appreciating that this is not an easy task, ASD wishes to emphasise the need for such regulations and is ready to engage with all relevant stakeholder to help ensure the safe and efficient introduction of new vehicle operations and the associated traffic management system(s).

3. Technology Agnostic

The industry is generating innovative U-Space solutions, based on a wide range of different technological approaches that need to be supported by an adaptive and evolving U-Space regulation.

In order to avoid quick obsolescence, there is a need to produce a technology agnostic regulation, that is adaptable for the long term, and is not designed too hastily resulting in a catalogue of technical solutions which *de facto* would lead to a prescription of technical choices.

The regulation needs to focus on keeping the airspace environment safe, while also facilitating the development of new types of air vehicles and systems, regardless of the technology used.

Cybersecurity, as part of both safety and security, must be adopted through any UTM regulatory actions, to reduce vulnerabilities and minimise any cyber threats.

In the current developments of U-Space solutions in the European Member States, different architecture models are already being proposed. We agree with architectures that promote a competitive open market. Such architectures will evolve with technology and with developing standards, and will be adapted to the particularities of every country. Regulations should be flexible in this aspect in a similar way to the technological approach.

4. Regulation Needs Focus

ASD is supportive of a U-Space regulation that will handle this large and fast paced ecosystem in a sustainable and extendable way.

Future aviation operations will see the gradual adoption of more autonomy and artificial intelligence-based systems for both aircraft and traffic management. This will present challenges around the world and will most likely require a more science-based approach to safety assessment and the development of new methodologies to validate and certify future operations. This will ensure robustness and transparency for both industry and the public.

ASD strongly believes that a successful regulation, scoped in a well-defined and forward-looking process, will be key to success.

A conceptual and technology agnostic regulatory frame for U-Space, which defines roles, components, performance and interactions should set a solid foundation in shaping domain aspects of the regulation.

Defining an iterative process for more detailed and future work, whether through adoptions or extensions, would provide a flexible but strong framework for the U-Space regulation to evolve.

Different work areas should be decoupled and discussed in more detail at their own readiness, matching the respective maturity level. Separating elements - such as service definitions, airspace usage, market shaping and role definitions - into their own regulatory artefacts would help tremendously in dealing with the challenges of the larger problem space.

In short, a focused regulation, built for adaptability and extensibility will unlock the potential of U-Space in a sustainable and safe way.

5. Integrated Operations

UTM and the digitalisation of the European airspace provides a significant opportunity to positively evolve traffic management in general. The UTM concepts and services are an opportunity for establishing the building blocks for the management of all airspace, for all users, into the future.

ASD envisions a phased development of UTM capability, in particular for more advanced operations involving autonomous operations and artificial intelligence. We also see a gradual transition of proven UTM functions and services being incorporated into the ATM system as a whole.

A separated approach (UTM / ATM) only creates more complexity and fragmentation. Airspace users and service providers will need additional equipment and training to deal with the different environments. To fully unlock the U-Space potential as well as to further boost innovation in ATM, we strongly believe an integrated approach is necessary.

Both unmanned or manned aircraft will share the same airspace, and should share a common set of services and procedures. Segregated U-Space operations should be an intermediate step to allow initial implementation. The longer UTM and ATM are separated, the harder and more complex it will be to

integrate the two disciplines in the future. In order to build the safest and most robust systems possible, a single global airspace operational concept (including for low altitude), with associated standards needs to be defined and adopted.

The evolution of the European airspace, through accelerated digitalisation, is a vehicle to help the convergence of UTM and ATM. Digital standards (linked to U-Space), such as remote and digital identification of aircraft, have applicability across the wider aviation community. For example, common digital data sources for UTM will be key to set a foundation for convergence. In particular, alignment of concepts of operation and risk profiles (manned and unmanned aircraft in shared airspace) and a common risk assessment methodology for UAS operations and traffic management (UTM / ATM) is necessary. The ultimate goal being an integrated air traffic management system, as part of the Union's future Horizon Europe R&I programme.

6. Conclusion

Considering the above, the ASD considers the following areas critical to successfully delivering an integrated traffic management system of the future, where all stakeholders need to:

- work together to facilitate the safe integration of new air vehicle operations;
- create a global airspace operational concept and standards for integrated air traffic management;
- ensure the U-Space regulation helps facilitate the convergence of UTM and ATM with a goal of one integrated air traffic management system and operating concept;
- ensure interoperability of UTM with manned aviation and existing ATM systems;
- guarantee that the U-Space regulation is scalable, performance based and technology agnostic;
- safeguard that European research and demonstration activities promote a working environment to ensure alignment and convergence between UTM and ATM;
- ensure common risk assessment methodology for UTM and ATM operations; and
- promote the European U-Space globally with key stakeholders, including the International Civil Aviation Organization (ICAO) and national aviation authorities, to ensure interoperability.

[Signed by] ASD Secretary General, Jan Pie, 21 February 2020