WE ARE ALL ONE IN THE SKY

Five key principles for a successful regulatory framework for unmanned aviation operations & unmanned traffic management (UTM / U-Space)

The safe, secure and sustainable integration of unmanned aircraft or 'drones', into the airspace is one of the critical issues facing the aviation industry today. Drones will revolutionise many aspects of everyday life, from the way people travel, to agriculture, policing, mapping, deliveries, maintenance, asset management and construction. However, the proliferation of drones also raises questions about how to handle their integration without compromising safety or security or disrupting current airspace operations, and about the regulatory initiatives.

The European Commission's U-Space initiative aims at providing an overarching policy for this phenomenon in Europe. The regulatory framework under development by the European Union Aviation Safety Agency (EASA) and the European Commission, which gives effect to this policy, is crucial to ensuring that the drone (new entrants) services industry is able to develop safely, securely and sustainably alongside the manned aviation industry.

The *We are ALL ONE in the Sky* initiative supports the creation of a proportionate, risk- and performance-based regulatory framework to enable the drone services industry to flourish, and – crucially – to provide for a safe, secure and efficient operation of manned and unmanned aviation. We are committed to supporting the integration of drones safely alongside today's manned aviation industry and believe that establishing a European regulatory framework to support this is an important step towards achieving this. We, the manned and unmanned aviation industries, need to work together on the development of the means of mitigation to ensure the safe and orderly execution of efficient flight operations.

It is of utmost importance that the entire European aviation framework for drones is developed in a transparent manner, with the involvement of all stakeholders. We consider that there are five critical principles which need to be addressed in any European regulatory framework:

1. **Enable common airspace situational awareness through information exchange**

As the *We are ALL ONE in the Sky* initiative has consistently said, 'information integration is key' to integrating drones safely alongside manned aviation. Any regulatory framework must therefore ensure the availability of a consistent flow of information between all actors who may need to use the airspace. That framework shall take into consideration the legitimate need of some users to have their flight information protected (e.g. the military or police, or even some commercial operators).

However, to deliver both safe and secure operations it is essential that a common and shared picture of the airspace, and any operations taking place within it at any given

time, is available for those providing traffic services (air traffic management (ATM) and UTM/U-Space) and other stakeholders with a major strategic interest (e.g. airport operators). This will enable the integration of manned and unmanned operations in controlled and uncontrolled airspace and ensure safe, secure and effective cooperation between manned and unmanned operators. It will prove especially important in non-nominal situations where unexpected developments need to be communicated between multiple actors, without increasing air traffic controllers' workload, and in uncertain situations.

2. Clarify the responsibilities and liabilities to be borne by different actors

The responsibility and liability of all actors using and managing the airspace must be clearly defined. For instance, when considering the creation of volumes of 'U-Space' airspace in a flight information region (FIR) where ANSPs have full responsibility, the regulatory framework needs to make clear where responsibilities and liabilities lie.

Clarity also needs to be provided on the relationship between existing air navigation service (ANS) regulations, Standardised European Rules of the Air (SERA) and the U-Space regulatory framework. This also applies in terms of the ICAO rules of the air, including right of way and required equipment to enable position reporting of all airspace users. The particularities of the present operation of manned aircraft (e.g. hand-flown rescue, police helicopters, general aviation and air sports) versus new technologies of unmanned systems (e.g. sense, and detect and avoid) need to be considered. Without addressing these and avoiding a lack of coordination between interfaces, the regulatory framework is likely to generate unacceptable legal risks for operators and service providers.

The protection of airports and aerodromes and the area in their vicinity regarding the unlawful use of drones must be clearly addressed. Entities responsible for policing illegal acts must be appointed, and local particularities identified (e.g. geography, environment, obstacles and traffic flows). There is also an emerging and urgent need for standardisation, through the creation of industry standards, on counter-drone technologies (C-UAS or malicious). To prevent any disruption, a two-fold strategy should be implemented: the airspace around an airport/aerodrome needs to be protected, based on risk, to prevent unauthorised drones from entering it and unauthorised drone activities need to be detected at the earliest possible stage.

3. Maximise airspace capacity and value through integration, not segregation

Airspace is a finite resource with a growing number of actors – such as for manned and unmanned commercial, general aviation and air sports, military and search & rescue operations – all wanting to use it. Creating a mature framework that enables different categories of cooperative users to share the airspace is the best way to ensure fair and equitable access for all. It is also fundamental to unlock the true value of the drone (new entrants) services industry.

Some of the most beneficial potential applications for drones exist in areas where other aircraft are likely to operate – from close to airports to offshore oil rigs where helicopters may operate. Furthermore, there will be occasions when certain actors

(e.g. emergency service helicopters) need to enter airspace that might predominantly be used by another type of user.

Enabling this efficient integration and safe co-existence between manned and unmanned aircraft is in large part dependent on the information exchange referenced above.

4. Maintain & improve today's high safety level

The regulatory framework must ensure that the existing high levels of aviation safety[1] are maintained and steps are taken to improve on the current situation, while recognising that the means of achieving the same level of safety level for drones, in many cases, differ to the means required of manned operations. To maintain the same level of safety, separation must be guaranteed under any circumstances – even with small drones (up to 25 kg) in the Open category. Any failure or malfunction of UTM or U-Space service provision could be potentially detrimental not only to the safety of the drone operations, but also to the safety of ATM of manned aviation, due to the potential interaction of unmanned aircraft with the safety envelope of manned flights. Therefore, and for the sake of a safe development of a new technology, it is important to set up a voluntary strict reporting incident platform (non-punitive, based on Just Culture) as well as to initiate any tasks pertaining to the analysis of such events as stated in Regulation (EU) No 376-2014, as amended by Regulation (EU) 2018/1139, on mandatory reporting, analysis and follow-up of occurrences.

5. Create a flexible framework to accommodate an evolving industry

The drone industry is in its early stages and further developments are happening at a dynamic pace. Many demonstrations are currently taking place to explore how future drone operations might be undertaken, how multiple UTM/U-Space service providers can operate in the same airspace, and how manned and unmanned operations can co-exist, including EU-funded activities. Furthermore, many drone operators are liaising already with UTM/U-Space service providers, ANSPs and national regulatory authorities to be provided with the services they need to begin their operations and achieve the safety cases necessary to operate.

The regulatory framework must allow this to continue and not adopt too prescriptive an approach that risks setting the industry on a particular course or excluding certain players before its full operation is properly understood.

The performance-based regulatory approach should be embraced so that no specific architecture is made mandatory at this stage; this would enable the development of the most efficient and sustainable systems from all points of view.

Nevertheless, proper regulatory oversight and enforcement must be assured in order to maintain a level playing field and common rules, even beyond the jurisdiction of one Member State. This will ensure cross-border operations and fair competition.

[1] The year 2017 was the safest ever in history

List of Members of the We are ALL ONE in the Sky initiative:

- Airlines for Europe (A4E)
- Airports Council International Europe (ACI EUROPE)
- AeroSpace and Defence Industries Association of Europe (ASD)
- Air Traffic Controllers European Unions Coordination (ATCEUC)
- Civil Air Navigation Services Organisation (CANSO)
- Europe Air Sports
- European Business Aviation Association (EBAA)
- European Cockpit Association (ECA)
- European Helicopter Association (EHA)
- European Regions Airline Association (ERA)
- European Transport Workers' Federation (ETF)
- General Aviation Manufacturers Association (GAMA)
- International Council of Aircraft Owner and Pilot Associations (IAOPA)
- International Air Transport Association (IATA)
- International Federation of Air Line Pilots' Associations (IFALPA)
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- International Federation of Air Traffic Safety Electronics Associations (IFATSEA)