

European Commission Directorate General Transport & Energy



By Luc Tytgat, Head of the Single Sky & Modernisation of ATC Unit

UAS Integration: A Challenge For Europe

The Unmanned Aircraft Systems (UAS) have been used by the military for some considerable time, but they are now finding applications for non-military usage in civil environment. It is now obvious that the use of unmanned systems could highly contribute to reduce human life exposure in long, dull, dirty or dangerous missions, while providing potential economic savings and environmental benefits with less fuel consumption, less CO₂ emission, and less noise than for manned aircraft.

The production of UAS implies the use of a number of high-level technologies in the field of «sense and avoid», on-board surveillance capabilities, advanced communication systems, and 'green' flight capabilities. This requires from the industry operating in the development of such systems a large spectrum of knowledge and the ability to combine all those constituents. The development of unmanned aircraft also contributes to the improvement of manned systems, in particular in support of single pilot operations and for the development of anti-collision systems, and shall be a valuable enabler for testing and implementing new technologies and procedures for the aviation as a whole.

The Single European Sky (SES) aims to establish a European air traffic management system capable to face future growth of aviation in Europe while maintaining a high level of safety and a good quality of services. It provides a set of measures enabling safer, greener and more cost-efficient flights, putting the needs of airspace users at the core of the system. The SES establishes performance targets for air navigation services and makes use of trans-European management functions to ensure convergence between national networks and coherence of the overall Air Traffic Management (ATM) system. The SES ensures an optimum use of the scarce airspace resources for the benefits of civil and military airspace users, while enhancing the cooperation between air navigation service providers through Functional Airspace Blocks (FAB). SESAR¹ is the technological pillar of the SES, bringing together all aviation stakeholders to develop, validate and deploy a new generation of air traffic management system throughout Europe over the next 30 years.

The Single European Sky, complemented by the SESAR Programme, provides the overarching context for enabling the safe access to the airspace to all users without any discrimination, including the insertion of specific constituents like UAS. This shall be complemented by the future extension of responsibilities of the European Aviation Safety Agency (EASA) to airport operation, traffic management and navigation services, which would ensure precise, uniform and binding rules at European level as well as sound oversight of their implementation by Member States.

A full scale UAS market is unlikely to exist if the access to the Single European Sky is not fully resolved, and if appropriate legislation and regulatory materials are not developed in particular for flights conducted in non-restricted airspace. In order to answer to this need, the European Commission (EC) has already launched in 2007 the 2-year INOUI² project with the objective to complement SESAR with regard to integration of UAS in non restricted airspace. The objective is to study future requirements for the insertion of UAS in the future SES and SESAR environment

and to provide ad hoc recommendations for future decisions and developments. INOUI links all ongoing activities carried out in the field of UAS by States, International Organisations and Agencies (i.e. NATO, Eurocontrol, European Aviation Safety Agency, European Defence Agency), manufacturers, Air navigation service providers, European research laboratories. INOUI has already produced several useful and comprehensive deliverable publicly released and usable.

The EC considers its possible contribution to facilitate the insertion of UAS in a more and more constraining airspace environment. Based on the methodology applied within INOUI, the intention is to favour a multidisciplinary approach, catalysing and federating all the work done in the field of legislation, certification, research and development as well as validation and radio spectrum availability. The Community also intends to make best use of civil and military available resources, by coordinating respective efforts while ensuring the involvement of all relevant civil and military stakeholders of the sector under the legal frameworks of these entities.

The first essential objective for the EC shall be to ensure the political and societal awareness regarding the use of UAS and their potential benefits for the citizens, and to get the public acceptance for UAS flights into European skies. In parallel, it shall be necessary to elaborate with all relevant actors of the sector a consolidated European UAS Policy with clear strategic objectives and identified milestones. If ongoing actions can be federated and catalysed, Europe could provide to the civil and military UAS stakeholders, in a reasonable timeframe, options to operate UAS in non-segregated airspace under certain conditions. Based on those early benefits, additional efforts shall be required to extend the scope of activities to be allowed under appropriate legislation. This stepwise approach should create a positive environment for industry that shall be able to invest and build business plans taking advantage of the market opportunities provided by the perspective of this open airspace.

The EC is currently identifying the existing obstacles to the insertion of UAS in European airspace. This could lead to the future elaboration of appropriate measures or, when necessary regulations, to enable the emergence of new markets. The technology exists but is not yet accessible by all potential users or operators. It is now time of the sector to make the necessary efforts in connection with all relevant actors to provide European citizens with all the potential benefits that could be brought by UAS with the guarantee that the highest standards of safety shall be ensured. The EC is ready to support and catalyse all the future efforts.



¹ Single European Sky ATM Research

² INnovative Operational UAS Integration