European Commission
Directorate General Mobility & Transport

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Aviation has been mainly developed along the concept of aircraft operated with a pilot operating on board. The idea to use unmanned or remote piloted aircraft for specific applications emerged at the earliest ages of aviation, but the necessary technology was lacking to render it viable. The evolution over last years in the aerospace sector is now providing all the necessary technical tools to make the insertion of unmanned aircraft in the airspace a reality. This could also potentially answer to the new requirements in Europe for innovative crisis management tools, as revealed by the recent Eyiafjallajökull volcano crisis, but also for other potential events like nuclear or chemical incidents/accidents, or major pollutions.

Unmanned aircraft is a new paradigm for aviation, creating new potential usage, but requiring an adapted approach compared to the one applied to manned aircraft.

The Unmanned Aircraft Systems (UAS) are today principally used by the military, but there is a growing interest for non-military usage in the civil environment for a number of governmental functions, like border control, fire fighting, ground traffic surveillance, and pollution control. Unmanned systems reduce human life exposure in long, dull, dirty or dangerous air missions and could provide potential economic savings and environmental benefits with less fuel consumption, less CO2 emission, and less noise than for manned aircraft.

Current military UAS types are now migrating into new emerging civilian roles and applications, while newer designs are being tailored specifically for the civil market. 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 they shall be a valuable enabler for testing and implementing new technologies and procedures for the aviation as a whole.

By the middle of the next decade, European governmental use of UAS is expected to grow consistently for non-military applications. In the same time, important activities are conducted to develop all the required technology to enable larger UAS to integrate the opened airspace.

The full and seamless integration of unmanned aircraft in European airspace is a huge challenge for the whole aviation community. The emergence of the unmanned aircraft market is currently quite limited due to the impossibility to routinely fly unmanned aircraft within national airspaces and across national borders. The absence/lack of a single European regulatory framework encompassing civil and military unmanned aircraft prevents the development of legally authorized unmanned aircraft operations. This situation does not allow the industry to build pertinent business plans and to develop new products adapted to their clients.

The European industry needs sufficient economies of scale to be confident of a return on their investments in the unmanned aircraft segment. The future military market for unmanned aircraft alone is insufficient to effectively amortise the high costs of development and certification, unit production costs being uncompetitive or even unaffordable. In the future, internationally competitive unmanned aircraft therefore need to transcend the civil, security and defence sectors.

The context in the European Union

The Single European Sky (SES) aims to establish a European air traffic management environment capable to accommodate the future growth of aviation in Europe, while maintaining a high level of safety for the best quality of service.

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. SESAR[1] is the technological pillar of the SES, and brings together all aviation stakeholders to develop, validate and deploy a new generation of air traffic management system throughout Europe over the next thirty years.

The Single European Sky, complemented by the SESAR Programme, provides the overarching context for enabling the safe access to the airspace for all legitimate airspace users without any discrimination. Specific constituents like unmanned aircraft clearly have to be considered in that context. The insertion of unmanned aircraft has been integrated in the Single European Sky work plan and has been validated by the Single Sky Committee (SSC) and the Industry Consultation Body (ICB) since July 2009.

Under its 6th Framework Programme, the European Commission supported the INOUI[2] project, which aimed through a holistic approach to identify the necessary requirements to insert unmanned aircraft in the future Air traffic Management (ATM) environment (SESAR). INOUI federated most of the current efforts made by the sector through civil-military cooperation and a multidisciplinary approach, bringing together industry, authorities, international organizations and agencies, air navigation service providers, and others.

INOUI assessed future operational concepts for unmanned aircraft and identifies procedures and requirements, evaluating the necessary actions to be taken to insert unmanned aircraft at the earliest possible point in time. Certification requirements and related processes were also looked at, as well as the potential benefits from System Wide Information Management (SWIM). It also addressed safety issues for UAS and aimed to develop high level safety objectives and requirements. INOUI has produced several deliverables publicly available and covering concepts for civil UAS operations, and the definition of the future unmanned aircraft environment, UAS certification, safety criteria and the scope of related risks. The INOUI project results were presented to the unmanned aircraft stakeholder community in a final dissemination forum in December 2009.

The European Commission is also assessing what could be its potential role to support the emergence of the unmanned aircraft sector. Before launching concrete actions, it is necessary to fully understand the potential European industry baseline, the potentialities and benefits offered by UAS to the European citizens, and the existing obstacles to the market emergence.

[1] Single European Sky ATM research [2] www.inoui.isdefe.es/INOUI/

In order to achieve this, the EC shall meet the various stakeholders of the UAS segments through dedicated hearings. The first hearing dedicated to unmanned aircraft was conducted by DG MOVE on Thursday 8th October 2009. It was dedicated to the Light UAS segment composed of unmanned aircraft with a maximum take-off mass of less than 150 kilograms. The main objectives of this event were to understand the current European Light UAS industrial base and applications in Europe, to identify potential obstacles, enablers and best practices and to exchange directly with the European Light UAS community views and assess the future potential role of EC for the insertion of Light UAS. This first hearing was a real success and a fruitful exercise.

The hearing demonstrated that Light UAS are already used by a significant number of governmental authorities, in particular for police, customs, border control, fire fighting, natural disasters, and search and rescue missions.

A high level conference on UAS is being organised on 1st July 2010. This conference is the first one of its kind worldwide, reaching beyond the community of experts and developers. With an expected audience of about 450 senior decision makers, it will bring together Member States officials, European Union institutions representatives, end users and Industry leaders. Key-note speakers will include high level representatives of the European Commission, the European Defence Agency (EDA) and Industry.

The conference aims to:

- Increase public awareness on the European industry base in the Unmanned Aircraft Systems sector;
- Increase public awareness about the significant potential of Unmanned Aircraft Systems applications for the benefit of the citizens as well as for their governments;
- Present the potentialities offered by Unmanned Aircraft Systems in the protection of our planet's environment and resources;
- Raise political awareness to overcome current obstacles in Europe to the use of Unmanned Aircraft Systems.

This approach will ensure that a common European policy will address the required research and development activities, establish a European regulatory framework, and ultimately enable national administrations as well as civil end-user the safe and secure operation of Unmanned Aircraft Systems in Europe.

A common vision for Europe

The philosophy of this conference builds on the European vision of coordinated efforts towards innovation for a better life acknowledging the added value of UAS designed, produced and used in Europe.

This event marks a cornerstone in the efforts undertaken by the European Commission and the European Defence Agency. As the first European joint civil/security/defence initiative in the field of UAS, it widely opens the path to sustainable technological innovation and bridge into a future European UAS market. As the first UAS conference especially designed for European leaders, it creates an important opportunity to address the subject within a wider community, outlining its benefits for the European citizens and the shared approach among all end user communities.

All these activities and events should lead to the creation of a positive environment for industry, enabling the necessary investments and business prospects taking advantage of the European market opportunities, which the perspective of the open airspace creates, while demonstrating the need for a partnership between defence and civil authorities.

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