



## ASSEMBLY — 39TH SESSION

### TECHNICAL COMMISSION

#### Agenda Item 33: Aviation safety and air navigation monitoring and analysis

#### THE EUROPEAN APPROACH TO REGULATING RPAS<sup>1</sup>

(Presented by Slovakia on behalf of the European Union and its Member States<sup>2</sup>, the other Member States of the European Civil Aviation Conference<sup>3</sup>; and by EUROCONTROL)

#### EXECUTIVE SUMMARY

The European approach to Remotely Piloted Aircraft Systems (RPAS) aims at allowing a flexible, yet harmonised, regulatory framework in the European Union, addressing safety while allowing this growing and very creative industry to flourish.

This information paper describes the proposed EU regulatory framework and how features such as an operation centric, proportionate, risk and performance-based approach, are to be achieved.

<i>Strategic Objectives:</i>	This working paper relates to all Strategic Objectives.
<i>Financial implications:</i>	N/A

### 1. INTRODUCTION

1.1 RPAS technologies are a promising jobs and growth creator. The European Union (EU) is in the process of amending its common aviation safety rules to accommodate RPAS operations. This legislative change falls within a broader Aviation Strategy, the '*Aviation Strategy to Enhance the Competitiveness of the EU Aviation Sector*' adopted by the European Commission on 7 December 2015.

<sup>1</sup> For the purpose of simplification the term RPAS is used in this Information Paper, but it is understood that other terms such as UAVs, UAS, unmanned aircraft or drones may be used by States to refer to this new category of aircraft.

<sup>2</sup> Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

<sup>3</sup> Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, Norway, San Marino, Serbia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey and Ukraine.

The European approach aims at allowing a flexible, yet harmonised regulatory framework in the EU, promoting this creative industry to flourish, while at the same time adequately protecting the high EU standards for safety, security, privacy and data protection, and environmental protection.

1.2 RPAS technologies are as disruptive for industry as they are for regulators. The types of operations that need to be regulated not only cover the traditional commercial air traffic; RPAS are able to perform operations that were simply not possible with manned aircraft, much closer to people and buildings. That is why the regulatory framework must well protect peoples' safety, security, privacy and environment.<sup>4</sup> On the other hand, the RPAS technology is expected to evolve substantially in the coming years and it is impossible to anticipate now what this technology will bring in future.

1.3 The rapid evolution of the RPAS technology brings along the need to cover not only safety, but cover all issues of concern and extend the current prescriptive, aircraft focused aviation safety approach and to move to a performance based and operation centric approach for aviation safety rules.

## 2. PRINCIPLES FOR RPAS REGULATION

2.1 The starting point of the new approach is the focus on the specific risk of a particular (type) of operation. Rules and procedures should be kept proportionate with the identified risk. As the range of possible operations with RPAS goes from harmless operations to traditional operations with risks equivalent to 'manned aviation', the rules and procedures must be made flexible to cover all scenarios to the extent possible. In addition, technological evolution should be promoted, from remotely piloted towards automated and even autonomous. Hence rules should only define the required performance or functional requirements. Industry standards could then be developed to provide means to satisfy the requirements – whilst leaving scope for alternative technological solutions.

2.2 The EU is organising the operation centric approach in three levels. The first level concerns the principles of the approach and will be adopted by the Union co-legislators: the European Parliament and the Council, which latter is composed by representatives of all EU Member States. To that effect, the Commission has made a proposal to introduce the building blocks of the operation centric approach in the European safety rules under review. The intention is to come to rules of a general character that would not need to be frequently amended.

2.3 The second level concerns the more technical rules. These will be developed by the European Aviation Safety Agency (EASA), to the extent possible, on the basis of international consensus reached in the Joint Authorities for Rulemaking on Unmanned Systems (JARUS). The detailed rules will take the form of a Commission Regulation that can be amended flexibly as needs arise. The detailed rules should precisely describe the required performance levels for RPAS operations.

2.4 Thirdly, industry may support the development of standard ways to satisfy the regulatory performance targets. Standards are not mandatory as such, but facilitate compliance with the rules. Industry driven standards are deemed the most flexible tool to support technological innovation and to boost business opportunities.

2.5 RPAS technologies are a global phenomenon and can only flourish if the regulatory framework is as open as possible. Rules and standards should not be developed in isolation. For this reason, the European system is currently building on the work of Joint Authorities for Rulemaking on Unmanned Systems (JARUS) and will build on ICAO requirements. This ensures that the European industry will not face unnecessary hurdles when exporting their goods and services.

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<sup>4</sup> New safety rules will contribute to a better application of existing privacy and data protection rules. See under 2.1.

### **3. PROGRESS ON RPAS RULES: THREE CATEGORIES OF RPAS OPERATIONS**

3.1 Work is progressing in the European Parliament and the Council, with a view to the adoption of the regulatory framework, as explained above.

3.2 At the technical level, EASA already has proposed, on the basis of JARUS work, to establish three categories of RPAS operations as one of the foundations of the operation centric approach:

- a) 'Open' category (low risk): safety is ensured through compliance with operational limitations, mass limitations as a proxy of energy, product safety requirements, and a minimum set of operational rules. Subcategories will be developed as necessary to fine-tune the operational limitations per category;
- b) 'Specific' category (medium risk): Authorisation by a national aviation authority, possibly assisted by a qualified entity, following a Specific Operation Risk Assessment performed by the operator. A manual of operations lists the risk mitigation measures. In the 'specific' category, the mutual recognition of authorisations issued in the EU has been confirmed, but local adaptations are accepted. This can also serve as the basis for Contracting States to accept other countries' certificates. In addition, regarding the 'specific' category, 'standard' cases such as for instance building inspections or industrial infrastructure inspections, will be developed;
- c) 'Certified' category (higher risk): Requirements comparable to those for manned aviation. Oversight by national aviation authority (issue of licences and approval of maintenance, operations, training, ATM/ANS and aerodromes organisations) and by the relevant European authority, the European Aviation Safety Agency - EASA (design and approval of foreign organisations).

These proposals and concepts are still under discussion within the European Union and have therefore not yet been formalised in corresponding rules.

3.3 Last but not least, the case of model aircraft has been addressed by proposing "grandfathering" in recognition of the high level of safety levels. The challenge will be to come up, in a timely and open manner, with standards that satisfy the regulatory performance objectives.

### **4. WORK TOWARDS INTERNATIONAL CONVERGENCE IN ICAO**

4.1 ICAO has since decades provided the framework for international air traffic engaged in IFR. Everybody recognizes how ICAO is instrumental in the success of international aviation.

4.2 RPAS are newcomers in international civil aviation and may represent a risk for the safety of operations. RPAS operations also raise concerns that go beyond aviation safety. Yet already today smaller RPAS are able to operate under national or regional rules.

4.3 It is generally expected that RPAS operations will eventually engage in international civil aviation. Hence the two ends, smaller national/regional and international, must meet one day. Europe is engaged to work within ICAO to develop, in the medium term, a global framework for RPAS where existing RPAS rules can be seamlessly integrated in order to ensure global consistency.

## 5. OVERSIGHT AND ENFORCEMENT

5.1 One of the most challenging aspects faced by aviation authorities with the deployment of this new technology will be the oversight and enforcement. Indeed, manned aviation has developed its own oversight and law enforcement mechanisms, driven especially by the aviation authorities. RPAS operations will pose additional enforcement challenges to authorities. Experience needs to be gained as to how existing rules on safety, data protection and privacy, security and environmental protection, or liability/insurance shall be implemented<sup>5</sup>. Guidelines are often not available, and those who are engaged in RPAS operations have low awareness of the applicable rules.

5.2 Taking into account the large number of aircraft involved and their new area of operations, rules have to be enforced by national forces designated by the ICAO Contracting States (e.g. Police). As the police and other law enforcement agencies are expected to play a key role in the oversight of the 'open' category for instance, the coordination between different organisations and even sometimes ministries will need to be organised. A significant effort must be invested into this activity and an action plan established. For example, the different authorities should be provided with an information manual and a training syllabus. This will need to be a multi-faceted action as all parties need to understand the other's constraints. The contacts with law enforcement agencies should not only be limited to briefing them but also to listening to and catering for their needs (e.g. simple rules).

5.3 A key element for the oversight of RPAS operations and enforcement of the applicable regulations will be the Unmanned Aerial Systems Traffic Management (UTM) system. Several efforts are undergoing worldwide to research and develop solutions for UTM. The recently established Global UTM Standardisation Group aims to provide global standardization to these efforts.

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<sup>5</sup> Data protection and privacy as well as liability/insurance or security are not intended to be covered by the European common aviation safety rules.