



WORKING PAPER

COUNCIL — SPECIAL MODEL SESSION

Subject No. XX: Challenges relating to the projected shortages of skilled aviation personnel regarding civil use of Unmanned Aircraft Systems (UAS) and RPA-Liability matters.

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EXECUTIVE SUMMARY

Unmanned aircraft systems (UAS) are a recent component of the international civil aviation system, one which ICAO, States and the aerospace industry are still working to understand, define and ultimately integrate UAS into non-segregated airspace and at aerodromes ensuring the safety of any other airspace user as well as the safety of persons and property on the ground.

Given the fact that ICAO established UAS could be classified into Autonomous Aircraft and Remotely Piloted Aircraft (RPA) the need for further legal research and examination of RPA-Liability matters in light of the increasing use of RPAs is evident.

Action: The Council is invited to:

- a) Encourage Next Generation of Aviation Professionals (NGAP) Task Force to assemble a study group in order to review all the information available.
- b) Invite States to support the above mentioned by providing funds and seconded expertise.
- c) To take into account the outcome of the work of the NGAP Task Force, when preparing the fundamental international regulatory framework, through Standards and Recommended Practices (SARPs), with supporting Procedures for Air Navigation Services (PANS) and guidance material.

<i>Financial implications:</i>	Do not apply
<i>References:</i>	Annex 2 Annex 6 Annex 7 Annex 13 Annex 19 Cir 328, <i>Unmanned Aircraft System (UAS)</i> A38-WP/262

1. INTRODUCTION

1.1 An unmanned aerial vehicle (UAV), commonly known as a drone and also referred to as an unpiloted aerial vehicle and a remotely piloted aircraft (RPA) by the International Civil Aviation Organization (ICAO), is an aircraft without a human pilot aboard.

ICAO classify unmanned aircraft into two types under Circular 328 AN/190.

- Autonomous aircraft

Autonomous aircraft are considered to be not suitable for regulation due to legal and liability issues

- Remotely piloted aircraft

Remotely piloted aircraft are subject to civil regulation under ICAO and under the relevant National aviation authority.

1.2 The term unmanned aircraft system (UAS) emphasizes the importance of other elements beyond an aircraft itself. A typical UAS consists of the following:

- unmanned aircraft (UA);
- control system, such as ground control station (GCS);
- control link, a specialized datalink; and
- other related support equipment.

As described above, autonomous aircraft are not suitable for regulation in liability matters due to they're programmed to operate under specific areas and they're mostly used for military purposes.

In the other hand RPAs, even if it is in a remote way, are piloted into several areas were the National Aviation Authority has previously defined to be suitable for this kind of flights.

1.3 In accordance to Circular 328 article 5.2: *The pilot-in-command of a manned aircraft is responsible for detecting and avoiding potential collisions and other hazards (see Figure 5-1). The same requirement will exist for the remote pilot of an RPA. Technology to provide the remote pilot with sufficient knowledge of the aircraft's environment to fulfil the responsibility must be incorporated into the aircraft with counterpart components located at the remote pilot station.*

2. BACKGROUND

2.1 Even though there has been an increasing number of regulations in this matter, liability regulations for RAPs have not been properly developed nor studied for their further implementation in the civil use for RAP's worldwide.

2.2 Circular 328 provides guidance in relation with safety and operational issues that must be considered for the States to establish proper regulations that are equivalent and non-segregating for the civil use of UAS there is no specific regulation regarding those cases where these aircraft may cause damage to people or property on the ground.

2.3 Such a case can only be applied to the Montreal Convention (1999) and the Rome Convention (2009) amongst the Legal Frameworks of ICAO. However, the Montreal Convention (1999) was conceived and implemented mainly to protect air passengers, and is thus not applicable to RPA accidents, where primary concern lies with third party victims on the surface.

3. **CONSIDERATION OF ISSUES**

3.1 The risks derived from the operation. The liability has not a proper legal framework

3.2 The military and civil use shall be well defined in the legal framework both international and national.

3.3 The absence of a clear international regulatory framework limits the possibility to fly UAS in non-segregated airspace. It is a severe limitation for the development of UAS market.

4. **FINANCIAL IMPLICATIONS**

Do not apply.

5. **ACTION**

5.1 Encourage Next Generation of Aviation Professionals Task Force to assemble a study group in order to review all the information available.

5.2 Invite States to support the above mentioned by providing funds and seconded expertise.

5.3 Prepare the fundamental international regulatory framework through Standards and Recommended Practices (SARPs), with supporting Procedures for Air Navigation Services (PANS) and guidance material, to underpin routine operation of UAS throughout the world in a safe, harmonized and seamless manner comparable to that of manned operations. The analyses of the study group of the New Generation of Aviation Professional Task Force could be the first step in this direction.

6. **CONCLUSION**

6.1 To increase the civil use of RAP worldwide.

6.2 Prepare a legal framework that warrants certainty to stakeholders in the following areas: (i) financial, (ii) operational, (iii) environmental and/or (iv) criminal.