



WORKING PAPER

FOURTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 26 August to 6 September 2024

- Agenda Item 2: Timely and safe use of new technologies**
2.2: Addressing safety risks related to evolving aviation technologies

**RULES FOR THE DEVELOPMENT OF UNMANNED AIRCRAFT SYSTEMS TRAFFIC
MANAGEMENT (UTM) TECHNOLOGY STANDARDS AND THE CERTIFICATION OF UTM
SERVICE PROVIDERS**

(Presented by Colombia)

EXECUTIVE SUMMARY

This paper presents two key strategies for implementing unmanned aircraft systems traffic management (UTM) in response to aeronautical technology developments. In recent years, the use of unmanned aircraft systems (UAS) has grown significantly, posing new challenges for the management of airspace and aviation safety. Although ICAO has produced the document *Unmanned Aircraft Systems Traffic Management (UTM) – A Common Framework with Core Principles for Global Harmonization, 4th Edition* as a starting point, the Organization needs to develop additional Standards and Recommended Practices for the effective implementation of procedures for communication, navigation and surveillance (CNS) and for the certification of UTM system providers. These strategies are essential to plan for the safe, efficient integration of unmanned aircraft in readiness for the day when they will share the skies with conventional aircraft. Such actions will enhance safety, maximize use of and access to airspace, and thus contribute to the sustainable development of the aviation sector.

Action: The Conference is invited to:

- a) urge ICAO to establish timely rules for defining technical and operational standards relating to communication, navigation and surveillance for UTM technologies; and
- b) recommend that ICAO develop specific standards for the certification and validation of UTM technology system providers.

1. INTRODUCTION

1.1 In recent years, the use of unmanned aircraft systems (UAS) has evolved significantly, with more applications in many different sectors from agriculture and goods delivery to surveillance and mapping. This rapid expansion has led to a substantial increase in UAS operations, with new challenges for airspace management and physical and operational safety.

1.2 The International Civil Aviation Organization (ICAO) published the document *Unmanned Aircraft Systems Traffic Management (UTM) – A Common Framework with Core Principles for Global Harmonization, 4th Edition*, which establishes a common framework of basic principles for the global

¹ Spanish version provided by Colombia.

harmonization of UAS traffic management as a foundation for Member States to develop and implement their own UTM systems.

1.3 Nevertheless, this common framework is only the first step. There is still a need for ICAO to issue rules and standards that set out clear procedures in respect of communications, navigation and surveillance in order to achieve the safe and efficient integration of UAS into airspace. Moreover, it is crucial to develop specific standards for the certification of UTM technology system providers, and ensure that they comply with the safety and operational requirements.

2. DISCUSSION

2.1 Colombia proposes two key strategies for the effective implementation of an unmanned aircraft systems traffic management (UTM). The strategies are designed to produce the required technical and regulatory standards to ensure the safe and efficient integration of unmanned aircraft into airspace.

Strategies

2.2 *Strategy 1:* Establish the necessary rules for defining standards relating to communication, navigation and surveillance to implement the UTM system.

2.2.1 The first strategy involves the creation of a robust regulatory framework with the necessary parameters for the implementation and operation of a UTM system, including communication, navigation and surveillance. Such a framework absolutely must be implemented to ensure that all UAS operations are conducted safely and efficiently, avoiding conflicts and improving coordination between unmanned aircraft, and potentially integrating them into civil aviation.

2.3 *Strategy 2:* Develop standards for the certification and validation of UTM technology system providers.

2.3.1 The second strategy focuses on the development of specific standards for the certification and validation of UTM technology system providers. These standards are essential to ensure that the services offered by UTM providers comply with the necessary safety and operational requirements, thus fostering trust and acceptance by both UAS operators and the general public.

3. CONCLUSION

3.1 The adoption of a robust regulatory framework that defines communication, navigation and surveillance standards for UTM system technologies, and the development of specific standards for the certification and validation of UTM technology system providers are essential strategies for the safe and efficient implementation of unmanned aircraft traffic.

3.2 These measures would not only improve safety but also access to and use of airspace, and would facilitate the future integration of unmanned and conventional aircraft. They would also drive technological innovation and the harmonization of standards among States, thus contributing to the sustainable development of the aviation sector.

3.3 The Conference is invited to approve the following recommendation:

Recommendation 2.2/x – Rules for the development of unmanned aircraft systems traffic management (UTM) technology standards and the certification of UTM service providers

That ICAO:

- a) establish a regulatory framework for defining technical and operating standards relating to communication, navigation and surveillance for unmanned aircraft systems traffic management (UTM) technologies, in a timely fashion; and
- b) develop specific standards for the certification and validation of UTM technology system providers.

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