



WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 1: Air Navigation Global Strategy

1.1: Vision and Overview of the Sixth Edition of the GANP

**SUPPORT FOR THE GLOBAL AIR NAVIGATION PLAN, AVIATION SYSTEM
BLOCK UPGRADES AND REGIONAL IMPLEMENTATION**

(Presented by the United States)

EXECUTIVE SUMMARY

This paper expresses support for the new proposed structure of the sixth edition of the *Global Air Navigation Plan* (Doc 9750, GANP), the proposed updates to the aviation system block upgrades (ASBUs) and incorporation of emerging air navigation concepts into future editions of the GANP while recognizing the uniqueness of regional implementation plans.

Action: The Conference is invited to:

- a) agree with the new proposed structure of the Sixth Edition of the GANP and associated ASBUs leading to endorsement at the 40th Session of ICAO Assembly;
- b) request ICAO to incorporate a flexible framework for emerging air navigation concepts such as unmanned aircraft systems (UAS), UAS traffic management (UTM) and the aviation internet into future editions of the GANP;
- c) request ICAO and Member States to recognize the importance of a separate but integrated GANP and Global Aviation Safety Plan (Doc 10004, GASP) which will lead to a more robust regional work plan for implementation of air navigation services and modernization;
- d) request that ICAO provides project-based guidance for performance-based frameworks to regional groups for implementation of the GANP/ASBUs and GASP but allow flexibility in the structure to ensure the most effective and efficient processes for each individual region; and
- e) request that ICAO establish an aviation and information industry leadership forum to agree on the characteristics, design and implementation path for the Global Aviation Internet Network (GAIN).

1. INTRODUCTION

1.1 As international aviation continues to grow at a rapid pace, with a gap in consistent implementation of air navigation standards by States, a comprehensive global plan for an integrated and interoperable approach to developing and modernizing global air navigation systems is needed.

1.2 This is especially true as new and emerging technologies; such as aviation internet, unmanned aircraft systems (UAS), associated UAS traffic management (UTM) systems and industry innovation are developed and integrated into the legacy system.

1.3 This paper discusses the new proposed structure of the sixth edition of the *Global Air Navigation Plan* (Doc 9750, GANP) and the associated ASBUs that should incorporate emerging air navigation technologies into future editions of the GANP while recognizing the importance of regional implementation mechanisms.

2. GANP AND ASBU UPDATE

2.1 The 39th Session of the Assembly endorsed the GANP and recommended that ICAO promote, make available and effectively communicate the GANP (Assembly resolution A39-12, *ICAO global planning for safety and air navigation, refers*). Since the 39th Session of the Assembly, ICAO Secretariat and ANC panel experts have been revising the GANP, associated ASBUs and drafted an updated version with a new multi-layered structure.

2.2 The new multi-layered structure of the GANP and associated ASBUs improves upon the previous edition and consists of a global concept, which is further broken down into a strategic and a technical levels.

2.3 The strategic level provides a high-level managerial direction for decision makers to drive the evolution of the global air navigation system, which will also eventually include UAS as well as the interface between air traffic management (ATM) and UTM systems. This framework will be based on a globally defined aviation internet network that fully supports an information-based aviation environment for operators, air navigation services providers (ANSPs), regulators, meteorology suppliers both air and ground. This will support safer and more efficient operations by ensuring end-to-end information integrity.

2.4 The technical level provides support for technical managers in planning implementation of basic services and new operational improvements. The GANP will also contain layers for regional and national levels improving the alignment of regional, sub-regional and national plans.

2.5 The new GANP structure and updated associated ASBUs are important as they seek to create a dynamic and functional plan that integrates the current aviation ecosystem of maturing and innovating States into an interconnected system supporting each other. Through a project-based approach (as approved in Recommendation 6/13 of the Twelfth Air Navigation Conference, *Development of Standards and Recommended Practices, procedures and guidance material*) of developing new performance-based criteria, the GANP and ASBUs will enable States still maturing in air navigation services to more quickly advance in a clearly defined safe, integrated and interoperable system.

3. GANP AND ASBU IMPLEMENTATION

3.1 In order to achieve seamless operations, it is vital that States subscribe to the direction and policies of the updated GANP and ASBUs while looking to regional mechanisms as the primary vehicle for implementation strategies.

3.2 In that regard, the work of the Planning and Implementation Regional Groups (PIRGs) and the Regional Aviation Safety Groups (RASGs) as well as other appropriate regional groups must

fully align with each other to support regional and State level implementation of air navigation system standards and modernization.

3.3 The primary strategy for States to implement and modernize is through a comprehensive and integrated approach to implementing the GANP and ASBUs along with the *Global Aviation Safety Plan* (Doc 10004, GASP) through the PIRGs and RASGs.

3.4 However, each region is very different in terms of individual challenges to implementation of air navigation services and standards. Therefore, while ICAO should provide guidance to regional mechanisms, it must also ensure the flexibility to operate under the most effective and efficient ways needed by each individual region.

3.5 This project-based approach to using performance-based standards in the development and implementation would assist regional groups with integrating their work plans to achieve the greatest success regionally and contribute to a safer and more efficient global air navigation system.

3.6 There is also one aspect to implementation that needs to be taken globally. In order to meet the near, mid and long term goals for improving operations by increased digitalization of communications, the adoption of system wide information management (SWIM) principles and achieving end-to-end information integrity goals, the Global Aviation Internet Network (GAIN) needs to be designed. The global aviation internet network choices to be made to maximize benefits across all aspects of air traffic management (ATM) and not just cyber resilience or SWIM. There are no bad choices, but there are choices that support both the near-term needs as well as the aviation ecosystem foreseen in the conceptual roadmap. These choices that will set the course for the next twenty years, extend beyond the existing scope of the ICAO panels. These selections should be taken at the aviation stakeholder level in concert with information and internet experts.

4. CONCLUSION

4.1 The combination of the updated GANP strategic and technical levels, the updated ASBUs and the project-based creation of performance-based approach could provide the ICAO regions the necessary flexibility to not only account for new technologies, but also assure the appropriate regional mechanisms (e.g. PIRGs and RASGs) can implement global plans based on their own unique regional challenges. The definition of the global aviation internet network (GAIN) is key to assuring the progress towards a seamless interoperable future air navigation system in the GANP.

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