



ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

Agenda Item 28: Aviation safety and air navigation policy

GANP: ENABLING TIMELY ATM MODERNISATION

(Presented by Finland on behalf of the European Union and its Member States¹, the other Member States of the European Civil Aviation Conference²; and by EUROCONTROL)

EXECUTIVE SUMMARY

Air traffic is forecasted to continue growing steadily in the decades to come. The aviation actors need to address the challenges of such growth through adequate modernisation of their systems and infrastructures. In addition, they also need to face and address the new challenges – and also opportunities – generated by the emergence of new entrants. The *Global Air Navigation Plan* (Doc 9750, GANP) together with the *Global Aviation Safety Plan* (Doc 10004, GASP) form the strategic planning framework addressing the transformation and digitalisation of air traffic management (ATM) from complementary perspectives. An efficient, effective and synchronised maintenance process of these plans is essential to maintain and further improve the value of the strategic planning framework and ensure alignment of the plans.

To meet the aspirational timescales for ATM modernisation, ICAO should adopt risk- and outcome-based approach and more agile processes that more easily involve relevant parties that are not traditionally part of the rulemaking process, while still ensuring transparency and consultation.

Furthermore, ICAO should modernise and strengthen its cross-domain approach to the standard-making processes across the whole spectrum of the aviation system. Consistent understanding of basic building blocks (BBBs), performance needs and performance effects of improvements, together with implementation principles for global services and strategies for GANP implementation, as well as systematic application of civil/military collaboration, are important to enable effective planning decisions to be taken.

¹ Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

² Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Republic of Moldova, Monaco, Montenegro, North Macedonia, Norway, San Marino, Serbia, Switzerland, Turkey and Ukraine.

<p>Action: The Assembly is invited to:</p> <ul style="list-style-type: none"> a) support that the new edition of the GANP in conjunction with the new edition of the GASP form the strategic framework driving the digitalisation and transformation of air navigation and ATM; b) request ICAO to develop a process, which ensures the consistency and complementarity between the GANP and GASP, and other relevant policies and strategies such as on cyber security, in particular through an agreed maintenance and holistic alignment approach for these plans; c) request ICAO to make use of largescale ATM modernisation programmes under the conditions specified in section 2.6 of this working paper to realise the digitalisation and transformation of air navigation and ATM in a timely manner; d) request ICAO to operate its standard-making processes in a manner that is sufficiently agile to be able to adapt quickly and proportionally to new technologies and operating models without touching upon the principles enshrined in the Chicago Convention; e) request ICAO, with regard its standard-making processes, to modernise and strengthen its cross-domain approach across the whole spectrum of the aviation system and to apply and promote integrated risk management to address new initiatives and emerging issues in a timely way; f) discuss and agree to use the understanding of BBBs as described in 2.7 below; and g) request ICAO to develop key principles for global services as mentioned in 2.10 below and for ATM enhancements using, besides GANP aviation systems block upgrades (ASBUs) and BBB elements, also best practices and to facilitate collecting and sharing of information on these best practices. 	
<i>Strategic Objectives:</i>	This working paper relates to the Safety and Air Navigation Capacity and Efficiency Strategic Objectives.
<i>Financial implications:</i>	The activities referred to in this paper will be undertaken subject to the resources available in the 2020-2022 Regular Programme Budget and/or from extra budgetary contributions.
<i>References:</i>	Doc 10115, <i>Report of the Thirteenth Air Navigation Conference (AN-Conf/13), Corrigenda Nos. 1 and 2, and Supplement No. 1</i> Doc 10004, <i>Global Aviation Safety Plan</i> Doc 9750, <i>Global Air Navigation Plan</i>

1. INTRODUCTION

1.1 Air traffic is forecasted to continue growing steadily in the decades to come. The aviation actors need to address the challenges of such growth through adequate modernisation of their systems and infrastructures. In addition, they also need to face and address the new challenges and opportunities generated by the emergence of new entrants.

1.2 The vision for the future of air navigation is the transformation enabled by digitalisation that will deliver high-performing air navigation services to all airspace users, and ensure continuous safety improvements, enhanced security and cyber security, environmental protection, interoperability and increasing cost-efficiency performance where and when needed.

1.3 The delivery of high-performing air navigation services requires a performance-based, data-driven and risk-based approach, built on the endorsement of the vision for the future of air navigation and the critical path to achieve it. It should leave room for regional or State specificities and needs, making sure that “no country is left behind” whilst the overall goal is still pursued. Such approach should also include the establishment of ICAO Standards and Recommended Practices (SARPs) that are not unnecessarily prescriptive.

1.4 To maintain its relevance in this growing and fast-changing environment, ICAO should adapt its “current way of working” to ensure the safe and timely modernisation and transformation of air navigation in strategic alignment with other domains and to explore ways to bridge the gap between planning/development and implementation of new technologies and operating models.

2. DISCUSSION

Strategic alignment of GANP and GASP

2.1 Only a proactive worldwide strategy, manifested by the GANP and the GASP, building on the agile development and deployment of new technologies and changing business models, will bring the required transformation and digitalisation of ATM, deliver performance improvements and realise the “promise of twenty-first century air traffic management”.

2.2 The GANP and GASP form the strategic planning framework for the performance-based evolution of ATM. The value and relevance of these plans are maintained and enhanced through an efficient, effective and synchronised maintenance process that ensures alignment and complementarity, avoids conflicting objectives and enables the transition to integrated risk management and a holistic cross-domain approach. The integrated application of a strategic planning framework in decision-making processes for implementation and for research and development will bring benefits to aviation.

2.3 As part of the maintenance process common actions, relationships and cross references between the plans and other policies and strategies for example on cyber security, should be identified and included. This will ensure that different objectives in these plans do not overlap and are mutually supportive and that related goals and targets are consistent and complementary.

From GANP and GASP to timely and effective implementation

2.4 Recommendation 5.5/3 from the 13th Air Navigation Conference called on ICAO to review and enhance its standard-making processes in order to meet the requirements of the rapid pace of technological developments. To remain relevant in a fast-changing world, not only in terms of technology, but also in terms of State and industry operating models, ICAO should strengthen its cross-domain approach across the whole spectrum of the aviation system and apply and promote integrated risk management. The standard-making processes should be able to act quickly while ensuring transparency, oversight by the Air Navigation Commission for safety and air navigation matters and State consultation.

2.5 Whilst the ICAO standard-making processes have been effective over many years, it is essential for rules and oversight arrangements to keep pace with industry developments so potential benefits to society are realised while emerging risks are not overlooked. However, it will not be possible to review SARPs for every technological or operational change, particularly given the speed at which the industry is growing and developing. A risk- and outcome-based approach to new SARPs should make the objective of the provisions clear but allow options for fulfilling this objective to be flexible. ICAO should develop and adopt more agile rulemaking processes while ensuring transparency and consultation. Such processes should not only be limited to SARPs, but also include other materials and documents, i.e. safety promotion material, implementation packages, manuals or guidance wherever possible, and apply and promote integrated risk management to address new developments initiatives in a timely manner.

2.6 As a concrete proposal, structured use should be made of the large scale ATM modernisation programmes that are aligned with the GANP and involve the ATM community. Through these programmes all material can be developed that is necessary for the global endorsement and

implementation of selected GANP elements. It is important to note that such an approach should comply with the ICAO governance for ATM improvements and be framed through a cooperative arrangement that specifies among others, and in an indicative manner, the deliverables, timings, but also the involvement of ICAO expert groups.

Implementation strategies

2.7 The baseline for the ASBU framework is provided through the BBBs framework. The BBBs define the basic services to be provided to support international civil aviation according to ICAO SARPs and therefore assist ICAO regions and States with the preparation of their regional, sub-regional and national air navigation plans. While the BBB framework is an international statement on what ICAO considers to be the globally applicable baseline of services to international civil aviation, it shall not entail for States additional implementation obligations and/or specific reporting/compliance demonstration mechanisms.

2.8 The new GANP performance catalogue, which defines the performance indicators per key performance area (KPA) in a hierarchical structure, will assist decision-makers in selecting the GANP elements that address the specific performance needs of regions and States. Understanding of the performance effects of the GANP elements should be further enhanced through collecting and analysing performance measurements from operational experiences using agreed performance indicator specifications.

2.9 The updated GANP addresses civil/military collaboration in a more systematic manner. Civil and military aviation activities should remain mutually supportive as on one hand, effective security and defence contribute to a sustainable civil aviation sector and preserves passenger confidence and; on the other hand, the ATM system enables security and defence missions and training carried out by the military. In this way, the military community should be involved in ATM modernisation programmes to keep the highest possible level of interoperability between civil-military systems, thereby preserving ability to fulfil security and sovereignty missions given by their authorities.

2.10 Modernisation and digitalisation of ATM increasingly require operational services with a global scope (e.g. World Area Forecast System, Space Weather monitoring, System-Wide Information Management (SWIM) Registry, Global Aeronautical Distress and Safety System (GADSS) Distress Tracking Data Repository (DTR) and global Flight and Flow information distribution). The setting up and maintenance of these global services would require agreed key principles to facilitate that the services are delivered in a cost-effective and robust manner and to prevent unnecessary proliferation. A good principle is to setup and maintain the services at regional level whenever possible while ensuring global consistency and interoperability.

2.11 Whereas there is an urgent need to progress the ATM digitalisation and transformation through the development and implementation of the operational improvements in the GANP, for some regions and States operational performance enhancements can be realized through implementation of best practices. For others, enabled by technological innovation, it may be more cost-effective to “leap-frog” by skipping one or more evolution steps. To support States and regions with these decisions it is important that ICAO collects and shares information on best practices, benchmark results, performance measurements and possible implementation strategies, also with regard to “leap-frogging”.