



WORKING PAPER

ASSEMBLY — 41ST SESSION

EXECUTIVE COMMITTEE

Agenda Item 23: Innovation in Aviation

PHASED APPROACH FOR SARPS APPLICABILITY

(Presented by the International Coordinating Council of Aerospace Industries Associations (ICCAIA), the Civil Air Navigation Services Organisation (CANSO), the International Air Transport Association (IATA), the International Federation of Air Line Pilots' Associations (IFALPA) and the International Federation of Air Traffic Controllers' Associations (IFATCA))

EXECUTIVE SUMMARY

There are several challenges with the way that applicability dates are applied to new standards, especially where detailed regulatory requirements are needed for new processes or technologies, and multiple parties are involved in the delivery of new systems. This affects both States and industry, with a significant testing, certification and rollout effort required across a multitude of models, produced by many original equipment manufacturers, for certification and use in multiple jurisdictions. New and innovative systems and technology are increasingly complex and require integration across a wide range of existing systems.

This paper recommends a new approach to applicability dates for the implementation of technical standards; namely a phased approach with checkpoints throughout, that defines several steps towards testing, certification and delivery. This would mitigate the risk associated with the rollout process, ensuring that resources can be appropriately deployed without undue pressure, while still ensuring requirements are fully met.

Action: The Assembly is invited to:

- a) Adopt the revision of Assembly Resolution A39-22 and the revised statement of ICAO continuing policies and associated practices related the formulation and implementation of Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) and the notification of differences.

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| <i>Strategic Objectives:</i> | This working paper relates to all Strategic Objectives. |
| <i>Financial implications:</i> | The proposals contained in this paper are considered to be resource neutral for ICAO as improvements to the Standards development and implementation processes are an ongoing activity. In the longer term, there are financial benefits that could be realized by Member States, ICAO and the industry by establishing realistic timeframes for the implementation of new Standards and adjusting the applicability dates on a timely basis when required. |
| <i>References:</i> | Doc 7300 – <i>Convention on International Civil Aviation</i> Doc 10140 – <i>Assembly Resolutions in Force (as of 4 October 2019)</i> |

¹ English, Arabic, Chinese, French, Russian and Spanish versions provided by ICCAIA.

1. INTRODUCTION

1.1 There are several challenges with the way that applicability dates are applied to new standards, especially where detailed regulatory requirements are needed for new processes or technologies, and multiple parties are involved in the delivery of new systems. These challenges are becoming increasingly profound given the pace of innovation. This affects both States and industry, with a significant testing, certification and rollout effort required across an entire fleet, for multiple manufacturers and in multiple jurisdictions. Historically, the aerospace industry has been challenged in meeting the International Civil Aviation Organization (ICAO) applicability dates and complying with new equipage requirements within the timeframes provided by ICAO and its member States, despite having input to those decisions.

1.2 The COVID-19 pandemic has disrupted the supply chain for raw materials, components and finished products, and has severely impacted the availability of staff for design, development, testing and certification for all stakeholders in industry and States alike. Impacts are likely to be felt for many years, and an additional element of unpredictability has been introduced into manufacturing.

1.3 In practice, applicability dates currently represent deadlines for the implementation of systems or equipment. Regardless of whether a State of Design implements an ICAO Standard and requires compliant equipment, products must meet ICAO requirements to be certified across a wide range of States and to efficiently operate in an international environment.

1.4 In recent years, ICAO has acknowledged these challenges and has expanded the time from the date that a Standard is adopted to the date that it becomes applicable. Nevertheless, there are numerous times that both States and the industry were unable to meet ICAO applicability dates. Consequently, the industry has had to request that ICAO provide relief from pending applicability dates for Standards. Recent examples include halon replacement fire extinguishing compounds, 25-hour cockpit voice recorders, and most recently autonomous distress tracking. In some cases (hand fire extinguishers and autonomous distress tracking) the industry had to request multiple postponements.

1.5 This paper recommends a new approach to applicability dates; namely a phased approach with checkpoints throughout, that defines several steps towards testing, certification and delivery. This would mitigate the risk associated with the rollout process, ensuring that resources can be appropriately deployed without undue pressure, while still ensuring requirements are fully met.

2. DISCUSSION

2.1 States and the industry share the burden of meeting many applicability dates. States are required to establish new regulations or acceptable means of compliance for new ICAO requirements. This can be a time-consuming process for any civil aviation authority. The industry can only commence design and build and apply for approvals from their authorities once these requirements are fully in place. In recent examples, some States have filed differences to the standards, anticipating that they will not be ready with full regulations by the applicability date. This further complicates things for industry, where costly, complex and time-consuming retrofits may be needed, impacting manufacturers and their customers alike.

2.2 New and innovative systems and equipment are increasingly complex, automated and connected with other systems, requiring integration into existing aircraft systems and connection to external systems. Nevertheless, other than extending the time permitted to meet an applicability date, the ICAO processes have remained unchanged since the early 1950s.

2.3 Each time that States and the industry cannot meet an ICAO applicability date, it undermines the relevancy of such Standards and places an undue burden on member States and the industry. Establishing a single due date for new systems or equipage has been challenged in the past and will not be “fit-for-purpose” in the face of the rapid pace of innovation. The Council and Air Navigation Commission are aware of the current challenge. In the past, both executive bodies of ICAO have called for the Secretariat to undertake “midpoint” checks on the readiness of States and the industry to implement ICAO Standards. This issue has also been raised during recent external and internal evaluations of the ICAO Standard making process.

2.4 A phased approach, with appropriate milestones that provide feedback to ICAO on the pace of implementation is needed. Such milestones and feedback loops will provide the information needed by ICAO and its member States to realistically monitor implementation against real world data. This process should consider the entire development cycle required to implement new requirements including the time required for States to establish the needed operational and certification requirements, as well as the time required for the industry to design, test and apply and acquire approvals from the appropriate State authorities.

2.5 A new process might include the following key milestones:

- a) Commencement date for implementation (effective date);
- b) publication of detailed means of compliance by Member States;
- c) publication of testing and certification plans;
- d) testing and certification progress plans across Member States;
- e) publication of service bulletins or equipage installation guidance;
- f) projected date for full equipage or implementation; and
- g) completion of implementation, publication of results and implementation review

2.6 Assembly Resolution A39-22, “Formulation and implementation of Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) and notification of differences” outlines the continuing policies and associated practices related to the implementation of SARPs and has been applied across all Annexes to the Convention. The resolution in force noted the increased number of notified differences to ICAO SARPs. The resolution also recognized that implementation of a Standard is increased globally through a development process that encourages inclusion of perspectives among all States and relevant industry stakeholders. The Assembly resolved that the applicability dates of amendments to SARPs and PANS shall be so established as to allow Member States sufficient time for their implementation. The resolution also requested that ICAO consider development of a transition and communication strategy throughout planning and implementation phases for Member States, who in turn should facilitate outreach to stakeholders. The attached recommendations for an amendment to A39-22 is intended to lay the groundwork for the inclusion of a phased in approach towards the implementation.

3. CONCLUSION

3.1 To mitigate the risks associated with the implementation of innovative, new and complex systems and requirements, as well as easing the workload for States and industry, as phased approach to the implementation of standards is recommended. To reflect the aforementioned, the attached amended resolution is proposed to supersede Assembly Resolution A39-22.

APPENDIX

A39-22: FORMULATION AND IMPLEMENTATION OF STANDARDS AND RECOMMENDED PRACTICES (SARPS) AND PROCEDURES FOR AIR NAVIGATION SERVICES (PANS) AND NOTIFICATION OF DIFFERENCES

Whereas Article 37 of the Convention on International Civil Aviation requires each Member State to collaborate in securing the highest practicable degree of uniformity in regulations and practices in all matters in which such uniformity will facilitate and improve air navigation;

Whereas Article 37 of the Convention requires the Organization to adopt and amend international standards and Recommended Practices and procedures and states the purpose of and the matters to be dealt with in that action, and Articles 38, 54, 57 and 90 contain additional relevant provisions;

Whereas in accordance with Article 38 of the Convention any Member State which finds it impractical to comply in all respects with any international standard or procedure or deems it necessary to adopt regulations or practices differing therefrom is obliged to give immediate notification to ICAO;

Whereas the Assembly deems it advisable to establish certain policies to be followed in complying with these provisions of the Convention;

Recognizing the effective implementation of SARPs and PANS promotes safe, secure and sustainable development of international civil aviation;

Recognizing that making differences information easily available to all stakeholders in a timely manner is important to promote safety, regularity and efficiency in international civil aviation;

Noting that many Member States experience difficulty in fulfilling their obligations under Articles 37 and 38 of the Convention and keeping pace with frequent amendments to Annexes;

Recognizing that up-to-date ICAO technical guidance material provides valuable assistance to Member States in the effective implementation of SARPs, PANS and Regional Plans;

Recognizing that substantial resources are required to develop and maintain all ICAO technical guidance material for SARPs and PANS;

Noting the increase of the number of notified differences to ICAO;

Recognizing that there is a strong need for all available means to be sought and employed in encouraging and assisting Member States in overcoming their difficulties in implementation of SARPs and PANS; ~~and~~

Recognizing that implementation of a Standard is increased globally through a development process that encourages inclusion of perspectives among all States and relevant industry stakeholders;

Recognizing that States and relevant industry stakeholders are increasingly challenged in implementing new standards by their applicability date, especially where detailed regulatory requirements are needed for new processes or technologies, and multiple parties are involved in the delivery of new systems; and

Noting that implementation of ICAO Standards will become increasingly challenging given the pace of innovation.

The Assembly:

1. *Calls on* Member States to reaffirm their commitment to abide by the obligations under Articles 37 and 38 of the Convention;
2. *Resolves* that SARPs and PANS shall be amended as necessary to reflect changing requirements and techniques and thus, inter alia, to provide a sound basis for global and regional planning and implementation;
3. *Agrees* that subject to the foregoing clause, a high degree of stability in SARPs shall be maintained to enable the Member States to maintain stability in their national regulations. To this end amendments shall be limited to those significant to safety, regularity and efficiency and editorial amendments shall be made only if essential;
4. *Reiterates* that SARPs and PANS shall be drafted in clear, simple and concise language. SARPs shall consist of broad, mature and stable provisions specifying functional and performance requirements that provide for the requisite levels of safety, regularity and efficiency. Supporting technical specifications, when developed by ICAO, should be translated in all working languages of ICAO in a timely manner and shall be placed in separate documents to the extent possible;
5. *Instructs* the Council to utilize, to the maximum extent appropriate and subject to the adequacy of a verification and validation process, the work of other recognized standards making organizations in the development of SARPs, PANS and ICAO technical guidance material. Material developed by these other standards-making organizations may be deemed appropriate by the Council as meeting ICAO requirements; in this case such material should be referenced in ICAO documentation;
6. *Resolves* that to the extent consistent with the requirements of safety, regularity and efficiency, SARPs specifying the provision of facilities and services shall reflect a proper balance between the operational requirements for such facilities and services and the economic implications of providing them;
7. *Instructs* the Council to consult Member States on proposals for the amendment of SARPs and PANS before the Council acts on them, except when the Council may deem urgent action to be necessary. Furthermore, subject to the adequacy of the verification and validation process, technical specifications may be acted upon by the Council without consultation with Member States. Such material shall however be made available to Member States upon request;
8. *Resolves* that the applicability dates of amendments to SARPs and PANS shall be so established as to allow Member States sufficient time for their implementation;
9. *Agrees* that no Annex or PANS document shall be amended more frequently than once per calendar year;
10. *Reminds* Member States of the requirement in Annex 15 to publish any significant differences in their Aeronautical Information Publication (AIP) and to include English text for those parts expressed in plain language;
11. *Encourages* Member States to use the Electronic Filing of Differences (EFOD) System when notifying their differences to ICAO;
12. *Instructs* the Secretary General to continue improving the EFOD system and assist Member States in transitioning from the paper-based processes to the use of the EFOD system;

13. *Directs* the Council to monitor and analyse the differences between the regulations and the practices of Member States and the SARPs and PANS with the aim of encouraging the elimination of those differences that are important for the safety, regularity and efficiency of international air navigation and taking appropriate actions;
14. *Instructs* the Council to explore possibilities to make differences information more easily available to all interested stakeholders and assess appropriate mechanism and form in which this information is made available;
15. *Resolves* that Member States shall be encouraged and assisted in the implementation of SARPs and PANS by all available means and provided as soon as possible with more guidance in respect of the notification and publication of differences;
16. *Calls on* all Member States able to do so to provide requesting States with technical cooperation in the form of financial and technical resources to enable those States to carry out their obligations under Articles 37 and 38 of the Convention;
17. *Instructs* ICAO to establish priorities for the continuing updating of the contents of present ICAO technical guidance material and the development of additional guidance material thus ensuring optimum value for Member States in their planning and implementation of SARPs and PANS;
18. *Resolves* that the associated practices in this Resolution constitute guidance intended to facilitate and ensure implementation of this Resolution;
19. *Urges* Member States to review their procedures related to the development of SARPs with a view to enhance the involvement of a broader set of aviation stakeholders;
20. *Requests* ICAO to consider development of a transition and communication strategy throughout planning and implementation phases for Member States, who in turn should facilitate outreach to stakeholders;
21. *Instructs* the Council to develop a phased approach to meeting applicability dates for Standards, particularly those that specify the introduction of complex or innovative new technologies, with checkpoints throughout, providing timely feedback during the testing, certification and implementation processes;
- ~~21~~22. *Directs* ICAO to enhance the role of its Regional Offices in facilitating and monitoring the SARP amendment review process;
- ~~22~~23. *Calls upon* Member States to respond to ICAO State letters regarding proposed Annex and PANS amendments; and
- ~~23~~24. *Declares* that this resolution supersedes Resolution ~~A38-11~~ A39-22.

Associated practices

1. The Council should ensure that provisions of SARPs and PANS are completely consistent with each other. Furthermore, the Council should endeavour to improve the processing, presentation and usefulness of ICAO documents containing SARPs, PANS and other related provisions, especially for complex systems and their associated applications. To that end the Council should promote the development and upkeep of broad system-level, functional and performance requirements. The Council should continue seeking the most appropriate means of development, translation, processing and dissemination of technical specifications.

2. Member States should comment fully and in detail on the proposals for amendment of SARPs and PANS or at least should express their agreement or disagreement on their substance. They should be allowed at least three months for this purpose. Furthermore, Member States should receive at least 30 days of notification of the intended approval or adoption of detailed material on which they are not consulted.
3. Member States should be allowed a full three months for notifying disapproval of adopted SARPs amendments; in establishing a date for notifying disapproval the Council should take into account the time needed for transmission of the adopted amendments and for receipt of notifications from States.
4. The Council should ensure that, whenever practicable, the interval between successive common applicability dates of amendments to Annexes and PANS is at least six months.
5. The Council, prior to the adoption and approval of amendments to SARPs and PANS, should take into account feasibility of the implementation of SARPs and PANS by the intended applicability dates. A phased approach should be included with the adoption of Standards requiring the implementation of complex or new equipment. Appropriate milestones should be established that provide feedback to ICAO on the pace of implementation. Such milestones and feedback loops should provide the information needed by ICAO and its member States to realistically monitor implementation against real world data and make any necessary adjustments to applicability dates on a timely basis. This process should consider the entire development cycle required to implement new requirements including the time required for States to establish the needed operational and certification requirements, as well as the time required for the industry to design, test and apply and acquire approvals from the appropriate State authorities.
6. The Council, taking into account the definitions of terms “Standard” and “Recommended Practice”, should ensure that new Annex provisions, uniform application of which is recognized as necessary, are adopted as Standards, and that those new provisions, uniform application of which is recognized as desirable, are adopted as Recommended Practices.
7. The Council should urge Member States to notify the Organization of any differences that exist between their national regulations and practices and the provisions of SARPs as well as the date or dates by which they will comply with the SARPs. If a Member State finds itself unable to comply with any SARPs, it should inform ICAO of the reason for non-implementation, including any applicable national regulations and practices which are different in character or in principle.
8. Differences from SARPs received should be promptly made available to Member States.
9. In encouraging and assisting Member States in the implementation of SARPs and PANS, the Council should make use of all existing means of ICAO and strengthen partnerships with entities which provide resources and assistance towards development of international civil aviation.
10. Member States should establish internal processes and procedures by which they give effect to the implementation of provisions of SARPs and PANS.
11. ICAO should update and develop guidance material in accordance with the established priorities to adequately cover all technical fields.