



ASSEMBLY — 42ND SESSION

EXECUTIVE COMMITTEE

Agenda Item 20: Innovation in Aviation

INNOVATION IN AVIATION

(Presented by the Council of ICAO)

EXECUTIVE SUMMARY

This working paper provides an overview of the implementation of Resolution A40-27 Innovation in Aviation, as well as actions taken since the 41st Session of the Assembly.

Action: The Assembly is invited to:

- a) note the actions taken in the current triennium (2023-2025) related to A40-27; and
- b) adopt the revised Resolution on *Innovation in Aviation* as presented in the Appendix, to supersede Assembly Resolution A40-27.

<i>Strategic Goals:</i>	This working paper relates to the <i>High Priority Enabler on Innovation</i> and supports all Strategic Goals, other High Priority Enablers and Supporting Enablers identified in the ICAO Strategic Plan 2026-2050.
<i>Financial implications:</i>	The activities referred to in this paper will be undertaken subject to the resources available in the 2026-2027-2028 Regular Budget, extra budgetary funds and voluntary contributions, as guided by the ICAO Business Plan 2026 - 2028.
<i>References:</i>	Doc 10183, <i>Assembly 41st Session. Executive Committee. Report</i> Doc 10184, <i>Assembly Resolutions in Force (as of 7 October 2022)</i> ICAO Policy on Innovation

1. INTRODUCTION

1.1 As the United Nations specialized agency responsible for standard-setting, monitoring and oversight, and implementation support for international civil aviation, ICAO is the lead organization to address the current and future challenges and opportunities of innovation in aviation. The adoption of Resolution A40-27, *Innovation in Aviation* at the 40th Session of the Assembly as well as the decisions taken by the 41st Session of the Assembly have accelerated ICAO's support to its 193 Member States in responding to innovations.

2. ACTIONS TAKEN IN THE CURRENT TRIENNIUM RELATED TO A40-27

2.1 Over the last three years, ICAO has continued to address innovations in aviation through many of its processes, activities, and outputs. These range from the adoption of Annex 6, Part IV — *International Operations – Remotely Piloted Aircraft System*, to the creation of the Advanced Air Mobility Study Group (AAM-SG), to the approval of a direct submission process related to the development of ICAO Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS), to the inclusion of innovation as a focus in most ICAO global and regional events. The latter includes the Innovation Fairs, Global Implementation Support Symposiums (GISS), the ICAO Facilitation Conference and Forums, the Long-term global aspirational goal (LTAG) Stocktaking events, the AI in the Sky event, the ICAO Security Weeks and the AAM Symposium. Other actions are listed in more detail in subsequent paragraphs.

2.2 ICAO Policy on Innovation

2.2.1 Responding to Resolution A40-27, operative clause 2, an independent assessment to review ICAO's current practices, formalize expectations and identify gaps, was launched in 2023 and was conducted by the United Nations System Staff College (UNSSC). The process involved internal and external ICAO Stakeholders to participate in surveys, interviews and focus groups. The UNSSC Report was delivered in February 2024 with results subsequently reviewed by the Secretariat, the Council established Small Group on Innovation (SGI), and the Council, which adopted specific recommendations to address the findings.

2.2.2 As directed by Resolution A40-27, operative clause 3, the Council, on the basis of the conclusions arising from the assessment, approved the ICAO Policy on Innovation (<https://www.icao.int/Meetings/a42/Pages/documentation-reference-documents.aspx>) which:

a) sets clear objectives for:

- 1) enhancing ICAO's role to assist Member States to benefit from innovation in the aviation sector, to address related challenges and for ICAO to develop, as needed policies, Standards, other provisions¹ and tools that support the continuing improvement of safety, efficiency, security, facilitation, economic and environmental sustainability of international air transport in a timely and technology agnostic manner, and in accordance with the Strategic Goal of No Country Left Behind (NCLB);
- 2) facilitating the development and deployment of innovation in international aviation by Member States and ensuring that all States have a fair opportunity to develop and deploy innovations in aviation; and

¹ The term *provisions* includes Recommended Practices, Procedures for Air Navigation Services, Technical Instructions, guidance material and circulars.

3) guiding the identification and implementation of innovation to increase the effectiveness and efficiency of the Organization;

b) defines the aims and scope of the policy; and

c) institutionalizes actions related to innovation.

2.2.3 Innovation is identified as a *High Priority Enabler* in the ICAO Strategic Plan 2026-2050 and is included in the ICAO Business Plan 2026 – 2028 as a programme. Thus, together with the ICAO Policy on Innovation, the initiative sets a robust strategic framework to help deliver on all Strategic Goals.

2.2.4 Further to its endorsement of the ICAO Policy on Innovation the Council is considering promotional activities, including options for establishing an ICAO innovation award.

2.3 **Convene regular sessions of a high-level body with the industry**

ICAO Industry Consultative Forums

2.3.1 Since the last Assembly, ICAO has held four meetings of the ICAO Industry Consultative Forums (ICF): ICF/3, on alternative propulsion systems, held online on 12 and 13 June 2023; ICF/4, on cybersecurity and cyber resilience, held online on 5 and 6 February 2024; ICF/5, on integrated airspace innovation and digitalization, held online on 28 and 29 October 2024; and ICF/6, on horizon scanning, held on 28 and 29 April 2025.

2.3.2 A total of 27 recommendations were endorsed by the Council following the ICF/1 through ICF/5 meetings, which involved more than 80 speakers, mostly at the C-Suite level, from a diverse set of companies representing all sectors of the air transport industry. Details on ICF/1, ICF/2, ICF/3, ICF/4 and ICF/5 can be found under the reference documents section of the A42 website (<https://www.icao.int/Meetings/a42/Pages/documentation-reference-documents.aspx>).

2.3.3 The Assembly may note that the horizon scanning performed at ICF/6 will be used by the Council to determine the themes for the next cycle of ICFs, to be held in the coming triennium.

2.4 **Continue and enhance the inclusive dialogue with stakeholders**

Innovation Fairs and webinars

2.4.1 In the current triennium, ICAO will have held two Innovation Fairs: the 2024 edition under the theme of “Digital Aviation: the Future is Now” and the 2025 edition under the theme of “Global Horizons: Inclusive Innovations for Aviation”. These fairs were supplemented by a series of webinars covering AI, digitalization and other relevant topics. The events involved more than 1 000 individuals (as attendees, speakers, moderators and sponsors) from 99 Member States. (Past Innovation Fairs and webinars are available on ICAOtv.)

ANC Talks

2.4.2 Air Navigation Commission (ANC) Talks continued to provide a platform for industry and innovators to share their latest developments in innovation and technology with the ANC. Other new initiatives that may improve the safety, efficiency and capacity of global civil aviation and the opportunities and challenges attached thereto, were also discussed, in particular, the need for global standards and the role of ICAO. Over 65 sessions have been held since its inception in 2020 on a wide range of topics. (Past ANC Talks are available on ICAOtv.)

Innovation Workshops

2.4.3 ICAO has delivered 10 Innovation Workshops held in either English, French, or Spanish, covering all ICAO regions. While the workshops are exclusively online, an updated version is being developed to enable in person segments.

2.5 Enhance, plan, develop and deploy ICAO instruments and tools to enable the timely, effective and efficient regulation of innovations by States

Standardization Roadmap

2.5.1 The 41st Session of the ICAO Assembly endorsed “the priorities of ICAO on the promotion of innovation in aviation in support of the ICAO Strategic Objectives and of the ICAO Member States, including the development of a regulatory roadmap building upon and consistent with ICAO's existing work [...]” (*Assembly 41st Session. Executive Committee. Report* (Doc 10183), paragraph 23.6 refers).

2.5.2 In implementing this action by the Assembly, the Council tasked the ANC to develop an ICAO Standardization Roadmap concept. After reviewing the ANC's report, the Council approved the concept in its 233rd Session and endorsed its deployment in the 234th Session. The Standardization Roadmap and related processes are published on <https://istars.icao.int/>. At the time of writing, the site had eight entries at various stages of consideration.

2.5.3 The Standardization Roadmap is a rolling timeline which represents ICAO's assessment of submitted innovative technologies and processes at different levels of maturity. It helps identify priorities and gaps and serve as a means of collecting information on innovations to enable forward-planning with respect to ICAO's mandate. It does not alter the existing ICAO Standard-setting process and provides greater certainty and predictability to the industry regarding the timely development of the relevant Standards and Recommended Practices (SARPs).

IFAR-ICAO collaboration

2.5.4 After the successful completion of the scientific assessment on Urban Air Mobility, delivered by the International Forum of Aviation Researches (IFAR) under the MoU between ICAO and IFAR, a new multi-year collaboration on “Certification by Analysis” was agreed to in 2024 and commenced its work in 2025 (further information on this project is available at ifar.aero/working-groups/certification-by-analysis).

2.6 Inclusive engagement with all stakeholders

2.6.1 There has been a significant and increasing level of participation, positive response and helpful feedback by States and stakeholders across the various activities under the Innovation Policy, ICAO hopes to continue and potentially increase the active involvement by all Member States noting that, some initiatives, such as the ICAO Standardization Roadmap, critically depend on the interaction with States and Stakeholders. These initiatives specifically require ICAO's engagement with out of sector stakeholders who have developed innovations that might be applied to achieving the ICAO Strategic Goals.

2.7 Foster a culture of innovation within the Secretariat to further promote innovations and adapt its internal processes

2.7.1 Internally, under the leadership of the Secretary General and senior managers, the Secretariat continues to take action to mainstream innovation and enhance its strategic positioning within the organization. Initiatives include: the development and implementation of an Administrative Instruction on the use of AI; the deployment of a sandbox for the use of AI; and holding several informal sessions where innovation topics are discussed, championed by staff members. The Secretariat had also developed and successfully implemented the ICAO Secretariat Strategy on Innovation which has since been superseded by the ICAO Policy on Innovation.

Embedding innovation across the entire Organization

2.7.2 Innovation has been embedded as a High Priority Enabler for activities across all Strategic Goals, other High Priority Enablers and Supporting Enablers of ICAO in the Triennial Operating Plan to enhance support to Member States. This includes the development and implementation of SARPs and other provisions, as well as ensuring that suitable fora are provided for discussions on innovation in all outreach activities of the Organization. This practice will be followed for plans beyond those of 2025.

3. CONCLUSION

3.1 Progress in implementing A40-27, particularly the delivery and institutionalization of its operative clauses addressed to the ICAO Council within the ICAO Policy on Innovation, necessitates a revision.

3.2 While the preambular clauses remain valid, they should be updated to reflect the objectives of innovation, as contained in the ICAO Strategic Plan 2026 - 2050, as well as in the ICAO Policy on Innovation.

3.3 Elements of the operative clauses in A40-27 that have been delivered or incorporated into the ICAO Policy on Innovation should be removed.

3.4 New operative clauses should be considered that strengthen the implementation of the ICAO Policy on Innovation, particularly by urging States and stakeholders to take action that complement those of ICAO. These updates would help ensure a sector-wide alignment on innovation.

3.5 An updated Resolution is presented in the appendix for adoption by the Assembly.

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APPENDIX

DRAFT RESOLUTION FOR ADOPTION BY THE 42ND SESSION OF THE ASSEMBLY

Resolution A42/xx: Innovation in Aviation

Whereas Article 44 of the Convention on International Civil Aviation states that among the aims and objectives of ICAO are development of the principles and techniques of international air navigation and fostering of the planning and development of international air transport so as to meet the needs of the people of the world for safe, regular and economical air transport;

Whereas Article 37 of the Convention stipulates that ICAO shall adopt and amend from time to time, as may be necessary, international standards and recommended practices and procedures dealing with [...] and such other matters concerned with the safety, regularity, and efficiency of air navigation as may from time to time appear appropriate;

~~*Whereas* several ICAO Conferences have recognized the real and potential benefits and challenges that innovation can bring to the safety, efficiency, security, facilitation and to the economic and environmental sustainability of air transport and that Member States should be provided the opportunity to realize these benefits in a manner that leaves no country behind;~~

Whereas the ICAO Strategic Plan 2026-2050 recognizes the real and potential benefits and challenges that innovation can bring to the air transport sector and aims to provide Member States with the tools, knowledge and mindsets to realize these benefits in a manner that leaves no country behind and as a consequence identifies innovation as a high priority enabler critical to the successful implementation of the strategic goals.

Recognizing that ICAO provisions apply to civil aviation all-civil airspace users, and the absence of normative activity at the global level may hamper the realization of innovative technological solutions and prevent the materialization of their benefits in aviation; and to that end ICAO can benefit from continued interaction with industry to identify the latest technological developments their timely integration;

Recognizing that the nature and pace of innovations require regulators at the national, regional and global level avail themselves of new methodologies, as well as the relevant framework provided by ICAO, that facilitate the timely evaluation and assessment of technological innovation developments in a technology agnostic manner.

Acknowledging the ICAO Policy on Innovation;

The Assembly:

1. Directs the Council to implement the Policy on Innovation;

2. Urges all Member States that have experience in facilitating the introduction of innovation in civil aviation, and that have evolved their regulatory methods to better evaluate and assess the application of such innovations, to share their experience with other States through ICAO;

2. ~~Directs the Council to assess the need, as well as the resources required, to evolve the processes of the Organization, including its working methods with the industry in order to keep pace with innovations that affect the sustainable development of civil aviation;~~
3. ~~Directs the Council on the basis of the conclusions arising from the assessment to be undertaken pursuant to operative clause 2, to develop, high level policies to address the findings of the aforementioned assessment and subsequently provide a framework that will help ensure the timely development of global policies and standards that support the continuing improvement of safety, efficiency, security, facilitation, economic and environmental performance;~~ *Calls on Member States to support the efforts of ICAO to help ensure that all States have a fair opportunity to develop and deploy innovations in aviation; including through leveraging the assistance, capacity building and training frameworks of relevance that are offered by ICAO in line with the ICAO policy on innovation;*
4. ~~Directs the Council to instruct the Secretary General to further liaise with States, governmental and non-governmental organizations, the private sector, academia and the relevant United Nations system entities in order to establish an inclusive dialogue at strategic level that will encourage further collaboration and sharing of experience in relation to innovation; and~~ *Encourages Member States to make use of the framework, provided by ICAO, that will help ensure the timely analysis of the need to develop global policies, standards, and other provisions in a technology agnostic manner, and tools that support the continuing advancement of innovation in the international aviation sector, while avoiding the adoption of premature innovations;*
5. ~~Directs the Council to urgently consider the establishment of a high-level body with the industry to regularly provide strategic advice to the Council concerning innovation in aviation.~~ *Calls on Member States to support the efforts of ICAO to promote an environment where innovation in aviation can flourish in all ICAO regions in line with the Strategic Goal of No Country Left Behind (NCLB);*
6. *Calls on Members States to encourage and support the engagement with the relevant ICAO processes by emerging aviation stakeholders, as well as out of sector stakeholders who have developed innovations that might be applied to achieving the ICAO Strategic Goals and;*
7. *Declares that this resolution supersedes Resolution A40-27.*

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