



WORKING PAPER

**SEVENTH WORLDWIDE AIR TRANSPORT CONFERENCE
(ATCONF/7)**

Montréal, HQ, 16 to 20 November 2026

**Agenda Item 4: Emerging technologies, new business models and other associated aspects
4.1 Economic regulatory frameworks on emerging technologies**

**AIR NAVIGATION SERVICES AS STRATEGIC ENABLERS OF NEW AIRSPACE USERS
AND OPERATING MODELS**

(Presented by Brazil and the Civil Air Navigation Services Organisation
(CANSO), and by supported 18 LACAC Member States¹)

EXECUTIVE SUMMARY

Air Navigation Services Providers (ANSPs) should be treated not only as operational infrastructure, but also as strategic infrastructure essential to enable the safe, scalable and economically sustainable deployment of Higher Airspace Operations (HAO), Unmanned Aircraft System Traffic Management (UTM), Advanced Air Mobility (AAM), Electric Vertical Take-off and Landing (eVTOL) aircraft and drones. Drawing on Brazil's experience, it proposes economic-policy principles for integrating new entrants while protecting existing aviation, global interoperability and equitable access. By treating ANSPs as strategic infrastructure and aligning governance, data, investment and performance policy, States can enable innovation while preserving the safety, efficiency and resilience of the current air transport system.

Action: The action by the conference is detailed in paragraph 7.1.

<i>Strategic Goal:</i>	This working paper relates to Strategic Goal: <i>The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All.</i>
<i>Financial implications:</i>	The recommendations may require resources for ICAO coordination, guidance, implementation support and capacity building. State investments should be phased and supported by transparent business cases as appropriate.
<i>References:</i>	ICAO Strategic Plan 2026-2050 Assembly Resolution A41-9 – <i>New Entrants</i> Doc 9750, <i>Global Air Navigation Plan</i> ICAO <i>Unmanned Aircraft Systems Traffic Management (UTM) – A Common Framework with Core Principles for Global Harmonization</i> , Edition 4; Brazilian UAM CONOPS (PCA 351-7, 2024) Aeronautics Directive for Brazilian Airspace Control (DCA 351-7, 2025)

¹ Belize, Bolivia (Plurinational State of), Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

1. INTRODUCTION

1.1 The Seventh Worldwide Air Transport Conference (ATConf/7) is intended to shape the economic policy foundations for innovation and emerging technologies, mobilise financing for civil aviation infrastructure, strengthen institutional and human capacity, and enable sustainable and inclusive growth.

1.2 The Air Traffic Management (ATM) integration and its interoperability with Higher Airspace Operations (HAO), Unmanned Aircraft System Traffic Management (UTM), Advanced Air Mobility (AAM), Electric Vertical Take-off and Landing (eVTOL) aircraft and drones can expand connectivity, logistics, public services and access to remote or underserved communities. The benefits, however, rely on dependable and scalable access to airspace.

1.3 This paper presents Brazil's view that Air Navigation Services Providers (ANSPs) are more than an operational support function. They are shared strategic infrastructure that links public policy, regulation, technology, investment and market development.

1.4 The paper focuses on the economic and institutional conditions needed to enable new operations; it does not replace the safety, security, environmental or technical work conducted through the competent International Civil Aviation Organization (ICAO) bodies.

2. THE POLICY ISSUE

2.1 Emerging airspace users can create new services and business models in passenger mobility, time-critical cargo, infrastructure inspection, agriculture, disaster response, environmental observation, connectivity and scientific activity, among many other areas.

2.2 The aircraft and digital platforms may be privately developed, but every viable operation depends on access rules, airspace structures, aeronautical information, surveillance, communications, contingency arrangements and interfaces with the conventional ATM system and “new ones” (UTM, Urban Air Mobility (UAM)).

2.3 However, this development creates a coordination and investment challenge. Individual operators cannot efficiently provide all shared layers of the operating environment. At the same time, fragmented national solutions can multiply compliance costs, limit cross-border operations and prevent providers from achieving scale. Unclear roles, unpredictable approval processes and inaccessible operational data can delay investment even when aircraft technology is mature.

2.4 Crucially, the transition must also protect existing users. New entrants should add services and capacity without reducing the safety, predictability, resilience or economic efficiency of commercial and general aviation. Segregation can be useful during early trials, but permanent fragmentation would constrain growth. The policy objective should therefore be progressive integration supported by measurable performance and proportionate risk management.

3. ANSP AS A CROSS-DOMAIN ENABLER

3.1 ANSPs provide the common operating environment in which different users can coexist. Their enabling functions include airspace design and access, demand and capacity management, flight

information, communications, navigation and surveillance, aeronautical and meteorological information, contingency management, civil-military coordination and the secure exchange of operational data.

3.2 Long-endurance vehicles, balloons and other platforms may operate mainly above conventional traffic under the HAO implementation, but they must climb and descend through managed airspace and may cross several Flight Information Regions. Predictable interfaces, flight-intent information, contingency procedures and cross-border coordination are therefore essential for commercial viability as well as safe integration.

3.3 In the same manner, high-volume operations of drones and their UTM ecosystem require digital services capable of distributing airspace constraints and flight intentions, authorising operations, supporting identification and monitoring, and coordinating exceptional events.

3.4 Additionally, it is understood that the ICAO UTM Framework recognises that UTM must interact with ATM in the short term and integrate with it in the long term, meaning that ANSP participation and well-defined interfaces with UTM service providers are central to that progression.

3.5 Within this framework, urban and regional operations (AAM and eVTOL aircraft) will combine new aircraft, vertiports, routes, weather sensitivities and increasing levels of automation. To achieve this, ANSPs should enable phased deployment through suitable airspace structures, capacity management, information services and integration with airport and conventional traffic, while allowing the operating model to evolve as demand and technology mature.

3.6 Crucial to this deployment, a common digital layer is relevant to all these domains. Interoperable data on identity, flight intent, airspace constraints, capacity and disruptions reduces uncertainty for operators and public authorities. Its governance must address quality, availability, authorised access, cybersecurity, privacy, liability and continuity of service. Open standards and portable interfaces can reduce lock-in and preserve competition.

3.7 Consequently, the economic effect is direct. Predictable access and common interfaces reduce entry costs and investment risk; scalable digital services lower the marginal cost of additional operations; and integrated capacity protects the value of existing networks. Conversely, incompatible systems and duplicative approvals divide markets and can make otherwise useful services uneconomic.

3.8 As a result, ANSPs modernisation should be considered in national development and investment plans alongside airports, connectivity and other civil aviation infrastructure. Investment decisions should account for the wider economic value of shared digital services and airspace capacity, not only the direct revenue of one operator or technology.

4. BRAZIL'S EXPERIENCE

4.1 Brazil manages a large and diverse airspace in which civil and military coordination is institutionally integrated. Through the Department of Airspace Control (DECEA), the country has placed the preparation for new airspace users within the broader evolution of the Brazilian Airspace Control System (SISCEAB), rather than treating each technology as an isolated project.

4.2 The collaborative Brazil (BR)-UTM Project, launched in 2023, brings together government, industry and academia in governance, operational and technology work streams. Its first phase mapped challenges, tested concepts and supported publication of a national provision in 2026. The next

phase addresses more complex operations and the development of an ecosystem for real-time data exchange and ATM/UTM integration.

4.3 For AAM, Brazil published a National UAM Operational Concept (PCA 351-7) and the work addresses the rules and airspace structures needed to integrate eVTOL and unmanned aircraft at increasing levels of simultaneous operation.

4.4 These developments are directly supported by projects within the SIRIUS Program portfolio. SIRIUS is a broader long-term investment framework for the modernization and evolution of the SISCEAB, comprising 17 projects and multiple work packages addressing different technological, operational and infrastructure needs. By providing a coordinated and sustained investment framework, SIRIUS enables the progressive implementation of the capabilities required for the integration of emerging airspace users and the evolution of ATM/UTM services, while ensuring that these developments are supported by the necessary infrastructure and resources.

4.5 The principal lesson is institutional: early involvement of ANSPs, regulators, operators, manufacturers, technology providers and academia allows operational, economic and governance assumptions to be tested together. An iterative approach creates evidence before irreversible investment, while maintaining compatibility with existing ATM and public-interest objectives.

5. A POLICY FRAMEWORK FOR SCALABLE INTEGRATION

5.1 As baseline, States should recognise ANSPs and ATM/UTM/UAM interoperability as essential enabling infrastructure for emerging aviation markets, incorporating their modernisation into national aviation, transport, digital, and investment plans. Such plans should remain technology-neutral and clearly define public outcomes, including safety, capacity, accessibility, resilience, and environmental performance.

5.2 Policies and regulatory frameworks for emerging airspace users, including HAO, AAM, UAS and other innovative entrants, should take into account the specific realities, capabilities and limitations of each region and State. The deployment of these operations will not occur uniformly across markets, and their integration may require different levels of infrastructure, technology, investment and institutional capacity. Implementation should therefore be proportionate and phased, allowing States and regions to prioritize investments according to their operational needs, market maturity and available resources, while maintaining the objective of global interoperability and avoiding unnecessary barriers to the development of emerging air transport markets.

5.3 Building upon this planning foundation, national frameworks should clearly allocate roles and accountabilities among civil aviation authorities, ANSPs, UTM or other service providers, operators, infrastructure providers, and local authorities. Proportionate, outcome-based requirements and controlled trials can support innovation, provided that transition criteria and the protection of existing users are made explicit.

5.4 To operationalise these governance frameworks, States and ICAO should promote common information models, open interfaces, and minimum service expectations to ensure national ecosystems can connect without imposing a single commercial architecture. Data governance arrangements must balance operational needs, market competition, security, privacy, and continuity of service.

5.5 In alignment with these data-sharing architectures, phased implementation should rely on measurable indicators, such as access-request processing time, service availability, capacity, predictability,

continuity, environmental effects, user costs, and the overall impact on conventional traffic. Comparable evidence will support regulatory adjustments, investment decisions, and the transfer of best practices between States.

5.6 Driven by this evidence-based approach, business cases should identify shared-use infrastructure, direct beneficiaries, implementation phases, risks, and funding sources. Charging arrangements must be consistent with applicable ICAO policies, while avoiding an inequitable burden on existing users or barriers that exclude smaller innovators.

5.7 Ultimately, to ensure global scalability, ICAO provisions should connect economic policy with the technical, safety, security, environmental, and legal work on new entrants. Implementation support, regional cooperation, training, and reusable reference architectures are necessary to enable participation by States with limited resources, ensuring the benefits of innovation do not remain concentrated in a few markets.

6. CONCLUSION

6.1 New aircraft and business models cannot scale on technology alone. They require trusted access to a shared operating environment. By treating ANSPs as strategic infrastructure and aligning governance, data, investment and performance policy, States can enable innovation while preserving the safety, efficiency and resilience of the current air transport system.

6.2 The same investments can benefit conventional aviation through better information, greater flexibility, stronger contingency capability and more efficient use of airspace. ANSPs modernization is therefore not a cost attributable only to new entrants; properly planned, it is a platform for connectivity, economic development and inclusive growth.

7. ACTION BY THE CONFERENCE

7.1 The Conference is invited to:

- a) recognize ANSPs as strategic infrastructure and their modernization, together with ATM/UTM/UAM interoperability and integration, as essential economic enablers of emerging air transport markets;
- b) request ICAO to take into consideration the principles set out in Section 5 of this paper in its cross-pillar coordination efforts to develop policy guidance on governance, data, business cases, capacity building and performance measurement for emerging air transport markets; and
- c) encourage States to integrate these enablers into national aviation and infrastructure plans through phased, performance-based and technology-neutral approaches.