



ICAO

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WORKING PAPER

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**Eleventh North American, Central American and Caribbean Directors of Civil Aviation Meeting
(NACC/DCA/11)**

Varadero, Cuba, 28-30 June 2023

**Agenda Item 4: NAM/CAR Regional Safety/Air Navigation Implementation
4.2 Air Navigation Implementation Matters**

COMPLETE AIR TRAFFIC SERVICES (CATS) GLOBAL COUNCIL

(Presented by CANSO)

EXECUTIVE SUMMARY

The Complete Air Traffic Services (CATS) Global Council is a unique industry forum which brings together [leaders from across the manned and unmanned aviation industries](#) together with service and technology providers. The CATS Global Council strongly believes that as a sector we need to act collectively and with a sense of urgency to mobilise and build the future complete air transport system together to meet evolving and future industry needs.

The first action of the CATS Global Council was to create a [collaborative vision of the future skies of 2045](#), described in the information paper "CATS Global Council Vision" from CANSO. The CATS Global Council then undertook the critical task of developing a roadmap, laying out the key activities to turn the vision into reality. The CATS vision roadmap includes technological and regulatory developments as well as political, economic, social and environmental aspects.

While much of the activity needed to build the future air transport system will be undertaken by industry, this working paper highlights some activities in which the ICAO has a critical role and makes suggestions for adding actions to the ICAO work programme.

Action:

- Note the development by a broad coalition of industry of a 2045 Future Sky Vision and detailed roadmap outlining the milestones and activities necessary to achieve it;
- Invite ICAO NACC region Members to consider their participation in the Complete Air Traffic Services (CATS) Global Council activities; and
- Map how ICAO NACC region activities would benefit from the CATS Global Council initiative.

Strategic Objectives:

- Strategic Objective 1 – Safety
- Strategic Objective 2 – Air Navigation Capacity and Efficiency

	<ul style="list-style-type: none"> • Strategic Objective 3 – Security & Facilitation • Strategic Objective 4 – Economic Development of Air Transport • Strategic Objective 5 – Environmental Protection
<i>References:</i>	<p>Doc 10118, Global Aviation Security Plan Doc 10004, Global Aviation Safety Plan Doc 9750, Global Air Navigation Plan futureskyvision.com</p> <ul style="list-style-type: none"> • CATS-Global-Council_Vision.pdf (canso.fra1.digitaloceanspaces.com)

1. Introduction

1.1 The [roadmap for future skies](#), developed by the CATS Global Council, provides a logical and ambitious pathway toward the CATS vision to create global airspace that is safe, fair, intelligent and interoperable, leveraging revolutionised design, technology and services to power sustainable global mobility and prosperity.

1.2 The roadmap is a living document for which the industry holds itself accountable for progress, with direct engagement with ICAO and States. It will be used to galvanise the industry and to enlist and engage stakeholders in the CATS vision for our future skies and the necessary activities to get there. The roadmap focuses on technical developments and addresses the political, economic, legal, social, operational and environmental aspects, which are all critical to progress.

1.3 The roadmap, built on seven core building blocks, comprises three layers: long-term goals, intermediate milestones and finally, actions. For each of the seven building blocks that underpin the vision, two long-term goals have been identified:

1.4 The roadmap establishes the following three overarching goals and eleven enabling goals, which have been derived from the CATS Global Council vision.

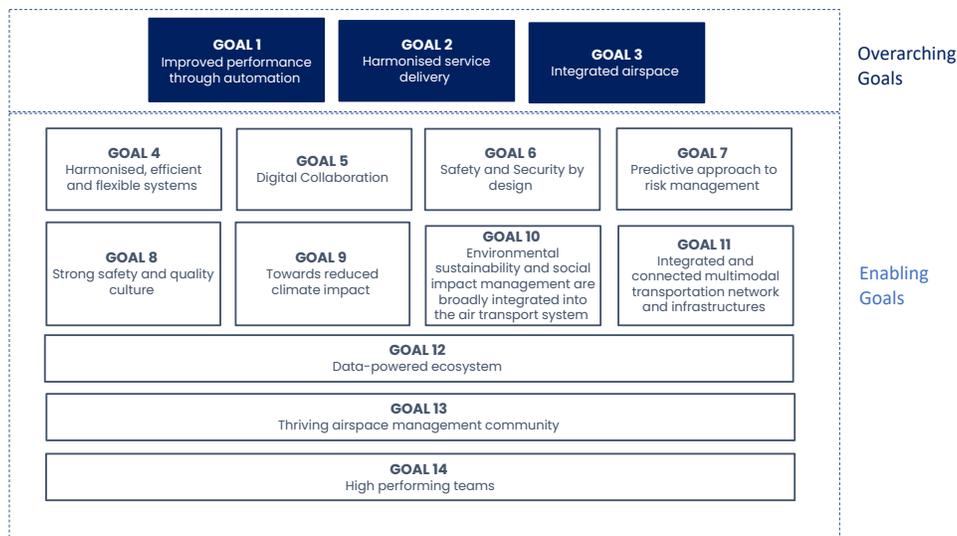


Figure 1: CATS 2045 Vision Long-Term Goals

1.5 For each long-term goal, the roadmap identifies the key milestones and actions needed to achieve it. Over 70 milestones and 100 activities have been identified.

2. DISCUSSION

OWNERSHIP OF KEY ACTIVITIES

2.1 The CATS Global Council feels that aviation is at a turning point. With many new airspace users looking to take to the skies, the industry should take the lead in determining what the future holds. The CATS Global Council accepts that it is the custodian of its vision, and therefore it is the industry's responsibility to deliver the vision and own most of the actions and activities identified in the roadmap. However, ICAO is solely and uniquely positioned to contribute to essential elements and drive global harmonisation, a vital pillar of the CATS vision.

2.2 For that reason, while the industry is prepared to contribute with technical expertise, the CATS Global Council believes that ICAO is best positioned to lead actions related to the following activities identified as part of the roadmap:

- Developing a framework for the decentralised management of sovereign airspace, addressing liability, security, regulatory, political and financial aspects.
- The development of a global service model in high-altitude airspace enables full integration and a review of existing airspace classes to ensure they remain fit for purpose for a future reality in which airspace will necessarily become a more unified, flexible and dynamic environment.
- The advancement of global electronic conspicuity standards guidance aimed at air-to-air and air-to-ground conspicuity.

- Integrating into the GASP of practices encourages proactive risk management for new strategic and tactical service delivery models.
- The evolution of the existing competency models to the changing roles and new positions in our future industry will need to enable the delivery of performance-based training programmes and unlock opportunities to use objective data and improve monitoring and evaluation.
- The integration into or alignment with the Global Air Navigation Plan of the relevant core goals and critical milestones identified within the roadmap.

2.3 In addition to the items identified in 2.2, ICAO plays an essential role in supporting the delivery of the Future Skies Vision through the ongoing work aimed at encouraging harmonisation and performance-based regulatory approaches, enabling the establishment of a globally harmonised international aviation trust framework that will help higher levels of digitisation in a secure manner

2.4 The broad industry coalition that the CATS Global Council represents is well positioned to advance other critical actions in the vision roadmap and will focus on the following workings areas (WA) in the period 2023-2025:

- WA1: Undertake the development of a new CONOPS for Global Airspace Management
- WA2: Create a global Traffic Management integration roadmap, including a pathway to Advanced Air Mobility (AAM) to plot a course toward full convergence of ATM and Unmanned Aircraft Systems Traffic Management (UTM).
- WA3: Optimised and simplified airspace.
 - Conduct a review of airspace classifications and provide inputs to ICAO to update the airspace classification system and review air traffic rules for all airspace participants within a more cooperative, inclusive and proactive framework.
 - Contribute to ICAO to create a new framework enabling decentralised airspace management across borders, addressing liability, security, regulatory, political and financial aspects.
- WA4: Innovation and digitalisation
 - Foster the adoption of a culture of innovation and digitalisation within the industry and improve the coordination for the development and deployment of innovative solutions (at global and regional levels)
 - Develop a standardisation strategy to take advantage of a more digital aviation industry and better use the standards that we have – and identify what measures we need
- WA5: Global safety and security. For example:
 - Develop principles for a predictive approach to risk management that are agreed upon and are consistent with the performance metrics
 - Develop recommendations for the safe and expanded implementation of technology and higher automation levels that consider human factors and globally harmonised safety culture principles.

- WA6: Achieving reduced climate impact.
 - Ensure ATM improvements in the decarbonisation roadmaps are embedded in all ANSP's strategic plans and that investment has been identified and secured.
 - Promote optimisation of ATM infrastructure. Convert remaining ATM infrastructure and operations to carbon neutrality
- WA7: Thriving aviation community
 - Create partnerships to champion STEM education with diverse candidates.
 - Find ways to enhance recruitment efforts for systems engineers, data architects, analysts, and Artificial Intelligence/Machine Learning experts.
 - Identify skills required in the future and define future career paths.
- WA 8: New ANS financing mechanisms
 - Develop new business models to address the greater diversity in aircraft operations and support services. These mechanisms should adequately and fairly cover the costs associated with providing services to an expanded customer base and provide sufficient performance incentives.

2.5 The Global Air Navigation Plan provides an essential vehicle for harmonised advancement of critical enabling capabilities. However, in its current state, it may not go far enough in critical areas or provide for the level of airspace integration or automation now envisaged as necessary for the future sky vision. The industry will develop a technology roadmap to support the new Global CONOPS. The outcome of that activity will be coordinated with the ICAO GANP Study Group to support relevant updates and evolutions to the Global Air Navigation Plan and other relevant ICAO groups like the recently established ICAO Advance Air Mobility Study Group.

2.6 The CATS Global Council includes more than 70 industry members, like: ACI, Airbus, Airports Authority of India, Airservices Australia, Boeing, CAAS, CANSO, Commercial Spaceflight Federation (CSF), Cranfield University, DFS, DSNA, EANA, EASA, Emirates Airline, Eurocontrol, European Defense Agency (EDA), Eve Air Mobility, FAA, IATA, NASA, NATO, NATS, Nav Canada, SESAR 3 JU, Wing, To mention some.

3. ACTION BY THE MEETING

3.1 The meeting is invited to take note of the information provided in the WP

3.2 Note the development by a broad coalition of industry of a 2045 Future Sky Vision and detailed roadmap outlining the milestones and activities necessary to achieve it;

3.3 Invite ICAO NACC region Members to consider their participation in the Complete Air Traffic Services (CATS) Global Council activities; and

3.4 Map how ICAO NACC activities would benefit from the CATS Global Council initiative.