



ICAO

INNOVATION

EUR/NAT WORKSHOP

Paris Office

#FUTUREAVIATION



Eduardo García

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CANSO



SHAPING OUR FUTURE SKIES

Eduardo Garcia, CANSO

EASPG/04 - item 6 – Innovation

30 November

Agenda

1. A vision for our skies of 2045
2. Ensuring ATM's contribution to sustainability
3. Airspace World



CANSO is the
global voice of the
air traffic
management
(ATM) industry and
is shaping our
future skies



Members represent

90%

of world air traffic

The Complete Air Traffic System (CATS) Global Council

Our Shared Vision for 2045

A Blueprint for Future Skies



The Complete Air Traffic System (CATS) Global Council



The first ever cross-industry vision for our future skies

In October 2021 the Complete Air Traffic System (CATS) Global Council, a forum of industry aviation leaders, launched '[our shared vision for the skies of 2045](#)'



Why is this Global Council important?

Airspace systems need to be ready

Dreams are easy, but need to

Let's set out the art of the possible

Technology is there, regulation is not - need all

Technology often proceeds policy and this causes fragmentation

Institutions need to reinvent

Industry has to supply more - there's no place for ANSPs to go to, nor new entrants

We are at a turning point we need to have a long term vision

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We should be inclusive of new players but take the lead collectively

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It is an exercise to design the future, embrace innovation, don't forget the most challenging issues for industry

ICAO should recognise this is time to move forward

It is an effort to look into the medium and long term

Our aviation industry has been fundamentally transformed – don't have the benefit of funds/time

COVID is going to expose the opportunity for transformed digital future

Additional airspace users, complete change of stakeholders – ICAO would look to us to engage participants such as cities

ICAO need to understand this a collaborative effort

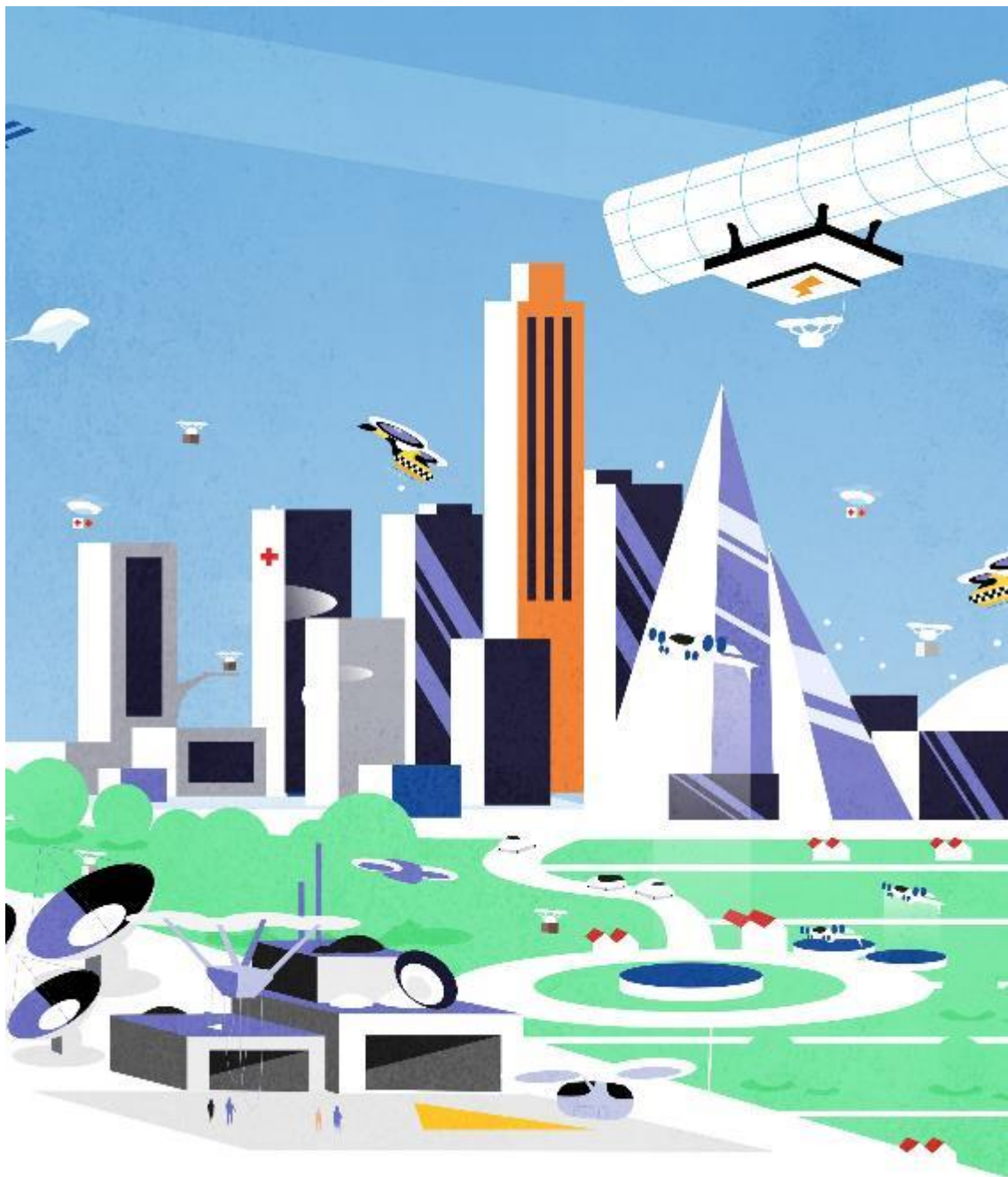
ICAO should recognise this is time to move forward

The time for change is now

The interconnected aviation skyscape we are aspiring to is just over two decades away. That's not very long.

As a sector, we need to collectively and immediately act in order to step closer towards this goal.





2045 Vision Statement

To create global airspace that is safe, fair, intelligent and interoperable, leveraging revolutionised design, technology and services to power global mobility and prosperity

2045 Vision Building Blocks



Services and Service Delivery



Technology and Digitisation



Safety and Regulation



Environmental Sustainability and Social Impact



Airspace Design and Classification

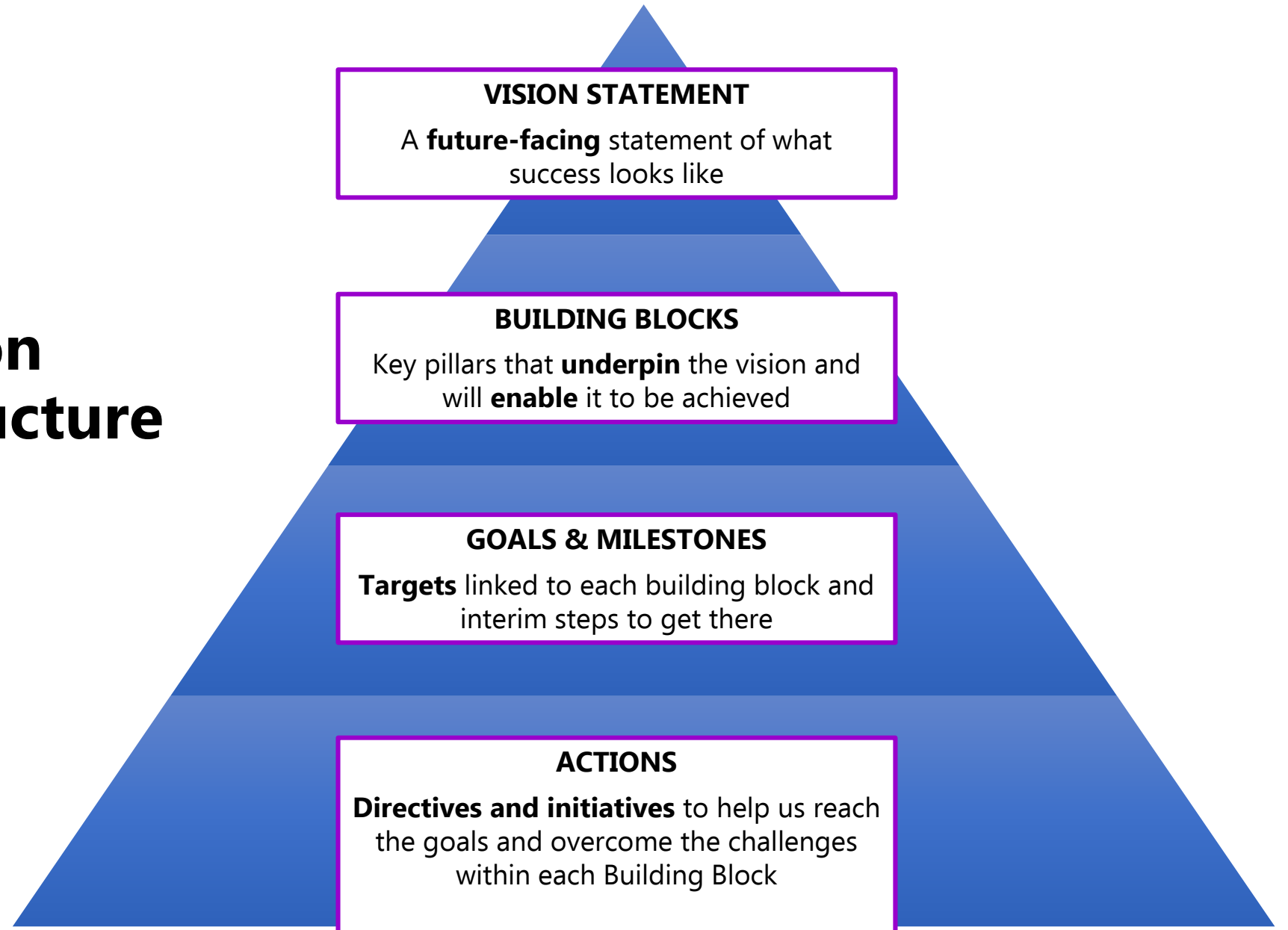


Data and Security



People, Organisation and Talent

CATS GC Vision Roadmap Structure



GOAL 1
Improved performance through automation

GOAL 2
Harmonised service delivery

GOAL 3
Integrated airspace

Overarching Goals

GOAL 4
Harmonised, efficient and flexible systems

GOAL 5
Digital Collaboration

GOAL 6
Safety and Security by design

GOAL 7
Predictive approach to risk management

GOAL 8
Strong safety and quality culture

GOAL 9
Towards reduced climate impact

GOAL 10
Environmental sustainability and social impact management are broadly integrated into the air transport system

GOAL 11
Integrated and connected multimodal transportation network and infrastructures

Enabling Goals

GOAL 12
Data-powered ecosystem

GOAL 13
Thriving airspace management community

GOAL 14
High performing teams

GOAL 1 Improved performance through automation

Advancements in technology and digitisation have enabled higher levels of automation and fuelled the rise of new and improved user-centric services.

2025

M1 New CONOPS

M4 Conceptual framework for cross border service delivery and management of sovereign airspace

M9 Technology roadmap

M18 Network of sandboxes

M68 New ANS financing mechanisms

2030

M25 Agile regulatory practices

M31 Sustainable integration of new technologies

M34 Electric UAS and eVTOLS reduce emissions in urban areas

M72 Disruption management

2035

M17 Autonomous and decentralised operation

M50 Digitally connected aviation

GOAL DESCRIPTION

GOAL 2 Harmonised service delivery

The design and delivery of services are harmonised, dynamic, flexible, resilient and scalable to meet the future needs of all airspace users.

2025

M1 New CONOPS

M3 International collaborative ATFCM process

M4 Conceptual framework for cross border service delivery and management of sovereign airspace

M54 Cyber security and resilience

2030

M2 Cross border service delivery

M13 Performance-based CNS

M25 Agile regulatory practices

M60 Flexible deployment of resources

M72 Disruption management

2035

M50 Digitally connected aviation

M52 Secured communications

GOAL DESCRIPTION

GOAL 3 Integrated airspace

Airspace becomes a unified environment that seamlessly integrates a diverse mix of airborne vehicles (piloted and unpiloted), equipment and services.

2025

M1 New CONOPS

M3 International collaborative ATFCM process

M4 Conceptual framework for cross border service delivery and management of sovereign airspace

M6 Harmonised FUA

M18 Network of sandboxes

M39 UAM operations are increasing

M45 Civil-military collaboration

M67 New data requirements for integration of new entrants

2030

M2 Cross border service delivery

M27 New approach to surveillance services and Detect and Avoid for all traffic

M42 Integrated and collaborative information systems

M43 Harmonised and optimised airspace

M44 Harmonised upper airspace

M47 Airspace design supports dynamic airspace and user integration of all users

M48 Airspace design supported by common rules

M69 Harmonised control traffic regions and terminal areas

2035

M5 UAS deconfliction strategy & cooperative avoidance provision

M7 Integrated and harmonised high altitude traffic

M8 Integrated and harmonised AAM

M41 Simplified airspace design

GOAL DESCRIPTION

ICAO Assembly 41

- The working paper presented by CANSO on behalf of ACI, IATA, IBAC, ICCAIA and IFALPA (WP356) entitled: "Industry Roadmap for future skies" was well received and the actions proposed in the paper were accepted ensuring ICAO attention on key items essential to the achievement of the CATS Global Council future sky vision.
- *The Committee invites the Assembly to:*
 - *Request ICAO to consider the development and prioritization of the activities identified as part of the Industry Roadmap for Future Skies in ICAO's work programme for the triennium 2023-2025.*

Collaborating on our Future Skies

- The event “Collaborating on our Future Skies”, kindly hosted by NASA at their HQ in California attracted many leaders from Silicon Valley tech companies .
- The event provided a platform to discuss the CATS, FAA and NASA visions and to consider how the industry can work together to create an exciting future for air mobility.
- We received positive feedback on the CATS vision and organisations from unmanned and manned aviation recognised the need to move forward with pace.

Next Steps

- Continued engagement and enrolment of stakeholders in the vision
- Define a 3-year work programme focussed on 2025 actions
- Drive alignment through involvement with global and regional planning activities

CATS GC Work Programme for 2023 - 2025

WA 1: A New CONOPS

WA 2: An ATM & UTM integration roadmap & Pathway to Advanced Air Mobility (AAM)

WA 3: Optimised and simplified airspace

WA 4: Innovation and digitalisation

WA 5: Global safety and security

WA 6: Achieving reduced climate impact

WA 7: Thriving airspace management community

WA 8: New ANS financing mechanisms

Ensuring ATM's contribution to sustainability



COMMITMENT TO FLY NET ZERO 2050



5 October 2021

As the global community emerges from the pandemic and the aviation sector rebounds from the worst crisis in its history, we will build on the success of previous sustainability efforts to push towards the third era of air transport: net-zero carbon global connectivity.

Scientific consensus shows that the Paris Agreement 1.5°C goal would greatly reduce the severity of climate change damage. It is imperative that all sections of society and business set course to support achievement of this goal. The collective air transport sector raises its ambition with a new long-term climate commitment:

- Global civil aviation operations will achieve net-zero carbon emissions by 2050, supported by accelerated efficiency measures, energy transition and innovation across the aviation sector and in partnership with governments around the world.

This goal is ambitious and challenging for air transport. It will require coordinated efforts within the aviation industry and from partners, particularly strong support from governments and the energy sector. The goal will be underpinned by a commitment to joint and cooperative action between all stakeholders. Waypoint 2050 outlines a number of key elements to achieve the decarbonisation of air transport, including:

- Increasing use of sustainable aviation fuels (SAF) and a transition away from fossil fuels by mid-century as part of a wider aviation energy shift including low-carbon electricity and green hydrogen.

We are committed to ensuring that aviation in 2050 will be able to meet the needs of over 10 billion passengers, connecting the world safely, securely and importantly, sustainably. Further details can be found at www.aviationbenefits.org/FlyNetZero

- Research, development and deployment of evolutionary and revolutionary airframe and propulsion systems, including the introduction of electric and / or hydrogen powered aircraft.
- Continued improvements in efficiency of operations and infrastructure across the system, including at airports and by air navigation service providers.
- Investment in high-quality carbon offsets in the near-term and carbon removal opportunities to address residual CO₂ emissions in the longer-term. In this regard, the industry reaffirms its full support for the International Civil Aviation Organization (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) as an effective transitional measure to stabilise net emissions from international aviation.

Across the sector, we are already undertaking a vast range of activities to reduce aviation CO₂ emissions. Our unwavering commitment to respond to the challenge of climate change has not abated despite the crisis we have faced. To achieve net-zero, the sector will require a supportive policy framework from governments focused on innovation rather than cost-inefficient instruments such as uncoordinated taxes or restrictive measures, as well as a robust and full commitment from the energy industry and other stakeholders. As support at the global level is critical, we urge ICAO member states to support the adoption of a long-term aspirational climate goal at the 41st ICAO Assembly in 2022.

Many long-term solutions require an acceleration of activity in the next decade, particularly the deployment of SAF. Some, such as continued efficiency gains, improvements in air traffic management and the implementation of CORSIA, can provide early climate action whilst longer-term measures are developed.



Global Commitment

Net Zero 2050

- CANSO pledged in October 2021, along with IATA, ACI, IBAC, ICCAIA and GAMA, that the global air transport sector will achieve net zero carbon emissions from global civil aviation operations by 2050
- We are working jointly with our industry partners to advocate with ICAO, States and other stakeholders for the policy and other supports needed to achieve that goal



Luis Felipe de Oliveira
Director General



Kurt Edwards
Director General



Simon Hocquard
Director General



Jan Pie
Chair



Willie Walsh
Director General



Pete Bunce
President and CEO

Supported by innovation and action throughout the supply chain:



Guillaume Faury
Chief Executive Officer



Stan Deal
President and CEO



Stefano Bortoli
Chief Executive Officer



Gaël Méheust
President and CEO



John S. Slattery
President and CEO



Christopher Calio
President



Warren East
Chief Executive Officer



Olivier Andrieu
Chief Executive Officer

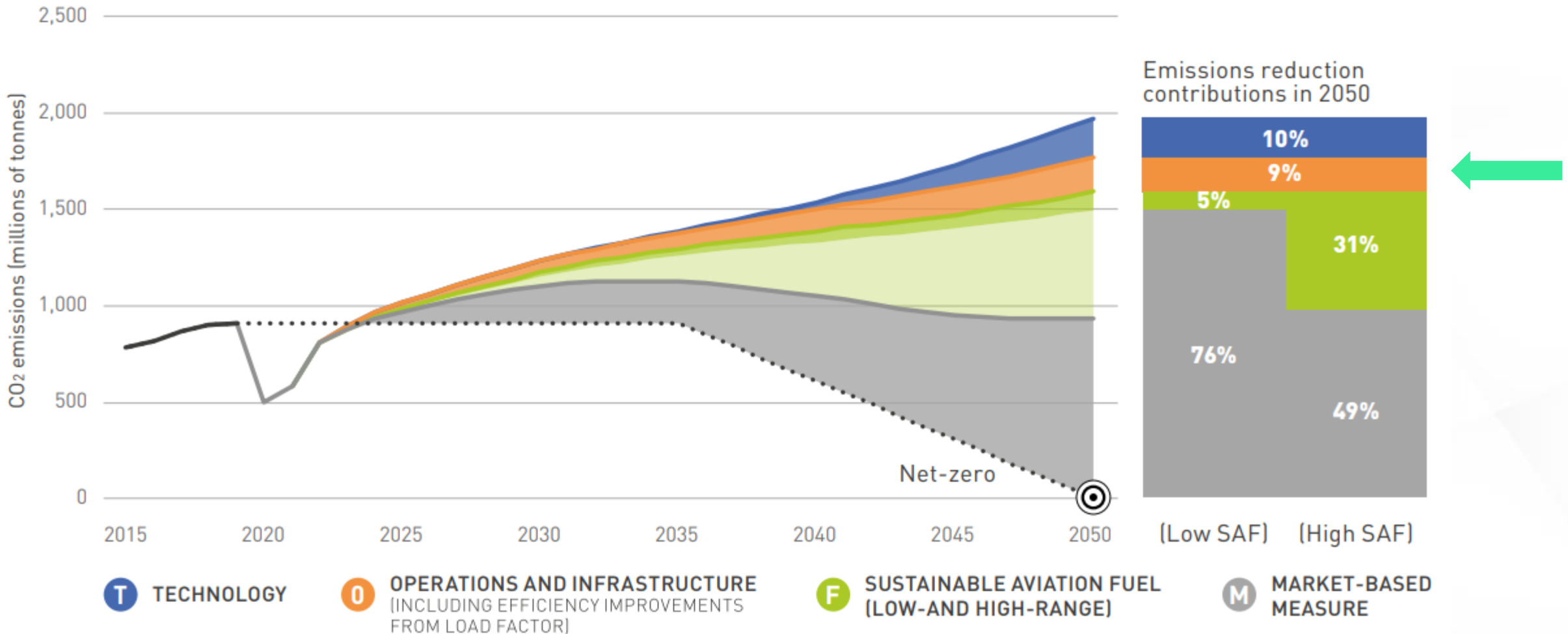


Francisco Gomes Neto
President and CEO



Stephen Timm
President

Our contribution is small... But important, particularly in the near term



So what can ATM do?


The tools in our tool chest are well known:

- Airspace modernisation
- Performance Based Navigation
- Continuous Climb / Continuous Descent
- Wake optimisation
- Free Route Airspace
- Flexible Use Airspace
- Air traffic flow management
- Surface movement optimization
- Closing surveillance gaps
- AMAN DMAN XMAN

**GREEN
ATM**



Why an accreditation programme?

- Increasing pressure from regulators, governments, airspace customers and employees to objectively demonstrate that we are doing whatever we can
 - Existing programmes don't fit ANSP unique business well
 - Environmental accreditation programmes in aviation already exist that cover airports, airlines, business aviation and cargo operators
 - GreenATM will enable us to celebrate accomplishments, encourage higher levels of ambition and increase adoption of best practice
- 



Programme Manual

Provides comprehensive information on:

- How the programme is structured
- How to complete the questionnaire
- Accreditation Scoring
- Recognition for third party accreditations
- Accreditation validity period
- Fees
- Trial participation
- Overview of all categories and topics – how they contribute to environmental benefit and explanation of the 5 Level Objectives
- Sample responses / evidence

The cover of the manual features a blue sky background with a white airplane flying upwards and to the right. Green leaves are visible in the bottom left corner. The title "The Guide to GreenATM Accreditation" is written in large, white, bold, sans-serif font. Below the title, it says "A Manual for the CANSO Environmental Accreditation Programme" in a smaller, white, sans-serif font. At the bottom right, there is a dark blue box with the text "SHAPING OUR FUTURE SKIES" in white, bold, sans-serif font, and "canso.org" in a smaller, white, sans-serif font below it.

The Guide to GreenATM Accreditation

A Manual for the CANSO
Environmental Accreditation
Programme

SHAPING
OUR
FUTURE
SKIES

canso.org

Accreditation scheme structure

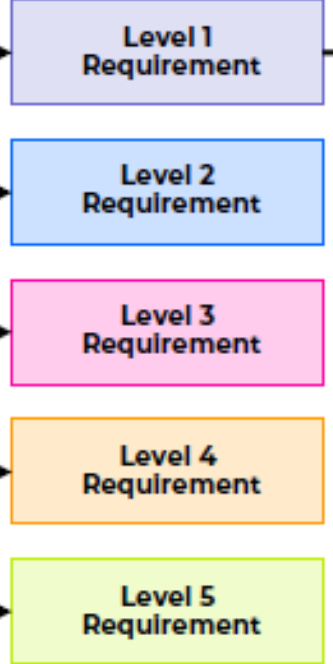
4 Primary Categories



24 Topics



Each Topic sub-divides into 5 defined maturity levels



Accreditation Guide includes questions for each Level, requiring a response and often evidence

Scoring

GOVERNANCE	CATEGORY POINTS	POINTS AVAILABLE PER TOPIC PER LEVEL
Policy & plan	12	3
Environmental Management System		3
Environmental culture		4
Environmental targets		2

INFRASTRUCTURE & UTILITIES	CATEGORY POINTS	POINTS AVAILABLE PER TOPIC PER LEVEL
Energy management	14	4
Power procurement and production		5
CNS Rationalisation		3
CNS Flight Inspection		2

OTHER	CATEGORY POINTS	POINTS AVAILABLE PER TOPIC PER LEVEL
Sustainable procurement	9	2
Airport/community relations		2
Airspace change management		2
Mobility management		3

IMPROVED ATM	CATEGORY POINTS	POINTS AVAILABLE PER TOPIC PER LEVEL
Flexible Use of Airspace (FUA)	65	7
Meteorological Information		4
Improved surveillance coverage		7
Airport – Collaborative Decision Making (A-CDM)		3
Surface Movement		4
Continuous Climb Operations (CCO)		4
Continuous Descent Operations (CDO)		6
Performance-Based Navigation (PBN)		7
Wake turbulence optimisation		3
Trajectory Optimisation		7
Air Traffic Flow Management		7
Research & Development		6

Accreditation scheme levels

- 5 accreditation levels modelled after recognised CANSO SoE programmes
- ANSPs accredited at a single level
- The awarded level will be a “weighted average” of achievement across four categories

Level 5 – Optimised

Level 4 – Assured

Level 3 – Managed

Level 2 – Defined

Level 1 – Informal arrangement

How to participate



- Contact greenatm@think.aero to request the full questionnaire
- Complete questionnaire for each topic, starting at Level 1 up to and including the highest level at which you feel you meet the objectives – no time limit.
- Collect documentation as evidence to your answers (reports, communications, training plans, etc.)
- Submit completed questionnaire and evidence and pay accreditation fee
- Participate in workshop calls for clarification and scoring discussion as your submission is being assessed
- Celebrate your awarded level!

Benefits

- Addresses a real gap. While there is a proliferation of ESG programmes, none fits the unique nature of ATM
- Provides objective validation of an ANSPs efforts, enhancing transparency and credibility with the public and stakeholders
- Facilitates enhanced appreciation of what ANSPs can do to reduce emissions in the skies and improve their own environmental footprint
- Emphasises and stimulates a path to continuous improvement
- Opportunity to highlight best practices and shared learning in our industry and inspire coordinated action that can deliver real environmental benefits
- Provides a framework for engagement with stakeholders and employees on climate action
- Recognise and acknowledge ANSPs efforts and achievements in reducing environmental footprint.

GREEN ATM

**GREEN
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LEVEL 1

**GREEN
ATM** 
LEVEL 2

**GREEN
ATM** 
LEVEL 3

**GREEN
ATM** 
LEVEL 4

**GREEN
ATM** 
LEVEL 5

AIRSPACE WORLD 2023

CANSO

Geneva, 8 to 10 March 2023

- Next year CANSO will deliver a brand new global event – **Airspace World**
- It will be *the* global destination for ATM, space and UTM organisations and people delivering the skies of tomorrow
- Taking place at the Palexpo Exhibition Centre in Geneva, Switzerland
- This event marks a new era for CANSO, and builds on our success of delivering global Air Traffic Management events, including the award-winning World ATM Congress, for the past 16 years
- It will be the most prestigious showcase of the technology and services required to deliver our blueprint for the future
- There will be an exciting programme of events under the theme **‘Shaping our Future Skies’**
- Find out more at <https://airspaceworld.com>

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THANK YOU!