



## **PANEL 6: Challenges and Opportunities: New CNS/ATM Technologies and Safety**

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**TRANSFORMING**  
GLOBAL ATM PERFORMANCE

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# Introducing CANSO

- **CANSO – the Civil Air Navigation Services Organisation – is the global voice of air traffic management (ATM) worldwide**
- **CANSO Members support over 85% of world air traffic**
- **CANSO's objectives in Europe are: to deliver a safe, efficient and sustainable ATM system across Europe; and strengthen ATM performance**
- **CANSO Europe represents and advocates for 32 European ANSPs**
- **26 million flights transited the airspace of CANSO Europe members in 2015**



# CANSO VIEWS ON KEY ISSUES OF CNS TECHNOLOGIES 1/2 SATELLITE TECHNOLOGY

- GNSS is the core technology that has led to the development of PBN. It is also the basis for future improvements in navigation services. While GNSS modified several key aspects such as safety improvements (Performance Based Navigation (PBN), Automatic Dependent Surveillance Broadcast (ADS-B) position) the need for recovery means in case of failure and/or unavailability raises **new challenges to Air Navigation Service Providers (ANSP)** (and regulators).
- The move to satellites (in particular with multi-constellation multi frequency) also triggers the **need to define the services** instead of the functionalities and also to contract the service to satellite service provider, which raises again new issues on **safety** and **liability**.
  - how to develop the complete safety case when only elements are under your full responsibility?
- Satellites could also support data link communications (IRIS Precursor) and enable to have **a long term strategic approach** on data link communications for which VHF Digital Link (VDL)2 would inevitably encounter limitations (when it eventually works...)
  - ➔ Need a **comprehensive approach** at regional (pan-European) level including the satellite service provider(s), the communication service providers, ANSPs, Airspace Users and regulators.

# CANSO VIEWS ON KEY ISSUES OF CNS TECHNOLOGIES 2/2 - SAFETY IMPROVEMENTS

- There are several examples of positive impact of new technologies on safety like
- **Airport safety nets** preventing runway incursions including vehicle drivers
  - Mode S surveillance supporting reduced **ATC separation minima** even in dense areas
  - **ACAS** reducing risk of mid-air collisions worldwide
  - Localizer Performance with Vertical guidance (**LPV**) operations reducing Controlled Flight into Terrain (CFIT)
  - Downlink of Aircraft Parameters supporting **tactical controller tools** and/or **ground based safety nets**

# Interoperability aspects – new issues

- **Thanks to ICAO Standards and recommended practices (SARPs), CNS systems are globally interoperable. This aspect is reinforced by RTCA/EUROCAE joint work on key CNS technologies. However this may be challenged if we move towards performance based requirements**
- What is the equivalent performance of Mode S surveillance? ADS-B alone? ADS-B+WAM surveillance? Is it traffic dependent (e.g. density or complexity)?
- How do you assess interoperability without end-to-end validation?

# Many thanks to all of you!



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