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Global Safety & Regulatory Affairs in Latin America & Caribbean

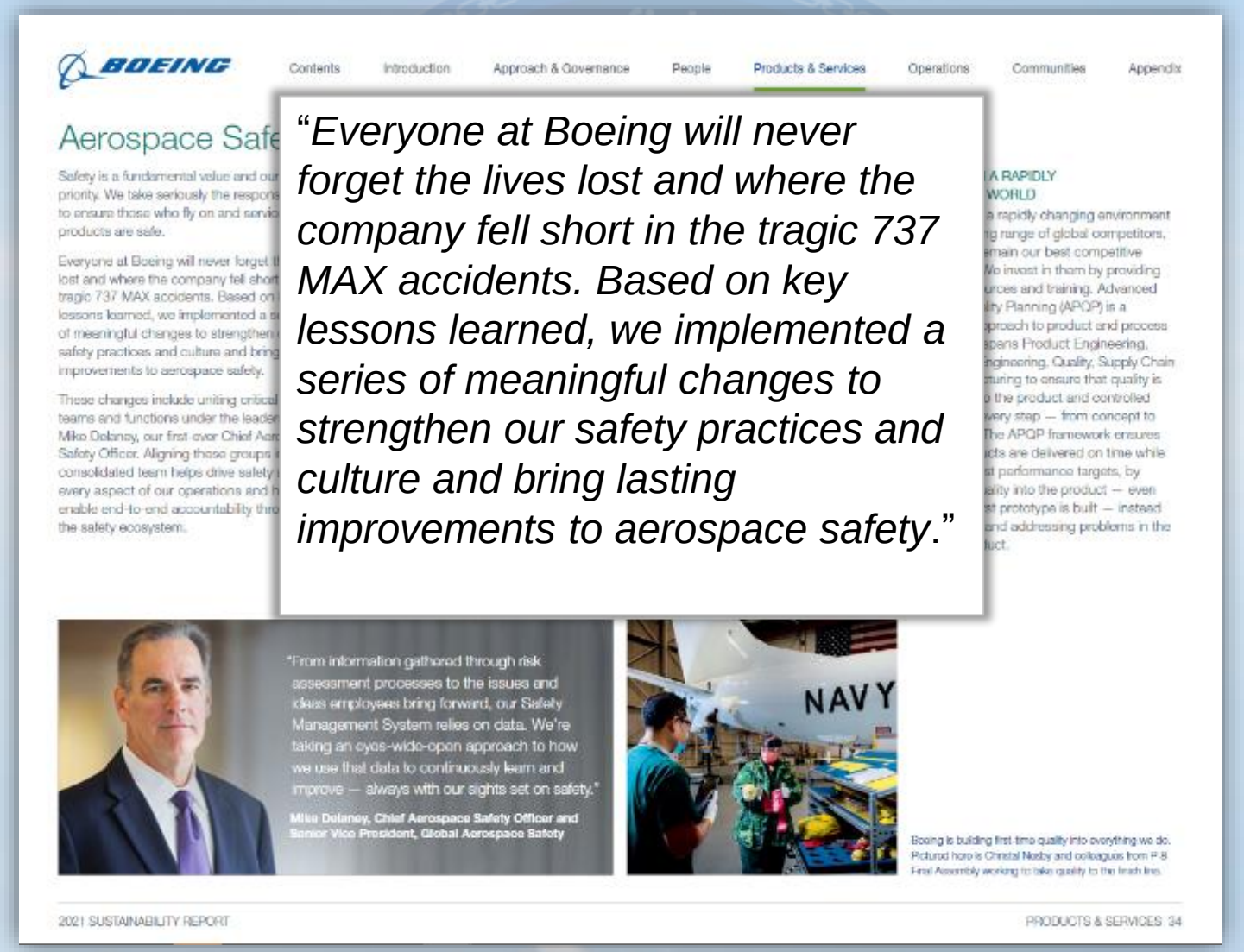
10OCT2024

FROM TRAGEDY TO TRIUMPH

HOW ACCIDENT INVESTIGATIONS SHAPE CERTIFICATION REQUIREMENTS AND ENHANCE ENGINEERING RELIABILITY

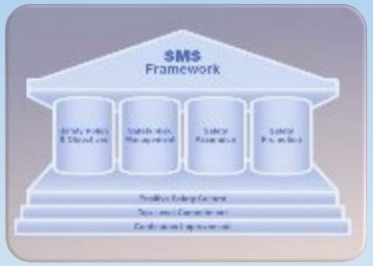
Alvimar de Lucena Costa Junior
Regulatory Affairs Specialist
The Boeing Company

We will never be done improving



"Everyone at Boeing will never forget the lives lost and where the company fell short in the tragic 737 MAX accidents. Based on key lessons learned, we implemented a series of meaningful changes to strengthen our safety practices and culture and bring lasting improvements to aerospace safety."

Commitment to Global Aerospace Safety



Boeing Enterprise SMS

New Airplane Delivery Support

Enhance Pilot and Maintainer Competency

Deployment of Flight Operations Representatives to Operator Sites

Global Safety and Regulatory Engagement

Operational Aspects of Design

Global Safety & Regulatory Affairs Presence – 2024 Global Coverage

Organizational Structure

Michael Delaney
CASO – Chief Aerospace Safety Officer

Lacey Pittman
VP SMS, Global Aerospace Safety, Safety Experience

Global Safety and Regulatory Affairs

Todd Sigler
Global Safety & Regulatory Affairs

Benjamin Ivers
Autonomous Systems
Seattle

Mildred Troegeler
Global Regulatory Strategy
Montreal

David Zwegers
Global Safety Strategy
Seattle

Victoria Wilks
International Strategy
Seattle

Accident / Incident Investigations

Stella Weidner
Product Safety & Air Safety Investigation

Flight Operations

Rich Lee
Deputy Chief Pilot
Safety & Tech Pilots

Mike Farrell
Air Crew Operations
Americas

FOR Leads – Americas
Capt. Susan MacNamara
Capt. Gregorio Delgado Soto

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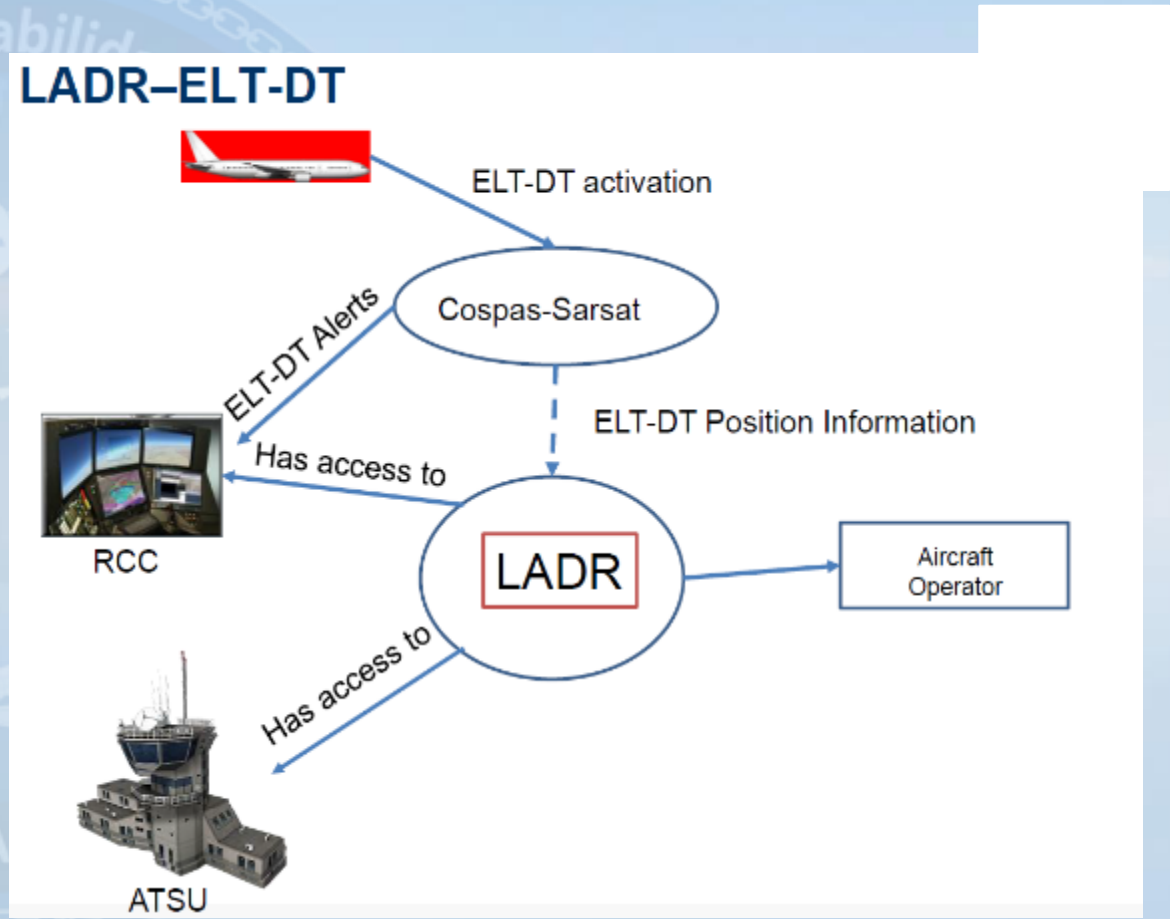
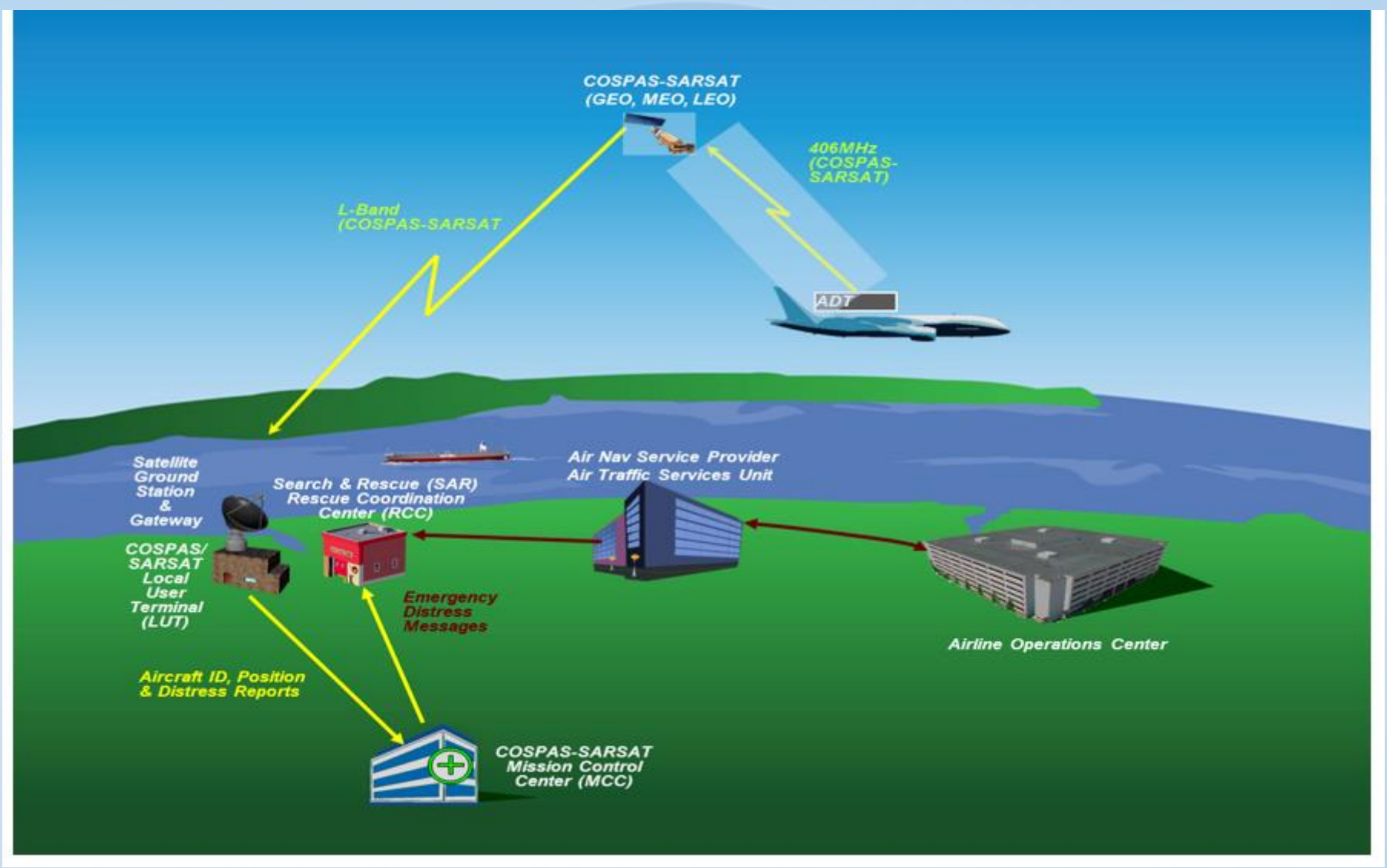
One timeline from tragedy to triumphGADSS-ADT What is it?

GADSS ADT is a system of systems

- Airplane Equipage
  - Emergency Locator Transmitter (ELT) with automatic activation when an aircraft is in distress
- Service Provider: COSPAS SARSAT
  - Constellation of satellites managed by COSPAS SARSAT
- ICAO Location of Aircraft in Distress Repository (LADR)
- Air Traffic Service Units and Rescue Coordination Centers
  - Need training and procedures for new types of alerts and LADR connectivity/training
- Operators
  - Airlines policy/training for ADT use including LADR connectivity/training
  - Requirements in ICAO PANS-OP

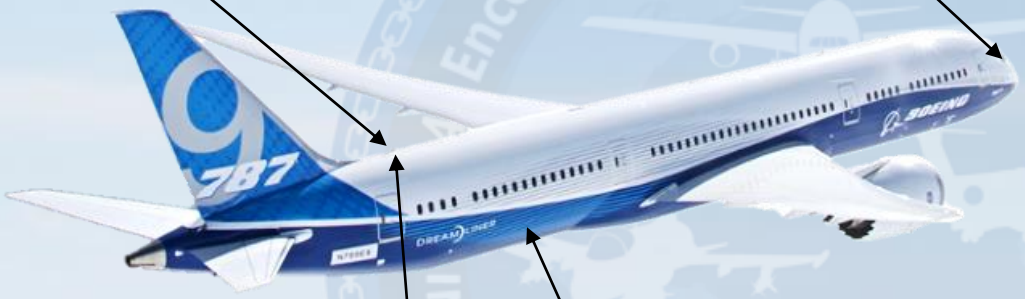


GADSS-ADT Infrastructure Requirements



GADSS-ADT Walk-Around (787 as example)


ELT-DT Antenna



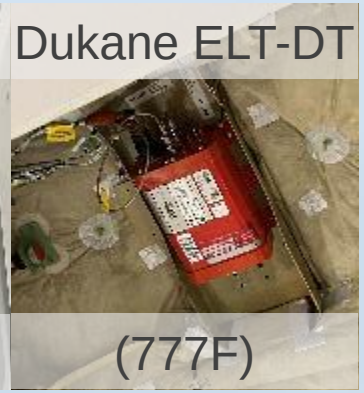

GADSS CCP (P5)

Similar Installation:
ELT-DT Antenna
ELT-DT
Cockpit Control Panel

New Installation:
ATU
Remote Function Panel Interface

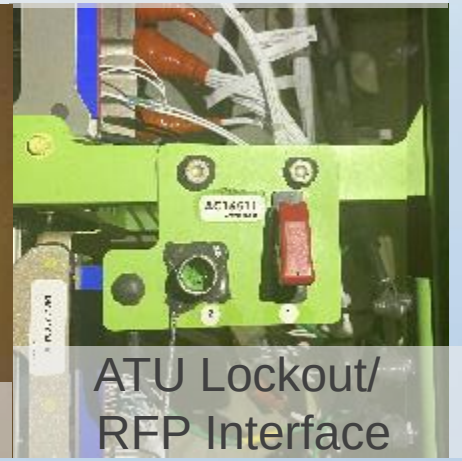
Provisions:
Wiring
RFP Interface
ATU ARINC Tray in E12 rack


Aft Crew rest
ACR ELT-DT


Dukane ELT-DT
(777F)

E12 Rack


GADSS ATU


ATU Lockout/ RFP Interface

Background of GADSS-NT and GADSS-ADT

- AF447 and MH370 showed the industry the need for improved airplane location data, particularly for oceanic routes.

Aircraft Tracking Normal Operations

11/2018

RFIT & FFIT,

- Met with existing aircraft options and service

(2018-ACB-0006 Released April 2019)

Autonomous Distress Tracking (ADT)

01/2025

FFIT

- CoA on/after 1 Jan 2024, applicable 1 Jan 2025
- New capabilities driven by autonomy/resilience and in-air distress based activation requirements

Timely Recovery of Flight Data

01/2021

New Type Certification applied for on/after this date

- New capabilities
- FDR and CVR data

ICAO Standard

Annex 6 — Operation of Aircraft
Part I, International Commercial Air Transport — Aeroplanes

6.18 LOCATION OF AN AEROPLANE IN DISTRESS

6.18.1 As of 1 January 2025, all aeroplanes of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2024, shall autonomously transmit information from which a position can be determined by the operator at least once every minute, when in distress, in accordance with Appendix 9.

6.18.2 **Recommendation.**— *All aeroplanes of a maximum certificated take-off mass of over 5 700 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2023, should autonomously transmit information from which a position can be determined at least once every minute, when in distress, in accordance with Appendix 9.*

6.18.3 The operator shall make position information of a flight in distress available to the appropriate organizations, as established by the State of the Operator.

Note 1.— Refer to 4.2.1.3.1 for operator responsibilities when using third parties.

Note 2.— Operational procedures for monitoring and making position information of a flight in distress available to the appropriate organizations in a timely manner are contained in PANS-OPS, Volume III, Section 10.

Safety Experience at Boeing

Motivate everyone to own their safety responsibility to advance Boeing's safety culture

Accident Reports

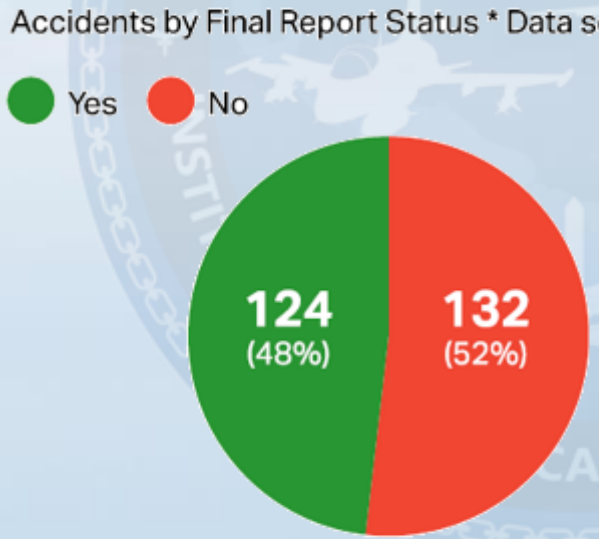
- Report Completion Data
- Regional Aviation Safety Group – Pan America (RASG-PA)
- Working Paper

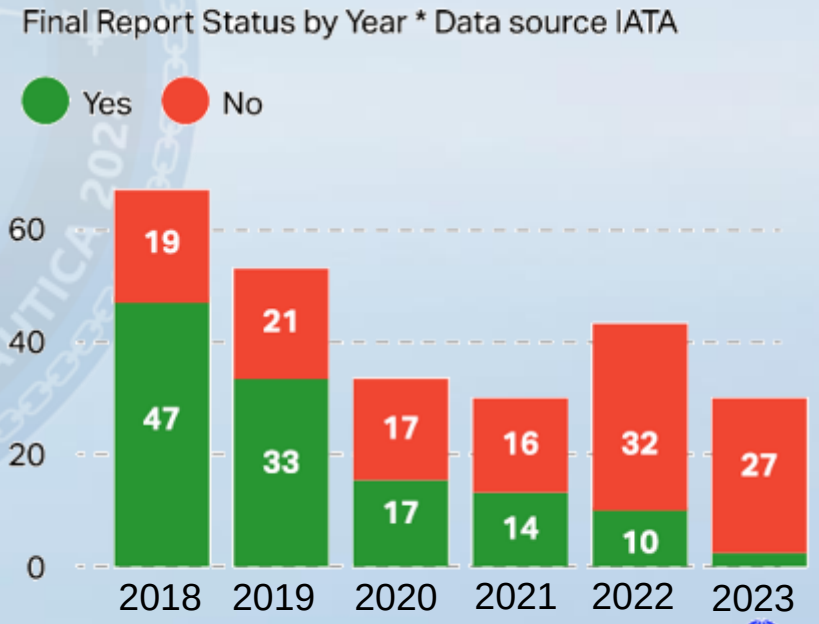
Status of Accident Investigation Reports

As of 1-Feb-24, IATA data shows that from 2018-2023 (5 yrs):

- 256 accidents happened globally

52% of accidents since 2018 lack a final published report





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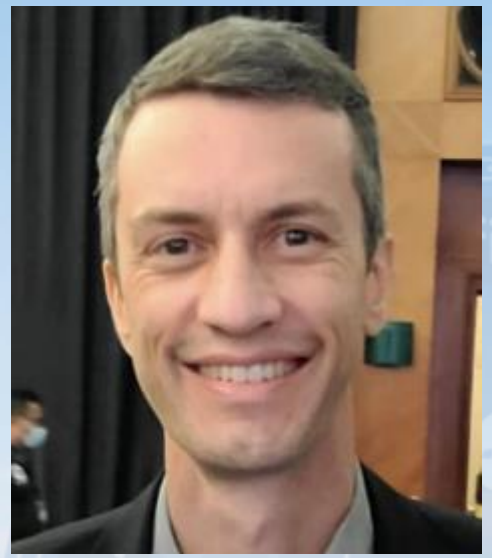

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4º Encontro de Confiabilidade na Aviação
INSTITUTO DE LOGÍSTICA DA AERONÁUTICA 2024

BOEING