Aviation Safety Information Analysis and Sharing (ASIAS)

Voluntary Information-Sharing System Working Group

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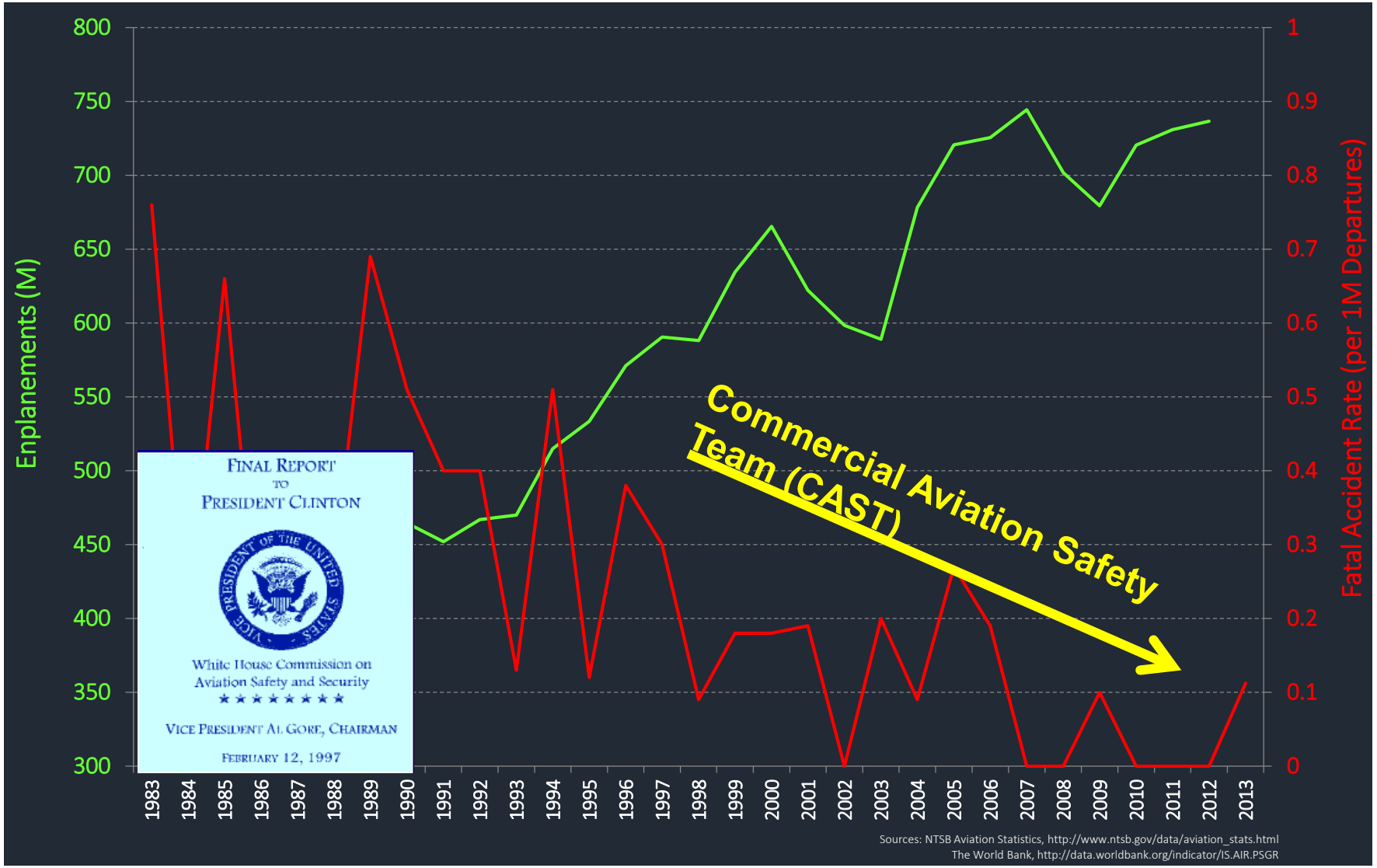
ASIAS Overview

- What is ASIAS?
- History
- Governance
- Safety Information Protections
- Data, Architecture & Analytics

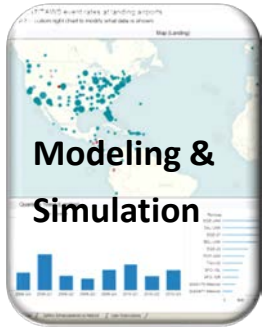
What is ASIAS?

- *A collaborative Government-Industry initiative on safety data analysis & sharing*
- *A risk-based approach to aviation safety, identifying & understanding risks before accidents or incidents occur*
- *Timely mitigation & prevention*

Aviation Has Faced Safety Challenges



ASIAS is a Key Component of Continuous Improvement in Aviation Safety



History & Timeline

- **1995** – U.S. Transportation Secretary Federico Peña Called for "Zero Accidents"

- **1996 & 1997**
  - White House Commission on Aviation Safety and Security Report
  - National Civil Aviation Review Commission (NCARC) Report
  - Both reports recommended the FAA work with Airline Industry to Reduce Aviation Accidents

- **1996** – Integrated Safety Strategy Team (ISST) Established by Aviation Community

History and Timeline (cont.)

- **1997** – Federal Aviation Administration (FAA), National Aeronautics and Space Administration (NASA), and Department of Defense (DoD) joined with ISST to form the Commercial Aviation Strategy Safety Team (CASST)
    - CASST then brought officials from FAA and NASA to form the Commercial Aviation Safety Team (CAST)
- **2007** - FAA Implemented ASIAS – to collect and analyze data from multiple databases to *proactively* identify and address risks that may lead to accidents

Safety Information and Data Protections

Public Law

- 49 U.S. Code § 40123—Protection of Voluntarily Submitted Information

FAA Regulations

- 14 CFR Part 193—Protection of Voluntarily Submitted Information
- 14 CFR Part 91.25 – Aviation Safety Reporting Program; Prohibition against use of reports for enforcement purposes

International Standards

- International Civil Aviation Organization (ICAO) - Annex 19 to the Convention on International Civil Aviation - Safety Management, Chapter 5. Safety Data Collection, Analysis and Exchange

ASIAS is Governed by Formal Principles

data used solely for **advancement of safety**

voluntary submission of safety-sensitive data

operator/OEM/MRO **data are de-identified**

transparency for how data are managed and utilized

procedures & policies based on **collaborative governance**

analyses **approved by** an **ASIAS Executive Board**

ASIAS Privacy & Governance

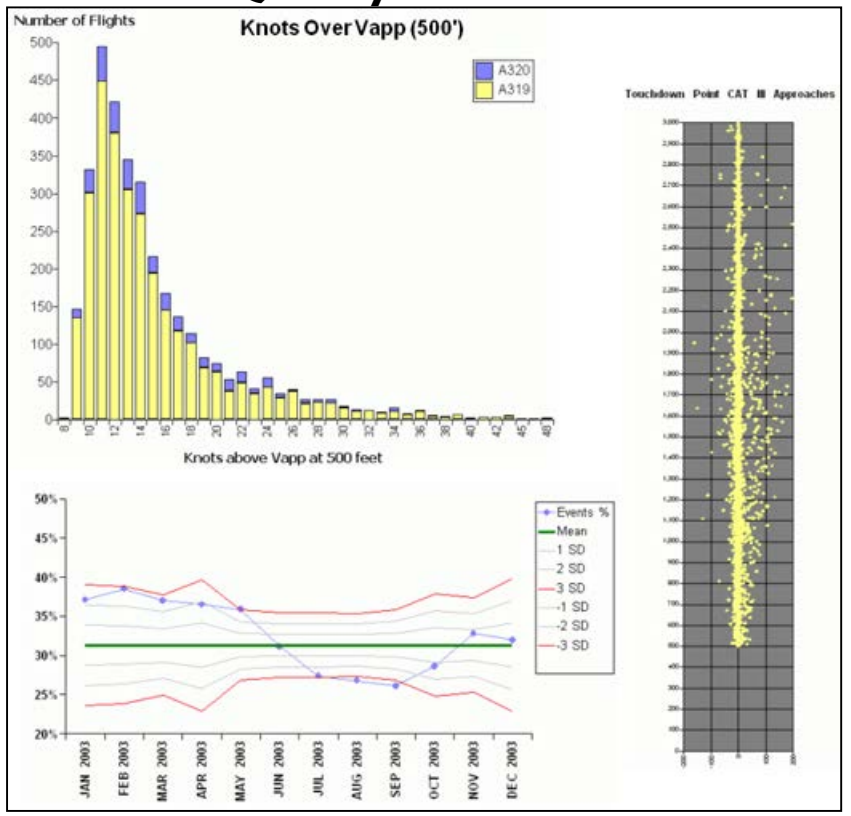
- **Hierarchical bodies govern the program**
  - The ASIAS Executive Board (AEB) is co-chaired by senior executives from both government and industry
- **Strong governance closely controls who can see data and how the data is used**
  - Executed Cooperative Agreement required to participate
  - Specific circumstances require NDAs
  - Can only be used for safety programs
  - Cannot be used for enforcement
- **FAA cannot see any operator specific data—only authorized de-identified aggregate information**

Data, Architecture & Analysis

Protected Airline Safety Data in ASIAS

*ASAP: Aviation Safety Action Program

**FOQA: Flight Operations Quality Assurance



(Over 185,000 ASAP Reports)

*Refer to FAA Advisory Circular 120-66 for more information

(Over 16 Million FOQA Flights)

**Refer to FAA Advisory Circular 120-66 for more information

data

key challenges

working with **big data** requires a **methodical approach** that comprehensively addresses data management

data quality issues require multiple processes to make narrative data meaningful & useable

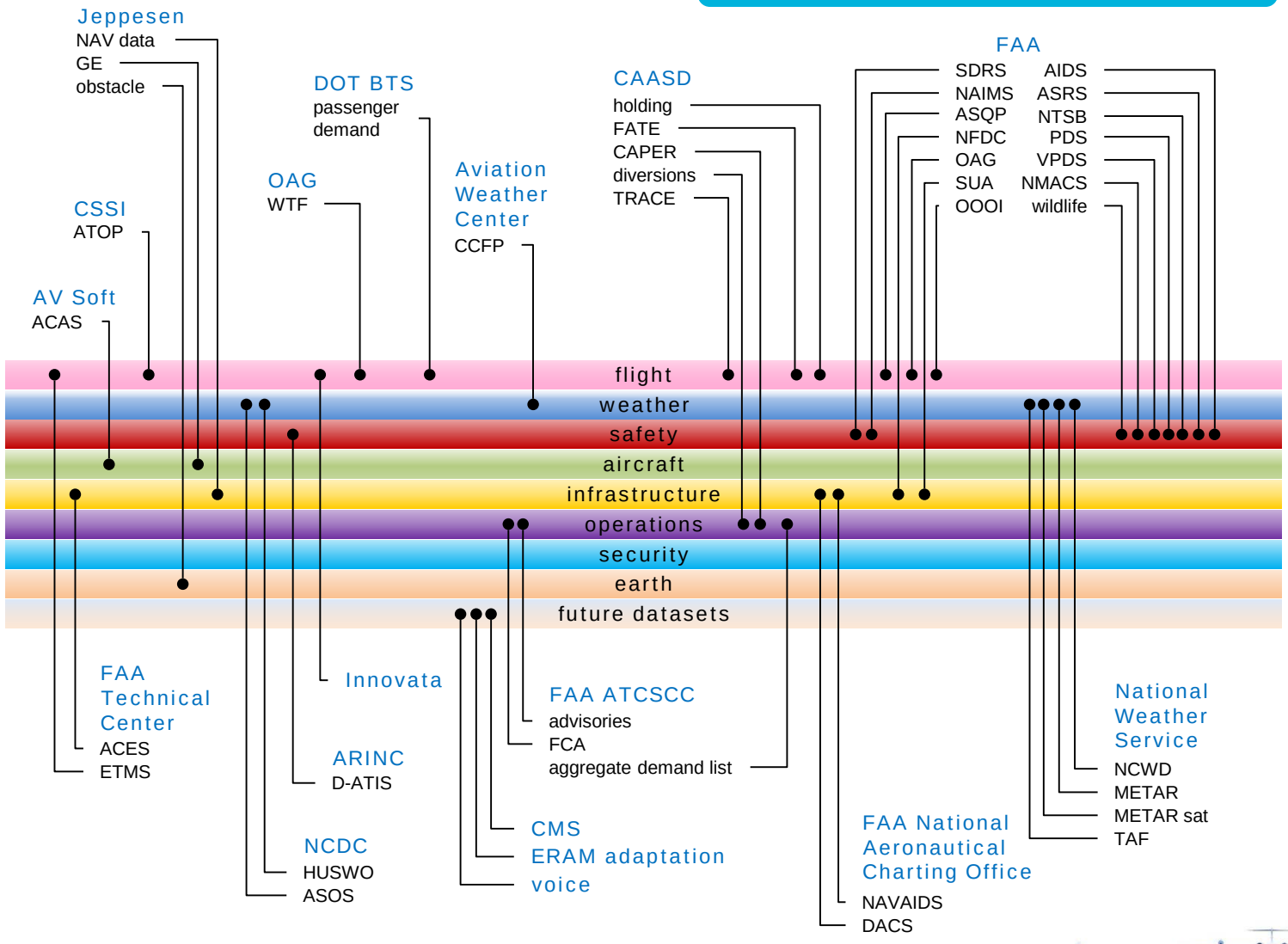
wide **variety of data types and sources** requires complex processes for effective integration

data

types

Proprietary Data

sources

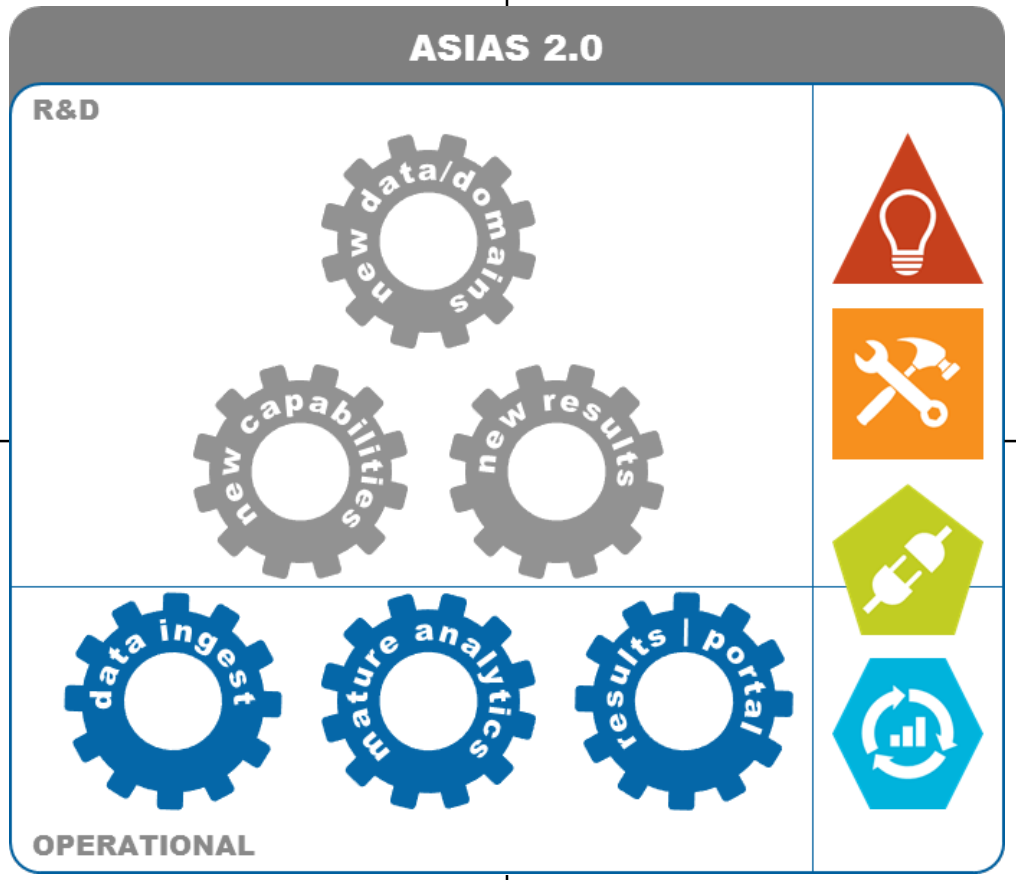


architecture

key challenges

centralized security and access control to align with governance

data-analytics software and tools integration with computing environment (in situ | in cloud)

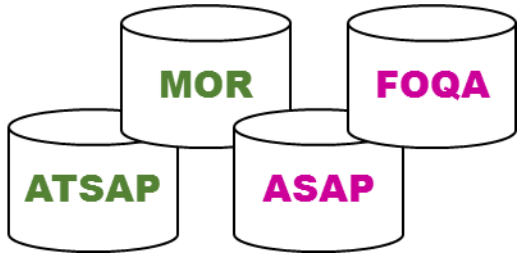


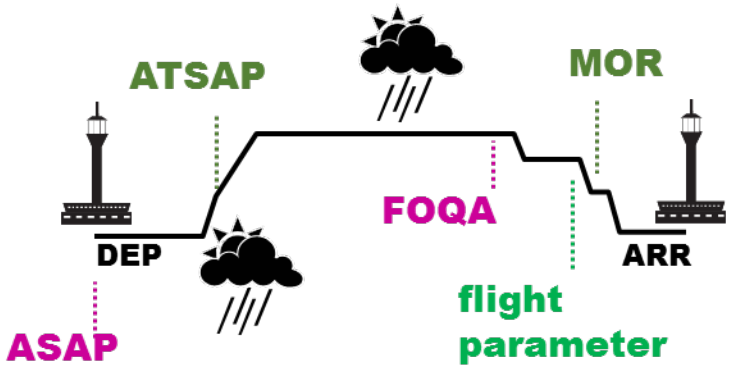
continuous validation and verification to address data quality issues, inconsistent data feeds and new algorithms with limited verification

data management practices that can handle the volume, velocity and diversity of data

analysis

key challenges



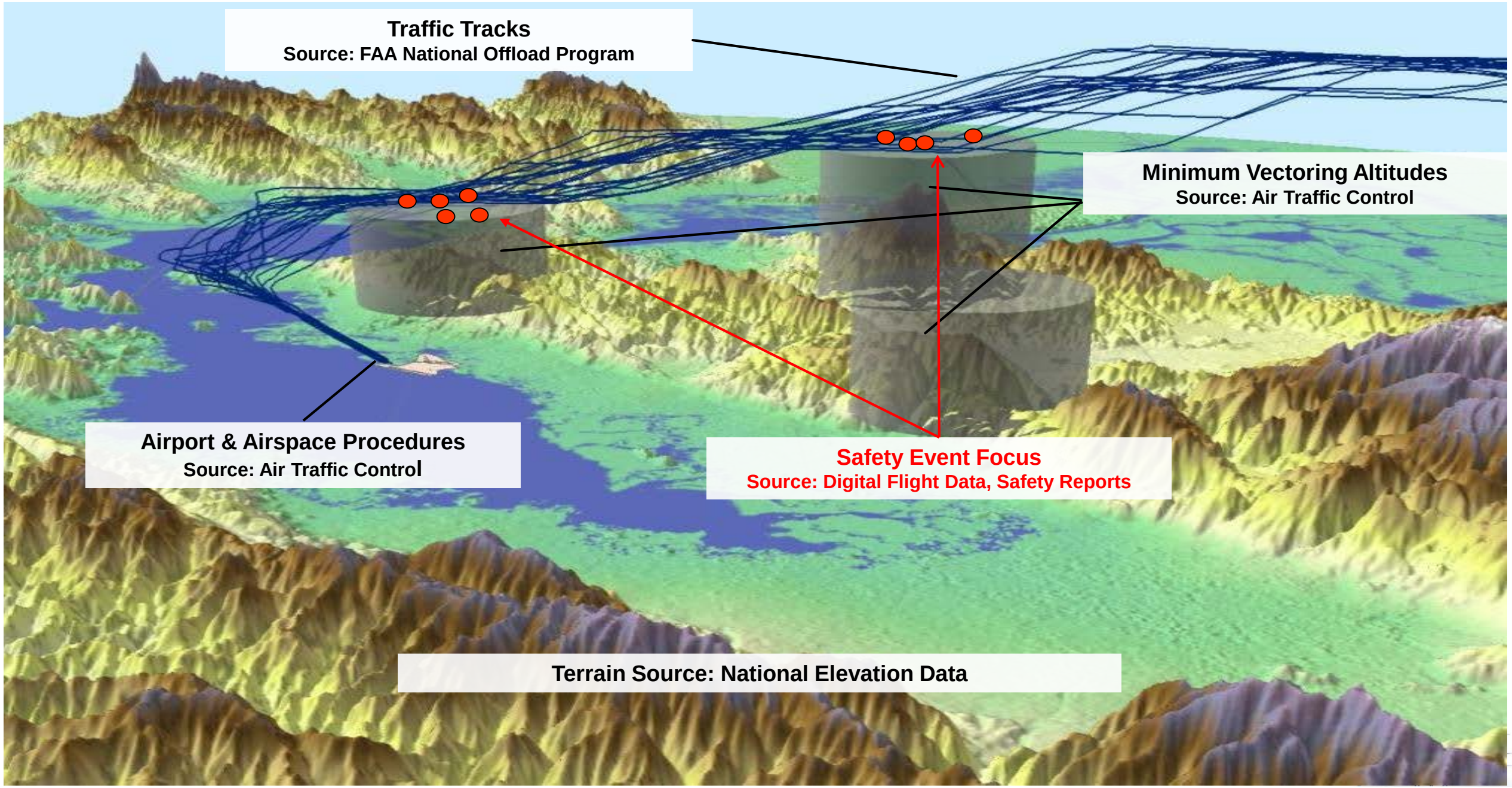


fusion of information from NAS-wide data sources to individual flights is required to enable more complete safety analyses

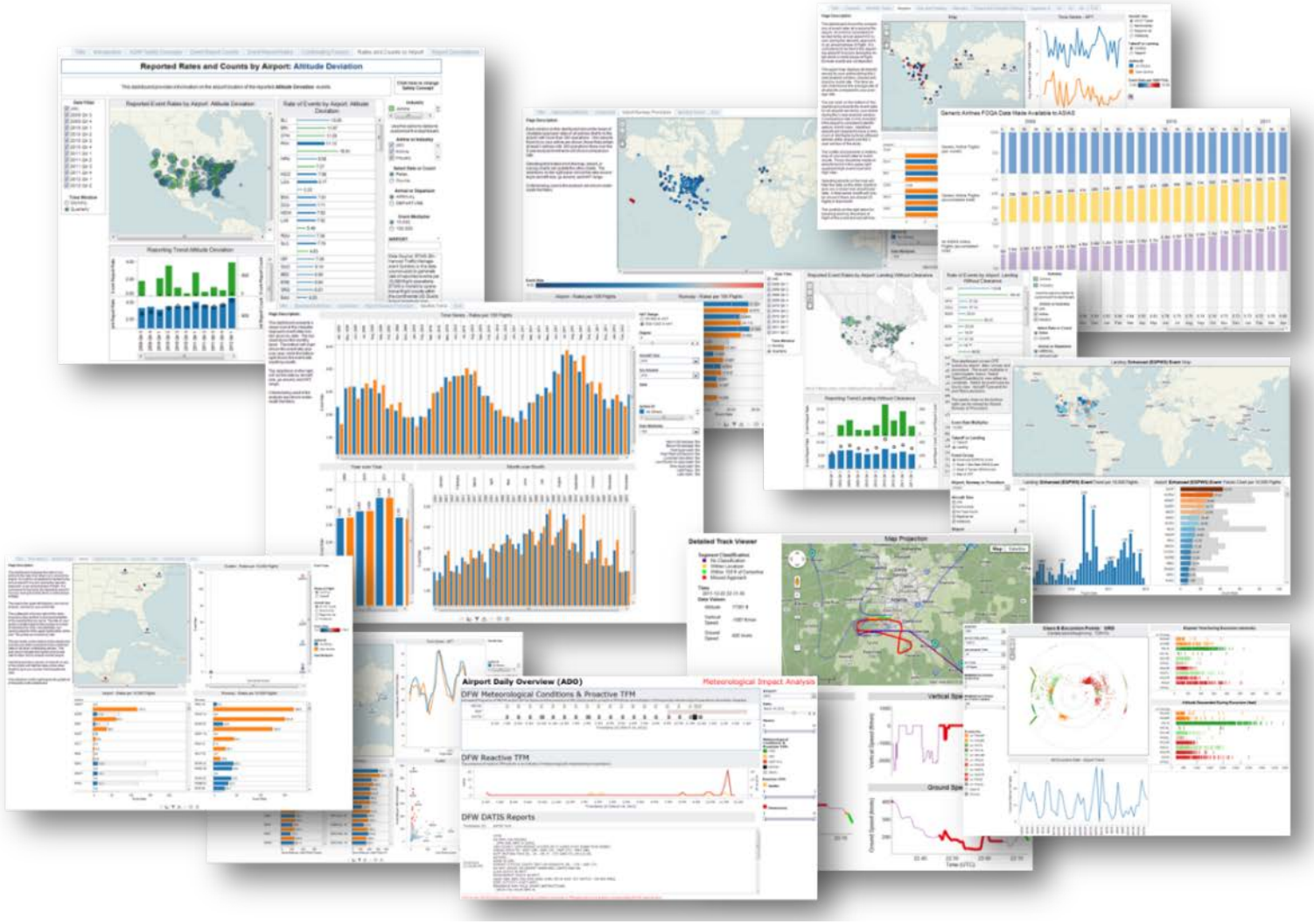
surveillance	NAS-wide trends | aircraft performance | traffic separation
environment	meteorological conditions | runway configuration | weather – winds | delays, diversions
avionics	equipage hardware and software
ATSAP / MOR	loss of separation | controller factors
ASAP	pilot factors | contributing factors
FOQA	aircraft performance | configuration | event locations
ADS-B	high quality position reports
ATC voice	ATC clearance

non-protected
protected
TBD

LEVERAGING DATA FROM ACROSS THE INDUSTRY PROVIDES VALUABLE INSIGHTS



All Results Provided via a Secure Web Portal



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