



Collaborative Partnerships

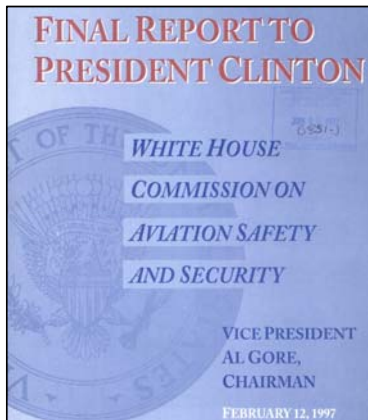


Commercial Aviation Safety Team (CAST)

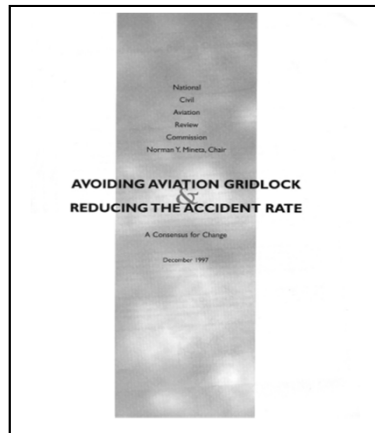
Aviation Safety Analysis and Sharing (ASIAS)

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FAA Technical Advisor, Vulnerability Discovery and Safety Measurement

In the United States, our focus was set by the White House Commission on Aviation Safety and the National Civil Aviation Review Commission (NCARC)



1.1 . . . Reduce Fatal Accident Rate . . .



- . . . Strategic Plan to Improve Safety . . .
- . . . Improve Safety Worldwide . . .

CAST Goal



- ▶ CAST came together in 1997 to form an unprecedented Industry-Government partnership.
 - ▶ Voluntary commitments, consensus decision-making, data-driven risk management, implementation-focused.
 - ▶ Goal:



Original *Reduce the U.S. commercial aviation fatal accident rate by 80 percent by 2007.*

New

Reduce the U.S. commercial aviation fatality risk by at least 50 percent from 2010 to 2025.

83%

CAST brings together key stakeholders to cooperatively develop and implement a prioritized safety agenda.



Industry

Government

A4A	IATA**
AIA	NACA
Airbus	Boeing
ALPA	GE*
ACI-NA	RAA
CAPA	FSF

Commercial Aviation Safety Team

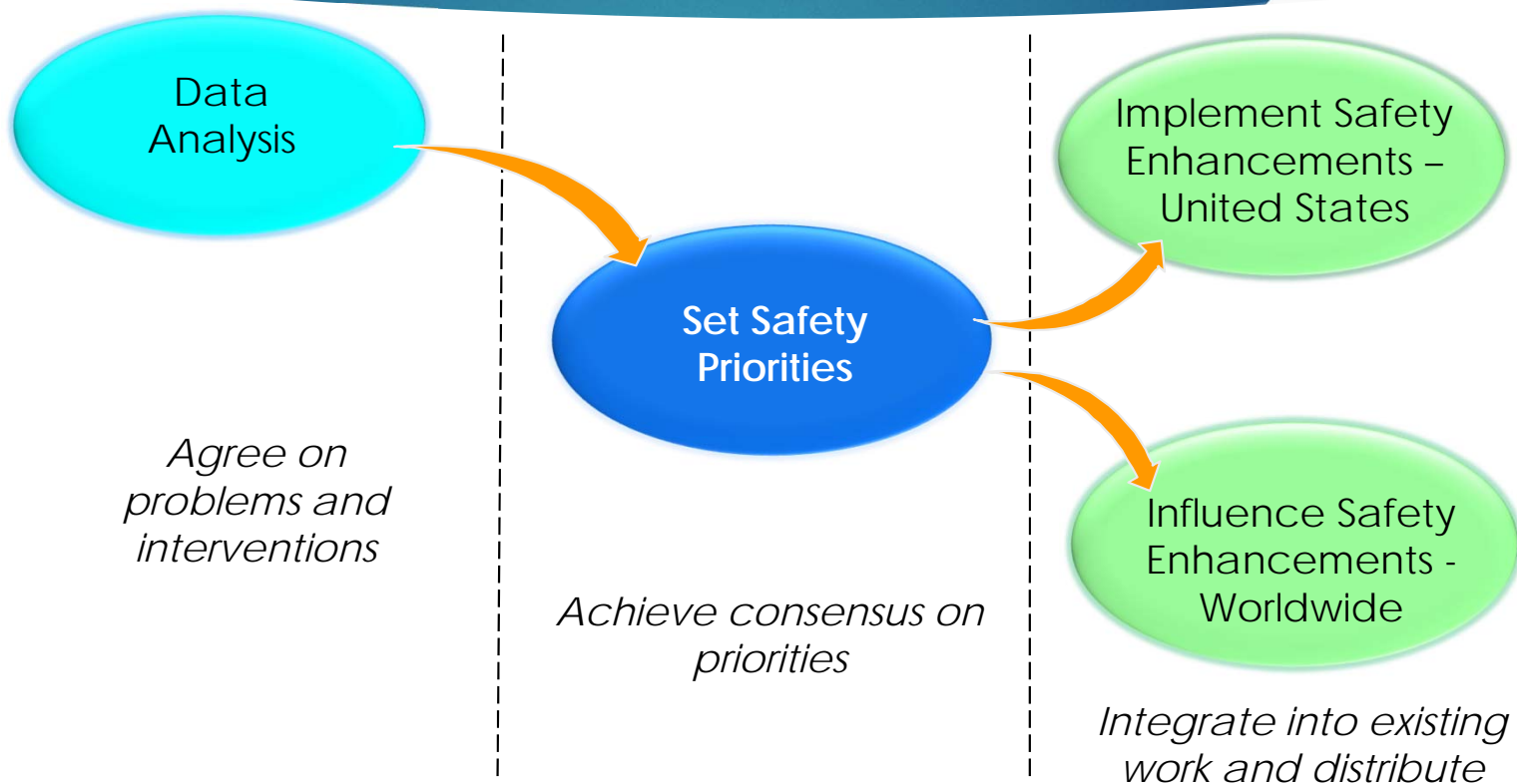
DOD	TCCA
FAA	NATCA
NASA	NTSB**
ICAO**	EASA**

* Representing P&W and RR

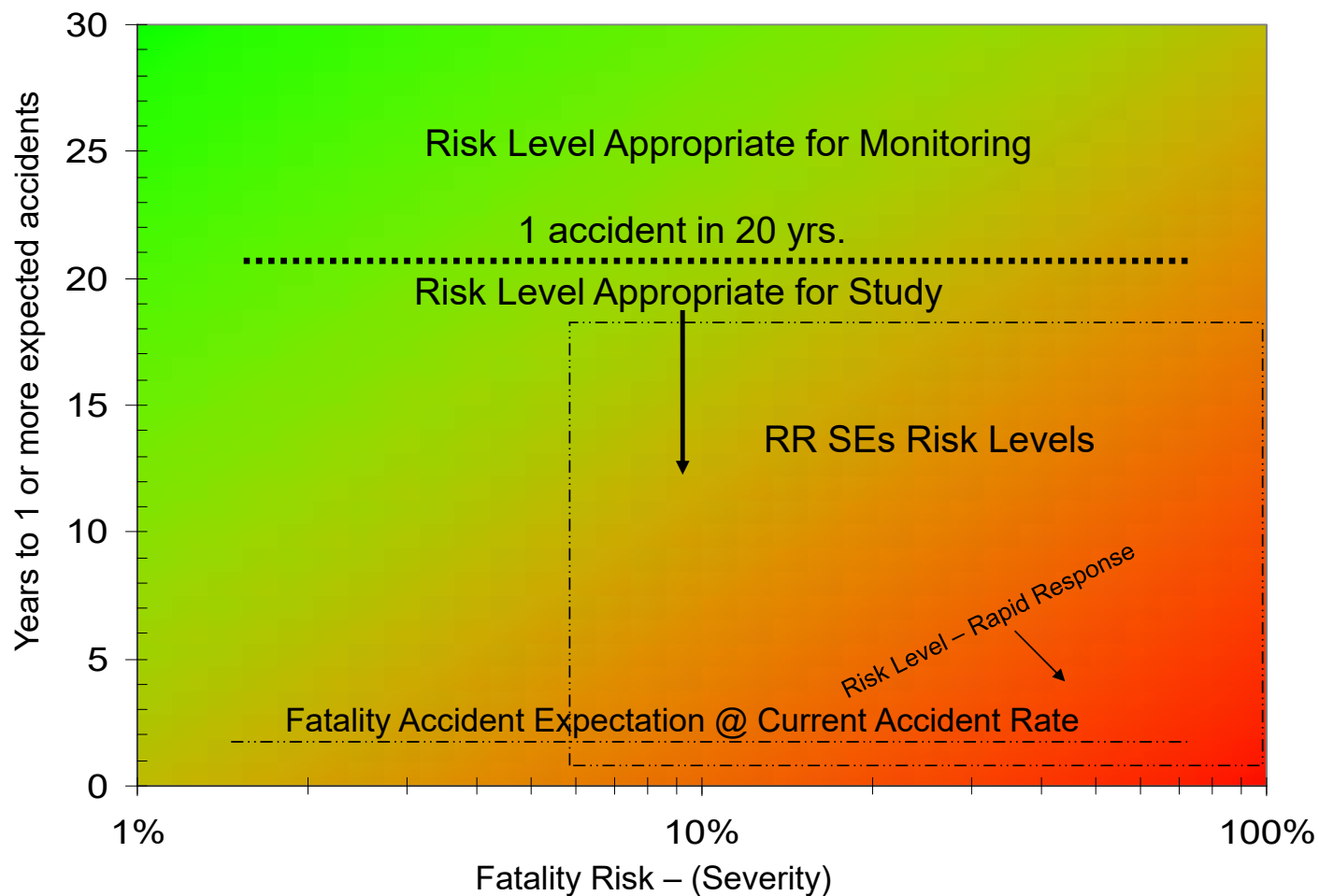
** Observer



CAST Safety Strategy



Study Prioritization (Fleet Risk)



What is ASIAS?

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



Information Sharing

Key Enabling Elements for the Sharing of Information

Stakeholder Commitment

Stakeholder Organizations must uphold the Core Principles.

Collaborative Approach

Collaborative effort inclusive of all Stakeholder Organizations and balancing the interests of those participants.

Voluntary Principles

Participation is entirely voluntary. All agree to voluntarily implement mitigations.

Data is used solely for the advancement of safety

Key Steps

Foundational Steps in the Development of ASIAs

Resources

Securing resources to support the development and operations plans.

Transparency

Reach and maintain consensus with **all** relevant employee groups on sharing any data before it is provided to the program.

Information Protections

Establish appropriate protocols to protect the identity of the reporter/organization from disclosure and ensure nonpunitive use of data/information (Government and industry).



Ensuring Success

Key Components of an Effective Program

Executive Leadership

Establish a small group of senior executives from Government and industry to champion the program.

Leadership needs to be the catalyst for change.

Demonstrate Value

Build trust through demonstrating value from information sharing.

Focus on a specific issue to highlight benefits of the program, **coupled with** mitigating activities.

Engagement

Need to be engaged across the spectrum.

Community outreach is **vital**.

Need engagement with technology partners to inform IT investments appropriate to system needs.

ASIAS Is Governed by Formal Principles

**Data used solely for
advancement of safety**

**Voluntary submission of
safety-sensitive data**

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

**Transparency – knowledge
of how data are used**

**Procedures & policies
established through
collaborative governance**

**Analyses approved by an
ASIAS Executive Board**



U.S. Protections for Voluntarily Provided Safety Information

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

FAA/Industry Established Protocols

- Protections from the use of voluntary safety programs in enforcement actions
- Protections from use in disciplinary actions



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



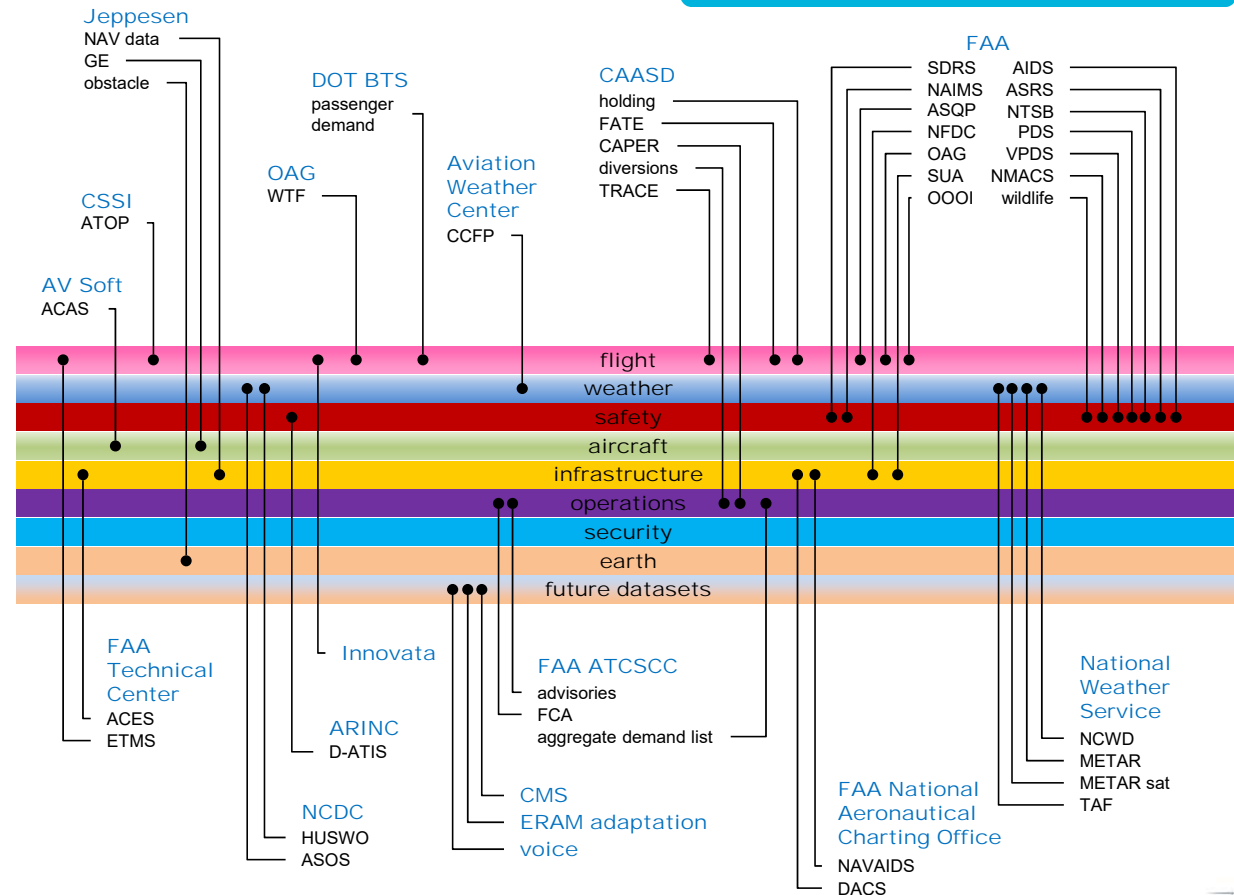
data

types

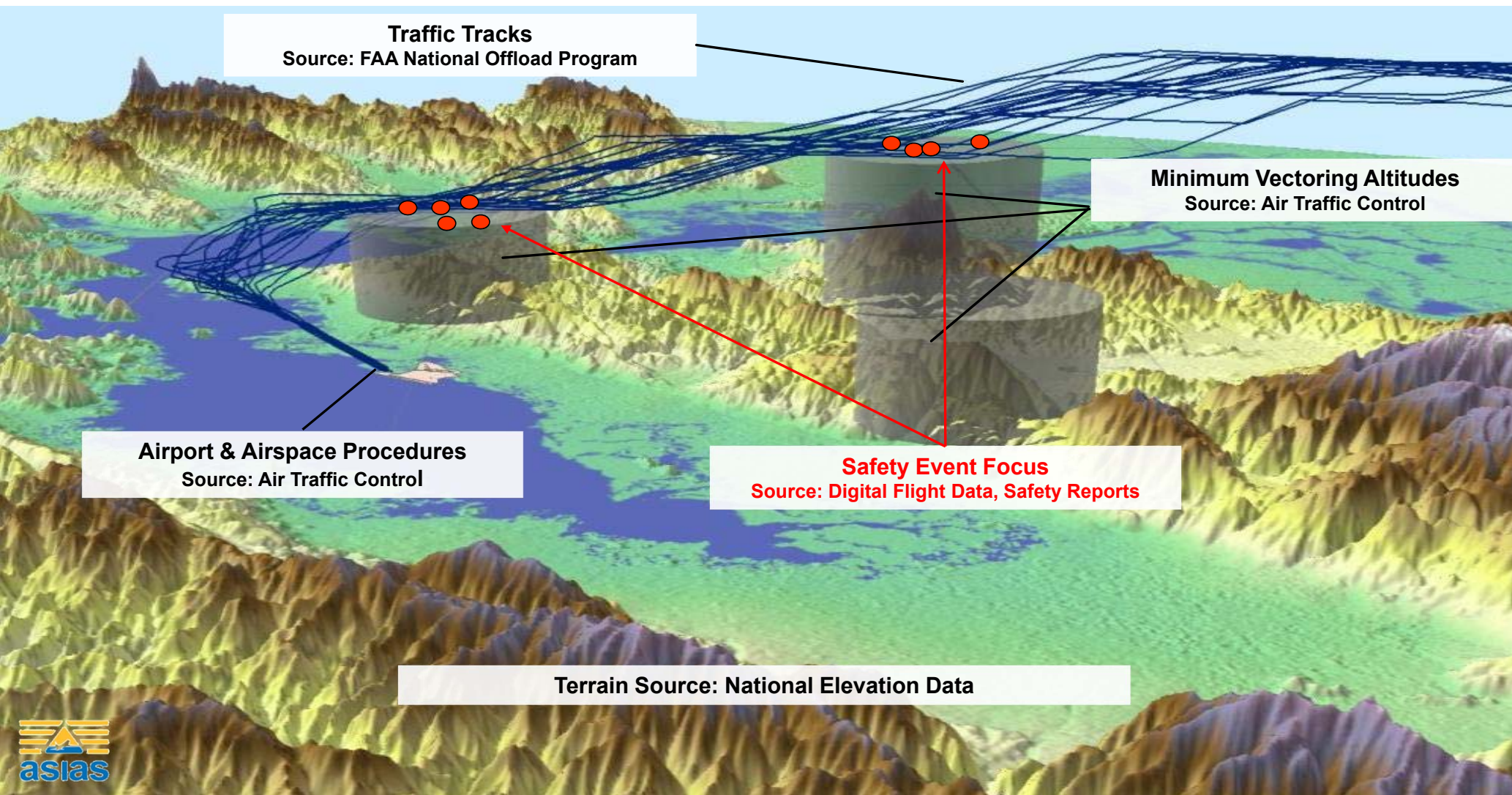
Proprietary Data



sources



Leveraging Data from Across the Industry Provides Valuable Insights





CAST/ASIAS Recent Safety Studies



Approach and Landing Go-Around (underway)

Approach and Landing Misalignment (underway)

Takeoff Misconfiguration

Runway Excursions (RE)

RNAV Departures and STAR Operations

Airplane State Awareness (ASA)

Traffic Collision Avoidance System (TCAS)

Terrain Awareness Warning System (TAWS)

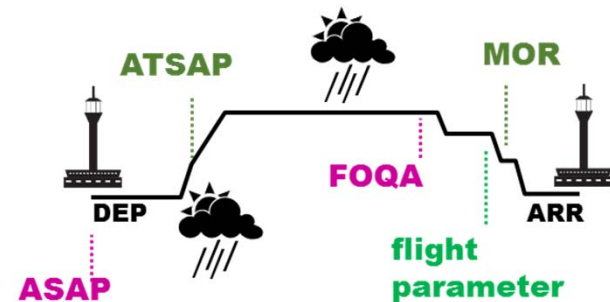
Established Metrics Accessible Via a Secure Web Portal



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

equipment 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

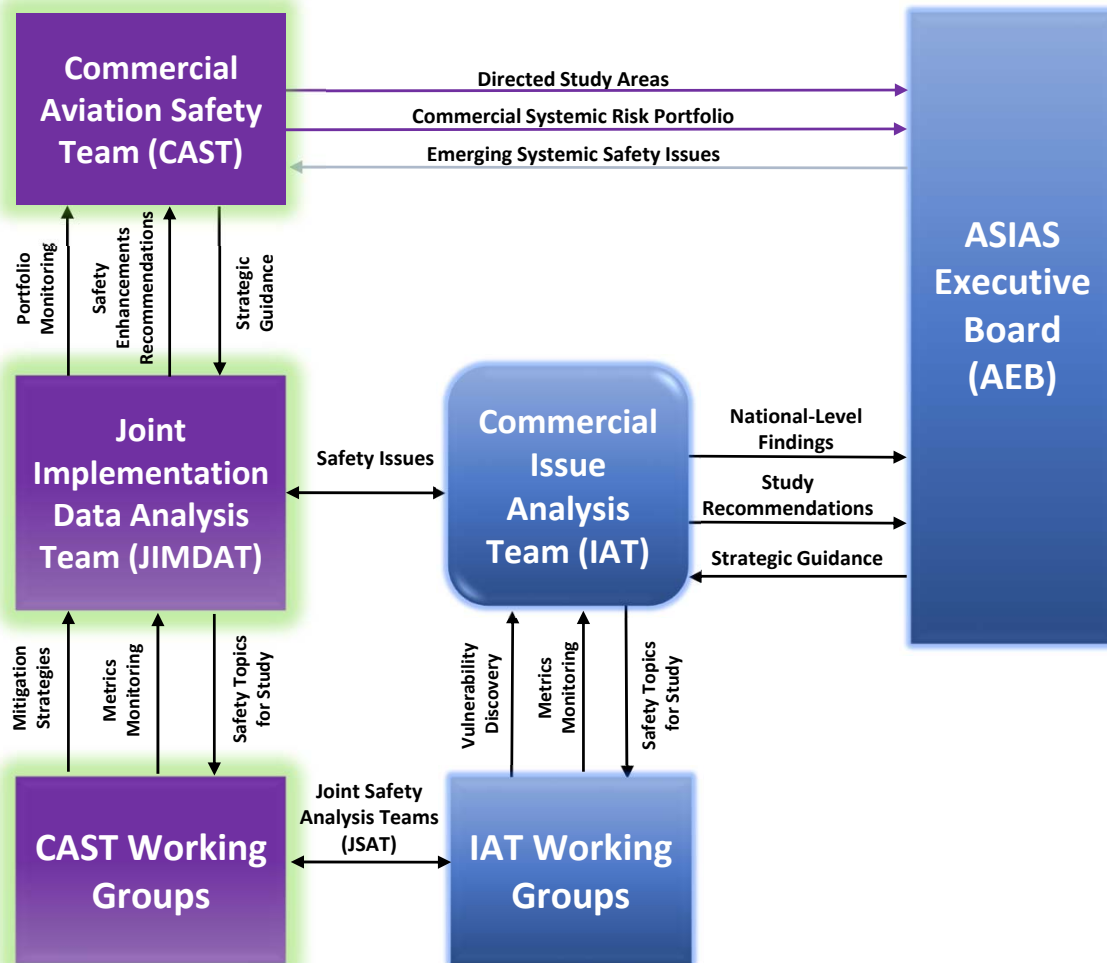
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TBD

ASIAS Proprietary - Do Not Distribute



Impacts of Collaboration

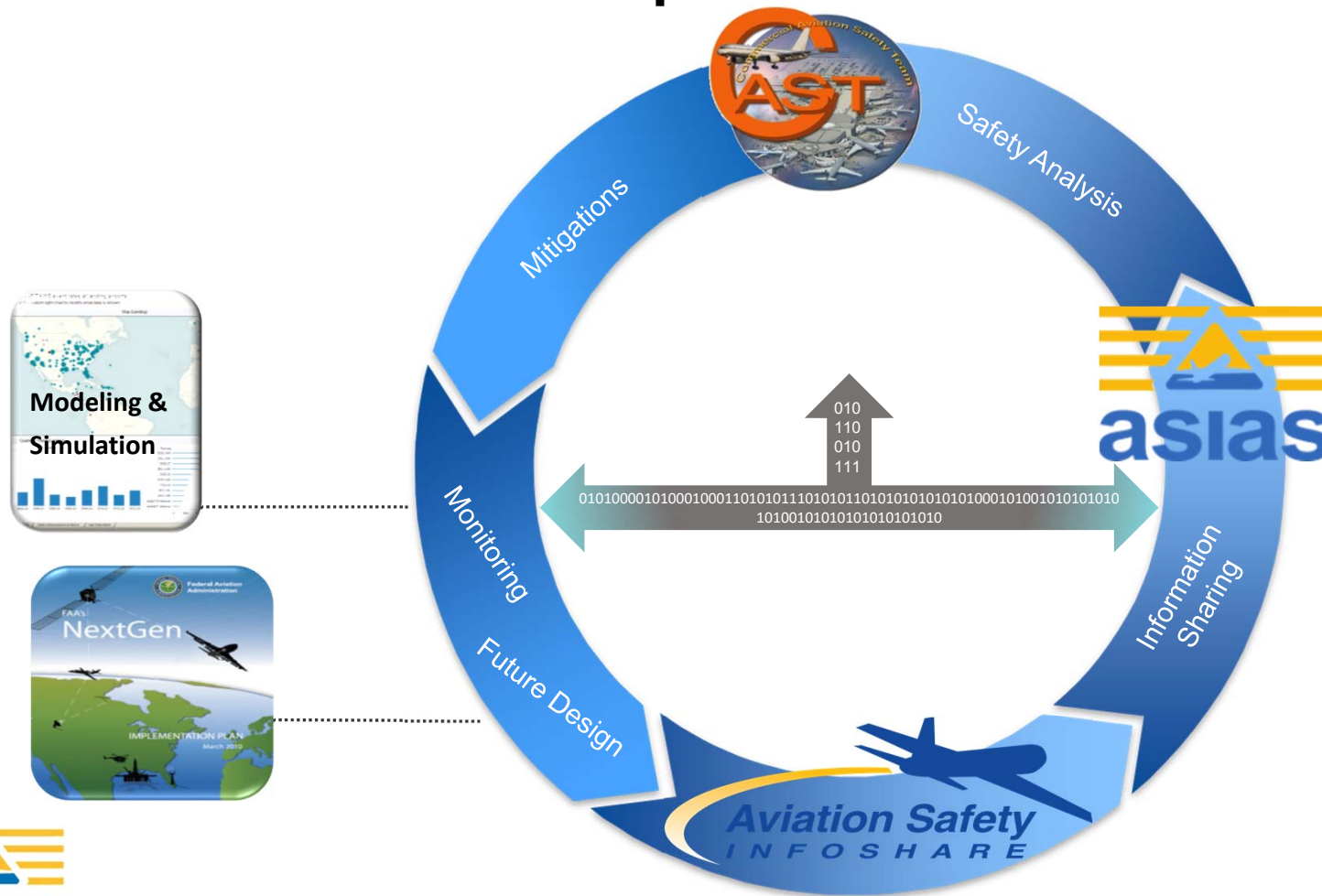


Safety insights gained from ASIAs are invaluable, as it is not possible to achieve them through other means and gives us the ability to—

- Identify systemic risks.
- Detect the degradation of safety barriers.
- Monitor the effectiveness of deployed mitigations.
- Understand the impact of changes in the aviation system.

CAST has adopted 22 safety enhancements to address systemic risks based on non-accident data from ASIAs.

ASIAS is a Key Component of Continuous Improvement in Aviation Safety





Summary



- ▶ Unprecedented partnership and positive impact on aviation safety
- ▶ Long-term industry and Government commitment to collaboration
- ▶ Enhanced safety through information sharing