



ICAO

International Civil Aviation Organization
North American, Central American and Caribbean Office

TWENTY – THIRD PAN AMERICA – REGIONAL AVIATION SAFETY TEAM MEETING

PA-RAST/23

FINAL

SUMMARY OF DISCUSSIONS

SAO JOSE DOS CAMPOS, BRAZIL, 1 TO 3 MARCH 2016

Twenty-Third Pan America — Regional Aviation Safety Team Meeting (PA-RAST/23)

Summary of Discussions

Date	1 to 3 March 2016
Location	Embraer Offices, Sao Jose Dos Campos, Brazil
Meeting Opening	<p>The Meeting was attended by 32 participants from 2 States/Territories, and 5 International Organizations and industry. The United States representative participated in the Meeting via teleconference. See Appendix A.</p> <p>Mr. Umberto Irgang, Aviation Safety Advisor, Embraer, welcomed participants to the Meeting, and Mr. Eduardo Chacin, Regional Officer, Flight Safety, ICAO NACC Regional Office and Secretary of the Meeting, extended his appreciation to Embraer on behalf of RASG-PA for hosting the event.</p> <p>Ms. Veronica Chavez, Regional Officer, Technical Assistance, ICAO South American Regional Office, also attended the meeting.</p> <p>Mr. Adriano Monteiro de Oliveira, Brazil, and Mr. Gabriel Acosta, IATA, acted as PA-RAST Co-Chairpersons of the Meeting, representing States/Territories, and International Organizations and Industry, respectively.</p> <p>The Co-Chairpersons, International Organizations and Industry, presented WP/01 inviting the Meeting to approve the provisional agenda, which was approved. IFALPA requested the inclusion of a presentation on Hot Air Balloons in the Brazilian Airspace, which was included under “Other Business”.</p>
Discussion Items	
Agenda Item 1:	<p>PA-RAST open items</p> <p>1.1 The Meeting reviewed and updated the pending PA-RAST Meetings Action Items (AIs). New AIs were added to the list. See Appendix B.</p>
Agenda Item 2:	<p>Review of 2015 FDX Information</p> <p>2.1 The appropriate non-disclosure agreements for Aviation Safety Information Analysis and Sharing (ASIAS) data were duly explained by the Secretariat and signed by the RASG-PA Members attending the PA-RAST Meeting for the first time.</p> <p>2.2 IATA presented the Flight Data eXchange (FDX) database to the Meeting, to review predictive information (precursors) for Runway Excursion (RE), Loss of Control-Inflight (LOC-I), Controlled Flight Into Terrain (CFIT), and Mid-Air Collision (MAC) occurrences, such as:</p> <ul style="list-style-type: none">• Unstable Approach (UA)• Loss of Control – In flight (LOC-I) indicators• Terrain Avoidance Warning System (TAWS)• Traffic Collision Avoidance System (TCAS)

2.3 IATA informed the Meeting that the locations of concern in the CAR and SAM Regions, identified as “*hot spots*” by RASG-PA (six international airports and four areas in the airspace) have not changed and that no emerging trend has been detected during the research of FDX since the PA-RAST/22 meeting.

2.4 IATA also briefed the Meeting about the results that will be presented in the IATA Annual Safety Report 2016.

2.4 The definition of fatality risk was introduced to the new participants in the PA-RAST meeting. IATA informed that it will be used for the first time in the upcoming IATA Annual Safety Report.

Agenda Item 3:

Update from DIPs Champions

3.1 Considering the presence of the Brazilian Commercial Aviation Safety Team (BCAST) representatives, the Champions for the development of the new RASG-PA Safety Enhancement Initiatives (SEIs) and associated Detailed Implementation Plans (DIPs) for RE, CFIT, and LOC-I provided an update to the Meeting.

3.2 The Meeting learned about the Safety Enhancement Team (SET) concept and the steps to develop the SEIs as established in the RASG-PA Procedural Handbook.

3.3 The following Safety Enhancements were presented: SE-192, SE, 196-199.

3.4 Regarding the associated survey about LOC-I, IFALPA offered to translate it into Spanish to facilitate its diffusion and obtain appropriate feedback in Latin America and the Caribbean.

3.5 Considering that the workload of the SETs has decreased, the Meeting decided that the Safety Enhancement Team 4 (SET 4) may initiate the activities on MAC. Some States and organizations expressed their willingness to participate in the Team such as: Brazil (DECEA), IATA, IFALPA and ICAO. The participation and the work programme of the Team will be formalized at the PA-RAST/24 Meeting.

Agenda Item 4:

ESC mandate to review PA-RAST Terms of Reference (ToRs)

4.1 The Meeting agreed to delay the discussion on the review of the PA-RAST ToRs for the next meeting. Also, the use of teleconferences was considered for initiating the discussion by an Ad hoc group. The dates for the teleconference as well as the group composition were not discussed by the Meeting.

Agenda Item 5:

Briefing about PA-RAST activities to Brazilian Commercial Aviation Safety Team (BCAST)

5.1 The Rapporteurs of PA-RAST invited the PA-RAST Members to brief the BCAST about their way of conducting business and to share best practices.

5.2 The Secretariat provided a general presentation of RASG-PA including a summary of activities along the years. The discussion included background information about the former Pan American Aviation Safety Team (PAAST) as a precursor of RASG-PA, considering that Mr. Humberto Irgang (Embraer), Mr. Antonio Peixoto (Azul) and Mr. Eduardo Chacin (ICAO) were founder members of this team. Moreover, the role of RASGs as established in the ICAO Global Aviation Safety Plan (GASP) including the Global Aviation Safety Roadmap (GASR), and the evolution of safety for the near and mid term were discussed by the Meeting.

5.3 United States delivered a presentation about the United States Commercial Aviation Safety Team (US CAST) including ASIAs, MITRE and the way of conducting business by CAST, as well as the relationship with the Federal Aviation Administration (FAA) and other key aviation stakeholders, as presented in **Appendix C**.

5.4 The Meeting discussed the way that SEIs and DIPs are developed and communicated; ALTA and IATA presented some examples.

5.5 SEIs and DIPs already developed were also discussed as mentioned under Agenda Item 3, as well as other RASG-PA deliverables such as Annual Safety Reports (ASR), projects, documents, tactical go-teams, aviation safety seminars, etc.

5.6 The Meeting also discussed the great number of incident occurrences that the general aviation and helicopters present in the CAR and SAM Regions, and the need to address them.

5.7 The BCAST delivered a presentation explaining the Meeting that it constitutes a collaborative group composed of Brazilian airlines, ANS (DECEA), Regulatory agency (ANAC), IATA, and Manufacturers (Embraer); and it is a subgroup of the Brazilian Aviation Safety Team (BAST), similar to the US CAST.

5.8 The BCAST also explained that they are working on mitigation strategies for preventing MAC. The presentation is available as **Appendix D**.

5.9 The Meeting agreed that it would be a great addition for the SET4 to exchange information with BCAST for developing the respective DIP for MAC.

5.10 The Meeting acknowledged the safety activity developed by BCAST and encouraged RASG-PA to promote this initiative in other States based on the size, complexity and maturity level of their aviation system.

Agenda Item 6:

PA-RAST meeting schedule for 2016

6.1 The Meeting was informed that the PA-RAST/24 Meeting will be held in Miami, United States, from 10 to 12 May 2016, tentatively hosted by ALTA

6.2 IATA, as Rapporteur of SET 2, informed the Meeting that the coordination is on-going with SET 1, to schedule the CFIT and LOC-I seminars together, tentatively in Chile.

6.3 The Secretariat recalled the Meeting that another pending activity is the Pilots/Air Traffic Controller workshop as an outcome of the RASG-PA Project: *Use of Std Spanish & English Phraseology* in accordance with the ICAO PANS-ATM – *Air Traffic Management* (Doc 4444), to be held tentatively in Mexico.

6.4 The Meeting discussed and agreed the following dates and location for the upcoming PA-RAST meetings in 2016:

1. PA-RAST/25: Bogota, Colombia, 6-8 September 2016, hosted by IFALPA
2. PA-RAST/26: San Jose, Costa Rica, 6-8 December 2016, hosted by COCESNA/ACSA

6.5 The Meeting acknowledged the kind offer from IFALPA and COCESNA/ACSA for hosting these events. Brazil and Embraer also offered to host RASG-PA events in 2017.

Agenda Item 7:

Other Business

7.1 IFALPA delivered a presentation on Hot Air Balloons in the Brazilian Airspace. The Meeting discussed the issue and the risks that this popular activity imposes to the aviation, not only in the terminal areas, but in the entire airspace.

7.2 This presentation is available in the following link:
<https://drive.google.com/open?id=0BxJTaMVEDpT8akNNako5RzlJRFk>

7.3 Some additional videos are published in the following links:

Vídeo 1: <https://drive.google.com/open?id=0BxJTaMVEDpT8TmxtVUlwTlFtbmc>

Video 2

<https://drive.google.com/open?id=0BxJTaMVEDpT8c3BWdkVWeHJVc0E>

7.4 Brazilian authorities informed about the measures that have been taken in this regard; however, the activity is on going.

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APPENDIX A

LIST OF PARTICIPANTS

Brazil		
Adriano Monteiro de Oliveira Technical Branch of Coordination with International Organizations	ANAC	Tel. +55 11 3636 8661 E-mail Adriano.Monteiro@anac.gov.br
Antonio Alessandro de Mello Dias Manager	ANAC/SPO/GCTA	Tel. +55 11 3636-8661 E-mail antonio.dias@anac.gov.br
Jorge Henrique Coutinho de Castro Regulation Specialist	ANAC/ASIPAER	Tel. +1 55 61 3314-4129 E-mail Jorge.castro@anac.gov.br
Felipe Koeller Rodrigues Vieira Safety Audit ATC Oversight	DECEA	Tel. +55 21 2139-9674 E-mail felipefkrv@decea.gov.br
Marco Aurélio Lima Moraes Safety Audit ATC Oversight (Participation Via WebEx)	DECEA	Tel. +55 21 2139-9674 E-mail marcomalm@decea.gov.br
Alexandre Simoes Lima MAJOR (ASEGCEA's Assistant)	DECEA	Tel. + 55 21 2101-6719 E-mail simoesasl@decea.gov.br
Mauricio Teixeira Leite Safety Audit ATC Oversight	DECEA	Tel. + 55 21 2139-9674 E-mail teixeiramtl@decea.gov.br
Eduardo Silvério de Oliveira SRPVSP	DECEA	Tel. +55 21 2101-6719 E-mail silverio@srpvsp.gov.br
Charlene Roberta da Silva Moreira Aieta	DECEA	Tel. ++55 21 2101-6719 E-mail Roberta da Silva Moreira Aieta
United States		
Paul Friedman FAA Senior Representative	FAA	Tel. + 55-61-3312-7580 E-mail Paul.Friedman@faa.gov
Kathryn Fraser (Participation Via WebEx)	FAA CAST	Tel. + 1 202 267 3715 E-mail kathryn.fraser@faa.gov
ALTA		
Eduardo Iglesias Executive Director	ALTA	Tel. +1 786 388 0222 E-mail eiglesias@alta.aero
Santiago Saltos Industry Affairs Director	ALTA	Tel. +1 305 790 0507 E-mail ssaltos@alta.aero
Karolina Torres Airlines & Industry Relation Director	ALTA	Tel. +1 786 388 0222 E-mail ktorres@alta.aero

Augusto Herrera Safety Advisor (Participation Via WebEx)	ALTA	Tel. E-mail	aherrera@alta.aero
COCESNA			
Manuel E. Caceres Díaz ACSA Director	COCESNA/ACSA	Tel. E-mail	+1 506-2435-7680 manuel.caceres@cocesna.org
EMBRAER			
Umberto Irgang Aviation Safety Advisor	EMBRAER	Tel. E-mail	+1 55 12 3927 1735 uirgang@embraer.com.br
Joao Francisco Da Silva Human Factor Analyst	EMBRAER	Tel. E-mail	+ 1 55 12 3927 9726 jsilva10@embraer.com.br
Guilherme Arioli Fernandes	EMBRAER	Tel. Email:	guilherme.fernandes@embraer.com.br
Sergio George S. Fell	EMBRAER	Tel. E-mail	sergio.fell@embraer.com.br
IATA			
Gabriel Acosta Safety & Flight Operation Assistant Director	IATA	Tel. E-mail	+1 305 607 3180 acostag@iata.org
Julio Pereira Assistant Director	IATA	Tel. E-mail	+55 11 2187-4236 pereiraj@iata.org
IFALPA			
Oswaldo Neto Executive Vice Presidente CARSAM	IFALPA	Tel. E-mail	+55 21 97234-3383 osvaldo.neto@aeronautas.org.br
Mateus Ghisleni	IFALPA Brazilian Association	Tel. E-mail	
Luiz Cristo Cabral Director IFALPA Brasil	IFALPA Brazilian Association	Tel. E-mail	+ 11 984 46 6668 lcabral01@yahoo.com
Victor Giorgi Casseta Flight Safety Director	IFALPA Brazilian Association	Tel. E-mail	+ 55 11 5533-8150 safety@att.org.br
Philipe Camilo Pacheco Flight Safety Analyst	IFALPA Brazilian Association	Tel. E-mail	+55 11 5533-8150 atendimento.safety@att.org.br
Diana Martinez RVP CAR/SAM/North IFALPA	IFALPA Colombia	Tel. E-mail	+ 57 621 6380 dmartinez@acdac.org

INDUSTRY		
Dan Guzzo Comité Executive Manager	Gol Linhas Aereas	Tel. + 55 (11) 5098-2189 E-mail dgcomite@voegol.com.br
Antonio Augusto Marques Peixoto Safety Manager	AZUL	Tel. + 55 11 4134-9930 E-mail marques.peixoto@voeazul.com.br
ICAO		
Eduardo Chacin Regional Officer, Flight Safety	North American, Central American and Caribbean Office (NACC)	Tel. + 52 55 5250 3211 E-mail echacin@icao.int
Veronica Chavez Regional Officer, Technical Assistance	South American Office (SAM)	Tel. +51 1 611-8686 E-mail vchavez@icao.int

APPENDIX B
PA-RAST VALID ACTIONS ITEMS (AI)

Action Item #	Description	Action Owner	Remarks	Status
PA-RAST/15/A14	<p>Include LHDs in the work of SET 4 that will deal with MAC.</p> <p>Agenda Item 15</p>	SET 4	<ul style="list-style-type: none"> • SET 4 will be formed after SET 1 and SET 2 develop their respective DIPs • SET 4 activities to be coordinated with GREPECAS • PA-RAST/19: delayed due to lack of human resources to accomplish the task • SET4 will be formed in PA-RAST/23 volunteers Brazil (DECEA), ALTA, IATA, IFALPA, ICAO. 	Valid
PA-RAST/17/A1	<p>Boeing to provide crew members and flight simulator use to assist ALTA in simulator video.</p> <p>Agenda Item 4</p>	Boeing	Reply from Boeing is pending-	Valid
PA-RAST/19/A1	<p>Programme session with the assistance of a facilitator between pilots and air traffic controllers, in order to discuss the simulated flight execution presented in the RASG-PA Runway Excursion (RE) Prevention Video RREP.V.</p> <p>Agenda Item 4</p>	ALTA	<ul style="list-style-type: none"> • The Secretariat will coordinate the activity under the RASG-PA Aviation Safety Training Team (ASTT) programme • Seminar to be held at the ICAO NACC RO, sponsored by Mexico, SENEAM, ALTA, IFALPA, CPAM, etc. 	Valid
PA-RAST/20/A1	<p>Conduct LOC-I workshops, initially with one State (Chile) and two operators (LATAM and Sky Airways).</p> <p>Agenda Item 4</p>	IATA	In preparation for the Workshop, set up a teleconference with Chile, IATA LATAM and Sky Airways to introduce the team, the LOC-I DIPS and possible workshop date(s).	Valid

Action Item #	Description	Action Owner	Remarks	Status
PA-RAST/23/A1	IFALPA to translate into Spanish LOC-I survey Agenda Item 3	IFALPA		Valid
PA-RAST/23/A2	Creation of an Ad hoc Team to work on the ToRs of the PA-RAST Agenda Item 4	Brazil and IATA	Initial teleconference for setting the team.	Valid

Loss of Control – Inflight (LOC-I) Safety Enhancement Team (SET)

Status Report

Presented to: PA-RAST

Date: March, 2016



SET Process

1. Review and analysis of accident risk
2. Review of applicable safety enhancements
3. Start preparing DIPs
4. Review DIPs with PA-RAST
5. Present DIPs to ESC for information

6. Coordinate DIP Implementation at PA-RAST

7. Monitor progress

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The LOC-I SET TEAM

Team members include:

- IATA*
- ALTA
- CAST/FAA
- IFALPA
- UK/CAA
- Brazil/ANAC

*Champion



LOC-I Design DIP Work Timeline



DIP 192 Low Airspeed Alerting



6 months

Output 1: IATA/ALTA will identify availability of manufacture service bulletins by fleet

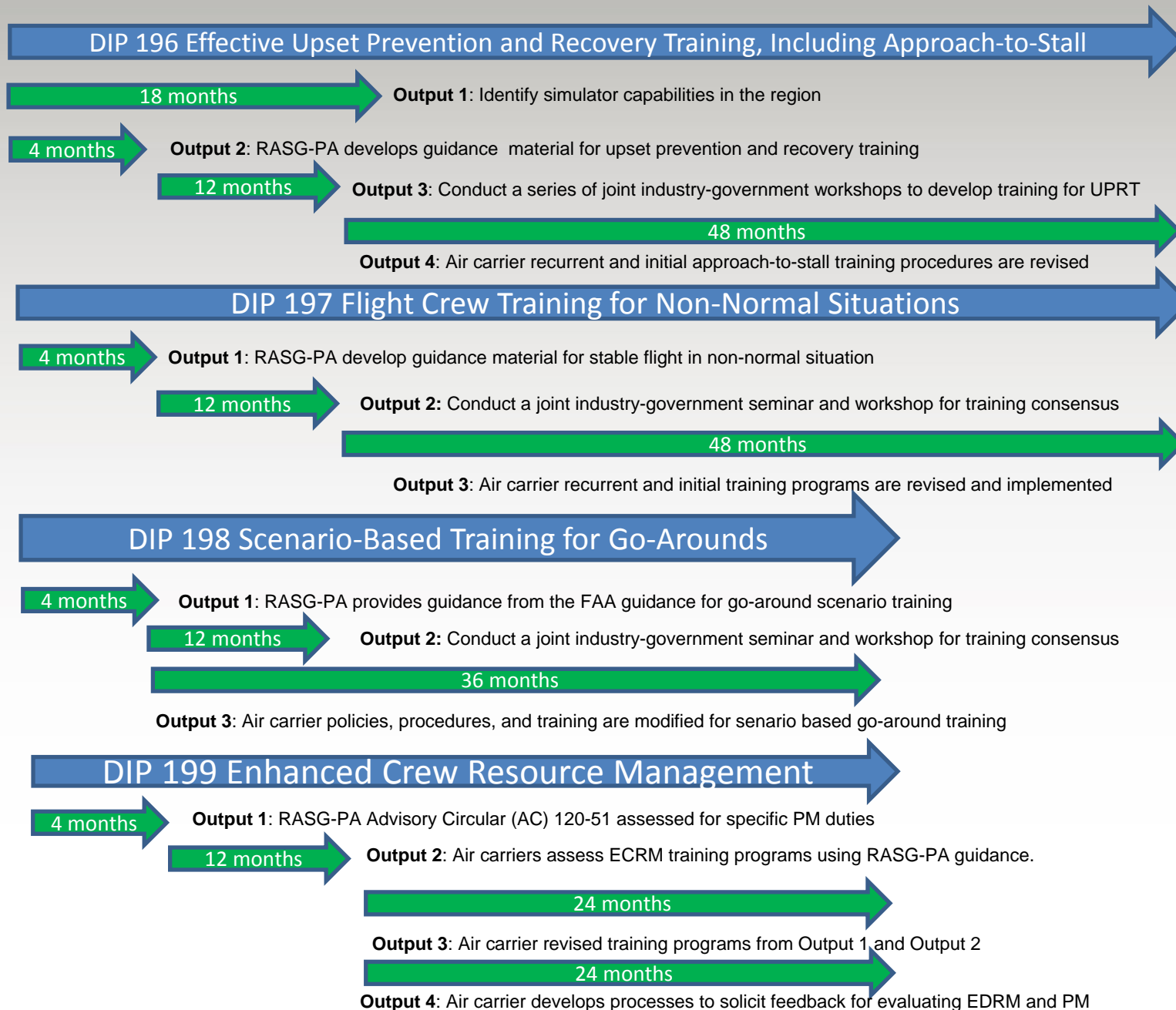


30 months

Output 2: Air carriers implement existing manufacturer service bulletins, installing low airspeed alerting functionality in their existing airplanes (as practical and feasible)



Combined Training DIP 196-199 Timeline






Safety Enhancement SE 196

Training - Effective Upset Prevention and Recovery Training, Including Approach-to-Stall

- Output 1: Identify simulator capabilities in the region
 - A survey has been drafted
 - certify flight simulation training devices
 - approve flight training programs
- Output 2: RASG-PA develops guidance material for upset prevention and recovery training
 - A guidance material working group has been formed
 - An [online repository](#) has been established
 - The working group is in the process of collecting and evaluating existing UPRT guidance material
 - Relevant material will be uploaded to the online repository
 - Ultimately, the existing guidance material will be cross-referenced with the training scenarios in the DIP



Thank You!
Gracias!
Obrigado!



Backup Information



Safety Enhancement SE 192 Design – Low Airspeed Alerting Implementation Status

- Output 1: IATA/ALTA will identify availability of manufacturer service bulletins by fleet
 - IATA has administered a world-wide survey to determine which member airlines have implemented the Alert Service Bulletin (insert bulletin #)
 - Currently analyzing the results of the survey responses
 - World-wide response rate of 30%
 - RASG-PA region response rate higher than the world-wide response rate
 - One operator in the PA Region has not implemented the Alert SB
- Suggested next-step: ICAO offices will send a State Letter with a RASG-PA Safety Advisory (RSA) recommending to conduct a risk analysis for the implementation of the Alert SB



Safety Enhancement SE 196

Training - Effective Upset Prevention and Recovery Training, Including Approach-to-Stall (cont'd)

- Output 3: Conduct a series of joint industry-government workshops to develop training for UPRT
 - Drafting a survey for air carriers in the region
 - Baseline UPRT, including approach-to-stall, training scenarios
 - Web-enabled
 - Developing an introduction to the survey
 - Intended audience (training departments – not safety departments)
 - Qualifications of the respondents



Safety Enhancement SE 197

Training - Policy and Training for Non-normal Situations

- Output 1: RASG-PA develop guidance material for stable flight in non-normal situation
 - A guidance material working group has been formed
 - An [online repository](#) has been established
 - The working group is in the process of collecting and evaluating existing policy and training guidance material for non-normal situations.
 - Relevant material will be uploaded to the online repository
 - Ultimately, the existing guidance material will be cross-referenced with the training scenarios in the DIP
- Output 2: Conduct a joint industry-government seminar and workshop for training consensus
 - Drafting a survey for air carriers in the region
 - Baseline non-normal situation training scenarios
 - Web-enabled
 - Developing an introduction to the survey
 - Intended audience (training departments – not safety departments)
 - Qualifications of the respondents



Safety Enhancement SE 198

Training – Scenario-Based Training for Go-Around Maneuvers

- Output 1: RASG-PA develop guidance material for go-around training scenarios
 - A guidance material working group has been formed
 - An [online repository](#) has been established
 - The working group is in the process of collecting and evaluating existing policy and training guidance material for go-around training.
 - Relevant material will be uploaded to the online repository
 - Ultimately, the existing guidance material will be cross-referenced with the training scenarios in the DIP
- Output 2: Conduct a joint industry-government seminar and workshop for training consensus
 - Drafting a survey for air carriers in the region
 - Baseline go-around training scenarios
 - Web-enabled
 - Developing an introduction to the survey
 - Intended audience (training departments – not safety departments)
 - Qualifications of the respondents



Safety Enhancement SE 199

Training - Enhanced Crew Resource Management Training

- Output 1: FAA Advisory Circular (AC) 120-51 assessed for specific PM duties
 - A group will be formed to assess FAA AC 120-51 (and other relevant material) to place specific emphasis on the duties and responsibilities of the pilot monitoring
 - The group will include pilot monitoring concepts into the air carrier survey (ref SE 197 & 198; Output 2)
 - The group will draft and disseminate guidance ECRM guidance material
- Output 2: Air carriers assess ECRM training programs using RASG-PA guidance.
 - IATA and ALTA have agreed to disseminate RASG-PA ECRM guidance once developed and approved by RASG-PA ESC.



Draft Airline Survey Questionnaire

Screen Shot

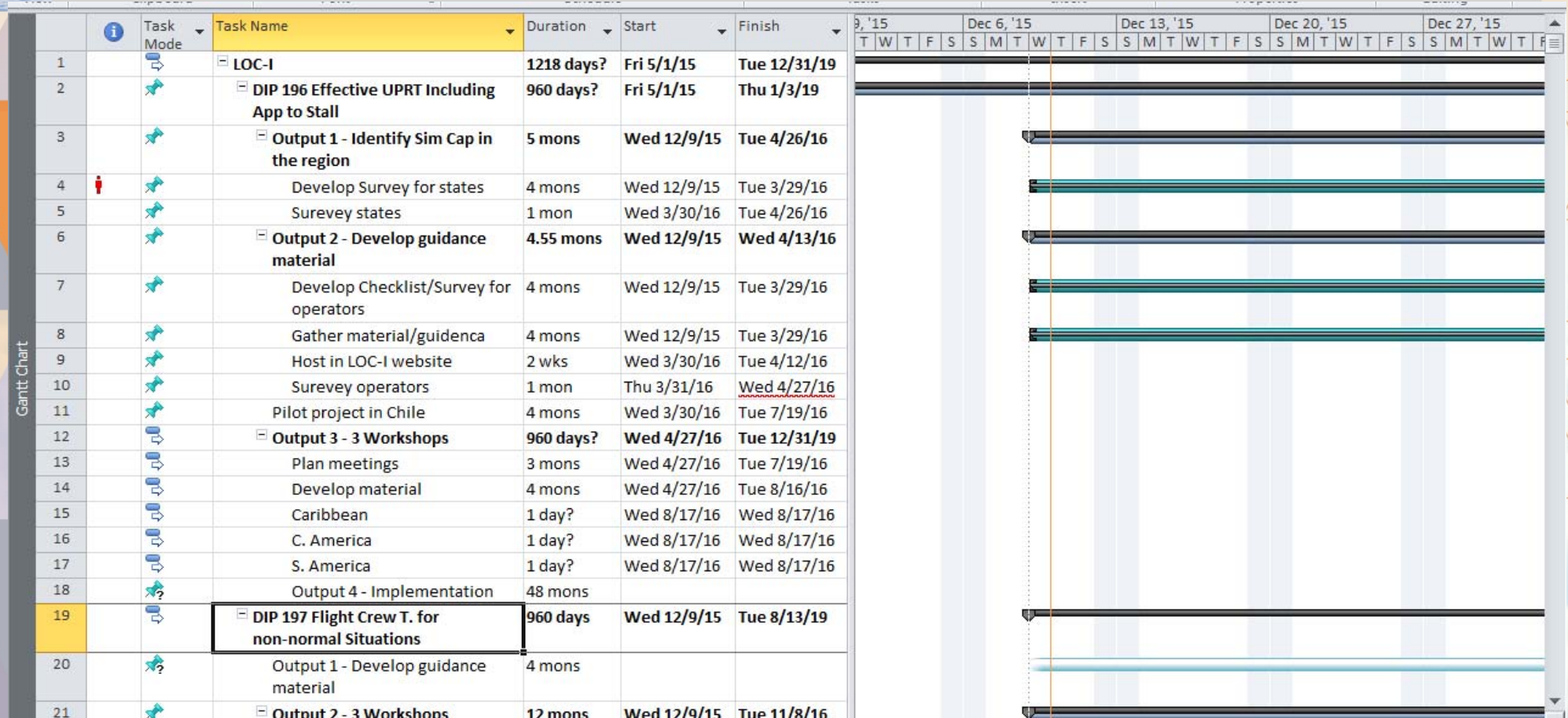
Area	question	no/yes/question is unclear	Comments
a. Approach-to-stall (i.e., up to warning activation) scenarios:	i. approach-to-stall with the autopilot engaged (including autothrottles disengaged, inoperative or not installed), with emphasis on the effect of autopilot trim/auto-trim and combinations of autoflight modes that can lead to low energy state (e.g., use of vertical speed modes in climb near the airplane's performance ceiling)		
	ii. a demonstration of recognition and recovery from initial improper response to approach-to-stall		
	iii. high-altitude approach-to-stall (service ceiling for the weight) to include recognition of low and high speed buffet, performance capabilities of the engines and flight control sensitivity		
	iv. low-altitude approach-to-stall (terrain critical) and recovery with ground proximity warning system (GWPS) alerts		
	v. Indication failures (i.e., speed, altitude failures/malfunctions)		
	i. The key concept that reduction of angle of attack is the most important response when confronted with a stall event. The training should emphasize treating an approach to stall the same as a full stall, executing the stall recovery at the first indication of the stall and emphasizing that reduction of angle of attack is the most important response.		
	ii. Evaluation criteria for a recovery from a stall or approach-to-stall that does not mandate a predetermined value for altitude loss and should consider the multitude of external and internal variables which affect the recovery altitude.		



State Survey Topics

- Two topics for the State Survey
 - Certification of Flight Simulator Training Devices
 - Aerodynamics Evaluation
 - Instructor Operating System Evaluation
 - Statement of Compliance (SOC) requirements
 - Acceptance of foreign certificates
 - Approval of Operator Flight Training Programs
 - Process for evaluating and approving training program (regulations)
 - Criteria/standards used to evaluate proposed training programs
 - Process for reviewing and approving changes to existing training programs
 - Evidence required to support requested changes to training programs.
- Are the training devices appropriate/capable for the proper execution the approved training programs?

LOC-I SET MS Project Screen Shot



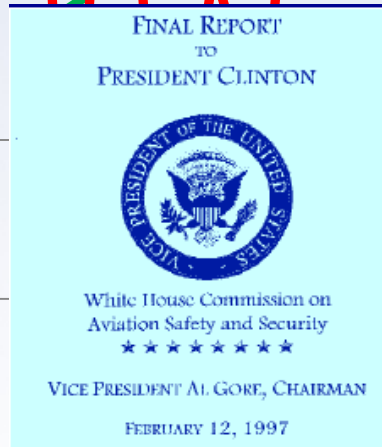
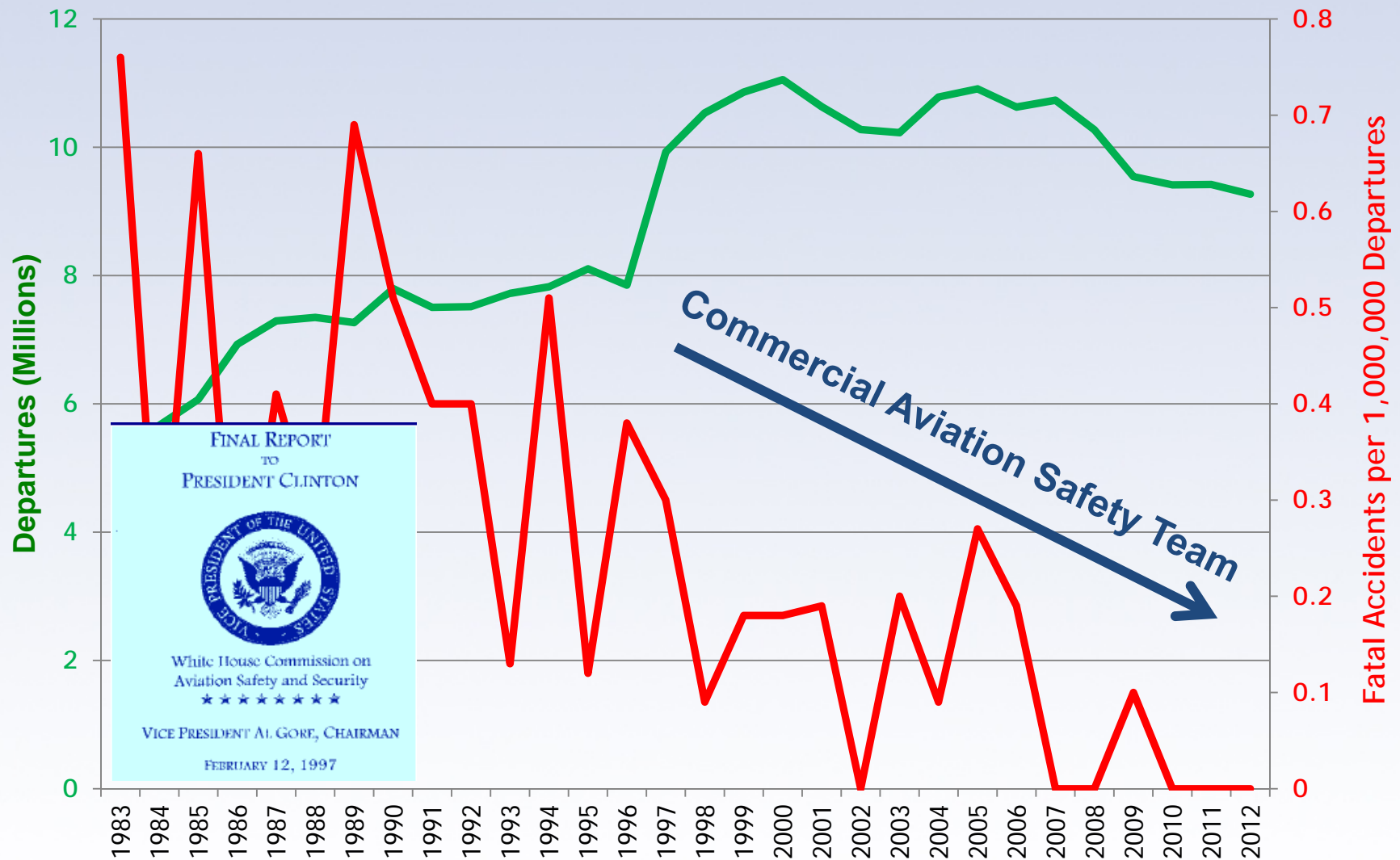
ASIAS Overview



PA-RAST Meeting
March 2016



“How can safety be improved in an environment of near-zero accident rate?”



ASIAS Is a Key Component of Continuous Improvement in Aviation Safety



A collaborative government and industry initiative on data sharing and analysis to proactively discover safety concerns before accidents or incidents occur, leading to timely mitigation and prevention

Mission of ASIAs

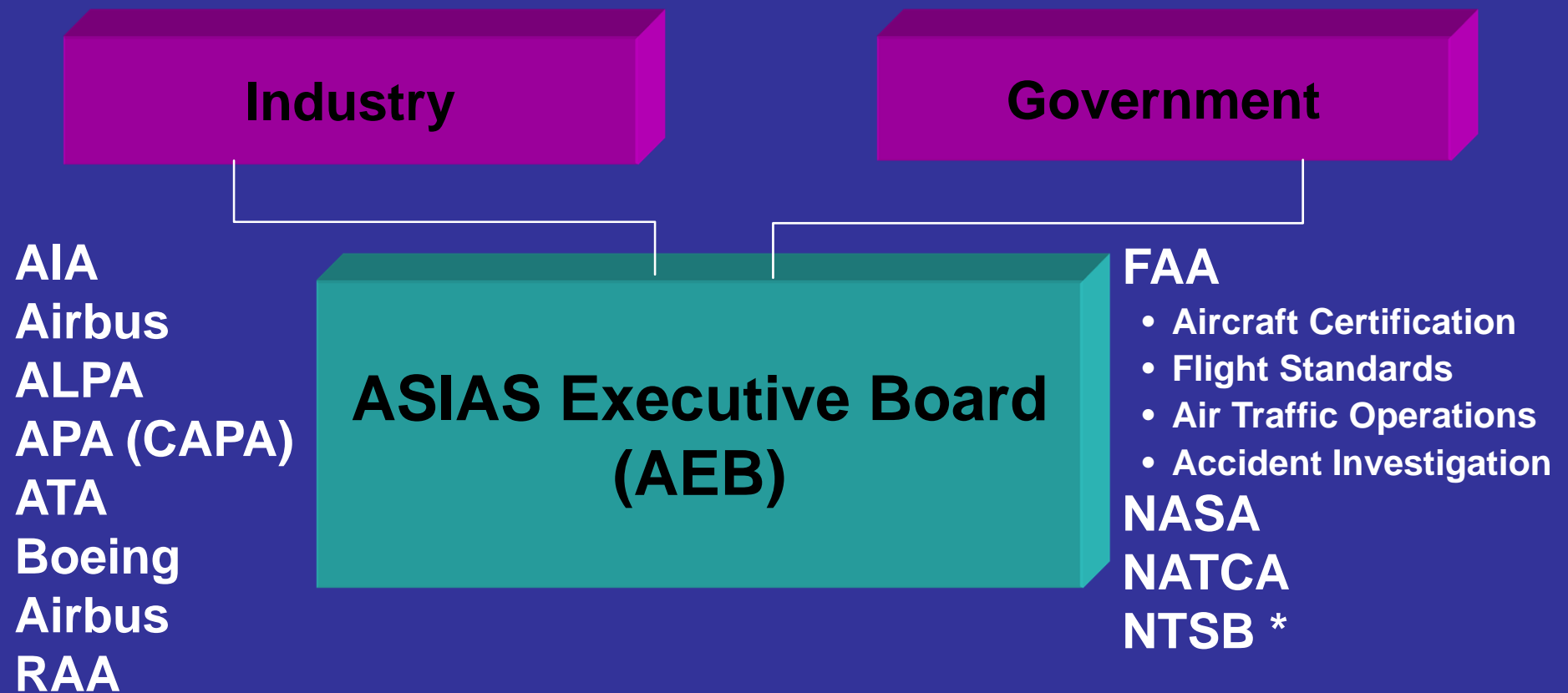
- ✈ To act as a shared resource for data acquisition, analysis, and dissemination that enables the FAA and ASIAs participants to optimize risk management
- ✈ To support NextGen with an in-depth and comprehensive perspective of operational risks that exist or could be introduced through changes in;
 - ATM procedures,
 - airspace design changes (i.e., sectors and routes),
 - area navigation (RNAV) procedures,
 - airport use, avionics, and
 - fleet mixes.

Critical Elements of a Successful Voluntary Safety Information Program

- Establish Trust and Build Confidence
- Clear Purpose – Dedicated to Safety, Non-Punitive
- Agreements Documented in “Governance”
- Transparent and Collaborative
- Act on the results ! Demonstrate value



ASIAS Executive Board brings stakeholders to cooperatively develop policy, approve studies, and reviews findings.



ASIAS moves from **REACTIVE** Analysis to **PROACTIVE** Analysis



From “What **went** wrong?”

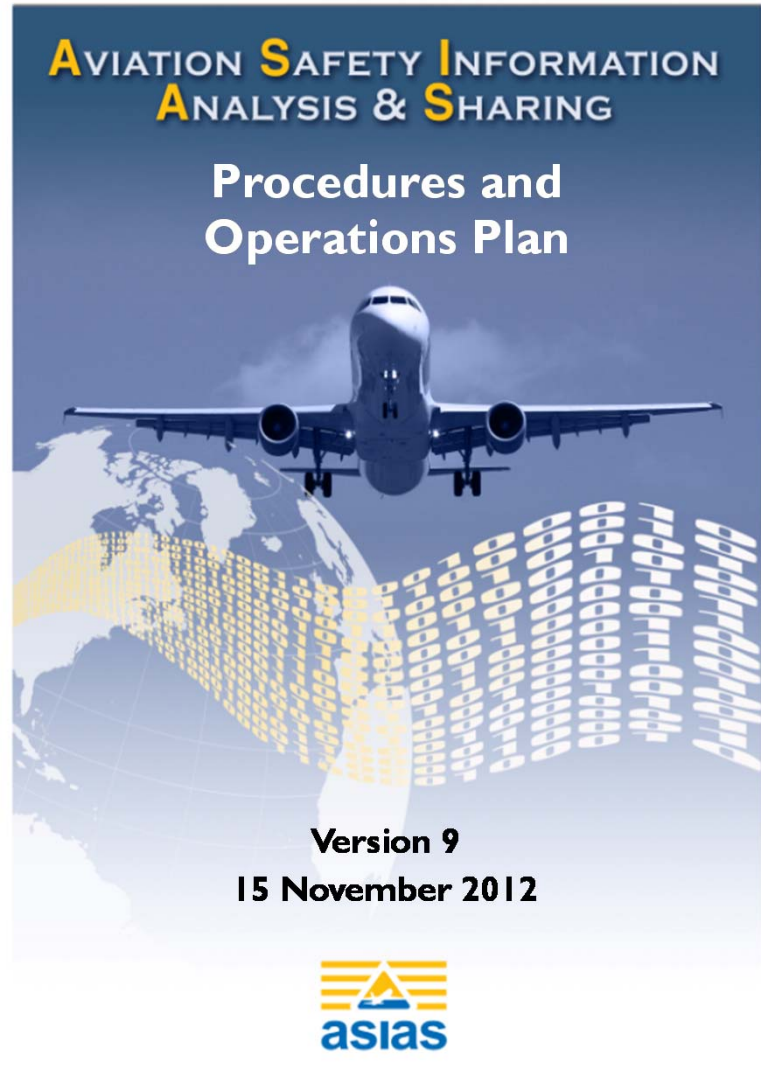


To “What **COULD** go wrong?”

ASIAS is Governed by Formal Principles



Governance



**NON-REIMBURSABLE COOPERATIVE AGREEMENT {
BETWEEN
THE MITRE CORPORATION
AND
TBD AIRLINES
FOR
AVIATION SAFETY INFORMATION ANALYSIS AND SHARING
INITIATIVE**

1. AUTHORITY

This Cooperative Agreement (Agreement) is between [redacted] Airlines (hereinafter referred to as "Participant"), with a principal place of business or headquarters at [redacted] and The MITRE Corporation, with a principal place of business as 7515 Colshire Drive, McLean, Virginia 22102 (hereinafter referred to as "MITRE" and jointly referred to as the "Parties") for the collection of information for an information sharing initiative on behalf of the Federal Aviation Administration (FAA).

1.2 Definitions:

- 1) MITRE – The MITRE Corporation
- 2) Participant – [redacted] Airlines
- 3) FAA – The Federal Aviation Administration
- 4) ASIAS – Aviation Safety Information Analysis and Sharing
- 5) ASIASEB – ASIAS Executive Board
- 6) FOQA – Flight Operational Quality Assurance data
- 7) ASAP – Aviation Safety Action Program
- 8) De-identified Data – Data which has been de-identified such that neither a crew, crew member, any employee, or airline can be identified
- 9) ASIASP&O Plan – ASIAS Procedures and Operations Plan
- 10) Premises – As designated by the Participant to be either located at the Participant's site, a third party vendor's site, and/or MITRE's site.

2. PURPOSE

This Agreement shall be for the purpose of collecting information to enable MITRE in the development, demonstration, and analysis within the Aviation Safety Information Analysis and Sharing (ASIAS) Program. This Agreement defines the terms and conditions between the Parties whereby MITRE will be permitted to access de-identified FOQA data (referred to herein as "digital flight data") as result of ASIASEB approved queries and/or de-identified ASAP reports (referred to herein as "safety reports") as a result of ASIASEB approved queries for the purpose of aggregating these data for research topics requested by the ASIASEB. The ASIASEB is composed of key aviation stakeholders including the FAA, airline, and union representatives. This effort is more generally defined in Exhibit A, with the specific responsibilities of the Parties further defined below.



ASIAS Members

45 Air Carriers

ABX Air	Mesa Airlines
Aerodynamics, Inc.	Miami Air Intl.
Air Transport Intl.	Mountain Air Cargo
Air Wisconsin Airlines	National Airlines
Alaska Airlines	Northern Air Cargo
Allegiant Air	Omni Air Intl.
Aloha Air Cargo	Piedmont Airlines
American Airlines	Polar Air Cargo
Atlas Air	PSA Airlines
Cape Air	Republic Airlines
CommutAir	Shuttle America
Compass Airlines	Silver Airways
Delta Air Lines	SkyWest Airlines
Empire Airlines	Southern Air
Endeavor Air	Southwest Airlines
Envoy Air	Spirit Airlines
ExpressJet	Sun Country Airlines
FedEx Express	Trans States Airlines
Frontier Airlines	United Airlines
GoJet Airlines	United Parcel Service
Hawaiian Airlines	Virgin America
Horizon Air	
JetBlue Airways	
Kalitta Air	

2 Maintenance, Repair and Overhaul

AAR Aircraft Services
HAECO Americas (was TIMCO—Triad International Maintenance Corporation)

5 Government

AMC—Air Mobility Command
FAA
NASA
Naval Air Force Atlantic
USAF Safety Center

20 General Aviation*

1 Academia

University of North Dakota

11 Industry

A4A—Airlines for America
AIA—Aerospace Industries Association
Airbus
ALPA—Air Line Pilots Association
APA—Allied Pilots Association representing Coalition of Airline Pilots Associations (CAPA)
Boeing
NACA—National Air Carrier Association
NATCA—National Air Traffic Controllers Association
RAA—Regional Airline Association
SAPA—SkyWest Airlines Pilot Association
SWAPA—Southwest Airlines Pilots' Association

*Newest Member

As of 24 February 2016

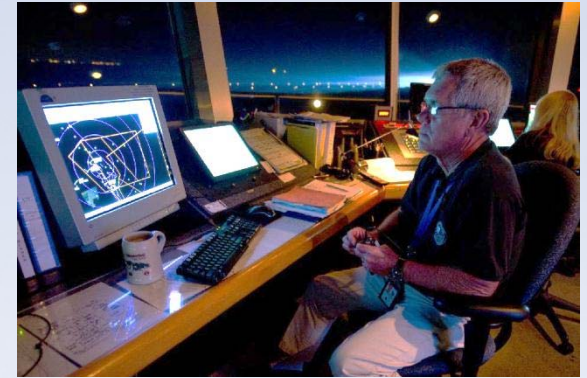
Example Aviation Datasets



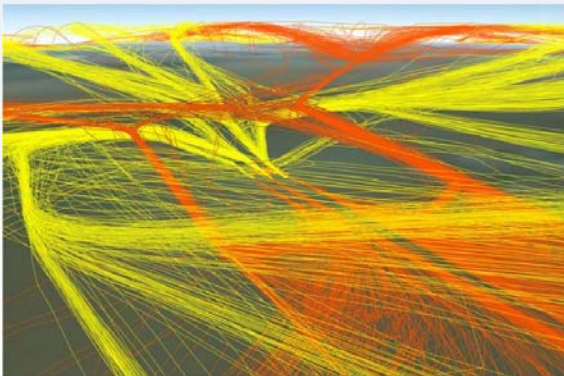
Airline Safety Reports



Aircraft Data



ATC Safety Reports



Radar



Weather



Infrastructure

Data Sources Supporting ASIAs Studies

Proprietary Data

- Aviation Safety Action Program (ASAP)
 - Pilot
 - Mechanic
 - Cabin
- Flight Operations Quality Assurance (FOQA)
- Air Traffic Safety Action Program (ATSAP)
- Manufacturers data
- Avionics data

ATC Information



- Traffic Management Reroutes and Delays
- Airport Configuration and Operations
- Sector and Route Structure
- Procedures
- Surveillance Data for En Route, Terminal and Airport
- NOTAMs

Safety Data



- Aviation Safety Reporting System (ASRS)
- Runway Incursion
- Surface Incident
- Operational Errors/Operational Deviation
- Pilot Deviation
- Vehicle or Pedestrian Deviation
- National Transportation Safety Board
- ICAO safety reports
- FAA Accident/Incident Data System
- FAA Service Difficulty Reports

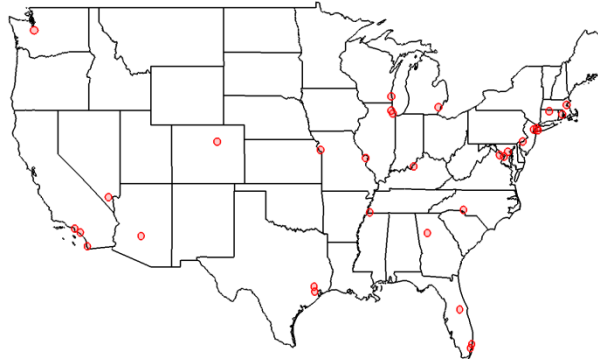
Other Information



- Bureau of Transportation Statistics
- Weather / Winds
- Terrain and Obstacle Data

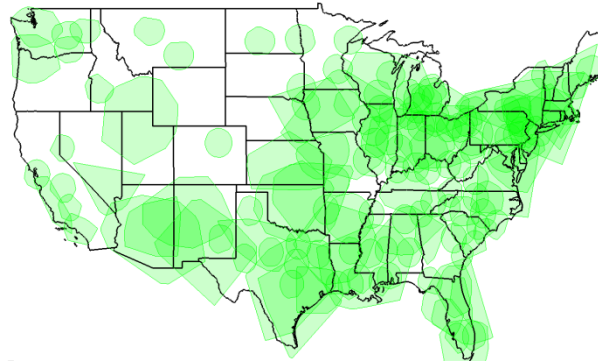
NAS-wide database of flights

35 ASDE-X airports



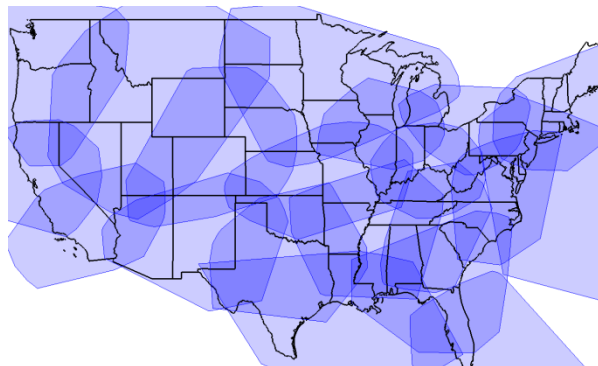
Daily feeds from a wide range of ASDE-X and NOP facilities provides the input to the threaded track

147 NOP Tracons



Each flight may be tracked by up to 10 facilities simultaneously

20 NOP Centers



Studies

Directed Studies

Vulnerability Discovery

Safety Enhancement
Assessment

Benchmarks



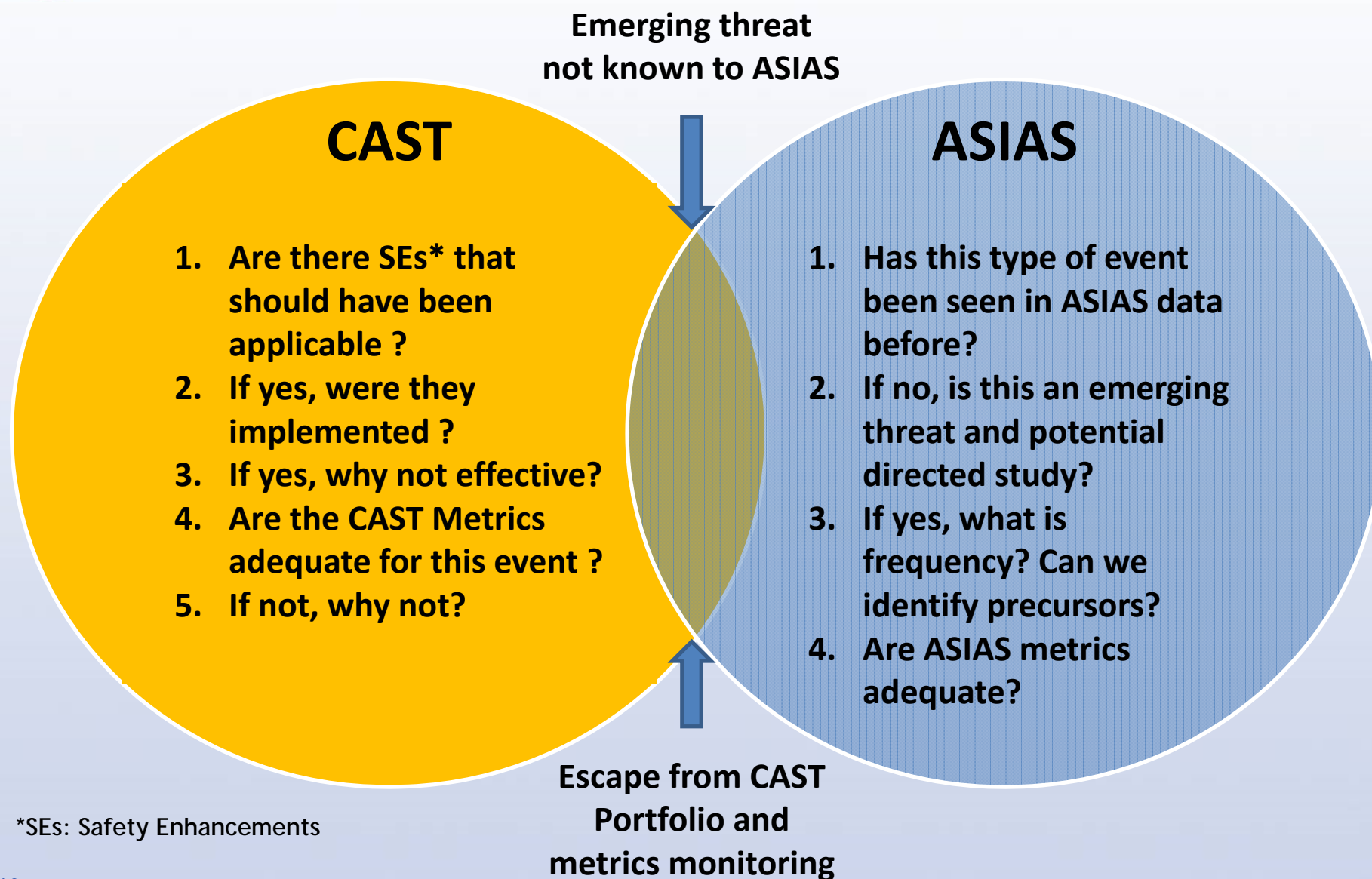
CAST and ASIAs Work Together Continuously Improve Aviation Safety



- CAST and ASIAs identify new vulnerabilities or problems with existing mitigations
- CAST develops data-driven Safety Enhancements, leveraging ASIAs information
- CAST monitors status of implementation of Safety Enhancements by government and industry
- ASIAs generates metrics for CAST to monitor effectiveness of Safety Enhancements




ASIAS /CAST Questions





RASG-PA/CAST Partnership

- RASG-PA and CAST entered in an agreement to exchange safety information in December 2011.
- RASG-PA forged a working relationship with CAST to leverage CAST's safety portfolio to adapt and deploy safety mitigations.
- Recent “data-sharing” home runs have been enabled by the information exchange RASG–PA developed with CAST and IATA.
 - By leveraging the information, RASG-PA was able to monitor unstable approaches at select airports within the region and evaluate the effectiveness of deployed mitigations.
 - The unstable approach rate at these airports has been reduced by about 50 percent in the last 4 years.
 - The data sharing also identified TCAS-RA hot spots that RASG-PA is actively addressing. The data has also helped improve airspace design in order to de-conflict airspace around airports.



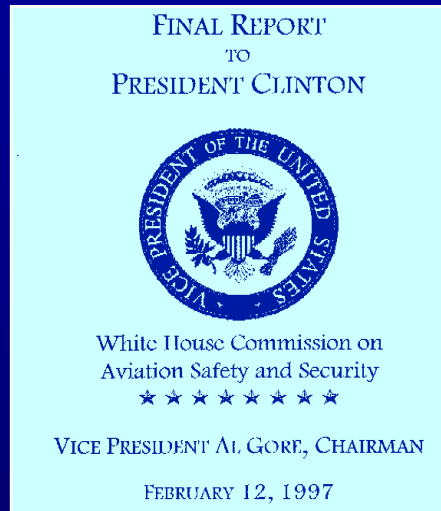
Commercial Aviation Safety Team (CAST)

Overview

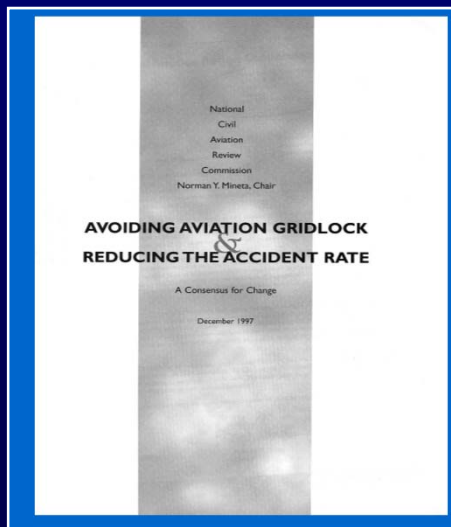
PA-RAST

March, 2016

In the U.S., our focus was set by the White House Commission on Aviation Safety, and The National Civil Aviation Review Commission (NCARC)

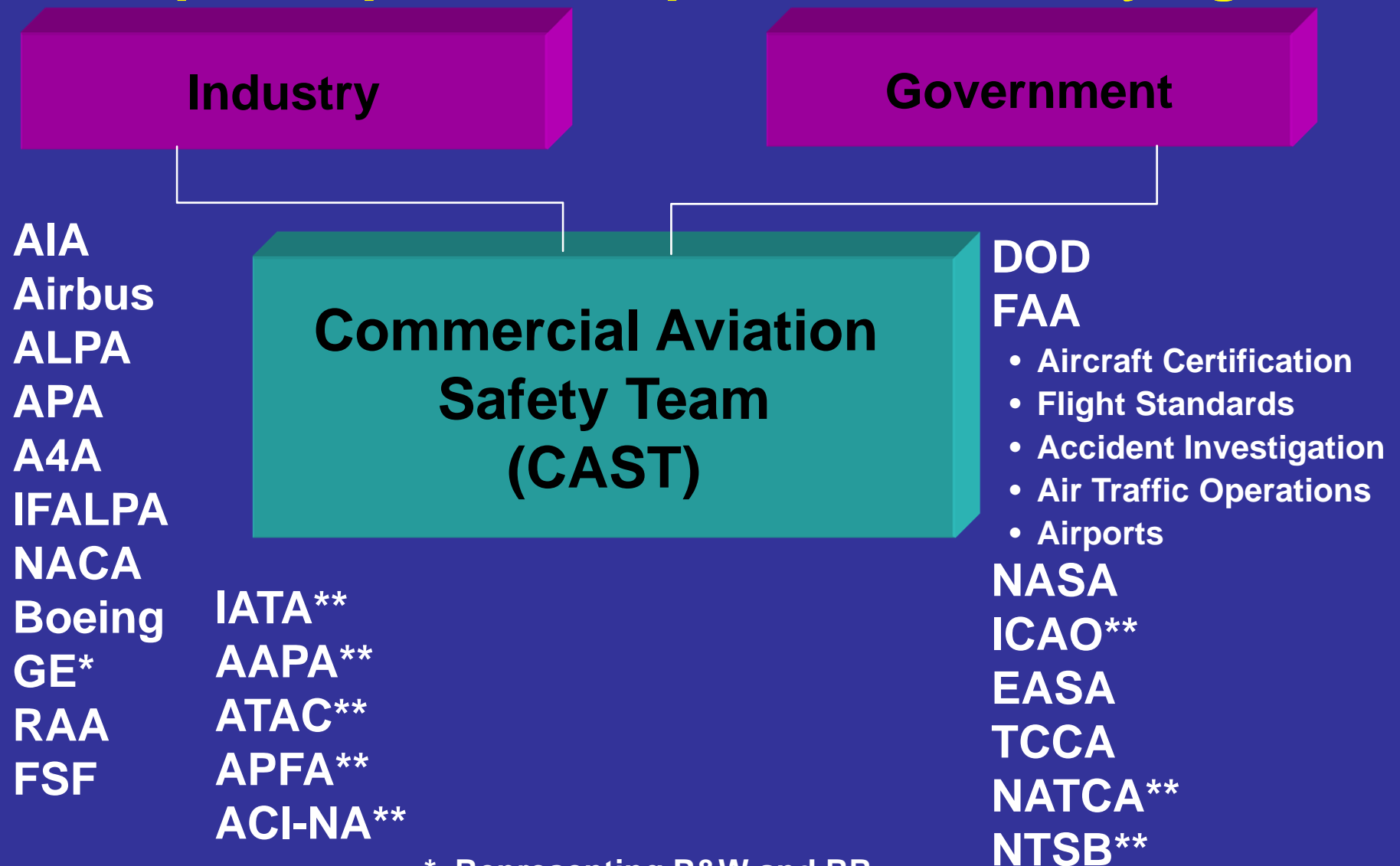


1.1 . . . Reduce Fatal Accident Rate . . .



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

CAST brings key stakeholders to cooperatively develop & implement a prioritized safety agenda



* Representing P&W and RR

** Observer

Vision - Mission - Goals



Vision

- Key aviation stakeholders acting cooperatively to lead the world-wide aviation community to the highest levels of global commercial aviation safety by focusing on the right things.

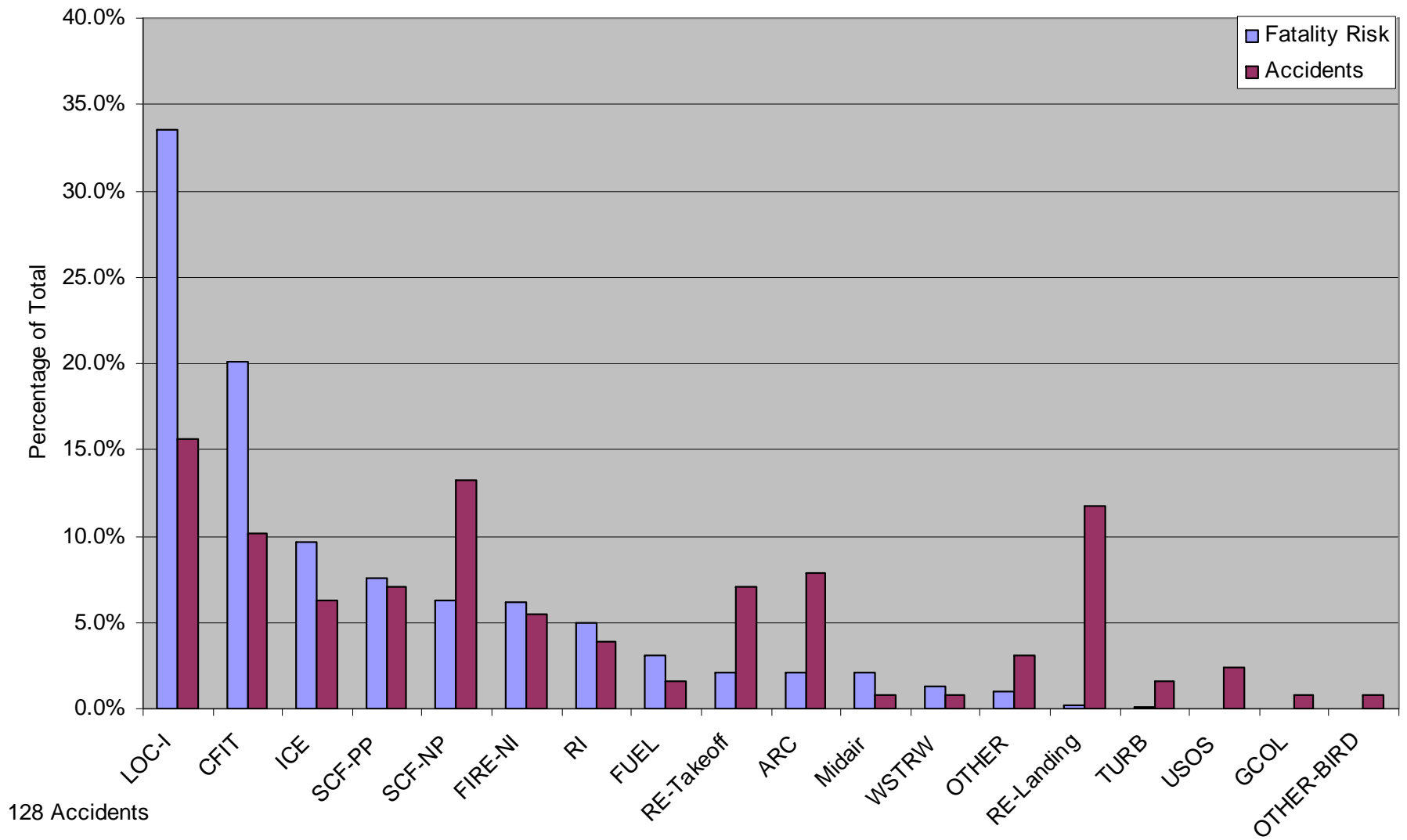
Mission

- Enable a continuous improvement framework built on the proactive identification of current and future risks, developing mitigations as needed and monitoring the effectiveness of implemented actions.

Goal

- Reduce the U.S. commercial aviation fatality risk by at least 50% from 2010 to 2025
- and
- Continue to work with our international partners to reduce fatality risk world-wide commercial aviation.

1987-2011 Part 121 Hull Loss and Fatal Accidents



CAST

Safety Strategy

**Data
Analysis**

*Agree on
problems and
interventions*

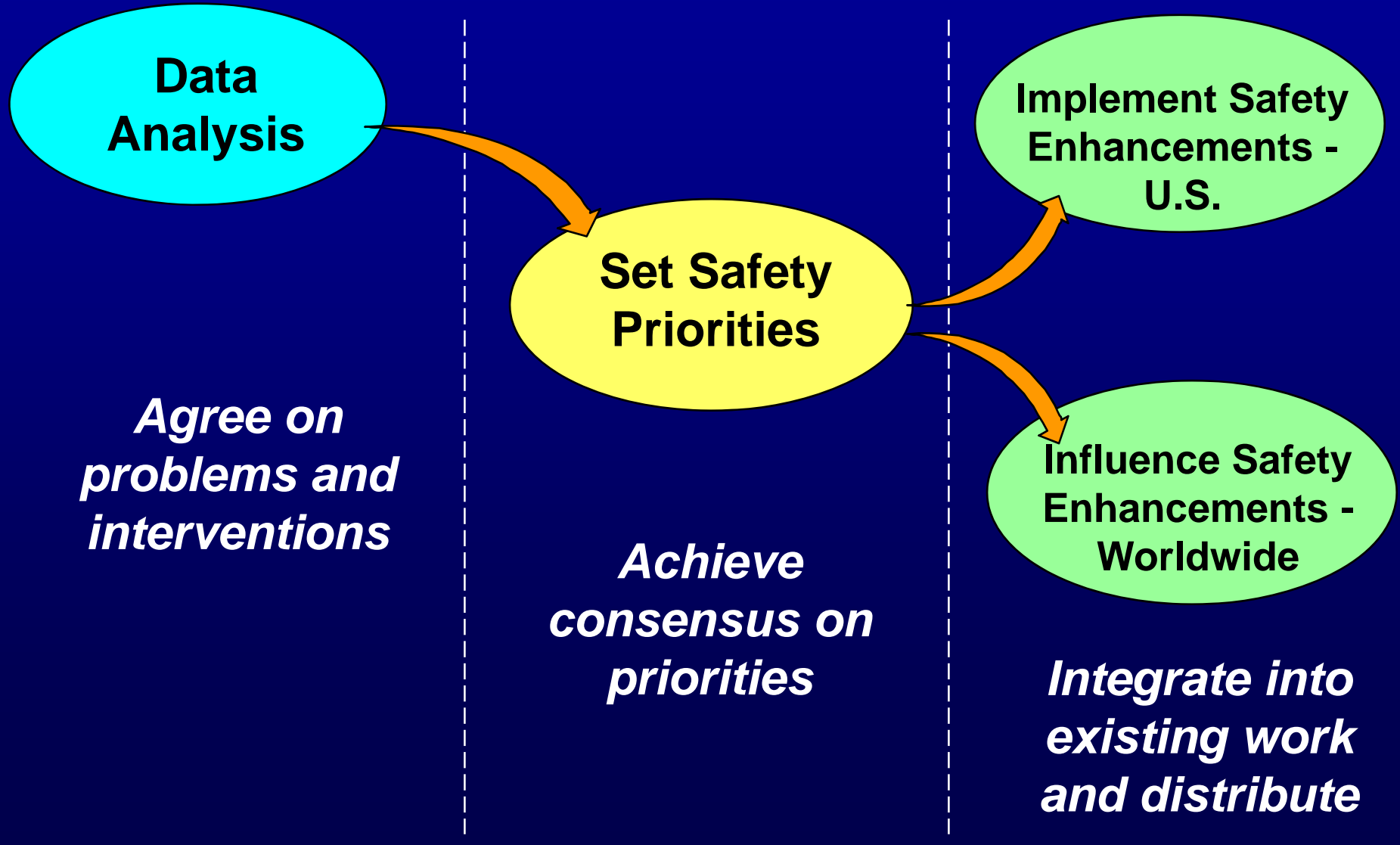
**Set Safety
Priorities**

*Achieve
consensus on
priorities*

**Implement Safety
Enhancements -
U.S.**

**Influence Safety
Enhancements -
Worldwide**

*Integrate into
existing work
and distribute*





CAST Organization



Joint Safety Analysis Teams (JSAT)

- Data analyses

Joint Safety Implementation Teams (JSIT)

- Safety enhancement development

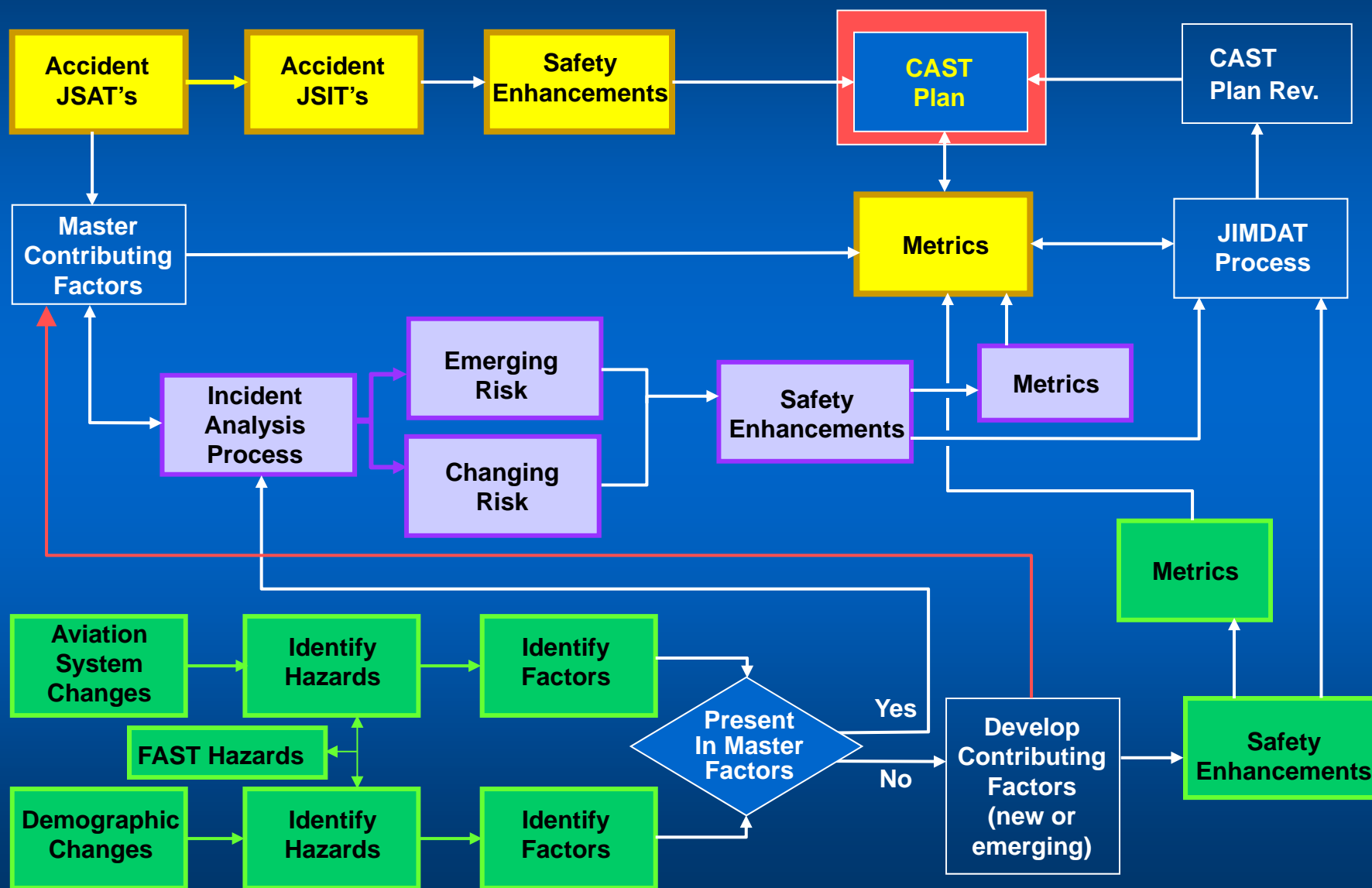
Joint Safety Analysis and Implementation Teams (JSAIT)

- Consolidated data analyses and safety enhancement development team

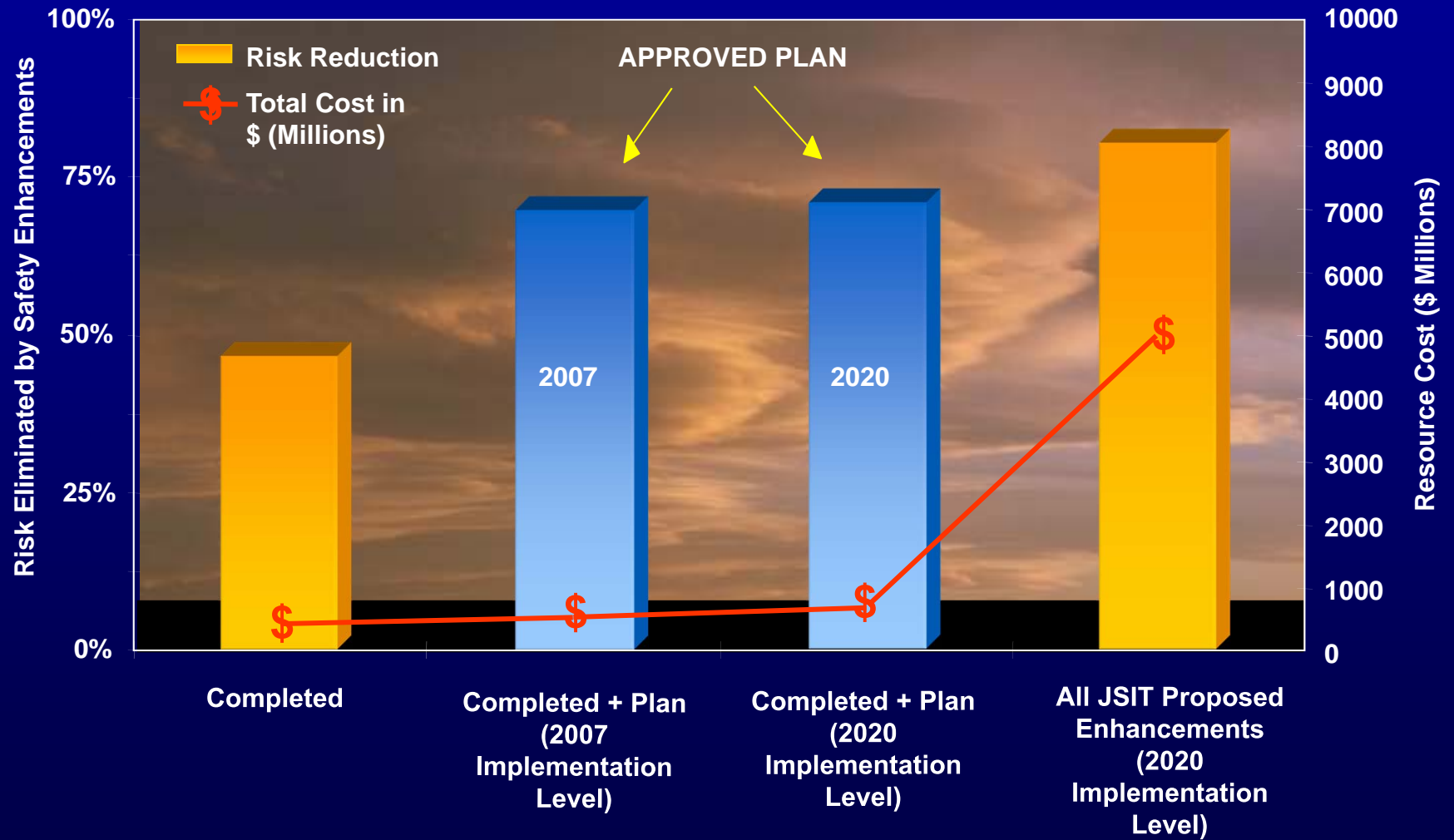
Joint Implementation Measurement Data Analysis Team (JIMDAT)

- Master safety plan
- Enhancement effectiveness
- Future areas of study and emerging risks

Safety Plan Development

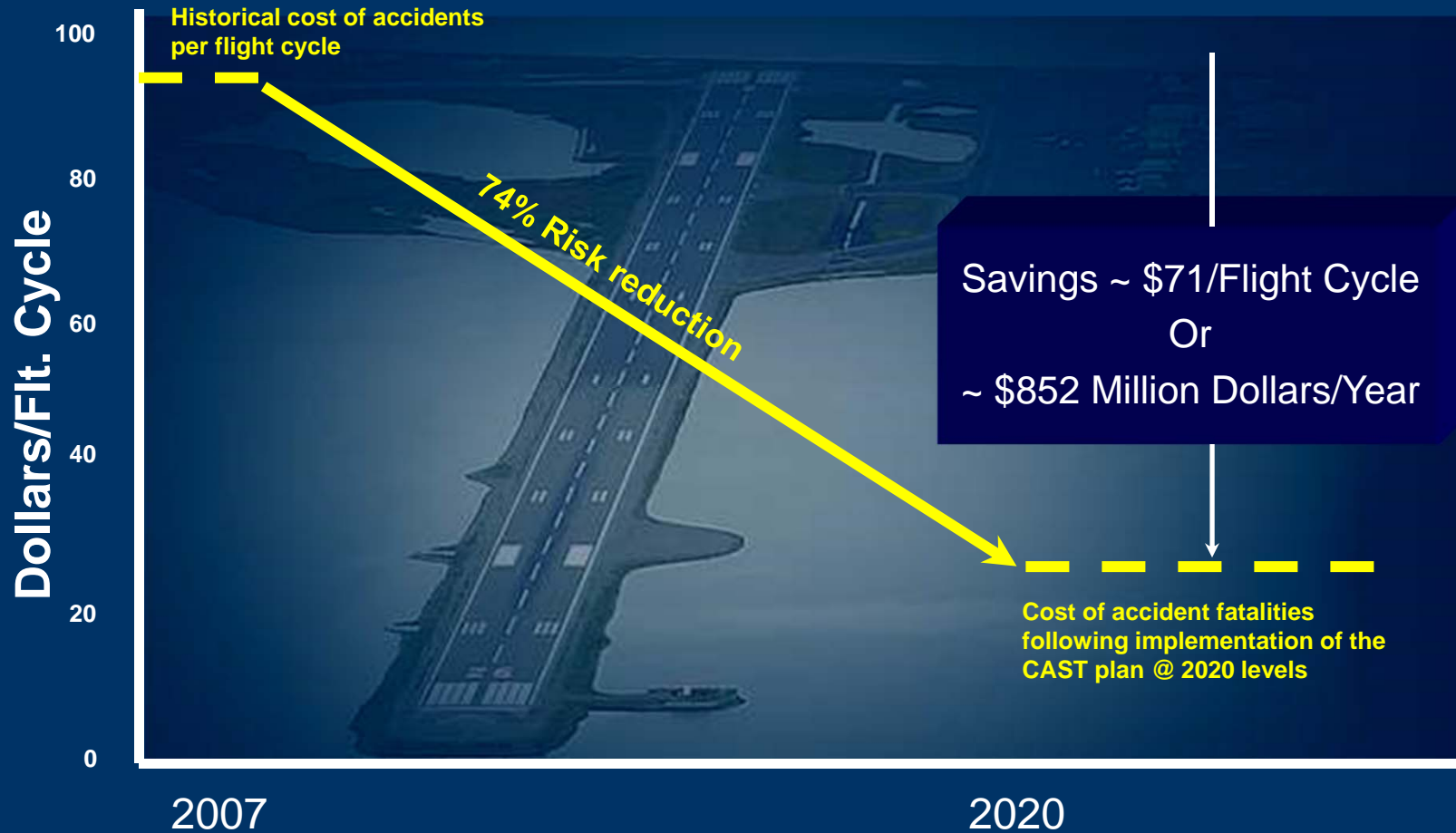


Resource Cost Vs. Risk Reduction

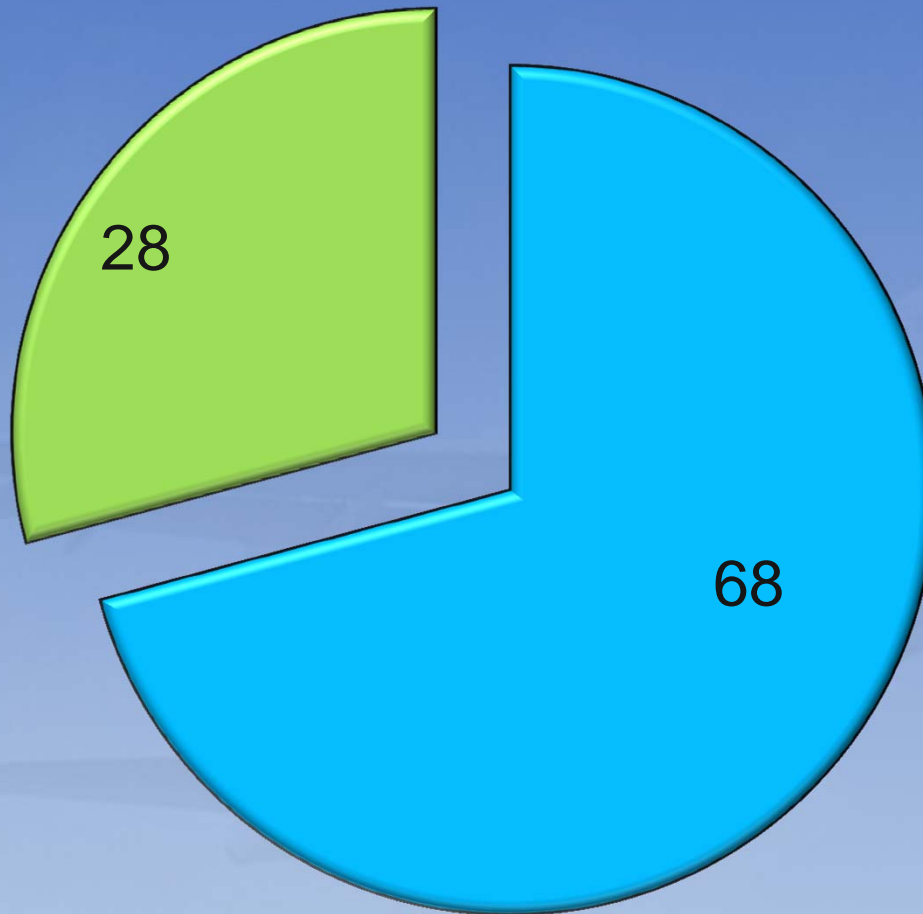


Cost Savings

Part 121 Aviation Industry Cost Due to Fatal/Hull Loss Accidents



CAST – Safety Enhancements



96 Safety Enhancements

68 Complete

28 Underway

■ Completed

■ Underway



Recent CAST Safety Enhancements Issued



Airplane State Awareness

- Previously completed JSIT
 - 19 new Safety Enhancements (SEs 192-211)

RNAV-Departures and STARs

- Recently completed JSAIT
 - 3 new Safety Enhancements (SEs 212-214)

Runway Excursions

- Recently Completed JSAIT
 - 8 new Safety Enhancements (SEs 215-222)

Misconfiguration

- Analysis underway, set to conclude in the next few months

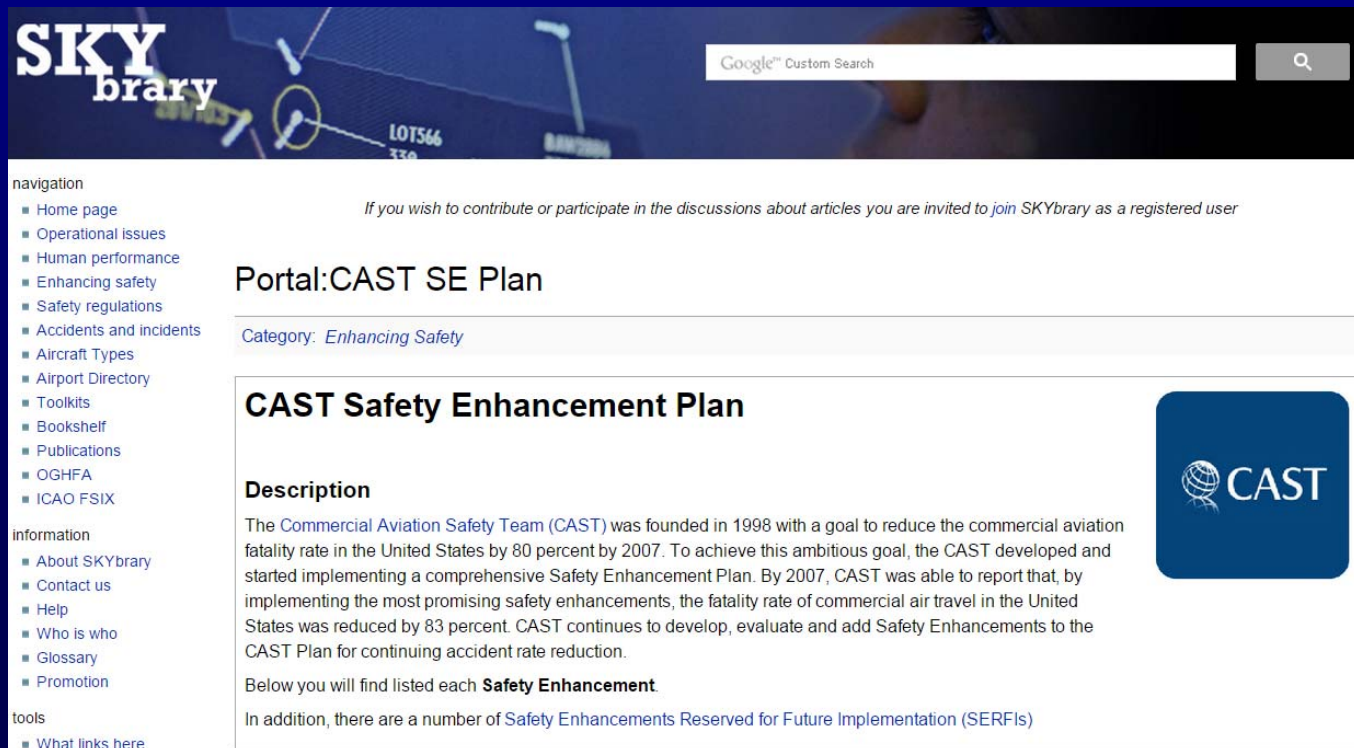
Safety Enhancements available on Skybrary:

http://www.skybrary.aero/index.php/Portal:CAST_SE_Plan

CAST

CAST Safety Enhancement Plan and details of all Safety Enhancements can be found at:

http://www.skybrary.aero/index.php/Portal:CAST_SE_Plan



The screenshot shows the SKYbrary website interface. At the top, there is a header with the SKYbrary logo on the left and a Google Custom Search bar on the right. Below the header, a navigation menu is visible on the left side, listing various topics such as Home page, Operational issues, Human performance, Enhancing safety, Safety regulations, Accidents and incidents, Aircraft Types, Airport Directory, Toolkits, Bookshelf, Publications, OGHFA, and ICAO FSIX. The main content area displays the title "Portal:CAST SE Plan" and a category "Enhancing Safety". Below this, the "CAST Safety Enhancement Plan" is detailed, including a description of the Commercial Aviation Safety Team (CAST) and its goals. A CAST logo is also present on the right side of the content area.

SKYbrary

Google™ Custom Search

navigation

- Home page
- Operational issues
- Human performance
- Enhancing safety
- Safety regulations
- Accidents and incidents
- Aircraft Types
- Airport Directory
- Toolkits
- Bookshelf
- Publications
- OGHFA
- ICAO FSIX

information

- About SKYbrary
- Contact us
- Help
- Who is who
- Glossary
- Promotion

tools

- What links here

If you wish to contribute or participate in the discussions about articles you are invited to join SKYbrary as a registered user

Portal:CAST SE Plan

Category: *Enhancing Safety*


CAST Safety Enhancement Plan

Description

The **Commercial Aviation Safety Team (CAST)** was founded in 1998 with a goal to reduce the commercial aviation fatality rate in the United States by 80 percent by 2007. To achieve this ambitious goal, the CAST developed and started implementing a comprehensive Safety Enhancement Plan. By 2007, CAST was able to report that, by implementing the most promising safety enhancements, the fatality rate of commercial air travel in the United States was reduced by 83 percent. CAST continues to develop, evaluate and add Safety Enhancements to the CAST Plan for continuing accident rate reduction.

Below you will find listed each **Safety Enhancement**.

In addition, there are a number of **Safety Enhancements Reserved for Future Implementation (SERFIs)**





CAST International Outreach





CAST Engagement Criteria



- Safety Value
 - CAST's effort will provide an opportunity to improve safety within the region
- Infrastructure
 - The region has an established infrastructure to enable the implementation of safety improvements
- Partnerships
 - The region has established a government and industry partnership to influence change and establish their own safety goals

InfoShare



- InfoShare is a semiannual Industry-sponsored, FAA facilitated event for airline safety professionals, manufacturers, and the FAA to share safety issues, lessons learned and mitigation strategies, in a protected environment.
- Focused largely on operational safety issues, but airplane design is always an underlying issue.
- Next meeting will be held March 15-17
- InfoShare generates many issues to JIMDAT to perform risk assessment.

A large commercial airplane is shown from a low angle, flying towards the viewer. The aircraft is dark, and its landing gear is visible. The sky is a clear, deep blue.

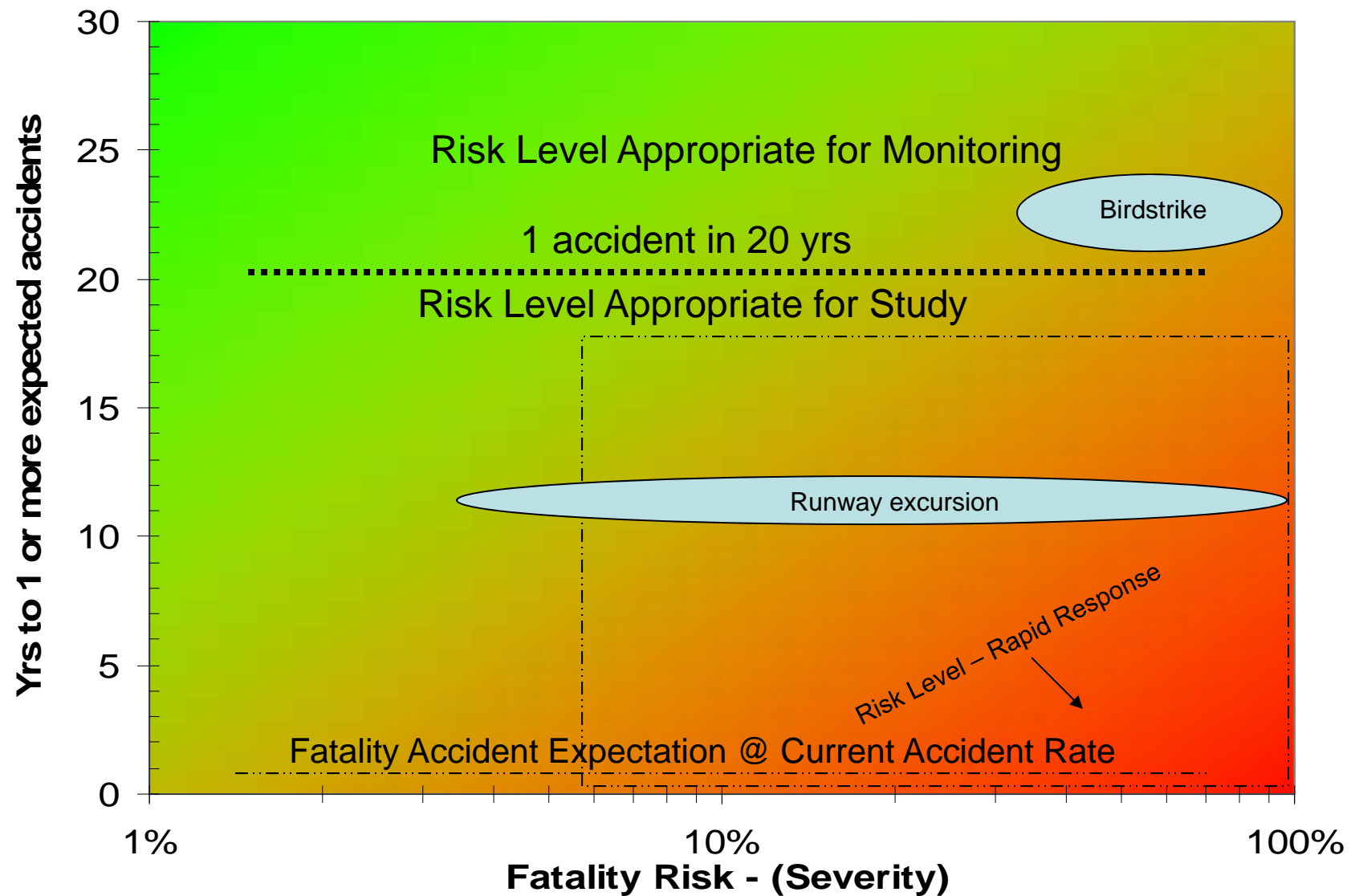


BACKUP SLIDES



Guideline
Criteria C 1.1

Study Prioritization (Fleet Risk)



Appendix D

BCAST

Mid Air Collision

March, 2016

BCAST

Brazilian Commercial Aviation Safety Team

It is collaborative group composed of Brazilian airlines, ANS (DECEA), Regulatory agency (ANAC), IATA, and Manufacturers (Embraer). It is a subgroup of Brazilian Aviation Safety Team (BAST), similar to US CAST.

MAC Working Group



Objective

Mitigate Mid Air Collision risk by:

- Reducing the most important reasons why the individual barriers are unsuccessful;
- Improving beneficial influences that may make existing barriers more successful;
- Introducing new barriers;
- Assuring the MAC risk stays as low as reasonably practicable.

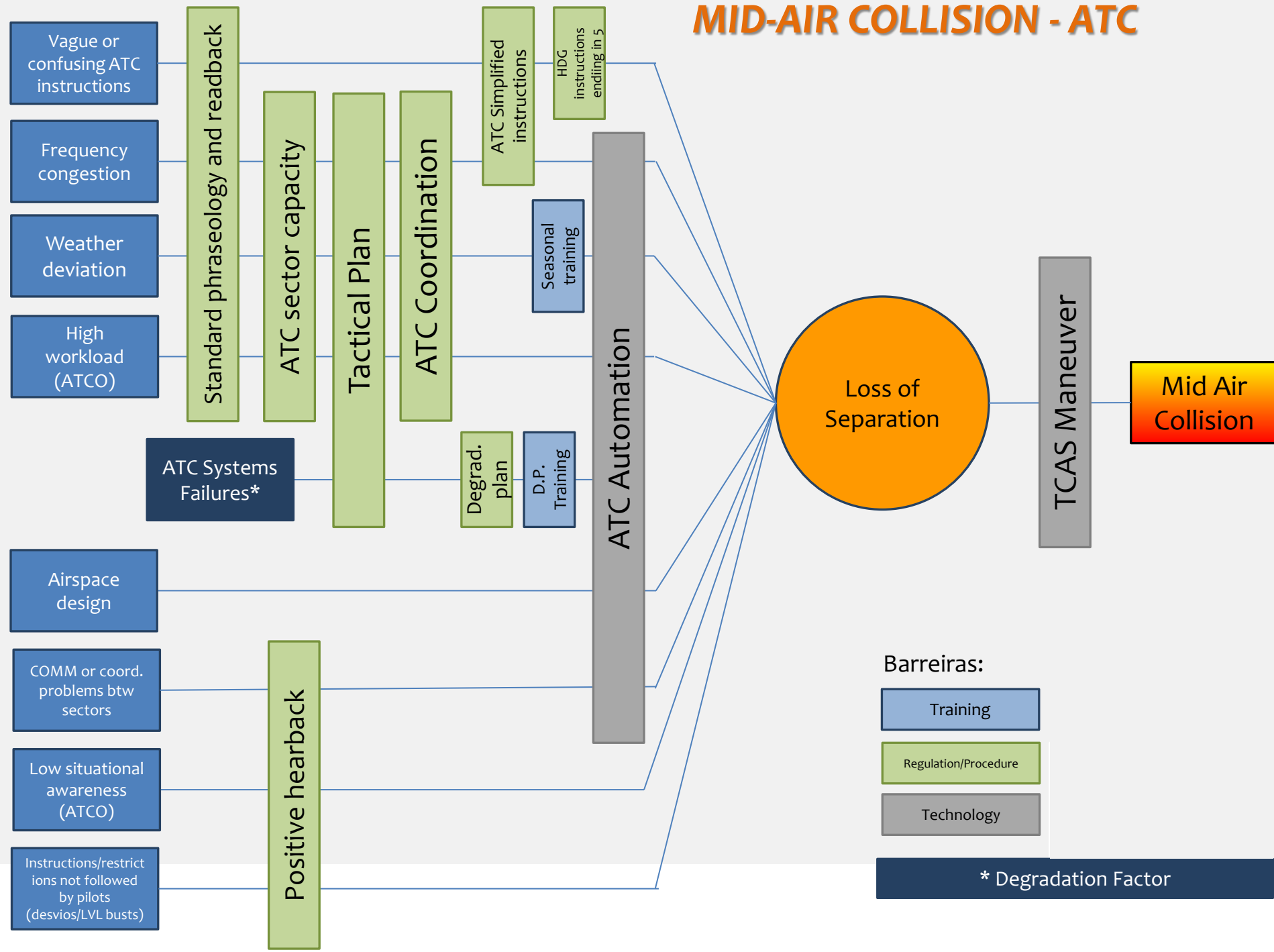
Observation:

We have not studied Unmanned Aircraft Systems (UAS) issues... Yet!

Methodology

- Hazards and safety barriers identification;
 - Bow-tie analysis.
- Data collection and research;
 - Pilots and ATCOs survey;
 - Skybrary (articles and tool kits);
 - FDX;
 - New sources of information;
- Detailed Implementation Plan (DIP).

MID-AIR COLLISION - ATC



Data collection and research

- Pilots and ATCOs survey:
 - Based on simplified Bow-tie diagrams (pilots and ATCOs);
 - Perception of the main stakeholders about hazards and safety barriers.

Why?

To determine prioritization of actions in the DIP.

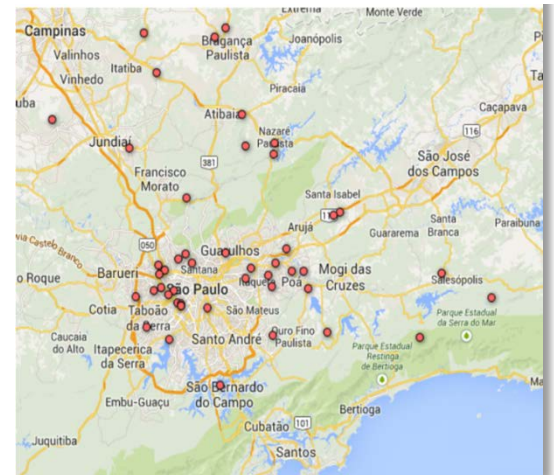
Data collection and research

- Skybrary research (articles and tool kits) highlights:
 - 70% of level busts are due to miscommunication between pilots and ATCOs;
 - 40% of level busts occurs between FL 100 and FL 110;
 - Main hazards that lead to a loss of separation:
 - Weather deviations;
 - Level busts;
 - Bad coordination between ATC sectors;
 - Frequency congestion
 - Use of non standard phraseology;
 - Airspace design;
 - Vague ATC instructions and miscommunication;
 - Call sign confusions.
- **Conclusion:**

Human factors are directly related in to the majority of loss of separation events.

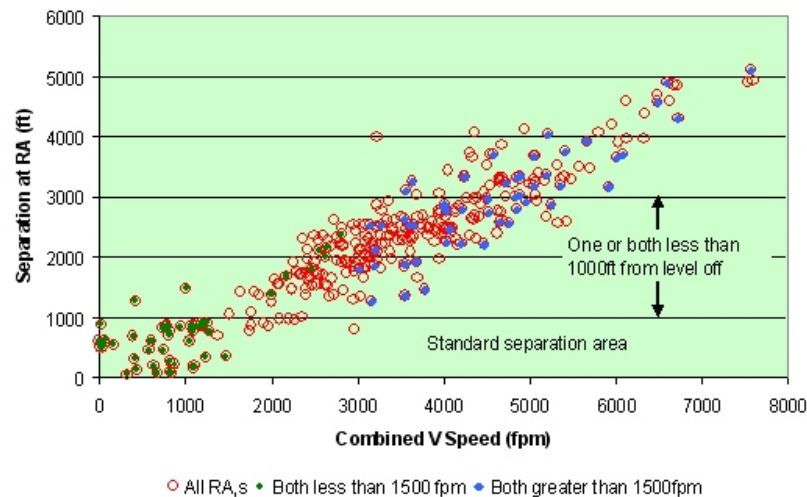
Data collection and research

- FDX program:
 - Great source to identify where TCAS RA events are taking place;
 - May be used as a KPI after DIPs;
- Limitation of FDX:
 - Impossible to separate events by severity.



Data collection and research

- Information from other sources:
 - Airlines of the WG that do not have implemented the Eurocontrol recommendation of reducing V/S before levelling off had 4 times more TCAS RA events during the same period.



Data collection and research

- Information from other sources:
 - 1st step: TCAS RA as a mandatory report;
 - 2nd step: crosscheck FDM x Safety Reports;
 - 3rd step: downgrade events in FDM database;
 - 4th step: data consolidation;
 - 5th step: hotspots identification.

Possible improvements in data collection

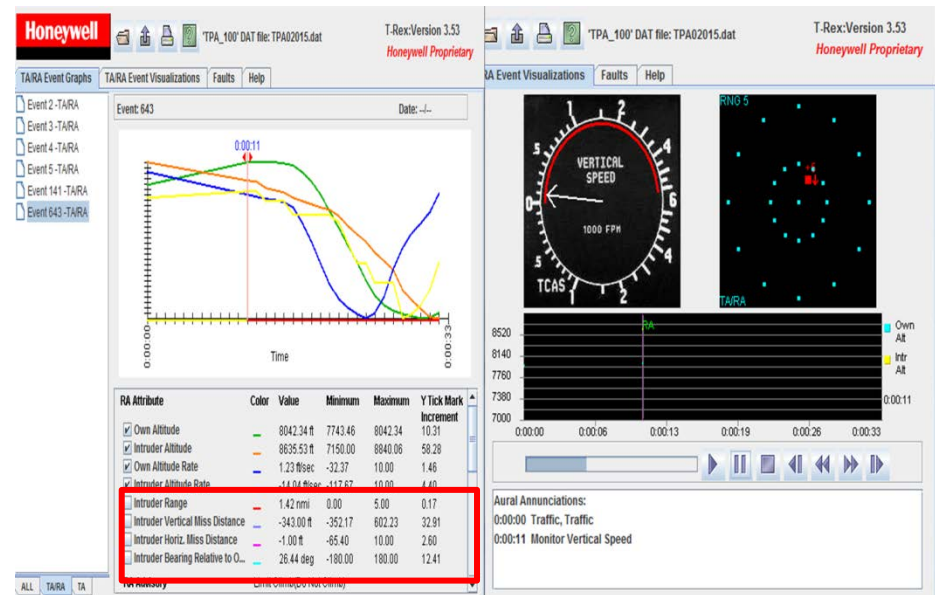
- Enhancements of FDM and TCAS Systems to segregate events by severity
 - FOQA Systems receive TCAS warnings and evasive maneuvers from the TCAS Computer, but...
 - There is more information stored in TCAS memory that are only accessible after a download made by the TCAS manufacturer.

Possible improvements in data collection

TCAS computer stores information about the traffic intruder, including vertical and horizontal distances.

Exporting this data to FDM Systems would enable the development of severity classes.

Sharing all this through FDX would allow us to detect where the problems are really happening.

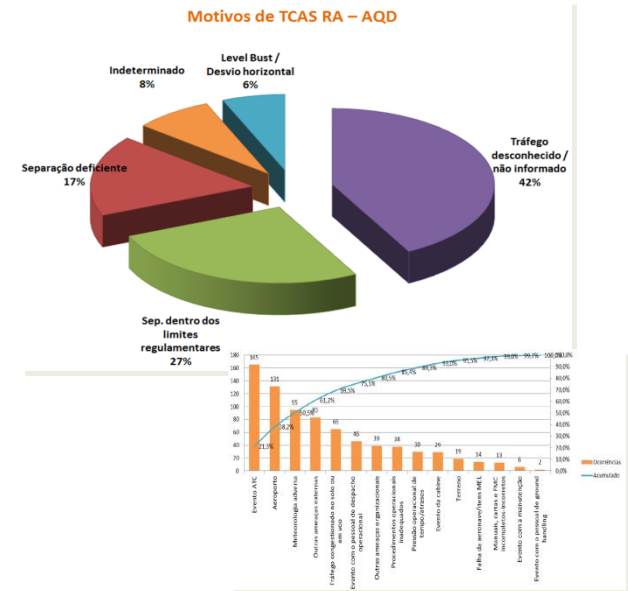


Possible improvements in data collection

- Loss of separation reports and trends from ATC systems.



Algorithm



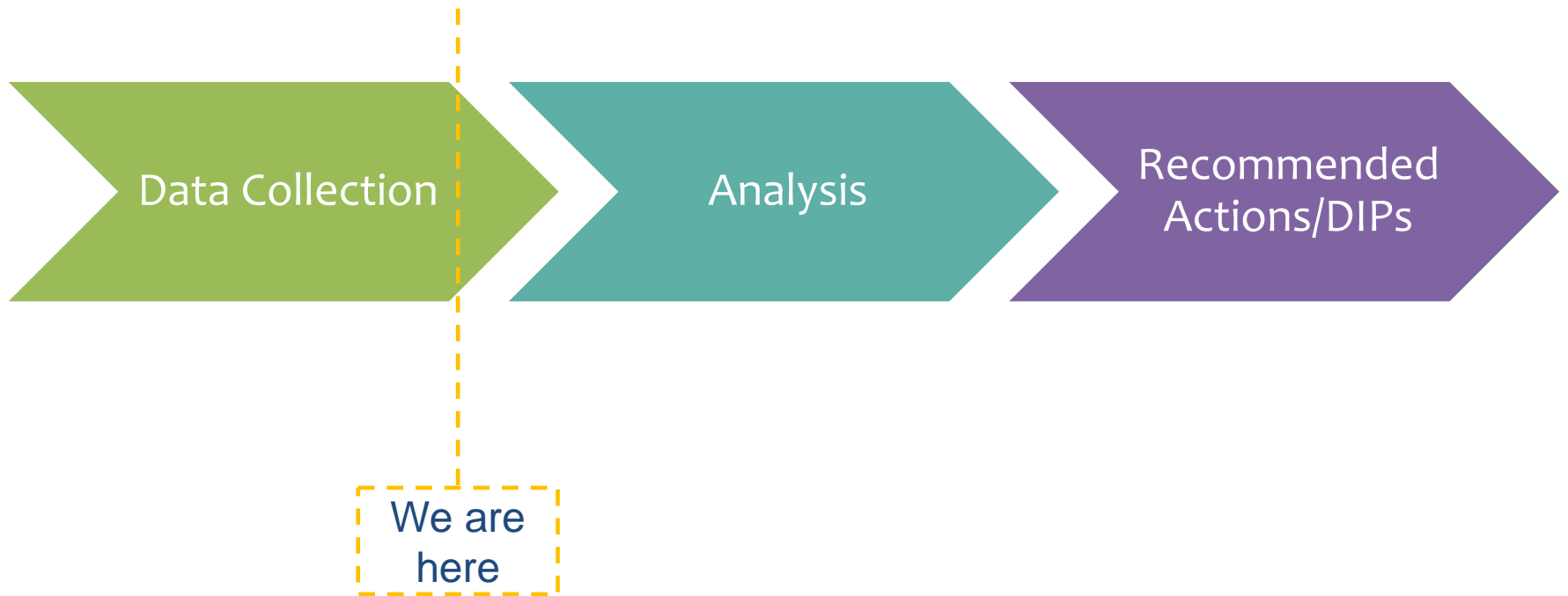
Possible actions/DIPs

Possible actions to be part of DIPs:

- Use of standard phraseology campaign;
- Level Bust tool kit implementation;
- Video lectures for pilots and ATCOs during initial and recurrent training;
- “ATCOs in the flight deck”;
- Algorithm for Call sign validation;
- Enhancements in data collection and data sharing (TCAS/FDX/ATC Systems) and...
- **Focus on Human Factors!!!!**



Where are we now?





Keep in touch!



Capt. Dan **GUZZO** Comite

Email: dgcomite@golnaweb.com.br

Phone: +55 11 5098-2189

