GUIDANCE MATERIAL FOR NEW COLLABORATIVE SAFETY TEAM (CST) IMPLEMENTATION

PURPOSE, STRUCTURE, OBJECTIVES, RISK IDENTIFICATION & MITIGATION PROCESS

CONTENTS

Background

The fundamental principles with which a Collaborative Safety Team (CST) in a State or Region is formed is to achieve continues improvements in the safety levels in a State or Region. CST's implementation represents a collective regulator and industry determination to continuously improve safety levels enjoyed by the air transport industry today. The drivers for the implementation of a CST are supported through the following safety-driven guidance on safety information sharing networks.

- ICAO's Annex 19 part 5.4.2 recommends

  "Each State should promote the establishment of safety information sharing networks among users of the aviation system and should facilitate the free exchange of information on actual and potential safety deficiencies."

- ICAO's 2017-2019 Global Aviation Safety Plan, sets this as its long-term objective

  "2.2.7 The long-term objective calls for States to build upon safety management practices within the State Safety Programs (SSP) to develop advanced safety oversight systems, including predictive risk management. Safety analysis will be integrated into all aspects of future aviation systems and will be used to model risks prior to the implementation of operational changes."

- ICAO's 2017-2019 Global Aviation Safety Plan, also recommends states implementing an SSP to follow this recommendation

  "2.4.3.2 The transition to an SSP requires increased collaboration across operational domains to identify hazards and manage risks. The analysis of various forms of safety data is needed to develop effective mitigation strategies specific to each State or region. This requires ICAO, States, and international organizations to work closely together on safety risk management. In addition, collaborative efforts between key stakeholders, including service providers and regulatory authorities, are essential to the achievement of safety performance targets established through a State's SSP or service providers' Safety Management Systems (SMS). Through partnerships with such key stakeholders at national

and regional levels, safety data should be analysed to support maintenance of performance indicators related to the risks and the major components of the aviation system. Key stakeholders should reach agreements to identify appropriate indicators, determine common classification schemes and establish analysis methodologies that facilitate the sharing and exchange of safety information."

These recommended "information sharing networks" and "advanced safety oversight systems, including predictive risk management" are known as **Collaborative Safety Teams (CST)** which contribute to the advancement of the Global Aviation Safety Plan.

Through the CST's, the aviation industry has found a minimum set of guiding principles that will ensure the implementation of a successful CST's, first in the United States with the Commercial Aviation Safety Team (CAST) and the General Aviation Joint Steering Committee (GAJSC) in 1998, then the Regional Aviation Safety Group- Pan American (RASG –PA) in 2008, the Safety Action Programme (PASO) group in Costa Rica in 2010, and the Brazilian Aviation Safety Team (BAST) in 2012.

CST's information sharing enablers

It has to be noted that the data driven approach followed by the previously mentioned countries and organizations inside their CSTs, has been enabled by the establishment of Flight Operations Quality Assurance (FOQA) Data Sharing Programs such as the Aviation Safety Information Analysis and Sharing (ASIAS) in the US, and Flight Data eXchange (FDX) by IATA, where airlines voluntarily share their data to be processed under a common event definition, and is presented to the final users as aggregated, de-identified information. To be able to use this information at the different CSTs, the US-CAST and IATA have signed memorandums of understanding (MOU) with each CST that ensure the protection of this safety information.

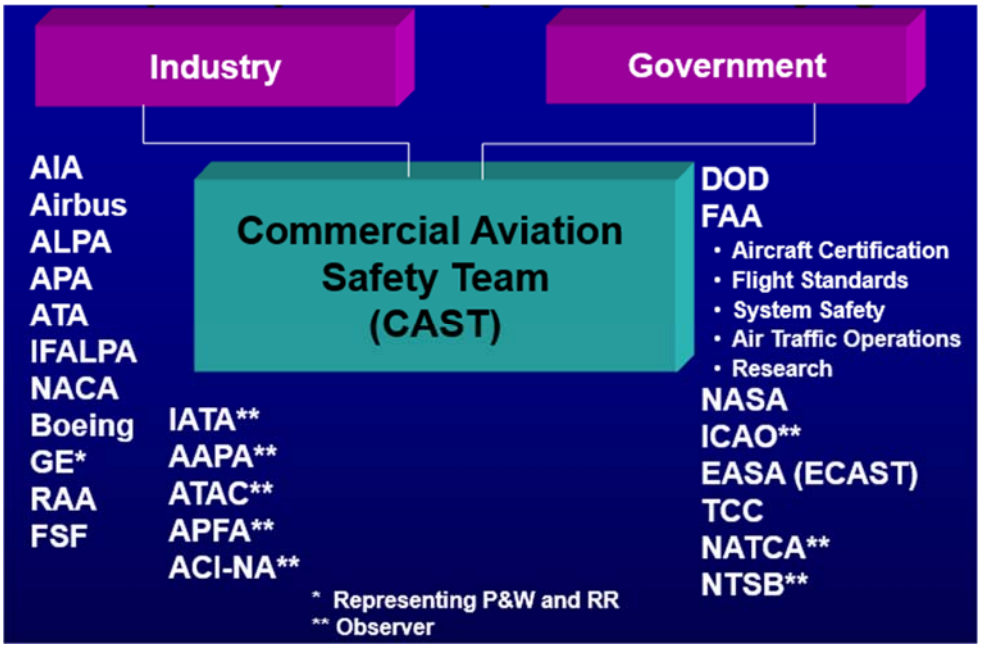
PURPOSE

The purpose of this document is to present this guiding principle to states or regions interested in implementing such a Collaborative Safety Team (CST).

Foundations and Purpose of the CST:

1. For key stakeholders to cooperatively develop and implement a prioritized and data driven safety agenda, with the objective of reducing the fatality risk of the country or region.
2. It has been proven that joint industry and government teams working as equals, to a common goal, can further enhance the safety of our aviation system by combining resources and information.
3. A key success factor has been the establishment of a CST safety culture, where all its members participate as equals, respecting all viewpoints as worthy of consideration, and agree towards working on a voluntary and data driven objective, which avoids regulations and mandates.
4. The purpose of the CST is not to produce new regulations, but to produce safety enhancements that the aviation service providers can adopt voluntarily.
5. Establish a feedback mechanism to allow for measurement and analysis of implemented safety enhancements. This can be done using proactive data, as well as opportunities to openly share information and data between the State and the operators without fear of punitive actions (The United States InfoShare is an example).

   This is the composition of the US-CAST:



STRUCTURE

The key component to the Structure and Membership of the CST is the joint-collaboration in the membership and empowerment structure. This begins in the composition of the Executive Steering Committee (ESC) as highlighted below.

Executive Steering Committee (ESC) Membership

Executive Steering Committee membership is based on the following principles:

a) Balance between Government and Industry representation;
b) A diversity of interests and areas of expertise;
c) A manageable number of members to function effectively as an executive body.
d) The members of the ESC must be at a high enough level within their agency or company to be able to influence decisions. This is key to insuring the implementation of safety enhancements.

1. Membership

a. Government: States/territories and their aviation related agencies such as: Civil Aviation Authorities (CAA), Accident Investigation Board, Air Force, etc.

b. Industry: Airline operators, international organizations, professional organizations, maintenance and repair organizations, aircraft manufactures, airport and air navigation service providers and any other allied organizations/representatives.

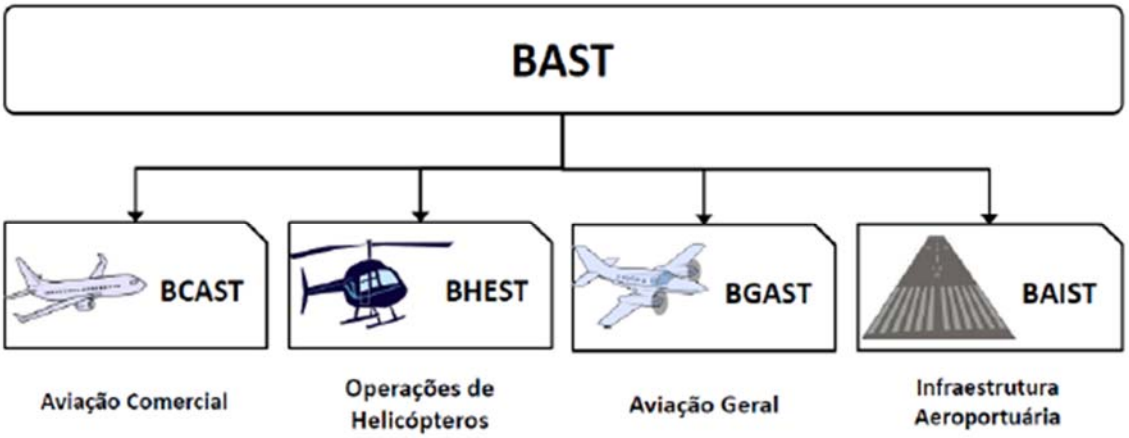
Leadership: Since the purpose of the CST is to bring government and industry to the table as equals, it is recommended that a "Co-Chairmanship" is establish at the executive level with one representative of the state and another one of the industry to lead the organization. This governance should also be replicated at each sub-group, working group, team or task force created.

Secretariat: It's recommended that the CAA assumes this responsibility

2. Structure

The structure of the CST will normally be comprised of a Steering Committee, which will oversee the work of established sub-groups. These will focus on different industry areas, such as; commercial aviation, helicopters, infrastructure, and general aviation.

The overleaf presents the structure implemented in Brazil.



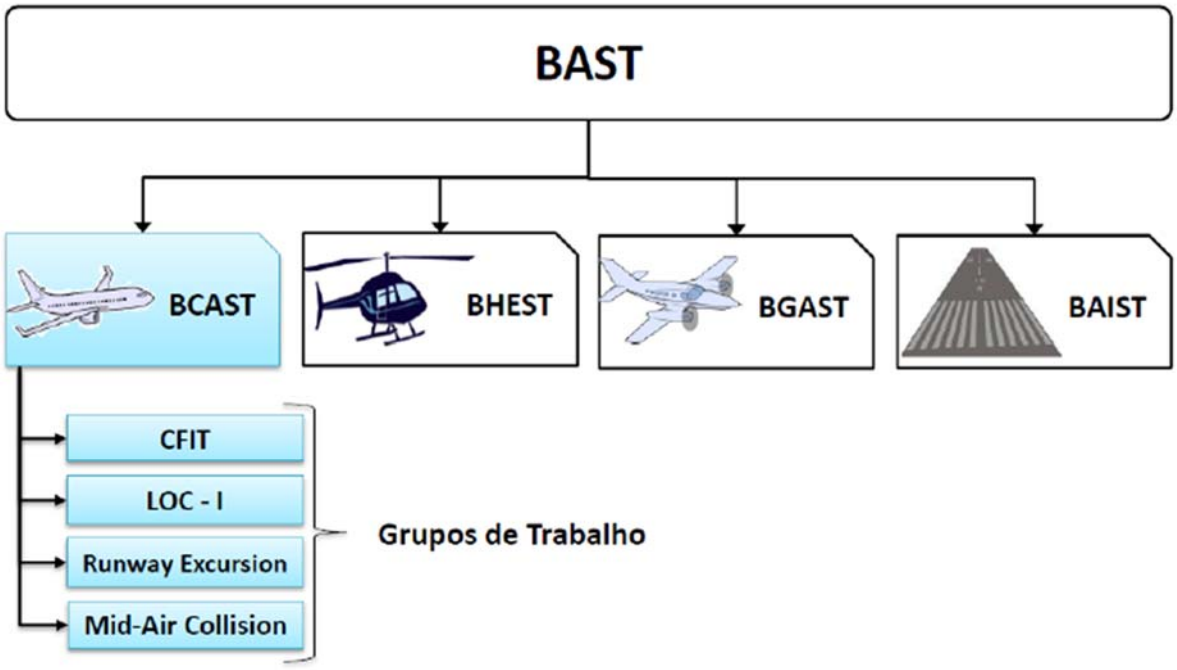
Data Analysis Team, Sub-Groups and Working Teams

It is recommended to establish a Safety Data Analysis Team (SDAT) to provide needed information and statistics, to produce intelligence for the ESC and enable the work of the different Sub-Groups and Working Teams.

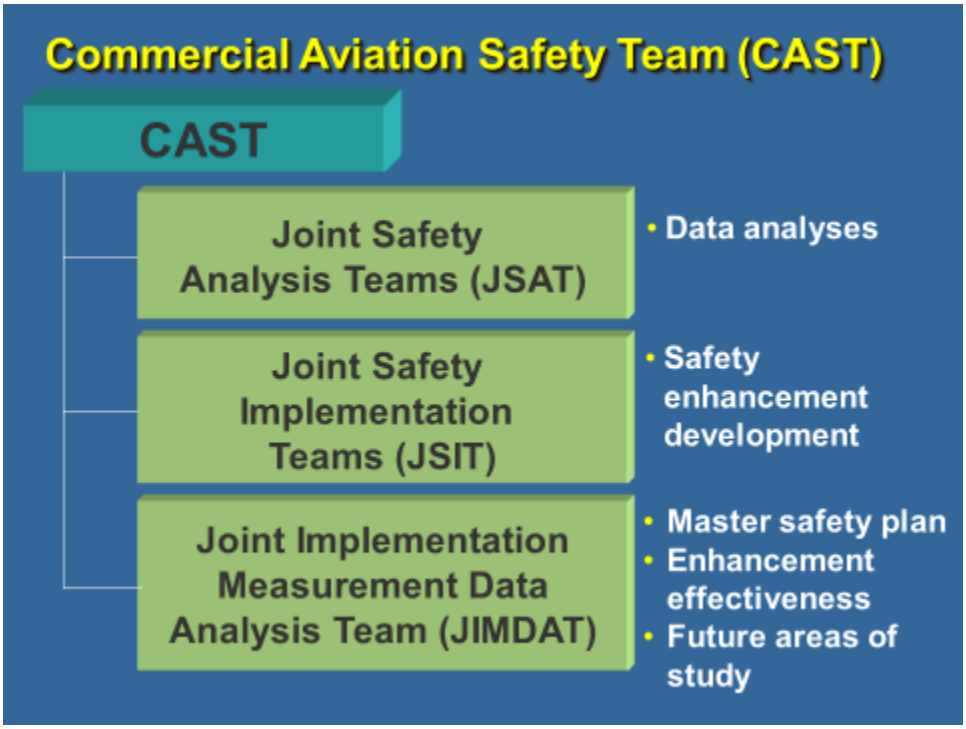
Based on their needs, the Sub-Groups will form “Analysis and Implementation” Working Teams, which will focus on specified risk areas as informed by the SDAT.

It is important that each State or region work and identify their own specific risk areas prior to conducting in-depth analysis.

For example, Brazil established the following risk areas and Working Teams for commercial aviation as seen in the overleaf.



Here is the structure implemented in the United States for commercial aviation:



For more information on the Analysis and Implementation Working Teams, see attachment B

OBJECTIVES

The objectives of a Collaborative Safety Team (CST) are determined based on fatality risk reduction for the State or Region using a baseline to determine an acceptable level of safety performance.

Refer to Appendix E for information on Fatality Risk definition and how to calculate it.

1. Fatality Risk Reduction in your country or region.
   Examples of fatality risk reduction objectives in other groups:

   - RASG-PA: using 2010 as a base line, reduce the fatality risk of the LATAM/CAR region by 50%, by the year 2020

   - CAST: using 2010 as a base line, reduce the fatality risk of the US by 50%, by the year 2025

   - GAJSC: Using a 3-year baseline from 2006-2008, reduce the general aviation accident rate in the United States by 10% by 2018.

RISK IDENTIFICATION AND MITIGATION PROCESS

The Risk identification and Mitigation Process is achieved from safety intelligence gained through the Collaborative Safety Team (CST's) information sharing enabling platform amongst other sources shared between States and Industry. The process highlighted below, the need for safety groups to follow a data-driven approach, protection of safety data, measurable targets to monitor and address safety-related deficiencies, and identification of tactical safety issues for action. This enables the systems approach of continues monitoring for system-safety and improvements.

1. To reduce the fatality risk in an effective and efficient manner, it is recommended that the working groups follow a data driven approach utilizing appropriate available data sources (reactive, proactive and predictive), provided by the SDAT.
   The following diagram highlights the various sources of data that can be utilized by the CST.:

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2. This safety data should be protected, through an established governance, to ensure that it is only used to enable safety enhancements. **It shall not be published or shared with the public, used for oversight activities, or to take punitive or disciplinary actions against services providers or aviation professionals.**
    - For this purpose, the country should evaluate if its current laws and regulations adequately protect aviation safety data.
    - Participants of the CST shall sign a confidentially agreement as the one found in appendix A.

3. Set strategic objectives, priorities, indicators, and the setting of measurable targets that address safety-related deficiencies, while ensuring consistency of action and coordination of efforts within its members.

4. The same safety information, can also be used to identify tactical safety issues for action or follow up. For example, TCAS-RAs, unstable approaches or TAWS event at a particular airport. For this purpose, tactical “go-teams” can be established as suggested in appendix C.

CONCLUSION

The Collaborative Safety Team (CST) should be viewed as part of an State Safety Program (SSP), whose function is to enable risk identification and mitigation, while allowing for a broad participation of all aviation stakeholders. The CST will also help the SSP set and achieve its objective, through the alignment and harmonization of efforts of its participants, by sharing resources and working on a voluntary and non-regulatory driven environment.

Finally, the CSTs work will not overlap or diminish the importance of the State’s regulatory and oversight functions. But it can help guide and focus its resources by producing safety intelligence about the national or regional aviation system.

Appendix A: Confidentiality Agreement

Pan America — Regional Aviation Safety Team Meeting (PA-RAST) of the Regional Aviation Safety Group — Pan America (RASG-PA)
This is not a public meeting, it is by invitation only. By registering, signing below you agree to the following Rules of the Road:

We will hold each participant accountable for the following:

1) The Participant will consider all information to be proprietary property of the presenting organization, since the information being disclosed is highly sensitive.

2) The Participant shall not use any information presented by another participating organization for commercial, competitive, punitive, or litigation purposes.

3) The Participant shall not share or disclose the proprietary information of participants with external parties without the written consent of the owner.

4) The Participant shall not record (audio or video) or take photographs of presentations, discussions or expositions.

5) The Participant shall not discuss or share information from this meeting using social media

6) The Participant agrees to work to implement solutions to safety issues identified during this meeting with the help of the information presented.

7) The Participant shall treat all participants with equality, respecting all viewpoints as worthy of consideration.

8) The Participant agrees that the level and method of information sharing rests with the participants and it is expected that each participant will speak with honesty and candor

9) Anyone not following the Rules of the Road may be asked to leave and may not be allowed to attend any future meetings.

Name of Participant:

_____

Employer or Organization:

_____

Tittle:

_____

Address:

_____

Phone:

_____

Email:

_____

Appendix B: Analysis and Implementation Working Teams

1. Objective: to prepare and develop Detailed Implementation Plans (DIPs) for the risk areas determined by the CST Sub-Group

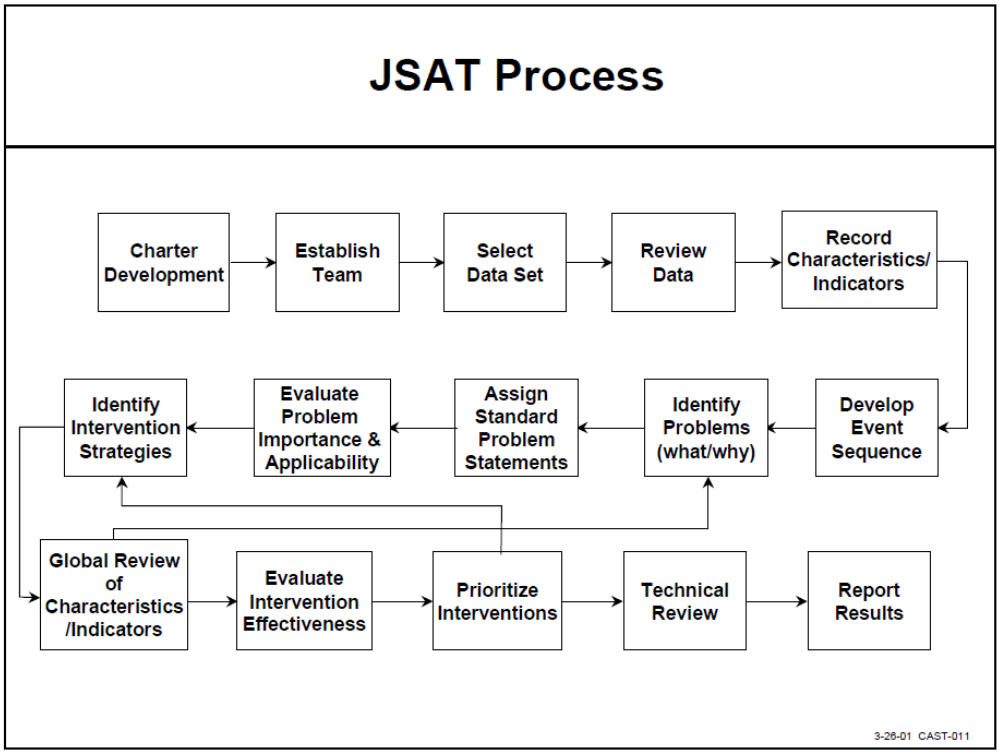
2. Membership:

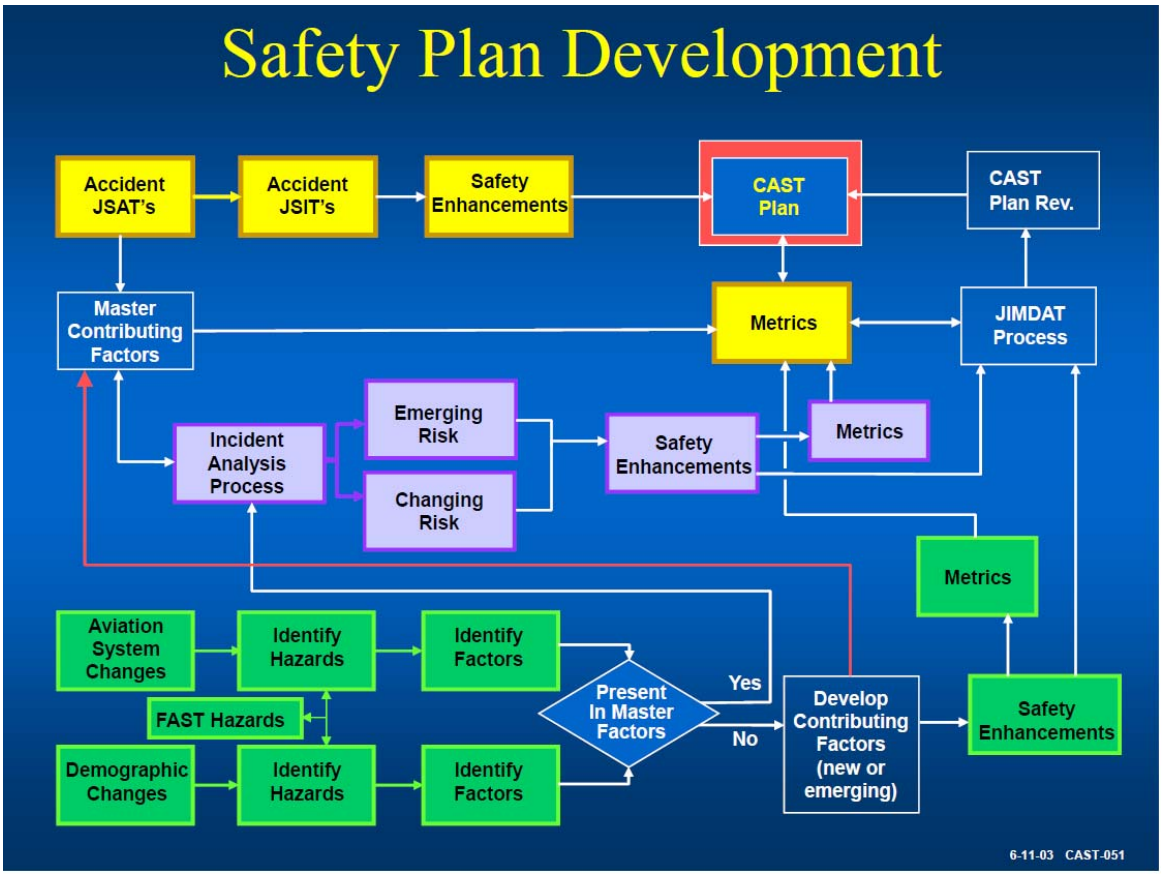
    1. A team leader will be designated to coordinate the work, to report to the CST group the progress made.

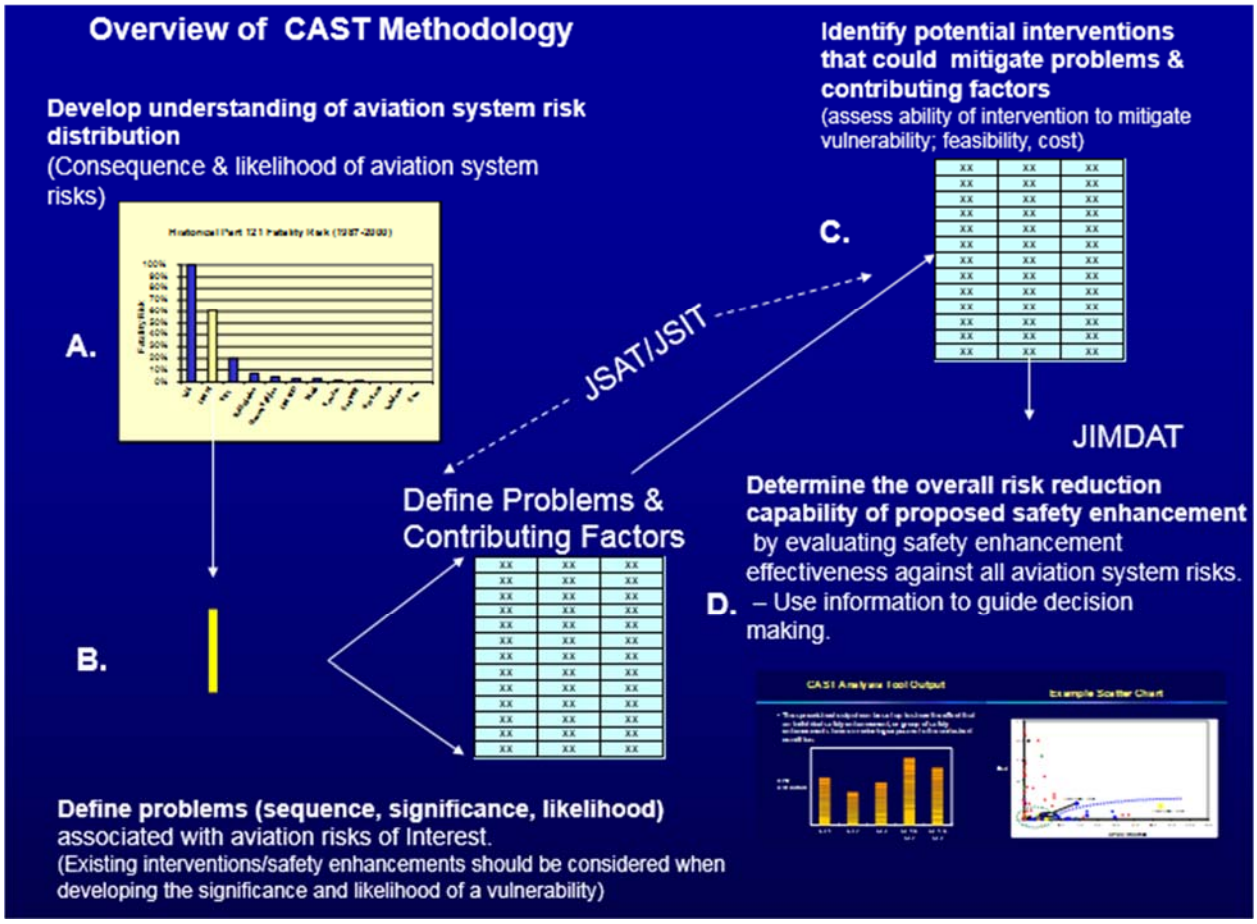
3. Safety Enhancement Team Methodology (7 Step Process):

    1. Review and analysis of accident risk
    2. Review of applicable safety enhancements
    3. Preparation of DIPs
    4. Review DIPs with Sub-Group
    5. Present DIPs to ESC for approval
    6. Coordinate DIP implementation at Sub-Group
    7. Monitor progress and update the ESC and Sub-Group on its progress

Example Methodology from the US-CAST Sub-Group called JSAT:




Safety Plan Development
Accident JSAT's
Accident JSIT's
Safety Enhancements
CAST Plan
CAST Plan Rev.
Master Contributing Factors
Metrics
JIMDAT Process
Incident Analysis Process
Emerging Risk
Changing Risk
Safety Enhancements
Metrics
Metrics
Aviation System Changes
Identify Hazards
Identify Factors
FAST Hazards
Present In Master Factors
Yes
No
Develop Contributing Factors (new or emerging)
Safety Enhancements
Demographic Changes
Identify Hazards
Identify Factors
6-11-03 CAST-051


Overview of CAST Methodology
Develop understanding of aviation system risk distribution
(Consequence & likelihood of aviation system risks)
A.
JSAT/JSIT
Identify potential interventions that could mitigate problems & contributing factors
(assess ability of intervention to mitigate vulnerability; feasibility, cost)
C.
JIMDAT
Define Problems & Contributing Factors
B.
Determine the overall risk reduction capability of proposed safety enhancement by evaluating safety enhancement effectiveness against all aviation system risks.
D. – Use information to guide decision making.
CAST Analysis Tool Output
Example Scatter Chart
Define problems (sequence, significance, likelihood) associated with aviation risks of Interest.
(Existing interventions/safety enhancements should be considered when developing the significance and likelihood of a vulnerability)

Appendix C: Tactical Go-Teams

1. When safety information identifies a “hot-spot” of safety events at a specific location, (such as an airport, local State organization, etc.) the CST may propose to the ESC the creation of specific Go-Teams, assigned to the execution of any related activities. The PA-RAST can also recommend the ESC the creation of a Go-Team, based on the information derived from their analysis.
2. If the ESC deems necessary the creation of a specific Go-Team, the ESC will ask the corresponding ICAO Regional Office to coordinate and manage its conformation and deployment. ICAO the Regional Office will make sure that support efforts are not duplicated.

    a. A Go-Team will be an ad-hoc group comprised of voluntarily assigned experts, from various participating organizations, to provide multi-disciplinary assistance visits or meetings with the local counterparts where any activities of a specific safety enhancement should be implemented.
    b. The objectives of a Go-Team are to provide technical assistance to any local organization, supporting the implementation stage of any tactical safety enhancement or DIPs, including training, assessments and gap analysis, expert advice and guidance based on best practices.
    c. The corresponding ICAO Regional Office will be responsible for following up and monitoring the continuous progress of the implemented activities by a Go-Team.

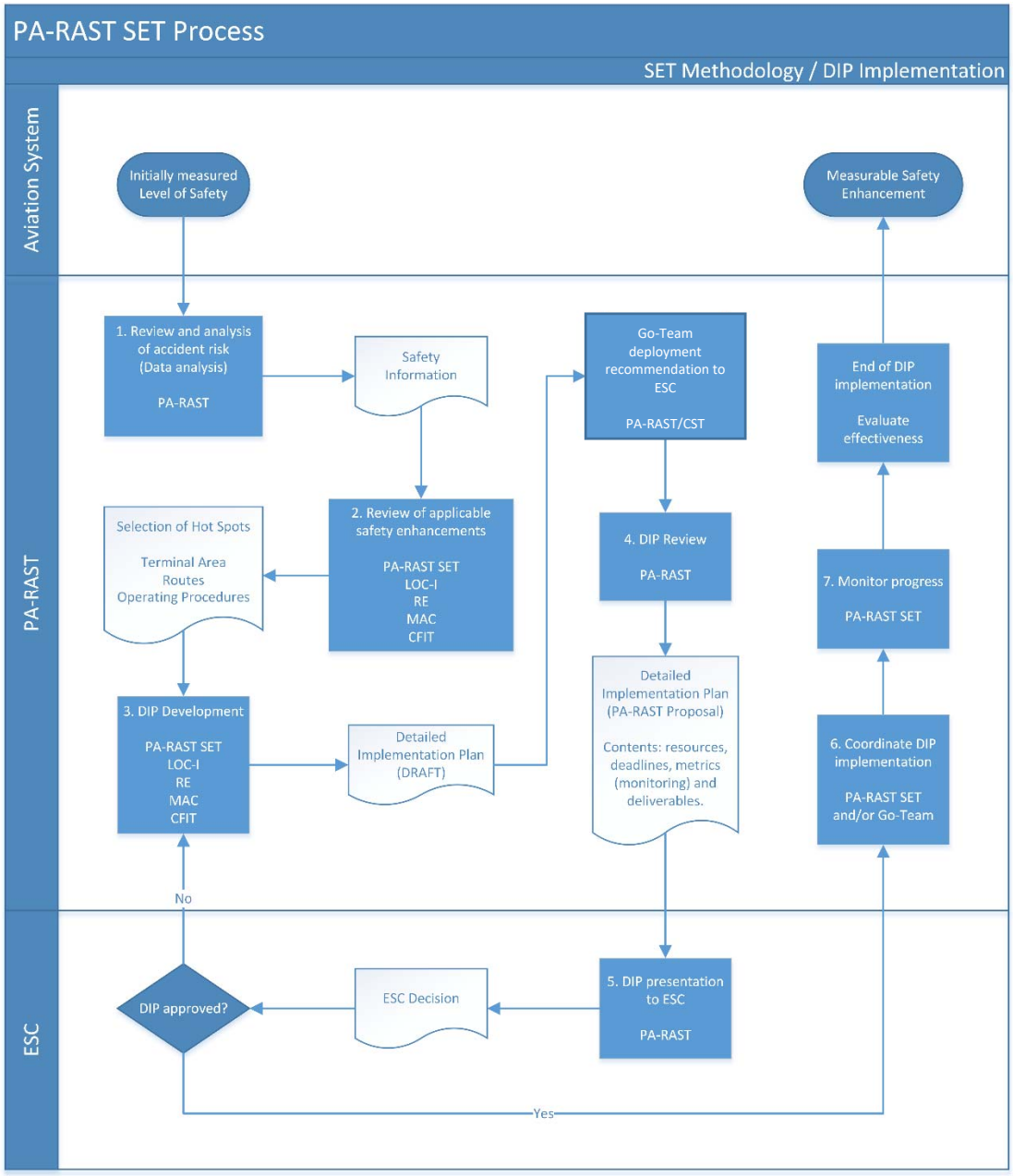
3. The process of deployment of a Go-Team should include the following phases:

    a. Definition of work site: based upon PA-RAST/CST evaluation of specific causes of hot-spots associated with local parameters, State or airport request, etc.
    b. Initial benchmark: collection of relevant data and information on the actual safety conditions of the work site, list of relevant hot-spots (with respective supporting data), presence of a collaborative safety initiative, etc.
    c. Work plan: logistics, contacts with local focal points of contact, expected outcomes, on site agenda, etc.
    d. Go-Team on site work: actual mission, with presentations, briefings with local stakeholders, collection of additional information, evaluation of mitigation actions, training.
    e. Compilation of Go-Team report: to be delivered to local stakeholders. Should include the initial benchmark, proposals for risk mitigation, expected outcomes, timeframe for implementation of solutions, list of required resources, potential difficulties, indication of persons allocated to the implementation of solution and respective responsibilities, etc.
    f. Implementation: local stakeholders with allocated responsibilities over parts of the solution are expected to perform as agreed during the onsite work.

g. Follow-up and final benchmark: the Go-Team should prepare a final report with the results of implementation and a second benchmark to evaluate the new conditions obtained.

Methodology charts

1. The following charts detail the Go-Teams process.



Appendix D: CAST Process Guidance Examples

Joint Safety Analysis Team (JSAT) Process

Establish Team:
The objective in establishing a JSAT is to gather a group of experts who will be able to conduct the JSAT analysis and make recommendations for accident or incident intervention strategies. When establishing a JSAT, it is important to define the expertise that will be needed. This expertise should include knowledge of airline operations. After the expertise has been defined, specific team members should be selected. Team members should be selected based on two requirements: the required expertise, and a demonstrated ability and willingness to participate on an industry-wide team. It may be necessary to consult with other JSAT leaders to identify candidate team members.
The following organizations and general disciplines should be considered, as well as specific expertise for the accident type category:

1. Airplane Manufacturers
2. Airports
3. Air Traffic Control
4. Approach Procedures
5. FAA Aircraft Certification
6. FAA Flight Standards
7. Human Factors
8. NASA
9. Pilots
10. Airlines/Operators (training, pilots, maintenance, etc.)
11. Engine Manufacturers
12. Any additional expertise predicated on accident category.

It is essential that the team contain a representative from each of the chartering organizations to ensure their buy-in to the process and results. In addition, the organizations potentially affected by the outcome of the team should be considered for membership.
If the team finds it necessary to divide into sub-teams for a portion of the process, care should be taken to include the needed expertise on each sub-team. Individuals with critical knowledge can also be shared by sub-teams as needed.

JSAT composition may consist of core members, consultants and support personnel. The core consists of the JSAT leadership and members who will be responsible for the actual analysis. These members must be able to attend all meetings. It is critical that a consistent team membership be in place for an entire JSAT effort.

A group of consultants may be identified to participate on the JSAT on an "as needed" basis. The consultants will be used to:

1. periodically review the JSAT activities,
2. provide expertise not found within the JSAT membership, and
3. provide additional expertise that was not identified when the JSAT was chartered.

Specific support personnel should be part of the core team membership. These members could include: team facilitators, scribes to prepare meeting minutes, and computer support to maintain the analysis files. Consistency of support personnel throughout the team activities is desirable.

The following elements are essential to foster positive group dynamics and ensure team success:

1. Strong leadership from the member organizations to define goals and establish objectives, to reinforce the organizations' commitment to the team, and encourage participation.

2. Team members should disengage themselves from their personal or organizational objectives, and be willing to share the benefit of their experience with the rest of the team. They should also be willing to analyze data objectively, to voice their opinions, to reach consensus, and to commit themselves to ownership of the process.

3. It is essential that team members have the full support of their organizations and supervisors to ensure that they have been allocated the time and resources necessary to complete the team objectives.

4. It is also essential that team members be involved in the process from its inception, and be committed to the process through delivery of the final product.

Select Data set

Depending on availability of data and the established goal of the group (fatality risk rate, reduction in fatalities, improved safety, etc.) determine whether the CST will analyse accident data, incident data, or proactive data.

Ensure that the selection of the data is properly documented and statistically significant.

Analyse Data

Develop event sequence
Identify problem statements

After the team or subteam has analyzed the event sequence for each accident, problem statements and any contributing factors should be drafted for the appropriate events. Problem statements are defined as statements that describe what went wrong and why it went wrong, they define an overall deficiency, or describe a potential reason something did or did not occur. Contributing factors are defined as factors both in the crew's environment and personal factors that help explain why a problem occurred.

The purpose of the following discussion is to provide a framework for the process of deriving problem statements and contributing factors from an event sequence.

Assumptions:

1. All members of the subteam have read the accident/incident report under analysis and have constructed their own version of the event sequence.
2. The team has developed master Event Sequence and master Characteristics & Indicators lists.

Identify Intervention Strategies

Interventions are strategies designed to prevent or mitigate a given problem or contributing factor. Interventions should be suggested after the team or subteam has developed the event sequence, the draft problem statements, any contributing factors and has identified and evaluated the standard problem statements. One or more interventions may be identified for each problem statement and/or contributing factor. The interventions should be aimed at reducing or eliminating the effects of the contributing factors and their associated problems.
Interventions should be worded as general requirements rather than as specific hardware solutions. They should define what needs to be provided, and should reference available technology. Look for interventions that solve more than one problem/contributing factor. Interventions should be structured so that they have the following components, stated as briefly as practicable.

Appendix F: Additional Resources and Reference

ICAO's 2017-2019 Global Aviation Safety Plan
ICAO Annex 19 - Safety Management

Websites
CAST: https://www.cast-safety.org
GAJSC: http://www.gajsc.org/
ICAO RASG-PA: https://www.icao.int/RASGPA/Pages/About.aspx
BCAST:

CREDITS

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