International Civil Aviation Organization
Regional Aviation Safety Group - Pan America (RASG-PA)

**WORKING PAPER**

RASG-PA ESC/38 — WP/02
15/05/23

**Thirty Eighth Regional Aviation Safety Group — Pan America Executive Steering Committee Meeting (ESC/38)**

Lima, Peru, 24 to 25 May 2023

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**Agenda Item 1:** **Safety management process within RASG-PA**

# PA-RAST REPORT

(Presented by the PA-RAST)


**EXECUTIVE SUMMARY**

This working paper is to inform the ESC of the activities completed by the PA-RAST during the last 12 months, to report on the activities in progress, and to consider the ESC for the approval of some products and best practices.


| | |
|---|---|
| **Action:** | The Meeting is invited to:<br>a) Recognize the work of PA-RAST;<br>b) Take note on the information provided on this working paper; and<br>c) Approve the proposed Decisions detailed in 8.1. |
| *Strategic Objectives:* | • Safety |
| *References:* | • ESC/38 Meeting Report |

## 1. Introduction

1.1 Over the last 12 months, PA-RAST has worked tirelessly on data analysis and creating risk mitigation mechanisms. This Working Paper provides the RASG-PA ESC with a report on these activities.

## 2. Number of participants in PA-RAST meetings

2.1 The last 3 PA-RAST meetings (PA-RAST/57 Lima, PA-RAST/58 Miami, and PA-RASG/59 Lima) had the participation of 30, 33 and 35 people respectively, representing the States, Industry, and International Organizations.

2.2 This important level of participation and commitment has made it possible to strengthen the PA-RAST working groups, provide support to the SMRT, and support the preparation and execution of important projects and activities.

**3. PA-RAST Activities completed since ESC/37**

3.1 During the last 12 months, the following products have been created and published:

a) Runway Safety (RS) - RASG-PA Safety Advisory (RSA008) – "Compatibility issues between required landing performance and touchdown zone definition" https://www.icao.int/RASGPA/Pages/RASGPA-SA.aspx
b) Controlled Flight into Terrain (CFIT) – RASG-PA Safety Advisory (RSA007) "Mitigations for Controlled Flight Into Terrain" https://www.icao.int/RASGPA/Pages/RASGPA-SA.aspx
c) Loss of control in flight (LOC-I) – RASG-PA Safety Advisory (RSA009) "Mode awareness and energy state management aspects of flight deck automation" https://www.icao.int/RASGPA/Pages/RASGPA-SA.aspx
d) Mid-air collision (MAC) – "Formalization of the Terms of Reference and methodology of collaboration between the AWG and PA-RAST" https://www.icao.int/RASGPA/Pages/RASGPA-SA.aspx
e) PA-RAST Strategy for Collaborative Safety Teams https://www.icao.int/RASGPA/Pages/Library.aspx
f) RASG-PA Turbulence Toolkit - https://www.icao.int/RASGPA/Pages/TurbulenceToolkit.aspx
g) CSTs Guidance Material (Attached to this paper)
h) MAC/GTE Collaboration Terms of Reference https://www.icao.int/RASGPA/Pages/Library.aspx

3.2 However, the lack of an adequate communication and distribution strategy has limited their scope. (See Paragraph 5 below).

**4. PA-RAST Activities in progress started after ESC/37**

4.1 Since June 2022, PA-RAST working groups have been working on the following products:

a) RSA on Manual Flight Operations (ETD: June 2023)
b) RASG-PA Runway Excursions Toolkit (ETD: June 2023)
c) Mid Air Collision - ATC Best Practices Guidance (ETD: November 2023)
d) RSA on Runway Incursions (ETD: June 2024)
e) Go team to inspect the maintenance work on the Jaen runway in Peru (ETD: June 2024)
f) Support for the establishment of the CST of Peru

**5. RASG-PA Product Communication Strategy**

5.1 During recent meetings, PA-RAST has been discussing RASG-PA's historical frustration with adequately communicating the availability of its products, and its limited ability to measure their use and effectiveness.

5.2 Despite different strategies tried in the past, proper communication of RASG-PA products has been a major weakness that the group has not been able to adequately address.

5.3 The Secretariat has proposed during the PA-RAST/59 meeting, the use of the professional network LinkedIn to maximize the reach of the deliverables that RASG-PA has for its members and other interested parties.

5.4 For example, to name a few members of RASG-PA, Boeing has more than 2 million followers in said network, IATA has around 725K, and ICAO 390K, which means that we are facing a very large potential audience.

5.5 Some of the main advantages of using LinkedIn to communicate the availability of our products:

a) It is a serious professional network;
b) The centre of its activity is to promote networking;
c) Allows open and direct interaction, encouraging feedback;
d) It has an advanced metrics system, which allows knowing in detail the scope of each publication, including geographic distribution; and
e) Its metrics allow us to identify the strengths and opportunities of our communication strategy, in such a way that we can identify and prioritize the areas that require adjustments.

5.6 In this sense, the PA-RAST in coordination with the Secretariat, requests the authorization of the ESC to use the LinkedIn network as a means of communication, to improve the reach of the RASG-PA products. During the ESC/39 meeting, in 2024, the pros and cons of this exercise can be evaluated. (See 8.1 below).

5.7 The PA-RAST will develop a high-level guide document on the distribution of responsibilities and general rules to manage this new communication channel.

**6. PA-RAST/SMRT collaboration and product connection**

6.1 For various reasons, the number of active members in the SMRT has been reduced to a minimum, almost like that of its predecessor the ASRT. Although PA-RAST still has the support of Colombia, which oversees updating the RASG-PA Dashboard, some PA-RAST members have volunteered to support the work of the SMRT, especially in relation to with the preparation and publication of the Annual Safety Report (ASR).

6.2 This has allowed, among other things, to generate a better integration between the work carried out by PA-RAST, and the content of the ASR, which in recent years has been disconnected.

**7. Summary of best practices and lessons learned**

7.1 The following are a few important lessons learned and best practices that were born from them, thanks to the work of the PA-RAST of the last 12 months and that allow us to generate more efficient work:

a) It is better to concentrate on fewer products at a time and wait to finish them before starting work on new ones.

b) The data analysis processes must be accompanied by a definition of actions, to make sense.

c) The participation of service providers in our meetings allows us to have a better understanding of the relevance of our products, and the needs of the industry, beyond our data analysis processes.

d) The early selection of partners for the implementation of our products, once they are available, guarantees us to receive valid and adequate feedback to define if improvements of our products are needed.

e) The open and active participation of our different members and guests during our meetings encourages healthy discussion and allows us to better understand safety concerns.

f) To complement the activities of analysis of large databases, it is also necessary to analyze local and specific conditions that can sometimes go unnoticed at a general level, but that have the potential to increase the level of risk for operations. For this, collaborative work with the local CSTs is essential, as they have the capacity to offer us this information.

## 8. Suggested actions

8.1 In accordance with what is stated in this working paper, the following Decisions are proposed:

<table>
<tr><td colspan="3">DECISION RASG-PA ESC/38/XX RASG-PA PRODUCT COMMUNICATION STRATEGY</td></tr>
<tr><td colspan="2">What:<br>• The ESC authorizes the PA-RAST, in coordination with the Secretariat to use the LinkedIn network as a means of communication, to improve the reach of the RASG-PA products.<br>How much:<br>• No resources needed from RASG-PA</td><td>Expected impact:<br>☐ Political/Global<br>☐ Inter-regional<br>☐ Economic<br>☐ Environmental<br>☒ Operational/Tech.</td></tr>
<tr><td colspan="3">Why: To improve the reach of the RASG-PA products, to have metrics and to have means of feedback.</td></tr>
<tr><td>When: Immediate</td><td colspan="2">Status: Valid</td></tr>
<tr><td>Who: ☒ PA-RAST ☒ Secretariat</td><td colspan="2"></td></tr>
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<table>
<tr><td colspan="3">DECISION RASG-PA CST GUIDANCE MATERIAL<br>RASG-PA ESC/38/XX</td></tr>
<tr><td colspan="2">What:<br>• The ESC approves the RASG-PA CST Guidance Material proposed by PA-RAST, reference in 3.1 (g) of this Working Paper.<br>How much:<br>• No resources needed from RASG-PA</td><td>Expected impact:<br>☐ Political/Global<br>☐ Inter-regional<br>☐ Economic<br>☐ Environmental<br>☒ Operational/Tech.</td></tr>
<tr><td colspan="3">Why: To provide guidance material for States in their effort to establish and sustain a CST.</td></tr>
<tr><td>When: Immediate</td><td colspan="2">Status: Valid</td></tr>
<tr><td>Who: ☒ PA-RAST ☒ Secretariat</td><td colspan="2"></td></tr>
</table>

8.2 The Meeting is invited to:

a) Recognize the work of PA-RAST;

b) take note on the information provided on this working paper; and

c) approve the proposed decisions detailed in 8.1.

— END —


# GUIDANCE MATERIAL FOR IMPLEMENTING A

# COLLABORATIVE SAFETY TEAM (CST)

**This document provides States, service providers, and industry stakeholders with the framework and general principles for implementing a Collaborative Safety Team (CST).**

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## Purpose of a Collaborative Safety Team

As the demand and complexity of air travel increases, continually improving safety across the aviation system requires not only building on established approaches to risk identification and mitigation, but also adopting new tools and mechanisms that can further drive safety improvements. The Collaborative Safety Team (CST) concept is part of these safety tools.

At a strategic level, the overarching purpose of the CST concept is to foster collaboration between stakeholders towards the continuous improvement of safety. In particular, it establishes a framework for both regulator and industry stakeholders to collaborate on achieving continued improvements in their respective safety performance. Collaboration between aviation stakeholders enables sharing and analysis of safety intelligence from multiple sources which supports proactively identifying safety hazards and designing risk mitigation strategies that might not otherwise be identified when these sources are considered in isolation.

CSTs vary in scope, complexity, can be created within a State, a group of States or a Region, and be tailored according to the operating context (e.g. national laws, safety culture, complexity of aviation system and volume of stakeholders).

The greatest benefits of establishing a CST ultimately come from the capacity to share safety data that ensures safety risk mitigation strategies are data-driven and based on shared knowledge/information. That said, even when data sharing is not immediately possible, implementing a CST can still be meaningful as part of an incremental approach to foster trust and build capacity to collaborate on the improvement of safety.

## Alignment with ICAO Safety Management Principles

The *International Civil Aviation Organization's (ICAO) Annex 19 (second edition), Chapter 5 – Safety Data and Safety Information Collection, Analysis, Protection, Sharing and Exchange* highlights four mechanisms for States to implement in order to ensure continued availability of safety data and safety information to support safety management activities:

- 5.1 Safety data collection and processing systems;
- 5.2 Safety data and safety information analysis;
- 5.3 Safety data and safety information protection; and
- 5.4 Safety information sharing and exchange.

The first two mechanisms (5.1 and 5.2) relate to implementing systems for the collection and provision of safety data/information. These systems can be key contributors to support safety analysis activities of a CST. Safety data protection (5.3) is addressed later in the "Sharing and Protection of Safety Data/Information" section of this guidance document. The last mechanism (5.4) refers to Safety information sharing and exchange, specifically, ICAO Annex 19 paragraph 5.4.2 brings the following standard:

> *"5.4.2 States shall promote the establishment of safety information sharing or exchange networks among users of the aviation system, and facilitate the sharing and exchange of safety information, unless national law provides otherwise."*

Furthermore, the ICAO 2023-2025 Edition of the Global Aviation Safety Plan (GASP), which puts forward a global strategy for the continuous improvement of aviation safety includes the following for States implementing a State Safety Program (SSP):

> *"3.2.2.2 An SSP requires increased collaboration across operational domains to identify hazards and manage safety 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, regions and industry 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' SMS. Through partnerships with such key stakeholders at national and regional levels, safety data should be analyzed to support maintenance of safety performance indicators (SPIs) related to the safety risks and the major components of the aviation system. Key stakeholders should reach agreements to identify appropriate SPIs, determine common classification schemes and establish analysis methodologies that facilitate the sharing and exchange of safety information, in accordance with ICAO provisions on the protection of safety information"*

ICAO Annex 19 and ICAO GASP 2023-2025 intend for aviation stakeholders to work together on safety risk management to enhance awareness, general knowledge of deficiencies and safety priorities, so that all stakeholders of an aviation system can take effective action to improve aviation safety. Implementing a CST is directly aligned with these safety standards and objectives; and provides a framework for regulator and industry to support such information sharing networks with the shared goal to enhance safety of their aviation system.

## Guiding Principles for a Successful Collaborative Safety Team

In 2008, ICAO created a regional body, the Regional Aviation Safety Group - Pan America (RASG-PA) composed of an Executive Steering Committee (ESC), with two supporting teams, the Pan-America Regional Aviation Safety Team (PA-RAST) and the Safety Monitoring and Reporting Team (SMRT) to drive the region's safety agenda based on safety data shared from various stakeholders. RASG-PA can be considered a CST for the ICAO Pan-American Region.

Over the past 25 years, individual States have also initiated development of CSTs: United States Commercial Aviation Safety Team (US-CAST) in 1997, Costa Rica Safety Action Programme (PASO) group in 2010, Brazil Commercial Aviation Safety Team (BCAST) in 2012; and Canada's Collaborative Analysis Group (CAG) in 2020. The implementation of these CSTs, at various levels of development and maturity, continues to support national safety agendas and a data driven approach in the Pan America region.

Based on the collective experience in the operation of these CSTs, following are recommendations and guiding principles that have been identified as key success factors in implementing a sustainable CST:


1. Support to the State Safety Programme (SSP) but independent of State Oversight obligations
    a. To enable regulator participation in CSTs and in the open dialogue with industry based on their safety data and underlying safety issues, activities of a CST should be conducted in isolation of a State's Safety Assurance-Surveillance obligations (i.e. Annex 19 3.4.1). CSTs do not overlap with or diminish the importance of the State's regulatory and oversight functions.
        i. Information shared in a CST is to be used to identify "system wide risks" and not to conduct individual investigations of incidents or events.
    b. Risk identification and mitigation activities of a CST are complementary to the objectives of an SSP and can help set and achieve SSP safety objectives through a data-driven approach to the national or regional aviation system.
        i. While a CST can be a key contributor to the achievement of the safety objectives identified in an SSP, and that it can be appropriate for the CST to be an official instrument of the SSP, it may not always be optimal to formally and/or officially integrate the CST as part of a State's SSP. To make this decision, States can weigh the impact (e.g. on data protection) that integrating a CST within the SSP may have on the operation of a CST and on the sustained participation of industry.
2. Establish relationships and build trust
    a. Given the traditional surveillance role of the regulator, and that interactions in those circumstances are not always conducted with a collaborative mindset, participants need to acknowledge past experience of stakeholders with the

regulator and be ready to invest the time required to build the relationships and trust within the CST.

b. Any member selected to participate in a CST should have the right mindset (e.g. to collaborate on safety, not for gaining competitive advantage, not for taking punitive action), demonstrate a positive safety culture, and be supportive of the CST collaborative process.

3. Adopt a progressive and incremental approach

    a. Need to acknowledge the operating context, and adopt an appropriately incremental approach and processes that consider concerns such as lack of trust and limitations in protection of data (from disclosure and punitive action).

    b. Safety data/information sharing, and exchange are key to increasing the understanding of underlying safety conditions in the aviation system and are the foundation for a sustainable CST, with which States and Regions are able to achieve safety improvements through improved safety intelligence.

        i. While, per Annex 19 5.4.2, the regulator shall promote the establishment of safety information sharing networks such as a CST, and that ideally the regulator would be an active participant in such networks, it is understood that laws in certain jurisdictions may significantly limit the effectiveness of these sharing networks should the regulator be a participant. If regulator participation prevents the creation of a CST, the regulator could nonetheless consider promoting implementation of a CST among users within the aviation system that do not have the same limitations. A CST, even without the regulator, can positively contribute towards improvement of safety.

4. Create clear and transparent processes

    a. Develop documentation that clearly describes how the CST will operate, confirm buy-in of all members to the CST processes.

    b. Establish rules of engagement to ensure that all members of the CST participate as equals and respectfully consider all viewpoints.

    c. Issues and limitations inherent to processes should be proactively communicated to ensure awareness of participants and prevent unintended consequences.

5. Protection of voluntarily shared data

    a. Work towards establishing protections of voluntarily shared safety information per protection principles outlined in ICAO Annex 19.

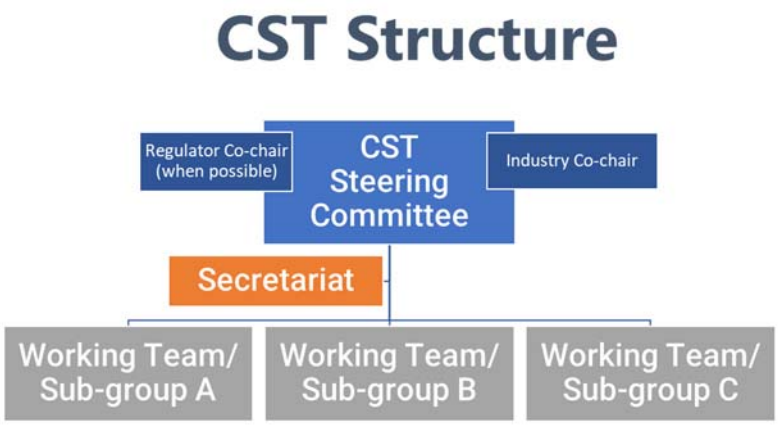
    b. In the absence of the necessary data protections, partners creating a CST can adapt their processes and mode of operation of the CST to address the concerns on the use of information from voluntary reporting and auto data capture systems.

6. Actions and decisions driven by the objective of improving aviation safety
    a. States, service providers, and industry should:
        i. Cooperatively develop a data–driven safety agenda prioritized by accidents and incidents that represent the greatest risk of fatalities.
        ii. Develop consensus–based voluntary risk mitigation strategies to reduce fatalities.
        iii. Establish a feedback mechanism to continuously measure the effectiveness of risk mitigation strategies. This can be done using proactive data, as well as opportunities to openly share information and data between the State and the operators under a protection framework that ensures no punitive actions will be carried through the use of information shared under the CST.

## Structure of a CST

Stakeholders within a State, group of States or Region should determine the CST model appropriate to their operating context, for example:

1. Ad-hoc CST (temporary, to address a specific issue)
    a. Outputs: voluntary industry safety enhancements
2. Industry lead CST
    a. Data-driven safety agenda developed based on industry members.
    b. Coordination and support from regulator, with or without regulator participation as observer based on national laws and trust level
    c. Outputs: voluntary industry safety enhancements
3. Co-lead Industry-Regulator CST
    a. Data-driven safety agenda cooperatively developed based on industry and regulator input
    b. Coordination and support from regulator, with or without formal data sharing and based on national laws and trust level
    c. Outputs:
        i. Voluntary industry safety enhancements
        ii. Regulatory initiatives and safety enhancements (may be included in the National Aviation Safety Plan – NASP)




### *CST Membership and Leadership*

The key component to the structure and membership of a CST is the joint-collaboration in the membership, both for working and decision-making structures.

a) **Government representatives** (when enabled by national laws): States/territories and their aviation related agencies such as: Civil Aviation Authorities (CAA), Accident Investigation Board, Air Force, etc.
b) **Industry representatives**: Airline operators, national and international associations and organizations, professional organizations, maintenance and repair organizations, aircraft manufacturers, airport and air navigation service providers and any other related organizations/representatives.
c) **Leadership**: Since both government and industry actions can contribute and be key to improving safety in the aviation system, when feasible, it is recommended that the CST be co-chaired/co-lead by State and industry. This governance model ensures a balance in the directions and decisions of the CST, and can also be replicated at each sub-group, working group, team or task force created in support of the CST.

*Note: States play a critical role in enabling collaboration between stakeholders in the aviation system. As such, even if a State is limited in its capacity to be an active participant in the ongoing activities of a CST, it should work to promote the establishment of such collaboration networks*

### *Steering Committee*

A Steering Committee serves as the decision-making body of the CST, and in general is based on the following principles:

1. Government and Industry representation (as feasible and applicable);
2. A diversity of interests and areas of expertise;
3. A manageable number of members to function effectively as an executive body;

4. The members must be at a high enough level within their agency or company to be able to influence decisions and allocate resources;
5. Serves to ensure the group remains focused on the achievement of safety targets and overall enhancement of the aviation system's safety performance.
6. Provides strategic direction to the CST sub-groups and working groups/teams.

### Secretariat

To the extent possible considering national laws, a State typically assumes the secretariat role and can be responsible for providing administrative support and coordination of the CST, specifically:

1. Coordinating meeting logistics;
2. Developing meeting agendas in coordination with the CST co-chairs;
3. Ensuring meeting agendas, documentation, and summaries are provided to members;
4. Capturing action items and monitoring current status;
5. Maintaining communication between co-chairs and the members of the CST.

When the State cannot assume the role of the secretariat, or, for any reason does not participate directly in the CST, any of the members may fulfill these functions, in such a way that the minimum aspects of the organization and record keeping are carried out.

### Working Teams and Sub-groups

In addition to a Steering Committee, to facilitate undertaking operational activities such as safety analysis, performing risk assessments, developing mitigations, etc, CSTs can create teams or sub-groups of experts in related aviation areas, such as commercial aviation, flight safety, air traffic control, maintenance, etc., and their composition can vary to suit the specific focuses of a particular aviation system. Within these teams, it is also important to designate at least one stakeholder to act as lead to coordinate the activities of the group as well as provide summary level information back to the steering committee.

These working sub-groups focus on different operational areas, such as: commercial aviation, helicopters, infrastructure, and general aviation. These will depend on the specific characteristics of the aviation system in focus of the CST, and when appropriate, in line with priorities or higher relevance areas outlined in a regional or national aviation safety plan.

CST Sub-groups provide the necessary information back to the CST Steering Committee on any work it was tasked with. Information should be detailed enough for the CST Steering Committee to make decisions (e.g. to allocate resources to undertake a project, to approve implementation of safety enhancement initiatives).

## Sharing and Protection of Safety Data/Information

For a CST to fully function and act proactively, it must be able to leverage voluntarily shared safety information and operate in a safety culture that permits a non-punitive environment. To

allow for this to happen, safety data/information shared in the context of the CST should be protected through clear governance and procedures to ensure information shared is only used as intended, to enable safety enhancements. It is unlikely that any CST participant will volunteer to share data/information unless it is clear that any shared data shall not be published or shared with the public, not be used by other members for commercial purposes or to gain a competitive advantage, not be used by the regulator for oversight activities or to take punitive or disciplinary actions against service providers or aviation professionals.

Regardless of whether the CST is officially part of an SSP, States are key enablers to support a sustainable CST, in particular in working to establish mandatory and voluntary information systems (Safety Data Collection and Processing systems – Annex 19 Chapter 5.1 and 5.2) as well as to implement protections for voluntarily shared safety data and information (Annex 19 Chapter 5.3).

Examples of the type of data and/or information to be collected and analyzed can be found in ICAO Doc. 9859 - Safety Management Manual (SMM). The SMM provides guidance on safety data collection and analysis where the type of information to be collected and analyzed is addressed in detail. It further differentiates between mandatory reporting and voluntary reporting systems where benefits are most often derived through non-punitive systems.

The ability to use aggregated, de-identified operator information adds value to the risk management process in the CST environment. Airline operators and air navigation service providers have collected a wealth of safety data and information in their respective SMS programs from both voluntary reporting and auto-data capture systems which can support CST activities by contributing safety information not captured by State mandatory safety reporting systems.

*Note: It is not the intent of Annex 19 Chapter 5.3's information protection principles to make mandatory the submission of information usually provided voluntarily (e.g. incident reports, hazard identification reports, etc) but rather to accord the necessary protections so as to better facilitate voluntary sharing.*

## Safety Risk Management Process

As described previously, the overarching purpose of the CST is to foster collaboration between stakeholders towards the continuous improvement of safety. To achieve this objective, the CST should establish an agreed upon Safety Risk Management (SRM) Process for the identification and mitigation of safety risks. Risk mitigations seek to reduce the likelihood of an event occurring or to reduce the severity of the consequence should the event occur.

There are several different models of SRM that can be used in a CST, and many resources identify SRM approaches. For examples of SRM, the CST can refer to:

- ICAO's Safety Management Manual;
- ICAO and IATA Risk management courses;

- Other online resources on:
    - Hazard Identification and Risk Assessment (HIRA)
    - Aviation Risk Management Solutions (ARMS) Operational Risk Assessment model
    - Skybrary

Selecting the right balanced SRM approach can be an iterative process in the initial development of the CST, where the group determines the best model for its needs. Some CSTs may initially opt to directly focus efforts on a known issue that is a known common concern to the CST participants so that they can coordinate action and achieve short term safety benefits, others may initiate a formal SRM process from the start. When applicable, the CST should also consider alignment with the SRM processes within the SSP.

Ultimately, the model selected for the CST should:

1. Be appropriate to the scale and scope of the CST;
2. Be structured and robust enough to provide meaningful repeatable results;
3. Avoid overly complex approaches that introduce burdensome processes that could actually prevent the group from achieving its intended outcomes;
4. Whenever possible and as much as possible, the SRM process should be data-driven, and include proactive analysis of safety data/information from States, service providers, and industry representatives.

Part of an effective SRM process is establishing safety performance targets that inform prioritization of actions to be undertaken. For example, a CST can set an overarching objective of fatality risk reduction in the aviation system, that would then support the CST prioritizing mitigation of identified hazards that present the highest fatality risk.

There are various methods to calculate fatality risk, Appendix B provides a basic definition. In addition, the most basic, and easiest risk estimation methodology uses past accident and incident data to predict future risk.

A CST should identify its own priority risk areas before proceeding with in-depth analysis on a given issue. Ideally, the priority risk areas of the CST, based on available data, provide some alignment with State, Region or Global Aviation safety plans (e.g. National, Regional and Global High Risk Categories).

Activities of the CST SRM process can be managed in a manner similar to that in the RASG-PA structure:

- PA-RAST identifies top risk areas through data analysis
- RASG-PA steering committee prioritizes work on a given top risk area
- Safety Enhancement Teams (SET) within the PA-RAST focus on the analysis of data and other supporting safety intelligence related to each of the top risk areas and develop

safety enhancement initiatives (mitigation strategies) presented in a detailed implementation plan (DIP).

## Collaboration between ICAO RASG-PA and local CSTs

There is an opportunity to generate synergy and further safety benefits by having local CSTs collaborate with the Regional Aviation Safety Team (PA-RAST) of the ICAO RASG Pan-America. Any local CST can be an active partner of the PA-RAST. When applicable, PA-RAST can contribute available safety intelligence to evaluate safety issues, and help in the design and implementation of local safety enhancements. Observations and conclusions can be reported back to PA-RAST for evaluating applicability of local strategies at the regional level.

Similarly, local or domestic safety issues identified by CSTs can be reported at the PA-RAST level, to facilitate identification of systemic issues across CSTs in the Region. CSTs may also liaise with PA-RAST to engage with appropriate stakeholders when they have identified safety issues that relate to risks observed with foreign operators operating within the CST's State, or in the context of the CST's domestic operators activities' in other States in the region. Enabling active data-driven efforts and interaction of aviation stakeholders at local and regional level are intended to provide additional safety benefits for States, and the entire region.

CST representation and attendance at PA-RAST in-person meetings are highly encouraged. Participation at in-person meetings can facilitate awareness, engagement and support between PA-RAST and individual CSTs as well as a platform to exchange best practices among safety experts.

## RASG-PA Support

State, groups of States or industry members within the ICAO Pan America Region whom are interested in taking the path towards the creation of a CST are invited to reach out to the ICAO regional office in their respective region in order to establish contact on this topic with the PA-RAST and RASG-PA.

## Appendix A - Regional Aviation Safety Group–Pan America Reference Information

### Regional Aviation Safety Group- Pan America (RASG-PA) Executive Steering Committee (ESC)

The ESC is comprised of representatives from four different States from the Caribbean/North American Regions, four different States from the South American Region as well as representatives from eight different international organizations and industry representatives, as follows: Argentina, Brazil, Canada, Chile, Colombia, Guatemala, Trinidad and Tobago, the United States of America, Latin American and Caribbean Air Transport Association (ALTA), International Air Transport Organization (IATA), the Civil Air Navigation Services Organization (CANSO), Embraer, Boeing, Airbus, ATR and the Flight Safety Foundation (FSF).

The ESC develops and approves the RASG-PA work plan, which includes objectives, priorities, indicators, as well as measuring targets to address aviation safety related issues in the NAM/CAR and SAM Regions. In addition, the ESC is responsible for overseeing activities of committees and working groups that fall under them. Finally, the ESC both approves and manages the budget set forth for RASG-PA.

### Pan-America - Regional Aviation Safety Team (PA-RAST)

The PA-RAST is a group of experts comprised of members of the International Civil Aviation Authority ICAO), States/Territories, Civil Aviation Authorities, as well as international aviation stakeholders/industry representatives.

#### *Safety Monitoring and Reporting Team (SMRT)*

As part of the work program for the SMRT, annually releases a safety report on the results of the analysis of regional aviation safety data that is provided to them by different groups, one of which is the PA-RAST. The report is used as a safety intelligence tool by highlighting the main aviation safety areas of interest within the Pan-American Region.

### PA-RAST Information Sharing Enablers

Data–driven approach which form the foundation of a CST is utilized by PA-RAST and States/Countries. This is enabled through data sources like Flight Data eXchange (FDX) by IATA and the Aviation Safety Information Analysis and Sharing (ASIAS) in the US. The voluntary sharing of data via the various programs to be processed under a common event definition, and presented to the final users as aggregated, de–identified information enables the system-wide view in analysing risk. 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 in support of the objectives of the CST.

## PA-RAST Confidentiality Agreement Example

***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 - Fatality Risk definition and how to calculate it

*Source: International Air Transport Association (IATA)*

Definitions:
Fatality risk (FLE/million sectors): measures the exposure of a passenger or crew to a catastrophic accident with no survivors (full loss). More specifically, it provides the ratio of fatalities onboard for fatal accidents per million sectors. The calculation of fatality risk does not take into account aircraft size or how many were on board. What is measured is the percentage of fatalities among those onboard.

The key measure in the fatality risk calculation is the Full-loss equivalent (FLE): A full-loss equivalent is related to the percentage of people on board who perished.

- For each individual accident, the full-loss equivalent is a value between 0 and 1, representing the ratio number of people who perished over the total number of people on board the aircraft.
- For example, 50 out of 100 passengers onboard a flight perish following an accident represents an FLE of 0.50, 1 of 100 fatalities would be a FLE of 0.01.
- A Full-Loss Equivalent of 1 is the equivalent of a catastrophic accident where all people onboard died

Calculating the Fatality Risk:

1. Sum all the FLEs of each fatal accident for a given timeframe (e.g. one year)
2. The fatality risk is found by dividing the sum total FLE for the given timeframe by the number of flights during this same timeframe (e.g. # in millions of sectors.)
3. This calculation provides the fatality risk, being full-loss equivalents per 1 million sectors.

Illustration:
In 2019, 3 fatal accidents occur within a country. In that year, the country recorded 3 million flights/sectors.
Fatal accident 1: All 5 passengers perish, FLE=1
Fatal accident 2: 20 of 100 passengers perish, FLE=0.2
Fatal accident 3: 25 of 50 passengers perish, FLE=0.5

Total FLE in 2019 is 1+0.2+0.5 = 1.7 FLE

Fatality risk is 1.7 FLE divided by 3 million sectors = 0.57 per million sectors.

## Appendix C - Additional Resources and Reference

### Brazil

- BCAST: http://www.anac.gov.br/en/safety/bcast-2013-brazilian-commercial-aviation-safety-team

### Flight Safety Foundation

- Flight Safety Foundation, Flight Safety Digest *Passenger-Mortality Risk Estimates Provides Perspective about Airline Safety*. 2000
- Barnett, Arnold. *Measure for Measure a Statistician Offers His Perspective on the Relative Usefulness of Different Ways of Measuring Aviation Safety*. 2007.

### ICAO

- ICAO's 2020-2022 Global Aviation Safety Plan: https://www.icao.int/safety/Pages/GASP.aspx
- ICAO Annex 19 - Safety Management: https://www.skybrary.aero/articles/icao-annex-19-safety-management
- ICAO RASG-PA: https://www.icao.int/RASGPA/Pages/About.aspx
- RASG-PA Annual Safety Report: https://www.icao.int/RASGPA/Pages/ASR.aspx

### IATA

- IATA Global Aviation Data Management (GADM): https://www.iata.org/services/statistics/gadm/Pages/index.aspx
- Flight Data eXchange (FDX): https://www.iata.org/services/statistics/gadm/Pages/fdx.aspx

### Skybrary

- https://www.skybrary.aero/

### United States

- CAST: https://www.cast-safety.org/apex/f?p=102:1
- White House Commission on Aviation Safety and Security. Final Report to President Clinton. Washington, D.C. The Commission, 1997.
    - Available at: https://irp.fas.org/threat/212fin~1.html

## Appendix D - Acronym List

**ASIAS:** Aviation Safety Information Analysis and Sharing
**BAIST:** Brazilian Airport Infrastructure Safety Team
**BAST:** Brazilian Aviation Safety Team
**BCAST:** Brazilian Commercial Aviation Safety Team
**BGAST:** Brazilian General Aviation Safety Team
**BHEST:** Brazilian Helicopter Safety Team
**CAA:** Civil Aviation Authorities
**CAG:** Collaborative Analysis Group
**CAST:** Commercial Aviation Safety Team
**CFIT:** Controlled Flight into Terrain
**CST:** Collaborative Safety Team
**DIP:** Detailed Implementation Plan
**ESC:** Executive Steering Committee
**FDX:** Flight Data eXchange
**FOQA:** Flight Operations Quality Assurance
**GAJSC:** General Aviation Joint Steering Committee
**IHST:** International Helicopter Safety Team
**JIMDAT:** Joint Implementation Measurement and Data Analysis Team
**JSAT:** Joint Safety Analysis Team
**JSIT:** Joint Safety Implementation Team
**LOC–I:** Loss of Control–Inflight
**MAC:** Midair Collision
**MOU:** memorandums of understanding
**NASA:** National Aeronautics and Space Administration
**PASO:** Safety Action Programme
**RASG–PA:** Regional Aviation Safety Group- Pan American
**RE:** Runway Excursion
**SDAT:** Safety Data Analysis Team
**SE:** Safety Enhancement
**SMS:** Safety Management Systems
**SSP:** State Safety Programs
**TAWS:** Terrain Awareness and Warning System
**TCAS–RA:** Traffic Alert and Collision Avoidance System–Resolution Advisory
**UA:** Unstable Approach

## Appendix E – Frequently Asked Questions

This appendix responds to some frequently asked questions on implementing a Collaborative Safety Team.

**Q: What are the main benefits of implementing a CST?**
**A:** A CST fosters collaboration between aviation stakeholders, enables sharing and analysis of safety intelligence, proactive identification of safety hazards and risk mitigation strategies that would not be possible to identify when considered in isolation.

**Q: Is it possible to conduct the work of a CST without data from airlines?**
**A:** The greatest benefits of a CST come from the capacity to share safety data so that mitigation strategies are data-driven. That said, even when data sharing is not immediately possible, sharing knowledge and awareness of safety hazards in the system can provide meaningful opportunities for building capacity to collaborate as well as work towards the improvement of safety.

**Q: How can I be confident to share my data and be sure that there will be no retaliation by the regulatory body?**
**A:** The CST must have documented and transparent processes that clearly describe how the CST will operate, what are the rules of engagement, as well as what are the limitations of protections to ensure awareness of participants and prevent unintended consequences.

**Q: Who can participate in a CST?**
A: Regulators and industry stakeholders with an interest to collaborate on achieving continued improvements within the State/Country or region with local stakeholders leading/driving the CST.

**Q: Can any civil aviation industry stakeholder participate in CST meetings?**
**A:** Any related organization/representative who's mandate includes activities contributing to aviation safety can be appropriate participants. Typical industry stakeholders that participate in a CST are airline operators, national and international associations and organizations, professional organizations, maintenance and repair organizations, aircraft manufacturers, airport and air navigation service providers. The critical condition for selecting any member to participate in a CST is to ensure the group and member has the right mindset (e.g. to collaborate on safety, not for gaining competitive advantage, not for taking punitive action).

**Q: How often should CST meetings be held?**
**A:** There is no set timeframe for a CST to meet. The frequency of meetings should be determined based on actions needed, however as the aviation system is a dynamic environment that is in constant change, the CST steering committee should plan to meet at least annually to ensure that any new or emerging trends are identified as early as possible in order to take action. Sub-groups working on development of safety enhancements may require

more regular meetings.

**Q: Who should do the work of standardizing the indicators (data) that will be shared?**
**A:** The group or organization tasked with consolidating CST member data must be able to ensure that the information it holds will be protected from disclosure and punitive action.

**Q: What types of resources are required to sustain a CST?**
A: Time commitment from engaged stakeholders, data-sources for data-driven decision making, and environment (location) enabling collaboration on sensitive safety information.

**Q: What should States expect to have to budget for CST initiatives?**
**A:** To be developed

**Q: Is the CST used for conducting investigations per Annex 13?**
**A:** To be developed

**Q: How does a CST measure success?**
A: Similar to project management, how the CST intends to measure success should be considered and identified at the onset. Success should be measured using a data-driven approach to determine baselines and overall goals.

**Q: When sub-groups/teams are formed, are they permanent or temporary?**
A: Sub-groups/teams can be formed for a specific targeted mandate that is limited in time or deliverable and/or can be ongoing or permanent in nature (in which case subject to periodic review).

**Q: Does the leadership of a CST change? If so, how often?**
A: The terms of reference of a CST should establish an expected duration of time for holding CST leadership roles within the CST (co-chairs and team leads). This not only offers other interested stakeholders an opportunity to rotate into a leadership role but also clarifies expected time commitment to whomever is considering the role.

**Q: What are problems or issues that a CST aims to address?**
A: A CST should aim at addressing systemic risk within its aviation system, identifying opportunities for improvement and developing/implementing applicable safety enhancements on a voluntary basis.

**Q: What are the main goals of a CST?**
A: The strategic objective of the CST concept is to foster collaboration between stakeholders towards the continuous improvement of safety. A CST should endeavor to prioritize the highest risk areas in its State/Country or region with the long-term objective of reducing safety risks (e.g. fatality or accident).