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ICAO Asia Pacific Safety Management Seminar 2025

3-5 February 2025 Bangkok, Thailand and online

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***“Addressing Annex 19 Implementation Challenges
and Promoting a Positive Safety Culture Together!”***

MASTER OF CEREMONIES

MITCH FOX

Director, Asia Pacific Centre for Aviation Safety
Flight Safety Foundation



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SESSION 6a | Safety Intelligence Development, Learning & Informed Culture



Mr. Ponkrit Sawedsud

Systems Engineer, (SMS)
of Monitoring Agency for
Asia Region

AEROTHAI



Ms. Noordin Badriyah

Senior Manager Safety

**Airports Council
International**



Mr. Monty Yeung

Head of Corporate
Quality, Safety and
Security

Greater Bay Airlines



Mr. Phillip O'Connell

Manager Safety Analysis,
Change & Resilience

Airways New Zealand



Ms. Cherie Love

Safety Performance
Management Specialist

CASA



**Ms. Patnaree
Piraphatnapong**

Aviation Safety Management and
Standards Assurance Officer
**Civil Aviation Authority
of Thailand**

Moderator

MAAR's Safety Assessment

Mr. Ponkrit SAWEDSUD

Systems Engineer, (SMS) of Monitoring
Agency for Asia Region
AEROTHAI



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Monitoring Agency For Asia Region

[About MAAR](#) ▾ [RVSM Ops](#) ▾ [Safety](#) ▾

MAAR's Safety Assessment

Session 6

Safety Intelligence Development, Learning Culture and Informed Culture

ICAO APAC Safety Management Seminar 2025

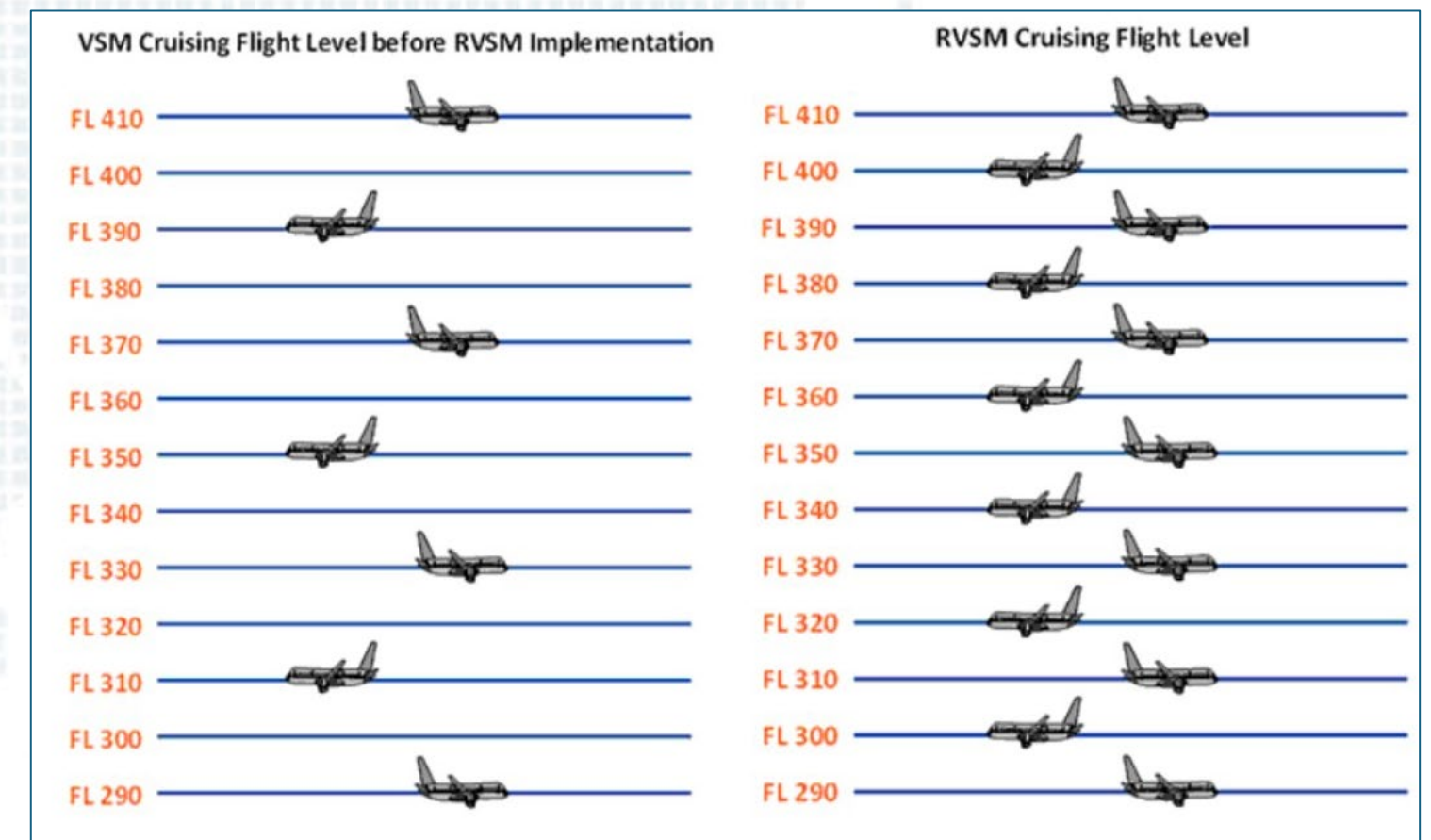


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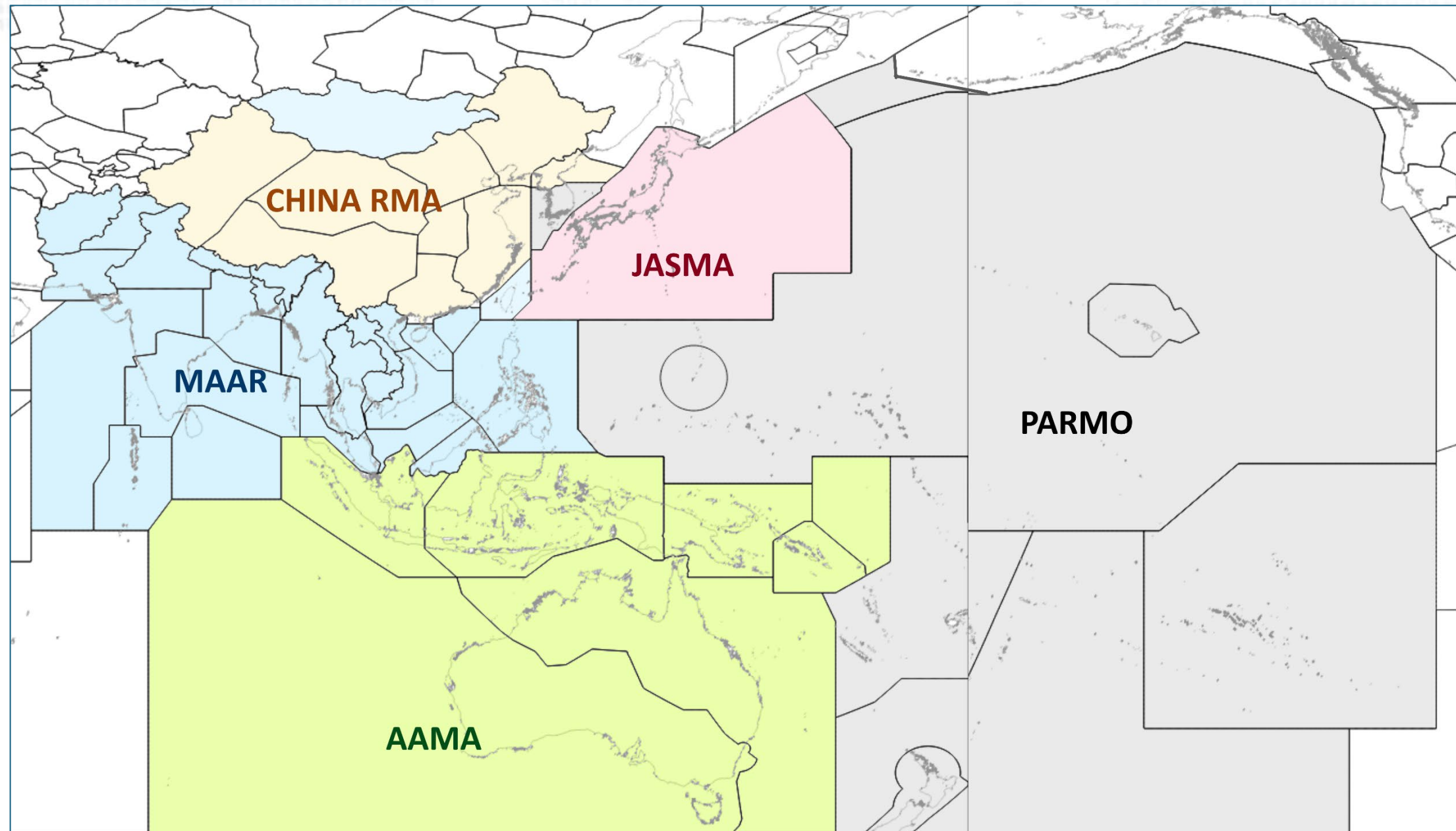


Introduction to the Regional Monitoring Agency (RMA)

- **Reduced Vertical Separation Minimum (RVSM) Implementation**
- In 2002, ICAO decided that all regions with RVSM needed a continuous **MONITORING PROGRAM** to:
 - Conduct extensive safety analysis to manage increased risk of mid-air collisions; and
 - Ensure stringent aircraft altitude keeping performance requirement.
- Asia Pacific Air Navigation Planning and Implementation Regional Group (**APANPIRG**) established the Regional Airspace Safety Monitoring Advisory Group (**RASMAG**) for coordination and harmonization of airspace safety monitoring activities.
 - **Five Regional Monitoring Agencies (RMAs) in Asia Pacific.**



Introduction to the Regional Monitoring Agency (RMA)



○ Five APAC Regional Monitoring Agencies (RMAs) include:

- Australian Airspace Monitoring Agency (AAMA)
- China Regional Monitoring Agency (China RMA)
- Japan Airspace Safety Monitoring Agency (JASMA)
- Monitoring Agency for Asia Region (MAAR)
- Pacific Approvals Registry and Monitoring Organization (PARMO)

RMA's Safety Assessment (MAAR)

Monitoring Agency for Asia Region (MAAR)

Area of responsibility :

21 States, 24 Flight Information Regions (FIRs) in Asia.

Data collection : the Large Height Deviation (LHD) and the Traffic Sample Data (TSD)

Data Gathering : Coordinated with the Point of Contact (POC) of each FIR

Tools :

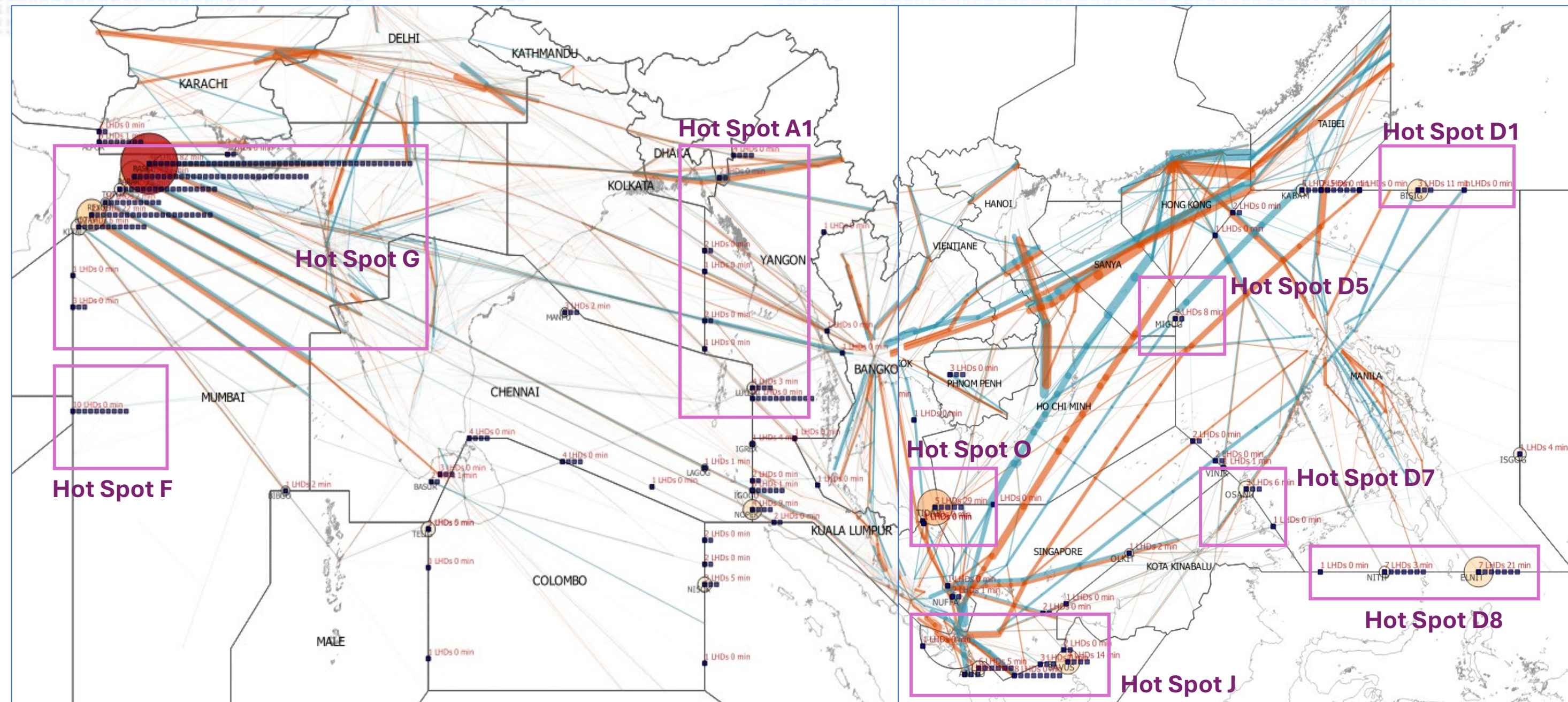
LHD : MAAR's Online Submission System or email

TSD : email

Non-compliance: States failing to submit data will be listed in the APANPIRG List of Deficiencies under “Non-Provision of Safety-related Data.”



RMA's Safety Assessment (MAAR)

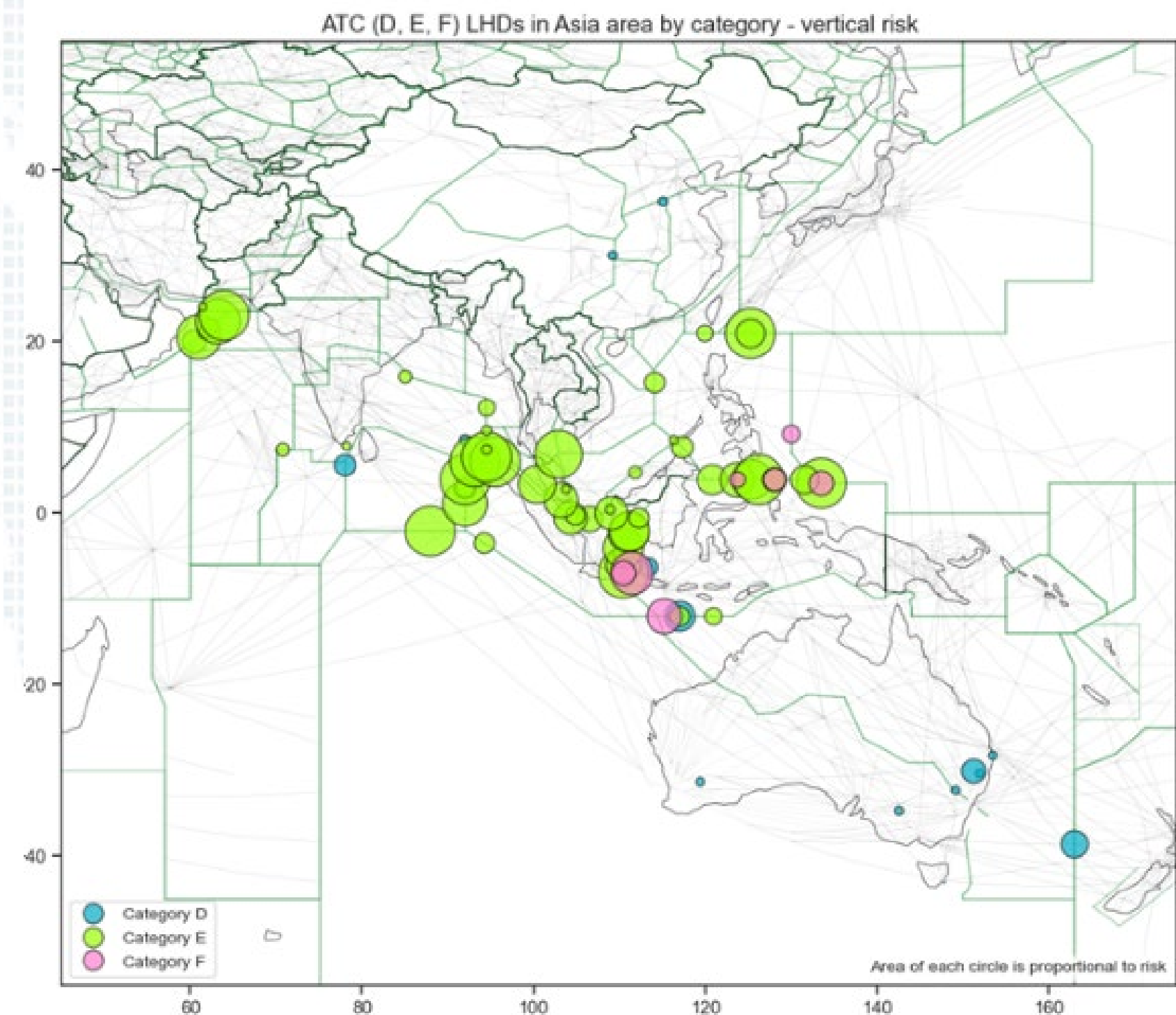


RMA's Safety Assessment (APAC)

ASIA : Vertical Collision Risk Estimates 2016 - 2023

Year	Vertical Overall Risk Estimate	Remark
2023	3.40×10^{-9} FAPFH	Below TLS
2022	1.53×10^{-9} FAPFH	Below TLS
2021	4.03×10^{-9} FAPFH	Below TLS
2020	7.42×10^{-9} FAPFH	Above TLS
2019	12.88×10^{-9} FAPFH	Above TLS
2018	15.50×10^{-9} FAPFH	Above TLS
2017	27.30×10^{-9} FAPFH	Above TLS
2016	12.53×10^{-9} FAPFH	Above TLS

Full Report: Asia Pacific Consolidated Safety Report
presented in RASMAG/29 meeting



RMA's Safety Assessment (APAC)

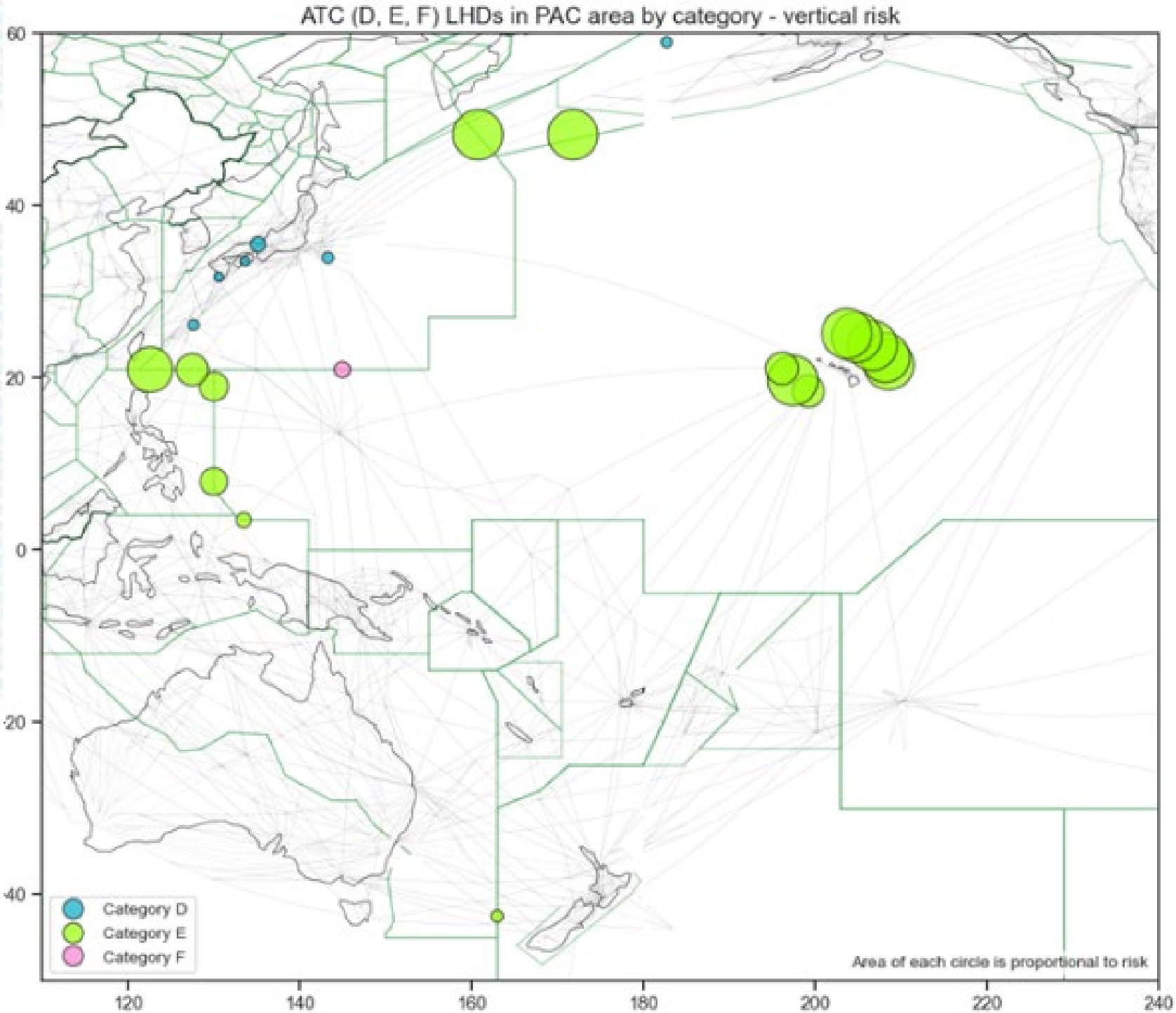
PACIFIC : Vertical Collision Risk Estimates 2016 - 2023

Year	Vertical Overall Risk Estimate	Remark
2023	10.77 x 10 ⁻⁹ FAPFH	Above TLS
2022	19.62 x 10 ⁻⁹ FAPFH	Above TLS
2021	19.74 x 10 ⁻⁹ FAPFH	Above TLS
2020	16.71 x 10 ⁻⁹ FAPFH	Above TLS
2019	30.21 x 10 ⁻⁹ FAPFH	Above TLS
2018	19.40 x 10 ⁻⁹ FAPFH	Above TLS
2017	7.30 x 10 ⁻⁹ FAPFH	Above TLS
2016	5.01 x 10 ⁻⁹ FAPFH	Above TLS

Full Report: Asia Pacific Consolidated Safety Report
presented in RASMAG/29 meeting



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Thank you

Monitoring Agency for Asia Region

Website : <http://www.aerothai.co.th/maar>

Email : maar@aerothai.co.th



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Safety Performance Indicator Process

Mr. Phillip O'CONNELL

Manager Safety Analysis, Change & Resilience
Airways New Zealand



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SPI Project

- Strengthen traditional methodology of measuring what has not gone right (safety-I) and deliver leading indicator metrics that also measure what is going well (safety-II).
- SPI were initially derived over a 12-month process which included:
 - Reviewing extant KPI and researching SPI from ANSPs and industry
 - Seeking design input from Airways Teams across the business
 - Identifying key data points for Managers, Team Leaders and Our People
 - Developing a methodology that weights each indicator against the boarder safety objectives
 - Delivering a data collection methodology and creating new dashboards to provide real time SPI data to our people at all level of the business.
- With the toolset, our Managers, Team Leaders and People have the ability to direct their efforts into the areas where the greatest benefits will be achieved.



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2023 SPI Review and Improvement

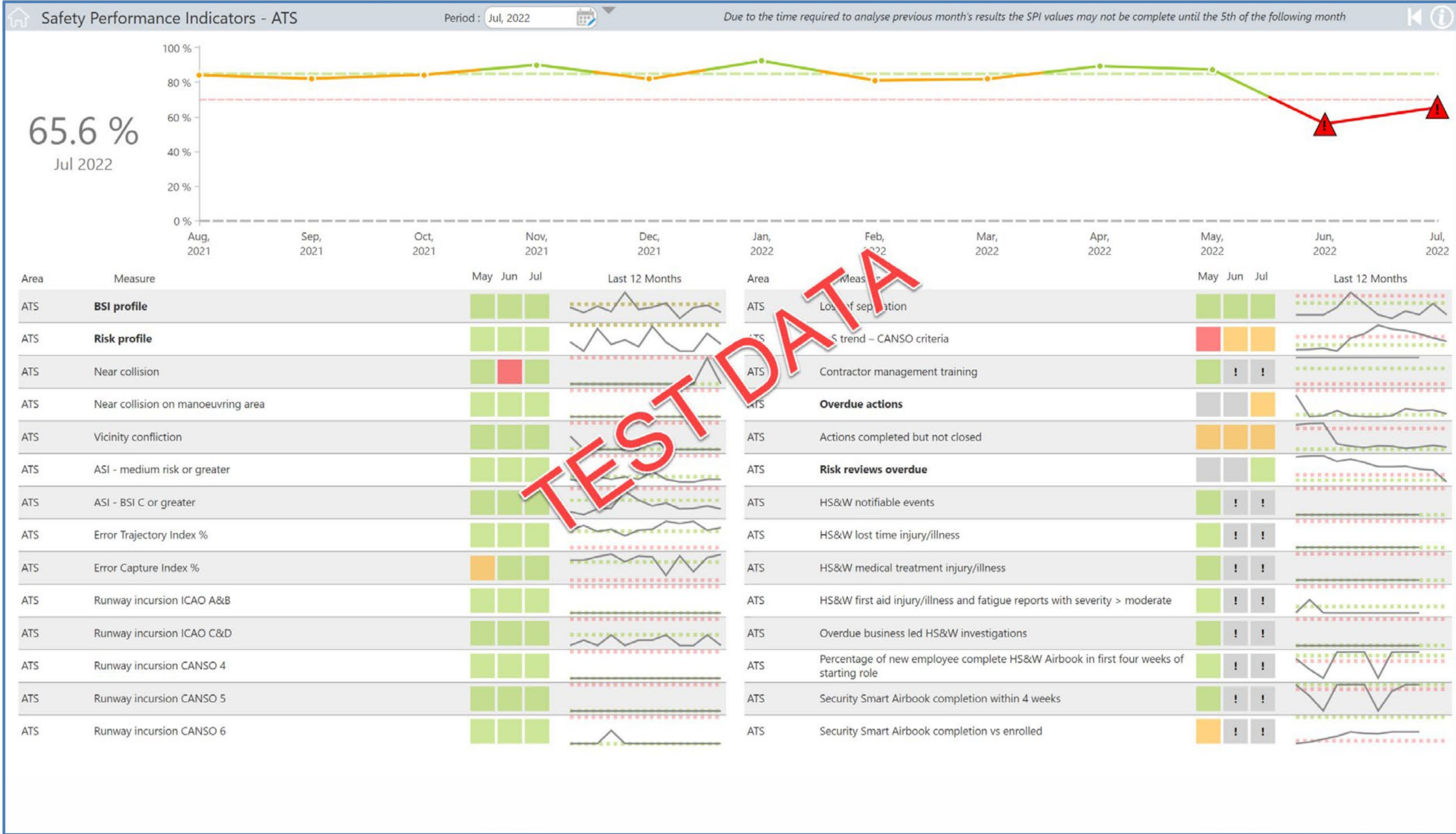
- SPI should not be static and require monitoring and revision to remain effective.
- Changes requested by stakeholders were considered, reviewed to ensure any unintended consequence were assessed, managed and aligned to the objectives of SPI programme.
- SPI programme presented at National Airways Safety Forum.
- SPI presented to the Safety team of an Aerodrome Customer to inform them on how to integrate their SMS and relevant safety data.

2024 SPI Review and Improvement

- SPI programme provides for a full review of the SPI and dashboards biennially.
- Stakeholder consultation is undertaken with every business unit within Airways.

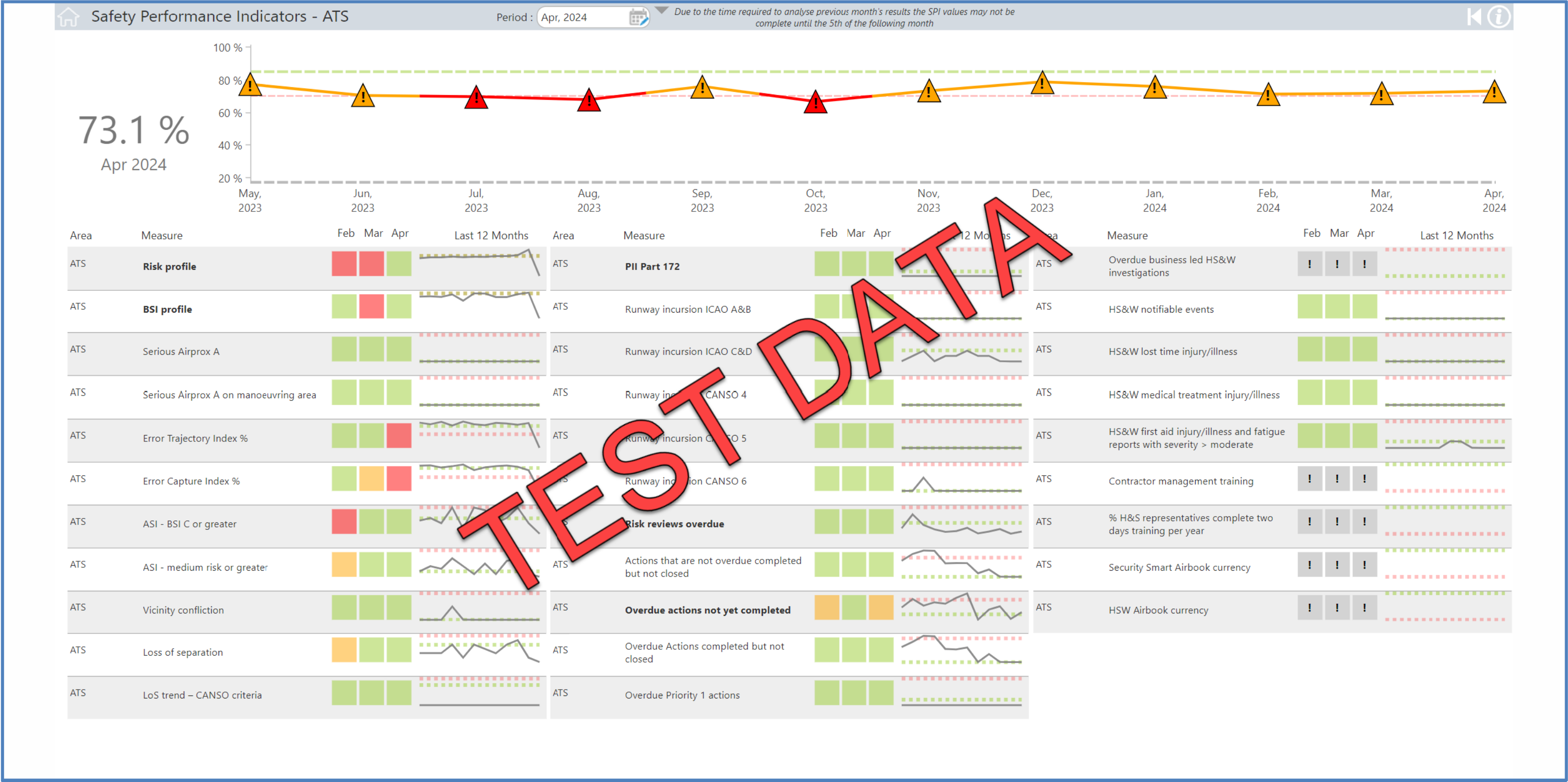


Initial Design of ATS Department Specific Dashboard (before March 2024)



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Version 2
(2024)
Design of
ATS
Department
Specific
Dashboard



THANK YOU



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Session 6a Q&A | Safety Intelligence Development, Learning Culture and Informed Culture

22 VOTES	Anonymous • 04 Feb 2025, 01:35 PM • Allowed • Answered	Answer ratings Very Good
+22 -0	@Phillip What tool or software do you use to collect data and SPI and review KPI's.	0 0 0 3 3
19 VOTES	Avijit Moitra • 04 Feb 2025, 01:40 PM • Allowed • Answered	Answer ratings Good
+19 -0	How you calculate Risk profile from SPI	0 0 0 4 0
10 VOTES	Anonymous • 04 Feb 2025, 01:39 PM • Allowed • Answered	Answer ratings Very Good
+10 -0	For MAAR, is there a plan to collect additional data beyond LHD and TSD, such as GNSS RFI and data link disruption, which are currently important issues?	0 0 0 1 2
10 VOTES	Anonymous • 04 Feb 2025, 01:54 PM • Allowed • Answered	Answer ratings Very Good
+10 -0	Any changes / impact on your SPI in view of the upcoming amendments to Annex 19 (e.g. safety intelligence) ?	0 0 0 1 2
8 VOTES	Anonymous • 04 Feb 2025, 01:43 PM • Allowed • Answered	Answer ratings Good
+8 -0	What indicators make an effective dashboards for displaying safety data that is useful to operators and regulators?	0 0 0 1 0
7 VOTES	Anonymous • 04 Feb 2025, 02:07 PM • Allowed • Answered	Answer ratings Good
+7 -0	How might small operator with limited resources implement cost-effective Safety Intelligence Development without compromising SMS compliance?	0 0 1 2 1
5 VOTES	Avijit Moitra • 04 Feb 2025, 01:55 PM • Allowed • Answered	Answer ratings Very Good
+5 -0	@Cherie apart from Mandatory Occurrence Reporting, Surveillance Audits which other data you take to make your SPI and derive Safety Intelligence	0 0 0 0 1



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TEA BREAK

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SESSION 6b | Safety Intelligence in Action: Enhancing Frameworks, Culture, and Collaboration in Aviation Safety



Ms. Sohyun Park

Assistant Director,
Aviation Safety Policy
Division

KOCA



Mr. Hasan Mujahid

Additional Director SSP

Pakistan Civil
Aviation Authority



Mr. Engr Anwar Hossain

Deputy Director (CNS-
ANS Inspection)

Civil Aviation Authority
of Bangladesh

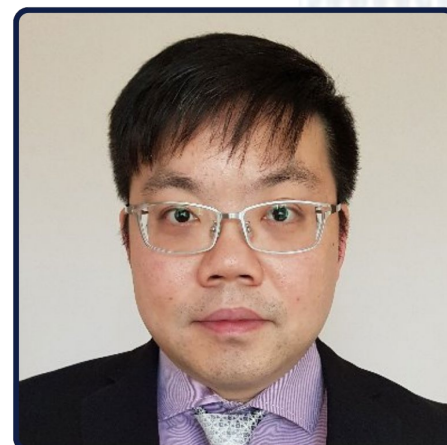


Ms. Sereima Bolanavatu

Executive Manager
Standards & Compliance

Civil Aviation
Authority of Fiji

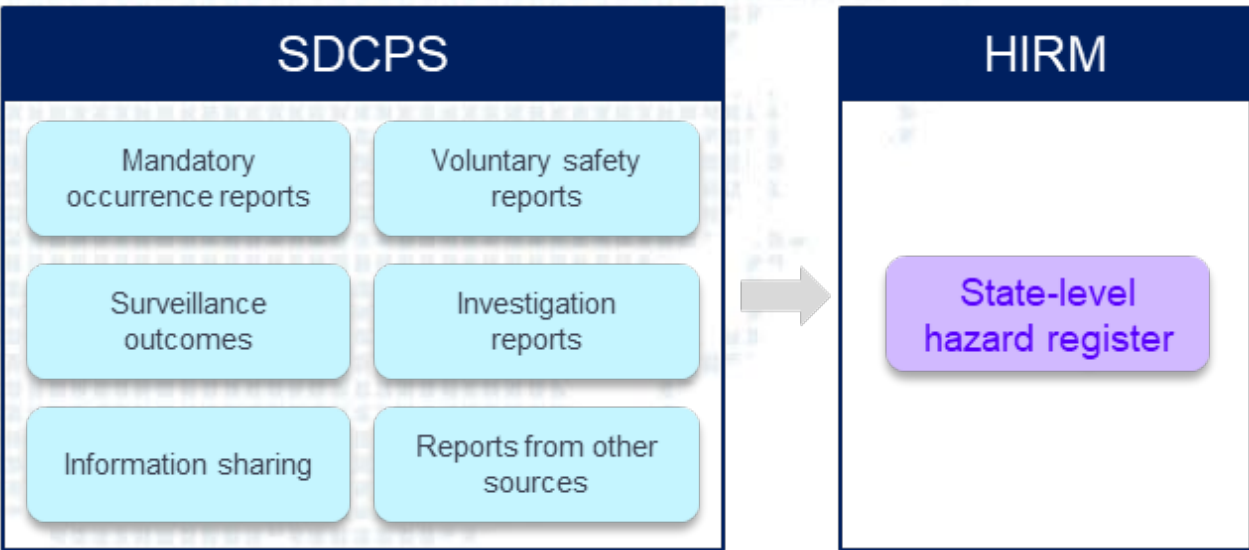
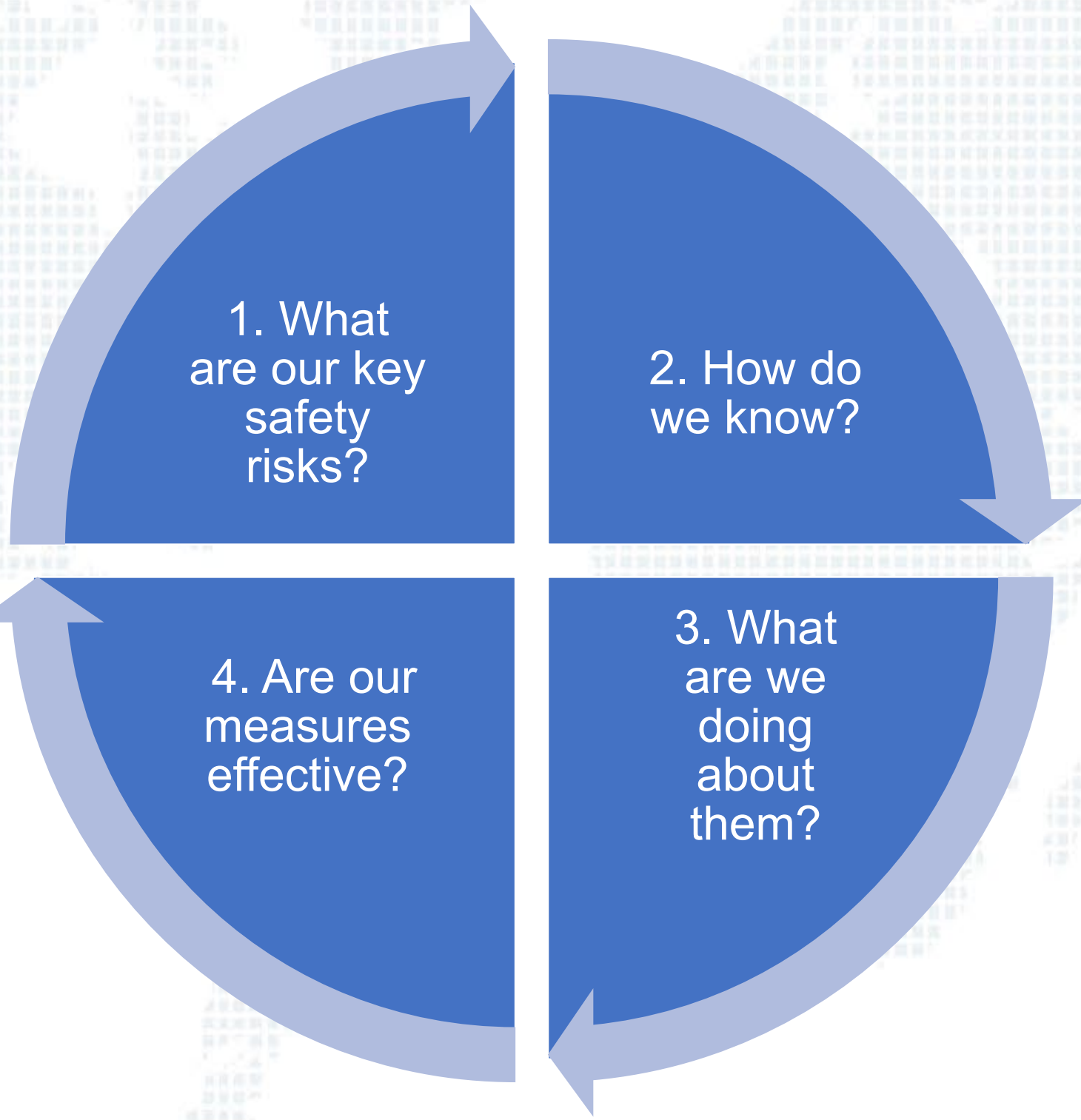
Moderator



Mr. Ruiyi Ang

Principal Manager (Safety
Assurance)
CAAS

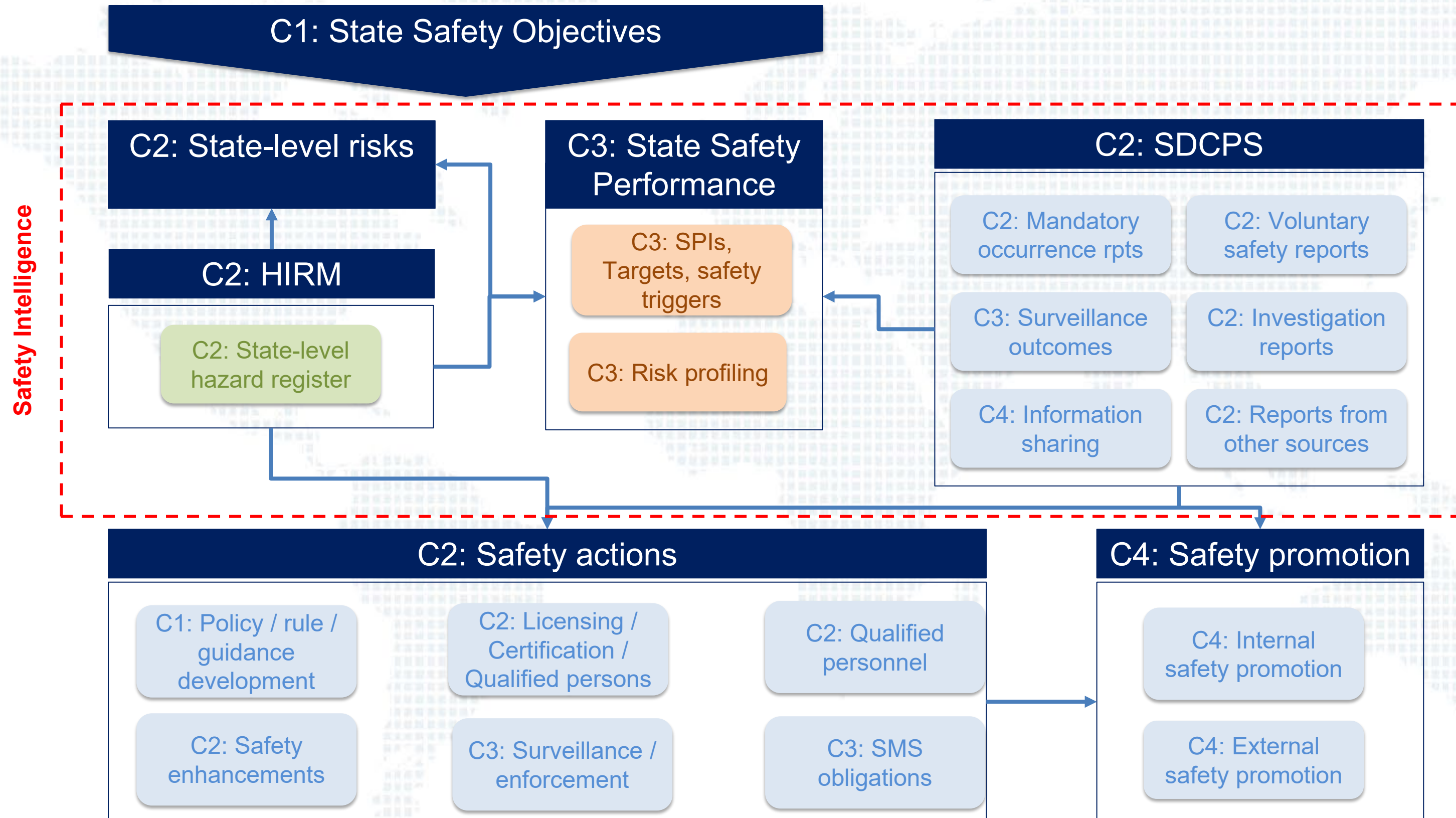
Four key Safety Management Questions



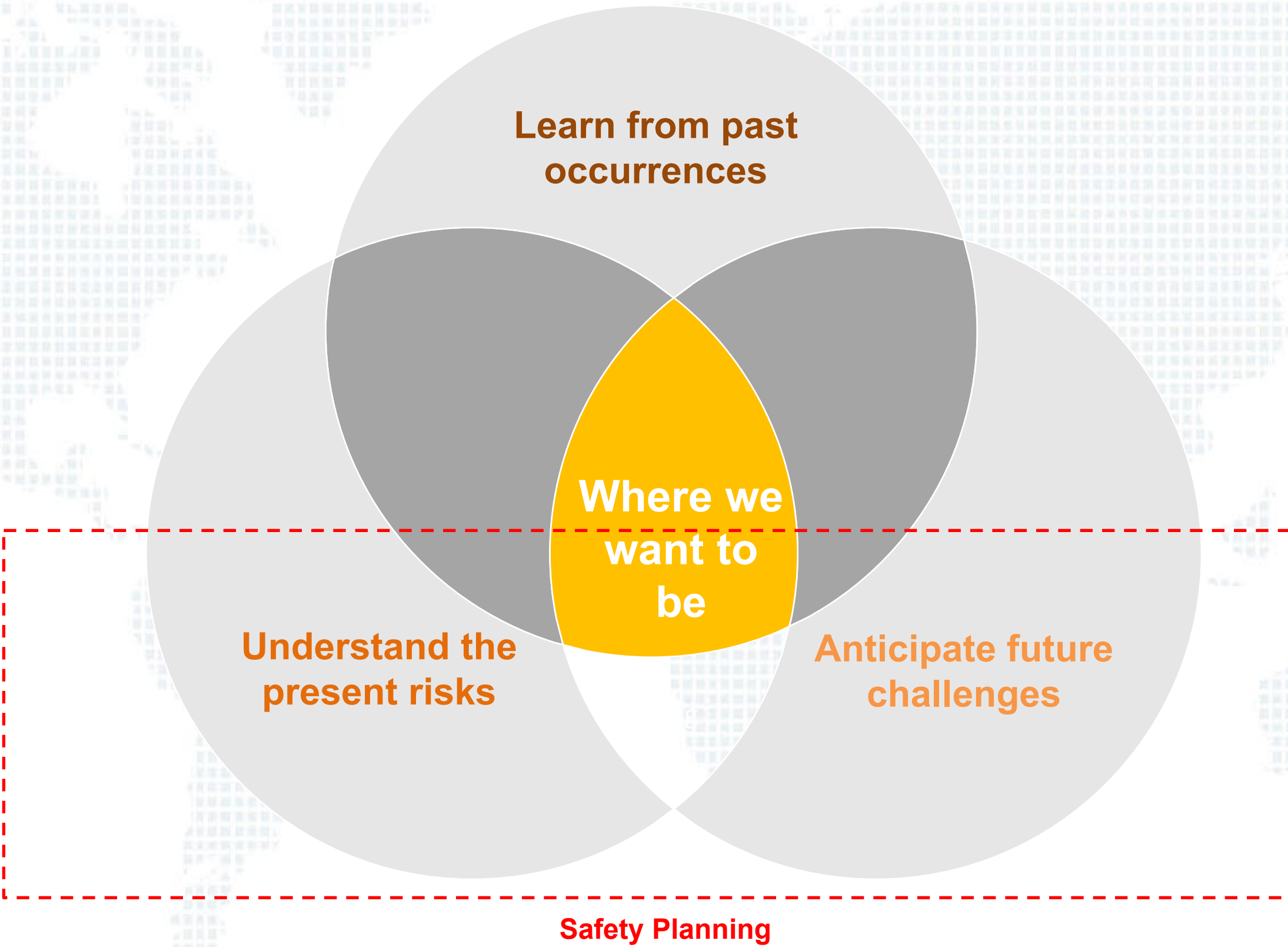
Safety mitigation and enhancement



Safety Intelligence within SSP Framework



Hindsight, Insight and Foresight



PANEL DISCUSSION



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How does an informed safety culture and robust safety intelligence influence the development of NASPs, SSPs, and SPIs?

PANEL DISCUSSION



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What are the key benefits of integrating safety intelligence into aviation safety planning?

PANEL DISCUSSION



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Share specific examples where such integration led to measurable improvements in safety performance.

PANEL DISCUSSION



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What frameworks or mechanisms exist to encourage safety information sharing across your State and industry organizations?

PANEL DISCUSSION



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How can regulators and industry align their safety priorities while respecting operational and organizational boundaries?

PANEL DISCUSSION



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What are common cultural or organizational obstacles to fostering an informed safety culture?

PANEL DISCUSSION



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What can leadership at various levels do to drive a positive safety culture?

PANEL DISCUSSION



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We understand that small States tend to have limited resources. Please share the safety challenges faced and the measures taken to address them.

PANEL DISCUSSION



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How can safety strategies be adapted to suit the varying sizes and complexities of aviation systems?

PANEL DISCUSSION



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Could you provide examples where safety information sharing and collaboration between State, regulators, and industry resulted in enhanced safety outcomes?

PANEL DISCUSSION



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Do you envision any innovation to your data sharing programs?



16
VOTES

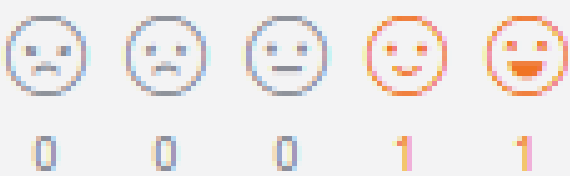
+16

-0

Anonymous • 04 Feb 2025, 03:24 PM • Allowed • Answered

What do you see as the biggest barrier to effective sharing of safety information across organizations, and how can we overcome it?

Answer ratings Very Good



13
VOTES

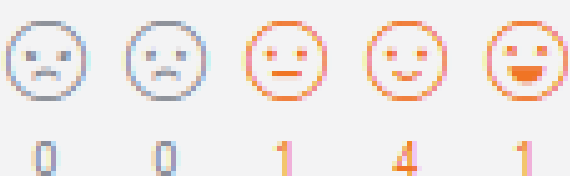
+13

-0

Anonymous • 04 Feb 2025, 03:24 PM • Allowed • Answered

Which component of Safety Intelligence Development (data, tools, culture, etc.) do you think is most critical to its success, and why?

Answer ratings Good





SESSION 7 | Identify Common Safety Performance Indicators (SPIs)



Ms. Sohyun Park

Assistant Director,
Aviation Safety Policy
Division

KOCA
Moderator



Mr. John Thomson

Senior Technical Advisor –
Safety Management

UKCAAi



Mr. Rahul Agarwal

Assistant Director
Air Safety

**India Directorate General
of Civil Aviation**



Mr. Myles Brown

Director, Safety &
Regulatory Affairs - Asia
Pacific

Boeing

SURVEY RESULTS:

Session 7 | Identify common Safety Performance Indicators (SPIs)



MITCH FOX

Director, Asia Pacific Centre for Aviation Safety
Flight Safety Foundation



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ICAO Asia Pacific Safety Management Seminar - Pre-event Survey on SPIs

Saturday, February 01, 2025

152

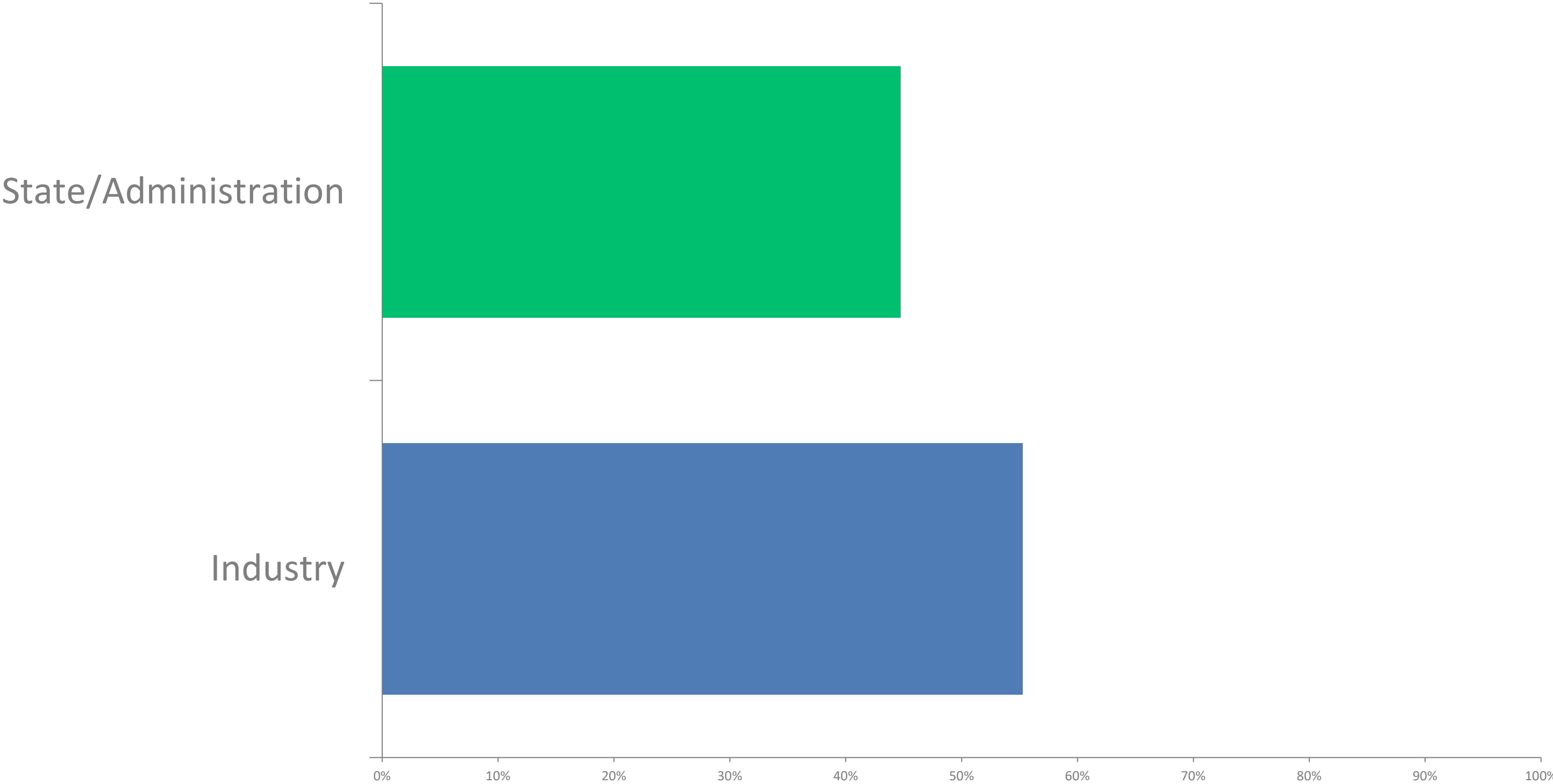
Total Responses

Date Created: Thursday, October 10, 2024

Complete Responses: 152

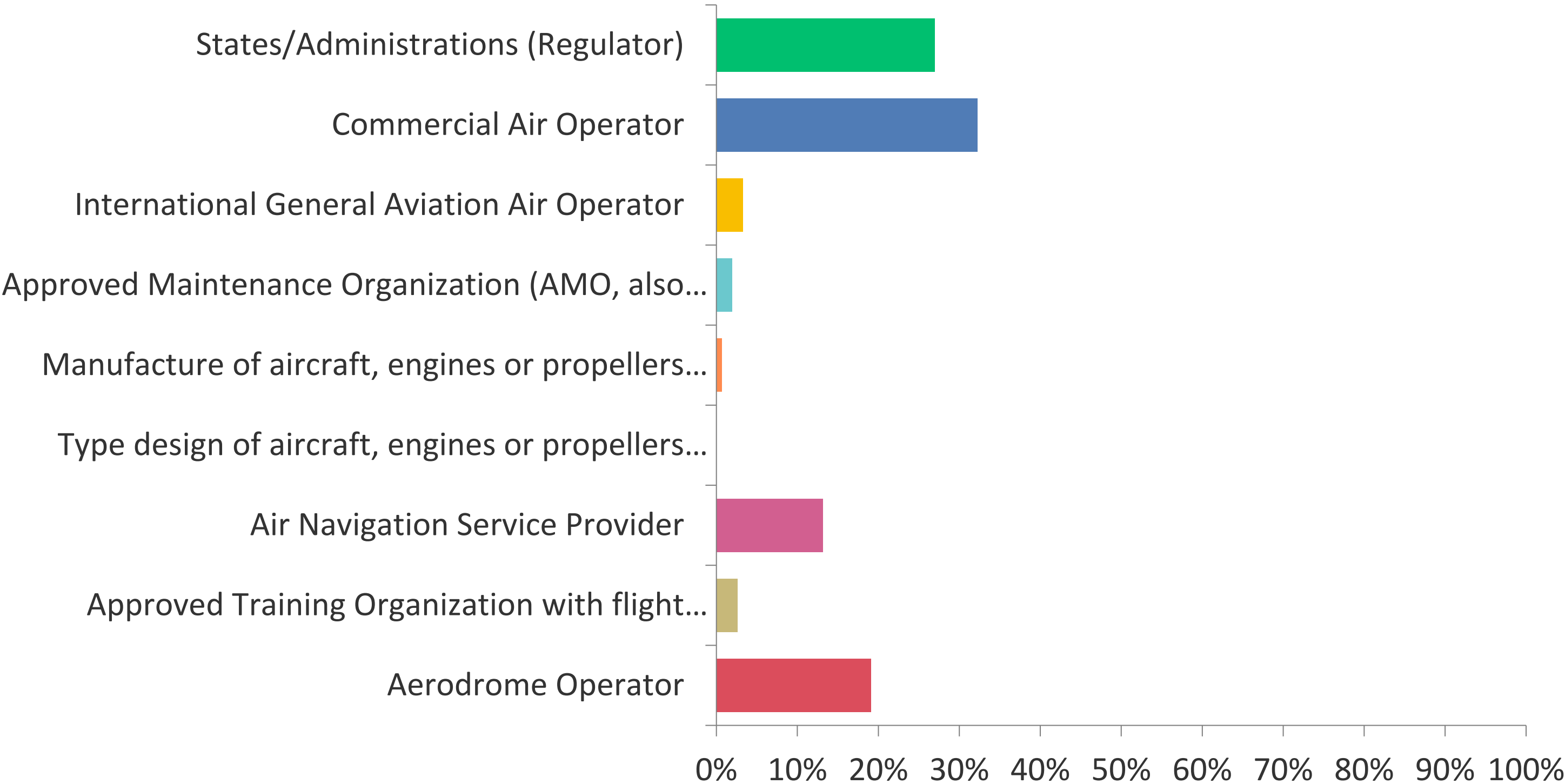
Q1: Who do you represent? Please select only one.

Answered: 152 Skipped: 0



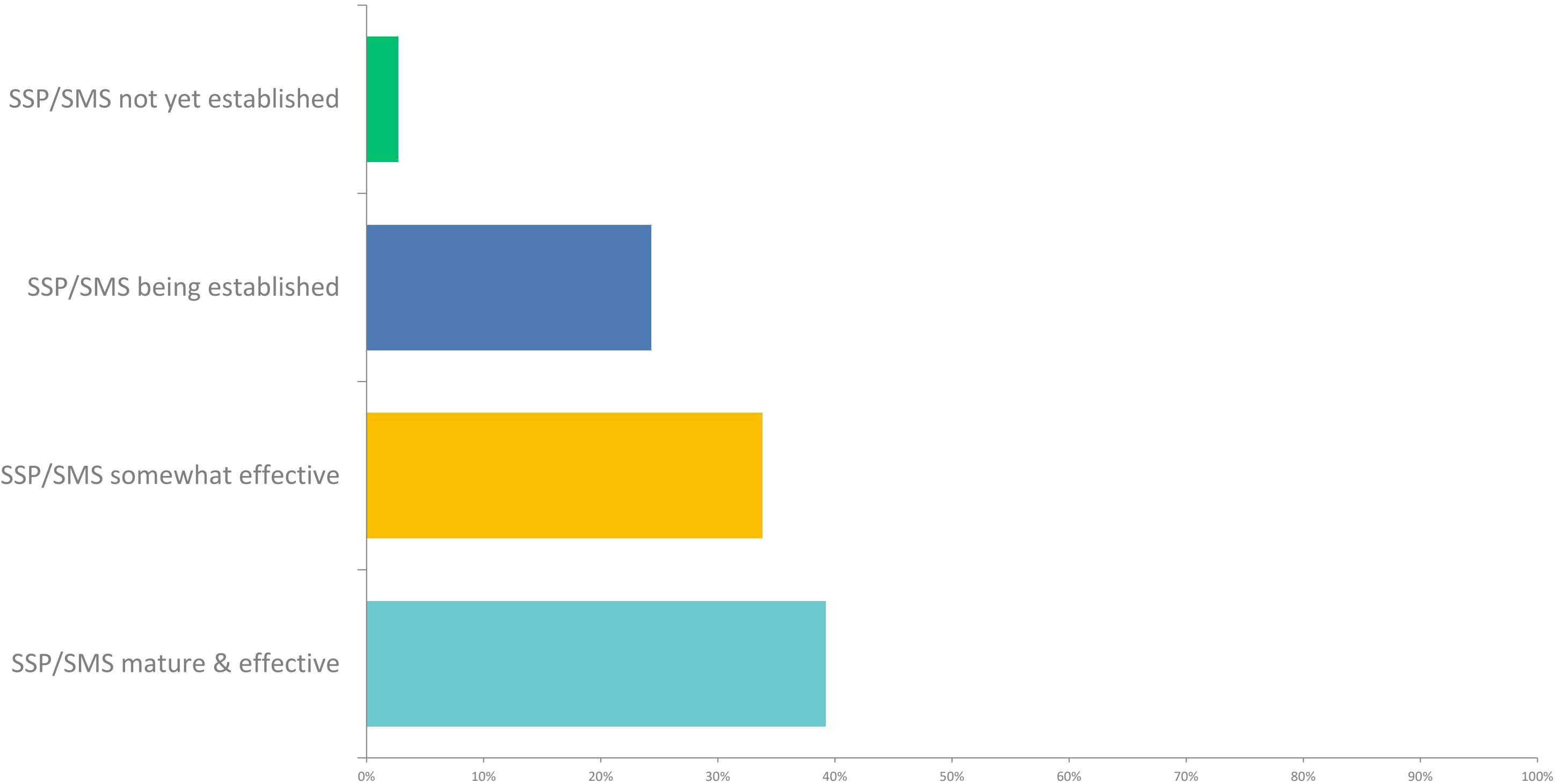
Q2: Which Organization are you from? (Please select only one answer from the drop down menu)

Answered: 152 Skipped: 0



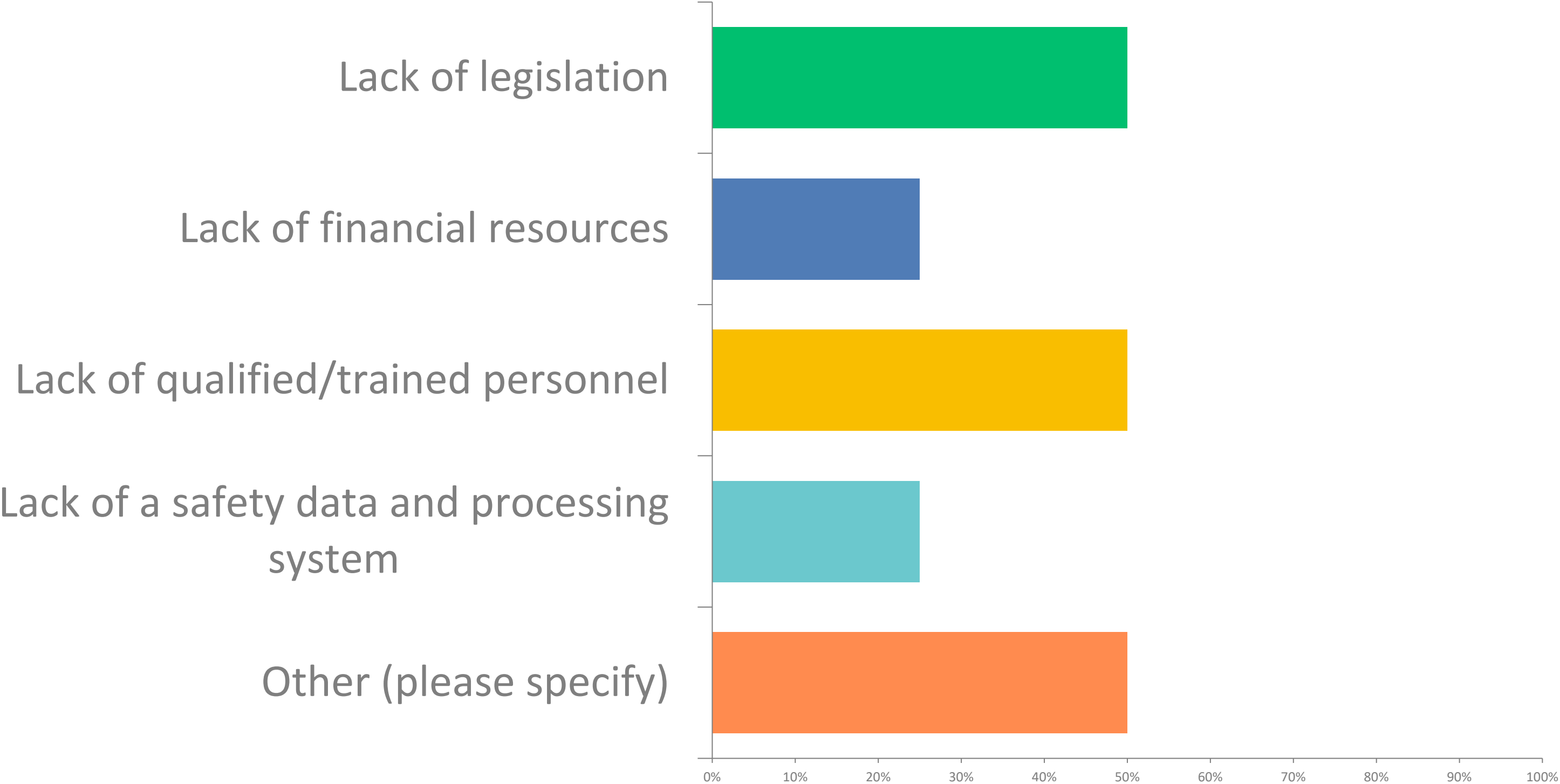
Q6: How would you rate your organization’s SSP or SMS? (Please only select one answer. You may add additional information in the comment box below.)

Answered: 148 Skipped: 4



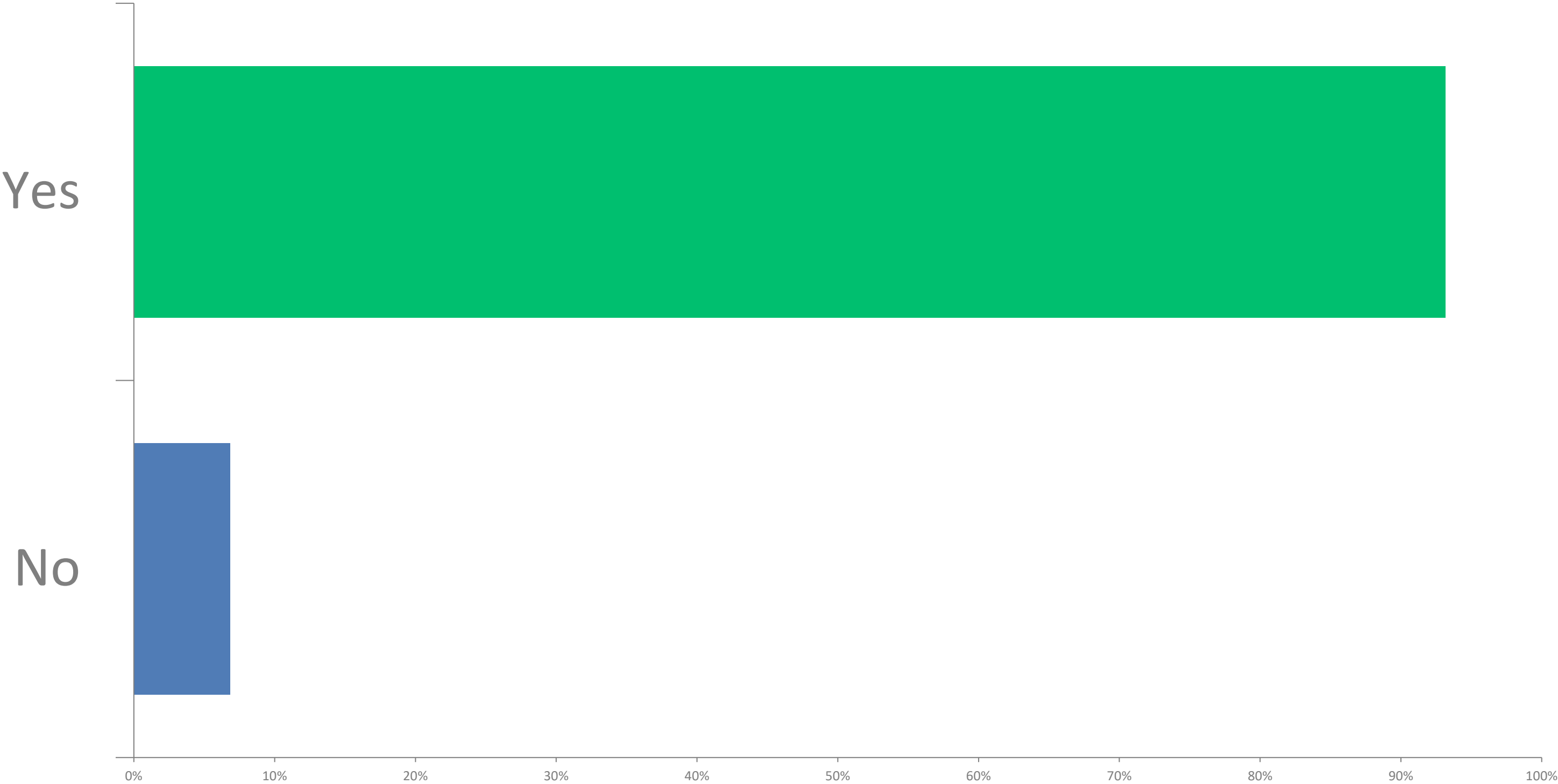
Q7: If your SMS is not yet established, what are the main challenges related to SSP/SMS implementation? (You may select more than one answer)

Answered: 4 Skipped: 148



Q8: Has your organisation established any SPIs? (Please select only one answer. You may add additional comments.)

Answered: 146 Skipped: 6



Safety Performance Indicators

Mr. John THOMSON

Senior Technical Advisor – Safety Management
UK Civil Aviation Authority International



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Leading and Lagging Indicators

- Effective SPIs measure, monitor and trigger action when necessary, reviewing organisational and operational attributes that contribute to safety management activities.
- Successful and effective measuring of safety performance uses a **combination of leading and lagging indicators**.

But what's the difference?



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Lagging Indicators

Lagging indicators measure events which have already occurred and are based on safety related events.

The key data source for lagging indicators are occurrence reports. These include accidents, serious incidents, incidents, and contributing factors, these are the easiest ones to collect.

Useful for:

Understanding the Past

Long term Trending

Combining data points, providing focus

Mitigation effectiveness

Consequential mitigation impact

Simple communication of facts

Predicting the future?

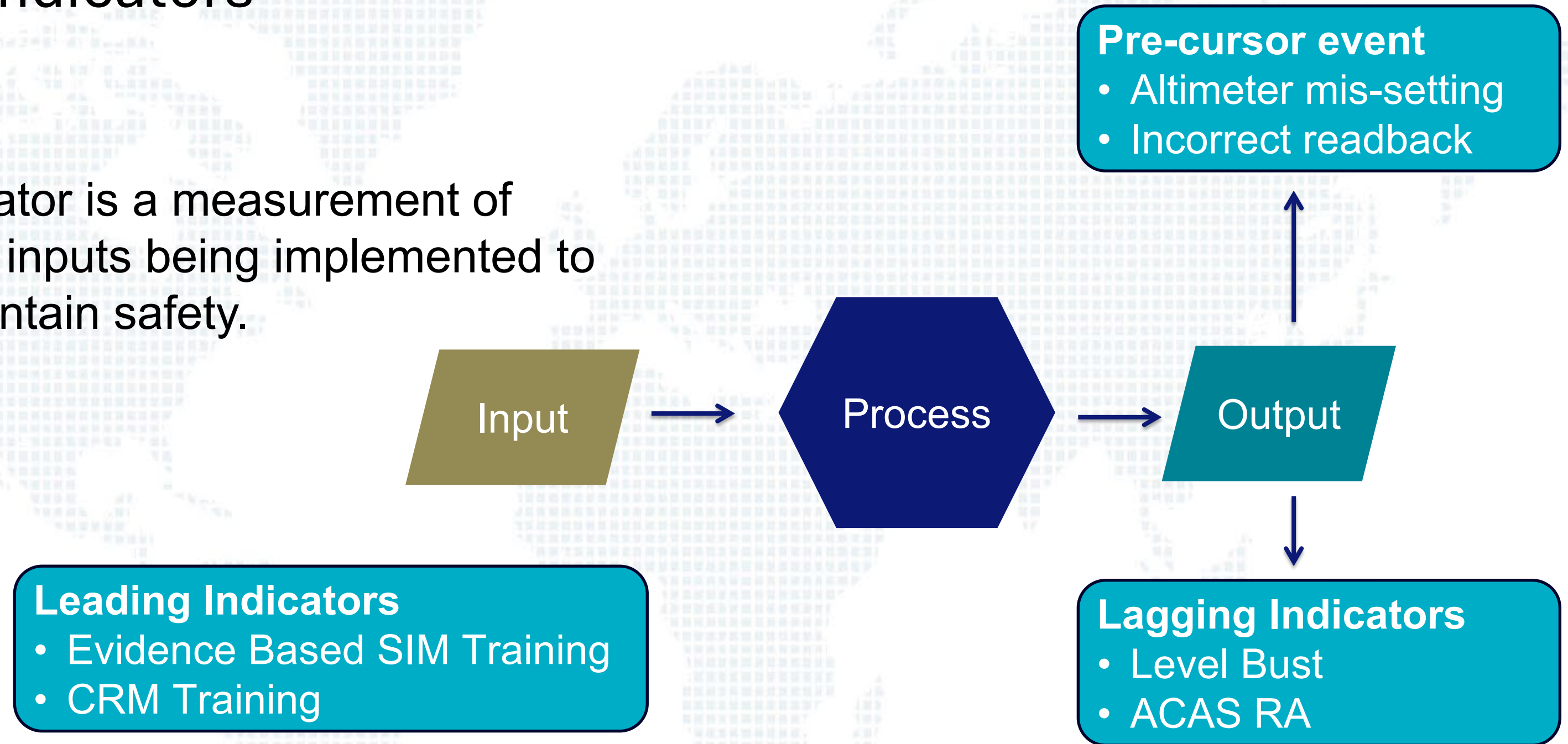


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Leading Indicators

A leading indicator is a measurement of processes and inputs being implemented to improve or maintain safety.



Also known as 'activity or process' SPIs.

Common misconceptions

Nothing bad happened so why count it.

The safer the system gets the deeper we have to look to improve safety margins, so all lapses are useful to understand performance.

A precursor event is a Leading Indicator.

Just because one thing leads to another doesn't mean it's a leading indicator.

Training has already happened so it's a Lagging Indicator.

Everything we consider in SPIs has to have happened, a plan means nothing if it's not been delivered.



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Here are some TIPS for good SPIs

Sense check your SPIs for:

- **Suitability** – Are they relevant for the operation?
- **Acceptability** – Are they appropriate for the issue in question?
- **Functionality** – Are they active and in use?
- **Effectiveness** – Do they trigger change in the organisation?
- **Timeliness** – Is the frequency of data useful?
- **Yielding** – Does it give you the right answers?

Good SPIs need to cover 4 components:

- **Topic** – What is it you are going to measure
- **Index** – What metric are you going to use to normalise the measurement
- **Purpose** – Why are you collecting the indicator
- **Split** – How are you going to break the SPI down

Examples of **Leading** and **Lagging** Indicators

Topic	Index	Purpose	Split
Accidents or Serious Incidents	Percentage of total	Goal 1, Targets 1,2 & 3	Operation Type, Occurrence Category, Injury Level
Runway Safety Occurrences	by movements	Goal 1, Target 3, R-HRC 2	Aerodrome, Operator, Occurrence Category, Severity
Runway Incursions	by movements	Goal 1, Targets 1,2 & 3, R-HRC 2	Aerodrome, Operator, Severity
Runway Excursions	by movements	Goal 1, Targets 1, 2 & 3, R-HRC 2	Aerodrome, Operator, Severity
Mid Air Collision	by movements	Goal 1, Targets 1 & 2	Operation Type, Operator, Location
TCAS	by hours	Goal 1, Targets 1 & 2	Operation Type, Operator, Location, Alert Type, Severity
Loss of Separation	by hours	Goal 1, Targets 1 & 2	Operation Type, Operator, Location, Severity
Airprox	by hours	Goal 1, Targets 1 & 2	Operation Type, Operator, Location, Severity
EGPWS Warnings	by hours	Goal 1, Targets 1 & 2, R-HRC 3	Operation Type, Operator, Location, Hard/Soft, Severity
Runway Inspections	Percentage of planned	Goal 1, Target 3, R-HRC 2	Aerodrome, Detections (FOD, Faults etc)
Overdue Findings	Number	Goals 1, 2, 3 & 4	Service Provider, Finding area
Nominated Persons	Percentage of rejections	Goals 1, 2, 3 & 4	Operation Type, Reasons
Aerodrome Driver Training	percentage of planned	Goal 1, Target 3, R-HRC 2	Aerodrome, Service Provider
Model Advisory Circular	Number of downloads	Goals 1, 2 & 3	Operation Type, State



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National Aviation Safety Plan India

Mr. Rahul AGARWAL
Assistant Director
DGCA India



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Initial Challenges

- Data collection and database
- Identification of operational risk and its prioritization
- Coordination with internal & external stakeholders
- Trained & Dedicated technical team
- Relevant Software & Tools

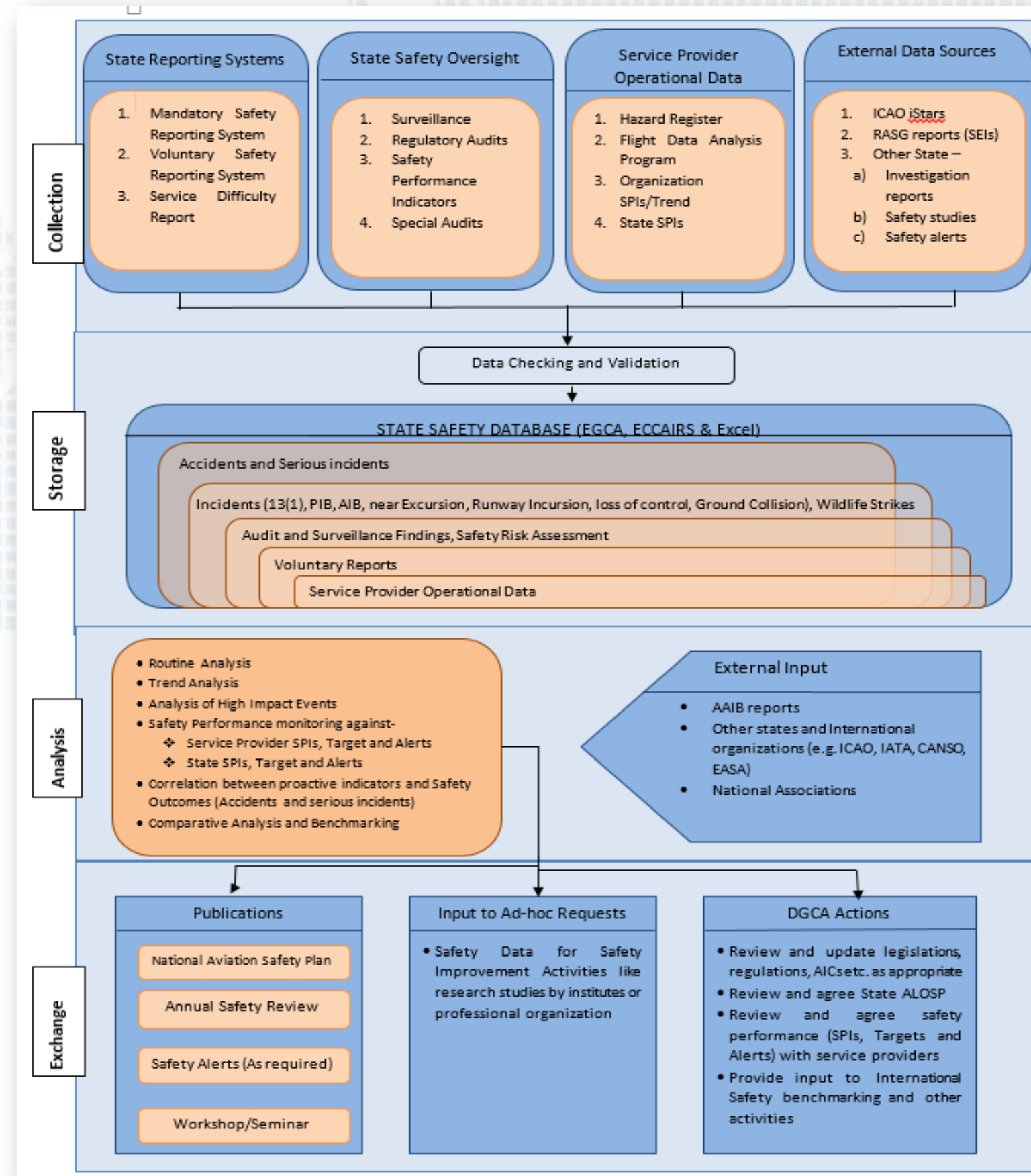


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Safety Data Collection and Processing System

- Safety database :
 - Accident and Serious Incidents investigation data
 - Incident investigation data
 - Voluntary reporting data
 - Service provider operational data
 - Safety risk assessment data
 - Data from audit and surveillance findings
 - Data from safety studies/ review
 - Safety data from other States, Regional Safety Organizations
- Collection, Storage, Analysis, Exchange



National Aviation Safety Plan India(2024-2028)

GASP 2023-2025 (GHRCs)	AP-RASP 2023-2025 (RHRCs)	NASP 2024-2028 (NHRCs)
Mid Air collision (MAC)	Mid Air Collision (For monitoring)	Mid Air Collision
Controlled Flight into Terrain	Controlled Flight into Terrain	Controlled Flight into Terrain
Runway Excursion(RE)	Runway Safety (RE, RI and ARC)	Runway Excursion
Runway Incursion (RI)		Runway Incursion
Loss of Control in- Flight (LOC-I)	Loss of Control in Flight	Loss of Control in Flight
		Wildlife and Bird Strikes
		Ramp Safety
		Deficient Maintenance

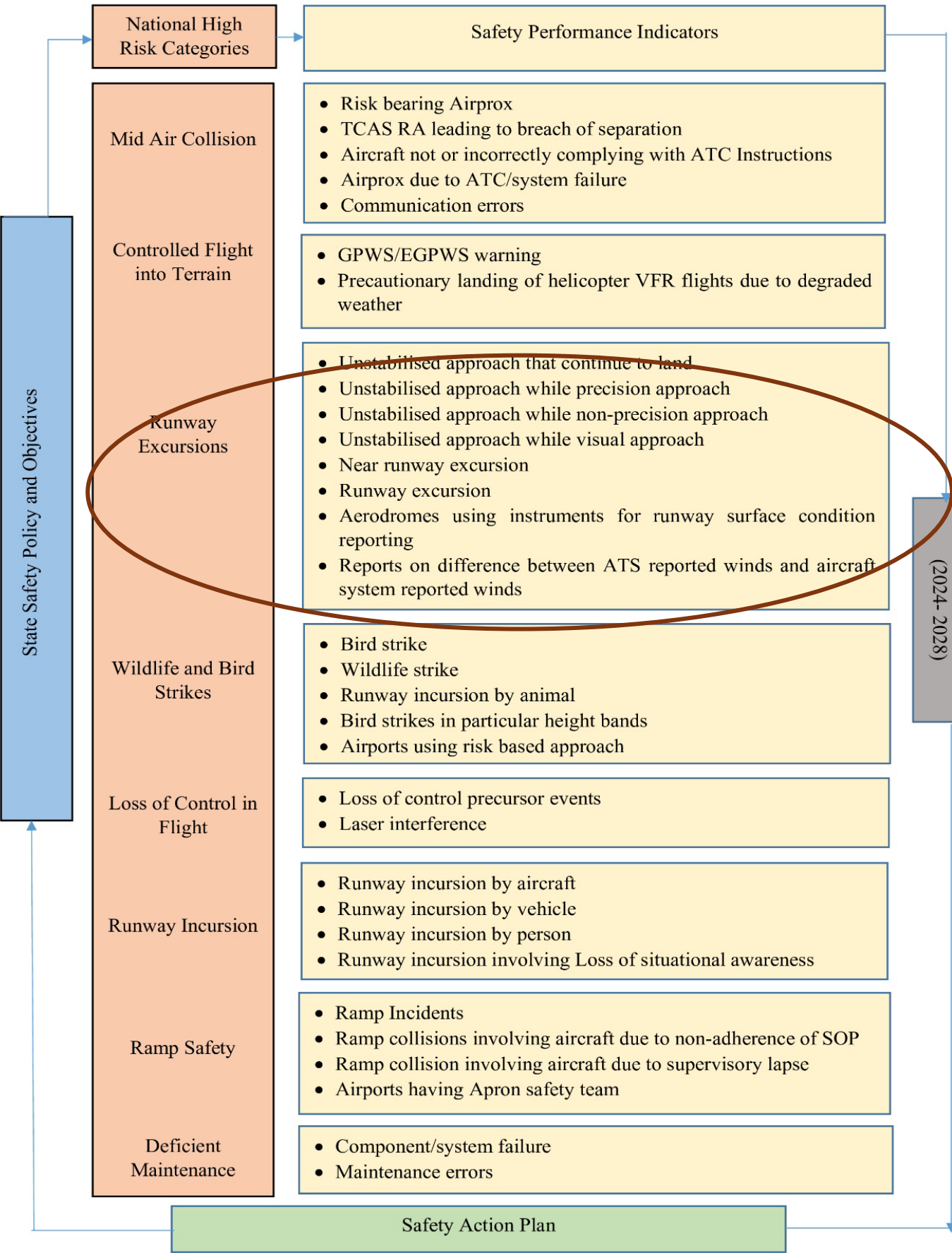


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Safety Performance Indicators(SPIs)-E.g.

N-HRC: Runway Excursions	
Number of unstabilised approaches that continue to land per 10,000 approaches	
Number of unstabilised approaches when performing a precision approach per 10,000 approaches	
Number of unstabilised approaches when performing a non-precision approach per 10,000 approaches	
Number of runway excursions per 10,000 approaches	
Percentage of aerodromes using instruments for runway surface condition reporting	
Number of reports pertaining to difference between ATS/MET reported winds and aircraft system reported winds	



Goal 1-NHRCs-SPIs

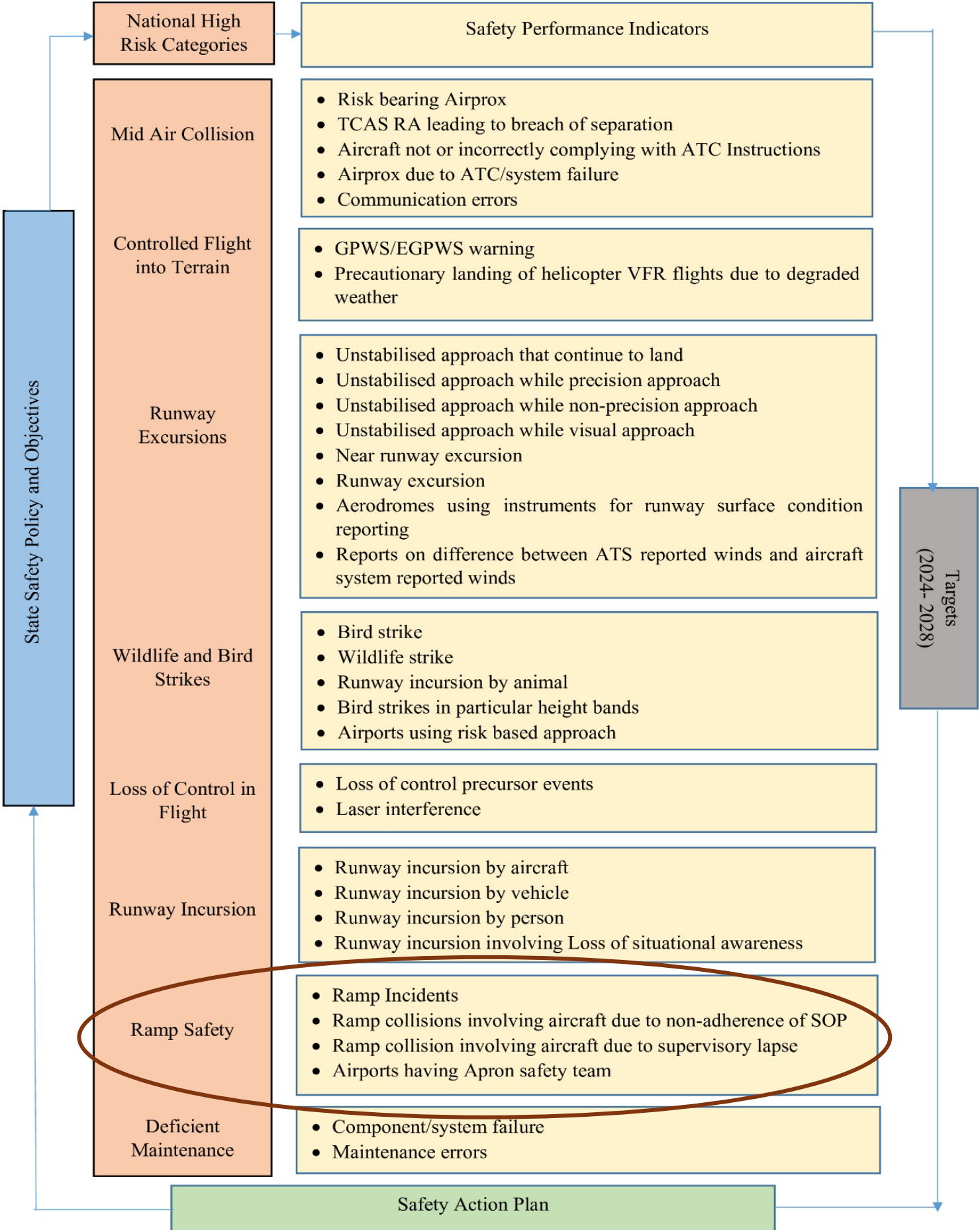
N-HRC: Ramp Safety

Number of ramp incidents that result in damage to aircraft, vehicles or loss of life/ serious injury to personnel per 10,00,000 movements

Number of ramp collisions involving aircraft due to non-adherence to SOPs per 10,00,000 movements

Number of ramp collision involving aircraft due to supervisory lapse per 10,00,000 movements

Number of airports having apron safety team



Flight Data Monitoring (FDM) in Oversight

Mr. Myles BROWN

Director, Safety & Regulatory Affairs - Asia Pacific
Boeing



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Flight Data Monitoring (FDM) in Safety Oversight

*Avoiding unintended consequences
by focusing on the desired outcomes*

Myles Brown

**Director, Global Safety &
Regulatory Affairs, Asia Pacific**

*ICAO Asia/Pacific (APAC)
Safety Management Seminar 2025
Bangkok, Thailand, 3 – 5 February 2025*

Boeing's Top-Level Commitment



Kelly Ortberg
CEO, The Boeing Company

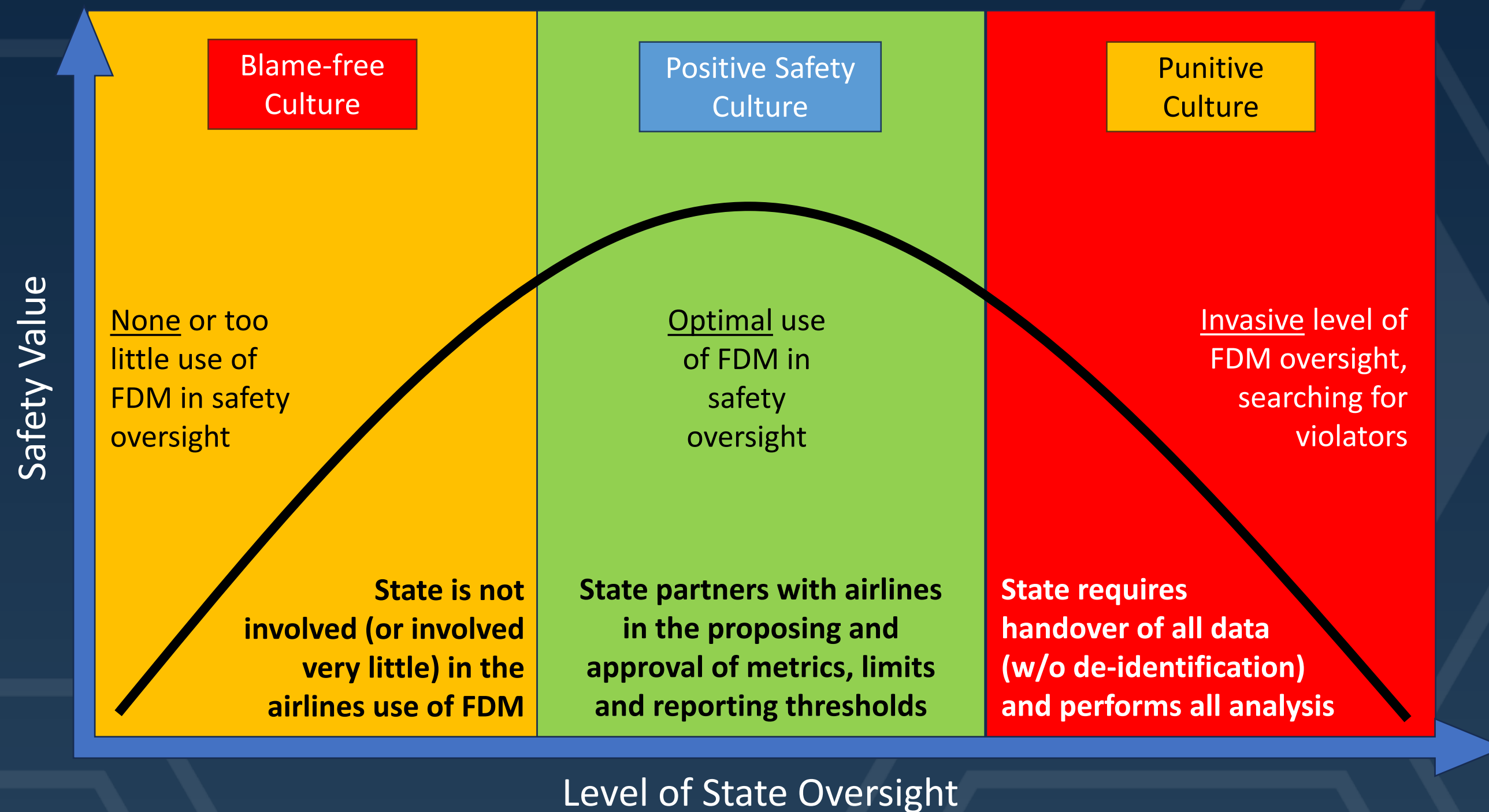
*“Restoring trust starts with meeting our commitments to **build high quality, safe commercial aircraft** and service our products to keep our customers running 24/7. **People’s lives depend on what we do every day, and we must keep that top of mind with every decision we make.**”*



Data Rich, Knowledge Poor



Maximizing the Safety Value of FDM Oversight



Enabling High Safety Value FDM Oversight



**Cross-Stakeholder
Collaboration**



**Just
Culture**



**Regulatory
Framework**



**Information Technology (IT)
Infrastructure**



**Digital
Interface**



**Safety
Analytics**

Call to Action

1. Airlines and Regulators are encouraged to work collaboratively (e.g. performance-based compliance) to establish SPIs. Instead of mandating and directing all elements, focus on the desired outcome, not prescriptive methods.
2. Carefully consider whether a SPI is “simple” or “complex”. Avoid setting rigid thresholds for complex SPIs that are highly context dependent and technical.

Example of a simple SPIs: high approach speed, excessive bank angle, or pitch-rate on takeoff

Example of a complex SPI: use of *CG Load Factor* to set thresholds to define hard-landing occurrence

3. Airlines and Regulators are encouraged to carefully consider the potential outcomes of the SPIs they establish, continuously improve policies and regulations, looking for and eliminating unintended consequences.



Session 7 Q&A | Identify Common Safety Performance Indicators (SPIs)

13
VOTES

+13

-0

Anonymous • 04 Feb 2025, 04:03 PM • Allowed

What would be up and down side of states' setting SPIs with goals for service providers to achieve? Any effective measure to collect data for the indicators?

6
VOTES

+6

-0

Anonymous • 04 Feb 2025, 04:26 PM • Allowed

For everyone, I'm curious if the SPIs are set based on issues that states or airlines currently face? Would it still be important to keep monitoring the critical events with almost no occurrence rate?

3
VOTES

+3

-0

Anonymous • 04 Feb 2025, 04:21 PM • Allowed

What are some of the top components which you think is essential, this will help states who are drafting SPI's?



Session is no longer available

 You can no longer present this session

Thank You for Attending

Join us tomorrow at 9am for...

- Safety Culture Workshop
 - Leader Behaviors and Building Trust for Safety Culture
 - Tools for Advancing Safety Culture
-

If you need any assistance or have questions, please contact:

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