



2018

ICAO'S FIRST iUG Meeting

SAFE TRAVELS

*Committed to leave
no one behind*

ICAO's Agenda for SAFETY

Catalin Radu

*Deputy Director, Aviation
Safety*

Air Navigation Bureau - ICAO

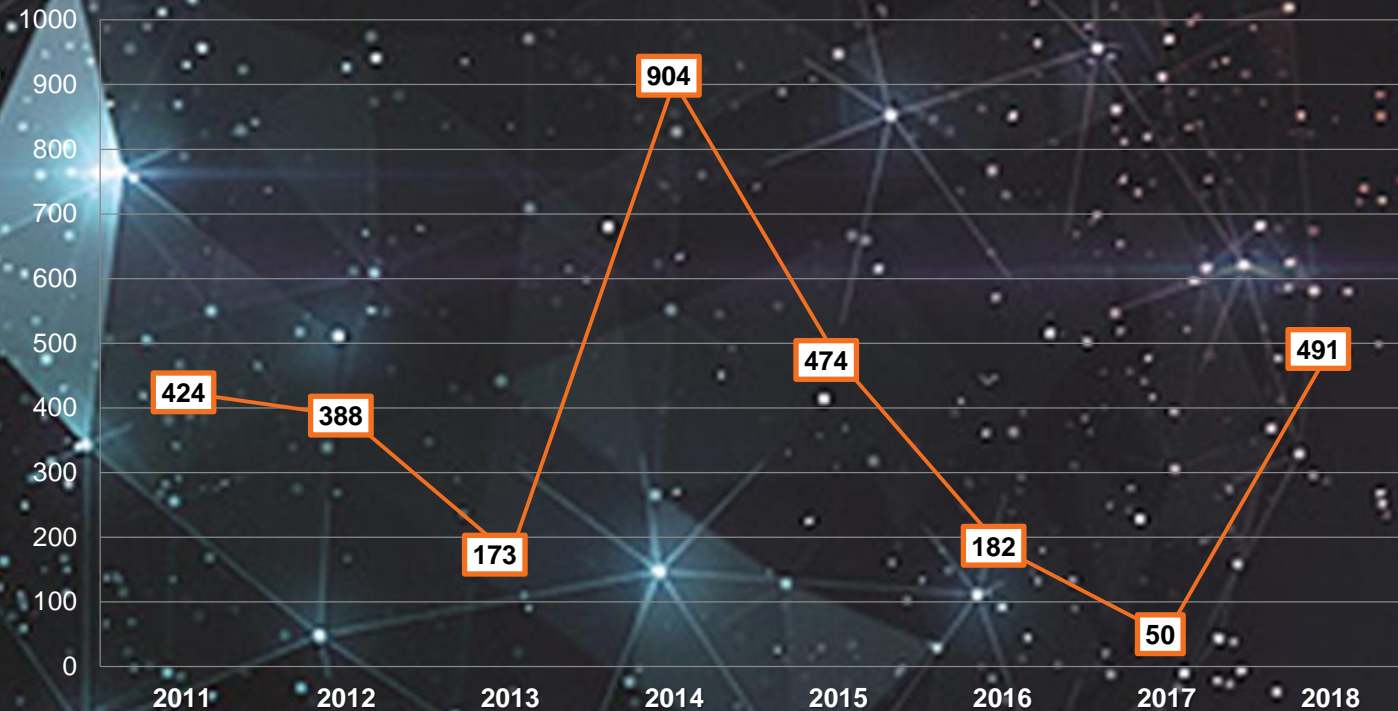
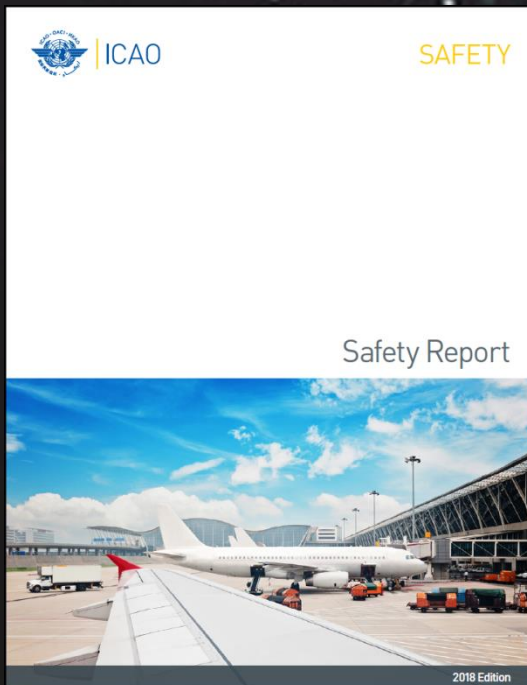




Our Aspirational Safety Goal

ZERO FATALITIES

Fatalities Trend for Scheduled Commercial Flights (2011 – 2018)



Estimate

4.4 Bill Pax

We are not that far...

90% countries with Zero Fatalities

Regional Accident Statistics: 2015

RASG	Estimated Departures (in millions)	Number of accidents	Accident rate (per million departures)	Fatal accidents	Fatalities
AFI	0.8	6	7.3	0	0
APAC	9.8	24	2.5	3	98
EUR	8.1	24			
MID	1.2	3			
PA	13	34			
WORLD	33	92			

Regional Accident Statistics: 2016

RASG	Estimated Departures (millions)	Number of Accidents	Accident Rate (per million departures)	Fatal Accidents	Fatalities
AFI	0.9	1	1.2	1	1
APAC	10.7	19	1.8	2	50
			2.8	2	64
			2.3	2	67
			2.1	0	0
			2.1	7	182

For 2018 (non validated results)

AFI (WACAF/ESAF)

ZERO fatalities

Regional Accident Statistics: 2017

RASG	Estimated Departures (millions)	Number of Accidents	Accident Rate (per million departures)	Fatal Accidents	Fatalities
AFI	1.3	7			
APAC	11.8	20	1.7	1	2
EUR	8.7	12	1.4	3	47
MID	1.3	2	1.6	0	0
PA	13.5	47	3.5	1	1
WORLD	36.6	88	2.4	5	50

In the past, some regions have already achieved zero fatalities



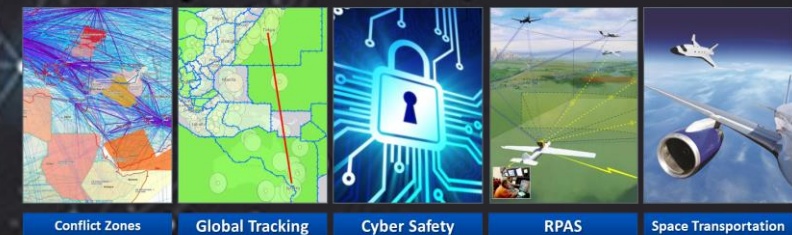
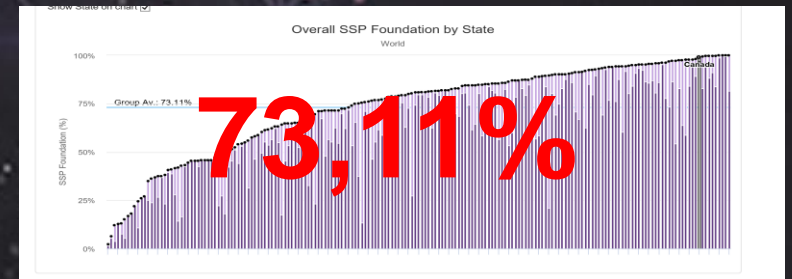
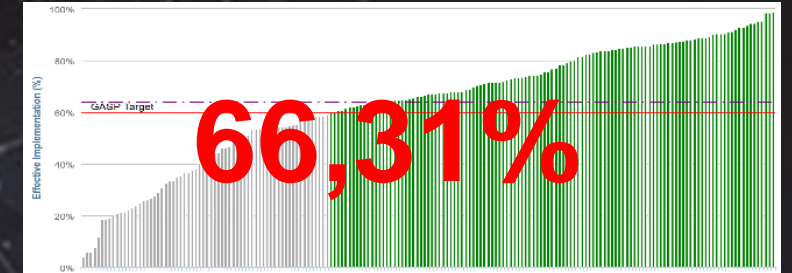
Challenges of **new technologies**

Air traffic is predicted to **double** by 2030

How can we ensure the **safe** realization of this growth?

Risks/barriers to achieve our goal

- Effective Implementation of SARP
- ICAO's Safety priorities: Operational Risks
- Current and emerging issues



All 3 are introducing risks in the system

Safe Travels: ICAO's agenda for Safety



Effective Implementation of SARPs

SSB 2018

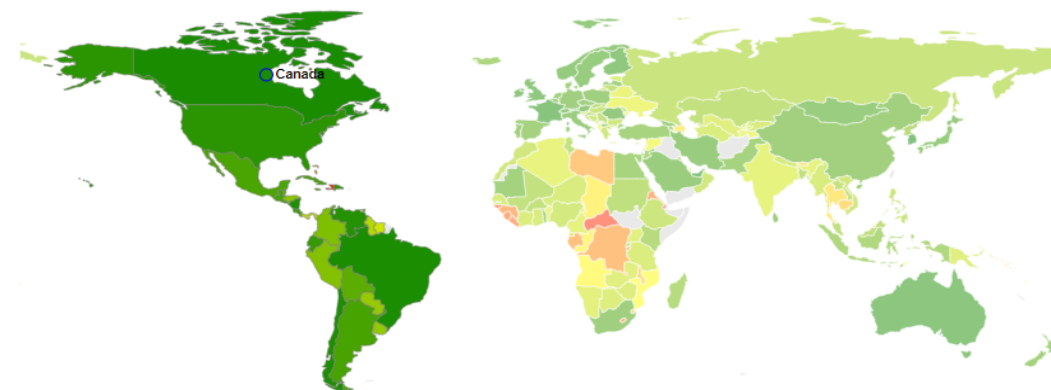
Performance Dashboard

Indicator	Target	Value	Achieved
USOAP EI <i>USOAP overall EI(%)</i>	60%	95.17%	Yes
Significant Safety Concerns (SSCs) <i>Number of SSCs</i>	0	0	Yes
Fatal Accidents <i>Number of fatal accidents in last 5 years</i>		3	⚠️
Aerodrome Certification <i>Validated status of USOAP Protocol Questions (PQ) 8.061, 8.063 and 8.068</i>	Satisfactory	Satisfactory	Yes
State Safety Programme (SSP) Foundation <i>Percentage of SSP Foundation protocol questions (PQs) validated by USOAP or submitted as completed</i>	100%	98.9%	No
State Safety Programme (SSP) <i>Level of SSP implementation</i>	Level 2	Level 3	Yes
IOSA <i>Number of IOSA certified operators</i>	>0	9	Yes
FAA IASA <i>IASA categorisation</i>	Cat 1	Cat 1	Yes
EU Safety List <i>Number of operational restrictions</i>	Unrestricted	Unrestricted	Yes
PBN <i>Percentage of International Instrument runways with PBN approaches</i>	100%	96.97%	No
Global Aviation Training Activities <i>Number of courses delivered or developed by TRAINAIR PLUS Members in the last 12 months</i>	>0	78	Yes
Corrective Action Plan Update <i>Number of updates in the last 12 months on the Online Framework (OLF)</i>	>0	5	Yes
Positive Safety Margins <i>Number of areas (Operations, Air Navigation, Support) with a positive Safety Margin</i>	3/3	3	Yes

Note: The targets are agreed global or regional performance targets, as applicable. Fatal accidents are by State of Occurrence or State of Operator on scheduled commercial flights with aircraft over 5.7t for the last 5 years.

Universal Safety Oversight Audit Programme (USOAP)

Global USOAP Results

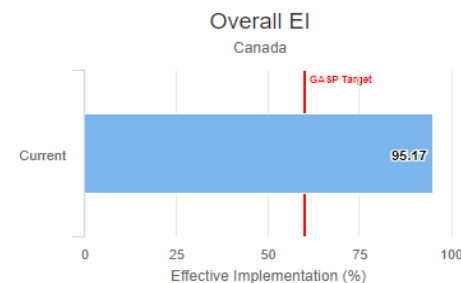


Overall EI
0% 50% 100%

Canada was audited in 2005.

The current overall result for Canada is 95.17 % EI which is above the world average of 66.56%.

✓ Canada has achieved the target of 60% EI, as suggested by the Global Aviation Safety Plan (GASP) by 2017.



Canada is ranked 1/34 in RASG-PA with respect to overall effective implementation. Within this group, 73.53% have reached the target of 60% EI with an average EI of 73.79%. Canada rates above the average of RASG-PA.



Solution Center

Report on Protocol
Questions (PQ)
Findings and Guidance
for Resolutions

PQ and
Guidance

Priority Criteria

SARPs and
Guidance

Best Practices
(Templates, Other
State's, Industry)

Training

Regional/Global
Initiatives

Software tools
available

States that have
resolved the PQ

Resolution of Safety Concerns (CE-8) in Aerodromes (AGA) ¹

8.329 - Does the State collect and forward wildlife strike reports to ICAO?

CE-8 Aerodromes Safety procedures for aerodrome operations

Moderate | 52.73% EI in RASG-EUR

1) Review national procedure for recording wildlife strikes. 2) Review established requirements. 3) Evaluate mechanism to ensure effective implementation of the reporting and rectification action. 4) Review evidence to confirm.

Refs: STD A14, Vol I 9.4.2 GM Doc 9332 1.2.1

Available Documentation

- **Annex 14: Aerodromes Volume I - Aerodrome Design and Operations** Current edition (consolidated)
Email as [en](#) [zh](#) [ru](#) [es](#) [fr](#) [ar](#)
- **Doc 9332: Manual on the ICAO Bird Strike Information System (IBIS)** Third edition
Email as [en](#)

Best Practices shared by States and international Organizations

- **OPERATIONS AT PLATEAU AIRPORTS** shared by China
CAAC's approach to managing operations at plateau airports by setting out operation access conditions different from regular airports and special operational requirements for the reduction of safety risks in order to ensure safe and smooth operations at plateau airports.
- **QUICK RESPONSE AFTER EARTHQUAKE** shared by Japan
- **CERTIFICATION OF FIRMS PROVIDING AIRCRAFT GROUND HANDLING SERVICES** shared by Dominican Republic
certification requirement for aircraft ground handling service providers

Available Training

- **Aerodrome Safety Management Incorporating PANS-Aerodromes** by Trainair Plus
- **Airport Bird Strike Management** by Trainair Plus
- **Communication Procedures for Airside Operations** by Trainair Plus

Programs available in your region

- **IATA Operational Safety Audit (IOSA)** by IATA for States in World
The IATA Operational Safety Audit (IOSA) program is an evaluation system designed to assess the operational management and control systems of an airline. All IATA members are IOSA registered and must remain registered to maintain IATA membership.

Available Tools

- **EMPIC-EAP** by EMPIC GmbH
EMPIC-EAP® is the central software solution to manage and to check the implementation of aviation specific regulations. The aviation authority establishes a "Safety and Security Oversight Management System" when using EAP.

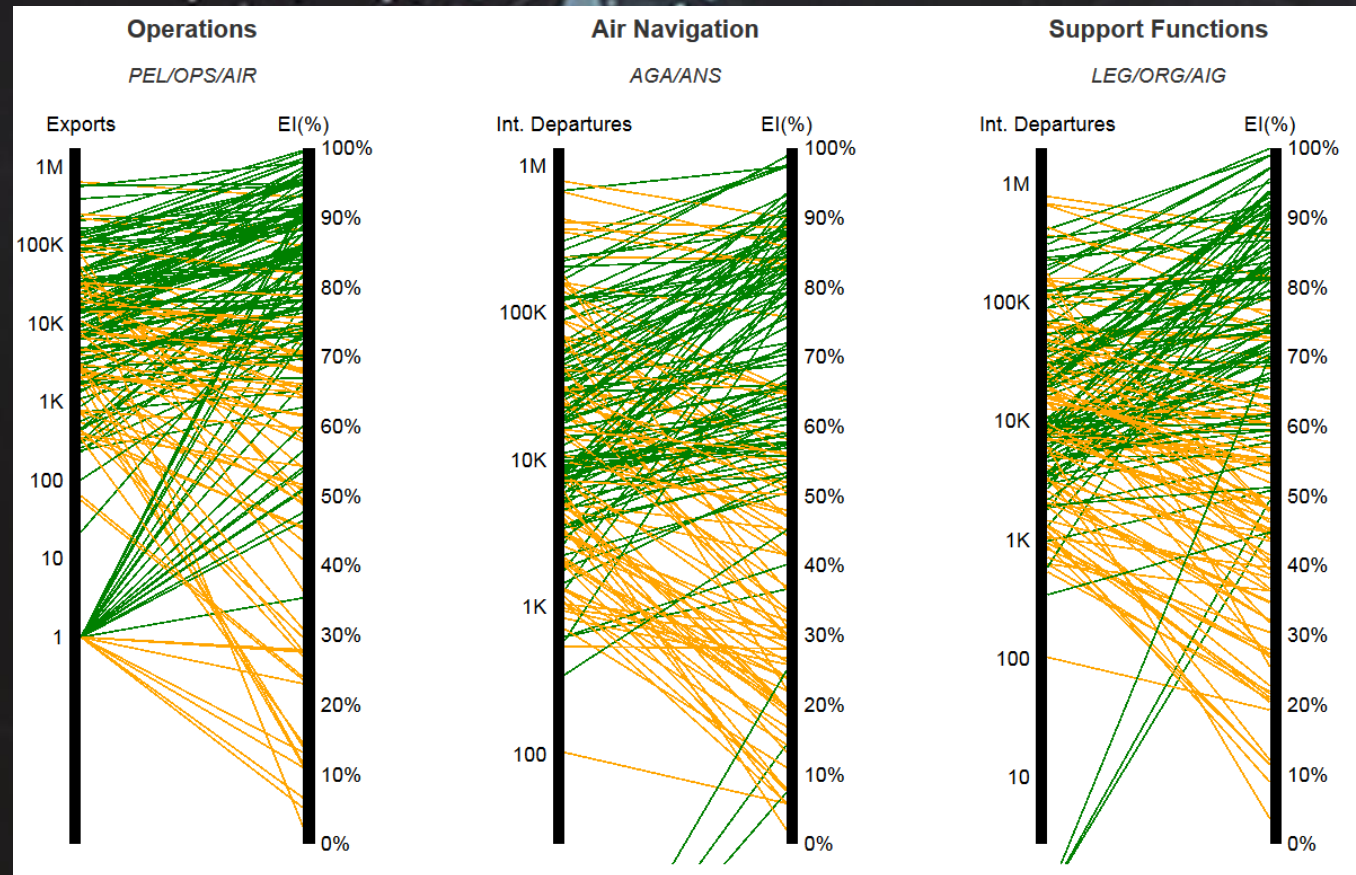
Partners

In RASG-EUR, the following States have solved this question. The States in **bold** have a comparable aviation activity.

Bosnia and Herzegovina, Spain, Turkey, Latvia, Netherlands, Tunisia, Denmark, Republic of Moldova, Belgium, United Kingdom of Great Britain and Northern Ireland, Sweden, Italy, **Czech Republic**, Poland, France, Austria, Norway, Switzerland, Greece, Armenia, Germany, Finland, Georgia, **Israel**, Bulgaria, Morocco, Uzbekistan, Luxembourg, Ireland

SAMPLE

Evolution of Analysis: Safety Margins



Safety Margin

Risk-based prioritization model based on a State's Traffic and the level of Effective Implementation (EI) in the related technical areas at risk (Operations, Air Navigation, Support Functions)

SSP pre-requisites

Identifies pre-requisites to an effective and sustainable SSP implementation

A subset of ~300 USOAP PQs in 19 areas with more granularity than the 60% EI threshold;



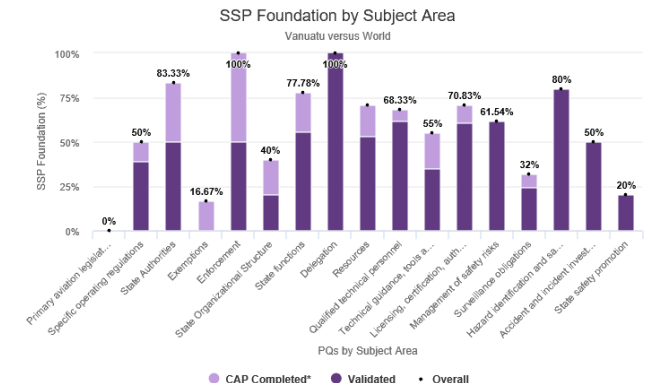
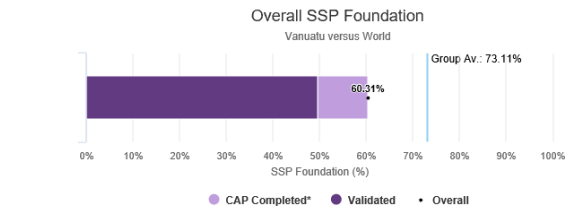
SSP Foundation

Status of SSP Foundation Protocol Questions

SSP Foundation Report

Vanuatu in World group
Generated 2018-12-16T09:12:20.269Z

Current Status



*CAP completed are corrective action plans as reported by the State using the USOAP CMA Online Framework.

Evolving Safety Performance

- **iMPLEMENT** is a data-driven decision making process that:

- **Assesses the current status** of aviation (Safety Briefings)
- **Identifies the best solutions** in order to maintain or improve the aviation capability of the State (Solution Center)
- **Evaluates the needs of the aviation system** (money, people, infrastructure) (CAA HR Tools, PAINT/iAID, etc.)
- **Identifies resources** through existing national, regional, or global mechanisms (ASIAP, SAFE Fund, etc.)
- **Showcases the real added value of air transport** and the socio-economic return on investment of aviation

A 'NO COUNTRY LEFT BEHIND' Initiative:

iMPLEMENT

Facilitating Data-Driven Decisions for Aviation



State Safety Briefing



Regional Safety Briefing



Aerodrome Briefing



Solution Center

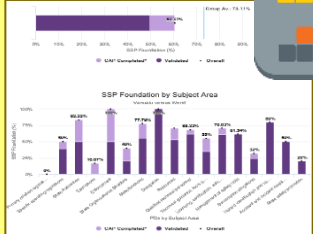


Identify Risks

	LEG	ORG	PEL	OPS	AIR	AIS	ANS	AGA
CE-1	9					4		
CE-2	4		2	6	8	9	4	7
CE-3		1	1	2	2	1	1	3
CE-4			4	4	5	3	6	1
CE-5		1	2	1	18			5
CE-6		3	15	2			3	10
CE-7		6	5	3				
CE-8		1	2	2	4			

Protocol findings by Area and Critical Element
State Safety Briefing

SSP Foundation



Reporting on current State risks



Prioritize and Offer Solutions

Solution Center

	LEG	ORG	PEL	OPS	AIR	AIS	ANS	AGA
CE-1	9					4		
CE-2	4		2	6	8	9	4	7
CE-3		1	1	2	2	1	1	3
CE-4			4	4	5	3	6	1
CE-5		1	2	1	18			5
CE-6		3	15	2			3	10
CE-7		6	5	3				
CE-8		1	2	2	4			

Protocol findings by Area and Critical Element intersection



Prioritizing risks & providing corrective actions



Identifying the needs



Providing practical solutions to prioritized risks



Resourcing the needs

RESOURCING THE NEEDS

ASIAP

Aviation Development Funds

CASI

Technical Cooperation Assistance

Aviation Benefits

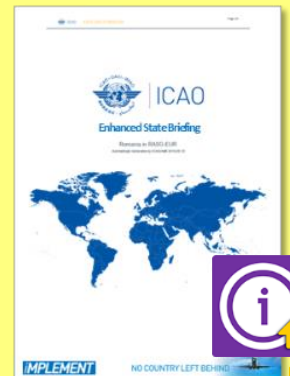
SOCIO-ECONOMIC BENEFITS OF AVIATION

	LEG	ORG	PEL	OPS	AIR	AIS	ANS	AGA
CE-1	9					4		
CE-2	4		2	6	8	9	4	7
CE-3		1	1	2	2	1	1	3
CE-4			4	4	5	3	6	1
CE-5		1	2	1	18			5
CE-6		3	15	2			3	10
CE-7		6	5	3				
CE-8		1	2	2	4			

ENHANCED SAFETY

3.4% of global GDP
58.1 million
of global GDP
in support to aviation

ECONOMIC DRIVER



GASOS (RSOO+)

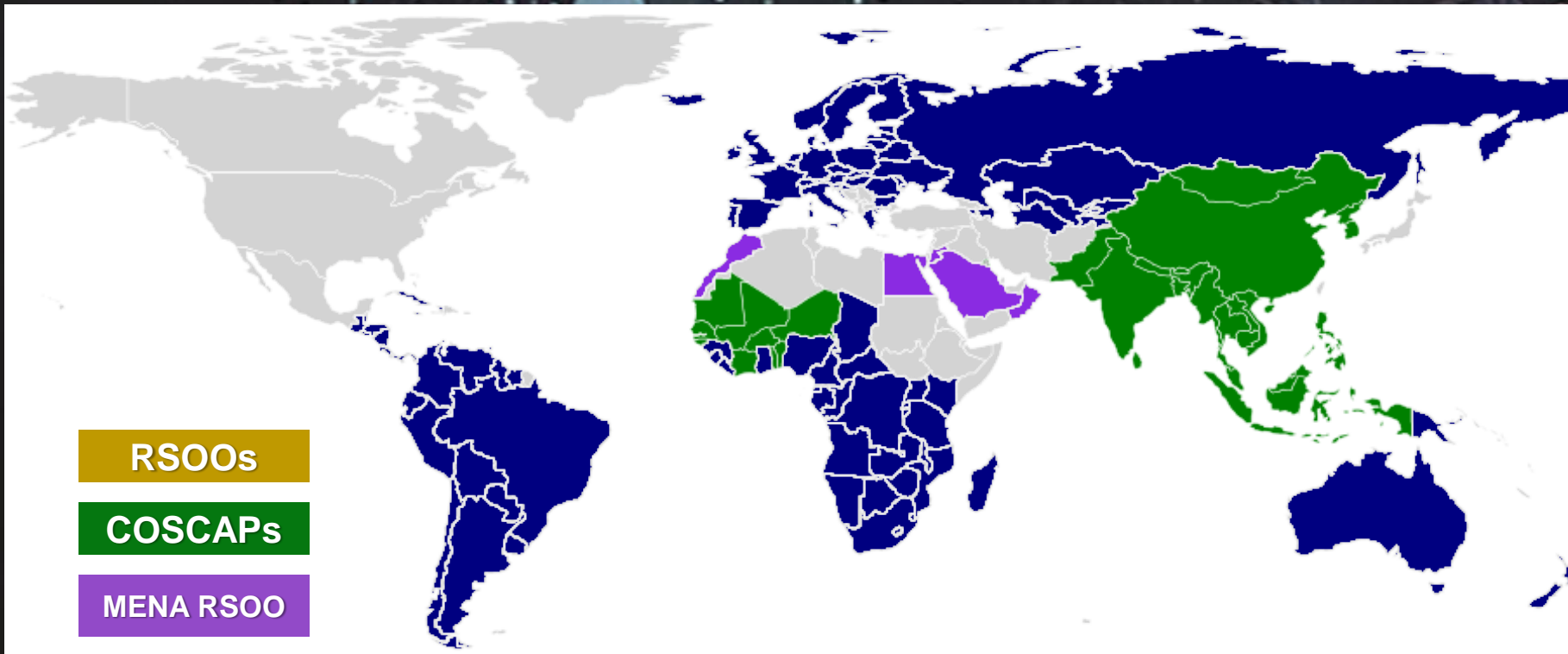


Forum



On Regional Safety Oversight
Organisations (RSOOs) For Global Aviation Safety

22 – 24 March 2017, Ezulwini, Swaziland



**161 Member States
(84%)**

Global EI > 95%

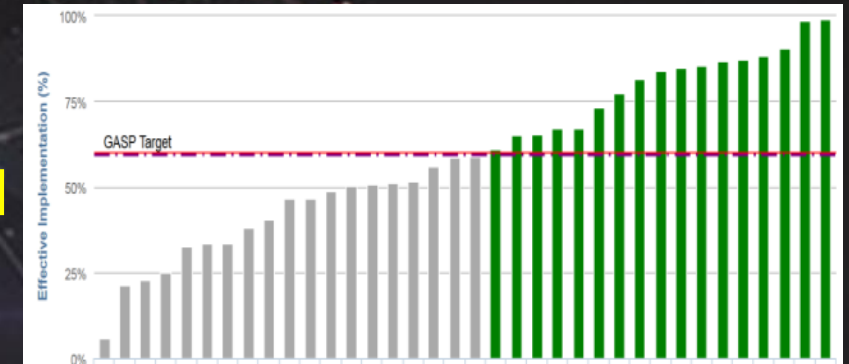
Evolution of RASGs

- RASGs as the **leaders for the management of regional operational risk environment**, as reflected in the Global Aviation Safety Plan (GASP)



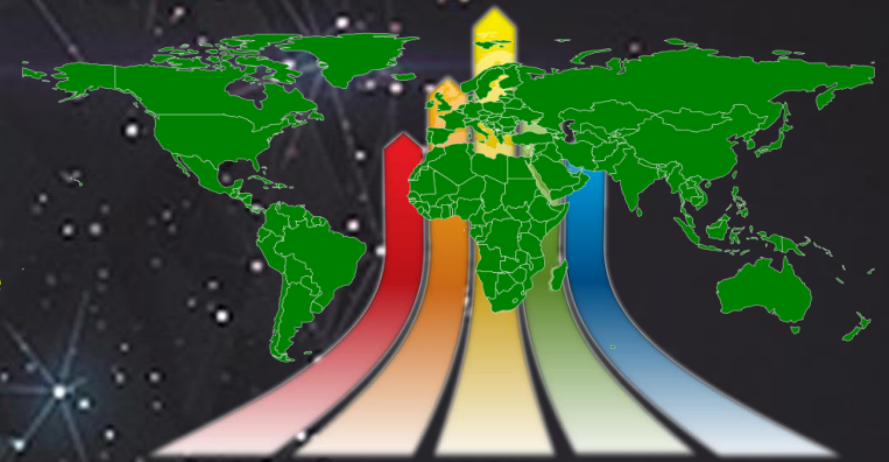
Evolution of RASGs

- RASGs as the **leaders for the management of regional operational risk environment**, as reflected in the Global Aviation Safety Plan (GASP)
- RASGs to assist States in **identifying hazards and defining their own specific targets**
 - From 60% EI to an **acceptable Safety Margin** for each State
 - Mapping the risk



Evolution of RASGs

- RASGs as the **leaders for the management of regional operational risk environment**, as reflected in the Global Aviation Safety Plan (GASP)
- RASGs to assist States in **identifying hazards and defining their own specific targets**
 - From 60% EI to an **acceptable Safety Margin** for each State
 - Mapping the risk
- RASGs to **harmonize and avoid overlaps**
 - Between States
 - Between RASGs

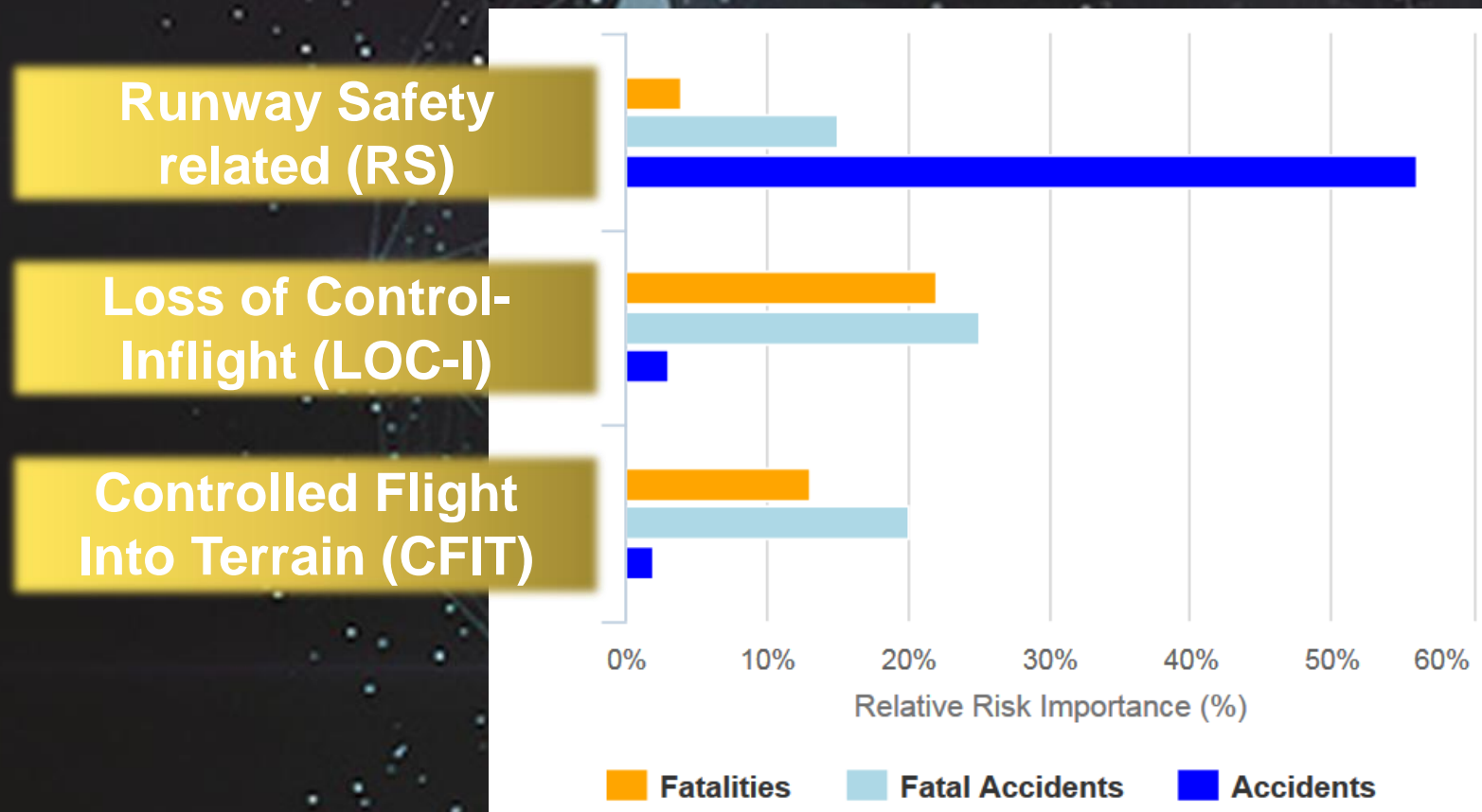


Safe Travels: ICAO's agenda for Safety

Operational Risk



Safety Priorities: Operational Risks



Generate indicators



Benefits

Support

the identification of hazards and risks

Allow

monitoring of safety performance

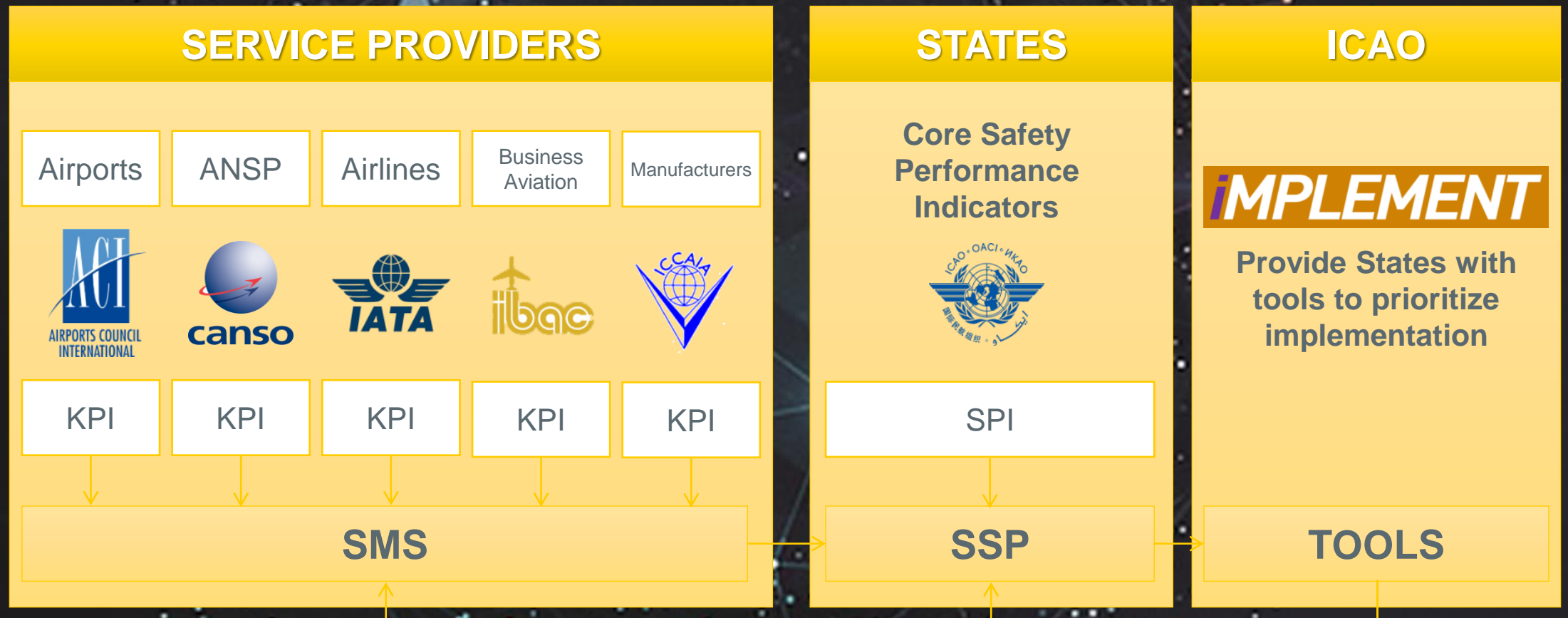
Resolve

need for in-house analytics technology

Facilitate

data-driven decision making

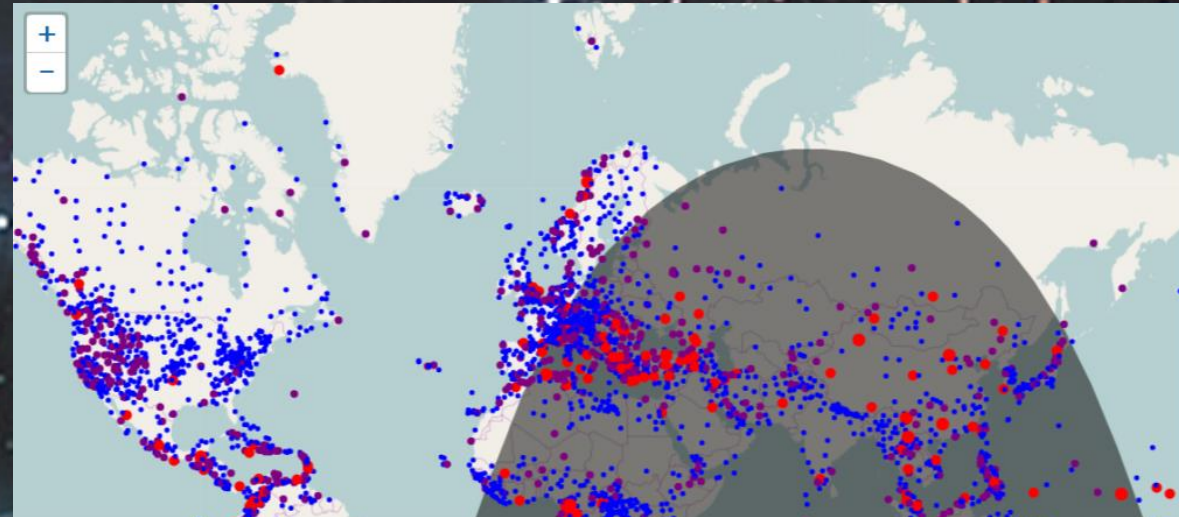
Information Sharing and Exchange



Risk Mitigation: Managing the Hazards



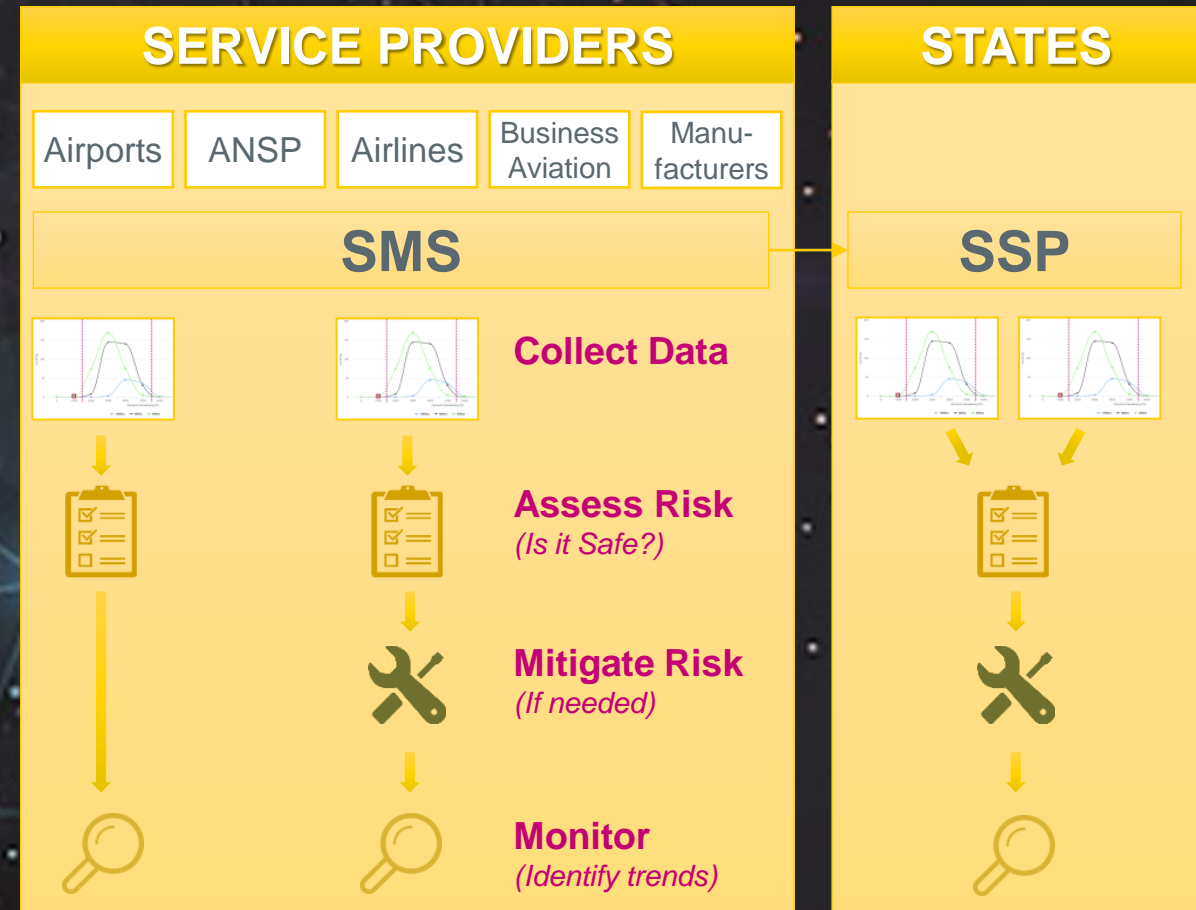
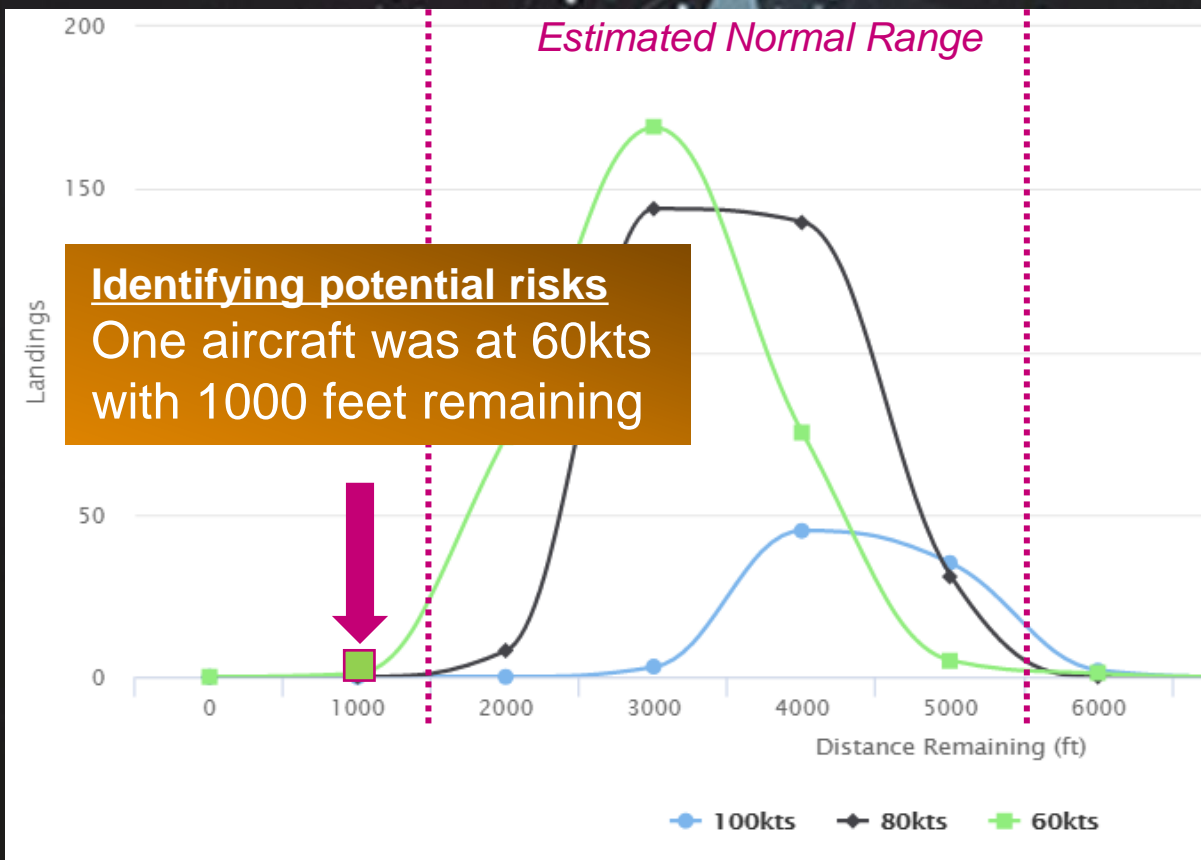
Airport Hazards (from METARs, NOTAMs, and USOAP)



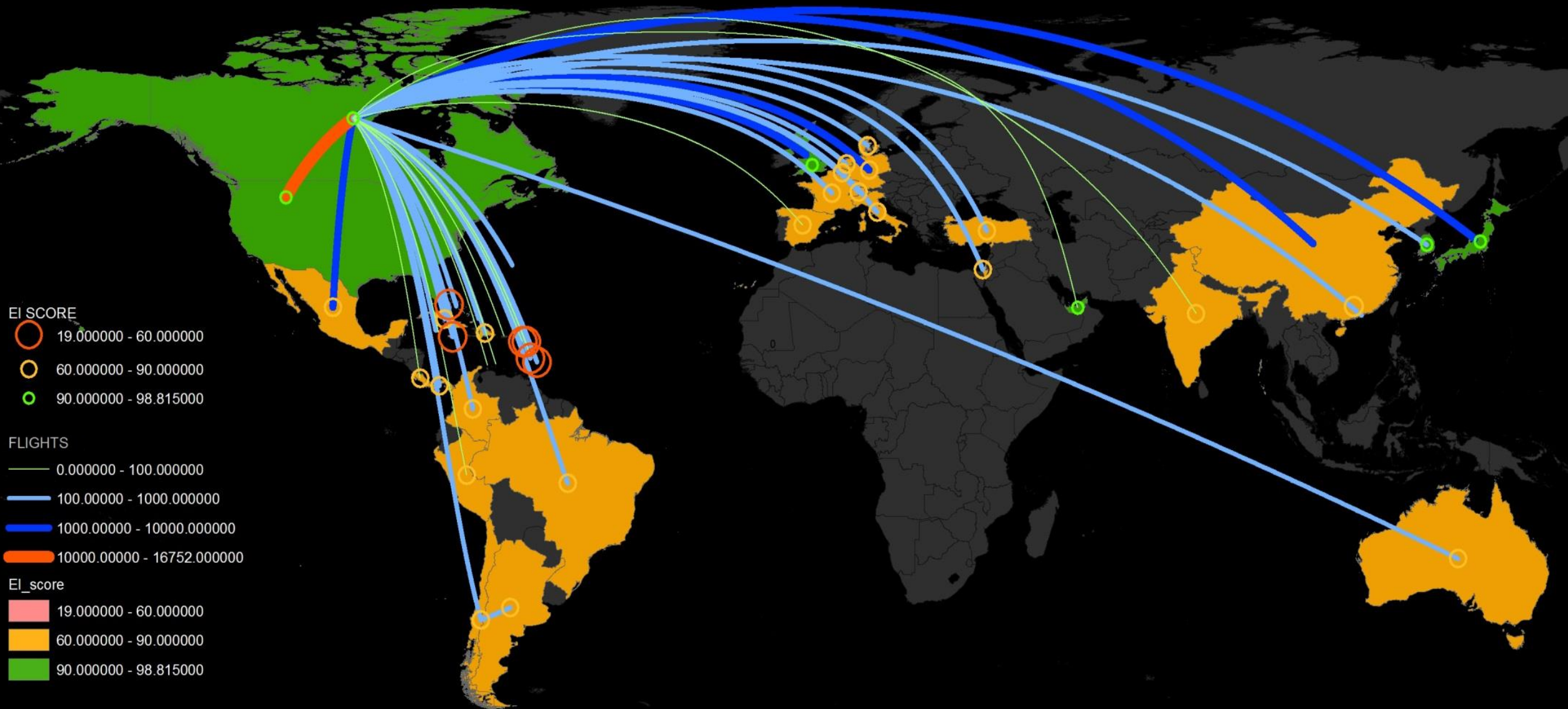
Data driven decision making processes using data from States, Industry, and other stakeholders



Real-Time Monitoring Aviation's Health



Evolution of Analysis – seeing the Big Picture



Analysis to manage the hazards



ICAO iSTARS 3.0

Integrated Safety Trend Analysis and Reporting System

OVER 30

Applications for safety analysis and
Information

MORE THAN 3000+

Registered users

www.icao.int/safety/ISTARS



State Safety Briefing



Solution Center



CAA HR Benchmark



Economic Dev. Indicators



Dashboards



Regional Safety Briefing



Approach Paths



Airport Briefing

Safe Travels: ICAO's agenda for Safety

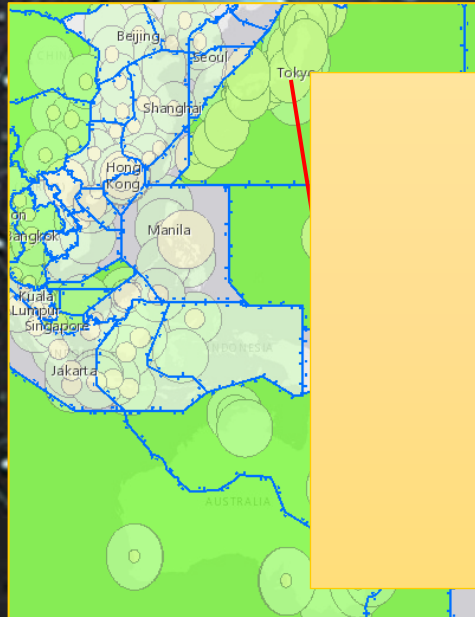


Current and Emerging Issues

Current and Emerging Issues



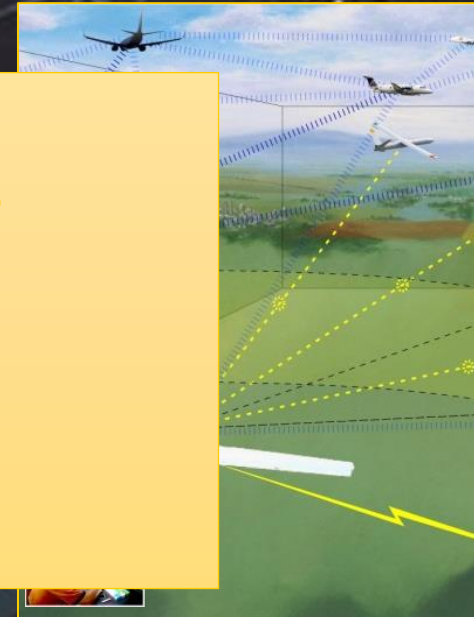
Conflict Zones



Global Tracking



Cyber Safety



RPAS



Space
Transportation



Safe Travels: ICAO's agenda for Safety

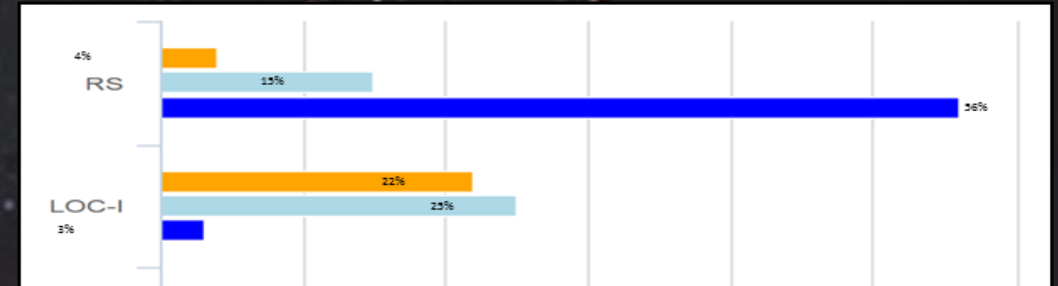
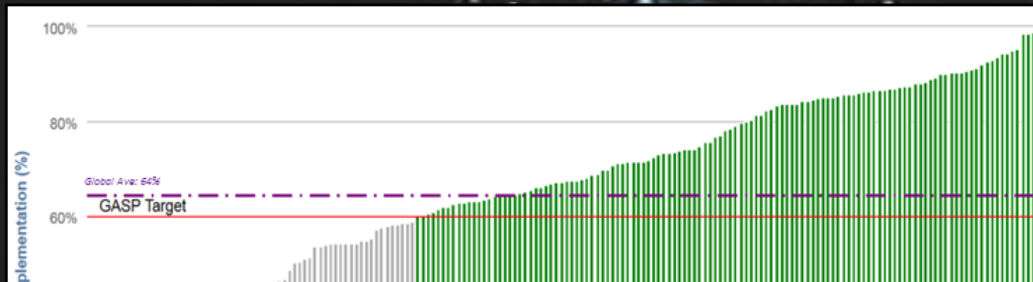
Summary

GASP 2020-2022

Effective Implementation

BBBs

Operational Risks



States that need support in areas with safety margins below zero, to use a RSOO mechanism

TARGET 4.1

ICAO
Recognized
functions

2020

All States to improve their score for the effective implementation (EI) of the critical elements (CEs) of the State's safety oversight system as follows:

TARGET 2.1

Implement
Safety
Oversight

2022+

All States to reach a positive safety margin, in all categories

TARGET 2.2

Positive
Safety
Margin

2022

All States to implement the foundation of a State Safety Programme (SSP)

TARGET 3.1

Sustainable
SSP

2022

All States to implement an Effective SSP, as appropriate to their aviation system complexity

TARGET 3.2

Effective
SSP

2025

All States to implement the air navigation and airport core infrastructure

TARGET 6.1

Appropriate
Infra-
structure

2022

Maintain a decreasing trend of global accident rate

TARGET 1.1

Reduced
Accident
rate

Yearly

Increase the number of service providers participating in the corresponding, ICAO-recognized industry programmes

TARGET 5.1

INDUSTRY
assessment
programmes

2020

All service providers to use globally harmonized SPLs, as part of their safety management systems (SMS)

TARGET 5.2

Harmonized
KPIs in
SMS

2022

All States to contribute information on safety risks, including SSP safety performance indicators (SPIs), to their respective Regional Aviation Safety

TARGET 4.2

Safety risk
information to
RASG

2022

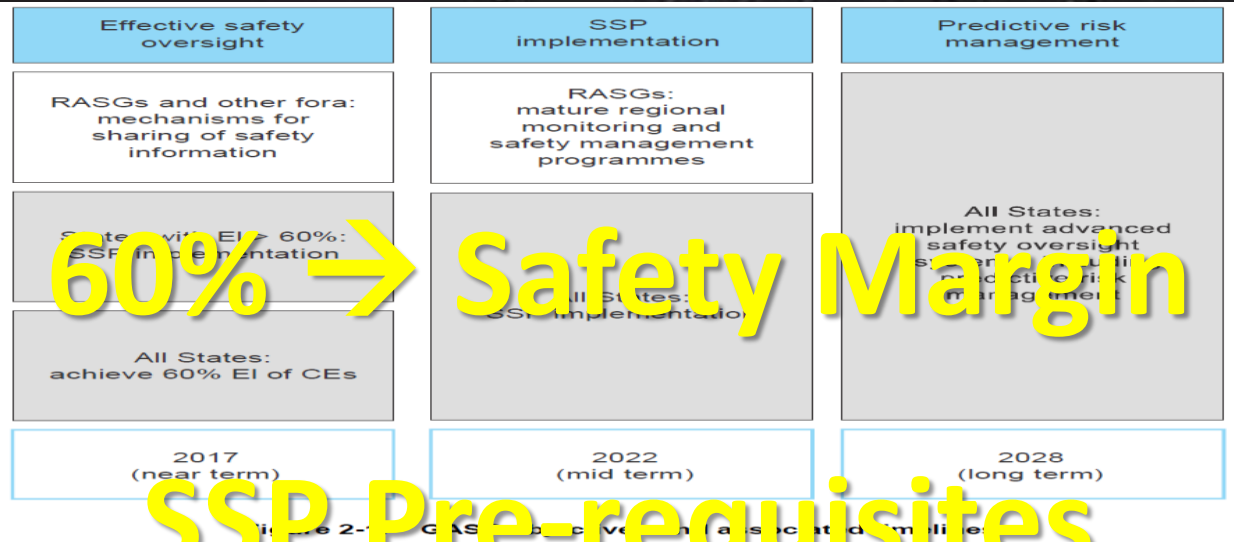
All States with a positive safety margin, and an Effective SSP, to actively engage in RASG safety management

TARGET 4.3

RASG
Risk mgmt.
activities

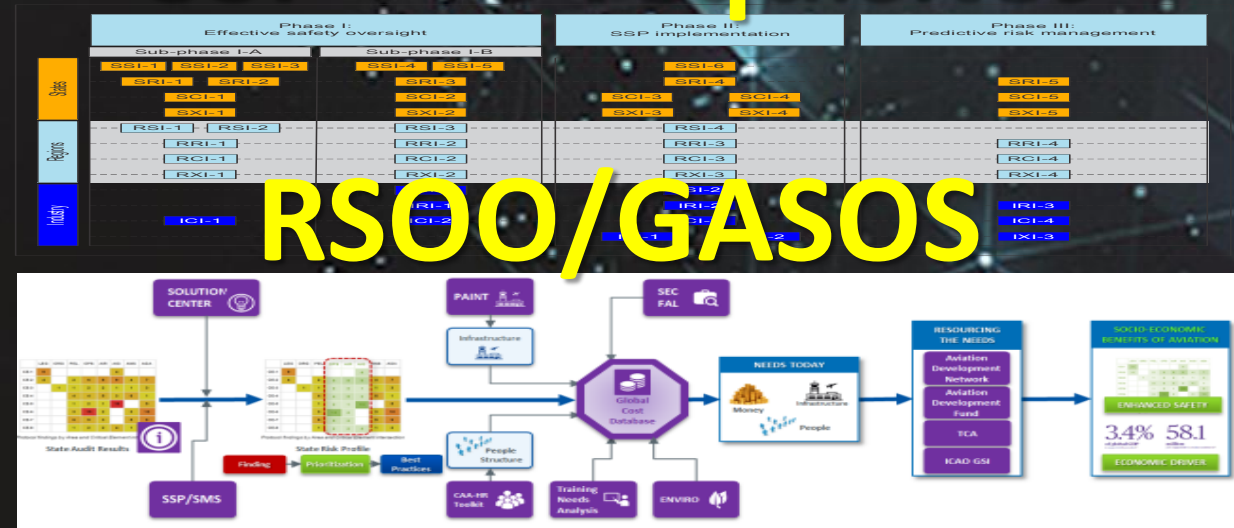
2022

Effective Implementation

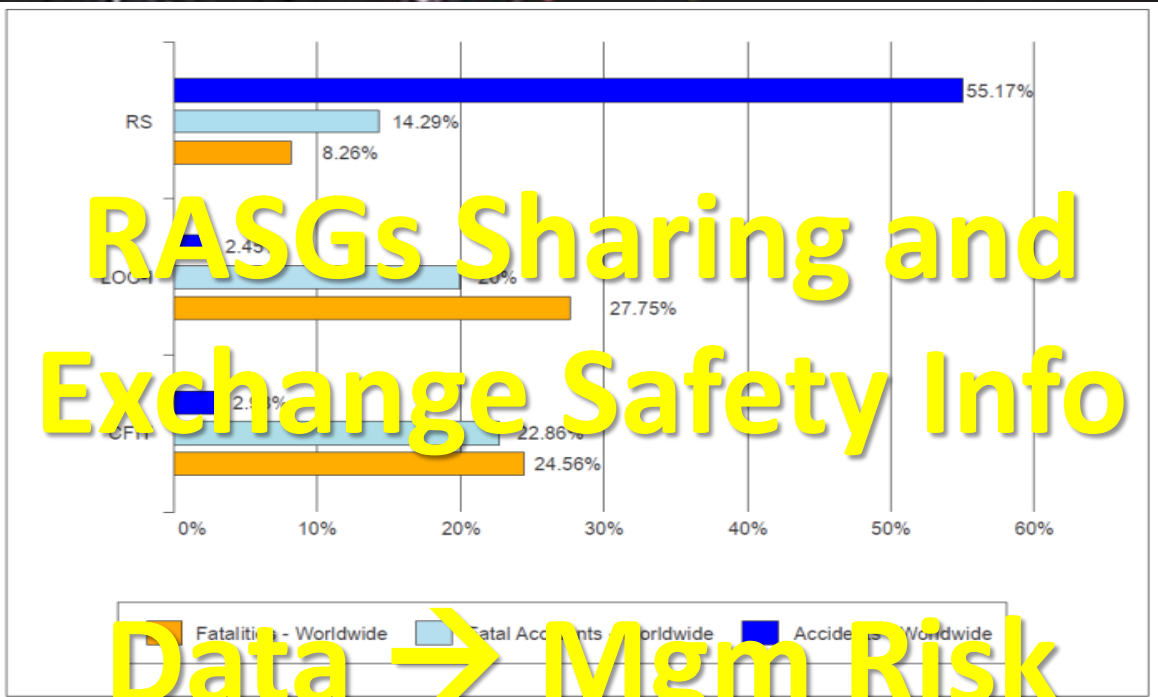


60% → Safety Margin

SSP Pre-requisites



Safety Priorities



Data → Mgm Risk

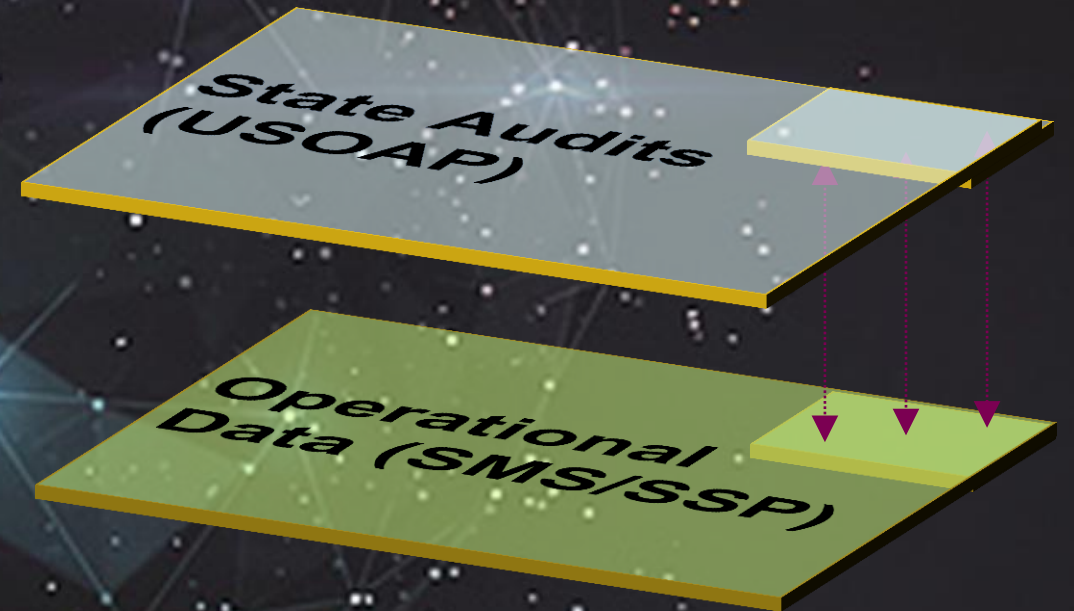
Figure 3-1. High-risk accident categories worldwide (2010–2014)



Real-Time Monitoring Aviation's Health

Combining State audits with State/Industry operational data

- Through SMS and SSP
- Protection of information/operational data through Amendment 1 to Annex 19



Our Aspirational **Safety** Goal

*SAFE
TRAVELS*

*Passengers
First*



ZERO FATALITIES

