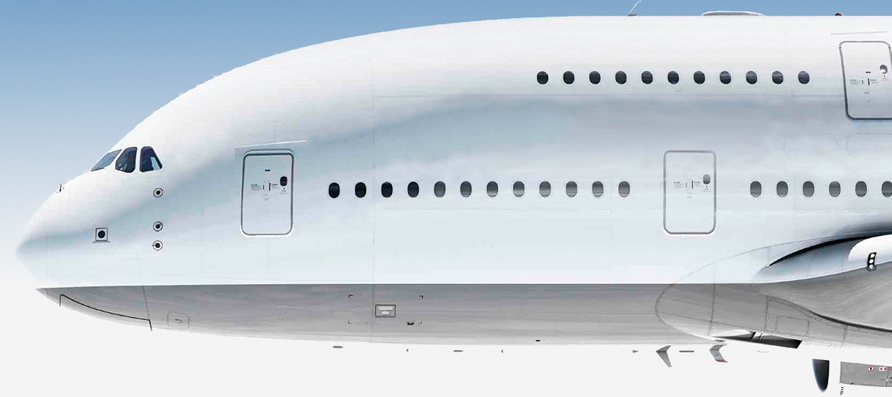




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# THE GLOBAL PERSPECTIVE ON GASP/GANP/GASOS



## Capt. Denis Guindon

Deputy Director, Monitoring and Oversight, Air Navigation Bureau  
International Civil Aviation Organization (ICAO)

**AFI Aviation Safety Symposium**  
*16 July 2018, Niamey, Niger*



# Overview

- **Global Picture and the challenges we are facing**
- **Global Plans and GASOS**
- **AFI Regional Status**





Global Overview

# GLOBAL PICTURE AND THE CHALLENGES WE ARE FACING





# A Global Picture

**4.1 BILLION**

**PASSENGERS**

carried by airlines  
(7.1% increase  
from 2016)

**53 MILLION**

**TONNES OF FREIGHT**

carried by airlines  
(4.0% increase  
from 2015)

**35 MILLION**

**SCHEDULED  
COMMERCIAL FLIGHTS**

flown by airlines  
(3.7% increase  
from 2015)

**62.7 MILLION**

**JOBS SUPPORTED**

**54,000**

**ROUTES WORLDWIDE**

(over 2,000 new  
routes from 2015)

**49 BILLION**

**KILOMETRES FLOWN**

by airlines  
(5.3% increase  
from 2015)

**76 MILLION**

**HOURS FLOWN**

by airlines  
(5.0% increase  
from 2015)

**3.5 PER CENT**

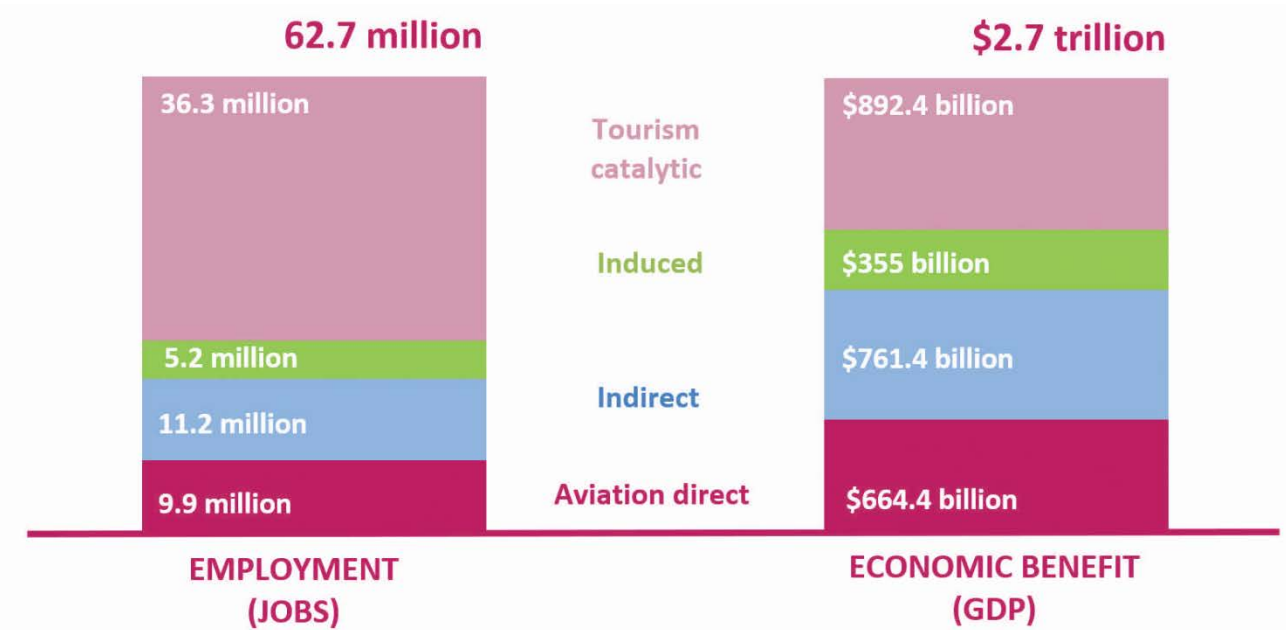
**OF GDP SUPPORTED**

**\$2.7 TRILLION**

**ECONOMIC IMPACT**

Source: **Aviation Benefits 2017** (<https://www.icao.int/sustainability/Pages/IHLG.aspx>)

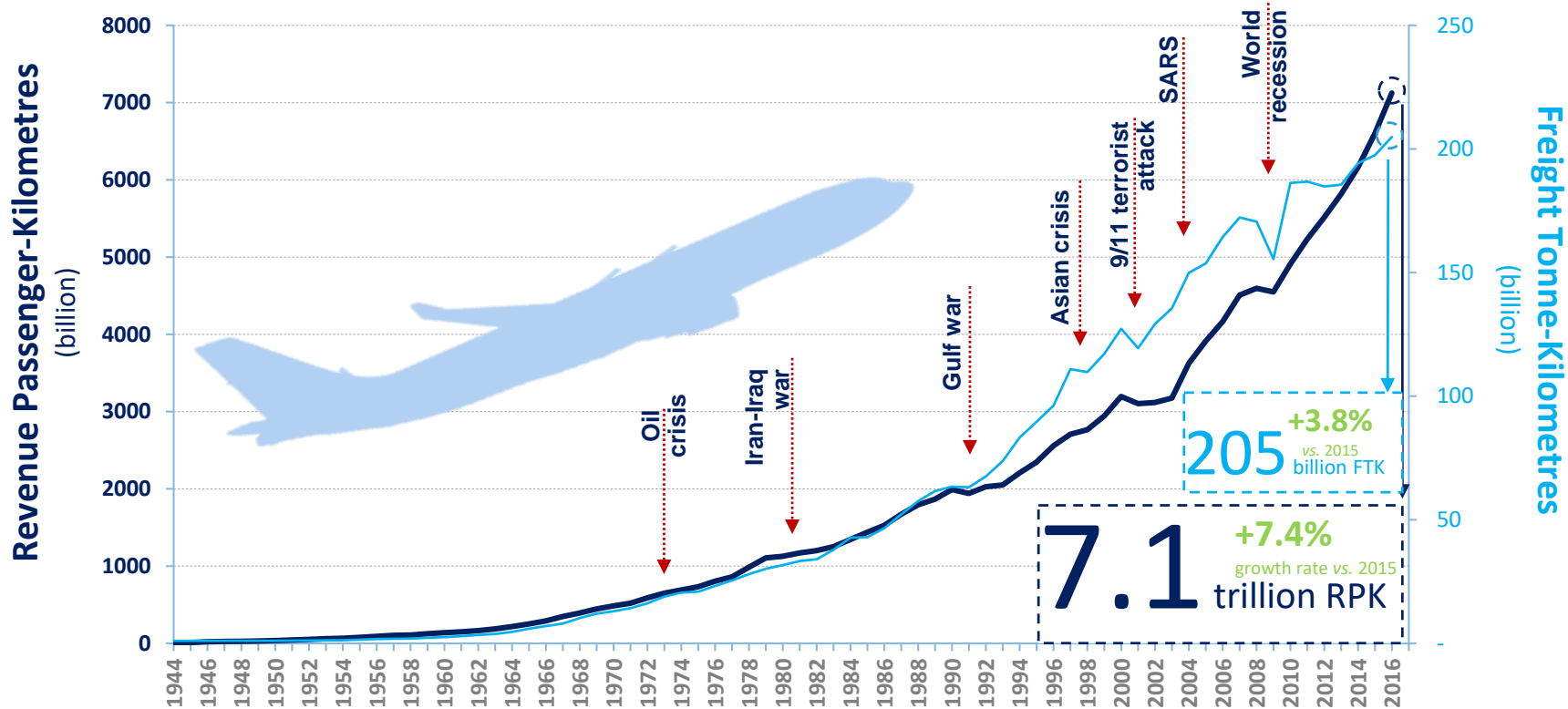
# A Global Picture



Source: *Aviation Benefits 2017* (<https://www.icao.int/sustainability/Pages/IHLG.aspx>)



# Growth of Air Transport







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# TRAFFIC DENSITY

2040





**ZERO  
FATALITIES**

Our  
Aspirational  
**Safety** Goal



# We are not that far...

Regional Accident Statistics: 2014

RASG	Estimated Departures (in millions)	Number of accidents	Accident rate (per million departures)	Fatal accidents	Fatalities
AFI	0.7	6	8.6	1	118
APAC	10.2	18	1.8	3	449
EUR	8.9	26	2.9	1	298
MID	3.0	7			
PA	9.9	41			
<b>WORLD</b>	<b>33</b>	<b>98</b>			

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	3.0	1	150
MID			2.5	1	224
PA			2.6	1	2
<b>WORLD</b>			<b>2.8</b>	<b>6</b>	<b>474</b>

Regional Accident Statistics: 2017

RASG	Estimated Departures (millions)	Number of Accidents	Accident Rate (per million departures)	Fatal Accidents	Fatalities
AFI	0.9	1			
APAC	10.7	19			
EUR	8.7	24	2.8	2	64
MID	1.3	3	2.3	2	67
PA	13.3	28	2.1	0	0
<b>WORLD</b>	<b>34.9</b>	<b>75</b>	<b>2.1</b>	<b>7</b>	<b>182</b>

Regional Accident Statistics: 2017

RASG	Estimated Departures (in millions)	Number of accidents	Accident Rate (per million departures)	Fatal Accidents	Fatalities
AFI	0.9	1	6.4	1	0
APAC	10.7	19	1.8	1	2
EUR	8.7	24	1.2	3	47
MID	1.3	3	1.4	1	0
PA	13.3	28	3.5	1	1
<b>WORLD</b>	<b>35.6</b>	<b>87</b>	<b>2.4</b>	<b>7</b>	<b>50</b>

**For 2017  
MID and AFI  
(APAC 2 – PA 1)  
ZERO fatalities**

## Fatalities Trend for Scheduled Commercial Flights (2012 – 2017)

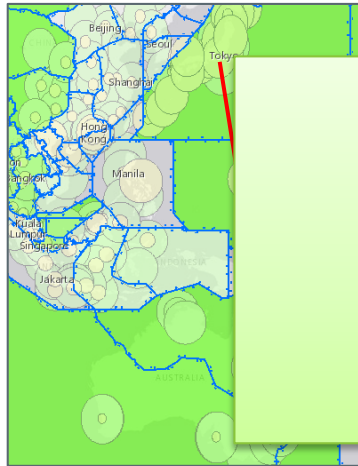


Fatalities showed a spike during 2014, and then recovered in 2015, 2016 & 2017

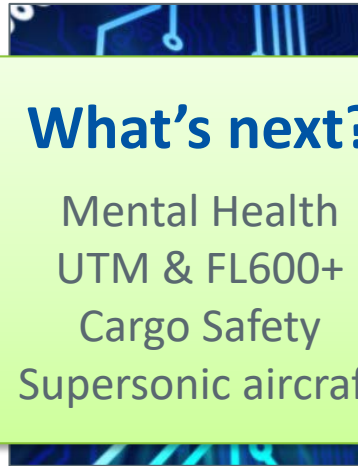
# Other Challenges



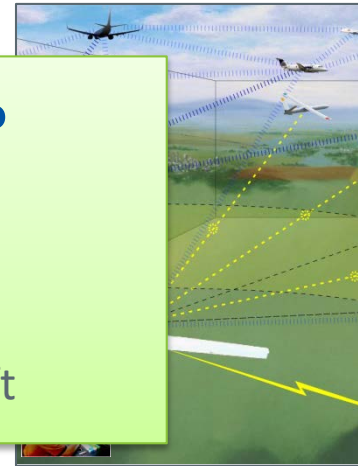
Conflict Zones



Global Tracking



Cyber Safety



RPAS



Space Transportation

**What's next?**  
Mental Health  
UTM & FL600+  
Cargo Safety  
Supersonic aircraft



Global Overview

# GLOBAL PLANS





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# 39th

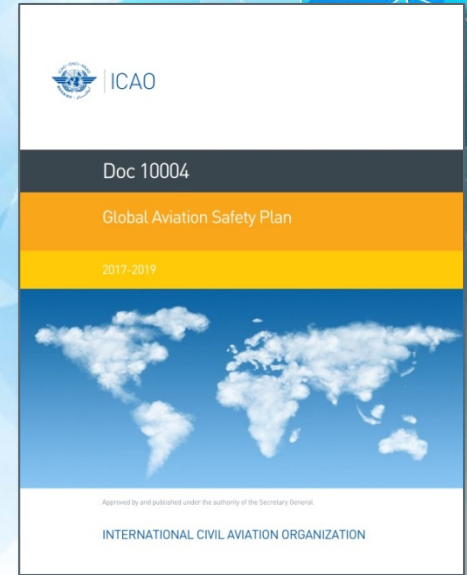
## TRIENNIAL ASSEMBLY

ICAO HQ, MONTREAL, 27 SEP-07 OCT 2016



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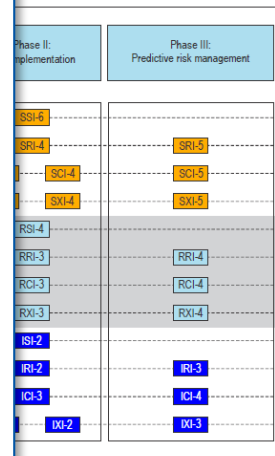
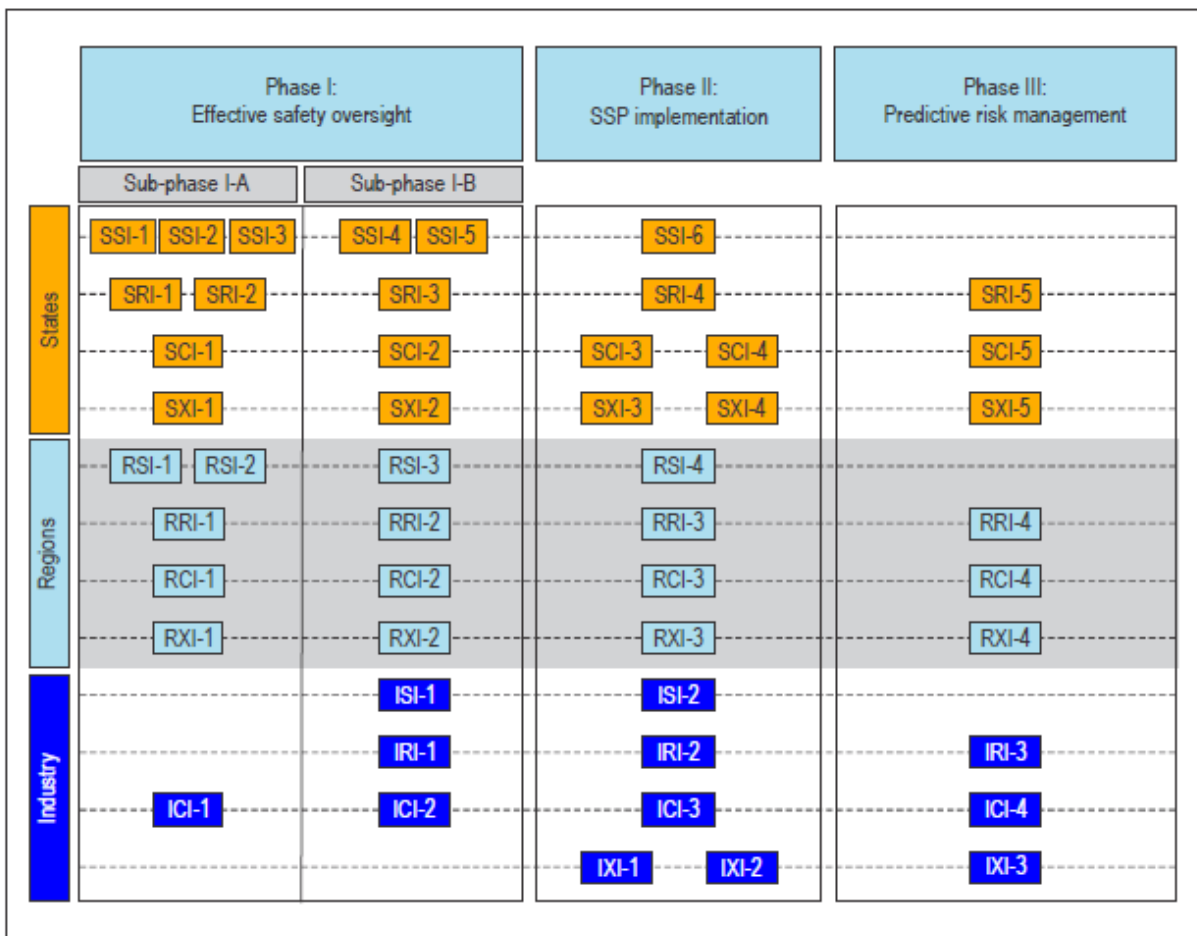
Global Aviation

2017-2019



Approved by and published under the authority of the

INTERNATIONAL



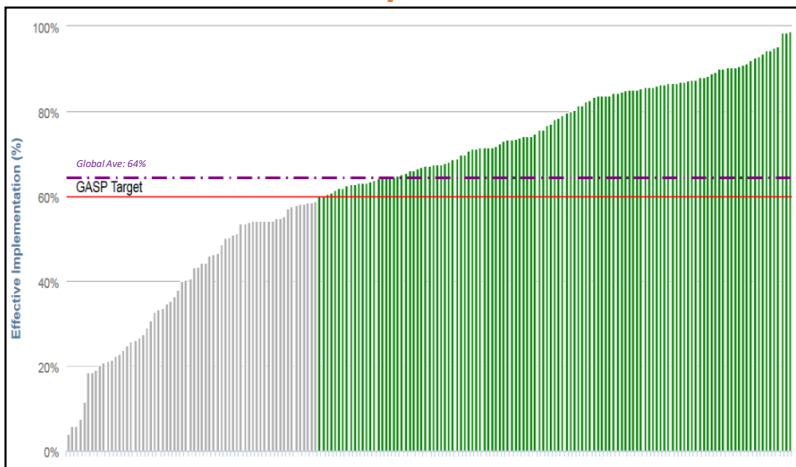
ion safety  
diagram

Figure A-2. Global aviation safety roadmap diagram



# PROPOSAL FOR NEXT GASP

## Effective Implementation

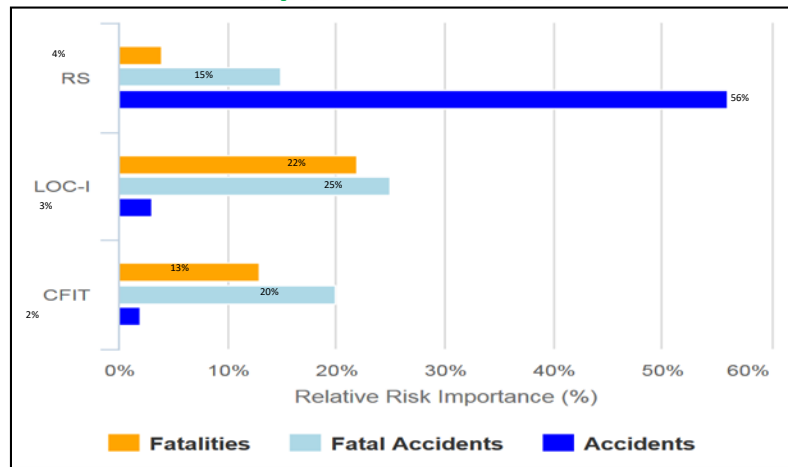


USOAP Audit Results



GANP  
ASBU  
BBBs

## Operational Risks



Scheduled Commercial flights on airplanes above 5.7t 2012-2016

TARGET 4.1	TARGET 2.1	TARGET 2.2	TARGET 3.1	TARGET 3.2	TARGET 6.1	TARGET 1.1	TARGET 5.1	TARGET 5.2	TARGET 4.2	TARGET 4.3
ICAO <b>Recognized</b> functions	Implement <b>Safety</b> <b>Oversight</b>	Positive <b>Safety</b> <b>Margin</b>	Sustainable <b>SSP</b>	Effective <b>SSP</b>	Appropriate <b>Infra-</b> <b>structure</b>	Reduced <b>Accident</b> <b>rate</b>	<b>INDUSTRY</b> assessment programmes	Harmonized KPIs in <b>SMS</b>	Safety risk information to <b>RASG</b>	<b>RASG</b> Risk mgmt. activities
2020	2022+	2022	2022	2025	2022	Yearly	2020	2022	2022	2022



# PROPOSAL FOR NEXT GASP

## Effective Implementation

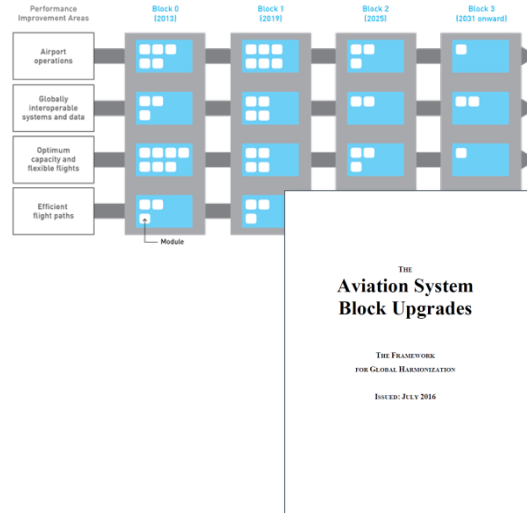
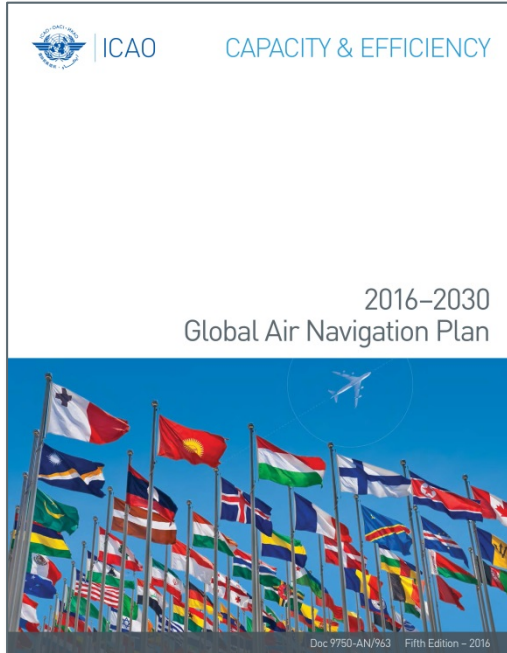
## BBBs

## Operational Risks

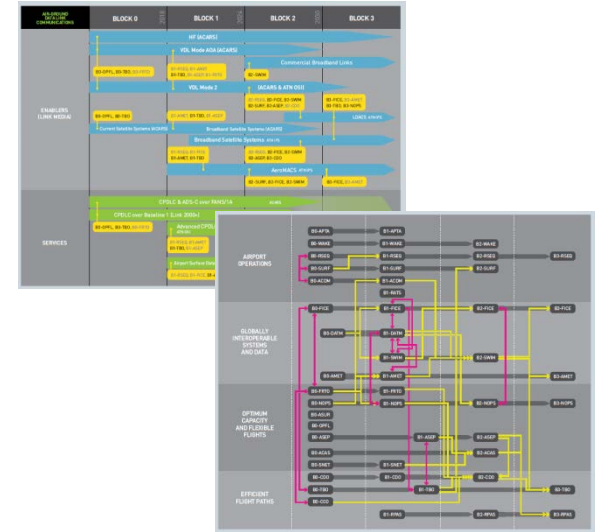
States that need support in areas with safety margins below zero, to use a RSOO mechanism or another recognized	All States to improve their score for the effective implementation (EI) of the critical elements (CEs) of the State's safety oversight system as follows:	All States to reach a positive safety margin, in all categories	All States to implement the foundation of a State Safety Programme (SSP)	All States to implement an Effective SSP, as appropriate to their aviation system complexity	All States to implement the air navigation and airport core infrastructure	Maintain a decreasing trend of global accident rate	Increase the number of service providers participating in the corresponding, ICAO-recognized industry	All service providers to use globally harmonized SPIs, as part of their safety management systems (SMS)	All States to contribute information on safety risks, including SSP safety performance indicators (SPIs), to their respective Regional	All States with a positive safety margin, and an Effective SSP, to actively engage in RASG's
<b>TARGET 4.1</b>	<b>TARGET 2.1</b>	<b>TARGET 2.2</b>	<b>TARGET 3.1</b>	<b>TARGET 3.2</b>	<b>TARGET 6.1</b>	<b>TARGET 1.1</b>	<b>TARGET 5.1</b>	<b>TARGET 5.2</b>	<b>TARGET 4.2</b>	<b>TARGET 4.3</b>
ICAO <b>Recognized</b> functions	Implement <b>Safety Oversight</b>	Positive <b>Safety Margin</b>	Sustainable <b>SSP</b>	Effective <b>SSP</b>	Appropriate <b>Infra-structure</b>	Reduced <b>Accident rate</b>	<b>INDUSTRY</b> assessment programmes	Harmonized KPIs in <b>SMS</b>	Safety risk information to <b>RASG</b>	<b>RASG</b> Risk mgmt. activities
2020	2022+	2022	2022	2025	2022	Yearly	2020	2022	2022	2022



# Contents of the 2016-2030 GANP



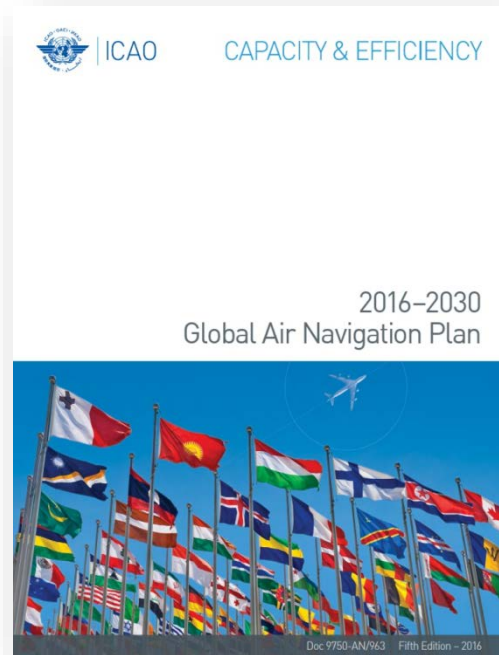
Aviation System Block Upgrades (ASBU) Methodology



Technology Roadmaps and Module Dependencies



# The Global Air Navigation Plan (GANP)



- Strategy to achieve a global interoperable air navigation system offering safe, secure and efficient air transport for people and goods worldwide, while limiting the impact of aviation on the environment.
- The GANP serves as a worldwide reference to transform the air navigation system in an evolutionary and inclusive manner so that no State or Stakeholder is left behind.





# A high-performing Air Navigation System

<b>Global interoperability</b>	Ensure global interoperability
<b>Access and equity</b>	Access and equity to all airspace users
<b>Capacity</b>	Capacity to accommodate forecast demand
<b>Efficiency</b>	Increase efficiency of air operations
<b>Flexibility and predictability</b>	Enable flexibility to meet arrival times
<b>Sustainability</b>	Secure air navigation system sustainability
<b>Resilience</b>	Resilience to cope with system disruptions

# Project Planning for improved Implementation of GANP and GASP

- Project oriented from start to finish
  - (from Need to implementation)
- More Involvement all from the beginning
- Multidisciplinary
- Implementation driven
  - Global and Regional views
  - Different Implementation packages





# Implementation and feedback

- Tailored implementation packages
- Regions'/State priority following KPI
- Implementation support
  - RO/HQ
- PIRGs/RASGs plan and follow-up
- Feedback from reports and dashboards

PIRGs and RASGs  
plan/follow up  
implementation

PIRGs and RASGs  
Report

Input from  
implementation  
Dashboards

ANC review and  
Council Decide



## What is GASOS – Global Aviation Safety Oversight System

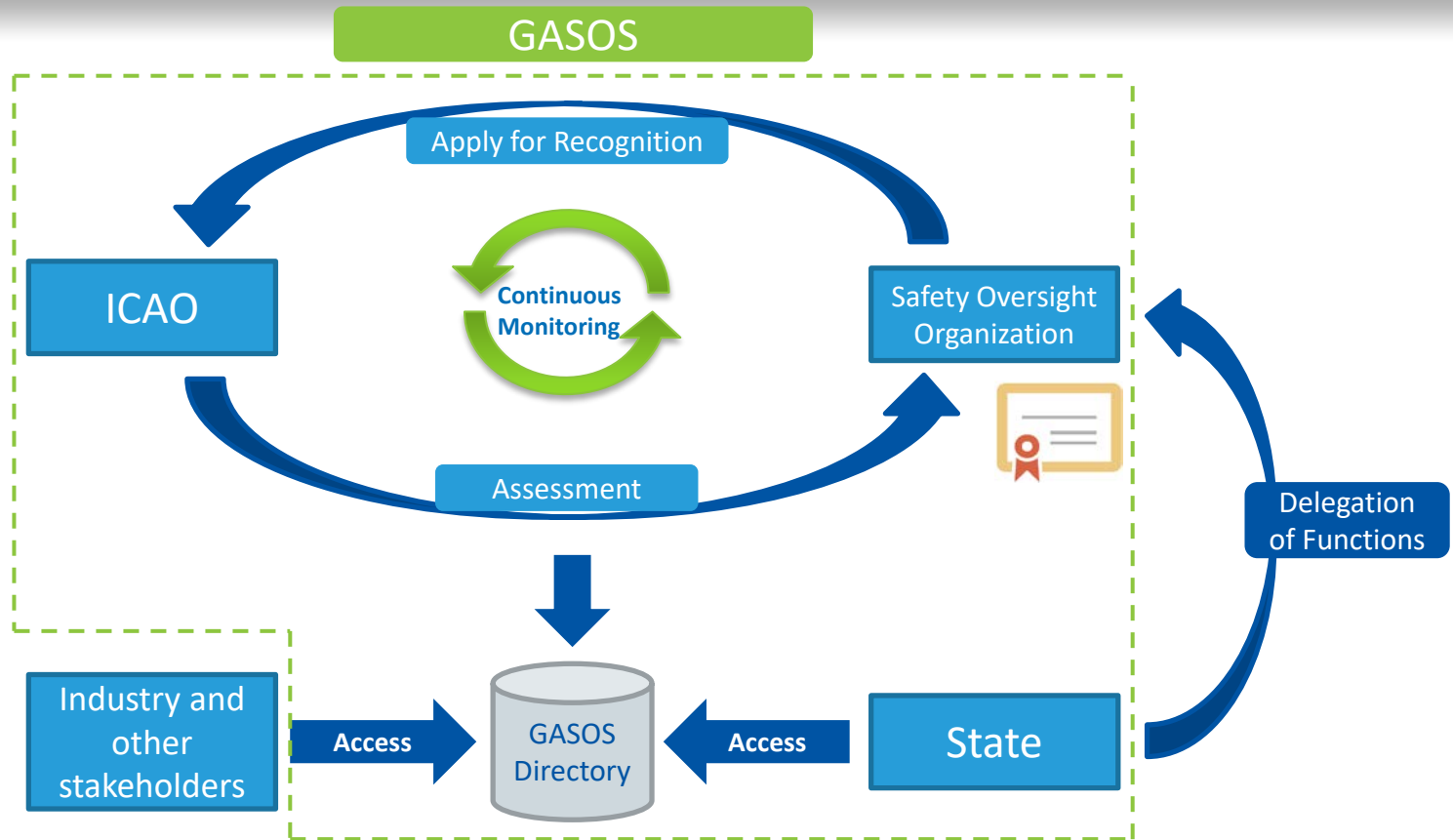
- GASOS is a system designed by ICAO to assess, recognize, and continuously monitor the competence of Safety Oversight Organizations (SOOs) to perform safety functions on behalf of States.
- GASOS will provide States with a global range of solutions for delegating safety functions or activities.
- The results will allow for more efficient and effective use of limited resources and greater harmonization worldwide.



# GASOS Objectives

1. Strengthen State safety oversight capabilities; and
2. Make SOOs more effective and efficient.







# GASOS Levels of Delegation

## Level 1 – Advice and Coordination

- Developing regulations, manuals, checklists and other guidance material;
- Coordination of a pool of inspectors or experts

## Level 2 – Operational Assistance

- Providing training to inspectors;
- Performing certification and surveillance tasks such as inspections, audits, or reviews

## Level 3 – Full Delegation

- Issue, amend, or revoke certificates, licenses, and approvals on behalf of the State



# Benefits

## States

- **Provides an alternative** to having all safety oversight functions in-house with the required staffing.
- **Flexibility** to choose and combine from different organizations for the various functions.
- **Access to services** beyond the conventional RSOOs, from outside of the State's sub-region, to more global best practices.
- Ability to maintain a more **cost-efficient and effective CAA**

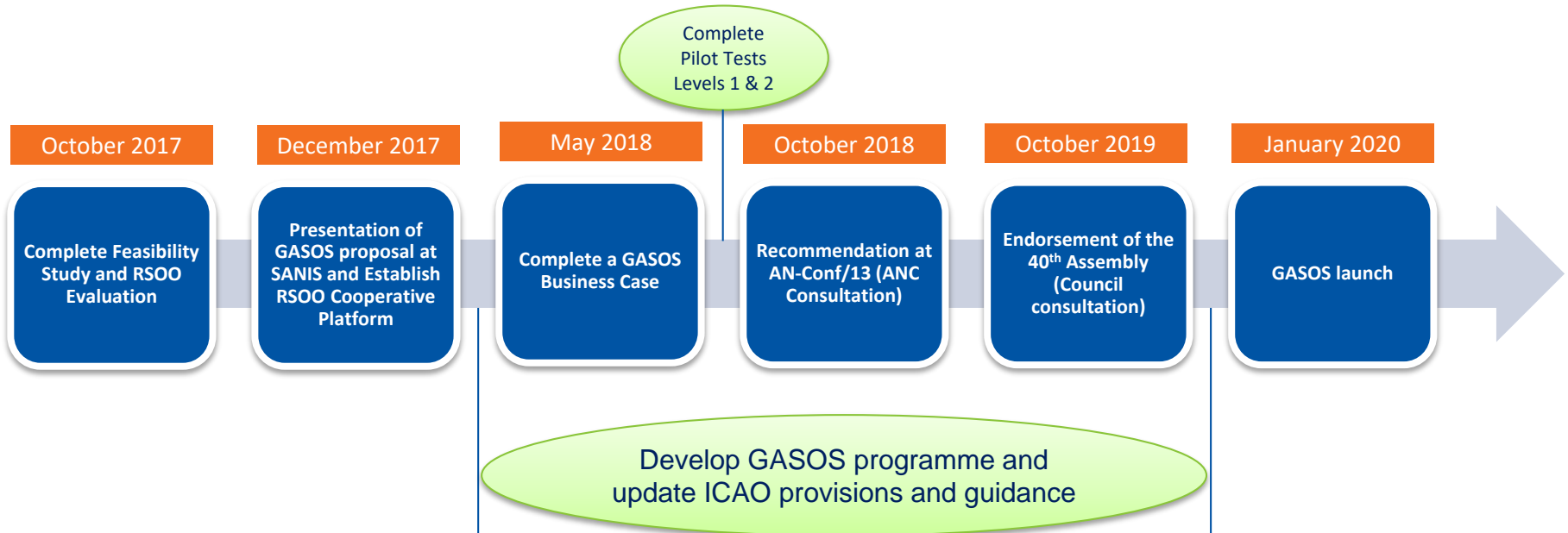
## RSOOs

- RSOOs would be **empowered and strengthened** to effectively carry out functions on behalf of States.
- RSOOs would be **aligned with the ICAO aviation safety strategies in the GASP.**
- **Efficiencies would be realized** with respect to current regulatory systems and safety oversight audit programmes.

## ICAO

- Apply USOAP CMA to RSOOs and safety oversight organizations for States, resulting in more **efficient and effective use of resources**
- Provide for a **higher and more consistent compliance with the ICAO SARPs**
- **Improve** national and regional safety **oversight capabilities - GASP**
- **Safety enhanced globally**

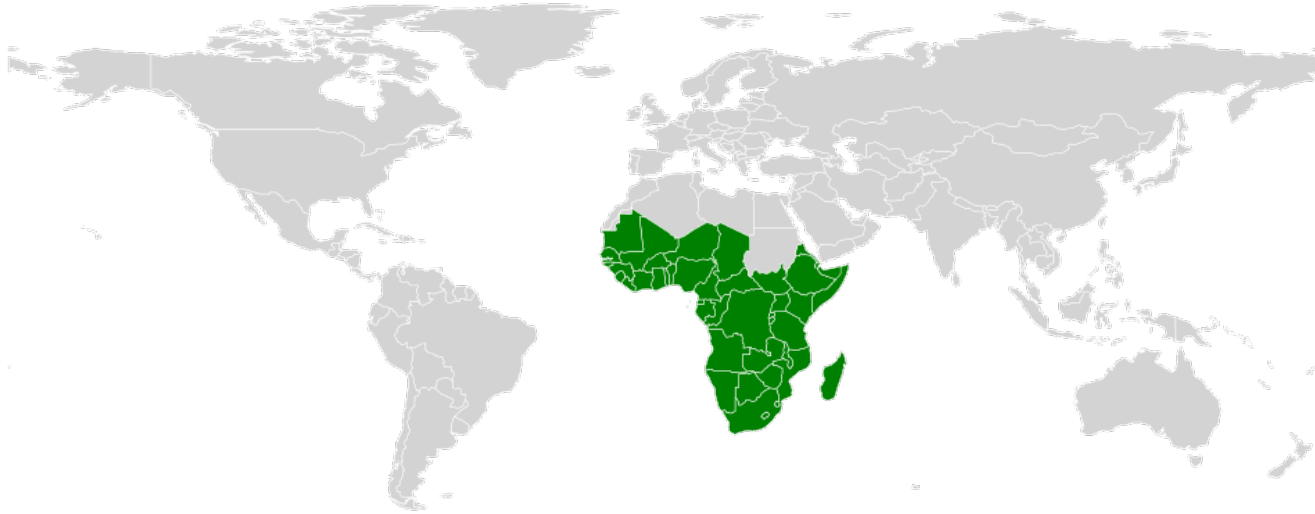
# Schedule and Milestones





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AFI Overview

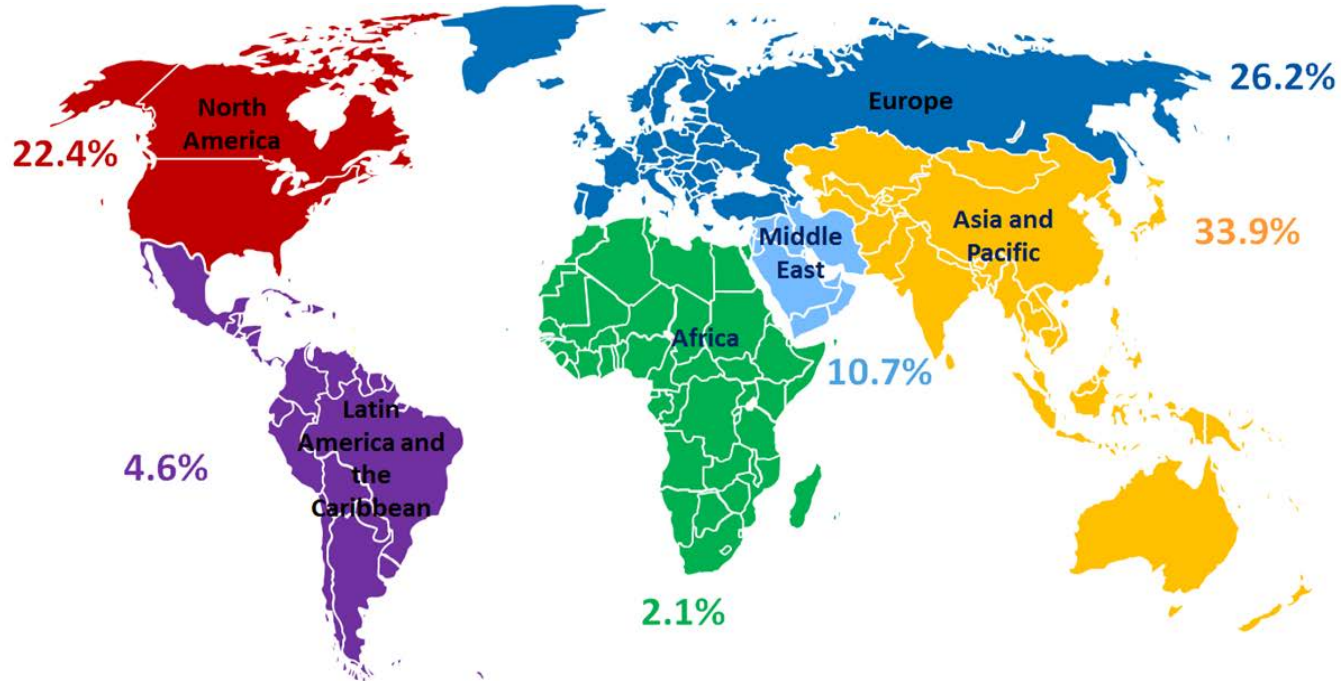
# REGIONAL STATUS



Source: **iSTARS 3.0** – MAP Builder (<https://portal.icao.int/space>)



# 2016 Share of Revenue Tonne-Kilometres



# Regional Accident Rates (2017)

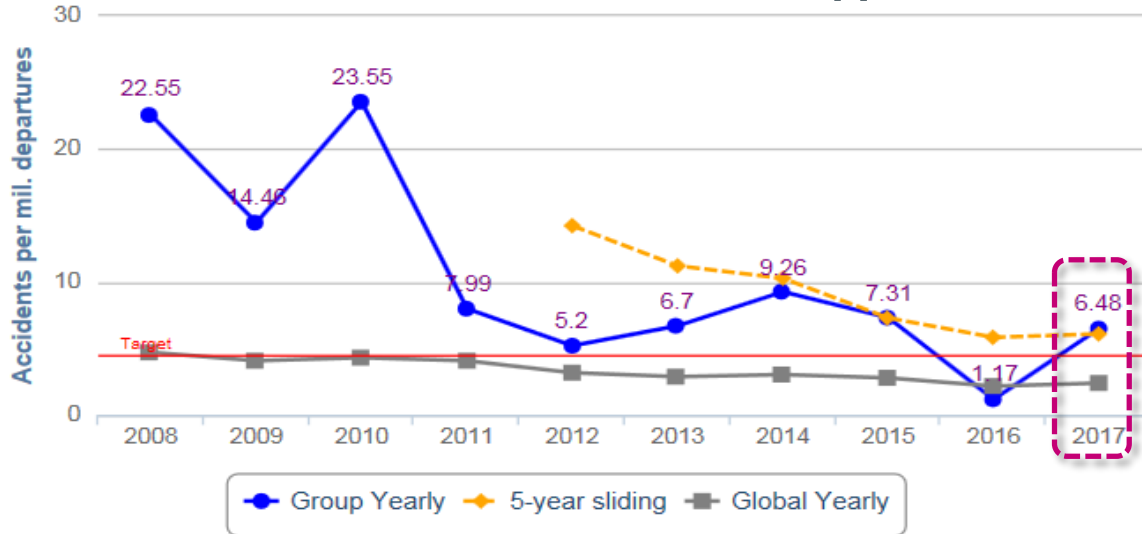
## *Scheduled Commercial above 5700kg*

RASG	Estimated Departures (millions)	Number of Accidents	Accident Rate (per million departures)	Fatal Accidents	Fatalities
AFI	0.9	6	6.48	1	0
APAC	11	20	1.83	1	2
EUR	9.1	11	1.21	3	47
MID	1.4	2	1.45	1	0
PA	13.2	47	3.55	1	1
WORLD	35.6	87	2.39	7	50

***Fatal Accidents in the AFI region: 0 (2015), 1 (2016)***

# Global and AFI Accident Rates

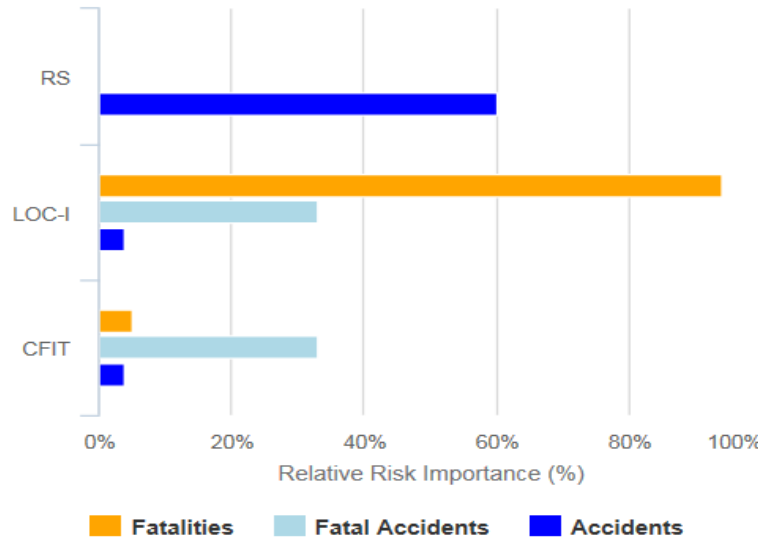
*Scheduled Commercial above 5700ka for 2008 - 2017*



AFI accident rate has been **higher** than the global, except for 2016.

# Risk Distribution for the Top 3 Safety Priorities

*Scheduled Commercial above 5700kg for 2013 - 2017*



## Top 3 Safety Priorities

- *Loss of Control in-Flight (LOC-I)*
- *Controlled Flight into Terrain (CFIT)*
- *Runway Safety (RS)*



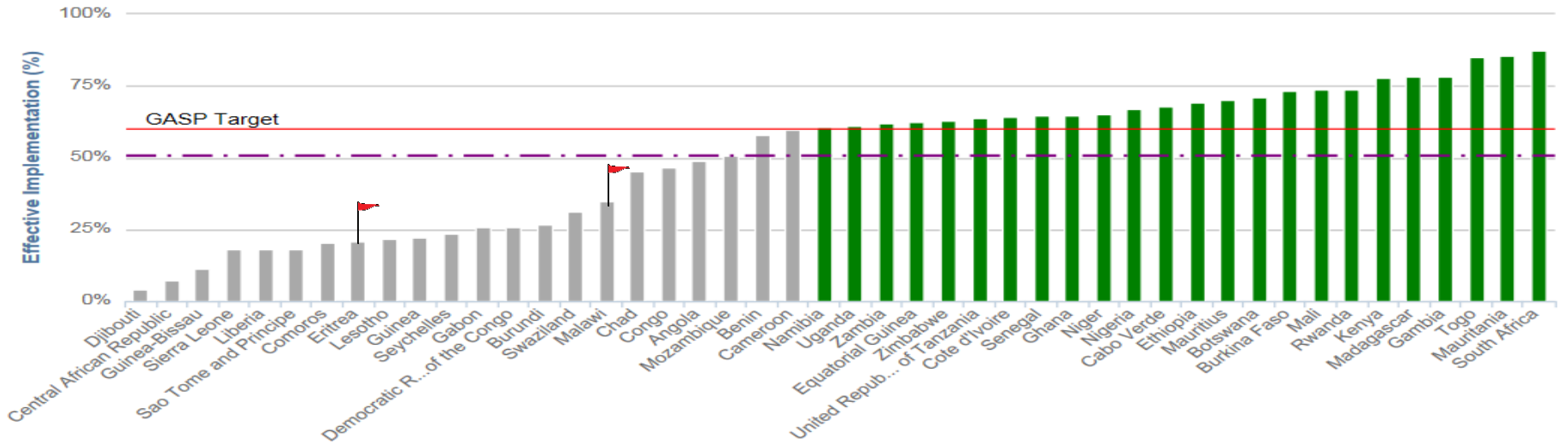
Source: *iSTARS 3.0 – ADREP et al.* (<https://portal.icao.int/space>)

# ICAO USOAP CMA results for AFI

## Effective implementation of safety oversight systems by State

Global Average: 66.5%

Regional Average: 50.6%



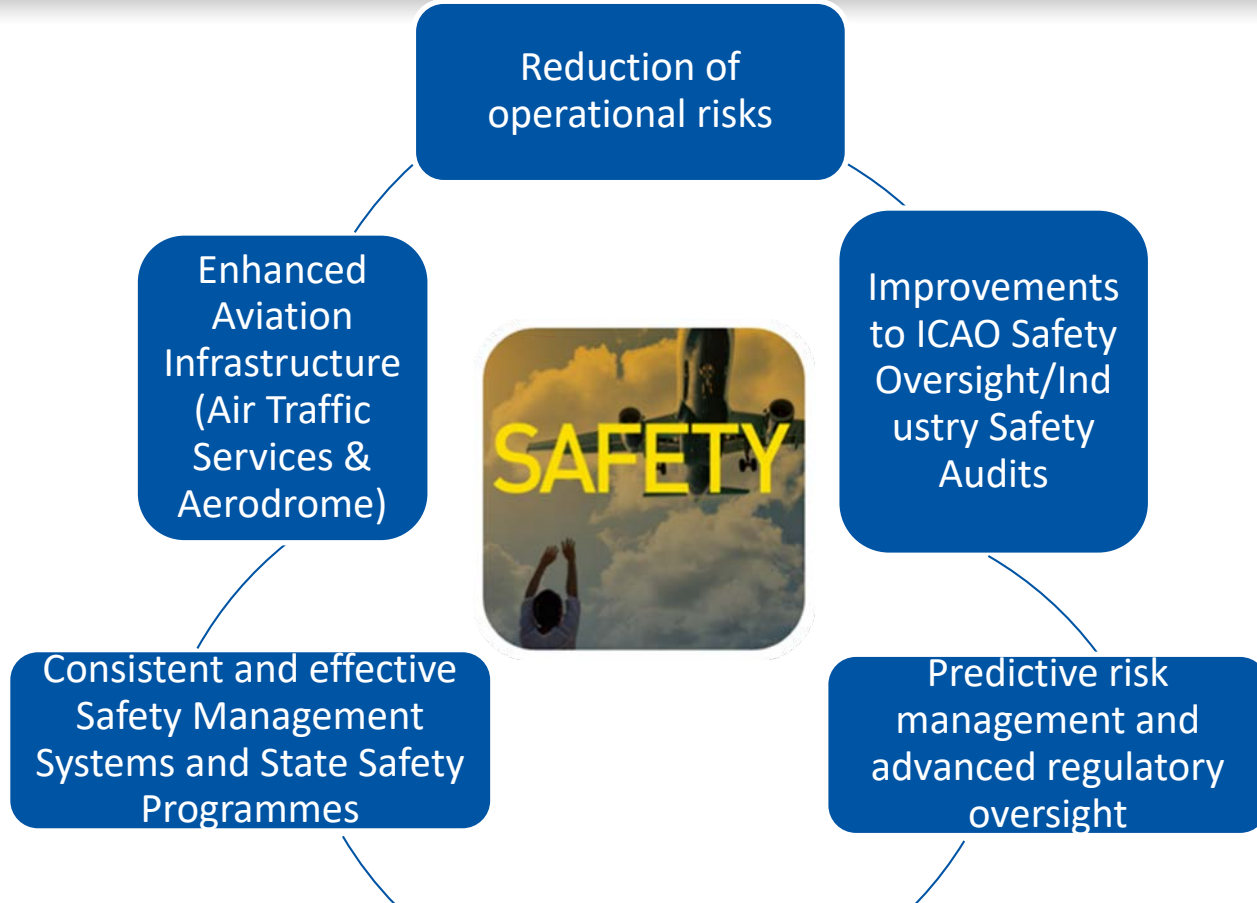
Source: *iSTARS 3.0 – Regional Safety Briefing* (<https://portal.icao.int/space>)



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# Aviation Safety Priorities





THANK YOU!