



ICAO

SAFETY

Safety Intelligence

Captain JOHN ILLSON

Chief, Integrated Safety Management - Air Navigation Bureau

SSP Coordination Meeting – Lima, Peru

23 April 2014

***Traditional* Safety Information**

- State of Global Aviation
- Annual Safety Report

***Next Generation* Safety Information**

- Safety Performance Indicators
- Safety Information Sharing and Analysis

State of Global Aviation SAFETY



NUMBER OF FATALITIES ARE *DECREASING*

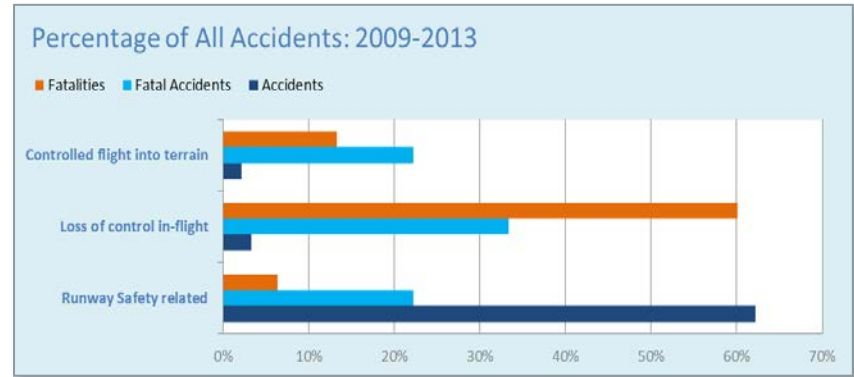
Accident Statistics and Accident Rates: 2013

RASG Region	Estimated Departures (in millions)	Accidents		Fatal Accidents
		Number	Rate (per million departures)	
AFI	0.7	9	12.9	1
APAC	8.6	19	2.2	1
EUR	7.9	21	2.7	2
MID	1.1	2	1.8	0
PA	13.8	39	2.8	5
World	32.1	90	2.8	9

REGIONAL ACCIDENT RATES REMAIN *LOW*



GLOBAL ACCIDENT RATE CONTINUES TO *DECLINE*



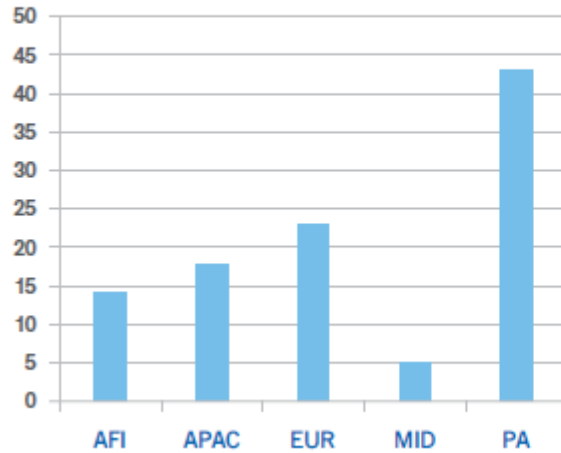
FATALITIES RELATED TO LOSS OF CONTROL-INFLIGHT IS *INCREASING*



State of Global Aviation SAFETY

Regional Performance

Number of Accidents



State of Global Aviation SAFETY

Focus on small aircraft operations

ICAO Region	Number of accidents	Fatal accidents	Fatalities	% accidents	% fatal accidents	% fatalities
APAC	4	1	2	33%	17%	9%
NACC	8	5	20	67%	83%	91%
WORLD	12	6	22			



State of Global Aviation SAFETY

Measuring Implementation

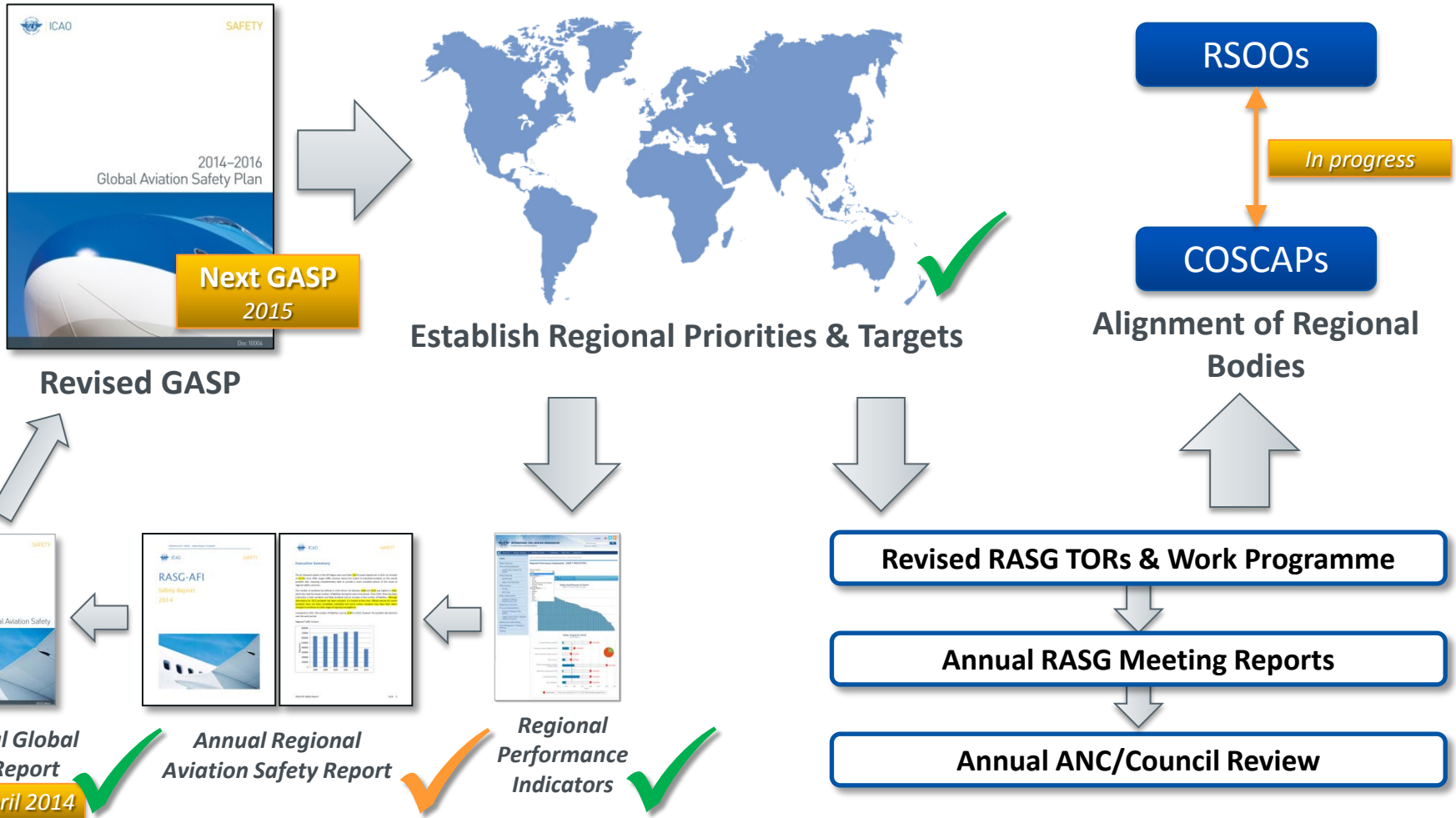
Average Effective Implementation in Percentage of Safety Oversight Systems by Area



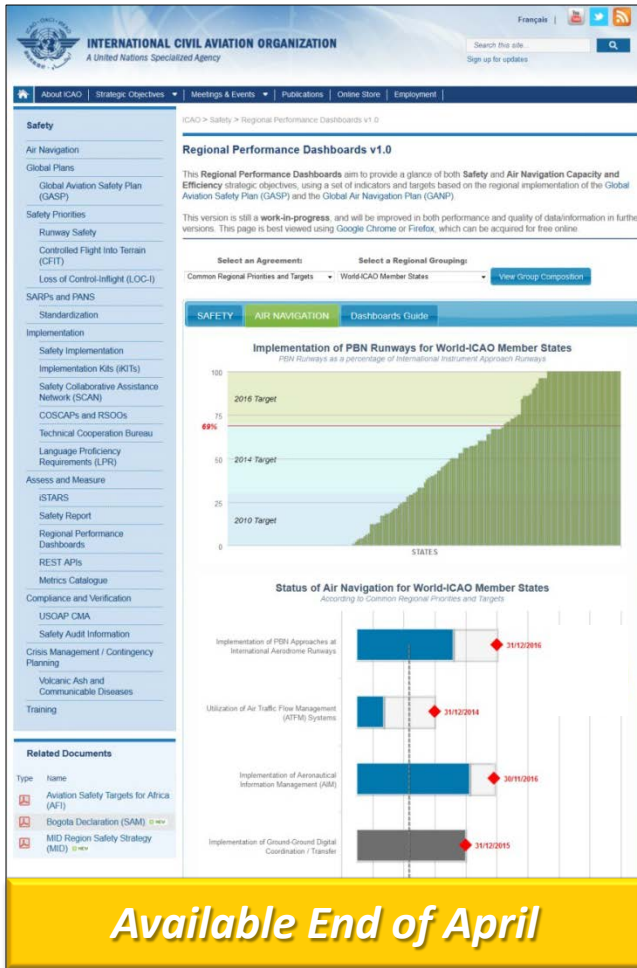
Global and Regional Nested Reporting



Regional Implementation – *Safety*



Regional Performance Indicators



Regional Performance Dashboards v1.0

This **Regional Performance Dashboards** aim to provide a glance of both **Safety** and **Air Navigation Capacity and Efficiency** strategic objectives, using a set of indicators and targets based on the regional implementation of the **Global Aviation Safety Plan (GASP)** and the **Global Air Navigation Plan (GANP)**.

This version is still a **work-in-progress**, and will be improved in both performance and quality of data/information in further versions. This page is best viewed using Google Chrome or Firefox, which can be acquired for free online.

Implementation of PBN Runways for World-ICAO Member States

PBN Runways as a percentage of International Instrument Approach Runways

Year	Target	Current Status
2016	100%	69%
2014	50%	
2010	0%	

Status of Air Navigation for World-ICAO Member States

According to Common Regional Priorities and Targets

Indicator	Target Date
Implementation of PBN Approaches at International Aerodrome Runways	31/12/2016
Utilization of Air Traffic Flow Management (ATFM) Systems	31/12/2014
Implementation of Aeronautical Information Management (AIM)	30/11/2016
Implementation of Ground-Ground Digital Coordination / Transfer	31/12/2015

Available End of April

- **Measuring against the Global Plans through regional performance indicators**

- **Launch version 1.0 now live:**

www.icao.int/safety/pages/regional-targets.aspx

- Shows the progress of against **regionally-agreed indicators and targets**
- Shows the ICAO USOAP Audit results of States by **regional grouping** - by UN Region, ICAO accreditation, PIRG, RASG, COSCAP, RSOO, etc.
- Ability to **drill-down on each indicator** to see **specific details** on metric and data used

Regional Performance Indicators

Dynamic Query Selection

Able to filter results by:

- **Any region**
(UN, ICAO Accreditation, PIRG, RASG, COSCAP, RSOO, etc.)
- **Any agreement**
(with defined indicators and targets)

Implementation Highlight

For Safety:

Effective Implementation
USOAP Targets

For Air Navigation:

PBN Implementation
ASBU Environmental Benefits

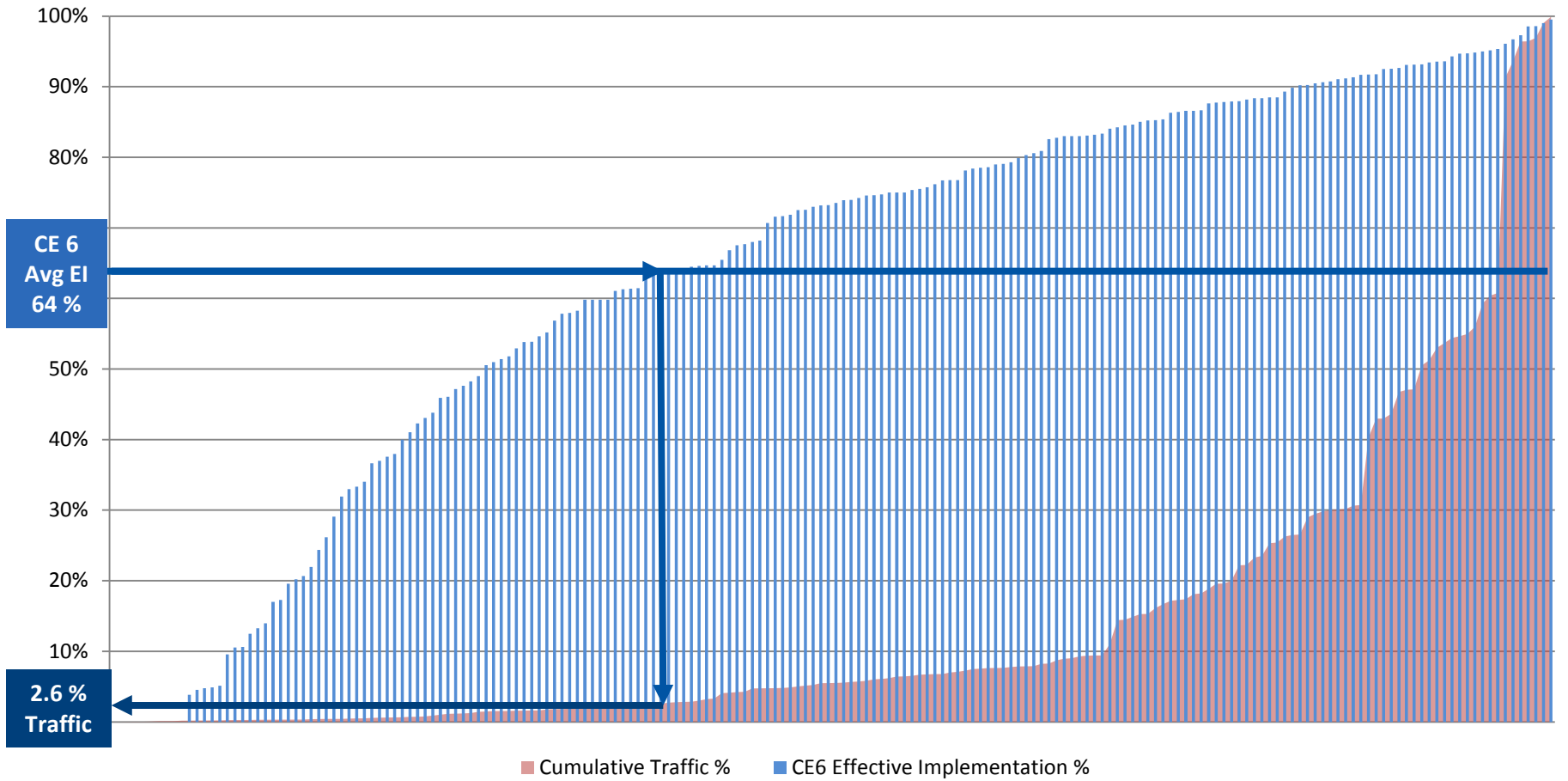


Regional Performance by
Strategic Objective

Global and Region-specific
Metrics and Targets

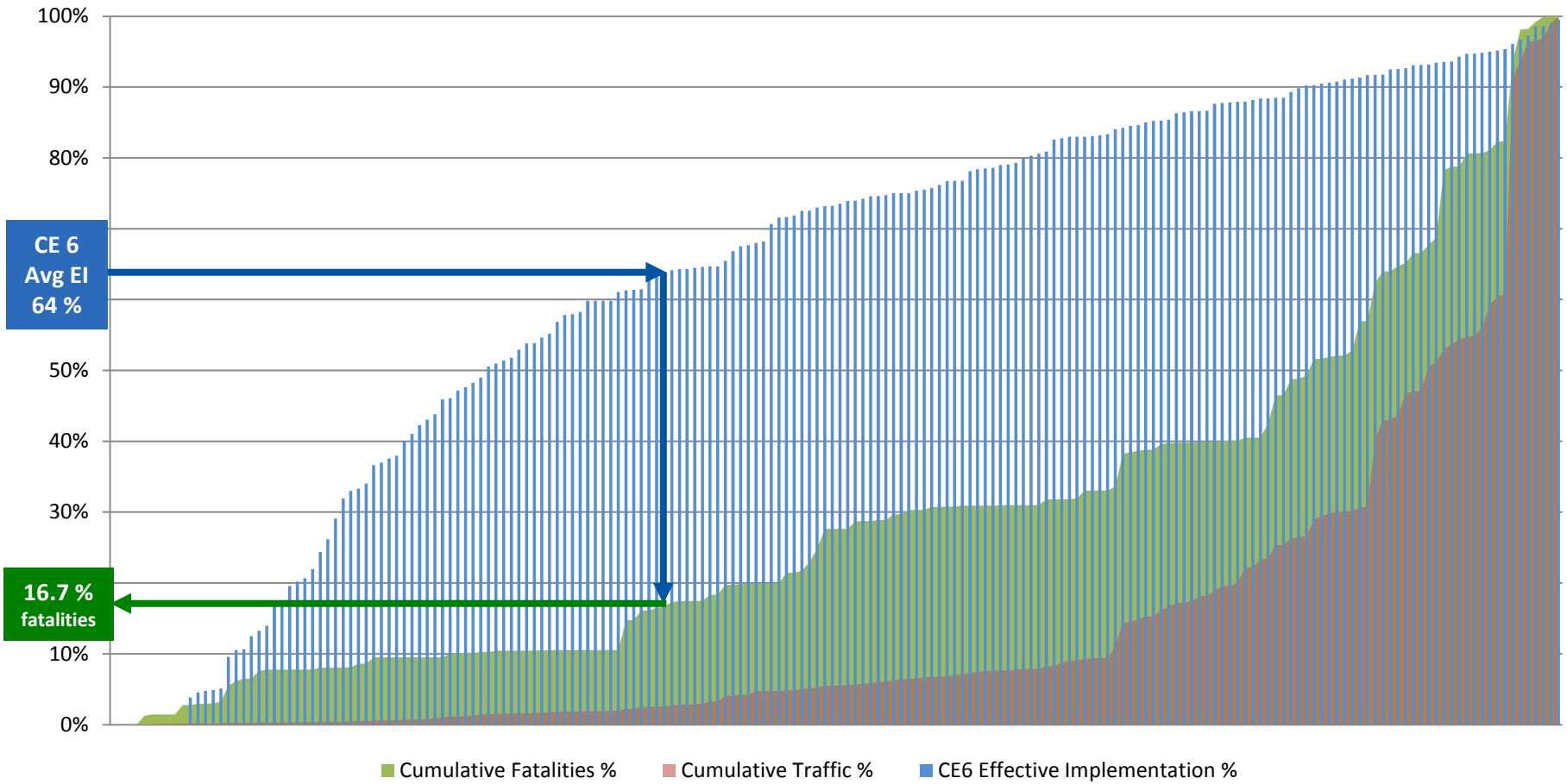


Comparing Compliance & Traffic





Comparing Compliance with Risk





ICAO

SAFETY

Safety Analysis Vision



Safety Management Situation Report

JOHN ILLSON
Chief, Integrated Safety Management

HIGH LEVEL SAFETY CONFERENCE
Montréal
29 March 2010



Safety Management Information Sources

- Recorded
 - Flight Data Analysis
 - Surveillance: radar, ADS-B
- Reported
 - Mandatory reporting systems
 - Voluntary reporting systems
 - Service provider hazard reporting systems



Information Protection Processes

- “At Source” Protection Considerations
 - De-identification: crew member names, flight number, etc.
 - Length of time data is retained
 - Information security procedures
- Ensuring appropriate use
 - Determination of intentional vs. unintentional acts
 - Administrative action vs. punishment
 - Impacts the quality of voluntary and mandatory reports
 - Feedback is essential

Information Sharing

- What are the benefits?
- What are the risks?
- What are the alternatives?
- What is ICAO's role?

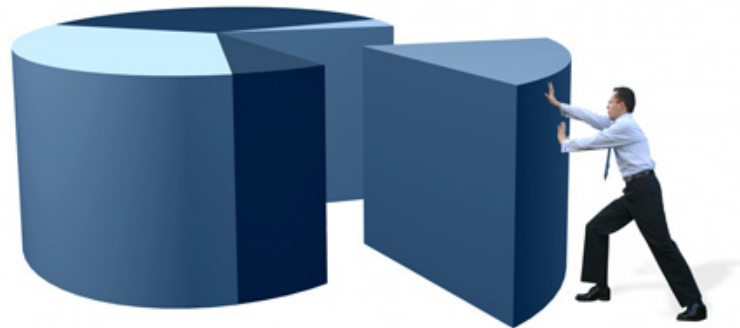
Data Aggregation

- The combination of multiple like data sources
 - Enhances data quality & increases sample sizes to identify emerging safety issues
 - Enables comparative benchmarking analyses to determine best practices



Data Integration

- Integration – The combination of multiple disparate types of data
 - Provides comprehensive perspective to identify systemic hazards
 - Essential to mitigate complex safety issues





The Chicago Convention

Article 55

Permissive functions of Council

The Council may:

- c) **Conduct research** into all aspects of air transport and air navigation which are of international importance...and **facilitate the exchange of information between contracting States on air transport and air navigation matters;**
- d) **Study any matters affecting the organization and operation of international air transport...**
- e) **Investigate, at the request of any contracting State, any situation which may appear to present avoidable obstacles to the development of international air navigation...**

New Projects: Safety Information Sharing and Analysis

- Currently, numerous organizations, including State and industry entities, are developing information sharing initiatives
- ICAO's Potential Role:
 - Facilitate development of common criteria and indicators applied to the analysis processes
 - Act as an advocate to facilitate the propagation of information sharing initiatives
 - Provide a framework for the analysis of known safety issues, particularly those involving interactions between multiple States or across multiple areas of aviation activity



Safety Information Sharing and Analysis

- Overview

- **Proactive** identification of systemic safety performance issues require analysis of **aggregated operational information** from **multiple aviation domains**.
- To demonstrate feasibility and benefits of **regional and global collaborative safety analysis**, building on a number of existing initiatives (e.g. ASIAS and CAST)

- Objectives:

- **Build trust** among participants
- Provide a **framework** for the establishment of regional information sharing initiatives, coordinated by the Regional Aviation Safety Groups (RASGs)



Safety Information Sharing and Analysis

- Pilot project 1

- MoU with IATA and FSF as a first step **to explore benefits and feasibility** of regional information sharing initiatives
- Collaborative analysis of **airline and general aviation operational information**
- Demonstrate feasibility through analysis of aggregated data collected on **loss-of-separation events** (via TCAS traffic and resolution advisories)
- Illustrate benefits of aggregated data analysis in identifying hazardous trends

- Pilot project 2

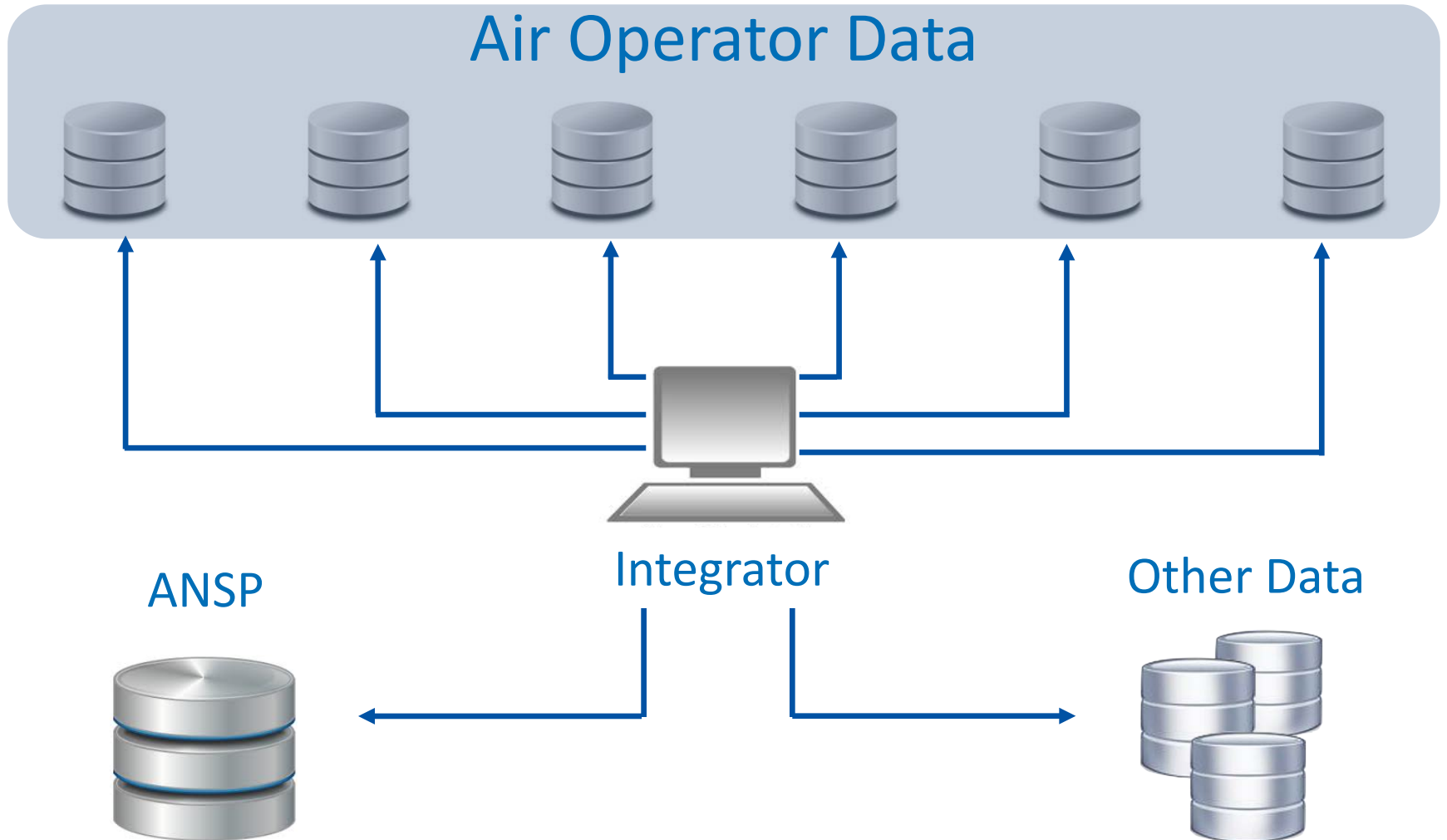
- Collaborative analysis of **ANSP radar data and occurrence reporting systems**
- Demonstrate benefits associated with analysis of information shared among **Member States**
- Analyze information and determine **operational risks in specific operating environments**





Distributed Networks

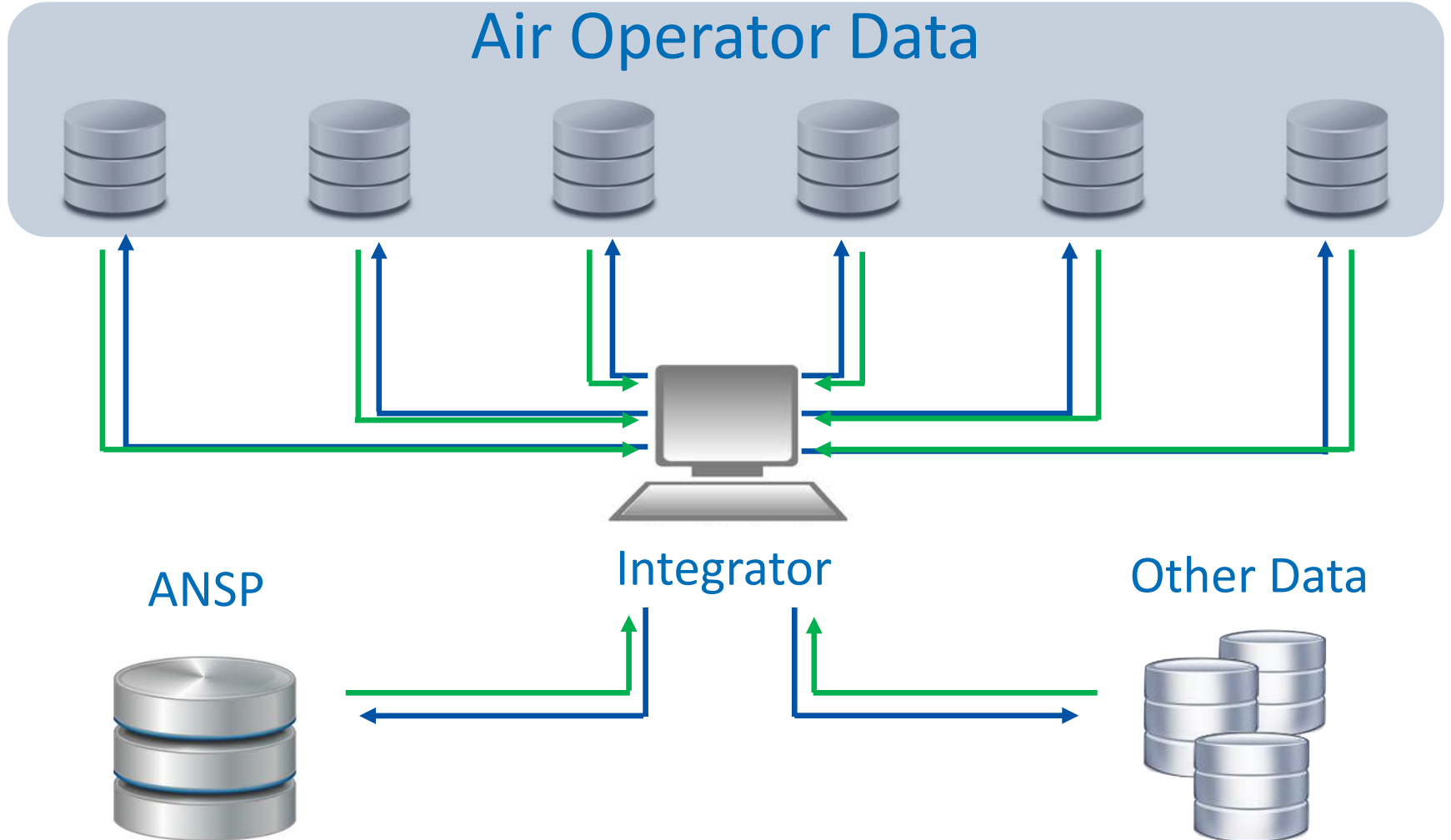
Air Operator Data





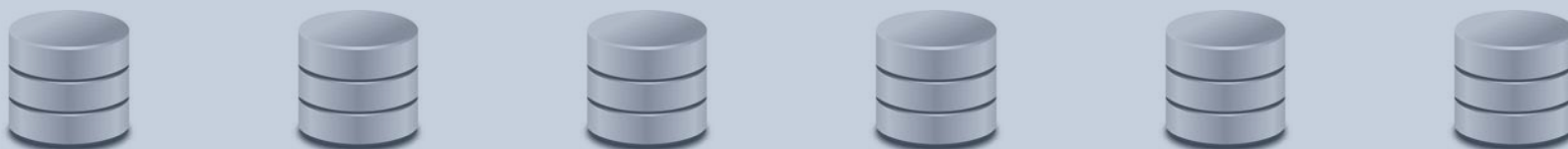
Distributed Networks

Air Operator Data



Distributed Networks

Air Operator Data



SAFETY INTELLIGENCE



ANSP



Other Data





Distributed Network - Limitations

Air Operator Data



ANSP



Other Data



Query: B-777 landings





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North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

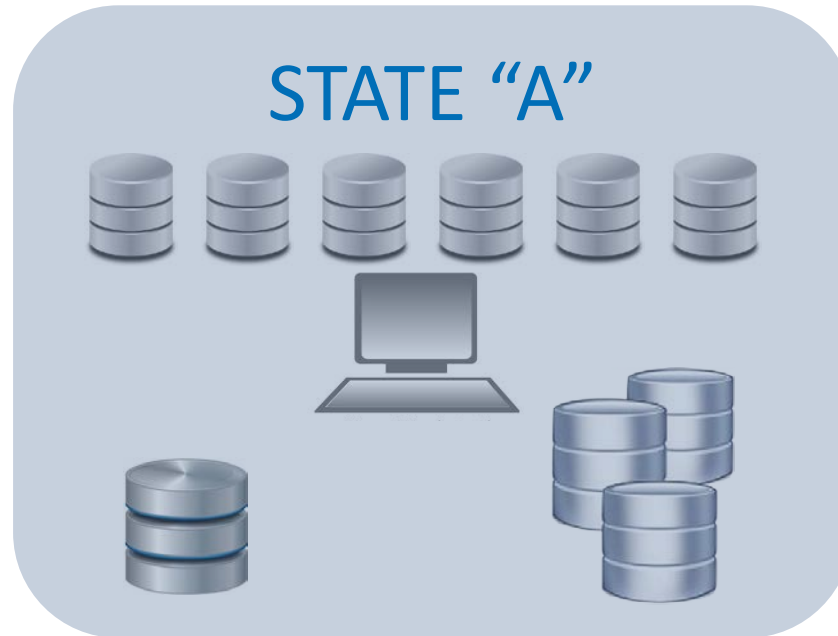
Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU

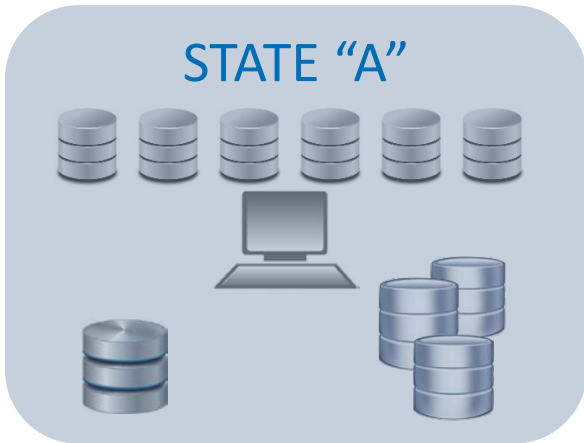
State level “ASIAS” model



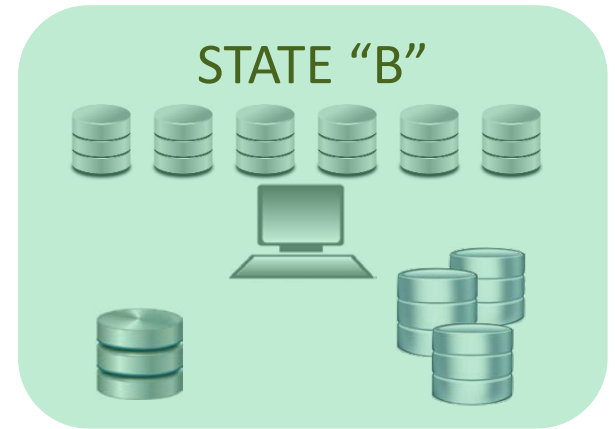


International "ASIAS" Network

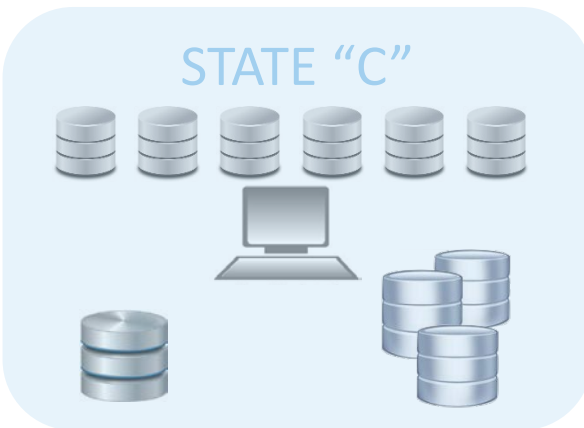
STATE "A"



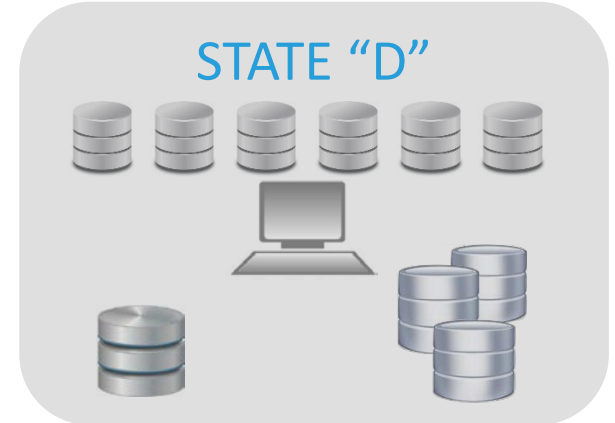
STATE "B"



STATE "C"



STATE "D"





International "ASIAS" Network

