SWIM AND AIM DATABASES IMPLEMENTATION

ICAO NACC OFFICE
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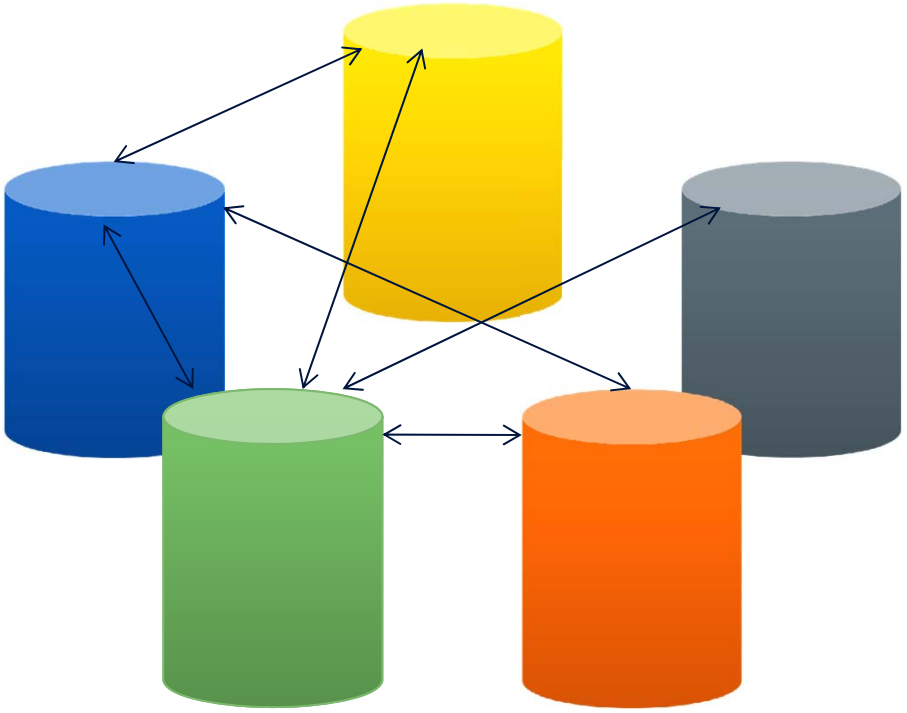
AIM RO

Overview

- Problem identification
- possible Solution
- Topology analysis
- Main Concept
- Conclusions

The problem identification

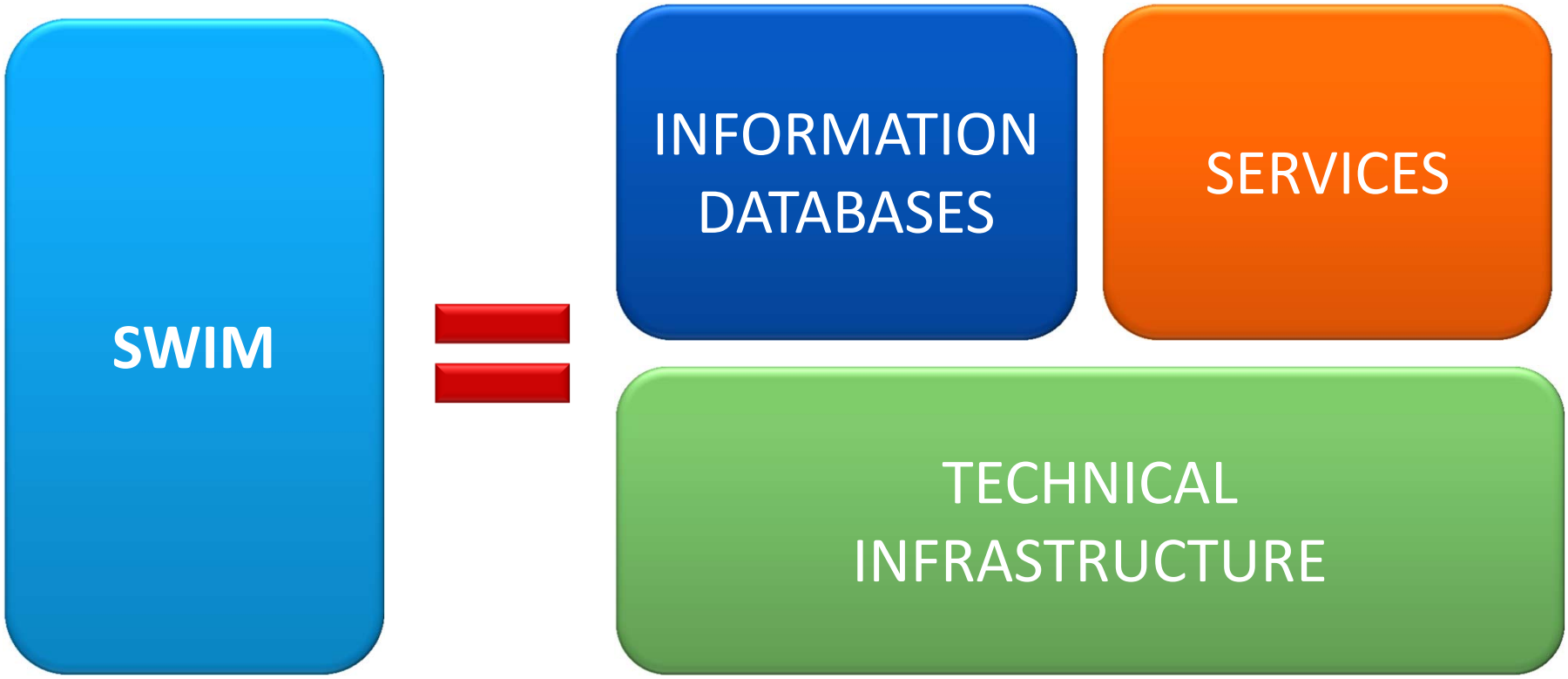
What are the PROBLEMS in current Air Navigation Information and Data Systems ?



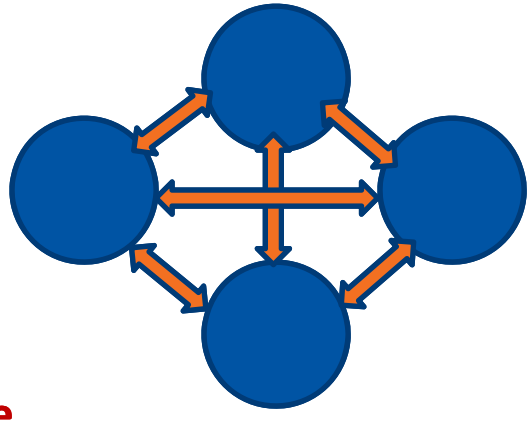
Some are:

- Duplicity
- Data Source Not enough validated
- Tracking problems
- Inconsistently updated
- Lack of integrity

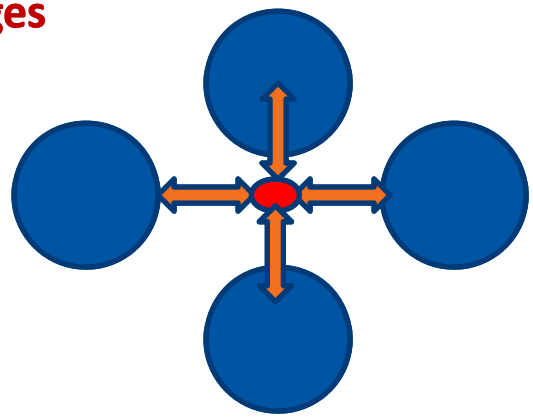
Definition


SWIM
=
INFORMATION DATABASES
SERVICES
TECHNICAL INFRASTRUCTURE

System Wide Information Management SWIM



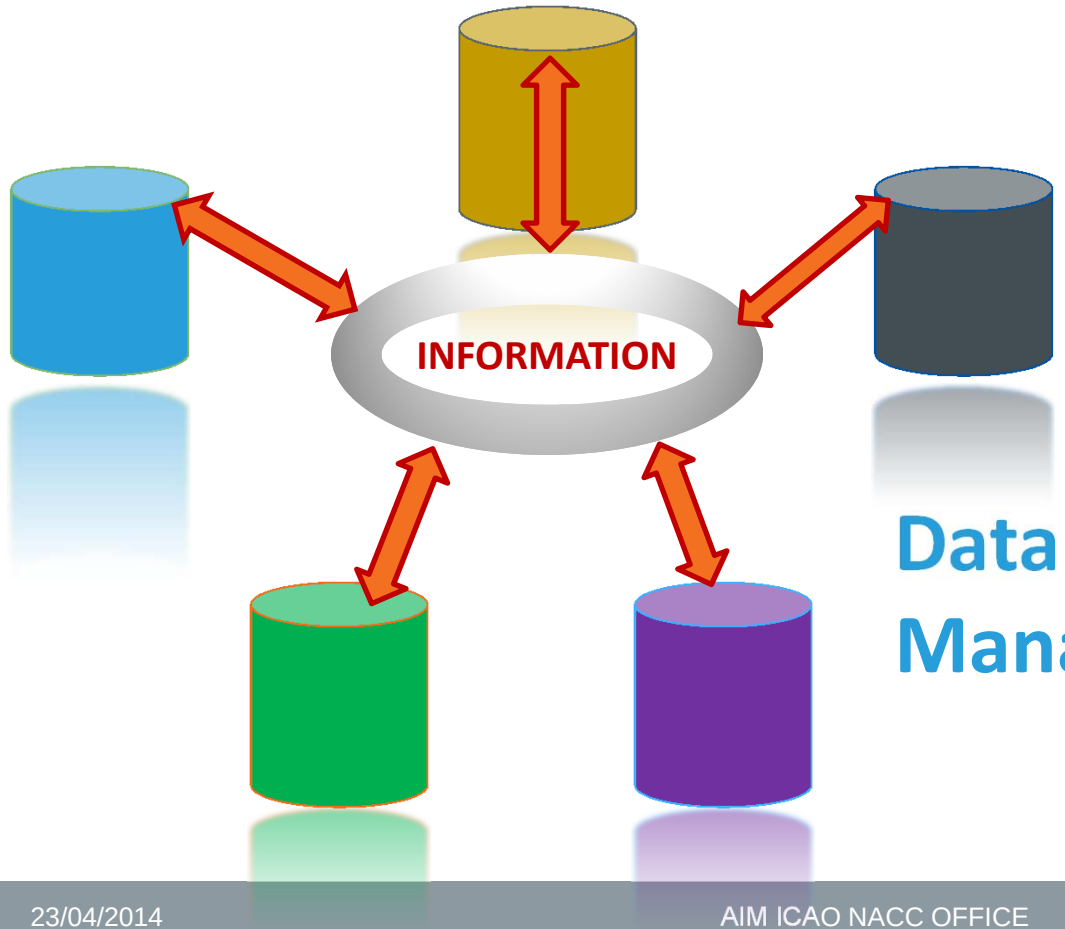
Message Exchanges



Now:
- Message exchange tailored locally
- Relevant information flow between 2 ASPs is not visible to interested 3rd
- Does not facilitate collaboration
- Change affects many interfaces

Future:
- Message exchanges propagate system-wide
- Collaboration-friendly
- Consistent information visible to all interested and authorized parties
- Change affects fewer interfaces

The possible solution

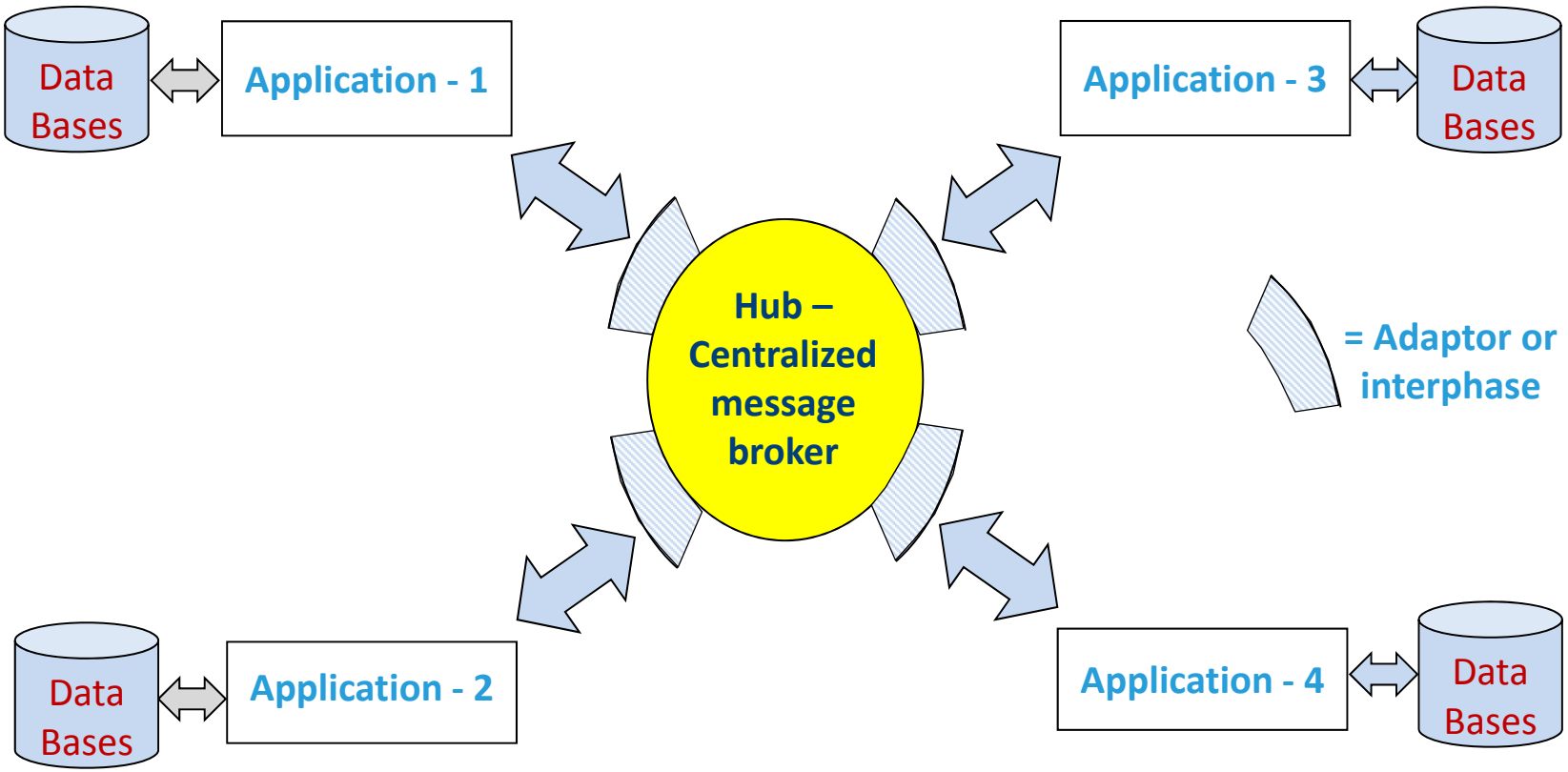


SWIM SERVICES

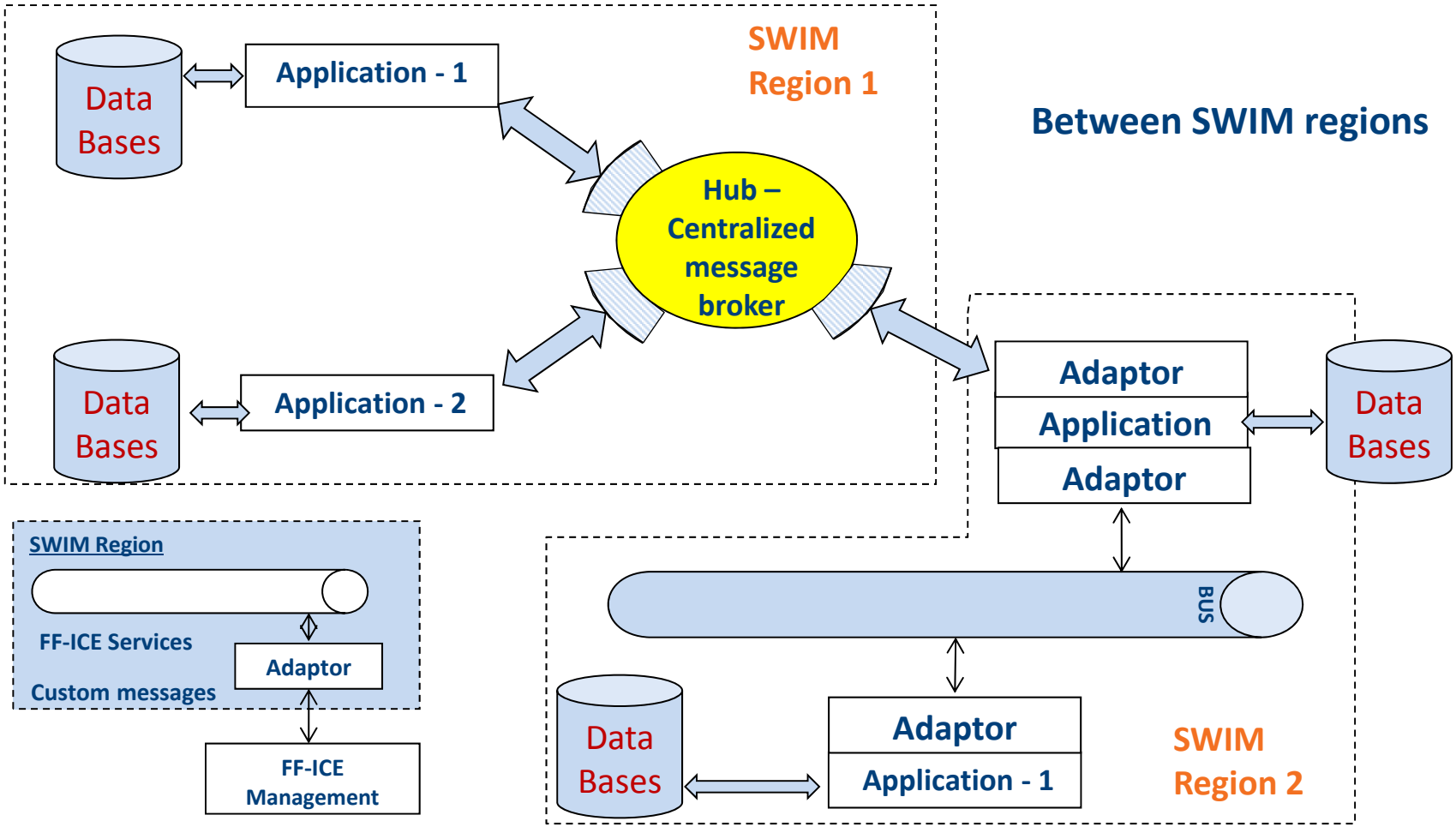
- Manage SWIM Information
- Access SWIM Information
- Publish SWIM Information
- Update SWIM Information
- …

Databases Management

SWIM
Basic Topology



SWIM
Basic Topology (Cont…)



SWIM PROGRAMS

SESAR

NextGen

CARATS
Collaborative Actions for Renovation of Air Traffic Systems

- **Also exist in:**
  - **Australia**
  - **Republic of Korea…**

SWIM INFORMATION INITIATIVES DOMAINS AND DATABASES

Aeronautical Information	Flight Information	Meteorology Information
• **AIXM**	• **FIXM**	• **WXXM**
Aerodrome Information	**Surveillance Information**	**ATM Information**
• **AMXM**	• **…**	• **…**

The need for sharing ATM information

SWIM Scope

Common methodology

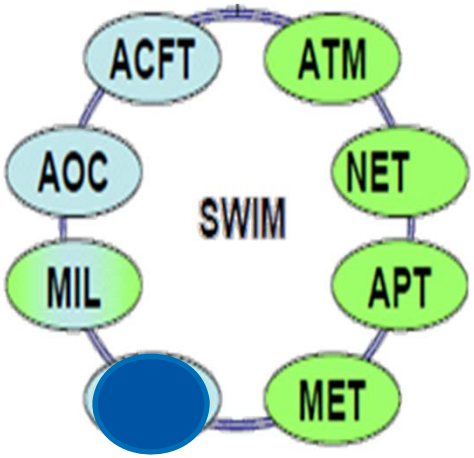
(SWIM Enabled) Applications

Information
Governance R&R, Copyright, IPR, Charging, Liability
Data / Service models

Infrastructure
Messaging, Security, Recording, Supervision, Availability, ..
Maximum use of COTS

CNS Infrastructure
IP based network (PENS, internet)

Technology & Systems



Sharing Data and Information is a Key enabler for:

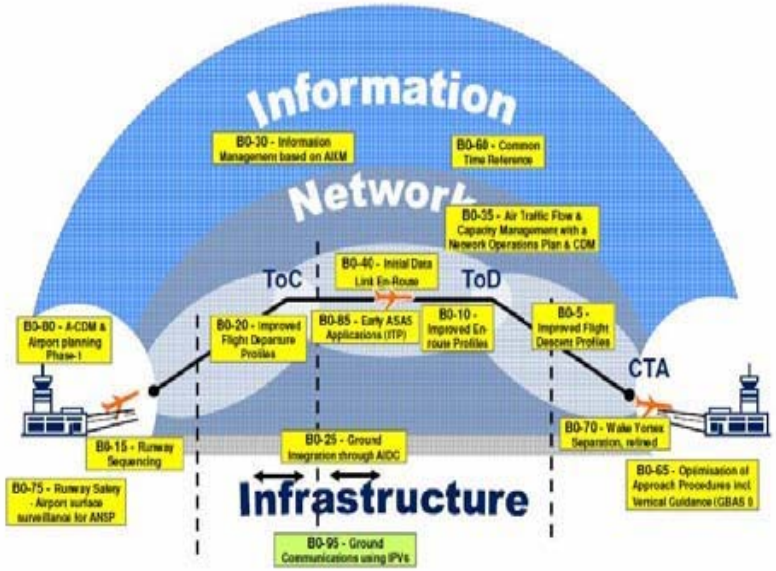
- **Planning**
- **Executing**
- **Analysis**

SWIM Enablers and Benefits

- **SWIM will enable technical improvements. These technical improvements will in their turn enable operational improvements like better situational awareness.**

- **The operational improvements will contribute to the ATM Key Performance Areas (KPA)**

  - **SWIM enables better financial performance**
  - **Technologies with open formats and standardized interfaces**
  - **The service standardization will facilitate the use of information in other contexts**



The increased interoperability of data formats and interfaces will make possible a system architecture, in which ATM systems from different manufacturers can be seamlessly connected

Global SWIM Concept

- Need for Global SWIM Concept
- Interregional Interoperability, aircraft integration, efficient / timely deployment
- Agree on further work

International Civil Aviation Organization

AN-Conf/12-WP/xx
../11/12

WORKING PAPER

TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

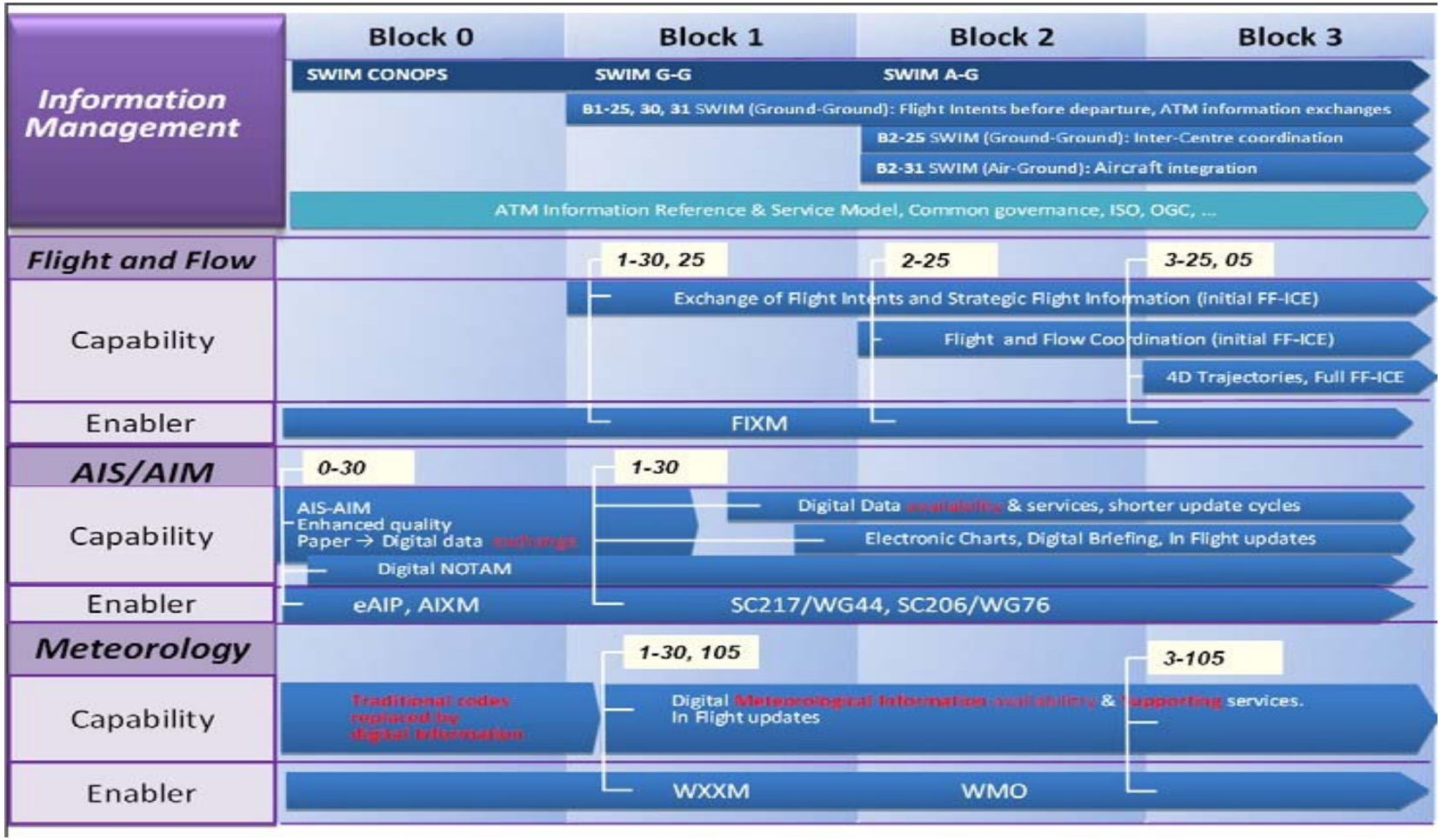
Agenda Item 3.1: Performance Improvement Through the Application of System-Wide Information Management

SWIM Global Concept

SUMMARY

Considering the importance of information management in the services to be delivered to airspace users, this paper introduces notions and basic principles that will serve as the basis for the development of a Global Concept of System Wide Information Management (SWIM).
Action by the AN-Conf/12 is in paragraph 6.

ICAO - Information management Roadmap a first time ever



Conclusion

- SWIM is now becoming a reality
- Information Management, Data/Information models, Registry, …
  - New concepts for ATM
  - Very natural in an Enterprise Architecture (EA) / Service Orientated
- Architecture (SOA) approach
- In terms of SWIM implementation
  - AIXM/WXXM are safe investments (but only half the job)
  - Be SOA - Publish / Consume services
- Lets go for a truly global ATM …Interoperable

Thank You

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www.icao.int/nacc