



ICAO

UNITING AVIATION

SWIM Manual Overview

Saulo Da Silva

Chief, Air Navigation Implementation
Planning and Support Section

ICAO-HQ



Objective

To agree on **terms related to SWIM** and describe a common framework to facilitate discussions and promote interoperability.



Document Vision

- **Complement** human-to-human with machine-to-machine communication, **and improve** data distribution and accessibility in terms of quality of the data exchanged.
- Shift the ATM information architecture paradigm **from point-to-point** data exchanges **to system-wide** interoperability.



The need for SWIM

- **systems not** designed and implemented to be **globally interoperable**
- interfaces have **limited flexibility to accommodate new users**, additional systems, new **content** or changed **formats**
- **message-size limitations** with the present infrastructure
- current infrastructure make it difficult and **costly** for one stakeholder to access, on a timely basis, information originated by another stakeholder
- most organizations manage their ATM information in partial isolation leading to **duplication and inconsistencies**



SWIM benefits

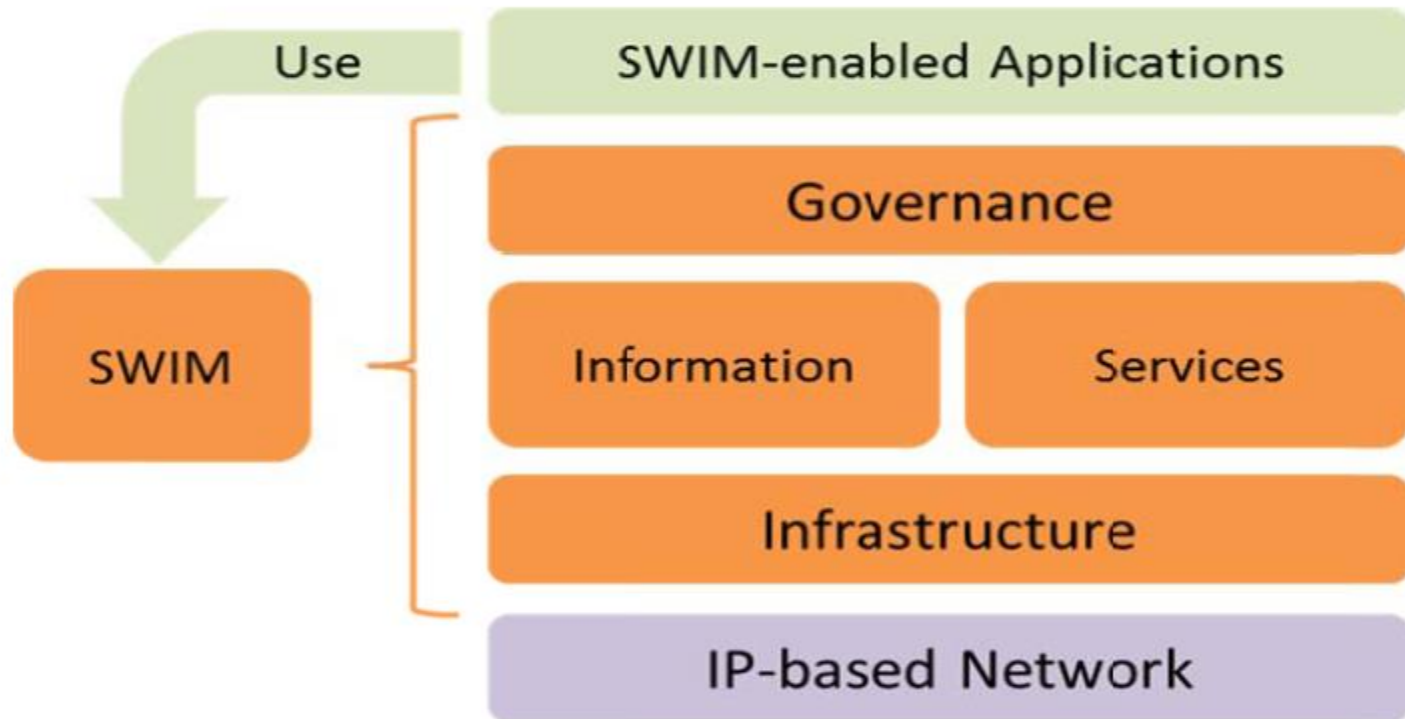
- Improved **decision making** by all stakeholders
 - improved shared **situational awareness**
 - improve availability of **quality data and information**
- More flexible and cost-effective communications using common standards for information exchange
- Loose coupling which minimizes the impact of changes between producers and consumers of information
- **Support ATM-SDM**



SWIM Definition

Standards, infrastructure and governance enabling the management of ATM-related information and its exchange between qualified parties via interoperable services.

SWIM scope





SWIM Principles

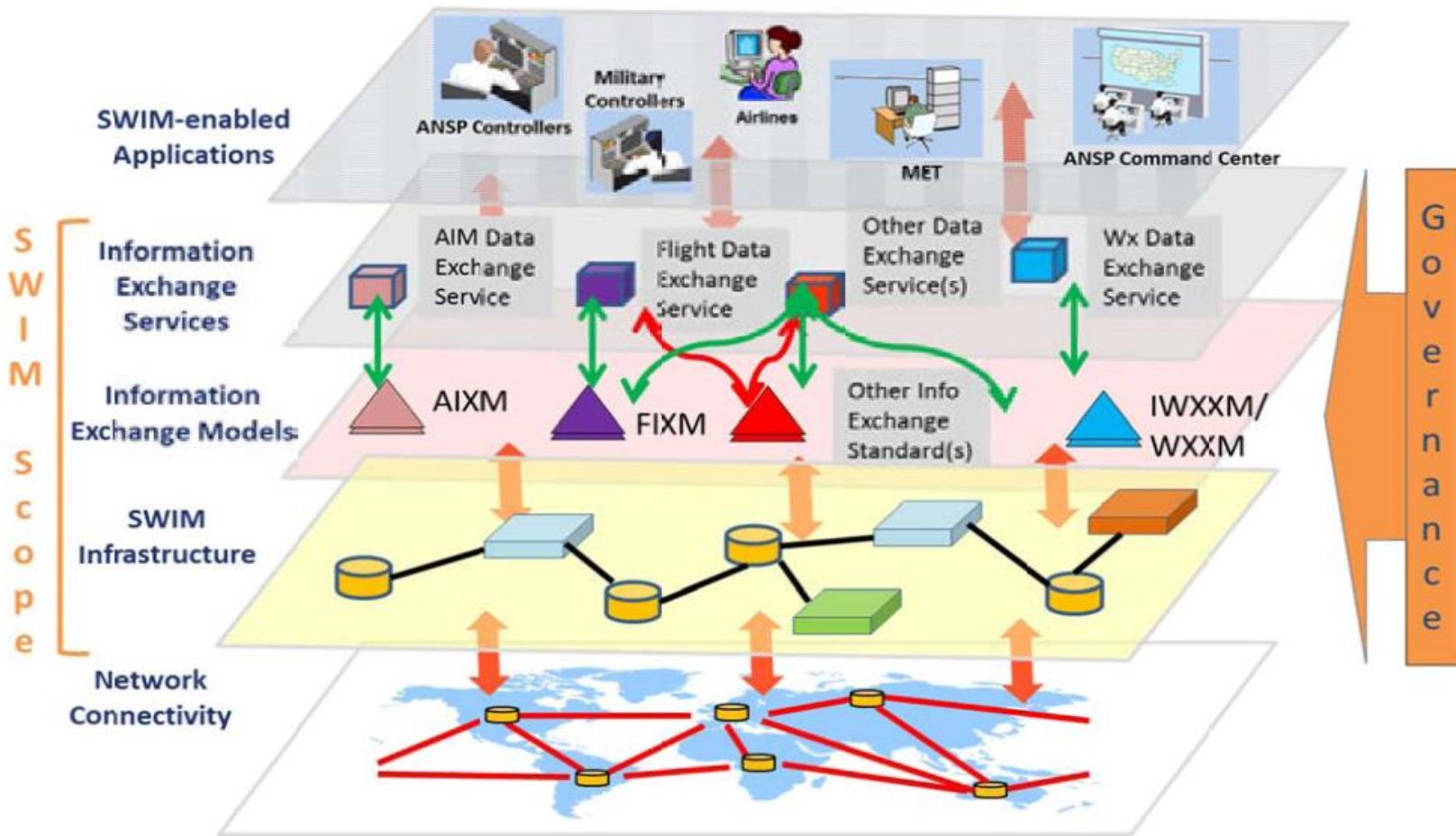
- Information should be of the right quality, provided at the right time and delivered to the right place
 - separation of information provision and information consumption to the extent possible
 - loose system coupling – minimize barriers between systems and applications
 - use of open standards
 - use of interoperable services



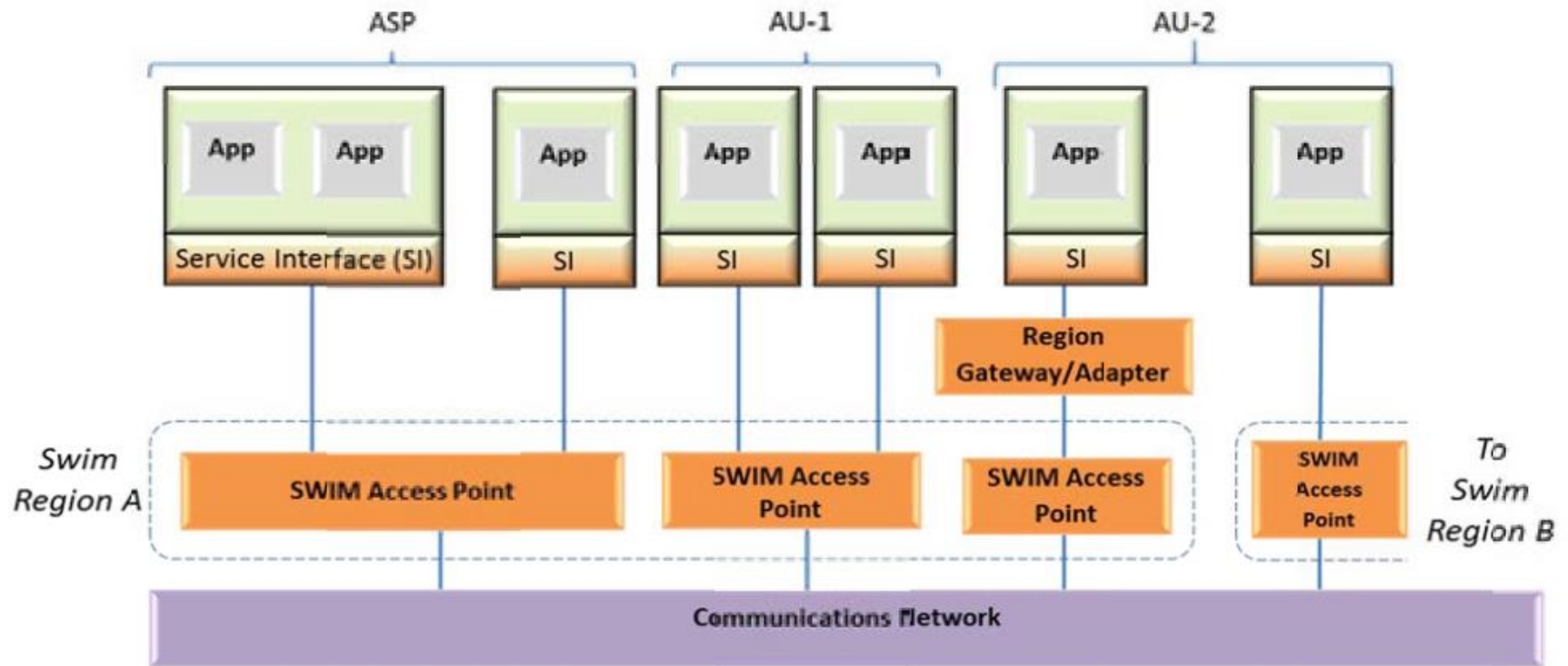
SWIM Stakeholders

- a) aerodrome community;
- b) airspace providers;
- c) airspace users;
- d) ATM service providers;
- e) ATM support industry;
- **f) International Civil Aviation Organization (ICAO);**
- **g) regulatory authorities; and**
- **h) States.**

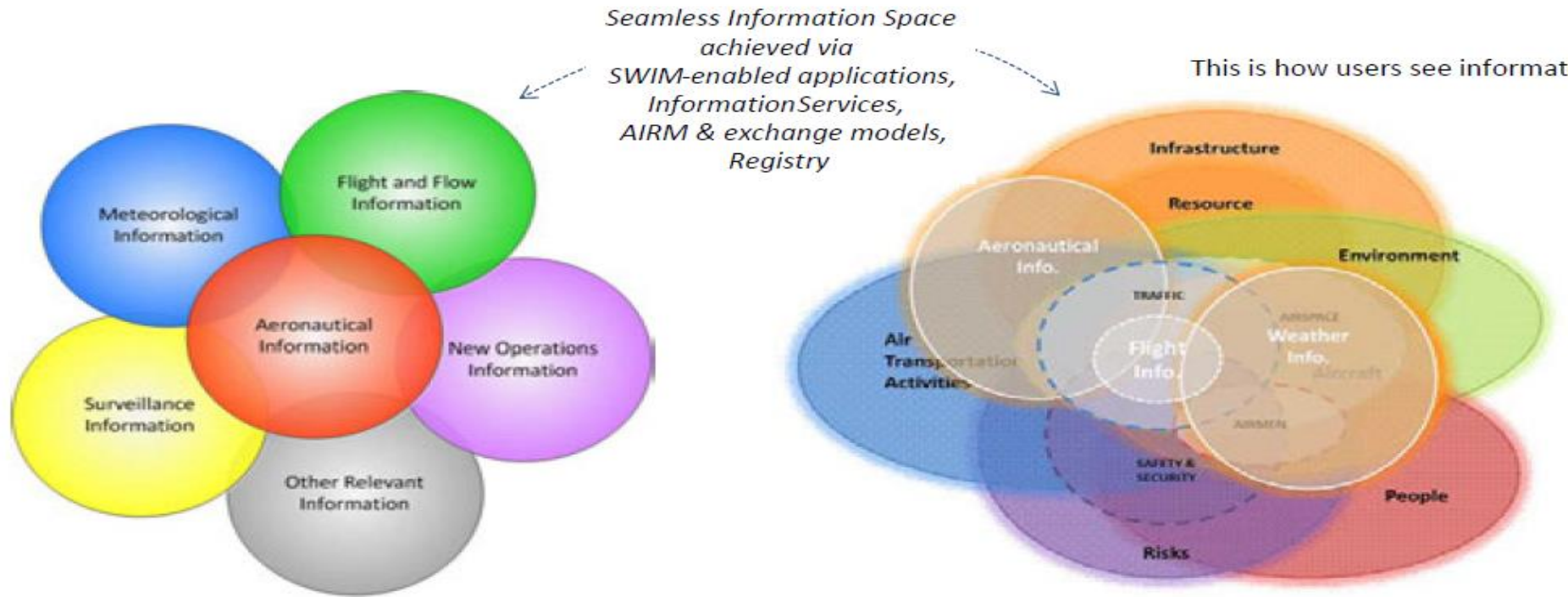
Global Interoperability Framework



Enterprises and SWIM region



Potential Information Domains



This is how we manage data

Identified Information

User based Information Domains

Significant overlap with ICAO identified Information Domains

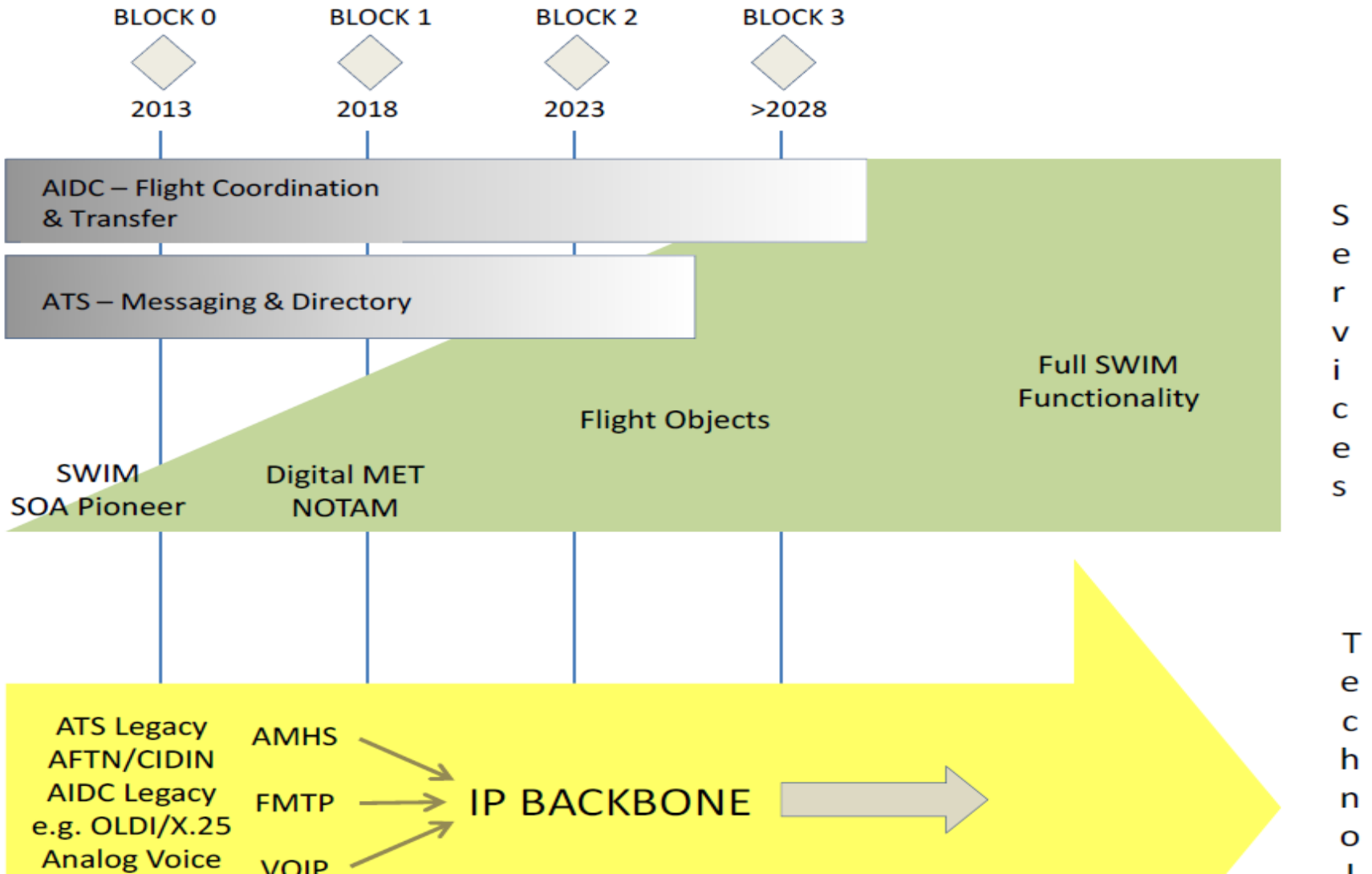


SWIM Governance

- Who is involved in the approval and evolution of standards
- The process to be followed
- Definition of infrastructure to be provided
- Definition of the need and nature of a national or regional SWIM authority
- Definition of regulatory policies and standards
- Promote semantic and structural interoperability among stakeholders
- Define the way costs will be shared by the parties participating in SWIM and the possible cost-recovery mechanisms to be used
- Define and establish governance structures at global, regional and local levels.



TRANSITION AND MIXED ENVIRONMENT





ROLES AND RESPONSIBILITIES

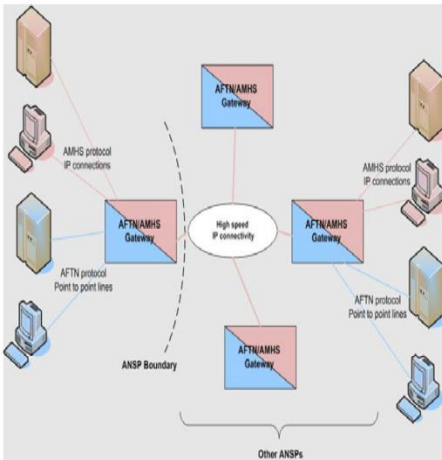
- It is assumed that each member State or a number of States in a specific geographical region will develop their migration plans based on respective **needs and timetables** for their current ATM networks and services.
- States with legacy systems will have interoperability with other States but will not be able to provide or consume more complex services unless their systems are upgraded.



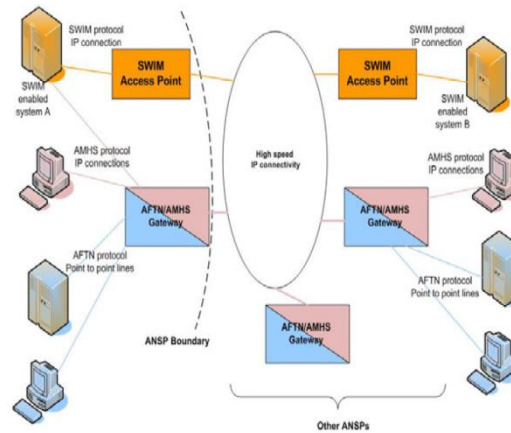
KEY INTERACTIONS

- How a phased transition from AFTN/aeronautical message handling system (AMHS) to SWIM can be accomplished.

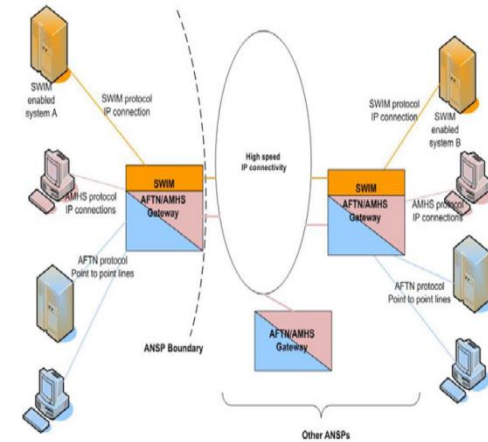
KEY INTERACTIONS



Current AFTN/AMHS environment

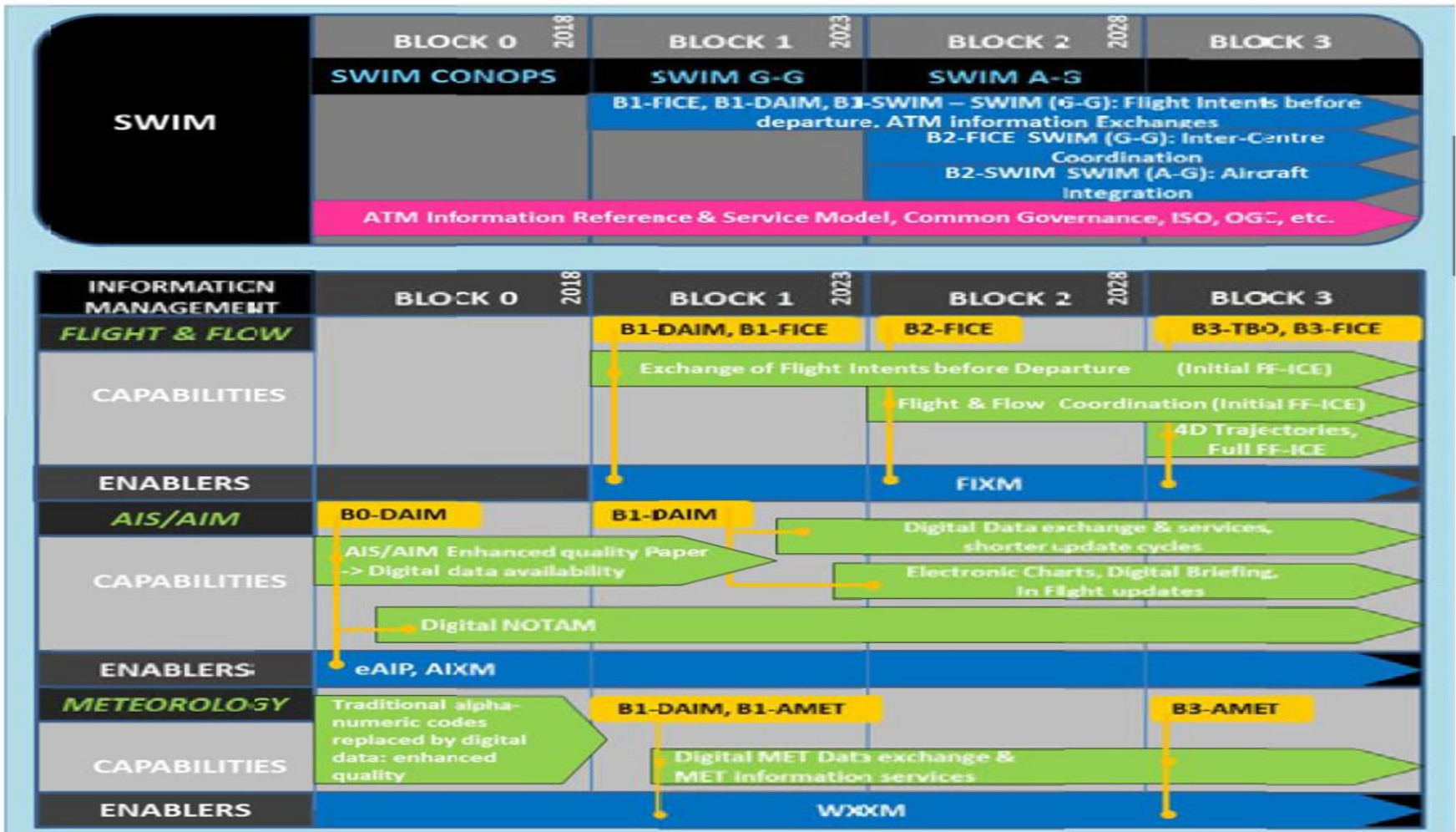


Interoperability ensured at application level



Interoperability ensured in the gateway

GANP roadmap on SWIM





Other topics

- Technology requirements
- Deployment considerations
- SWIM air-ground
- Interconnecting SWIM services across ASP/regional boundaries
- Potential candidates for SWIM standards.



ICAO

UNITING AVIATION



ICAO

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