SWIM Concept, Scope and Benefits

SWIM Seminar / Workshop
Lima, October 31st - November 3rd - 2017
Environment

- Standards
- Infrastructure
- Governance
- ATM Information
- Qualified parties
- Services

SWIM
SWIM

• SWIM Vision
• The problem
• SWIM Concept
• SWIM Concept updates
• A multidisciplinary approach
Gestión de la Información de todo el Sistema (SWIM)

SWIM, is an integral parts of Global Air Navigation Plan (Doc 9750).

GATMOC (Doc 9854) provides the ICAO vision of a globally interoperable ATM system.
The Air Traffic Management Requirements Manual (Doc 9882) explicitly identifies the implementation of SWIM as a requirement for the future ATM system.

The Manual on SWIM Concept (Doc 10039) provides a vision for globally interoperable information management while addressing transition and mixed operating environment.
What is the current problem of the aviation system in relation to information?

Aeronautical information currently are:
- Isolated
- Duplicate
- Updated inconsistently
Message exchanges

Currently
- Exchange of messages is adapted locally.
- Relevant information flow between two ASPs is not visible to a third party.
- Does not facilitate collaboration.
- Changes affect some interfaces.

Future
- Information is available throughout the system.
- The system is collaboration-friendly.
- Consistent information is visible to all interested parties and authorized third parties.
- Changes affect a few interfaces.
A problem well known to operators

- Typing errors
- Complex boundaries of restricted areas that takes hours to put them on the map!
- Obstacles with imprecise position
- Irrelevant information
- Runway trimmed when the NOTAM simply gives the new TORA and does not say it has actually been trimmed (and where it ends)
- Very long and complex to read!!!

10% Of the NOTAMs have errors on a sampling of selected messages
What SWIM is NOT!

- A giant database
- A specific technology
- A new application
- A big system requiring new facilities or large space requirements
- A telecommunications replacement
- It is not a sand-box where everyone can ‘play’ with operational information
The solution

Manage information

- Publish the SWIM information
- Manage SWIM information.
- Access to SWIM information
- Update the SWIM information
The need for SWIM

• Lack of common understanding of global IM.
• Exchanges “point to point” or “application to application”.
• Legacy information products are limited in functionality and usability due to their textual nature.
• Limitation of message sizes.
The need for SWIM

- Expensive access to information.
- Challenge to devise security framework for all systems and stakeholders to support the need for open and timely data exchange.
- ATM information in partial isolation leading to duplication and inconsistencies.
Migration towards SWIM Information Services

• Identifying digital data sets for aeronautical information to be provided by States.
• Annex 15, PANS-AIM, Annex 3 identify the information to be digitalized.
Two key activities towards modernization

• Become data centric
• Become network centric

Together, these activities contribute to the unlocking of information in support of ATM operations.
Definition: SWIM consists of standards, infrastructure & governance enabling the management of ATM information and its exchange between qualified parties via interoperable services.
SWIM Concept

Basic Principles

• Separating the provision of information from consumption of information
• All participants are a producer or consumer of the information
• Disassociation of originators of information from the possible users
• Systems de-couplings
• Use of open standards
• Use of interoperable services

Global Interoperability
Framework for Global SWIM Interoperability

- SWIM-enabled Applications
- Information Exchange Services
- Information Exchange Models
- SWIM Infrastructure
- Network Connectivity
Benefits of SWIM

• More agile service delivery
• Cost reductions
• Return on Investment (ROI)
• Meeting IT goals
• Enabling advanced operations
The Global ATM Operational Concept (Doc 9854) lists and describes the various members comprising the ATM community:

- Aerodrome community
- Airspaces users and providers
- ATM and MET services providers
- ATM support industry
- ICAO, Regulatory authorities
- States
Information Domains

This is how we manage data

Identified Information Domains

This is how users see information

User based Information Domains

Significant overlap with ICAO identified Information Domains
SWIM Governance

- SWIM Governance is the set of standards, policies and processes that ensure information required for global interoperability is provided by reliable, trusted services.
- SWIM Governance contributes to building confidence in SWIM, addressing topics, such as rights of usage of information, quality of service aspects and trust.
SWIM Governance

SWIM Governance entails activities which can be applied at different levels (e.g. global, regional, national and organizational) such as:

- establish a common set of rules, policies and standards for SWIM information, information services and technical infrastructure;
- define and establish governance structures.
SWIM Governance

• Define who is involved in the development, approval and in the evolution of standards;
• Promote information interoperability among stakeholders;
• Define the IM processes to be followed; and
• Define the transition to a SWIM environment through regional or national arrangements.
Questions?