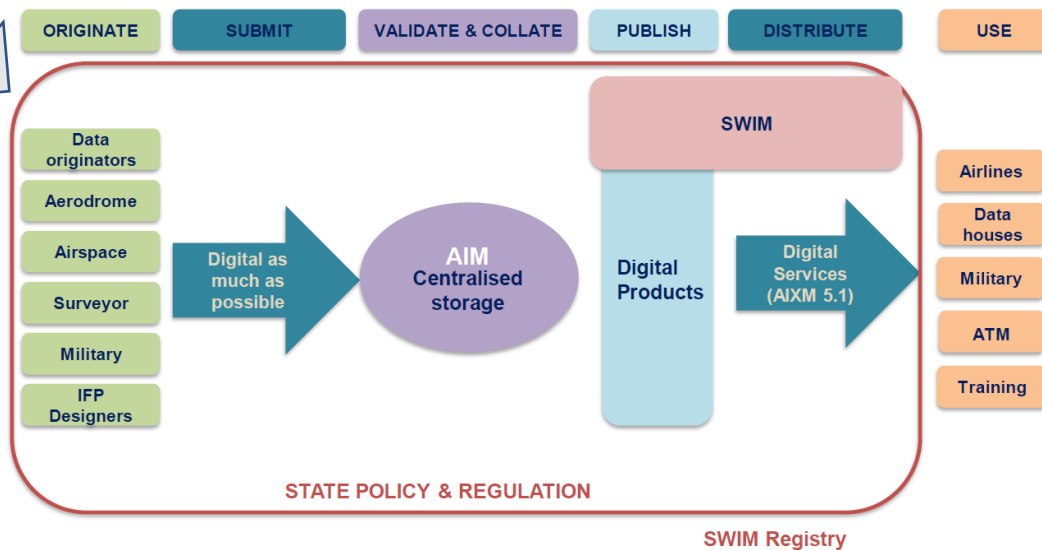
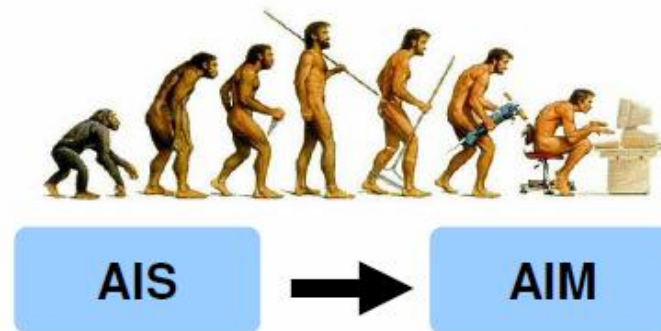
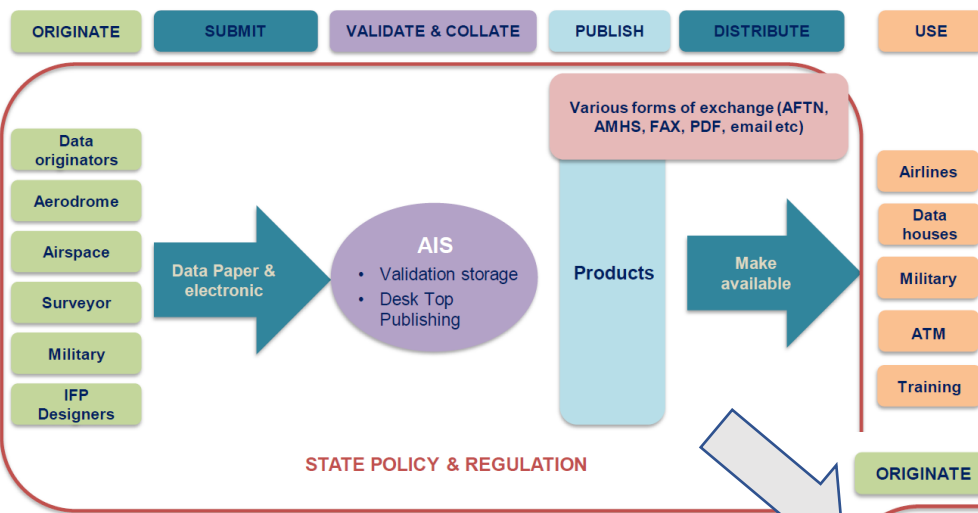


AIS to AIM : going digital



AIM “into” SWIM



AIS



AIM



SWIM

Weather

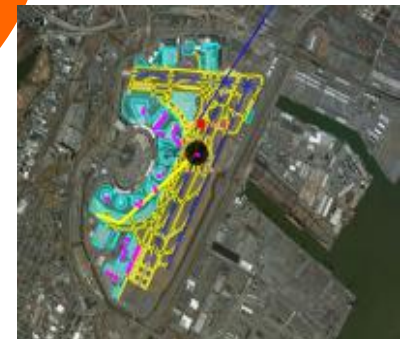
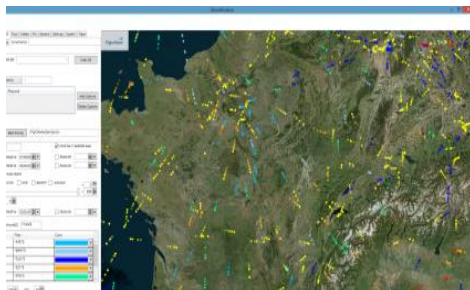
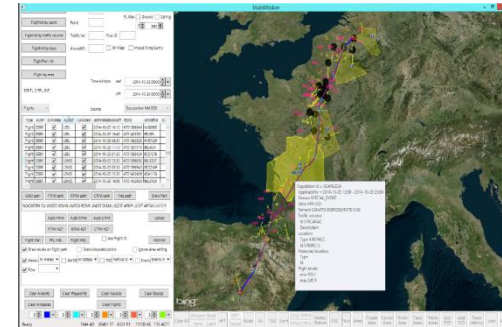
Flight

Surveillance

Airport

Flow

Capacity



AIM : what are we addressing ?

- With AIM we are
 - Raising the focus on data and information
 - Raising the focus on the need for quality-data from authoritative sources
 - Introducing aeronautical information in digital format
 - Raising the focus on the need for collaborative environments among stakeholders for enhanced quality services





Clear direction for the digitalization of aeronautical information

- Digital Data Sets
- A future Aeronautical Chart information service
- DORIS as the replacement of NOTAM
- Digital AIM into SWIM Roadmap

Moving to Information Services



Digital Data sets



Provide data sets in digital format as
information services



NOTAM



Transition from the legacy system to
information services



Aeronautical charts



Define the charting digital products and
visualize graphical information as
information services

Why?

- Disseminating aeronautical information via information services will allow:
 - **Airspace users** to have greater access to quality information for decision support
 - **Service providers** to operate within information-rich environments that will allow optimization of services
 - **Regulators** to operate with robust and open safety systems, more easily integrated and monitored



Future AIM services

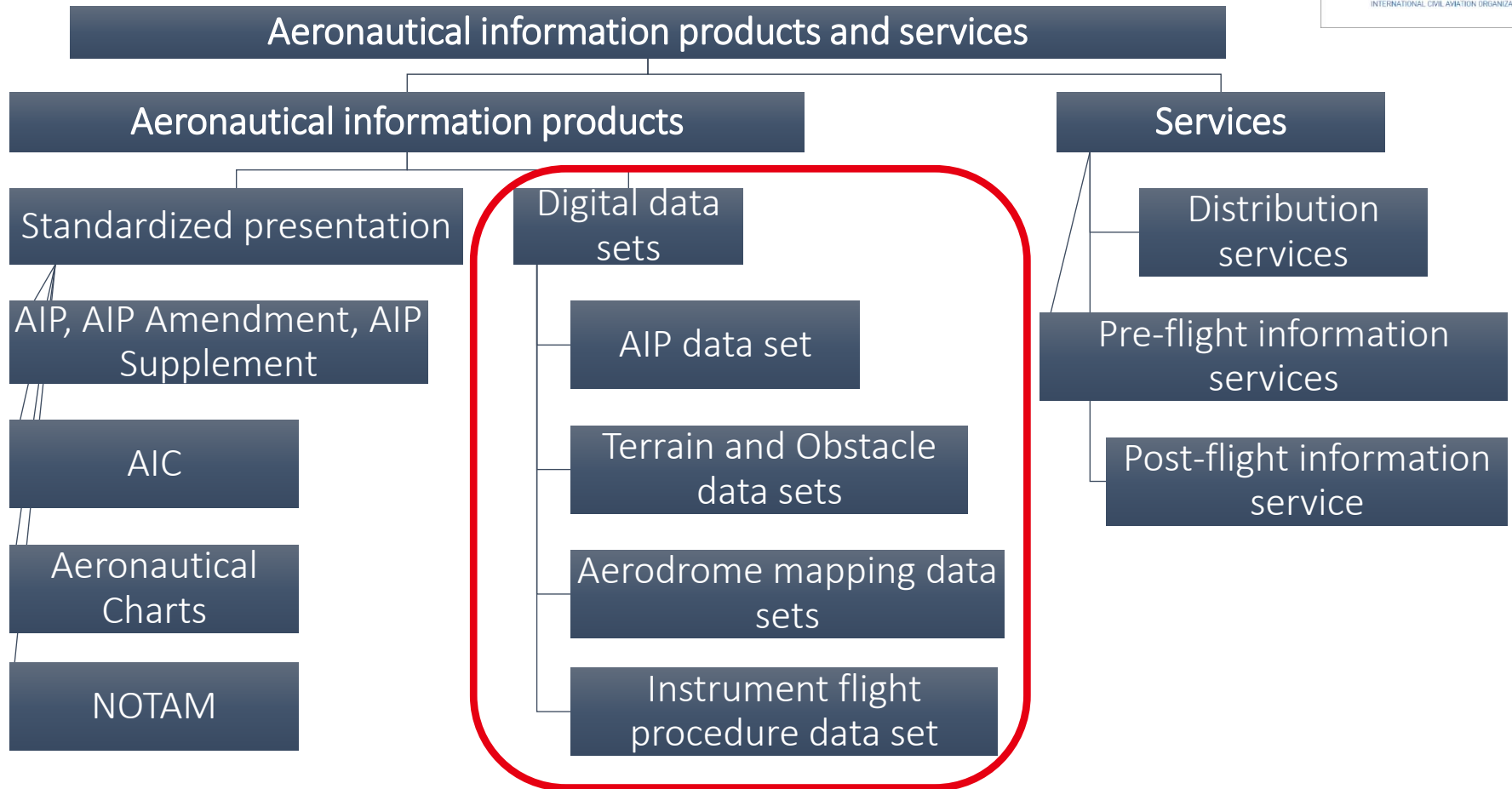
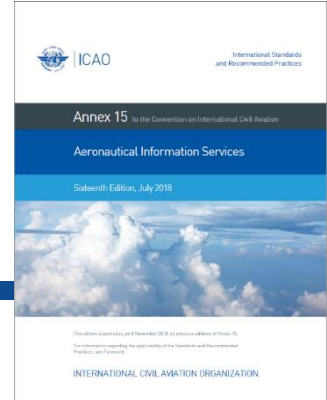


Foundation Baseline Data (DDS)

DORIS (NOTAM
replacement)

Aeronautical
Charting Service

ICAO ANNEX 15



DIGITAL DATA SETS (DDS)

DDS Role in Service-oriented AIM

DDS is the foundation to support DORIS and Aeronautical Charting services.

Adjustments required

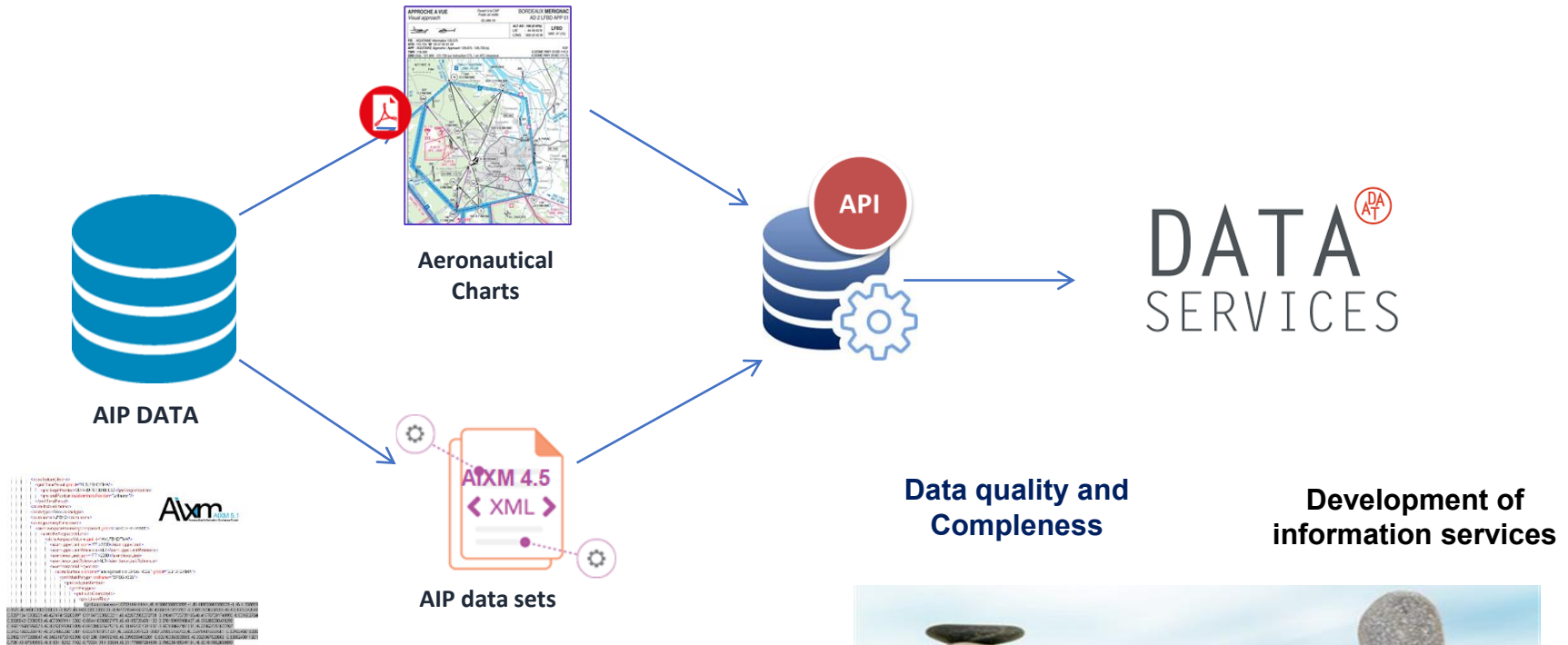
- Current DDS (in existing ICAO material) need to be adjusted to support the new services, in particular DORIS -> Enhanced AIP data set baseline
- Clarification that “free copy of product” equals “providing appropriate access to the relevant products” if made available electronically

Main evolutions (as from Nov 2031)

- Proposal to make AIP data set mandatory
- Recommendation to include aerodrome data in the AIP data set



DATA SETS ENABLE NEW SERVICES

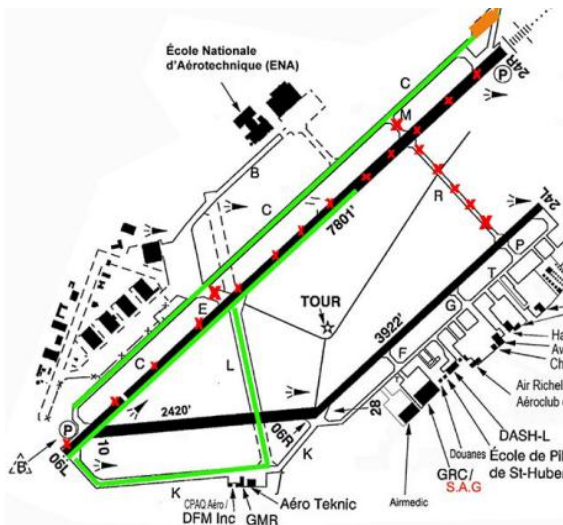


NOTAM System Replacement - DORIS

E) NORTH SIDE 75FT
RWY 06L/24R FULL LEN
CLSD. SOUTH SIDE NOT
AVBL ACFT WINGSPAN
MORE THAN 78FT. 48 HR
PN

NOTAM Replacement System Concept

*Digital Operational Reporting Information
Service*

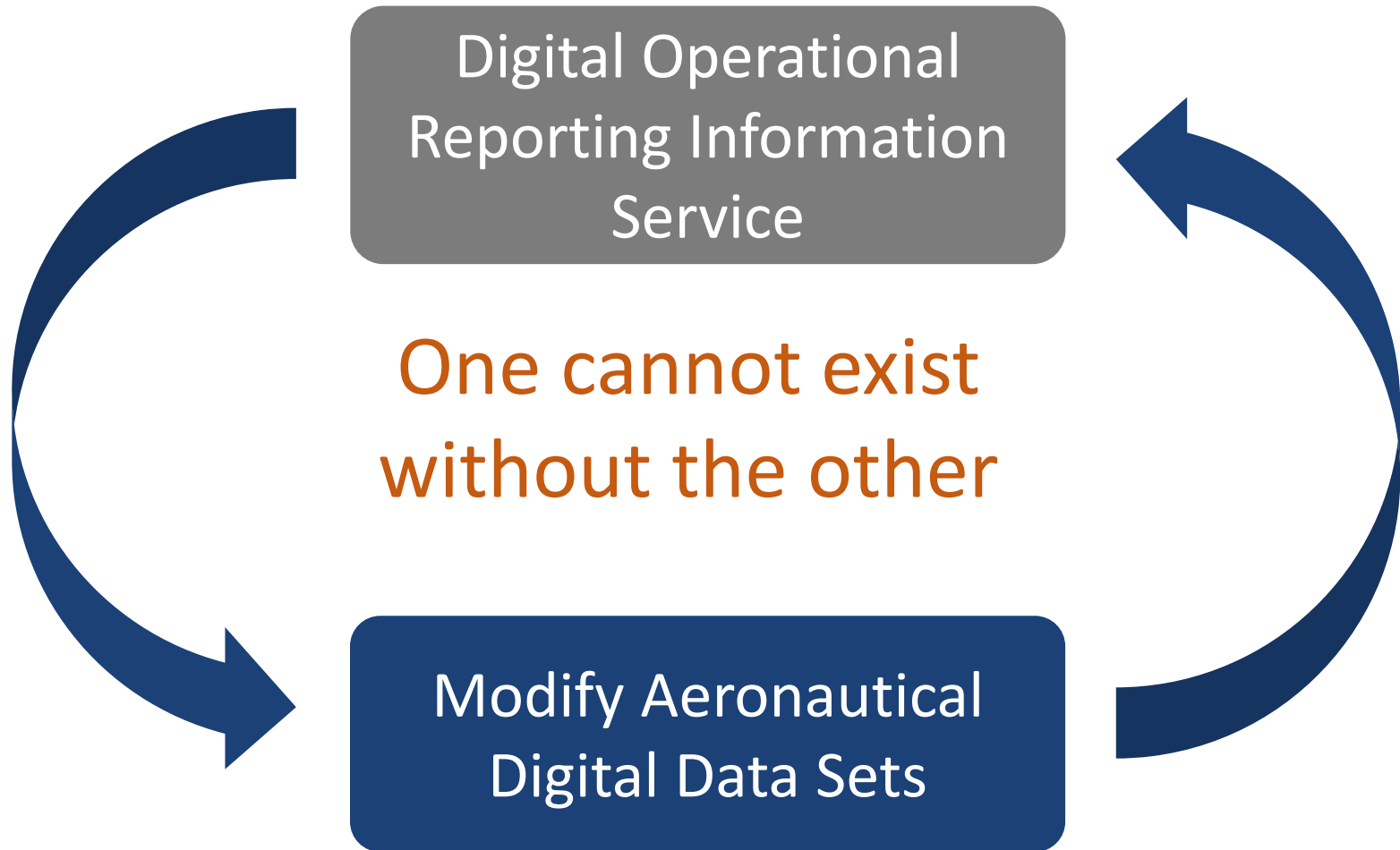


Is it Digital NOTAM?

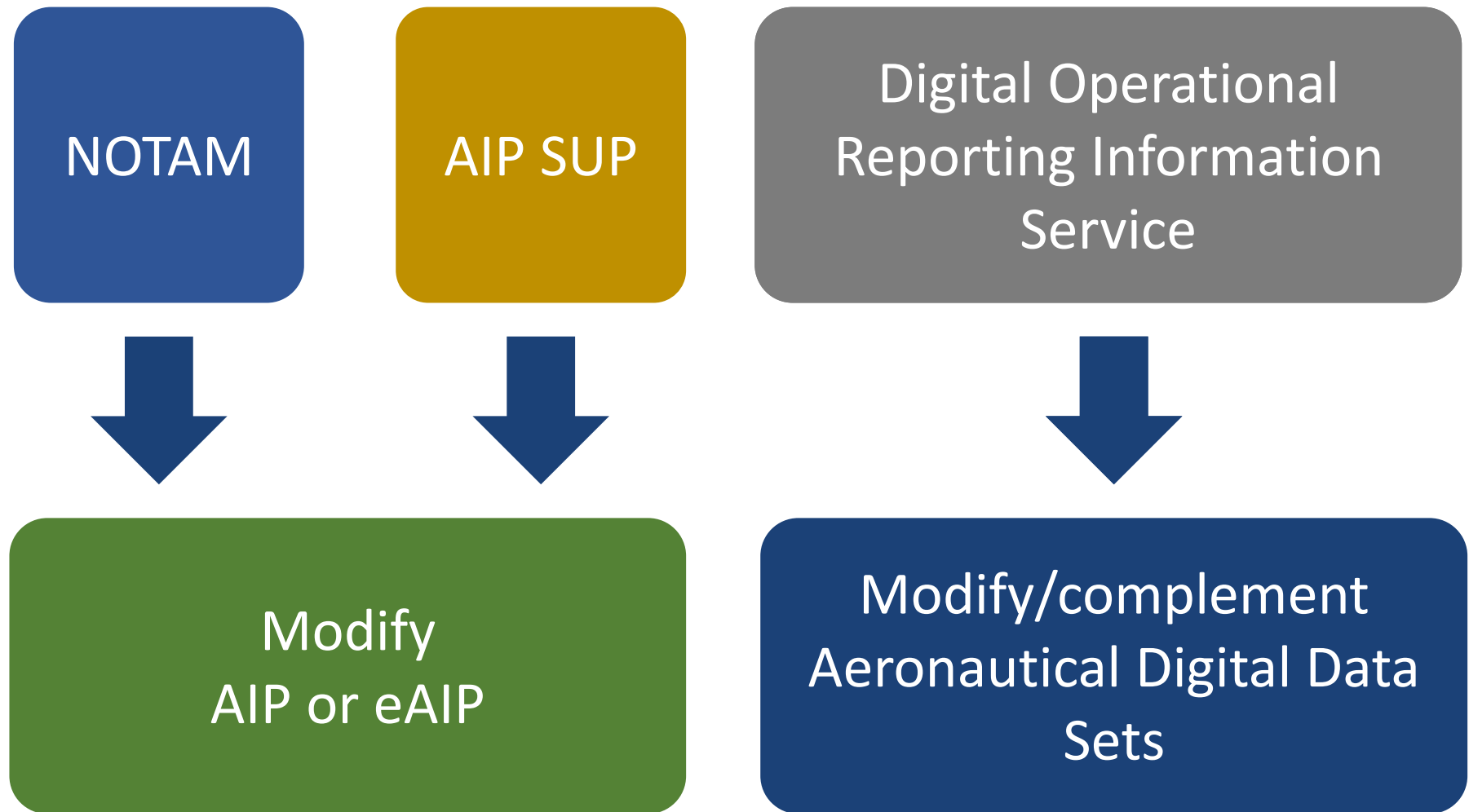
Digital Operational Reporting Information Service

- A **small data set** which contains digitally coded data about one or more related aeronautical information changes
- It modifies/complements the main Aeronautical **Digital Data Sets** with a temporality component

Key Principles – Relationship



Key Principles – How it works



Key Principles – One Product

Digital Operational
Reporting Information
Service

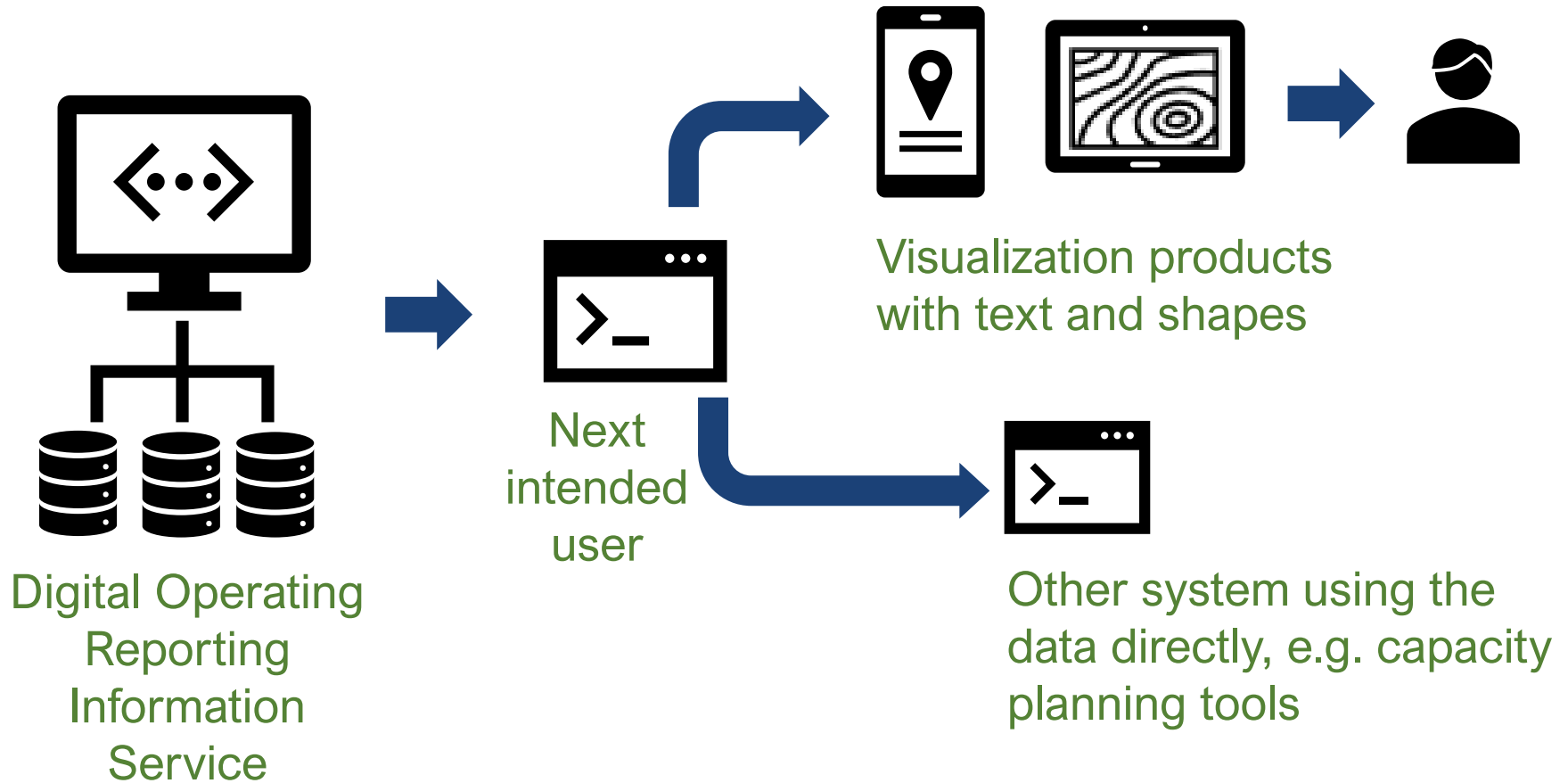


Modify Aeronautical
Digital Data Sets

A single mechanism for
ALL
temporary information:

Short notice or not
Short or long duration

End Users



DORIS : A PHASED TRANSITION

Dual-Mode Coexistence

Legacy NOTAM and DORIS systems will coexist as from 2032 until broad State readiness enables full transition.

NOTAM sunset remains the end-goal

Target date 2038 (compromise)

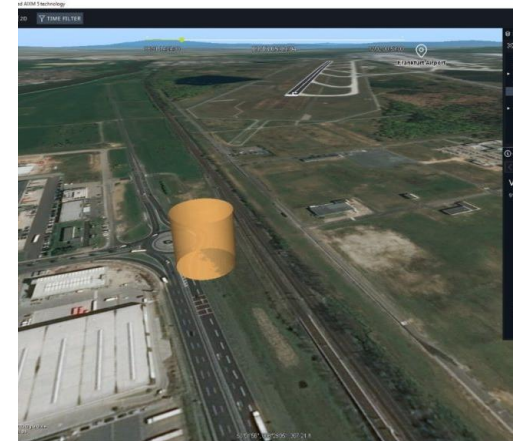
DORIS enablers

- Validation tools & business rules
- Service overview
- Service definition

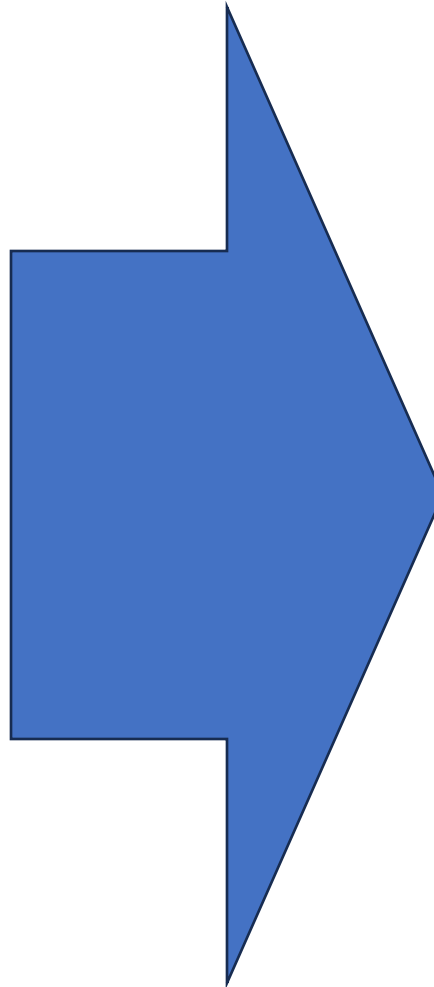
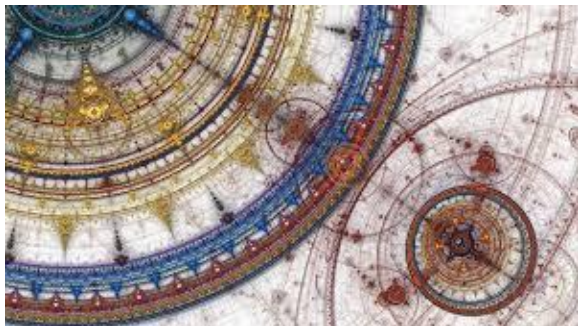
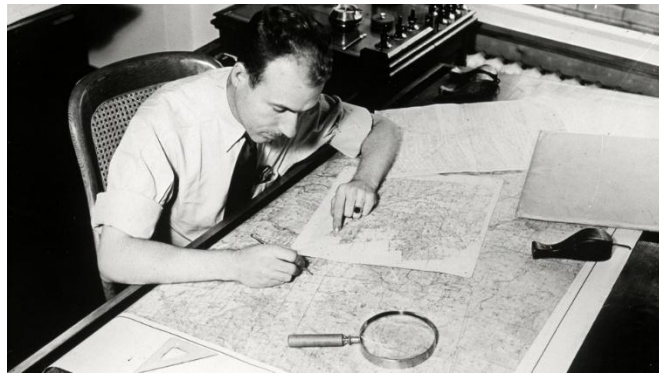
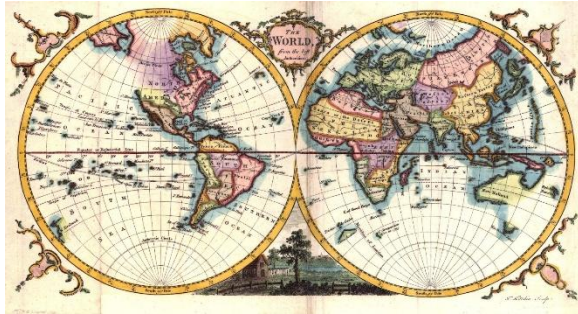
Phased transition to DORIS

Ensures gradual, safe migration from NOTAM to DORIS.

- Phase 1 (2032–2038):
 - DORIS introduced in parallel with NOTAM
- Phase 2 (2038+):
 - Full replacement of NOTAM

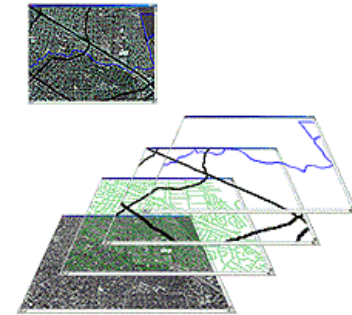


FUTURE OF AERONAUTICAL CHARTING

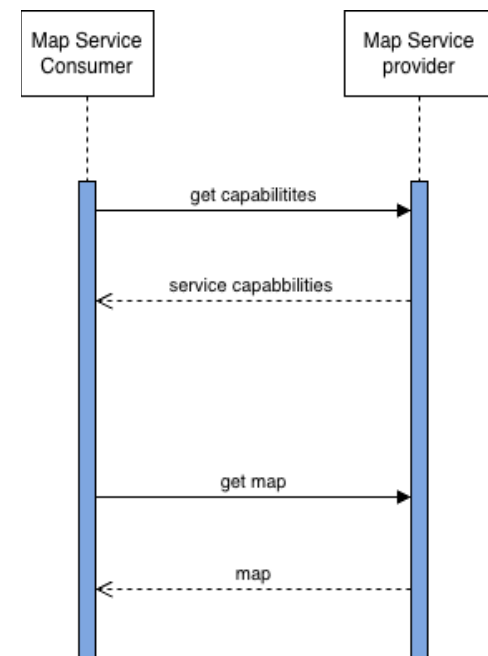


The Future of Aeronautical Charting concept

Annex 4 to evolve from prescribing static chart products to enabling service-based charting within a System Wide Information Management (SWIM) environment.



States would continue to fulfil their responsibility for authoritative aeronautical information by providing governed Aeronautical Chart Services that are consumed by SWIM-enabled applications, which display the charts to the user.



FUTURE OF AERONAUTICAL CHARTING

Transition to Data-Centric Charting

The concept shifts charting from static artefacts to dynamic charting/mapping information services providing portrayals of authoritative aeronautical data

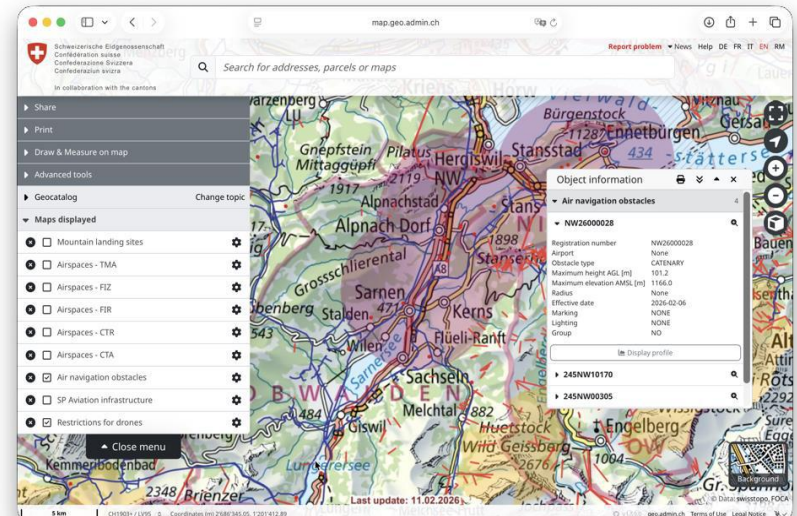
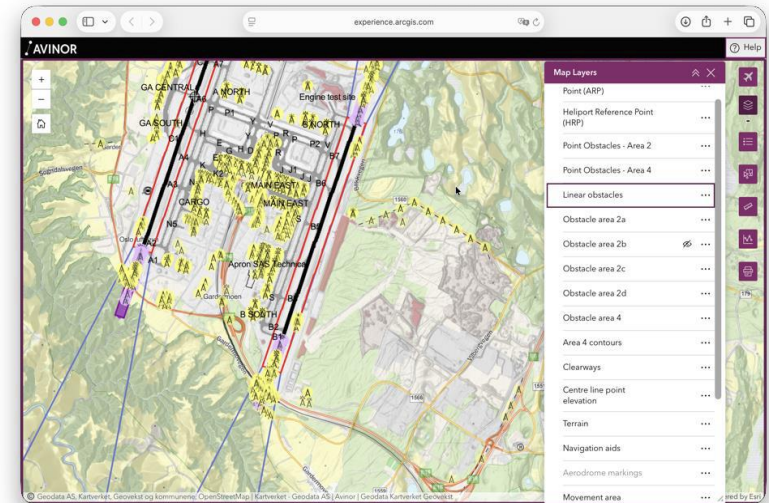
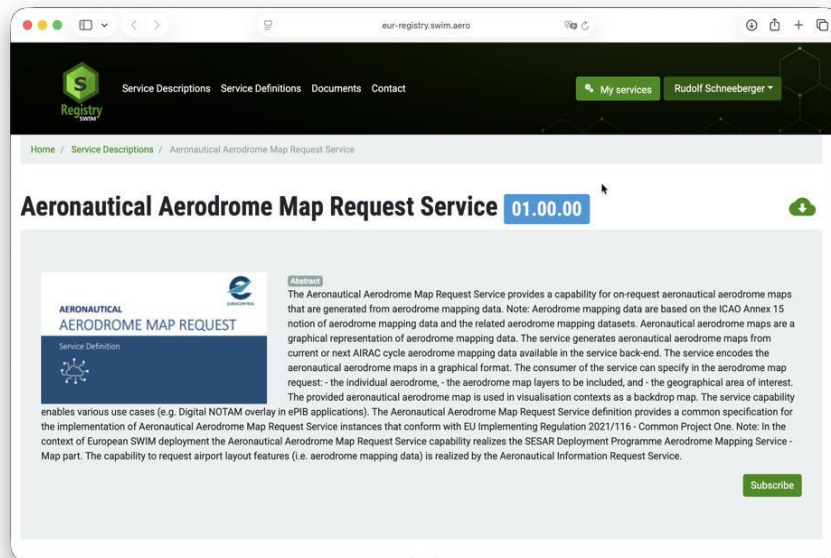
Technical considerations

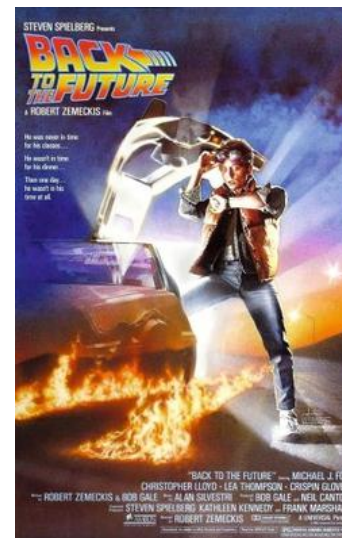
- Application of a layered approach to chart composition, a service-oriented technical model based on open standards
- The Map information service is a single information service
- Scope = pre-flight (ground exchanges)

State Responsibilities

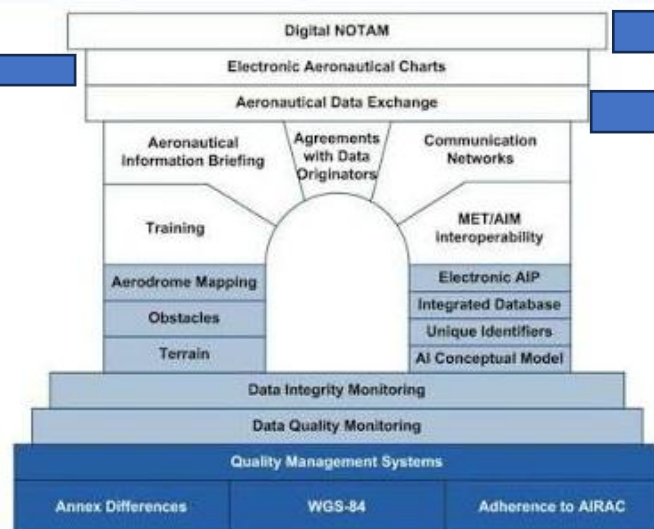
- Providing the underlying data
- Providing the Map information service
- *Further discussions required for the application to portray the graphical layer (images) provided by the information service*

Already existing !





'How we looked at the world >20 years ago'



'Future of
charting'
(under discussion)

Evolution of information scope

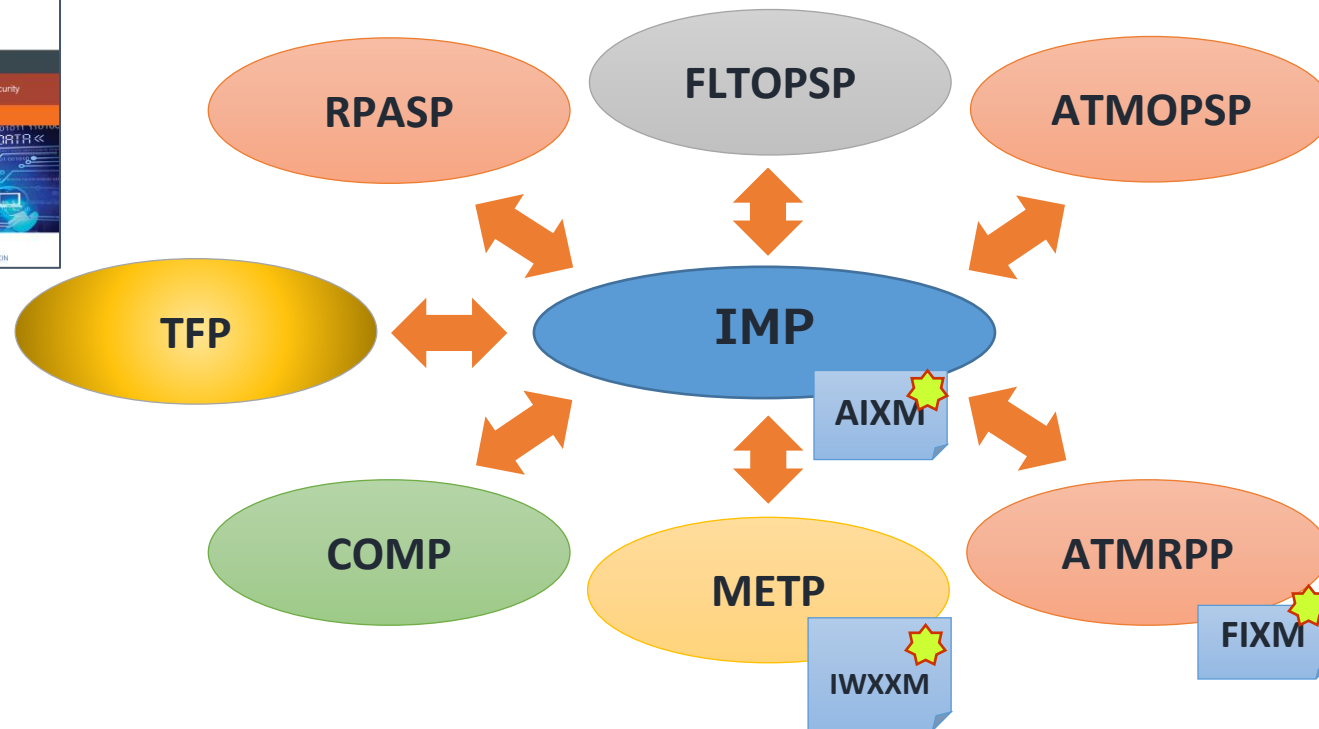
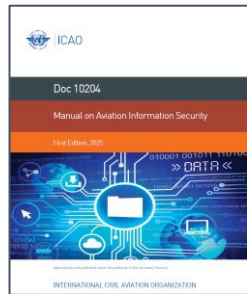
DORIS

plus (+)
Exchanged
through
SWIM Information Services

The background features a series of vertical, slightly curved neon lines in orange, yellow, green, and blue, creating a futuristic, tunnel-like effect. The lines are set against a dark background and their light reflects on a glossy surface at the bottom.

ICAO IMP Future Work

SWIM@ICAO - a multidisciplinary approach



Why cross-domain coordination matters

Our Challenges

- expand the service approach to all interested information domains
- Ensure consistency throughout the various domains



SWIM implementation is happening !



- Clear momentum for all Domains (Flight Plan with FF-ICE, MET services, AIM digitalization) and all Regions
- Implementation in these diverse contexts provides feedback that needs to be urgently addressed in order to ensure Global Interoperability
- Action is required :
 - *Collective development of a strategy for globally harmonized SWIM implementation (see next slide),*
 - *A new dedicated IMP Job Card to review, refine and update Technical Infrastructure provisions and guidance*



Proposed action



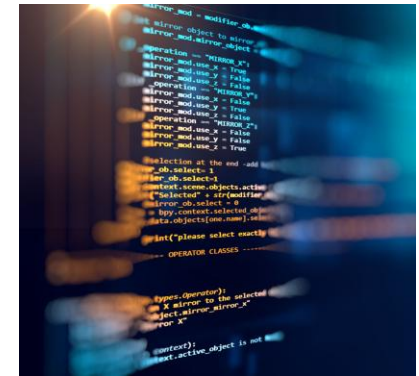
- **Means** : dedicated Task-Force with the participation of the concerned Panels.
- **Objective** : collect requirements, challenges and experience feedback related to SWIM implementation from the various Domain and Regions/States.
- **Main work** : collectively develop a strategy for globally harmonized SWIM implementation.
- **Timeframe** : setup without delay in order to get the deliverable by end 2027.

*Supporting the implementation of SWIM needed for **sunsetting FPL2012***

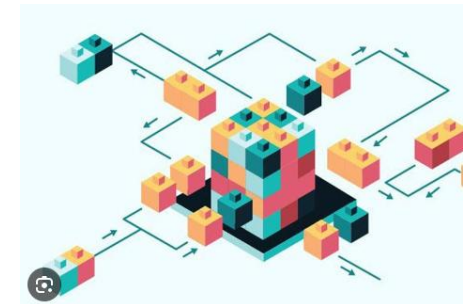
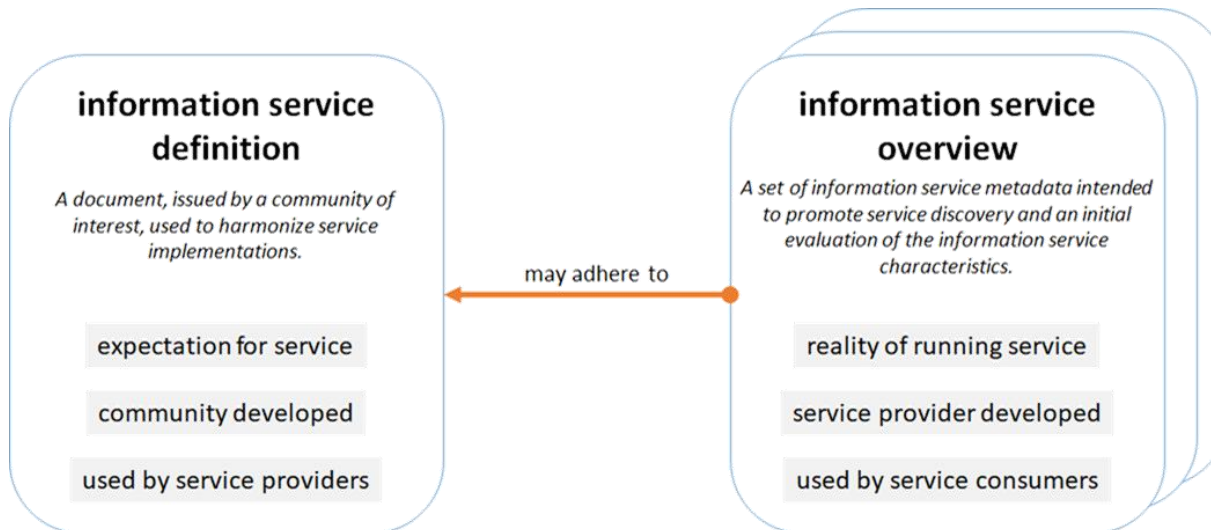


Information and Services

- **Service Definition** template to support harmonized provision of information services across States where necessary



- **SWIM registry interoperability**

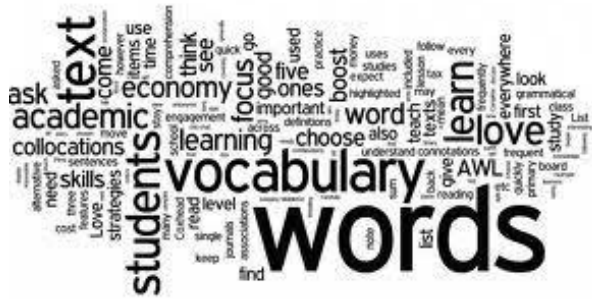


Global Interoperability of SWIM Technical Infrastructure



- Early experience feedback shows there are **differences in technical aspects** such as IP connectivity, message exchange patterns or consolidation of the exchanged information
- SWIM is a **paradigm shift** from the AFS 'store-forward' principle to information exchanges based on information services. Applying this shift at the Global level requires orchestration and refinement (maturing or completing) of technical provisions
- This paradigm shift may imply **thorough changes** beyond the technical aspects, including roles and responsibilities and operational processes
- We are moving away from AFTN/AMHS – yet this will not happen overnight, hence a **transition period** is necessary. It will include mixed-mode operations between AFTN/AMHS and SWIM, that needs to be addressed given its potential impact on operations

OTHER TOPICS



Information Management Terminology

Towards a consistent understanding of the terms and definitions related to data and information management and its use in ICAO material



Monitoring and supporting SWIM **Implementation** activities