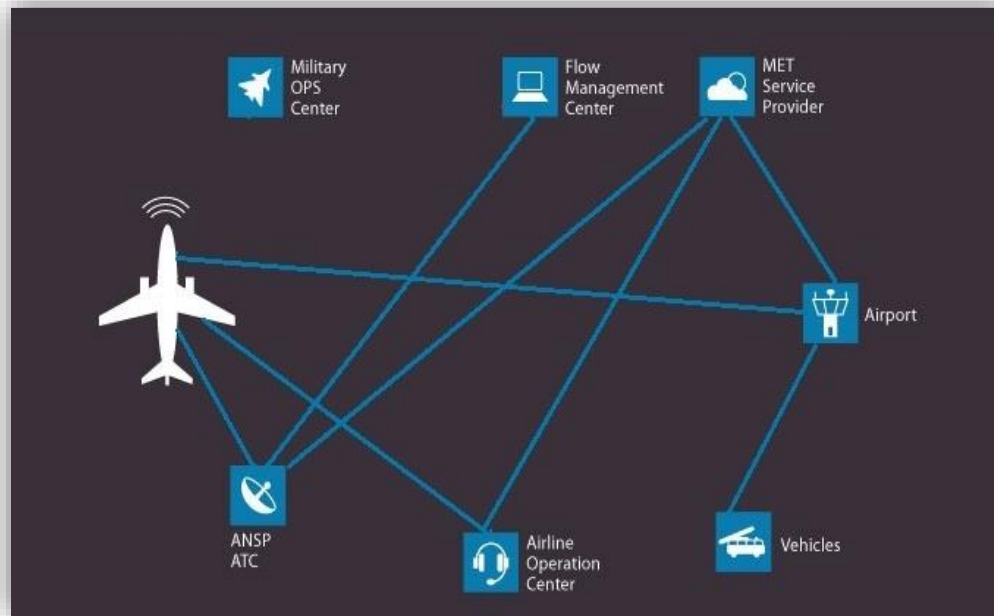


Introduction to SWIM

The background of the slide features a hand holding a smartphone in the lower-left corner. The rest of the background is a dark, blue-toned digital landscape with glowing particles, a semi-transparent globe in the center, and several interlocking gears of various sizes on the right side. The overall aesthetic is high-tech and futuristic.

Why SWIM?

The Problem:



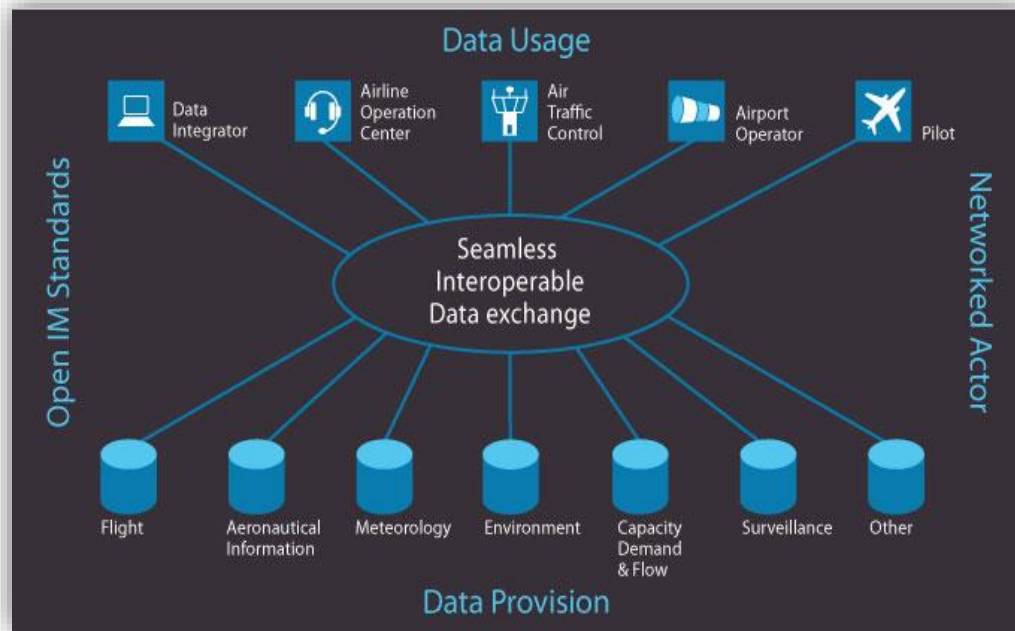
The exchange of information between Air Traffic Stakeholders is hindered because of

- different types of tight individual **peer to peer coupling** between the various stakeholders - which makes the establishing of new links complicated and time/money consuming
- diverging networks for different purposes with **different interfaces and data formats** which are **not interoperable**

With this **peer to peer** concept the support of CDM or the planning and execution of a 4D Trajectory are rather complicated. Missing interoperability hinders collaboration, which is the basis for an optimised routing.

Why SWIM? (2)

The Solution:



The exchange of Information between Air Traffic stakeholders is fostered by

- connecting all stakeholders via a defined platform to a centric network, **the ATM Intranet**, which is continuously evolving
- enable all stakeholders to easily **consume and provide information and data**
- using a **SOA** service approach for an on-demand interchange of digital information
- Complexity hiding, compatible interfaces, open standards, **increased interoperability** between systems

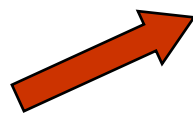
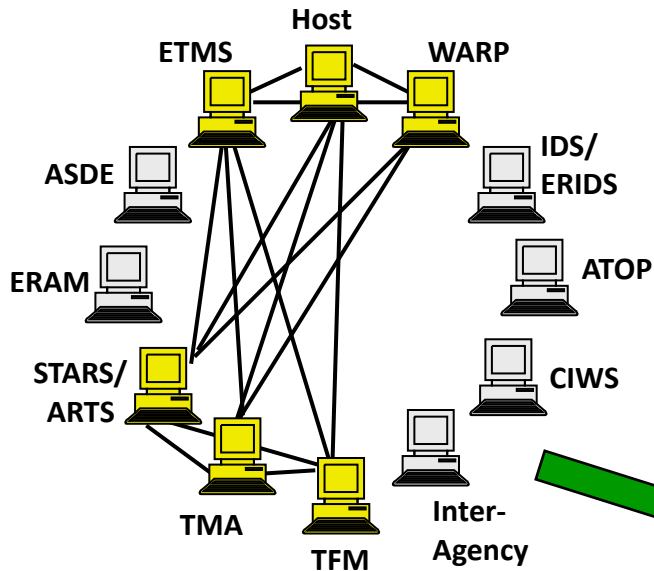
The objective of SWIM is to enable a better collaboration between air traffic stakeholders by information interchange for safer, more efficient, and environmentally sound performance-based ATM operations.



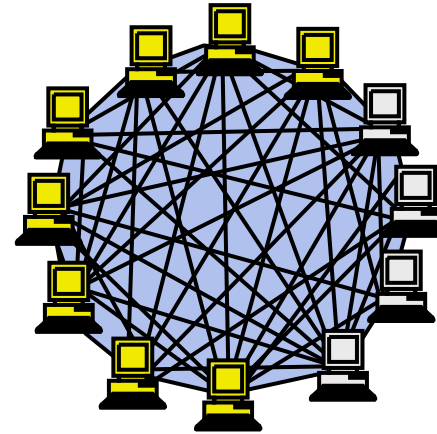
The need for SWIM

- Systems have not been designed and implemented to be globally interoperable.
- Many interfaces, designed to support point-to-point exchange have limited flexibility to accommodate new users, content or data formats.
- Message size limitations and a non-scalable approach to information exchange with the present infrastructure.
- Current infrastructure design makes it difficult and costly for one stakeholder to access, on a timely basis, information originated by another stakeholder.

State of the System



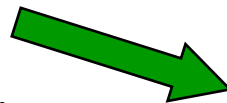
Today



Enterprise Management
(Implementing SOA)

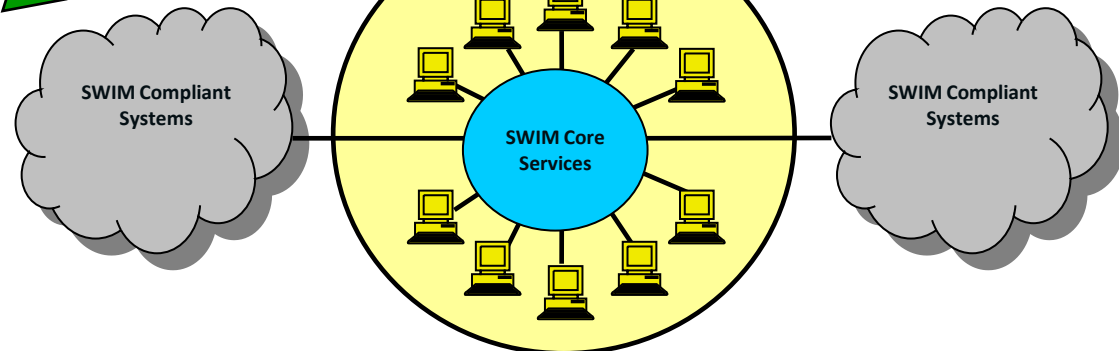
Business as Usual

- More point-to-point unique interfaces.
- Costly development, test, maintenance.
- New decisions linked to old data constructs.
- Cumbersome data access outside of Airways IT.

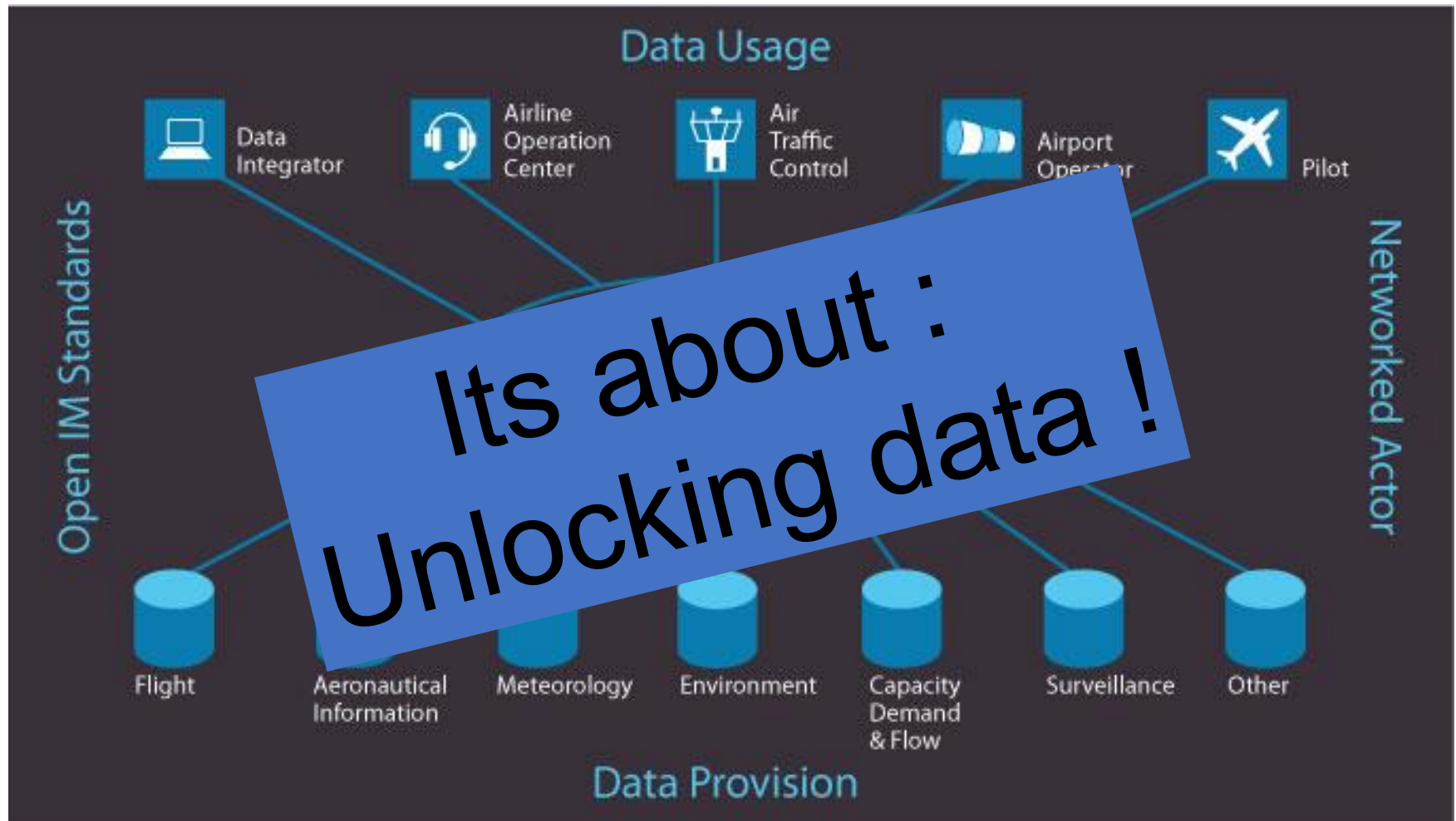


IT in the Airspace System Today

- Existing point-to-point hardwired National Airspace Systems.
- Unique interfaces, custom designs and ICD's for every interface.
- High IT cost and low ROI.
- No agile services delivery.
- Duplication of master data.



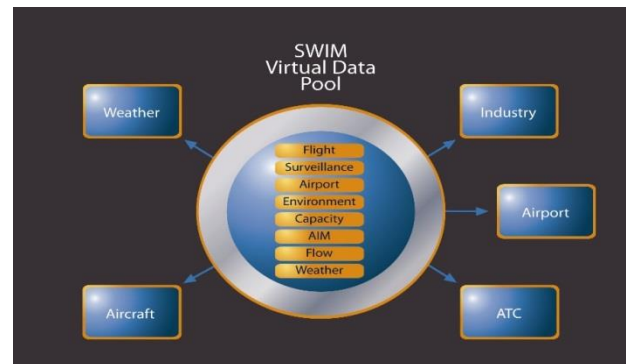
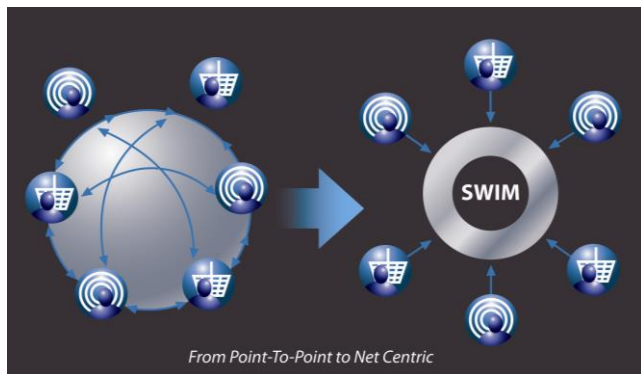
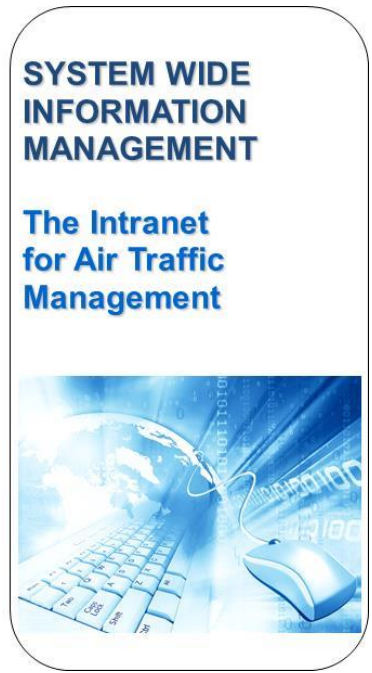
Split data provision from data consumption





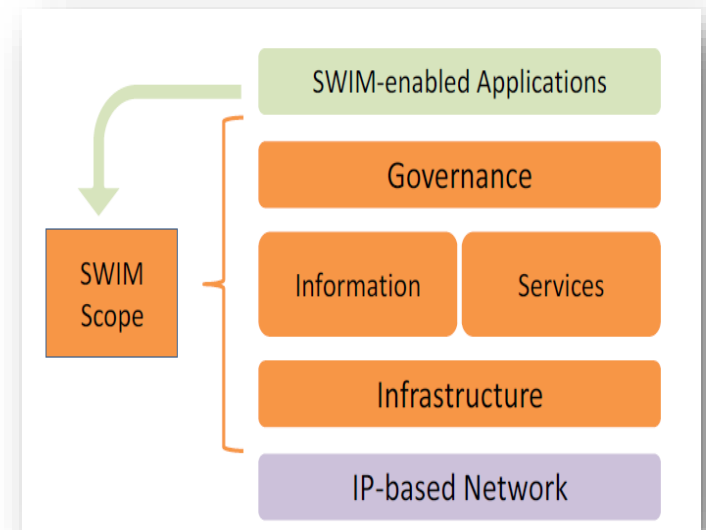
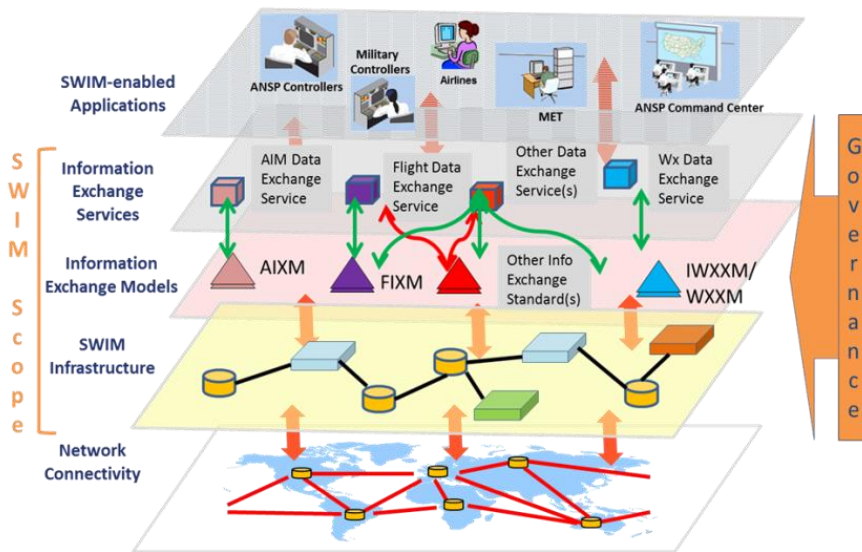
What is SWIM?

- Discussed for years, many perceptions
 - ‘Swimming in a pool of information’
 - ‘The intranet of Air Traffic Management’
- Sometimes considered to be the ‘silver (and may be magic)’ bullet to all information exchange needs and data quality concerns’

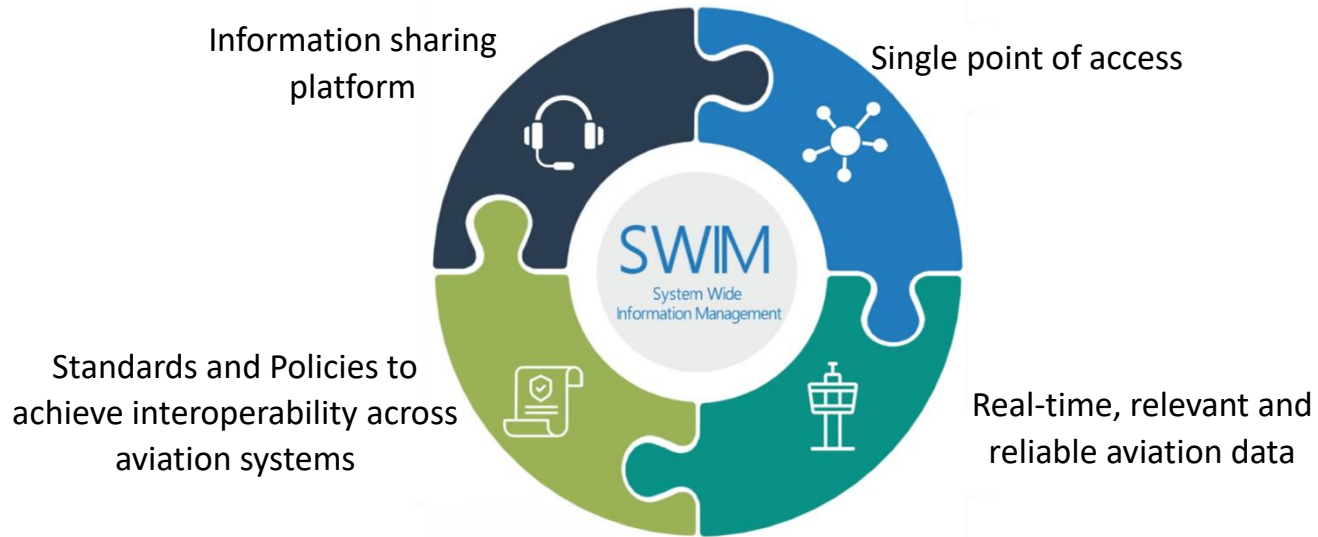


What is SWIM ?

SWIM consists of standards, infrastructure & governance enabling the management of ATM information and its exchange between qualified parties via interoperable services.”

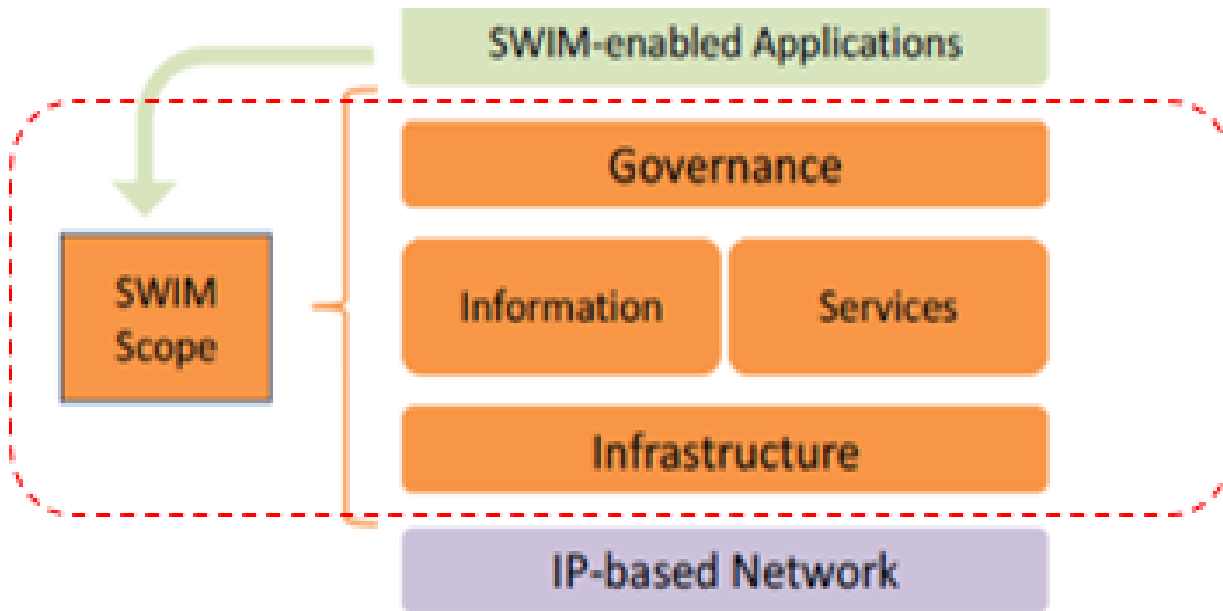


What is SWIM ?

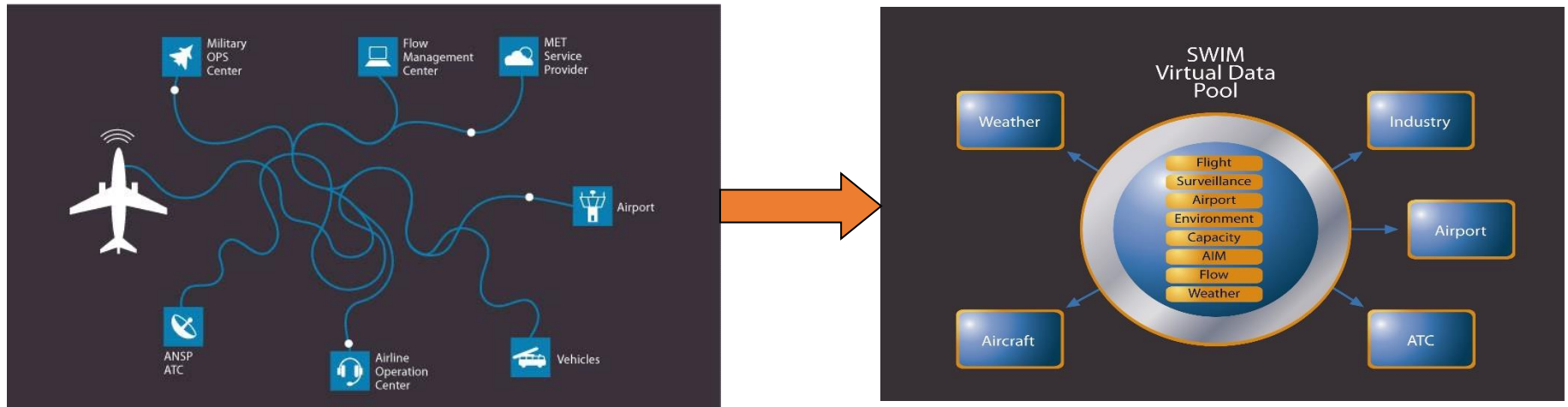


SWIM is the key towards **ATM digitalisation** worldwide.

SWIM SCOPE



SWIM contribution to the future ATM system



- Integrating all ATM business-related data, the SWIM environment underpins the entire ATM system and is essential to its efficient operation.
- It will support **Shared Situation Awareness, Collaborative Decision Making and Trajectory Based Operations**
- Examples: A-CDM, Digital NOTAM, Trajectory-Based Operations (TBO)

SWIM Benefits

- Improve decision making during all stages of flight through:
 - ✓ Improve shared situational awareness
 - ✓ Improved availability of quality data and information from authoritative sources
- Increased system performance
- More flexible and cost effective communications by the application of common standards for information exchange
- Loose coupling which minimises the impact of change between information producers and consumers



SWIM Benefits (2)

Easy access to information

- Multiple ATM stakeholders
- Offer and consume ATM information from each other
- Easy to connect


Provider and consumers build on Trust

- All involved parties can be trusted (authorized entities only)
- Exchange mechanism can be trusted (secured, reliable, on-time)
- No abuse of information (adequate access control)

Cost reduction in ATM evolution


- Cost proportional to required performance level
- Future changes shall be faster and cheaper

SWIM Essentials




Information services

Information services are the means by which organisations make their information available. This includes capabilities to allow a service consumer to interact efficiently with a service provider.




Information

Interoperable information exchange between all ATM stakeholders is essential in the evolving ATM network.



Technical infrastructure

The SWIM technical infrastructure (TI) allows the implementation of interfaces between systems, providing technical capabilities for the secure, high-performance and reliable exchange of information.



SWIM service registry

SWIM service registries are directories of information which support the discovery of SWIM services.

- Objective: seamless information access and interchange between all providers and users of ATM information and services

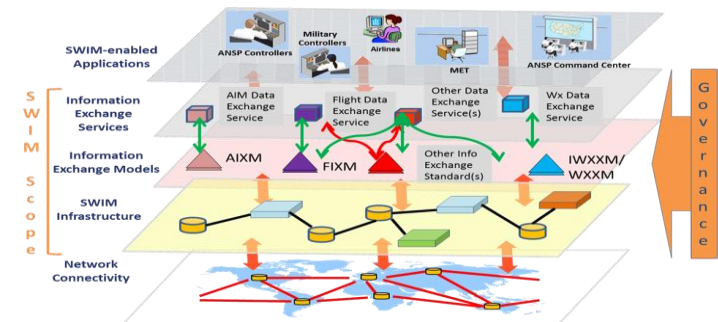
SWIM IN A NUTSHELL

SYSTEM WIDE INFORMATION MANAGEMENT

The Intranet for Air Traffic Management



SWIM consists of standards, infrastructure & governance enabling the management of ATM information and its exchange between qualified parties via interoperable services.”



APPLYING SERVICE ORIENTATION TO ATM