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INTERNATIONAL CIVIL AVIATION ORGANIZATION














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ICAO IMP
Future Work

Current IMP Job Cards

 IMP.011.01_Information Services for Air_Ground SWIM	WG-I/S	Job Cards discussed by IMP/2 and agreed by ANC
 IMP.012.01_SWIM Service Registry Interoperability	WG-I/S	
 IMP.013.01_Information Service Definition	WG-I/S	
 IMP.014.01_SWIM Governance enhancements	WG-G	
 IMP.015.01_Information Management Vocabulary	IMP-TF	
 IMP_002_03_Information Architecture Management		<i>Legacy Job Cards linked to PANS-IM development</i>
 IMP_004_03_Information Services under SWIM		
 IMP_005_03_SWIM Governance		
 IMP_006_02_AIM Global Implementation Support		AIS related Job Cards <i>AIMG is kept informed</i>
 IMP_007_02_NOTAM		
 IMP_008_02_Aeronautical Charts		
 IMP_009_02_Digital Data Sets		
 IMP_010_02_WGS-84		

ICAO IMP SWIM GOVERNANCE JOB-CARD



Integrated information
service governance
process



Oversight



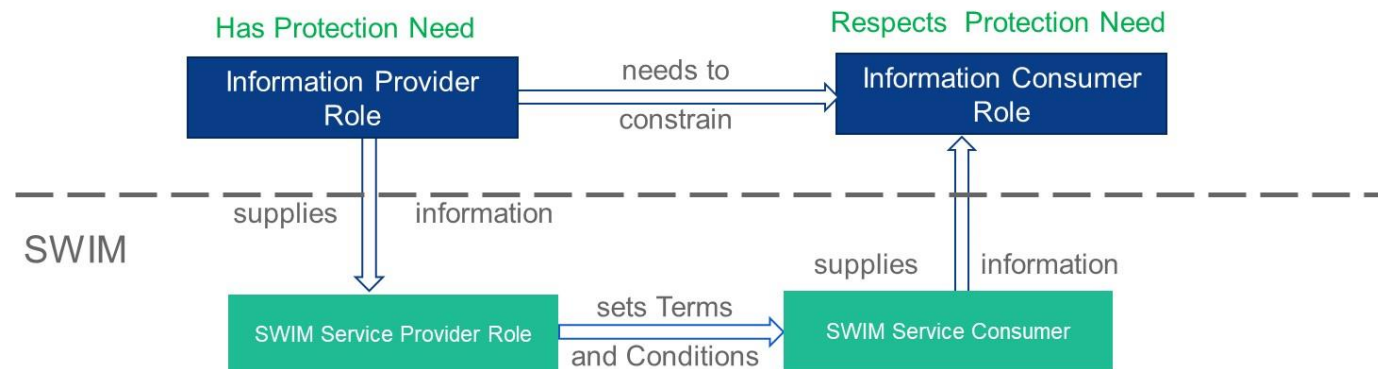
Means to protect rights
and information between
providers and consumers



Guidance and Examples
of SWIM implementation
framework (eg SWIM
policies)

WG-G Work in Progress : Protecting rights and information

- It is agreed the information producer rights and privacy needs to be protected - accross all domains / for all stakeholders.
- The control of data / information dissemination and use should be addressed first through Terms and Conditions. The clauses need to be cascaded (passed on from upstream) throughout multiple actors (eg information providers, information service providers, information service consumers, information consumers).
- Action to derive from European SWIM Governance Project draft ICAO Guidance Material for IMP consideration



Governance

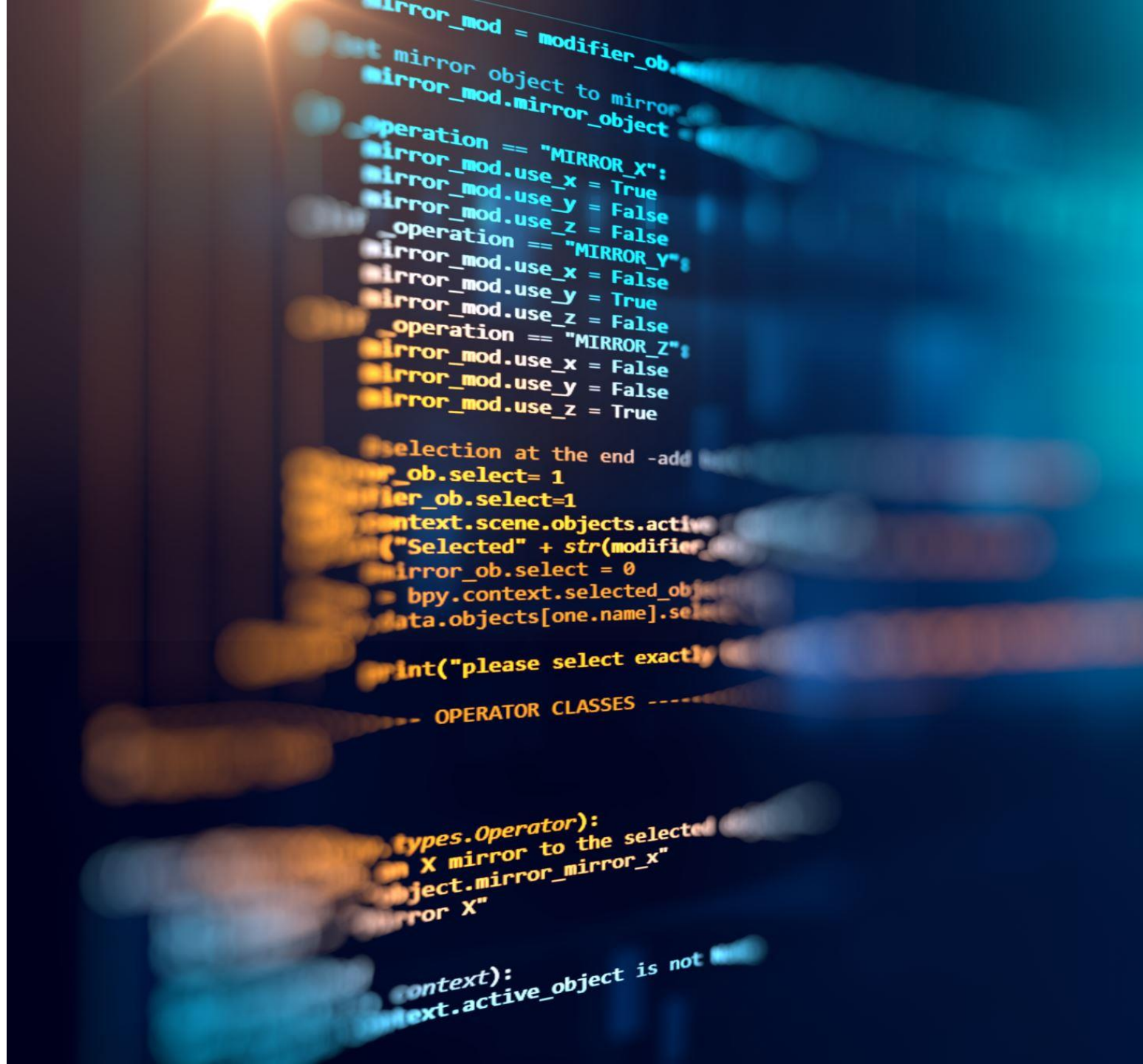
Other topics

- **Oversight applied to SWIM**
 - Action to draft Guidance Material to explain how existing Oversight mechanisms (in compliance with the State regulatory framework) do apply to SWIM.
- **SWIM Registry**
 - Work in progress in WG-I/S

A photograph of wooden blocks on a wooden surface. Three blocks in the foreground are arranged to spell 'AOB'. In the background, other blocks are scattered, some spelling out 'FLOW' and 'M'. A pair of glasses is visible in the upper left background.

A O B

Ongoing activities WG-I/S

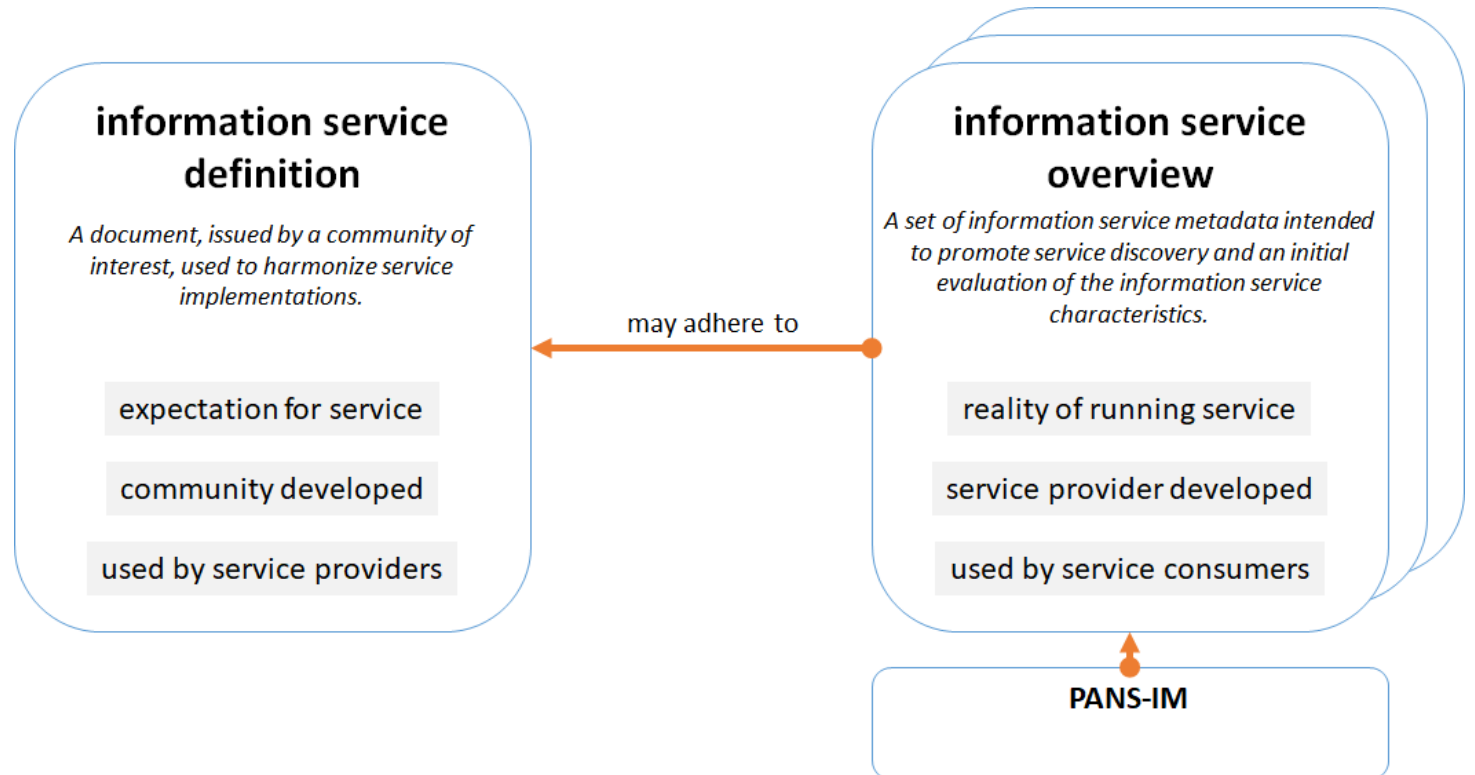


Information Service Definition

IMP.013.01		Information Service Definition						
Source		IMP/2						
Problem Statement		Current requirements for the provision of information service overviews are limited to the discovery of information services and do not include requirements on how an information service should be implemented which could hinder global harmonization.						
Specific Details		<p>The "information service definition" holds information service design elements that steer harmonised implementation. Work of different information domains work, to define the globally harmonised implementation of an information service, may, when not structured in the same way, lead to missed opportunities in terms of global harmonisation, re-use, and separation of concern in the overall service orientation context of SWIM.</p> <p>A common structural approach in terms of information service definition should be provided to ensure a harmonised implementation. This entails the establishment of the list of necessary information service design elements and provisions deemed necessary at the global level. It is worth noting that, (i) information service definitions are also based on information service metadata, and (ii) information service definitions can be made available in SWIM Service Registries.</p> <p>The work on a structural approach to information service definition may help deciding whether the establishment of the ICAO information service portfolio to foster global harmonisation of information services deployments would be necessary.</p>						
GANP/GASP Link		GANP Concept Step 3 and ASBU: SWIM-B2/1, SWIM-B2/2, SWIM-B2/3, SWIM-B2/5						
Expected Benefits		Globally standardised information service design elements, used for defining information services, will support information service deployment in the context of SWIM, increase global harmonization and improve the ease of implementation.						
WPE No.	Document Affected or Actions Needed	Description of Amendment proposal or Action	Supporting Expert Group	Status	Expected dates:			
					Delivery	Effective	Applicability	
10336	Propose amendment to PANS-IM (Doc XXXX)	Information Service Definition provisions and any other relevant provision.	METP, ATMRPP	Pending approval	Q3 2024	July 2026	Nov 2026	
10337	Propose amendment to the Manual on SWIM Implementation (Doc XXXX)	ICAO Information Service Portfolio, if required, and any other additional guidance.	METP, ATMRPP	Pending approval	Q2 2026		Nov 2026	

Service Definition vs Service Overview

- An information service definition is produced by a community of interest. It places community agreed requirements on service providers that intend to implement the described service with the goal to harmonise service implementations.
- An information service definition includes service design information, expressing what the service should do and how it should work. It covers organisational and business aspects of the service (e.g., the operational needs to be satisfied by the service), information requirements and technical details (e.g., service interfaces, service operations, and service payload).



SWIM Registry Interoperability

- IMP will evaluate prior interoperability concepts and then develop
 - A global SWIM Service Registry interoperability concept,
 - Provisions for information service metadata enabling the structured exchange of information service metadata, including for example information service identifiers, and
 - An exchange model/schema for information service metadata.

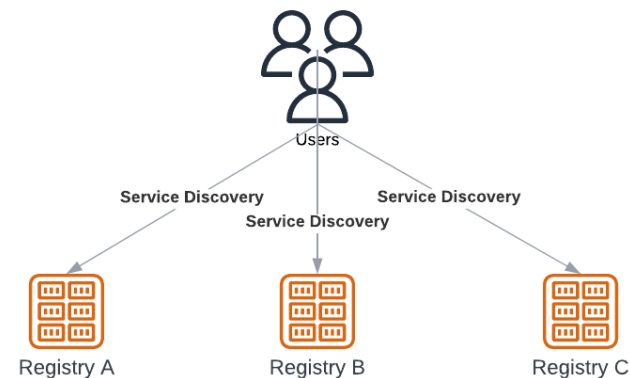
IMP.012.01		SWIM Service Registry Interoperability	
Source	IMP/2		
Problem Statement	The lack of interconnection between SWIM Service Registries can jeopardize a seamless access to information services and result in a not harmonized deployment of SWIM at a global level.		
Specific Details	<p>The IMP discussed and agreed that provisions and guidance are required to enable SWIM Service Registries to exchange information about information services. This is a logical next step following the Information Service Overview work and requires to further define interoperable information exchanges to cover information about information services (i.e. information service metadata exchanges), with the aim of further enabling and automating these information exchanges with and between SWIM Service Registries. Various initiatives were developed nationally and regionally, and initially considered by the IMP (e.g. SWIM Inter-Registry Framework (SIRF), Service Description Conceptual Model (SDCM), SWIM Discovery Service (SDS), Service Interoperability Reference, etc.). Building upon these initiatives, the aim of the proposed activity is to discuss, promote and/or enhance the content deemed necessary to enable SWIM Service Registry interoperability at a global level. This includes, but is not limited to the following artefacts:</p> <ul style="list-style-type: none"> - a global SWIM Service Registry interoperability concept, - provisions for information service metadata enabling the structured exchange of information service metadata, including for example information service identifiers, and - an exchange model/schema for information service metadata. <p>In addition, this could result in amending existing provisions and artefacts such as the SWIM vocabulary.</p>		
GANP/GASP Link	GANP Concept Step 3 and ASBU: SWIM-B2/1, SWIM-B2/2, SWIM-B2/3, SWIM-B2/5		
Expected Benefits	Interoperable information exchanges between SWIM Service Registries and seamless access to information about information services through SWIM Service Registries at a global level.		
Reference Documents	GANP, PANS-IM, SWIM Implementation Manual.		
Primary Expert Group:	Information Management Panel		
<i>For information purposes (to be completed by the Secretariat)</i>			
Proposed Metric	Number of SWIM Service Registries connected		
Interdependencies	IMP.004.02; IMP.005.02		
Initial Assessment	Impact on States	None unless they provide a SWIM Service Registry. There will only be an impact on SWIM Service Registry providers.	
	Impact on Industry	None unless they provide a SWIM Service Registry. There will only be an impact on SWIM Service Registry providers. Positive impact to consumers of information, especially those that have to access information services from different SWIM Service Registries.	
Secretariat Project Team	Secretariat Project Coordinator	IMP Secretary	
	Secretariat Team Members	Project	



Registry Interoperability

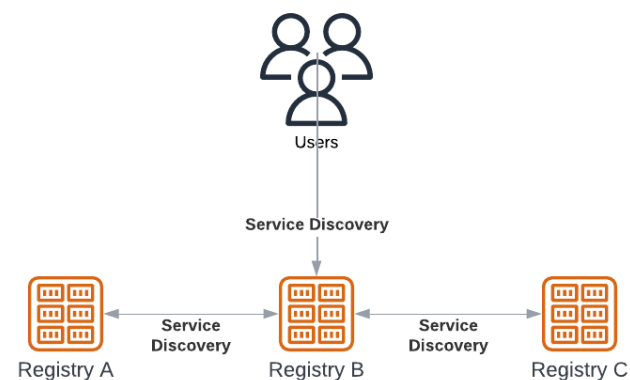
DIFFERENT INTEROPERABILITY LEVELS

- **Technical interoperability**
 - Common network-level protocols (e.g., TCP/IP, HTTP)
 - Standards-based APIs for service exchanges (e.g., REST, SOAP)
- **Syntactic Interoperability**
 - Common data (and/or metadata) structure that supports a core, fundamental set of data elements, e.g., based on the ICAO-defined Service Overview; see the (draft) SWIM provision (PANS-IM) and SWIM Manual Vol II Section 4.4.3 for further description
- **Semantic Interoperability**
 - Common understanding of the information being exchanged (e.g., controlled vocabulary, ontology, etc.); see the Air Traffic Management (ATM) Information Reference Model (AIRM)



Each registry maintains a common

- Service Overview
- Service Definition



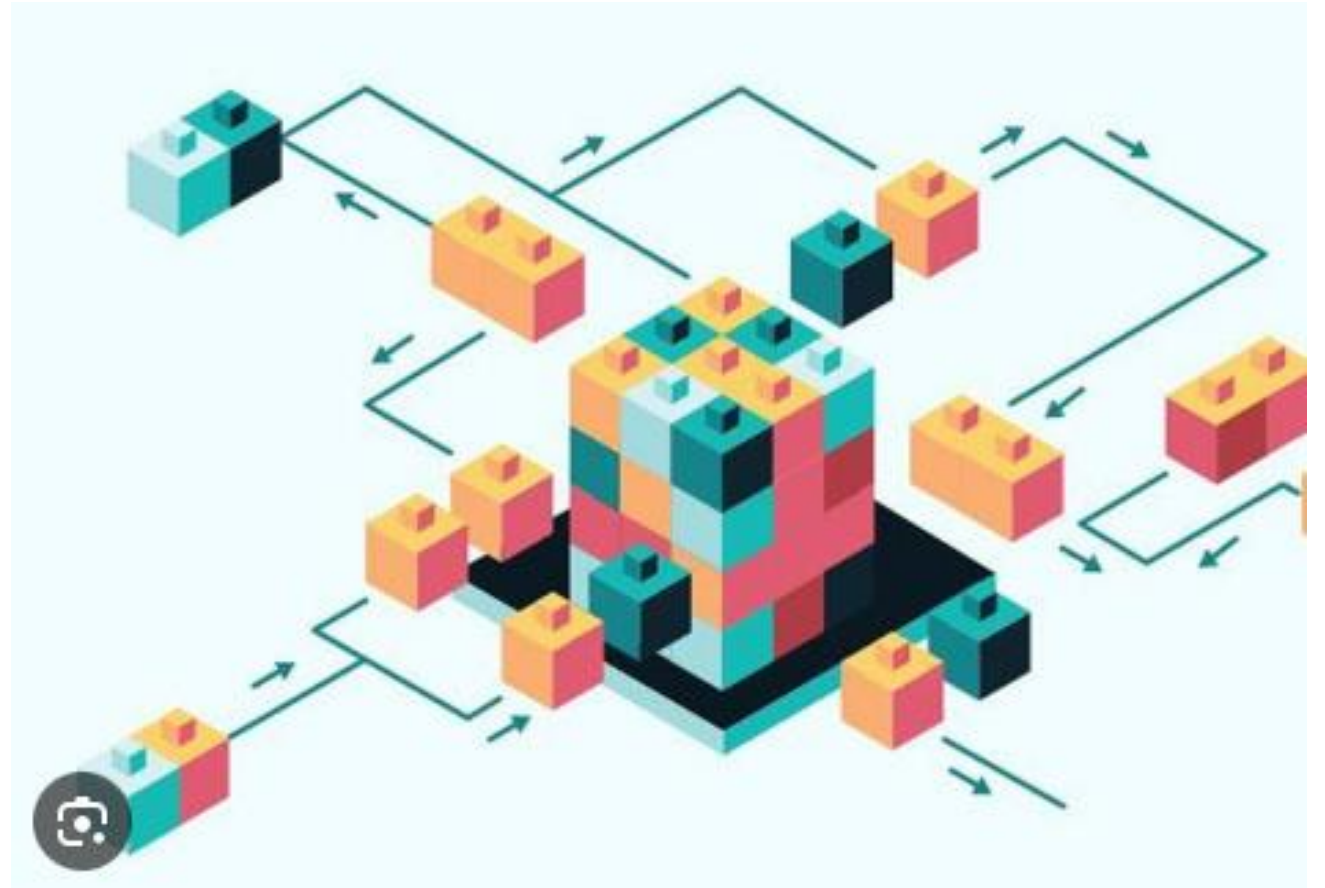
Each registry maintains a common

- Service Overview
- Service Definition

SERVICE REGISTRY INTEROPERABILITY CONSIDERATIONS

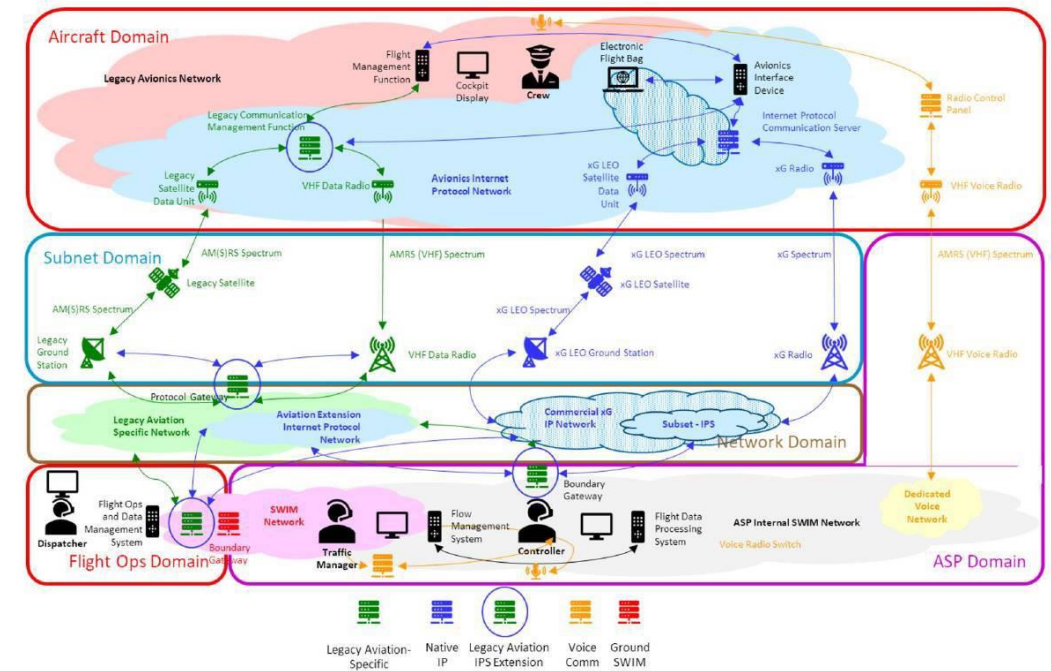
SWIM Service Registry interoperability

- Acknowledgement that multiple registries could be interconnected but not fully integrated
- Clarification that only “design-time” registries are addressed
- Some governance aspects also to be considered



INFORMATION SERVICES FOR AIR-GROUND SWIM

- Assessment and identification of updates to information services, technical infrastructure, governance and information security for A/G SWIM.
- Main topics : A/G SWIM performance considerations, A/G SWIM boundary and scope and Quality of Service (QoS) parameters
- Presentation the Connected Aircraft environment
- Many open questions on scope of exchanges (ATM only?) and type of exchanges (critical vs non-critical)





OTHER TOPICS

- **Information Management Vocabulary** : need to consider other initiatives such as the AIRM or the UN terminology DB (UNTERM) + online location for terms and definitions re: data and information management and use
(<https://www.icao.int/airnavigation/IMP/Pages/Harmonized-Vocabulary.aspx>)
- **Inter-Panel coordination** (MET-P, Safety Management Panel, Cyber, etc.)
- Information on SWIM **Implementation** activities
- *Next IMP meetings in 2024 : April (WG/012) and October (IMP03)*