

# SESAR SWIM FACTSHEET

## SWIM Registry Service

N° 02/2016



### Overview - SWIM Registry: Sharing a common view on SWIM

*In line with the SWIM concept<sup>1</sup> - the SWIM Registry Service<sup>2</sup> aims at improving the visibility and accessibility of ATM information and services available through SWIM. This enables service providers, consumers, and regulatory authorities to share a common view on SWIM.*

*The SWIM Registry is the source of reference for service information in SWIM. It describes the complete set of services enabled by SWIM (like the service that allows getting the weather forecast for a particular aerodrome) with qualitative, consolidated and structured information. The Registry is also the source of reference for other service related information such as exchange information models, technical infrastructure profiles and policies.*

### The SWIM Registry enables direct ATM business benefits to all of its stakeholders by:

- Allowing providers (mainly those sharing information over SWIM) to increase visibility (and consequent adoption) of their services. This also stimulates the reusability of services by other providers. The Registry also supports the providers in managing their relationship with consumers as well as their dependencies with other services, standards and regulations.
- Improving the efficiency of consumers (mainly those getting information from other stakeholders over SWIM) in identifying the right provider and reducing their effort in setting up everything required prior to start using a service.
- Facilitating a collaborative evolution of services by enabling all relevant stakeholders to share a common view and participate in the lifecycle of these.

<sup>1</sup> As described in SESAR fact sheet N° 01/2016, the concept of System Wide Information Management aims at assuring the provision of commonly understood quality information delivered to the right people at the right time.

<sup>2</sup> A registry service can in principle be used both 1) in design-time to support the design, development and governance of services as well as 2) in run-time to support the use and management of services. Currently the SWIM Registry is only focused on the design-time.

# The need for registries inside and outside ATM

The concept of a registry is nothing new and it has traditionally served the purpose of organizing and facilitating access to different types of resources. Examples of registries are the catalogue of books that has always existed in a library and the more recent Yellow Pages.

Other initiatives (e.g. GEOSS, NextGen) have adopted registries from the very beginning for the management of services and standards among the multiple stakeholders involved.

## Definition and basic notions of the SWIM Registry

The SWIM Registry is a trusted, managed, complete and consolidated source of reference for service information and related regulations (policies, standards, certifications). More specifically, the Registry is:

- **A source of reference** (i.e. system of record) where all services enabled by SWIM are listed and described following a common structure and taxonomy.
- **A single point of access** for the end-user to consolidated service information.
- **An encounter point** between the providers that publish information about the services they offer, and the consumers that come to the Registry looking for a service that fulfils their requirements.
- **A trusted source of information** that guarantees the integrity, confidentiality, availability, authenticity and traceability of information.
- **A single point of control** that facilitates oversight and steering of services in SWIM.
- **A source of reference** for service related policies, standards and certifications.
- **A collaborative platform** where services evolve in the direction agreed by its stakeholders.

As depicted below, the Registry enables the “provider” to “publish” information related to its services so that the “consumer” is able to “discover” them and obtain everything (e.g. interface information) required to ultimately use those services. The “regulatory authority” uses the Registry to influence the implementation of services in SWIM with the publication of policies, standards, and definitions.

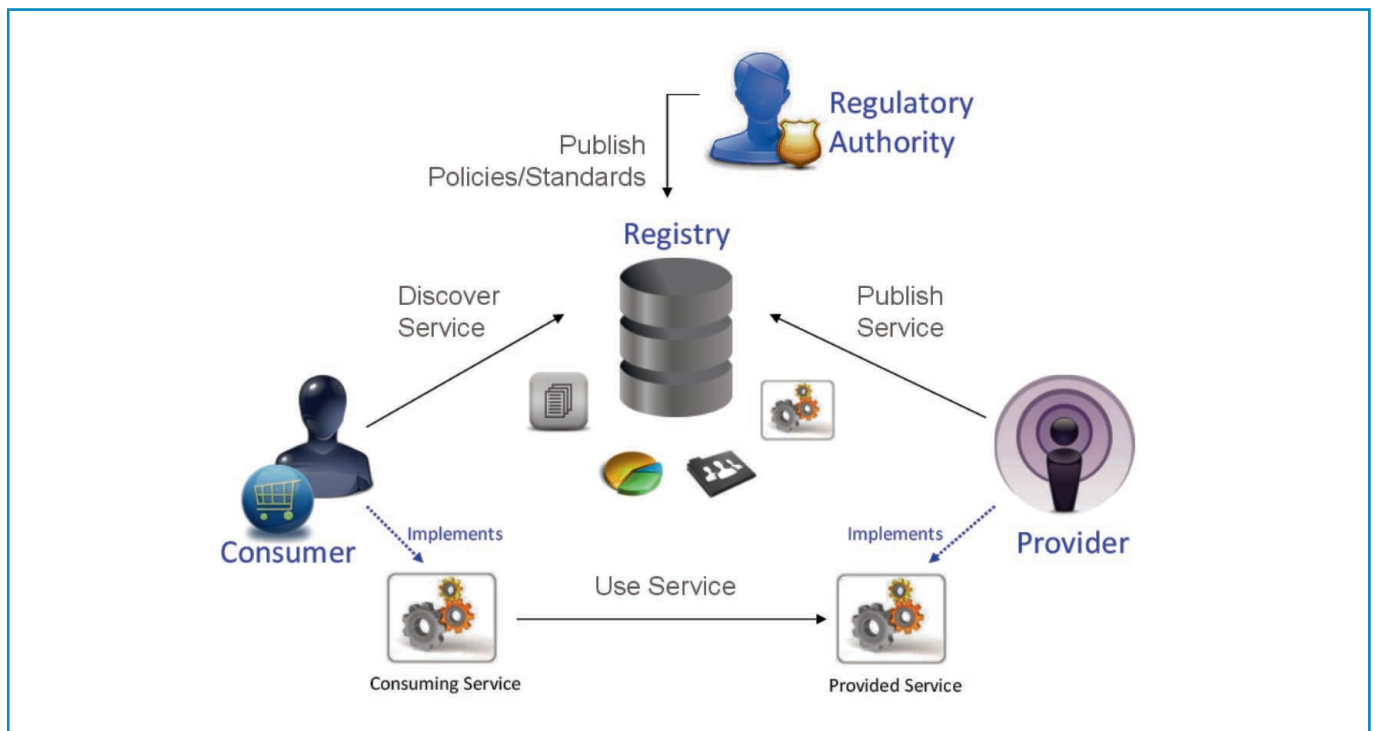


Figure 1: Interaction between the service stakeholders and the Registry

## What is stored in the SWIM Registry?

The Registry is the source of reference for service descriptions and related standards, policies and certifications. Consequently the Registry stores:

- **Service Descriptions:** these are artefacts, usually document-based, that define or reference the information needed to use, deploy, and manage a service. A distinction should be made between Service Implementations that refer to those services managed by a particular provider as opposed to Service Description Standards (i.e. service models) that describe how a service should be implemented by a provider (e.g. ISRM). Both Service Descriptions and Service Models consider the functionality and the QoS of services.
- **Information Exchange Models:** in order to promote semantic interoperability an ATM Information Reference Model (AIRM) has been developed and is being prepared as an ICAO standard. The AIRM contains the logical definitions of concepts. Technical exchange models like AIXM, IWXXM and FIXM, all compliant with the AIRM, are used to define the payload of SWIM services, ensuring both semantic and technical interoperability of the services payload.
- **Policies:** these are a set of requirements formulated and prescribed by a SWIM governance body, to direct and describe actions in pursuit of long-term goals. Policies prescribe the conditions and constraints for interacting with a service. A policy can be of different types (e.g. security, commercial conditions, and applicable laws).
- **Technical Infrastructure Profiles:** this artefact describes an Infrastructure Profile that is a coherent, appropriately-sized grouping of middleware functions/services for a given set of technical constraints/requirements that permit a set of stakeholders to realize Information sharing. It will also define the mandated open standards and technologies required to realize this coherent grouping of middleware functions/services.

# Which functionality is provided by the SWIM Registry?

The Registry supports the service stakeholders (i.e. consumers, providers, regulators) in their need to retrieve and manage information in the Registry by exposing the following functionality:

- **Service Discovery:** it allows finding information about the services registered in the Registry.
- **Service Publication:** it allows providers to register services in the Registry.
- **Service Subscription:** it allows service stakeholders to remain informed on changes done to the information stored in the Registry.
- **Service Lifecycle Management:** it allows providers to manage the complete lifecycle of services in the Registry. It also allows other stakeholders to get involved in the evolution of services and to manage the dependencies of these with consumers, regulations or other services.
- **Policy Publication:** it allows regulators to make available the list of policies, certifications and standards applicable to the service domain.
- **Policy Discovery and Subscriptions:** it allows providers to stay informed of the relevant regulations applicable to them.

## Conclusion

In order to support the implementation and evolution of SWIM, there is a real need to ensure coordination among its multiple stakeholders. The Registry improves the visibility and accessibility to SWIM service information facilitating the creation of a common view on the capabilities of SWIM. Additionally, the Registry plays also an important role in sharing the common guidelines (i.e. policies, information exchange models, and collaborative service lifecycles) that enables all participants in SWIM to align and progress towards a common objective.

## Further information

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