

# ONTOLOGY-BASED DATA DESCRIPTION AND DISCOVERY IN A SWIM ENVIRONMENT

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## **Abstract:**

ATM data in the upcoming SWIM originates from different authoritative sources (such as Eurocontrol) and is combined and enriched by different data providers (such as GroupEAD). It is further filtered, combined and enriched specifically by organizations (Airlines, ANSPs, Manufacturers) and provided to end-users for the accomplishment of specific tasks (such as the data in an EFB for a pilot conducting a specific flight). The relationships between these different data products are hidden in APIs or non-standardized interfaces of web services. This makes the discovery and combination of data products an intricate task requiring intervention of IT personnel. The lack of a common model to describe the contents of data products prevents automatic identification of relevant data products for a specific task.

## **Introduction**

Aeronautical information management (AIM) is concerned with providing information necessary for global air traffic management. This information is used in support of, e.g., performance-based navigation (PBN). Correct and timely aeronautical information is essential for ensuring safe flight operations. Therefore, governing bodies are constantly improving current systems. Originating from the Single European Sky Air Traffic Management Research (SESAR) program, current developments focus on transforming the process of AIM from paper-based, product-centric services to electronic, data-centric information provisioning [1]. This effort is referred to as System Wide Information Management (SWIM). The shift does not foresee a change of the scope of the distributed information but a change in the way the information is distributed and consumed [1]. In the SWIM vision, information is no longer exchanged point-to-point between producers and consumers. Instead, producers publish information, or information services, in the SWIM environment where it can be accessed by consumers. Information producers utilize information services to offer value-added information, such as granular filtering or enrichment. Eventually, SWIM consumers will face a multitude of data products, each of these data products offering a different value added. The goal is to achieve the full benefits of available information without facing information overload. Therefore, new approaches to organize and discover relevant information are necessary. In particular, consumers require a way to easily find the needed information without knowing a specific producer beforehand.