

1 Summary

The BEST project investigates how semantic technologies can be used to complement the System Wide Information Management (SWIM) concept. In order to see how semantic technologies can be used as effectively as possible, we need to see what types of ATM data are most fit to be utilised, how these data can be represented by ontologies, how the ontologies can be used to complement SWIM, and how the semantic technologies within our scope can be governed for current and future use.

After having identified relevant ATM information models, ontologies that express concepts for the ATM domain were developed in BEST (deliverable D1.1). Ontologies are a fundamental part of the semantic technology stack. BEST makes extensive use of them.

These ontologies were transformed to from standardised ATM information models using software developed in BEST. They are then used as the vocabulary for the metadata used to describe ATM information offered by semantic containers (techniques for implementing semantic containers are defined in deliverable D2.1). Semantic containers complement SWIM services in the sense that they provide semantic descriptions of the information that a SWIM service offers to end-users and through this facilitate retrieval of relevant ATM information (while disregarding irrelevant information). Furthermore, the semantic container approach allows for caching the information so that it easily can be re-used. BEST further develops data distribution and consistency management strategies that describe how ATM information should be exchanged, supported by semantic containers. These strategies are formulated in deliverable D2.2.

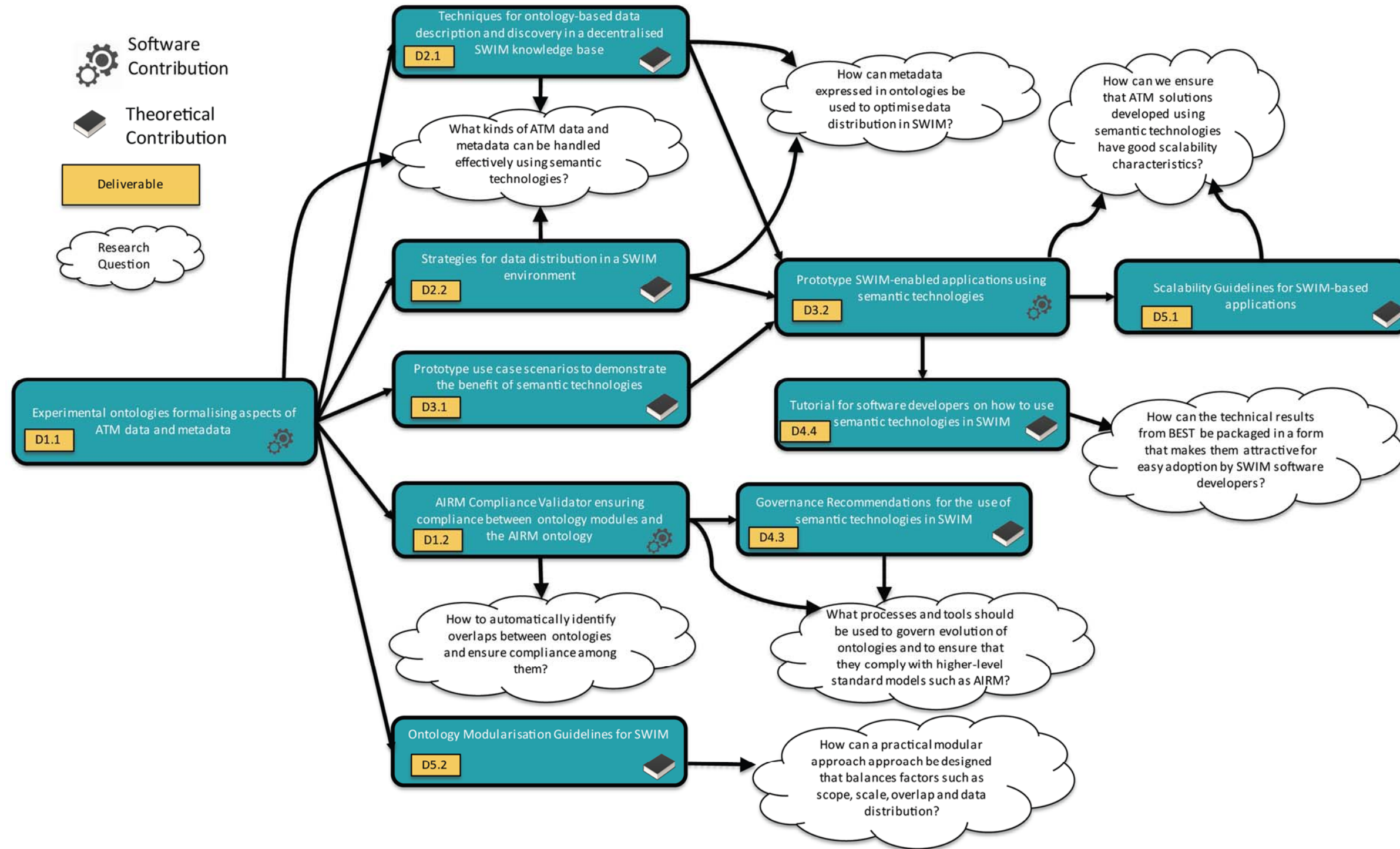
BEST is developing a set of prototype applications (see D3.2) that demonstrate how ontologies and the semantic container approach are used in a SWIM environment. Use case scenarios guiding this development were developed in deliverable D3.1. As a part of sharing knowledge about how these semantic technologies can actually be implemented and applied in a SWIM setting, deliverable D4.4 describes lessons learned and best practises from all the developments in BEST. This deliverable is primarily targeted towards software developers of ATM applications.

Governance of information models is an important activity for ensuring information quality and interoperability, also for future application. Within ATM there are several information models that at all times need to be in compliance. However, ensuring compliance between such large monolithic models, often encompassing several different knowledge domains is challenging. The BEST project suggests a modular approach in the sense that monolithic models are decomposed into smaller parts and that the dependencies between these parts are clearly defined. One assumption made by the project is that such a decomposition would also simplify and strengthen governance activities. One software application that can support





the compliance assessment is the AIRM Compliance Validator developed in deliverable D1.2. This application helps automatically verifying compliance between the ATM Information Reference Model (AIRM) and information models claiming compliance with the AIRM. Deliverable D5.2 presents guidelines on how to develop and maintain ontology modules in a SWIM setting. The guidelines are formulated based on lessons learned from the development of the ontology infrastructure in D1.1 combined with principles for ontology modularisation from earlier research. Deliverable D4.3 describes how governance is to be understood in the context of managing compliance between multiple information models and standards in SWIM with a particular focus on governance of semantic technologies and their application.

Scalability is an important prerequisite for any usable software applications. Deliverable D5.1 investigates which scalability characteristics relate to semantic technologies and their application in SWIM. The outcome of this deliverable are guidelines that enable an understanding of how scalability can be analysed in the application of semantic containers (D2.1, D2.2, and D3.2) and techniques used for compliance validation (D1.2).

Project overview



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