

An Evaluation Model for Structural Memory using Ontologies /

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Abstract

This research proposes an upper-level ontology for the Organizational Memory (OM) domain, i.e., a schema (map) to guide SM design, construction, evolution and evaluation. The top level of the ontology is specified using the new generalized concept of Structural Memory (SM), which is a framework of types (e.g., Organizational Memory and Individual Memory) and components (content and mean) that enable Knowledge Management (KM). Its bi-dimensional construct enables the concrete representation of each memory type (e.g., enterprise, corporate, group or person) using its components dimension.

We have developed the SM ontology in the framework of an evaluation model. There are three stages in this evaluation model:

1. The development and evaluation of an ideal SM ontology.
2. The design and evaluation of existing SM ontologies.
3. A comparative evaluation of any existent SM vs. the ideal SM.

We believe the ontological approach is key to evaluating SMs. We demonstrate the feasibility of our approach by constructing the SM ontology using an Object-Oriented Paradigm (OOP) and UML (Unified Modeling Language). The SM ontology is comprised of about 90 entities and 100 processes described using UML use-case, class, activity and sequence diagrams. This development responds to the first part of the evaluation model – the development of the SM ontology as a generic tool to guide the development of existent SMs.

The resulting ontology is evaluated in the two dimensions of verification and validation, using a set of criteria for each. Verification was done in relation to the ontology internal features (e.g., clarity, coherence, extendibility and minimal ontological bias). Validation was carried out for conceptual coverage in relation to the world (i.e., the literature) that the domain ontology represents (e.g., completeness and granularity), as well as its usefulness (i.e., for case studies) in practice (e.g., competence and utility). Going through this exhaustive evaluation process provides us with proof of concept regarding the SM ontology internal features, conceptual

