

Modelling of an Ontology for Reusing Scientific Knowledge in a Biomedical Informatics Research Unit

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In our scientific research unit we have developed BIKMAS, a knowledge management system to capture, store, share and transfer scientific knowledge in the Biomedical Informatics field. In this work we describe the role of an ontology as a tool for integration of vocabularies in BIKMAS. The source and type of the scientific information, the relevant knowledge themes and the distribution of the information in the different operational tasks of the Biomedical Unit are described in BIKMAS ontology.

We have defined three main BIKMAS ontology frames (“information asset” frame, “Biomedical Informatics themes” frame and “uses” frame). The “information asset” frame describes the terminology used to identify and answer queries about specific information resources. The “Biomedical Informatics themes” frame defines the terminology of the different research fields that are relevant to the Biomedical Informatics research Unit. The “uses frame” locates places where to classify and publish this significant information.

BIKMAS ontology provides several benefits as: (1) communication between users and research units, to unify different research fields. (2) The ontology could be used to unify BIKMAS with others software tools. (3) The ontology also assist in the process of building and maintaining software systems because they can assist in the process of identifying requirements and defining a specification of the system. (4) A formal representation of the knowledge improves reliability by facilitating automatic checking of the system.

The use of ontologies in BIKMAS provides a mechanism to enable task automation because the management system is optimized by restricting contents to a set of pre-defined values according to some rules.

