

# Scientific Digital Libraries, Interoperability, and Ontologies

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## ABSTRACT

Scientific digital libraries serve complex and evolving research communities. Justifications for the development of scientific digital libraries include the desire to preserve science data and the promises of information interconnectedness, correlative science, and system interoperability. Research [1] suggests single shared ontologies are fundamental to fulfilling these promises. We present a tool framework, a set of principles, and a real world case study where shared ontologies are used to develop and manage science information models and subsequently guide the implementation of scientific digital libraries. The tool framework, based on an ontology modeling tool as illustrated in Figure 1, was configured to develop, manage, and keep shared ontologies relevant within changing domains and to promote the interoperability, interconnectedness, and correlation desired by scientists.

## Categories and Subject Descriptors

H.3.7 [Digital Libraries]: Standards, Information Modeling

## General Terms

Design, Standardization, Languages, Theory

## Keywords

Digital Library, Ontology, Information Model, Interoperability, Science Data, Science Metadata.

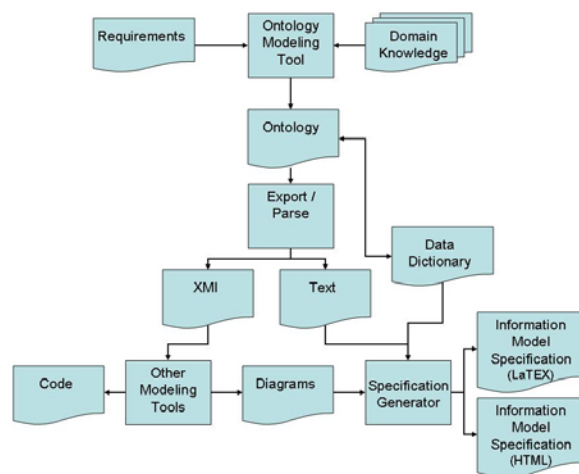


Figure 1. Tool Framework and Process Flow

## REFERENCES

- [1] M. Uschold and G. M., "Ontologies and Semantics for Seamless Connectivity," *SIGMOD Record*, vol. 33, 2004.