

## Preface

Metadata can be defined as structured data about an object that supports some function(s) related to that object described, achieving a degree of uniformity in description by means of schemas. Metadata schemas are structured representations of information for a given use or domain, following some rules of well-formedness and quality and in most cases being open specifications. Schemas are often produced by communities of practice, and in some cases, they reach the status of formal standard. There is not a single language to express metadata in digital form, but XML and RDF are nowadays the more common choices. Formal ontology has emerged recently as a knowledge representation infrastructure for the provision of shared semantics to metadata, which essentially forms the basis of the vision of the Semantic Web. In consequence, ontologies and annotations that use ontologies can be considered a very specific kind of metadata, especially targeted to machine-understandability by means of using formal logics. Ontology annotations complement existing metadata schemas with richer semantics that can be used for automated reasoning. Metadata is a product that once created and properly managed becomes an *asset* for some functions that in turn produce some kind of *value*. It has been proposed elsewhere that there are at least three levels of increasing metadata functionality:

- (1) support data discovery;
- (2) facilitate acquisition, comprehension and utilization of data by humans; and
- (3) enable automated data discovery, ingestion, processing and analysis

Thus, metadata is used for different purposes and with different objectives. Also, metadata does not come without a cost, but it is expensive to create if some quality is required. As a consequence of the above “metadata research” can be seen as a multi-disciplinary field, obviously encompassing Information Technology but also inputs from other disciplines as management or knowledge organization.

These topics of metadata, semantics and ontologies were the core areas of the 2nd International Conference on Metadata and Semantics Research (MTSR'07). There are a few conferences related to metadata either directly or indirectly, and several devoted to Semantic Web issues. However, MTSR is unique in gathering together researchers from different disciplines and with diverse backgrounds. This fosters an atmosphere of cross-fertilization which is the main objective of the conference.

MTSR'07 took place at the Corfu Island in Greece, from 1<sup>st</sup> to 12<sup>th</sup> of October 2007, thanks to the support of the Ionian University. The Ionian University opened to students in 1985, and it is nowadays a modern and dynamic institution, with six academic departments and nine postgraduate programmes. There were two interesting special sections, one on Agricultural Metadata & Semantics and a second one on Metadata and Semantics for Pervasive Computing. Invited speakers were Grigoris Antoniou (University of Crete and FORTH), Jorge Cardoso (University of Madeira, Portugal) and Gauri Salokhe (FAO).

MTSR'07 received around 120 submissions, of which 60 were selected for the conference, and most of them are collected in this book in revised form. The peer review process had in consequence two rounds. The first one was for the selection of the papers to be presented at the conference. Then, after the conference, programme committee members had the chance to have an additional review, especially in cases in which the presentation of the paper at the conference had raised relevant comments, criticisms or suggestions. This book is the result of that post-conference process of review.

The book can be considered a view of the changing landscape of metadata and semantics research. There are some topics that are currently under intense activity, notably metadata in agriculture and metadata in the management of cultural assets. This reflects some bursts of activity fostered by strong institutions in the area, however, metadata and semantics spans every domain in which locating, relating or exploiting digital assets represents a need.

We hope the compilation of chapters in this book serve the purpose of providing a good overview of the state of the art in metadata and semantics.

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