Web-based Information Sharing:
Technologies, Strategies, and Approaches

Islands of information have plagued both private enterprise and governmental agencies. Data and information sharing across distributed enterprises in both the public and private sectors present both technical and political challenges such as security, data ownership, architecture, and management of volatile information requirements. This mini-track brings together a researchers from around the world to present and discuss five interesting papers: a knowledge representation architecture for dynamic integration of web-based information, an architecture to support communities of interest using directory services capabilities, XML access control for semantically related XML documents, and the design of a web-based archaeological data sharing structure for a comprehensive heritage management system in New Zealand.

In their paper, Moulton, Madnich and Siegel propose a knowledge representation architecture to support "context interchange mediation" and illustrate it with examples drawn from the fixed income securities industry. According to the authors, there work is based on the semantic proposition that interchange of information can be mediated if sources and receivers share a common subject domain (or interlocking subject domains). The proposed knowledge representation architecture divides the knowledge used for contextual mediation into three layers: 1) a domain ontology containing abstract subject domain concepts used by experienced practitioners and system designers in the industry, 2) data models for each source and receiver with the kind of information programmers would use to access data, and 3) context models for each source and receiver that explain how each source or receiver data model implements the abstract concepts from a subject domain ontology. Next, in their paper, Kuechler, Vaishnavi and Vandenberg propose and describe the architecture for constructing directory of services that span across organizational boundaries – referred to as "communities of interest (COI)". These communities consist of groups of individuals who share common interests but work in different organizations. According to the authors, the COI Server architecture consists of human actors, automated processes and data stores, which are connected to one another through flows of metadata and data. This goes further than traditional directory services by conceptualizing attribute definitions and COI object classes as data to be flexibly discovered *and* specified by users, and by providing mechanisms to promote semantic homogeneity.

In the their paper, Parmar, Shi and Chen propose and illustrate a model for dealing with the problem of access control of XML documents that are semantically related. According to the authors, the existing work on XML access control is mostly concerned with access control for unrelated individual XML documents and does not address this issue very effectively. Finally, in their paper, Gardner, Holdaway, Whitehead, Kleine J., Bader H. D. and Gibbs R. propose a framwork and describe the design and prototype development of a comprehensive web-based heritage management system to share archeological data in New Zealand. They also discuss the challenges and issues involved in designing and implementing such a complex information system.