Key Personnel

Kenneth Baclawski is the PI. He is responsible for overall coordination of the project and directing the outreach to other communities, especially those represented by the DataNet Partners. This will specifically provide for active community input and participation in all phases and all aspects of DataNet Partner activities. In his capacity as a faculty member at Northeastern University, he will develop new tools and capabilities for learning that integrate research and education at all levels. He will also be engaging in research on metadata versioning.

Mark Musen will lead a subcontract at the NCBO. The NCBO sub-team will be responsible for enhancing the BioPortal project to serve as the web server and database engine for the OOR. While BioPortal is currently used as a centralized repository for biomedical ontologies, it was actually designed as a general purpose ontology repository. So it is an ideal foundation for the OOR. The NCBO sub-team will work with the LBNL sub-team to integrate the XMDR capabilities into BioPortal.

Neil Sarkar will lead a subcontract at MBL. The MBL sub-team is responsible for coordination with the Biodiversity communities, especially those communities involved in the Encyclopedia of Life, the natural environmental communities, and the climate communities. The sub-team will engage in research on a variety of topics especially methods for dealing with documents and other artifacts as terminology and ontologies evolve over time, and methods for linking terminology in related, but distinct, communities.

Bruce Bargmeyer will lead a subcontract at LBNL. The LBNL sub-team will contribute the results of the eXtended Metadata Registry (XMDR) project to date and extend the work as needed for the OOR project. The XMDR project is concerned with the development of improved standards and technology for storing and retrieving the semantics of data elements, terminologies, and concept systems (thesauri, taxonomies, ontologies, etc.) in metadata registries. Existing metadata registry standards include the ISO/IEC 11179 family of Metadata Registry standards (e.g., ISO/IEC 11179). The XMDR project proposes extensions of the ISO/IEC 11179 family of metadata registry standards to support more diverse types of metadata and enhanced capabilities for semantics specification and queries. The LANL sub-team has already created and tested a prototype extended metadata registry (See xmdr.org). The primary responsibility of the LBNL sub-team will be to work together with the NCBO sub-team to integrate capabilities of XMDR and BioPortal. We would work on standards to make it feasible for wide deployment of the OOR.

Katherine Goodier is a consultant. She will assist the PI in project coordination and outreach activities as detailed in the responsibilities of Prof. Baclawski. She is specifically responsible for directing a vigorous and comprehensive assessment and evaluation during all phases of the project. She is responsible for the human culture ontology and data set, and will engage in research to integrate this ontology with the biodiversity, environmental and climatic ontologies.

Peter Yim is a consultant. He is responsible for managing team collaboration efforts. Although the team is geographically dispersed, it has been engaging in virtual meetings several times each week. He will not only be providing the collaboration infrastructure for the team, but he will also be engaging in research and development of new methods for improving the collaboration experience. This will be especially important for outreach efforts to DataNet Partners, which we envision to be mainly virtual meetings in a rich virtual environment.

Mike Dean is a consultant. He will be responsible for developing a set of modular software interfaces (loosely modeled after the Apache Server) allowing OOR instantiations to choose and configure the OOR capabilities, languages, and policies they want to support. He is also responsible for the data management life cycle, including integration, release packaging, and testing. Finally, he will be engaging in research on federation among OOR and non-OOR registries, repositories, and collaborative development environments (including Semantic MediaWiki).

Leo Obrst is a consultant. He will help address a number of aspects relevant to the OOR including: (1) ontology evaluation; (2) ontology architectures, modularization, and alignment/mapping; (3) ontology, instance, and rule reasoning; (4) service orchestration and optimization to support OOR artifacts; (5) outreach to communities in bioinformatics, national command and control, and intelligence. Leo Obrst is an employee of the MITRE Corporation. If the proposal is funded, MITRE would be requested on a non-competitive basis to provide expertise in tools development and standards interoperability to support services needed by the repository. The tools will allow researchers to more easily evaluate, modularize, map/align, and support efficient runtime reasoning over ontologies and instance data, and support orchestration and optimization of services. In the public interest, all MITRE work (tools, standards, and other products) would be made publicly available. Northeastern University would be the lead proposer; MITRE and others would be subawardees through Northeastern University. MITRE's participation is subject to the approval of our primary government sponsor, OSD NII (Office of Secretary of Defense, Networks and Information Integration).