

**Nordic Agricultural Ontology Service (AOS) Workshop
Royal Veterinary and Agricultural University**

Workshop Report

Copenhagen, Denmark

February 28, 2003

Nordic- AOS workshop- Copenhagen, Denmark- February 28, 2003

FAO together with the NOVA (Nordic Forestry, Veterinary and Agricultural) Libraries organised the Nordic-AOS workshop. The theme of the workshop was to create awareness among Nordic countries about the development of semantic standards and to initiate discussion on how to ensure participation from various agricultural communities.

The workshop provided a forum to discuss various issues related to the improvement of AGROVOC and steps that lead to the development of better semantic standards such as domain specific knowledge organisation tools and technologies to improve information management.

Around thirty-five participants attended the workshop. Most of the attendees were librarians, information managers, and subject specialists within agriculture and development from Nordic countries.

The workshop consisted of a keynote speech, presentations, group discussions and panel discussion. The presentations addressed introductory points about emerging knowledge technologies and semantic standards such as ontologies, what benefits they bring to information management and how they improve information retrieval. The presentations also covered the need for ontologies, what ontologies are, and how ontologies differ from conventional knowledge organization tools such as thesauri and authority lists. On-going ontology development projects namely the fishery ontology service (FOS) and the Biosecurity ontology projects that are being coordinated and developed within the AOS initiative were also presented. These presentations provided the chance to share practical experiences of ontology development activities with the participants. The presentations allowed participants to be informed about the approach, tools and methodologies used for building these prototype ontologies under the Agricultural Ontology Service (AOS) project.

Participants also discussed various issues in the group discussion session. The discussion points included:

- General discussion on the need for ontologies;
- Identification of users and their needs for ontologies;
- Identification of essential user interface features for using the ontology;
- Identification of ontology use scenarios with possible indication how ontologies could/should solve them better compared to existing solutions;
- Identification of the strength and limitations of existing knowledge organisation tools such as thesauri and what the ontology should take and build upon;
- Identification of information management problems (indexing, organising information, retrieving, etc) that could be solved by the use of ontologies;
- Identification of concept relationships (conceptual templates that could lead to standardised relationships) that relate concepts in the ontology and
- Collaborative maintenance of semantic tools

Report from the Group discussions

Strengths and limitations of existing knowledge organisation tools

The group discussed the limitations and drawbacks of the existing term-to-term relationships in thesauri and how such relationships should be improved by adding semantic knowledge to improve information retrieval in web environment. The group also discussed the strength of ontologies in providing semantic clarification and how this will help to improve recall and precision in information retrieval and provide a better way of integrating information from different sources. The use of ontologies particularly their role to disambiguate meaning for homonymous terms were stressed as existing thesauri does not provide this functionality.

Need for Ontologies / knowledge technologies

The group discussed the need for powerful new tools which could be developed without necessarily investing huge amounts of money. The discussion suggested that ontologies should not be complicated. Ontology development should start simple and include complexities as demand arises.

The major concern of the group was the expensive, resource- and time- intensive process required to develop ontologies. The group recommended evaluating the cost-benefit ratio of developing and using ontologies before embarking on their development. The group stressed the need for articulating the need for ontologies before their development. For instance, for some information management purposes, describing information resources with DC based metadata could be enough.

The scenario is most likely to incur big initial investment in ontology development. Cost will decline over time due to reuse at later stages.

The group suggested that the term ‘knowledge technologies’ to be used instead of ‘ontology’ since the latter is still a buzz word and is a confusing term for user communities.

Management of distributed ontology creation

The general understanding was that ontology creation is a time consuming task which is not possible for a single organization or authority to do it on its own. For this reason, the need for collaborative efforts was stressed.

Many authorities work on the same issues coming up with various ontologies about the same domain. This should be managed in a coordinated manner. The AOS initiative should act as a clearinghouse for ontology creation and management. It should provide an ontology registry system that provides an aggregated view for users. FAO’s experience in maintaining and managing the AGROVOC through a system that allows term proposal from the users should be exploited.

The group also stressed the need for FAO to closely follow up the state-of-art of ontology development and maintenance tools and methodologies and to recommend the best ones for adoption. This is particularly important if the vision is to have a distributed ontology development. Attendees expect the AOS to provide a sound guidance on standards, tools and methodologies for ontology creation.

Conclusion

All in all, the workshop has achieved its goal. The participants indicated that the workshop enabled them to enhance their understanding of ontologies in general and about the AOS project in particular. Consensus was reached that better knowledge technologies are needed.

A clear guidance has to be established how an organisation should participate in the AOS project. The AOS consortium should be set up to manage such issues. However, the specific goals and requirements have to be well established on a case-by-case basis as to what purpose the ontology will be used.

Participants are eagerly waiting for useful applications that show the power of ontologies. This will greatly attract participation and commitment to any ontology-related project.

The group also indicated the need for users, domain experts and ontology engineers to work together in close collaboration.

The strategy for the development of ontologies should focus on leveraging existing knowledge already available in the form of thesauri. Users of agricultural thesauri should be consulted to identify and analyse how the identified drawbacks should be improved.

The group also suggested FAO to take a leading role to collaborate with standard setting bodies such as OASIS (Organization for the Advancement of Structured Information Standards); webpage at <http://www.oasis-open.org/home/index.php>. OASIS has formal technical committees that discuss related issues. The committee that could be of interest here is the published subject indicator committee (PSIs).

It is expected/envisaged that further development of the AOS will be undertaken through a consortium. With this approach the experience of the collaborative approach in the maintenance of AGROVOC, based on the activity of the AGRIS centres, will be brought to a new level. The aim of the proposed consortium is to support and promote the development and application of semantic standards (vocabularies, glossaries, definitions, thesauri, metadata schemas, and ontologies) in all subject areas that contribute to knowledge for achieving food security and sustainable development.

The consortium will act as a clearinghouse between data providers (international organisations, research institutes, universities, and the private sector) and service providers (international organisations, governments, and information services) in the area. The activities of this consortium are envisaged in the organisation of workshops, the maintenance of a library of semantic standards, and in the participation in projects for the development of tools for the semantic web.