

ADNOM – Administrative Nomenclatures for eGovernment applications

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Abstract

This paper contains a report on the ADNOM project that has been carried out at European level for the last few years. The project aims at providing a comprehensive methodological framework for achieving semantic interoperability for terminology resources that are relevant to eGovernment applications.

1 Introduction

The overall goal of the ADNOM project was defined in the framework of the European Standardization Bureau (CEN) and its special program on pre-normative research for the Information Society (ISSS – Information Society Standards System) as follows: “Implementing a framework for Semantic Interoperability across domains and languages in Europe”. The project is based on the not-so-new assumption that without high quality and standards-based terminologies, it is impossible to reach precision, efficiency, and transparency within and across wide-spread activities in eBusiness, eGovernment, eHealth, eLearning, eCulture, eScience, etc.

The general problem situation in this respect has been defined as the lack of accessibility to high quality resources in many domains and languages, diversity of coding schemes and data organization, resulting in a lack of interoperability (syntactic, semantic, pragmatic) across existing data bases and applications.

This situation is aggravated by cultural differences existing across language communities and domain cultures. Such differences are sometimes so strong that citizens as well as experts are lost in dynamic communication situations. For this situation administrative and legal language is the best example.

2 Project Description – Semantic Interoperability as an overall goal

The goal of the ADNOM project is to implement a framework for reaching Semantic Interoperability across domains and languages in Europe. From a critical perspective we might argue that this goal can never be reached. On the other hand there is a growing consensus that semantic interoperability is a strategic goal that we can strive for in all professional activities where information and communication processes are involved, in particular in application scenarios that concern cross-disciplinary and cross-cultural interactions.

The burning question now is: what exactly is semantic interoperability? We can define interoperability as a property of two or more systems as their ability to interact smoothly and efficiently in information and communication processes. Semantic interoperability can be defined as a sub-ordinate concept as the property of two or more systems to interact on a meaningful basis. Semantic interoperability is to be reached on two levels, firstly, on the meta-data level – when information categories in different systems can be assigned to each other as identical or at least equivalent to each other, so that the object information contained in such data fields can be exchanged across such systems, and secondly on the object information or content level – when content in two or more different systems can be exchanged or shared without loss of information or without causing confusion in users.

Semantic interoperability can only be reached when the terminologies used in such systems are properly analyzed and used under specified conditions. Terminologies are organized and used for multiple purposes in the form of dictionaries, data bases, thesauri, classification systems, nomenclatures, taxonomies, ontologies, indexes, term lists, etc. Even in the same domain and in the same language we can nowadays find many competing or partially overlapping terminologies that need to be mapped to each other for finding practical solutions to communication problems.

ADNOM – the network for administrative nomenclature – is being created as an open and distributed registry of collections of terms that enable European citizens to navigate more easily in their own languages in public multilingual information databases, eGovernment systems, and eServices. ADNOM makes use of current eBusiness standards and technologies (such as ebXML and Topic Maps), thereby contributing to the implementation of semantic and organizational interoperability between information systems in eEurope.

Understandable terms are the key to accessing, acquiring, and organizing knowledge. ADNOM is to provide web-based referral mechanisms to link heterogeneous information systems to each other by using multilingual, terminological meta-data schemas, taxonomies, and nomenclatures.

The aim of WS-ADNOM is to establish and maintain a network between European government translation units, terminology organizations, etc. with the purpose of developing and disseminating European *Administrative Nomenclature*, built as far as possible on the basis of existing networks and resources.

Administrative Nomenclature includes names and closely related terminologies that designate specific items for which no exact correspondence may exist in other countries and languages. Some typical examples of these items are: names of government administration offices, organizational charts, job titles in public administration, school system terminology, terminology relating to taxation and social welfare. The practical scope of Administrative Nomenclature has been studied, as well as the feasibility of extending the activity into adjacent fields in the future.

In the framework of CEN/ISSS, a workshop was created as “WS-ADNOM” that intends to work towards a European Network for Administrative Nomenclature (ADNOM). In February 2006, a document called CEN Workshop Agreement (CWA 15526) has been adopted by CEN and the European Commission describing the first results of the project work so far.

ADNOM provides a coherent methodology for modeling, mapping, presenting, and accessing such resources in the context of the emerging European Interoperability Framework and in line with – and contributing to new – European and international standards (ISO/TC 37, JTC 1/SC 32, etc.).

The approach developed for this project focuses on the creation and management of federated registries based on ebXML and on Topic Maps implementations for visualizing and managing conceptual relations. In addition, meta-data standards (ISO 11179 family) and the terminology mark-up framework (ISO 16642) provide a solid basis for managing terminological information on several levels. It also allows to capture semantic richness and terminological complexity that otherwise get lost in Semantic Web applications and ontology engineering.

Using the federated registry and Published Subjects ADNOM ascertains that organizations can transfer or supply the data requested and thereby meeting the most reasonable expectations of a “give and take” process, not infringing any copyrights, not giving way to any sort of commercial abuse whatsoever.

For all the terms and concepts that are ADNOM core the users within ADNOM should use and define Published Subjects.

Published subjects provide a mechanism whereby computers (and also humans, in interaction with computers) can know when they are talking about the same thing. Published Subjects establish the *identity* of subjects of discourse and when following terminology management principles they are the structure of the Trust of Administrative Nomenclature.

Topic Maps is planned as the mechanism to allow merging of identical topics. Topic Maps will also be used to indicate relationships between Broader Terms and Narrower Terms, and other relationships between terms. In these tables, dots between the code and the term provide a simple visual indication of Broader Terms and Narrower Terms.

There is also a mechanism to allow the use of more detailed codes, terms, and identifiers, from Eurovoc, NACE and GEMET (and in principle any other coded nomenclatures that are introduced in future versions of ADNOM), in order to provide an extremely detailed, navigable, multilingual nomenclature, suited to the wide range of governmental activities in Europe.

The ADNOM registry does not contain any repository items, but consists of a list of references to external repositories. All repository items in an ebXML Registry are implicitly version-controlled resources. The ebXML Registry Information Model prescribes a set of metadata for each entry in the ebXML registries. However, it also allows for: extended, application-defined metadata for each entry,

- storage of application-defined XML documents (and other data types),
- linking each entry to one or more application-defined classification schemes.

[RS] goes a long way towards defining flexible content management services for highly structured information in an eServices context. It guarantees a security infrastructure (who may enter or alter data and under which circumstances? what security guarantees must be given? etc.), defines a version control, life-cycle management and validation mechanisms and, above all, specifies very powerful query support (ad hoc queries, SQL queries, filter queries etc.) that include the automatic cataloguing of XML content and content-based discovery.

3 Achievements – Results – Deliverables

As a first result a survey was presented that had focused on existing administrative nomenclatures and similar terminological resources in Europe as well as on the organizations managing these resources. The final document CWA 15526 contains a detailed chapter documenting these resources and their availability.

The second deliverable is a procedural methodology with principles and recommendations on terminology work in legal and administrative contexts.

A demonstrator application was developed, showing the implementation of the ADNOM approach (i.e. ebXML + Topic Maps on XML (=XTM) + ISO 16642 + ISO 11179 + other standards).

An organizational network of relevant institutions (stake holders) is currently emerging, integrating existing networks and communities of practice.

Figure 1 shows a visualization of a concrete example of mapping multilingual administrative nomenclatures. This is a simplified example on names of government ministries and agencies in Austria, France, and Germany linked to the different scopes and responsibilities of these administrative

units as far as *pension schemes* are concerned. The asymmetries are presented by a visualization of the conceptual map as implemented in a Topic Map linking the data described above. It includes the meta-data level using the COFOG classification (incl. the terms in 16 languages for “economic affairs”

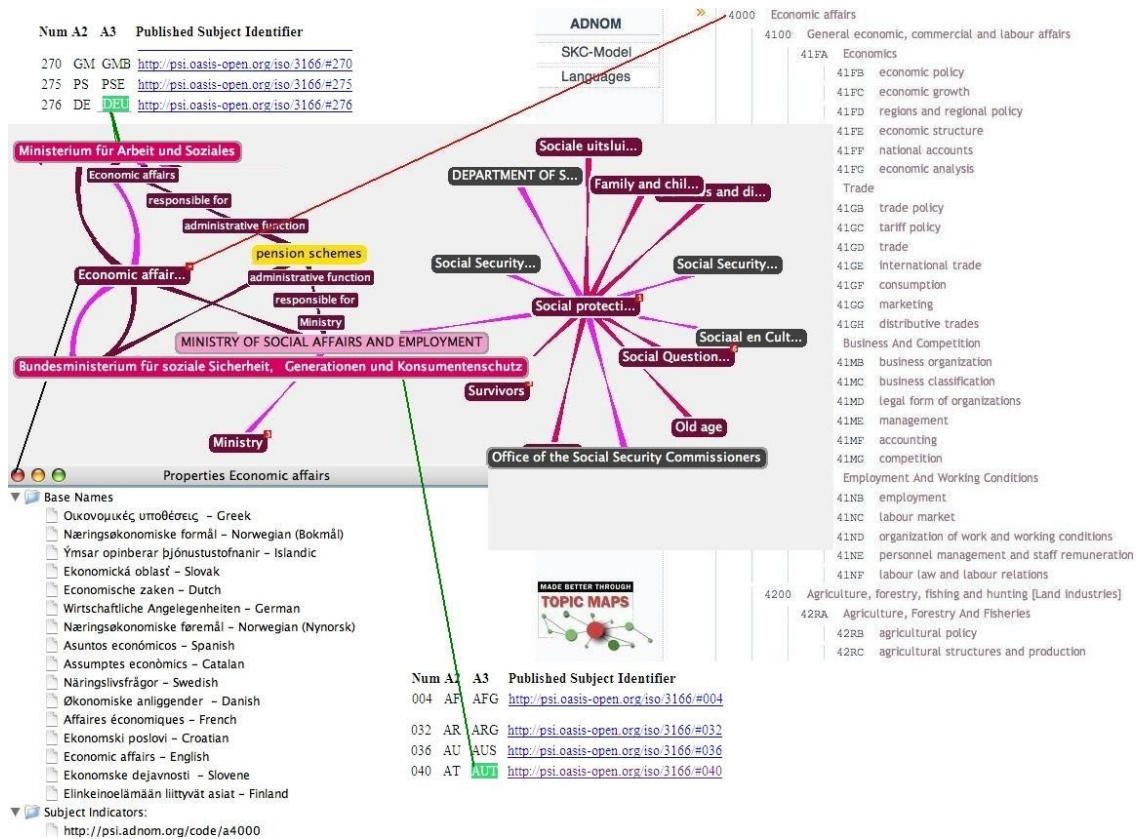


Figure 1 Concrete example of mapping administrative categories across country and language borders

User scenarios include

- Interrelated joint functions within organization processes
- Connect and update categories to business articles
- It is important that users of ADNOM, and indeed European eServices, can relate government structures to each other.

From an organizational point of view there is some interesting data to report on the CEN/ISSS WS-ADNOM: The kick-off meeting took place in April 2005, several plenaries were held in Brussels and Vienna, many project team meetings took place (also on skype), as well as co-ordination meetings with other networks, project teams, and institutions (incl. ISO, national governments, etc.).

Chair: Gerhard Budin, University of Vienna

Secretariat: Hårvard Hjulstad, Standards Norway

Project Team: Annelies Glander, Elisabeth Blanchon, Leon Oud (in the beginning), Marc Küster, Gabriel Hopmans

(active) Workshop membership:

- representatives from governmental institutions (ministries, governmental agencies, etc.) from Finland, France, Austria, Germany, Sweden, the Netherlands, Switzerland, Croatia, and other countries.
- Representatives of national terminology centers and similar institutions, associations (EAFT), and networks
- Representatives from companies in different sectors
- Experts from diff. fields such as eGovernment, Terminology, Information engineering, eBusiness, Environment, Higher education, etc.
- Representatives from European institutions (Commission (Translation, IATE, etc.), Court of Justice, EU Parliament, etc.

4 Conclusions and Further Work

Ongoing work is being continued during 2006. It is planned to extend the CEN/ISSS WS-ADNOM membership (including more countries, institutions, domains, languages, internationalization (e.g. Jiamcatt members), other stake holders in eGovernment, etc.). Another important aspect is to intensify cross-links to other CEN/ISSS initiatives, in particular concerning eBusiness, eLearning, eHealth, etc. The full operational implementation incl. multiple business models, IPR management, dissemination, etc. is foreseen for 2007/2008. At the same time the technical approach (interoperability management, meta modeling, Semantic Web link (ontologies) is continuously improved and further developed.

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