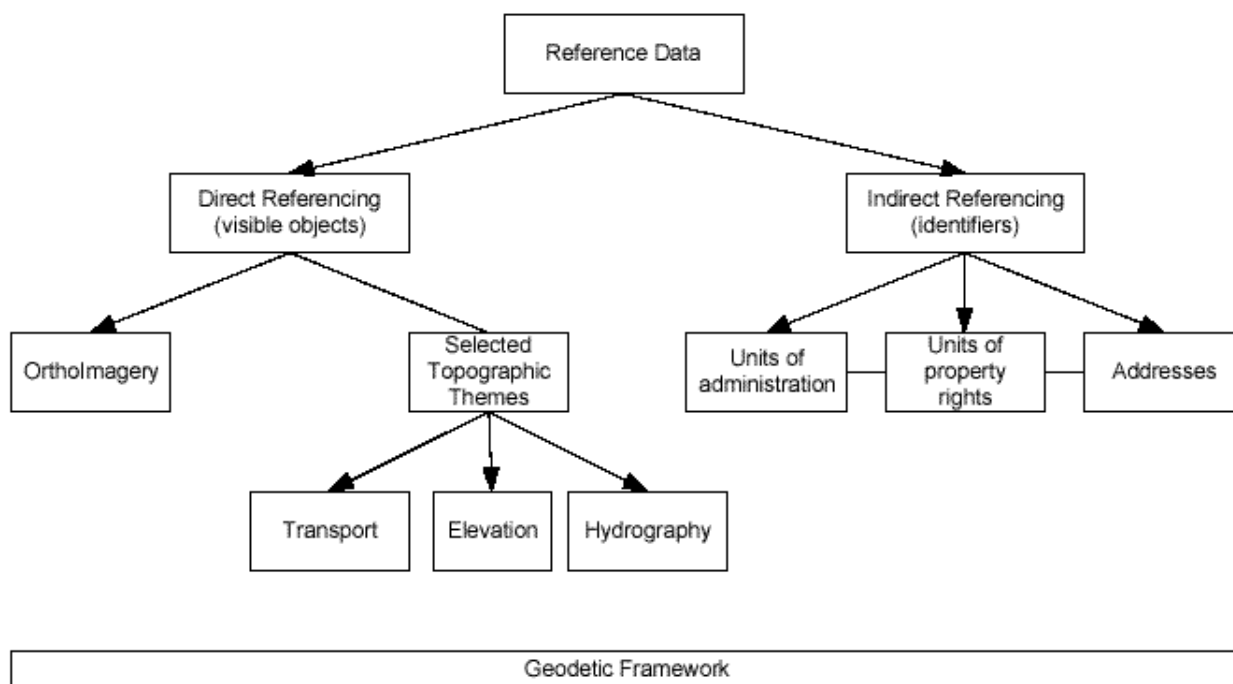


## Developing Ontologies for Named Geospatial Objects (DeONaGO)

The European mapping agencies, mentioned in the eContentPlus decision no 456/2005/EC, Annex 1, II, A, b), are represented by the EuroGeographics. Recently, activities are in process to integrate into EuroGeographics also agencies entrusted with cadastral and other administrative tasks. Investigations made through the ETeMII-project (European Territorial Management Information Infrastructure) support this move. Project documents introduce the notion of territorial or geospatial *reference data*, which comprise both visible geographical features, which are depicted on topographic maps and orthophoto imagery, as well as named geographical objects in terms of units of property rights, i.e. cadastral parcels, administrative districts, and post addresses.



Project documents further mention the issues of *interoperability* ("the ability to operate between", which capacity is needed in order to using the same data across different applications and/or the same application using data from different sources over the same territory) as well as *language and culture*, mentioning that a standardisation process across European jurisdictions will need to take account linguistic and cultural differences.

Experiences so far in the USA and in Europe, point to the risk of a too technical focus on the above issue (Maguire & Longley, 2005: 6). What has proved promising, however, is an arrangement, where providers of digital content in terms of maps and cadastral and property data agree to set up a facility, a *Geoportal*. The Geoportal is to provide catalogue information (in technical terms *metadata*) on the quality, access and user rights (cf decision 456, page 1 Whereas (5)) of the geospatial digital content of the providing mapping and cadastral agencies. By means of the Geoportal, the user (citizen, company, or public body) identify relevant content and possibly services as well, and is guided to make the needed agreements with the content provider(s). Geoportals may be general or specialized, national or European in scope, as requested by commercial demand or political decision. Some Geoportals may in the future support the performance of transactions, e.g. the issuing of mortgages, based on mortgagor information and land registry certificate. Geoportals fall into the group of human interaction services and are closely related to model/information management services. Additionally, close links might be seen with the system management services to support services for authorisation, authentication or e-commerce (Bernard, 2005: 18)



Fig. 2. The role of a geoportal in an SDI.



Fig. 2. The role of a geoportal in an SDI.

Source: Maguire & Longley, 2005: 8

In order to realize the technical potential described above, changes have to take place in organizations, in acts and prescripts of various kind, and in staff and user competencies. Furthermore, the Geoportals need to accommodate the requirements as well as the cultural and technical background of the different stakeholders in the various geoinformation user domains, cf (Bernard, 2005: 19). A minimum requirement is a service that provide vocabularies on the content of geospatial resources as well as for queries and analysis. However, there is no widely accepted pan-European, multilingual thesaurus to support a shared vocabulary for the description of geodata. The GEMET project (GGeneral Multilingual Environmental Thesaurus; <http://www.eionet.eu.int/GEMET>) provides a multilingual thesaurus for environmental information (Bernard, 2005: 28). Also, the EULIS project has demonstrated how language needs may be accomodated for.

Research to develop semantic interoperability is in process, e.g. Bernard et al., 2003, Kuhn & Raubal, 2003. However, more of such research seems needed, and as the ongoing research tend to develop on visible geographical features, cf Schwering & Hart (2004), the research has to be supplemented with efforts to address the named geospatial objects, including cadastral parcels and property units. This is highly relevant, too, as the substantial amount of users, e.g. financial institutions and other stakeholders of the market in real property request the digital content of cadastral agencies and land registries.

## References

- Bernard, L., Einspanier, U., Haubrock, S., Hübner, S., Kuhn, W., Lessing, R., Lutz, M., & Visser, U. (2003)** Ontologies for intelligent search and semantic translation in spatial data infrastructures. Publikationen der Deutschen Gesellschaft für Photogrammetrie und Fernerkundung (6), 451–462.
- Bernard, L., Ioannis Kanellopoulos, Alessandro Annoni and Paul Smits (2005)** The European geoportal—one step towards the establishment of a European Spatial Data Infrastructure *Computers, Environment and Urban Systems* 29 (1) 15-31
- Klien, E. and Probst, F. (2005)** *Requirements for Geospatial Ontology Engineering*. F. Toppen and M. Painho (Editor/s). 8th Conference on Geographic Information Science (AGILE 2005), Estoril, Portugal. Page(s) 251-260.
- Kuhn, W., & Raubal, M. (2003)** Implementing semantic reference systems. In: M. Gould, R. Laurini, & S. Coulondre (Eds.). 6th AGILE conference on geographic information science 2003 (pp. 63–72), Lyon.
- Maguire, D. J. and Paul A. Longley (2005)** The emergence of geoportals and their role in spatial data infrastructures *Computers, Environment and Urban Systems* 29 (1) 3-14
- Schwering, A.; Hart, G. (2004)** A Case Study for Semantic Translation of the Water Framework Directive and a Topographic Database. Crete University Press. 7th Conference on Geographic Information Science (AGILE). Heraklion, Greece.. Page(s) 503-510. (PDF)