

Workshop on Standardisation in the Cadastral Domain, Bamberg, Germany,

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One of the big problems in the cadastral domain is the lack of a shared set of concepts and terminology. International standardisation of these concepts (i.e. the development of an ontology) could possibly resolve many communication problems. It should be emphasised that a cadastral system entails land registration (the administrative/legal component) and (georeferenced) cadastral mapping (the spatial component). Together, these components facilitate land administration, and a land registry/cadastral system provides the environment in which this process takes place. Data are initially collected, maintained and – probably the most relevant issue in standardisation – used and updated in a distributed environment. This means that the data can be maintained by different organisations, such as municipalities or other planning authorities, private surveyors, conveyancers and land registrars – depending on local traditions.

Standardisation of the cadastral domain is relevant because computerised cadastral systems can support a customer- and market-driven organisation with changing demands and requirements. Customers want to have an efficient online information service that is linked to the database(s) of cadastral organisations. The application software to support cadastral processes is continually being extended in many countries because of changing requirements. In the future, the volumes of cross-border information exchanges are expected to increase, particularly within the European Union. The more remote the data user is from the data source, the more important it be-

comes to ensure that the data are well defined, as obviously remote users are less likely to have sufficient local knowledge to assist them in interpretation. Trying to make the meaning of the data explicit is therefore an important step in facilitating meaningful information exchange across greater distances. The concepts used have to be well defined and structured (i.e. related to one other), and this entails the development of a cadastral domain ontology. One potential way of expressing parts of this ontology is UML (Unified Modelling Language) class diagrams.

Standardisation of the cadastral domain is in the initial phase and many non-coordinated initiatives can be identified.

Within the scope of the European COST (Coordination in the field of Scientific and Technical Research) Action G9 Modelling Real Property Transactions, and jointly with FIG (International Federation of Surveyors) Commission 7 Cadastre and Land Management, a workshop on standardisation in the cadastral domain was held in the Aula of the University of Bamberg, Germany, on 9 and 10 December 2004. The main objective of Action is to improve the transparency of real property markets and to provide a stronger basis for the reduction of costs of real property transactions by preparing a set of models of real property transactions that is correct, formalised and complete, according to stated criteria, and then assessing the economic efficiency of these transactions. The organisation of the meeting in Bamberg was a co-production of ITC, the

Technical University of Delft, and the University of Bamberg.

An initial model has been developed based on the results of a first workshop held at ITC in March 2003, and this was used as a reference during the workshop. However, the workshop in Bamberg was not limited to this specific model alone but also dealt with (1) efforts at the national level that do not (directly) aim at an international standard, and (2) work that goes beyond the current scope of the core cadastral model and addresses, for instance, process modelling.

Workshop Goals

The specific goals of this workshop were to:

- further develop the administrative/legal aspects of the model (people's rights to lands, customary and so-called "informal" rights, 3D aspects, legal and survey-based source documents)
- further formalise the model (semantics ontology, knowledge engineering)
- test the current model in different countries (evaluation)
- involve the geo-ICT industry and standardisation institutes (support for model implementations).

The land information initiative of the Open Geospatial Consortium (OGC) could be of great importance for the implementation of interoperable cadastral and land information data.

The Workshop

The workshop brought together 61 experts, representing 19 countries, from different communities and disciplines involved in the cadastral domain: for example, legal specialists,

surveyors and ICT specialists from different organisations. During the presentation and discussion sessions, 20 papers were presented, with keynote addresses from Professor Andrew Frank of Austria and Juerg Kaufmann of Switzerland. These papers and related presentations have been published on the Web. Abstracts submitted earlier were reviewed by the Scientific Committee, and papers were selected based on these reviews.

Conclusions

Regarding the question of whether there should be one general legal model or many, it was concluded that there should be a common procedure where differences may occur in methodology. Common steps in workflows have to be identified, and the legal situations in different countries have to be modelled. Although a single standard model may not be possible, a core model based on common concepts should be achievable. There should be a common set of concepts, as this allows talking across boundaries. The test performed in and between different countries indicated that no two systems were alike.

The core cadastral domain model is the least common denominator. Additions to the core model are needed. The issues surrounding the core cadastral domain model are now under scientific debate, and further activities have to be identified in the international context, involving the ICT industry, academia, COST, EULIS and other professionals, and with the participation of, and a strong focus on, users. The core cadastral domain model might be the central part of a complex with interfaces, data exchange and interoperability. The geo-ICT industry will be driven by the market and, if needed, the models will be developed. The semantic aspects still require further attention.

Recommendations

From the European perspective, it can be expected that financial institutes such as banks, mortgage lenders and other users could be the drivers of the development of a core cadastral domain model. But who will take the leading role? The search is on for an authority that will drive the development of the core cadastral domain model further, for example, FIG with its network. A coordinating group is needed that can identify the driving force more clearly. The model boundaries (what should or should not be included) require further investigation. Rights, restrictions and responsibilities related to land should be included, as well as an extension of fiscal rights and responsibilities. Better communication regarding the core cadastral domain model is of the utmost importance.

Websites

All papers and related presentations are available at www.oicrf.org (select "Events" and then the Bamberg event) and at www.fig.net (select "Commissions" and then "Commission 7")



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