The Integration of Natural and Built Environment Data

The Experience of Europe with a Focus on Denmark

Prof. Stig Enemark
Aalborg University, Denmark
Vice-President of

THE SEVENTEENTH UNITED NATIONS REGIONAL CARTOGRAPHIC CONFERENCE
FOR ASIA AND PACIFIC, BANGKOK, 18-22 SEPTEMBER 2006

The INSPIRE Concept

The INSPIRE Concept
INSPIRE is ambitious. The initiative intends to trigger the creation of a European spatial information infrastructure that delivers to the users integrated spatial information services. These services should allow the users to identify and access spatial or geographical information from a wide range of sources, from the local level to the global level, in an inter-operable way for a variety of uses. The target users of INSPIRE include policy-makers, planners and managers at European, national and local level and the citizens and their organizations. Possible services are the visualization of information layers, overlay of information from different sources, spatial and temporal analysis, etc.


The INSPIRE Framework

The INSPIRE Time Schedule

Key European Trends and Characteristics

• Environmental concerns seems to be the key political driver for INSPIRE and also for National Spatial Information Infrastructures.
• Most European cadastres are complete and highly accurate allowing their utilization in a range of management and planning activities.
• Most European countries have developed authoritative, government administered registers to manage people, location and land-use activities.
• Institutional issues seems to be the major barrier for achieving comprehensive and integrated solutions.
Focus on Denmark

43,000 sq km
5 mill inhabitants
One third lives in the capital area
Flat country
70 % agriculture
10 % urban
7000 km coastline

Wonderful Copenhagen

Aalborg at the fjord

An Assessment of the Danish LAS based on the Land Management Paradigm

The Spatial Information Infrastructure

The Public Information Server
The Public Information Server

The Map Service

The Web-Cadastre

The Planning Information Service

County Administration Web Service

Buildings are not in the Cadastre, they are registered in the Building and Housing Register.
The Municipal Web Service
Different kind of maps, plans, and GIS analysis

The Service–Oriented IT Architecture

The right place and the right time.

The system ensures that undesirable development does not occur, and that desirable development is in line with the land-use regulations for sustainable development. However, the system can not ensure that desirable development actually happens at the right place and the right time.
Challenges and New Initiatives

New initiatives
- The ICT architecture
- The Land Book
- The Property Concept
- The Cadastral map
- The Multipurpose Cadastre
- Implementation of the new administrative reform

Challenges and Barriers
- No overall Land Policy?
- No national policy for the Spatial Data Infrastructure?
- Implementation of e-government?
- Merging of the Cadastre and The Land Book?
- 3-D and Marine Cadastre?
- The Property Concept?

The Service-Oriented IT Architecture
This is the big issue that will drive the development of the LAS with regard to both policies, institutions and administrative processes.

The Land Book
The Land Book was digitised by 1997.
The new project:
- Digitisation of the archives
- Adjustment of procedures to better reflect the ICT opportunities.
- Online registration based on standard forms.
The organisation will change:
- Closing down the local land registries
- Establishing one national land registry authority.
New Model?
- Titles registered in the cadastre
- Easements registered at the cadastral map
- Mortgage registered through the financial sector

The Property Concept
The property concept is a legal term defined slightly different in the various land acts (cadastre, land book, and valuation).
There is a need to find a common term that should also accommodate other types of properties and complex commodities.

The Accuracy of the Cadastral Map
A call for the educated use of the map
There is a need to improve the accuracy of the cadastral maps (by upgrading) to obtain better consistency with the large scale topographic maps.

The Multipurpose Cadastre
Should the cadastre host the land-use regulations?
Today: Yes
In the future: No!
Currently, the cadastre is hosting a few land-use regulations such as the coastal protection zone, the dunes protection zone, and soil contaminated areas. From a legal as well as an administrative point view this is very problematic.
In the future, using the service oriented IT architecture, the cadastre will still be the basic (authentic) layer of registration. But the registration will be the responsibility of the various governmental authorities.
This, again, calls for an educated use of the map to ensure consistency between the cadastral information and land-use restrictions.
Land Information and Land-Use Planning
- new administrative structure

The new administrative reform by 1 January 2007.
275 municipalities  100 > 30,000
14 counties  5

Land-use responsibilities moves from
The 15 counties to the new 100 municipalities

Where and how does the knowledge and information bases move?

"It is all politically decided, but nobody really knows how to deal with it"

Final Remarks

- The objective of this presentation is to present the European perspective in terms of the INSPIRE initiative - and to analyse the Danish LAS in terms of being an ICT enabled system for sustainable development.
- It can be concluded that the systems works well in support of sustainable development through an efficient land market and effective land-use management.
- The property layer is well integrated for asset management and the planning control system is well tailored for a decentralised and integrated approach to land-use management.
- The Land Information Infrastructure and the institutional arrangements need continuous attention to be adapted to ITC developments.
- The general awareness of the land management area as a coherent whole could still be improved.

The Danish Way - bridging the gaps

Thanks for your attention