SDI Implementation at the Local Administration Level of Germany
Hartmut Müller and Stephan von St. Vith

FIG Working Week 2009 – Surveyors Key Role in Accelerated Development,
Eilat, Israel, 3-8 May 2009
TS 5B – Current Trends in SDI (3494)
National eGovernment strategy of Germany 'Deutschland Online'

- Strengthened organisation structure
- Central support services
- Integrated programme management

Conference of State Secretaries (Chair: Federal Ministry of the Interior)

Co-ordination and agreement

Preparation
CoA ADV
Support

Conference of specialised projects

Agreement on prioritised projects

Report

Steering group (Chair: Federal state of Hamburg)

Active support

CSM: Specialised working groups

Technical co-ordination and agreement

Networks of prioritised eGOV projects

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Federal States (16)
Independent cities in Rhineland-Palatinate (14)
Counties in Rhineland-Palatinate (24)
County of Bernkastel-Wittlich
Independent Municipalities (2)
Association of municipalities (7)
Municipalities (106)
European project initiative INSPIRE

Data resources

INSPIRE specifications

request for information services

Delivery of information services

ISO

Users

- Government & Administrations
- Utility & Public Services
- Commercial & Professional Users
- Research
- NGOs and not-for-profit orgs
- Citizens

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eGovernment connected with SDI

- to be available at different SDI levels: national, regional, local
Case study - Germany – State of Rhineland-Palatinate - County of Bernkastel-Wittlich

- area 1178 km²
- 113,000 inhabitants
- 78 of 106 municipalities < 1000 inhabitants
- 97 inhabitants/km²

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Project initiatives towards SDI implementation at the local level

- several state-wide project initiatives starting in 2003 concerning local SDI implementation initiated by the umbrella organisation of all counties
  - Project no 1 GIS implementation in the Rhineland-Palatinate counties
    Goal: Developing a GIS implementation strategy for one exemplary local authority and creation of a functional specification for a modular build-up of a GIS
  - Project no 2 Promotion of building up spatial data infrastructures (SDI) at local level
    Goal: How to build up a spatial data infrastructure for the co-operation and the data exchange within local authorities and in between local and other authorities
  - Project no 3 Build-Up of Rhineland-Palatinate regional SDI as a basis for the Federal State Development Plan IV (Landesentwicklungsprogramm IV)
    Goal: what’s the important spatial data for spatial planning at regional level to define a feasible spatial data repository
- project partners
  - Landkreistag Rheinland-Pfalz (umbrella organisation for all Rhineland-Palatinate counties)
  - i3mainz - Institut for Spatial Information and Surveying Technology (Mainz Univ. of Apl. Sc.)
  - County administration of Bernkastel-Wittlich (pilot authority)
  - Project group with other GIS experienced counties and some federal state institutions
system implementation at the local level – principal workplan

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geo-spatial basic data – initial spark for the GIS implementation

- Digital Landscape Models (DLM)
- Digital Terrain Model (DGM)
  - aspect (here 135-225°)
  - slope (here > 25°)
- Topographic Maps (DTK 25, DTK 50, hier DTK 100)
- Digital Orthophotos (DOP)
- Digital Topographic Map 1:5000 (DTK 5)
- Official house coordinates (georeferenced building addresses)
- Automated land survey register (ALK)
- Automated register of land owners (ALB)
So far analogue...

Analogue data (paper documents and maps):
- Double or even multiple data
- Difficult retrieval of correct data in the existing data pool
- Rapid "aging" of the data, therefore limited use
- Data can not be found or it is not known that such data exist
- Complicated updates
- Missing spatial reference

... now digital!

Geographical information system (GIS)
- Data is up to date (planning safety)
- Acceleration of workflows (efficiency)
- Permanent access to required data (time saving)
- Avoidance of redundant data storage (cost saving)
- Easy data exchange (time and cost saving)
- Analysis and presentation options (presentiveness)
- Establishment of a common spatial reference (combinability and comparability)
From experience

• Presentation of some practical applications
  – For all users: obtaining information from automated land survey register (ALK) and automated register of land owners (ALB)
  – Department of building and environment: mapping of habitats and reserves
  – Health department: geocoding of all locations of livestock farming within the county as prevention for avian influenza
  – Planning department: examination of potential locations for wind power stations
  – Department of building and environment: information system of legally binding land use plans
  – Integration of preparatory land-use plans in the federal state SDI
Department of building and environment
mapping of habitats and reserves

Conservation data in part as OGC web map service (WMS)
From the Federal State Ministry for Environment, Forest and Consumer Protection

Health department

- geocoding of all locations of livestock farming within the county as prevention for avian influenza case
Planning department examination of potential locations for wind power stations

- Locations not to be affected (green)
- Precedence area for wind power stations (violet)
- Planned locations for wind power stations (red)
- Locations to be protected are buffered with 500 and 1000 meters distance, resp.
- Minimum distance of planned locations from critical locations ok

Department of building and environment information system for legally binding land use plans

- Select the municipality
- All plans available for the municipality are listed
- Select the appropriate plan and zoom to the extent of the plan
- Set the appropriate scale and layer
- Activate the metadata available for the plan
- Activate the textual description
- Activate the legend
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Department of building and environment information system for legally binding land use plans interface to the building permit application management

Open building permit application program
Mark the parcel for which building permit is applied for
Move to the GIS application program
Creation of a map centered to the marked parcel
Call metadata to identify the legally binding land-use plan
Display identified plan in PDF format

Steps to be done at local level
• Implementation of GIS
• Built-up of local SDI
• Providing for OGC-conform services
• Using GeoWebServices
• Pilot-project Bernkastel-Wittlich
Spatial Data Infrastructure – from local level to European level

Decentralized up to date spatial data is available and can be merged via internet technology.

Preparatory land use plan in Federal State Regional SDI
Conclusions and further work

• SDI implementation at the local level closely related to and able to fulfill many basic needs of citizens and public administration by providing huge amounts of basic spatial data

• Careful SDI design and implementation at the local level indispensable for establishing a working SDI at all higher levels

• Consideration of standards, mainly those defined by OGC makes it possible to integrate local SDI bricks smoothly into an overall SDI

• Many questions concerning semantic interoperability, metadata specification and maintenance not yet answered in a sufficient way