Univ.-Prof. Dr.-Ing. Holger Magel
Director of Institute of Geodesy, GIS and Land Management, TU Munich
FIG-President

on:

Building Modern Land Administration Systems in Developed Economies – Aspects and Experiences from Germany*

at the Expert Group Meeting “Incorporating Sustainable Objectives into ICT Enabled Land Administration Systems” 9 – 11 November 2005 in Melbourne

A. General remarks

B. About the six components of integrated Land Administration Systems

C. Analysis and trends in general and from the German viewpoint

* Many thanks for valuable contributions to my colleagues G. Muggenhuber (FIG-Com. 3), Dr. W. Hawerk (FIG-Com. 7), Dr. R. Bauer, R. Ludwig and Dr. A. Donaubauer (TUM)
A. General remarks
Traditional markets are based on:
• goods (products and land),
• services,
• capital and
• labour.

Economic growth within traditional markets is stimulated by lowered productions costs + transaction costs (Douglass C. North (1990): “Institutions, Institutional Change and Economic Performance”) – (Theory of institutional economics: 3 basic aspects of economic transactions)

Land Administration is a good example of market because it involves all four above mentioned components of a traditional market

Modern digitized Data Systems are cheaper than traditional ones.
II. Land Administration as part of Spatial information

Data level

EU-Influences:
Land administration data is part of the Public sector information (PSI). The EU-PSI-directive as well as EU-INSPIRE-directive strongly support and intend to facilitate access and use of PSI for multiple purposes.

EU-INSPIRE (Infrastructure for Spatial Information in Europe):
Spatial Information for EU and national level
- Metadata
- Data:
  - cat.I = basic data (georeferencing, coord. Admin units...)
  - cat.II = basic data (cadastre, addresses, land cover, orthophoto )
  - cat.III = environmental data (land use, buildings, risk zones)
- Services

The development regarding ISO-based AFIS-ALKIS-ATKIS (AAA-model) in Germany fully refers to those developments on EU-level:
Cat. I = AFIS: Official Geodetic Control Station Information System
Cat. II= ALKIS: real estate cadastre + ATKIS: topographic survey
Cat. III= environmental data coming from multi-institutional sources
INSPIRE forces European countries to offer metadata without charge, also Geo basis Data.
Institutional level – cooperation through integration of function

Core message: Central Europe has a long tradition in institutional cooperation, with similar results under different institutional settings

Graphic: Gerhard Muggenhuber
II. Land Administration as part of Spatial information

- Institutional settings of Land Administration

“It is the institutional settings of Land Administration”

Graphic: Gerhard Muggenhuber
II. Land Administration as part of Spatial information

- Legal setting in the Federal State of Germany

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<thead>
<tr>
<th>Constitution</th>
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</thead>
<tbody>
<tr>
<td><strong>Federal Laws</strong></td>
</tr>
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<td>Land register</td>
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<tr>
<td>Surveying and Cadastre Laws of the Länder</td>
</tr>
<tr>
<td>Cadastre Ordinance</td>
</tr>
<tr>
<td>Abmarkungsgesetz</td>
</tr>
<tr>
<td>Weitere Gesetze</td>
</tr>
<tr>
<td>• Gebührenordnung</td>
</tr>
<tr>
<td>• Vermessungsbezirke</td>
</tr>
<tr>
<td>• Geschäftsverteilung</td>
</tr>
<tr>
<td>• Ausbildung</td>
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<tr>
<td>Verordnung über das maschinell geführte Grundbuch</td>
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II. Land Administration as part of Spatial information

- Process level

GLOBAL FUNCTIONING DIAGRAM

CLIENT
- Land owner
- Lender
- Right holder

Market

Public sector
- Land registry
- Cadastre
- Lawyer

In case of dispute
- Court

In case of change in existing property
- Licensed/official geodetic surveyor

Public sector
- Web services

Market

Graphic: G. Muggenhuber
III. Conclusion

Shaping the change: from single office solutions to eGov with interoperability

We have to take a more holistic approach:
• efficient contribution to the markets
• collaborate on local / regional / international
• shape financially sustainable services
• create win-win-situations

CURRENT SITUATION | TRANSITION | TARGET SITUATION

Independent e-Service Delivery | Integral part of e-Government Initiative
B. About the six components of integrated Land Administration Systems from the special viewpoint of German/Austrian experiences
Component 1: Overall frame (legal frame)

How can we make a step forward? How to become more successful?

Any integration has to consider the legal setting in a country, which can be rather different due to the concept and tradition. The legal setting differs much more than cadastral processes or ICT. International cooperation is essential to overcome these legal limitations as part of EESSD. Europe experiences many aspects of harmonizing of legal settings like “European Contract Law” etc.

Legal setting: Approach to ownership rights changed significantly in Europe since “Communist System” transferred to “Social Market system”. Germany is an example for a way of “paradigm shift in concept of ownership” in the East. If the status of property rights is unclear, privatisation, investments and land markets are more problematic.
No other country in Europe than Germany had the challenge to integrate traditions of both systems at the same time in addition to restitution and privatization, which happened in many other countries too.

G. Muggenhuber
eGov is an additional challenge for developing countries in addition to their need to collect and maintain data digitally. In Europe however most of the data are already digitized, harmonized and cross-referenced. **eGov facilitates good governance, however the citizens also require benefit.**
Component 3: Built on country’s capacity

Core message: The countries of EU have gone through similar steps of improving. 1. Digitizing data, 2. Improving our internal processes (quality management), 3. Improving our services (marketing, coop. with partners and customers), 4. Optimizing use of resources (staff reduction). In a multi-institutional setting it is important that these steps are tuned between institutions involved. EU facilitates cooperation with e-content program focusing on spatial information.

1. Digitizing data
   Linking with historic records

2. Improving processes
   Improves reliability

3. Improved services
   through technology / cooperation

4. Optimizing use of resources
   Just cut / new business opportunities

G. Muggenhuber
Component 4: ICT as a major driver

Core message: ICT is not a challenge any more (but standardisation). Even when we have to be aware that ICT is reflecting all our work processes. However interoperability of work process is still a challenge (in EU: eGov cooperation of public authorities in a country and among countries).

Projects with a sole technology driven approach often fail in many disciplines – not only within Land Administration. The World Bank learnt the lesson and is even reluctant to finance purely technology driven projects. Similar to that we observe that the sustainability of foreign aid programme is often not ensured at all.

Transfer of knowledge is more than just transfer of technology! It seems that in “technocratic” societies the processes correlate with the legal frame, organizations and responsibilities. However most of the societies of the world seem to have a severe impact from informal habits overruling official processes.
Core message: a full package of land management with the wider perspective of a solid land market requires instruments from (1) land administration (2) valuation (3) land use planning and land development, (4) financial services.

Due to the fast development and changing use of land resources special attention has to be given to land use planning tools including land consolidation (rural), land readjustment (urban) and urban and rural land development! The interrelation of urban and rural is often ignored…

Bavaria developed successful models for urban rural interrelated improvements of infrastructure with land as a focus.
Relationships between Land Policy, Land Tenure and Land Management in Germany

**Land Policy and Land Tenure**
overall concept and basic conditions of land related action
as well as the initiation of corresponding measures by public authorities
based on Art. 14 German Basic Law and § 903 German Civil Code and special laws (substance and limits)

**Static LR**
Land Administration (with Cadastre and Land Register as central elements) and Land Readjustment (LR)
existing constitution, distribution, use and documentation of land and land ownership as well as overall concept and regulations for its sustainable use in conformity with the relevant plan in urban and rural areas

**Dynamic LR**
Sustainable Land Management
Policies, goals and fields of action for efficient consulting, planning, controlling and coordination of all measures and instruments with reference to access, availability, use and change of use, development, allocation and building up of land including buildings for urban, ecological, economic, cultural, social and other purposes in urban and rural areas by means of:

- Spatial Planning and Participation
- Controlling and Securing (incl. Risk Management)
- Land Administration and Land Readjustment
  - Reconciliation of individual legal rights with objective planning goal
- Technical and Ecological „Development“, Calculation and Financing
- Mobilising Resources and Land Banking

Application of different programmes of support (e.g. urban and rural development, IRD), GIS technologies, surveying, land valuation, taxation, land transactions, credit system

**Static LR**
Land Administration (with renewed Cadastre and Land Register) and Land Readjustment
New (rearranged) constitution, allocation, distribution, use and documentation of land and land ownership

H. Magel, 2005
Cadastre serves for an increasing amount of customer groups. In Bavaria and some other countries, cadastre and orthophoto as well as e-services for access to this data were successfully used for EU-administration of agricultural subsidies (IACS). However, some other Cadastre Agencies in Europe lost this important customer group.
C. Analysis and trends in general and from the German viewpoint
Country description

Official Surveying and Mapping in Germany
Part of a high class geodata infrastructure and a must for a modern state

Due to translation problems spatial data in Germany are called geo data.
Country description

Common Development of Geo Data Infrastructure Germany – GDI-DE

GDI and Geo Information Economy

Example North Rhine Westphalia

Länder Level

GDI.NRW
Public-private-partnership
more than 130 members
of administration,
economy and science

GI-Committee
Representatives of
administration, economy, science
Chair: State Chancellery

IMA GDI.NRW
Chair: IM

give the task of doing
support
name an agent
authorize an agent
advice
recommend
the realisation

GDI.NRW
Controlling body

Office at the Administration of Cadastre

ALKIS, ATKIS, …

Working group of the state secretaries
and German-Online in the Federation and the Länder

Federal Level

GDI.DE
Co-operation
within the federal administration
Chair: BMI

decide
work out of
specific tasks

GDI-DE Office

GIW Commission
associations, companies of geo information economy (GIW)
Chair: BMWA

decide
work out of
draft decisions

GIW Office

ALKIS-Chance für den GEO-Berufsstand und die Geoinformationswirtschaft
15.09.2005, DVW Tagung am GFZ Potsdam
Spatial Geo Base Data
(incl. Geo reference and Geo spatial data)

- Standardised, geodetic system – position, level, gravity –
- Essential constructional equipment and constructions without buildings
  - Actual land use + specific vegetation
  - Parcels
  - Information of owner
  - Buildings
  - Public restrictions, mortgages or other properties

Country description

ALKIS-Chance für den GEO-Berufsstand und die Geoinformationswirtschaft
15.09.2005, DVW Tagung am GFZ Potsdam
Advantages of AAA-Application Schema

• **Standardization in the German Surveying**
  - Standardised feature catalogue
  - Standardised data contents
  - Standardised format of data exchange
  - Utilisation of international standards (ISO/OGC)
  - Standardised project management, online ability

• **General object view**
  - Harmonised feature catalogue AFIS-ALKIS-ATKIS
  - Modelling base for specialised information

• **Transparent offer by the use of quality and metadata**
Country description

GDI-Bavaria: The essential basis IGDB

Sustainable Development
Economic, Social and Environmental

E-Government

Efficient Land Market
Effective Land Use Management

Land Tenure
Titles, Mortgages & Easements
Secure legal rights
Geo spatial data

Land Value
Assessment of land value
Collection of property tax
Geo spatial data

Land Use
Policies and spatial planning
Control of land use
Geo spatial data

Land Development
Construction planning and permits
Regulation and Implementation
Geo spatial data

Integrated Geo Data Bank (IGDB)

Distributed/decentralized data storage and linking with different responsibilities based on norms and standards

Land information infrastructures
Built and Natural Environment Data Sets
Geo reference data (AAA)

The Client e.g. chamber of industry asks for interactive use for special questions

The Bavarian Perspective of Modern Land Administration Systems adapted to Enemark/Williamson/Wallace paper
Positive aspects of country experience

- Cadastre becomes part of e-government and thus more important for business/industry (new clients!); it’s not any more a matter of only securing property!
- Reputation of surveyors services in politics, public, municipalities and in industry is growing
- More and quicker information is possible
- A more comprehensive view of environmental etc. situation and (possible) land (use) conflicts
- Strengthening citizens interest in public planning (e-participation by e-governance/services)
- New jobs for private experts
- The more clients are asking for ICT and LAS-Data the lower the costs will be
Negative aspects of country experience

• German Land Administration Systems are not explicitly focussed on EESSD
• “black box” surveying and new ICT reduces state personal staff and jobs
• increasing clients and users demands can’t be met in time enough or not at all
• emerging of ICT and surveying endangers surveyors influence and role
• too many clients ask for data and information without will to charge adequately
To do list for German (and other?) LAS experts

We should aim at

• recognition of the importance of spatial data infrastructure by politics and government
• local and Länder SDI initiatives as prerequisites for a national SDI
• user-orientation as the key to a successful and sustainable SDI

A. Donaubauer
Buildings in the (multi-purpose?) Cadastre

- parcel owner
- parcel number
- geometry
- buildings
- state soil type evaluation
- actual land use

modelled in, respective based on ALKIS/ATKIS/AFIS

- legal public restrictions (not private one)

to be combined with

- orthophotos

...
• see fore mentioned influential initiatives like EU-PSI-directive, INSPIRE, EU-EULIS-project, EU-Company-register
Three key-improvements in the next decade

- GDI and IGDB is a daily tool in politics
- dynamics of land markets will be reflected in real time
- regular participatory approach for the need and the use of data
Criticism/questions to the model of ‘Building Modern LAS in developed Economics’

- Can such a model really function everywhere?
- Does it respect enough individual/local habits, traditions and informal processes or isn’t it too much technology – and business – driven/oriented?

First Conclusion:
Can we transfer success stories?
Yes, but only if we care about the whole bundle of interrelated work processes and improve these functions as well. These work processes are again linked with local traditions and habits.
Congratulation to the Melbourne “Modern Land Administration Systems for EESSD”-Team!

Good Luck!