

**FIG**

**i3 mainz**

## Use of German State's Rhineland-Palatinate Spatial Data Infrastructure for e-Government

*Volker Emmel and Hartmut Müller*

*FIG Working Week 2004, Athens, Greece, May 22-27, 2004  
TS22: Policy: e-Commerce + e-Governance = Future, Number TS22.7*


Hartmut Müller, University of Applied Sciences, Mainz, Germany <http://www.geoinform.fh-mainz.de>  
i3mainz, Institute for Spatial Information and Surveying Technology <http://www.i3mainz.fh-mainz.de>

**FIG**

## Who are we?

**University of Applied Sciences, Mainz, Germany**  
Institute for Spatial Information and Surveying Technology

**i3 mainz**



University of Applied Sciences, Mainz, Germany  
i3mainz, Institute for Spatial Information and Surveying Technology - Fields of Competence

- Digital image processing
- Photogrammetric Imaging
- Remote Sensing
- Digital Cartography
- Surveying
- Databases
- Geographic Information Systems
- Software Development
- Internet Development
- Multimedia
- 3D Visualization

Hartmut Müller, University of Applied Sciences, Mainz, Germany <http://www.geoinform.fh-mainz.de>  
i3mainz, Institute for Spatial Information and Surveying Technology <http://www.i3mainz.fh-mainz.de>

**FIG**

## Topics of Presentation

**i3 mainz**

- INSPIRE initiative as a project framework
- Good practice study on GIS implementation issues in a public administration
- Project organisation
- Technical issues
- Cost benefit aspects

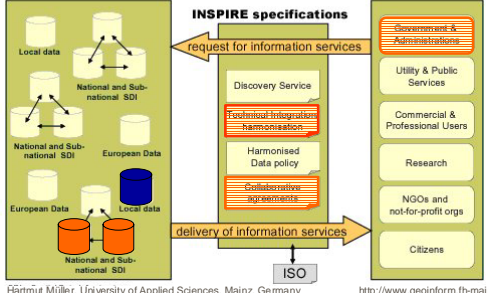
Hartmut Müller, University of Applied Sciences, Mainz, Germany <http://www.geoinform.fh-mainz.de>  
i3mainz, Institute for Spatial Information and Surveying Technology <http://www.i3mainz.fh-mainz.de>

**FIG**

## INSPIRE

**Infrastructure for Spatial Information in Europe**  
Information Flow - Addressed Items

**i3 mainz**



Hartmut Müller, University of Applied Sciences, Mainz, Germany <http://www.geoinform.fh-mainz.de>  
i3mainz, Institute for Spatial Information and Surveying Technology <http://www.i3mainz.fh-mainz.de>

**FIG**

## Government & Administration Levels in the FRG

**i3 mainz**

- National level (Bund)
- Sub-national level (Land) 16 Laender
- Regional level (Landkreise) ~ 350 Rural areas districts
- Local level (Gemeinde) ~ 15.000 municipalities

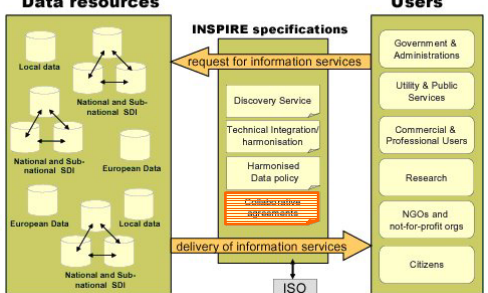
Hartmut Müller, University of Applied Sciences, Mainz, Germany <http://www.geoinform.fh-mainz.de>  
i3mainz, Institute for Spatial Information and Surveying Technology <http://www.i3mainz.fh-mainz.de>

**FIG**

## INSPIRE


**Infrastructure for Spatial Information in Europe**  
Information Flow - Addressed Items

**i3 mainz**





Hartmut Müller, University of Applied Sciences, Mainz, Germany <http://www.geoinform.fh-mainz.de>  
i3mainz, Institute for Spatial Information and Surveying Technology <http://www.i3mainz.fh-mainz.de>

## Collaborative Agreement Sub-National Level / Regional Level



**i3 mainz**


- **Contractors**
  - LVerGeo Rheinland-Palatinat
  - State Agency for Surveying and Spatial Basic Data*
  - Landkreistag Rheinland-Palatinat
  - Umbrella organisation of all rural area districts (regional level) in the Land Rheinland-Palatinat*
- **Lump sum** to be transferred on a year by year basis
- **Benefits for administrative units at the regional level**
  - all spatial basic data provided by surveying authorities available
  - no specific budget needed

 Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology

<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>


## Spatial Basic Data Resources

Subnational SDI  
Data Provided by Surveying authorities



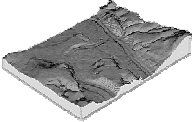
**i3 mainz**

- Digital Landscape Models – DLM
- Digital Topographic Maps – DTK





■ Digital Orthophotos – DOP

- Automated Real Estate Register – ALB ownership, land use, etc.
- Automated Real Estate Map – ALK boundaries, buildings, etc.




■ Digital Terrain Models – DGM

 Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology


<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>


## Study Area



Rhineland - Palatinat, South West Germany  
One of 16 German Laender



**i3 mainz**






 Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology


<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>


## EUROSTAT NUTS

Nomenclature of Territorial Units for Statistics




**i3 mainz**







regional pilot authority



Rhineland-Palatinate: NUTS 1 level territory


24 rural district areas: NUTS 3 level territory

 Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology

<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>

## Regional Authority


Subset of Public Service Products



**i3 mainz**



- > **Tourism**  
support the tourism in the region
- > **Building administration**  
management of the buildings owned by the authority
- > **Finances**  
borrow credits, safeguard credits, financial statistics
- > **Roadworks**  
ensure road safety
- > **Transportation**  
organisation of school buses, public transportation
- > **Heavy loads**  
control of heavy loads crossing the region

- > **Infection prevention**  
prevent infectious illnesses
- > **Land use regulation**  
control land use in the region
- > **Landscape planning**  
guarantee feasible development
- > **Protection of species**  
protection of wildlife habitats
- > **Drinking water control**  
secure the drinking water quality
- > **Agrarian subsidy**  
distribute special subsidies for farmers



Responsibility for a specific list of service products


Total of ~ 170 service products

 Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology

<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>



## Current Situation

Regional Level Authorities



**i3 mainz**


- Overall little use of GIS technology
- Some isolated GIS applications in use (bottom up)
- Spatial basic data not usable due to technical problems
- Growing danger of scattering and of missing integration
- Partly missing awareness of GIS benefits

 Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology

<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>

## Goals

### Project Study GIS Implementation



**i3 mainz**

The project study intends to


- develop a conceptual model for GIS implementation at the regional administration level
- give special credit to the integration of spatial basic data
- guarantee compatibility with ISO and OGC standards
- consider the role of GIS as a part in a work flow environment
- seek for stimulation of GIS application in administration units

Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology

http://www.geoinform.fh-mainz.de  
 http://www.i3mainz.fh-mainz.de

## GIS Implementation Project Work Plan

### Tasks

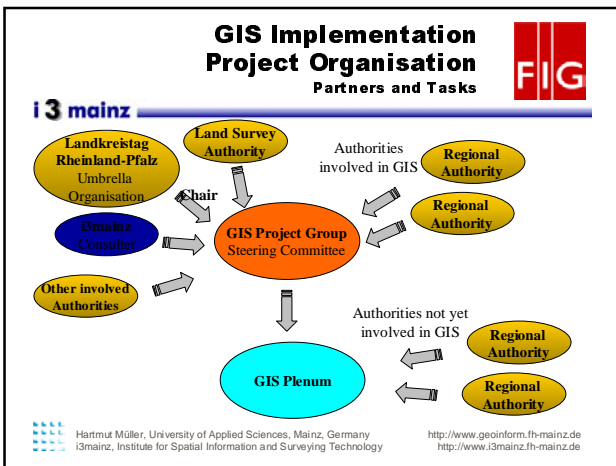


**i3 mainz**

- **System analysis**
  - strategic planning
  - field research and analysis of given situation
  - conceptional modelling
  - user specific concept
  - IT-concept
  - cost-benefit-analyses
- **System acquisition**
  - public tender procedure
  - offer rating
  - functional tests
  - system rating, system recommendation
- **System implementation**
  - system installation, system acceptance
  - data acquisition, data migration
  - system use


Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology

http://www.geoinform.fh-mainz.de  
 http://www.i3mainz.fh-mainz.de



## GIS Implementation Project Work Plan

### Tasks



**i3 mainz**


- **System analysis**
  - strategic planning
  - **field research and analysis of given situation**
  - conceptional modelling
  - user specific concept
  - IT-concept
  - cost-benefit-analyses
- **System acquisition**
  - public tender procedure
  - offer rating
  - functional tests
  - system rating, system recommendation
- **System implementation**
  - system installation, system acceptance
  - data acquisition, data migration
  - system use

Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology

http://www.geoinform.fh-mainz.de  
 http://www.i3mainz.fh-mainz.de

## Questionnaire - General

### Level of Service Products



**i3 mainz**


- > What is the purpose of the product?
- > Which data are used ?
- > How is the spatial data reference defined?
- > Which software will be established?
- > Which data formats will be used ?
- > Is a GIS-System / Online-GIS-System already in use?
- > Is it possible to support this product by a GIS-application?
- > Is it possible to use the geo-spatial basic data provided by the Land survey administration?
- > Which other authorities will take part in the results?
- > How many people access the data?
- > Are there any special problems to be addressed?

Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology

http://www.geoinform.fh-mainz.de  
 http://www.i3mainz.fh-mainz.de

## GIS Implementation Project Work Plan

### Tasks

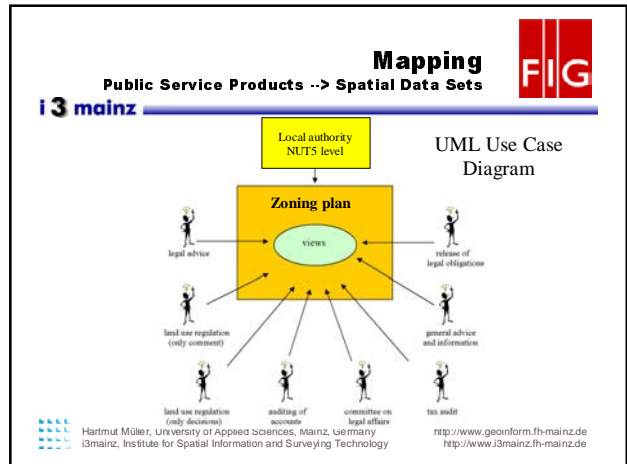
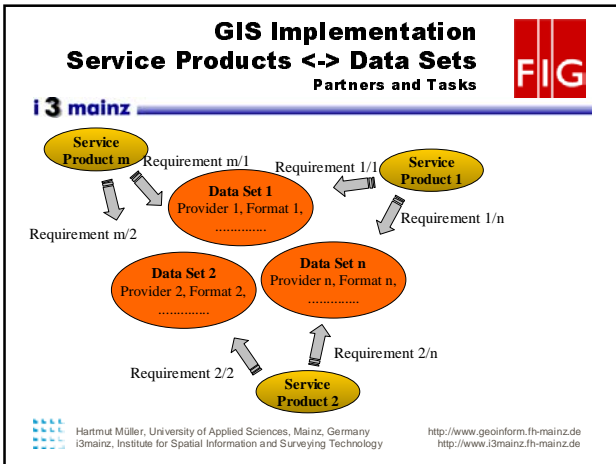


**i3 mainz**

- **System analysis**
  - strategic planning
  - field research and analysis of given situation
  - **conceptional modelling (currently under work)**
  - user specific concept
  - IT-concept
  - cost-benefit-analyses
- **System acquisition**
  - public tender procedure
  - offer rating
  - functional tests
  - system rating, system recommendation
- **System implementation**
  - system installation, system acceptance
  - data acquisition, data migration
  - system use

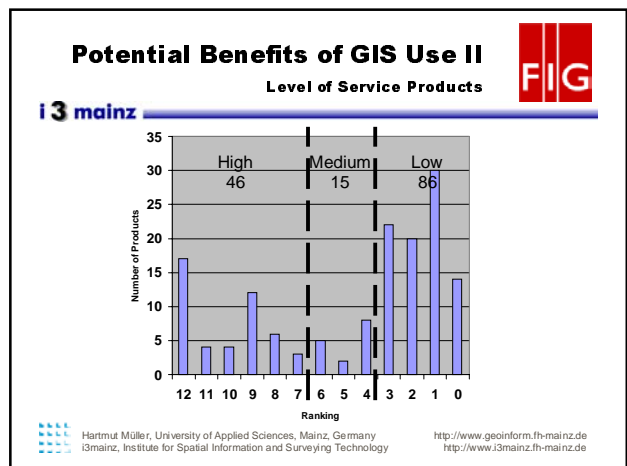
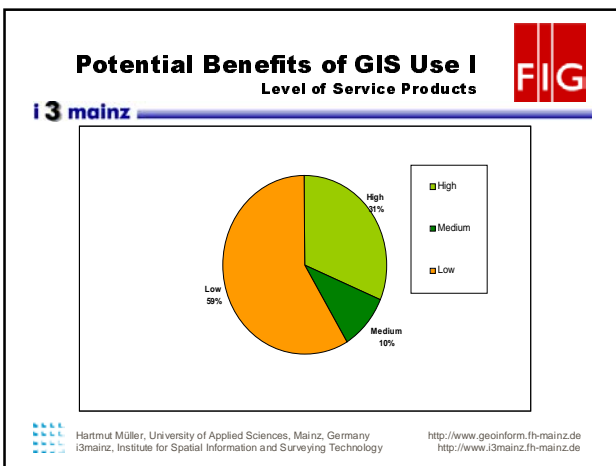
Hartmut Müller, University of Applied Sciences, Mainz, Germany  
 i3mainz, Institute for Spatial Information and Surveying Technology

http://www.geoinform.fh-mainz.de  
 http://www.i3mainz.fh-mainz.de



- ### GIS Implementation Project Work Plan Tasks
- 
- i3 mainz**
- **System analysis**
    - strategic planning
    - field research and analysis of given situation
    - conceptual modelling
    - user specific concept
    - IT-concept
    - **cost-benefit-analyses**
  - **System acquisition**
    - public tender procedure
    - offer rating
    - functional tests
    - system rating, system recommendation
  - **System implementation**
    - system installation, system acceptance
    - data acquisition, data migration
    - system use
- Hartmut Müller, University of Applied Sciences, Mainz, Germany  
i3mainz, Institute for Spatial Information and Surveying Technology
- <http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>

- ### Cost benefit assessment Reference Level Service Products
- 
- i3 mainz**
- > Cost control not yet available
  - > Introduction of 4 benefit categories
    - > quantifiable (work load reduction, ...)
    - > operational (quality, up to dateness, performance, ...)
    - > strategic (new technology, presentation to the public, ...)
    - > external (government, citizen, NGOs, ...)
  - > Benefit rating for all 170 service products
    - > 0 none
    - > 1 low
    - > 2 medium
    - > 3 high
  - > Result: one mark per service product 0, ..., 12
  - > Ranking of service products -> implementation plan
- Hartmut Müller, University of Applied Sciences, Mainz, Germany  
i3mainz, Institute for Spatial Information and Surveying Technology
- <http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>



## Potential Benefits of GIS Use III

Service Products with Highest GIS Potential



i3 mainz

- ▶ land use planning
- ▶ urban land use planning
- ▶ agrarian furthrance's
- ▶ epidemic abatement on animals
- ▶ business development
- ▶ transportation
- ▶ tourism
- ▶ ...



Hartmut Müller, University of Applied Sciences, Mainz, Germany  
i3mainz, Institute for Spatial Information and Surveying Technology

<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>

## Conclusions

How does the project fit with INSPIRE Principles?



i3 mainz

- ▶ Data should be collected once and maintained at the level where this can be done most effectively
- ▶ It should be possible to combine seamless spatial information from different sources across Europe and share it between many users and application
- ▶ It should be possible for information collected at one level to be shared between all the different levels, detailed for detailed investigations, general for strategic purposes
- ▶ Geographic information needed for good governance at all levels should be abundant under conditions that do not refrain its extensive use
- ▶ It should be easy to discover which geographic information is available, fits the needs for a particular use and under which conditions it can be acquired and used
- ▶ Geographic data should become easy to understand and interpret because it can be visualised within the appropriate context selected in a user-friendly way



Hartmut Müller, University of Applied Sciences, Mainz, Germany  
i3mainz, Institute for Spatial Information and Surveying Technology

<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>

and finally ...



i3 mainz

only one drop  
in the ocean  
of SIM development  
  
but  
little strokes fell big oaks !



Hartmut Müller, University of Applied Sciences, Mainz, Germany  
i3mainz, Institute for Spatial Information and Surveying Technology

<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>



i3 mainz

Thank you



Hartmut Müller, University of Applied Sciences, Mainz, Germany  
i3mainz, Institute for Spatial Information and Surveying Technology

<http://www.geoinform.fh-mainz.de>  
<http://www.i3mainz.fh-mainz.de>