

GDI NRW

An example of a Regional SDI

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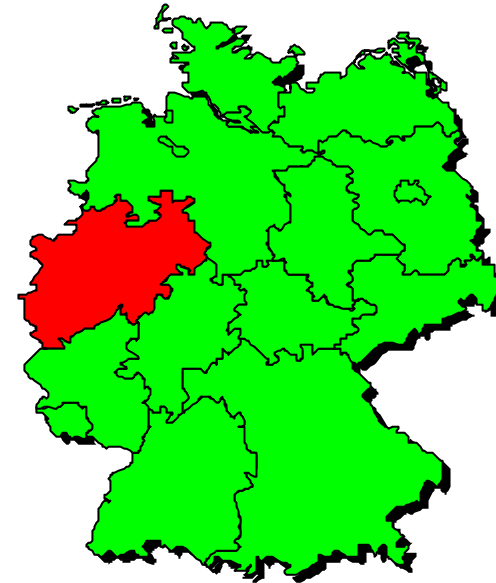
Outline

- 1. *Background and Organization of GDI NRW***
- 2. *GDI NRW Developments – Results of GDI NRW Testbeds***
- 3. *GDI NRW Roadmap***
- 4. *Conclusions***

GDI NRW – Background

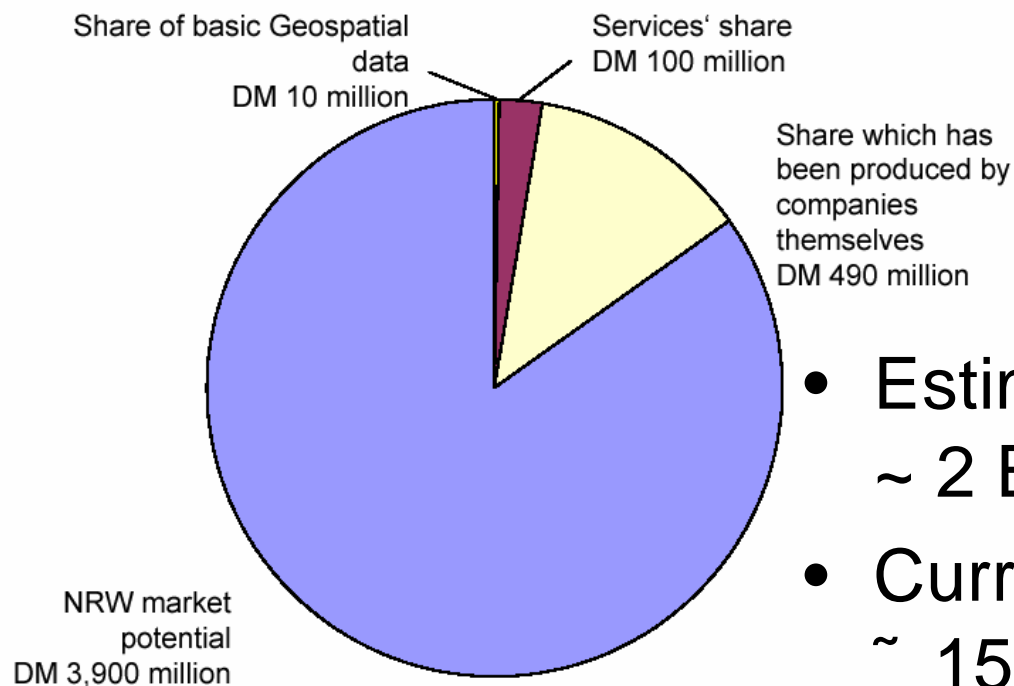
North Rhine Westphalia (NRW)

- 34.000 km²
- 18 Mio. inhabitants
- heterogenic cadastres
in 52 local authorities
- ...and at least 15 GI-SMEs



GDI NRW Market Survey

The market volume which has been achieved up to now amounts to 15%



- Estimated *GI-Market* ~ 2 Billion €
- Current market 300 Mio € ~ 15%
- 11.000 new jobs expected, 1.000 at GI SMEs

Join

SOURCE:

Market Survey MICUS 2002

http://www.micus.de/pdf/micus_marketstudie_nrw_en.pdf

GDI NRW Market Survey Recommendations

- Structure the delivery of data based on the valuebased price models → *geodata is too expensive*
- Simplify the licensing and waive exclusive rights contracts → *open markets and competition*
- Develop the public sector as a content provider for the geospatial data (similar to INSPIRE principle)
- Integrate use of geospatial data as a component part at all levels of education
- Foundation initiatives for the development of new products by means of the provision of capital → *sponsorship*
- Represent information as an independent reporting item in macroeconomic statistics → *to better reflect impact of the information market*

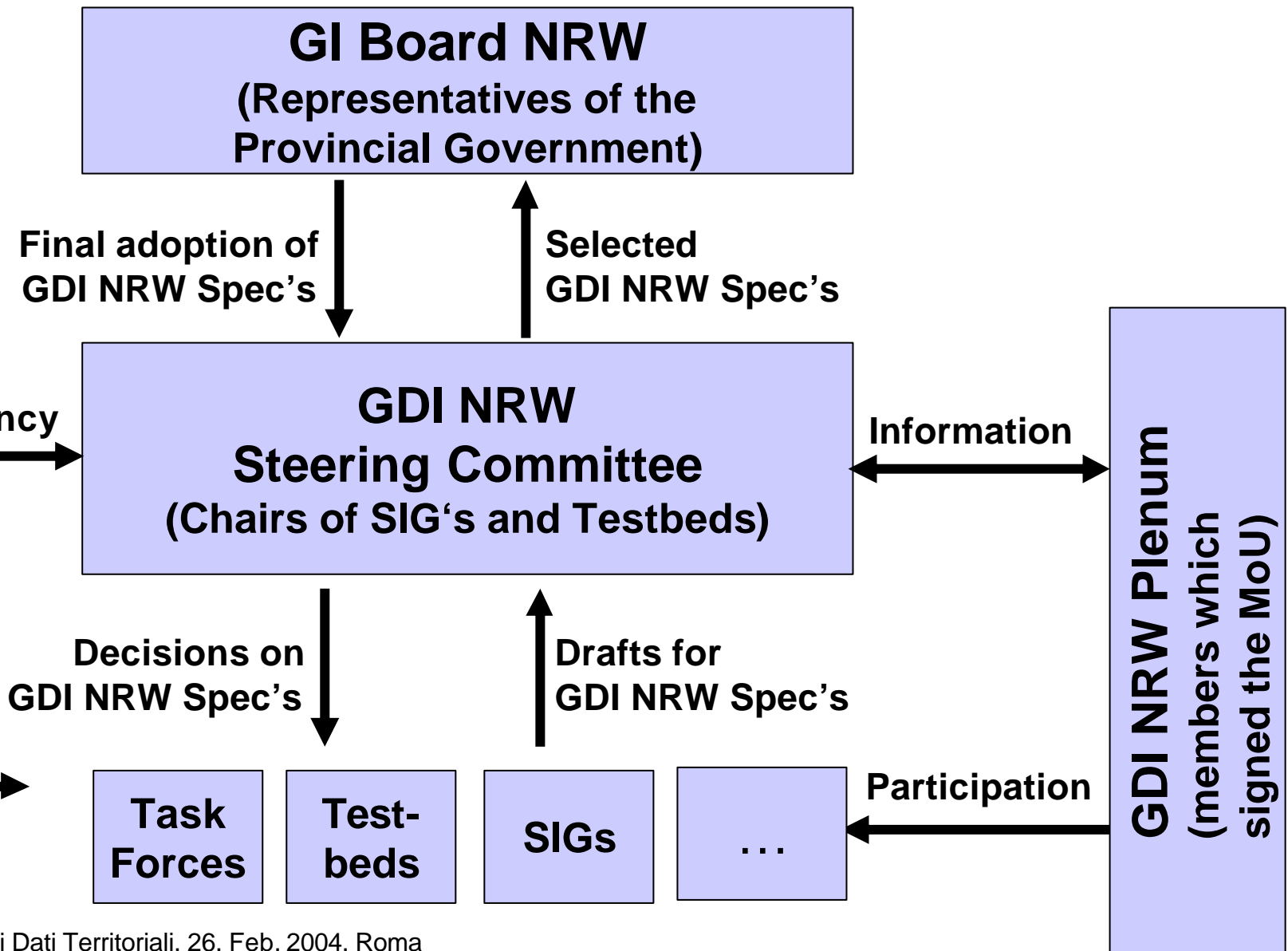
Brief History GDI NRW

- Initiated by the NRW Mapping Agency and the NRW Ministry of the Interior
→ *generate new markets ?!?*
- Started end of 1999 with a number of state funded R&D projects
- Self organized formation of SIGs (SIG Architecture, SIG Metadata...) by involved project teams
- Self organized *GDI NRW Testbed* by these SIG participants...
- Bottom-Up Development of an organisational structure

GDI NRW - Membership

- No fees
- Agreement on a *Common Manifesto on Interoperability in GDI NRW*:
 - Activities are directed on development of the GDI NRW
 - Follow Open GIS & ISO/TC 211 Spec's wherever they are available
→ ***Avoid special solutions***
 - Clear specifications for all services and information products within GDI NRW
→ ***Basis for interoperability***
 - Exactly one specification for a service or an information product
→ ***Guarantee of interoperability***

GDI NRW - Organization



GDI NRW Testbeds

Idea:

- In terms of an *OpenGIS Testbed*:
Iterative development of specifications and immediate validation by implementation
- In terms of an *OpenGIS Pilot*:
Transfer of OpenGIS specifications on new use cases
- ***Creating the glue to set up a GDI on existing specs***
- ***Creating new nodes in the GDI NRW***
- ***Based on public-private-partnerships***

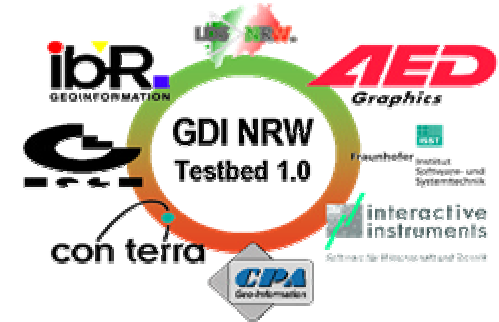
Funding

- on voluntary basis (or by sponsorship ?!)
- Integrated in running projects of the participants

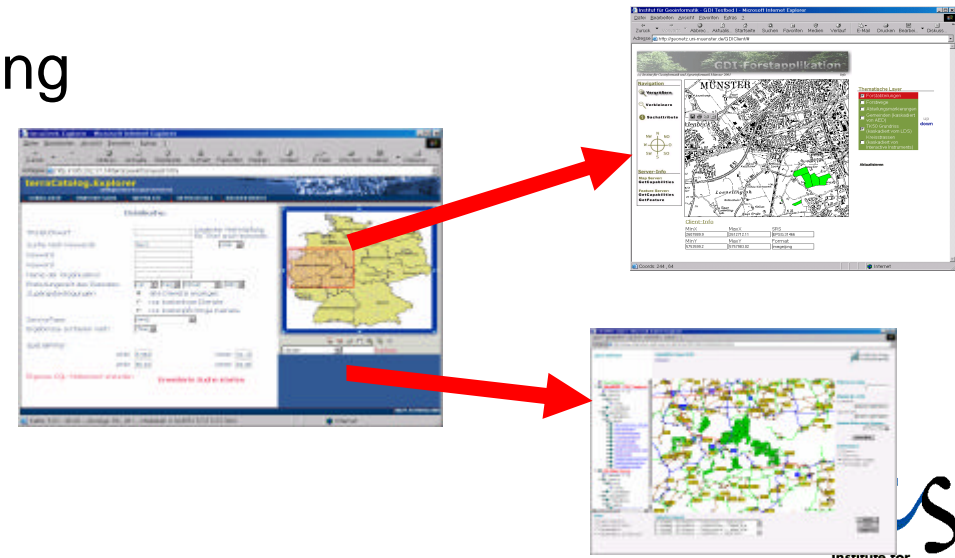
GDI Testbeds - Organization

- Preparation phase
 - acceptance by GDI NRW steering committee, Call for Participation, Kick-Off
- Specification phase
 - Meetings every 2 weeks
 - Based on existing ISO/OpenGIS spec's
- Implementation phase
 - Creating GI-services
- Evaluation and Presentation phase
 - Demonstration to the public (fairs, conferences,...)
 - Review of created specifications

GDI NRW Testbed I



- Start in March 2001 on volunteers base
- 8 participants in PPP and direct contact to OGC
- 6 months development & 3 months presentation
- Use cases followed the *publish-find-bind* idea
- Results (presented on AGILE 2002):
 - A common specification applying OGC's Open Service Model for GDI NRW
 - Service nodes (WRS, WMS, WPOS) in the GDI NRW





GDI NRW Testbed II

- Start in February 2002,
Results presented in October 2002
- Number of participants
raised to 10 and over 10 supporters
- Testbed II focuses on:
 - Integration of cadastral services
 - Publishing and Finding of Geodata
and GI-Services
 - Pricing, Ordering and Security
 - Enablement of service chains



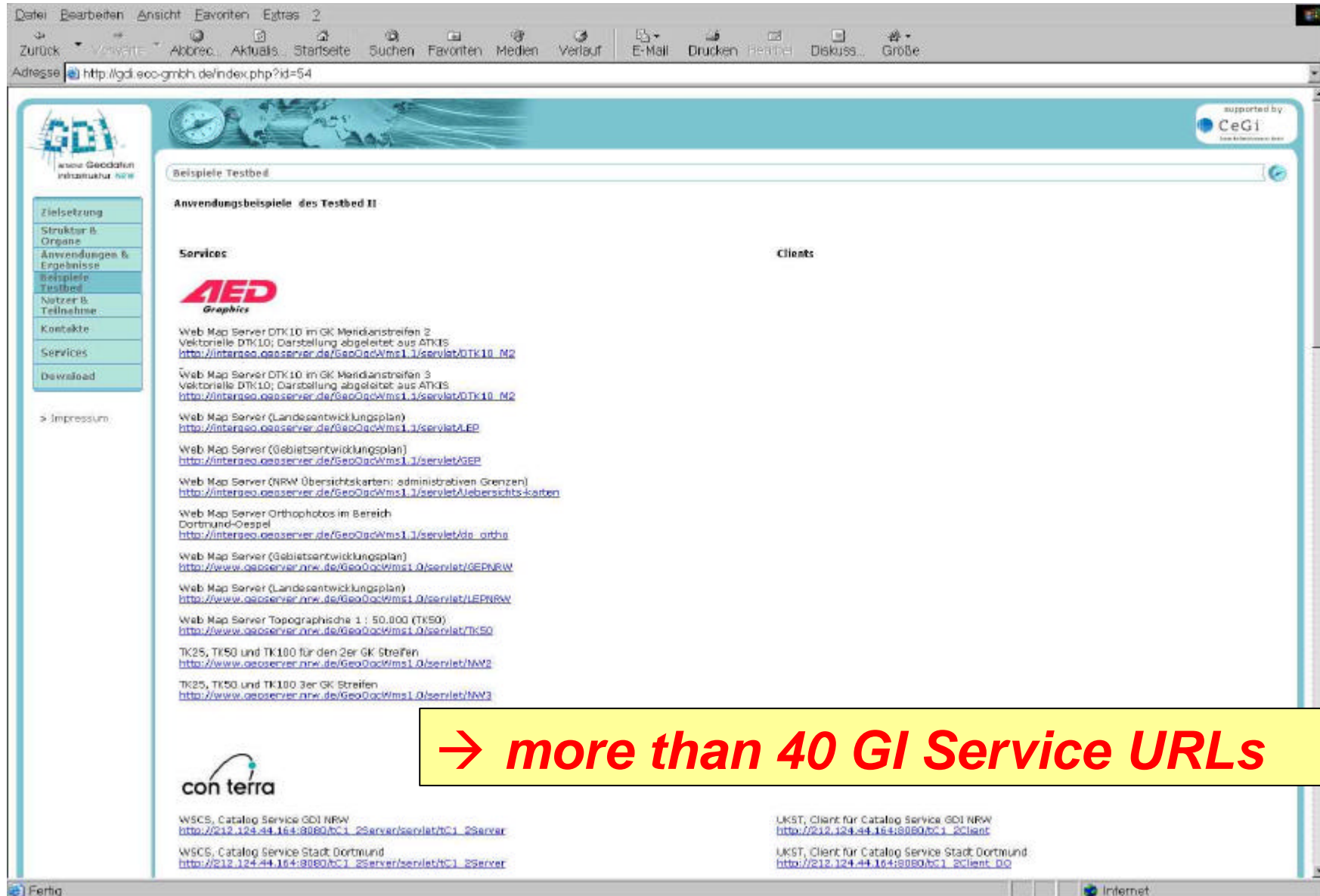
Testbed II Results – Specifications

1. ALKIS & NAS on Base of GML & WFS
(Cadastral Information System)
2. WMS & WMS SLD in GDI NRW
3. (transactional) WFS in GDI NRW
4. Web Authentication & Authorization
Service (WAAS) in GDI NRW
5. WRS & Service Metadata → **OGC WG**
6. Pricing and Ordering Service (WPOS)
7. Gazetteer Service (WGazS)
8. Coordinate Transformation Service (WCTS)


**NRW
Specific**

**OGC
Discussion
Paper**

Testbed II Results – Services:





Datei Bearbeiten Ansicht Favoriten Extras 2
 Zurück Vorne Abbr. Aktuals. Startseite Suchen Favoriten Medien Verlauf E-Mail Drucken Herbei Diskuss. Größe
 Adresse <http://gd1.eco-gmbh.de/index.php?id=54>

supported by


Beispiele Testbed

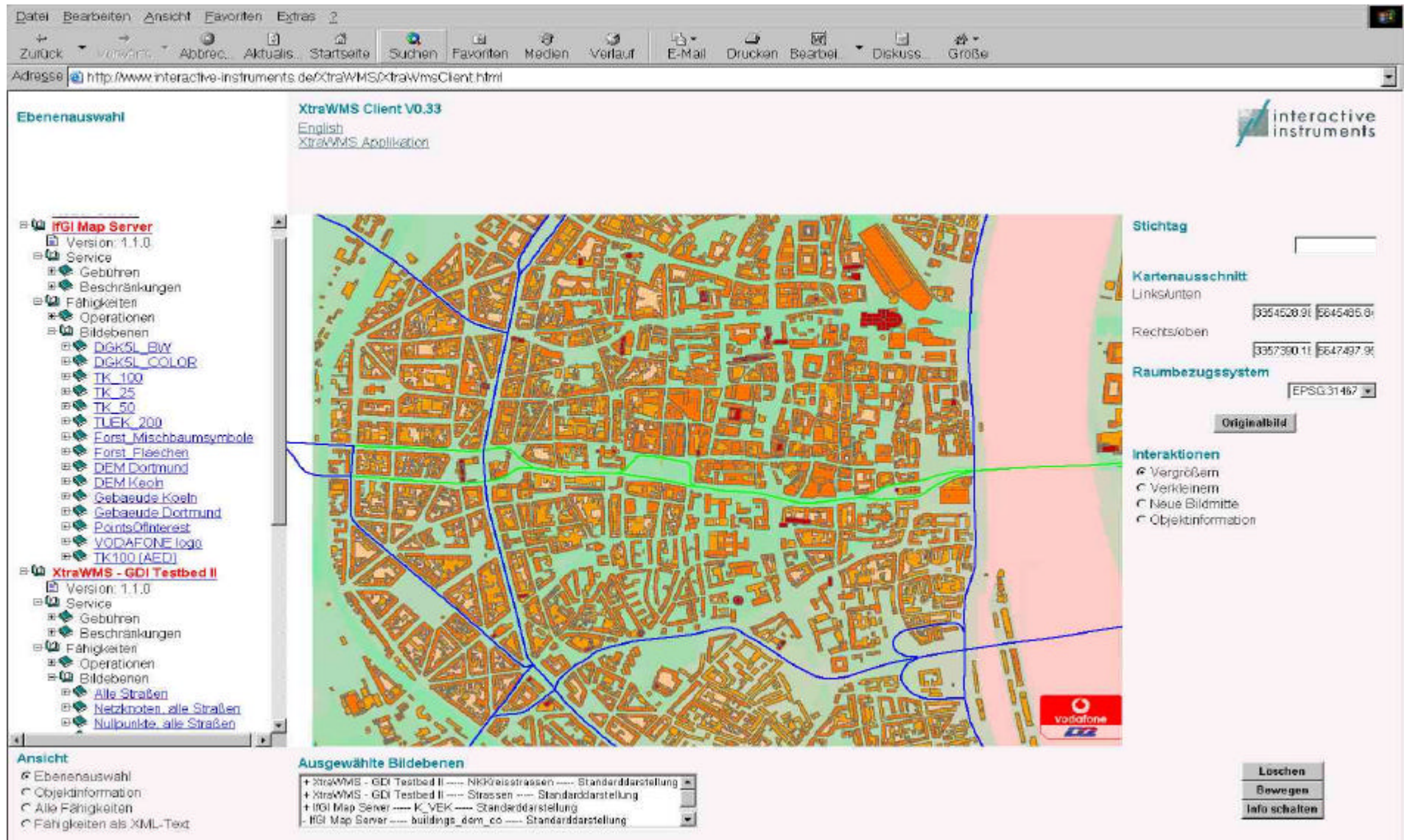
Anwendungsbeispiele des Testbed II

Services	Clients
 Web Map Server DTK10 im GK Meridianstreifen 2 Vektorielle DTK10; Darstellung abgeleitet aus ATKIS http://intergeo.geoserver.de/GeoDoc/Wms1.1/Servlet/DTK10_M2	
Web Map Server DTK10 im GK Meridianstreifen 3 Vektorielle DTK10; Darstellung abgeleitet aus ATKIS http://intergeo.geoserver.de/GeoDoc/Wms1.1/Servlet/DTK10_M3	
Web Map Server (Landesentwicklungsplan) http://intergeo.geoserver.de/GeoDoc/Wms1.1/Servlet/LEP	
Web Map Server (Gebietsentwicklungsplan) http://intergeo.geoserver.de/GeoDoc/Wms1.1/Servlet/GEPL	
Web Map Server (NRW Übersichtskarten: administrativen Grenzen) http://intergeo.geoserver.de/GeoDoc/Wms1.1/Servlet/UEbersichtskarten	
Web Map Server Orthophotos im Bereich Dortmund-Oespel http://intergeo.geoserver.de/GeoDoc/Wms1.1/Servlet/Ortho	
Web Map Server (Gebietsentwicklungsplan) http://www.geoserver.nrw.de/GeoDoc/Wms1.0/Servlet/GEPLNRW	
Web Map Server (Landesentwicklungsplan) http://www.geoserver.nrw.de/GeoDoc/Wms1.0/Servlet/LEPLNRW	
Web Map Server Topographische 1 : 50.000 (TK50) http://www.geoserver.nrw.de/GeoDoc/Wms1.0/Servlet/TK50	
TK25, TK50 und TK100 für den 2er GK Streifen http://www.geoserver.nrw.de/GeoDoc/Wms1.0/Servlet/TK25	
TK25, TK50 und TK100 3er GK Streifen http://www.geoserver.nrw.de/GeoDoc/Wms1.0/Servlet/TK25_3	
 WSCS, Catalog Service GDI NRW http://212.124.44.164:8080/bc1_2Server/Servlet/bc1_2Server	UKST, Client für Catalog Service GDI NRW http://212.124.44.164:8080/bc1_2Client
WSCS, Catalog Service Stadt Dortmund http://212.124.44.164:8080/bc1_2Server/Servlet/bc1_2Server	UKST, Client für Catalog Service Stadt Dortmund http://212.124.44.164:8080/bc1_2Client_DG

→ **more than 40 GI Service URLs**

Fertig Internet

Testbed II Results – Combine private and public GI-Services



The screenshot displays the XtraWMS Client V0.33 web application. The interface includes a menu bar at the top with options like 'Datei', 'Bearbeiten', and 'Ansicht'. Below the menu is a toolbar with icons for navigation and editing. The main content area is divided into several sections:

- Ebenenauswahl (Layer Selection):** A tree view on the left showing a hierarchy of layers. The 'ifGI Map Server' section includes layers like 'Version: 1.1.0', 'Service', 'Gebühren', 'Beschränkungen', 'Fähigkeiten', 'Operationen', and 'Bildebenen' (with sub-layers like 'DGKSL_BW', 'TK_100', etc.). The 'XtraWMS - GDI Testbed II' section includes 'Version: 1.1.0', 'Service', 'Gebühren', 'Beschränkungen', 'Fähigkeiten', 'Operationen', 'Bildebenen', and 'Alle Straßen'.
- Map View:** A central map showing a city street layout with a red location marker and a blue line indicating a path or boundary.
- Right Sidebar:** Contains controls for 'Stichtag' (date), 'Kartenausschnitt' (map extent) with coordinate fields (e.g., 3354528.91, 6645485.8), 'Raumbezugssystem' (coordinate system) set to EPSG:31467, and 'Interaktionen' (Interactions) with buttons for 'Vergrößern', 'Verkleinern', 'Neue Bildmitte', and 'Objektinformation'.
- Bottom Section:** Includes 'Ansicht' (View) options and 'Ausgewählte Bildebenen' (Selected Image Levels) with a list of active layers and their display styles.

Further GDI NRW Projects

GDI NRW 3D Pilot (no funds)

- Conducted in 2003
- Scope: 3D-Visualization based on GI-Services

Cross-Border GDI NL-NRW (EU funded)

- Feasibility study → previous talk

GDI NRW Bundle-Project (some sponsorships)

- Bundle ongoing GDI projects to harmonize upcoming specifications and developments
- Just started ...

Conclusions - Organizational

- GDI NRW – success factors
 - Co-operation of public and private sectors (PPP)
 - Open for everybody who is following the interoperability principles
 - Decisions following a consensus principle
 - *Service-driven* approach
 - GDI NRW Testbeds, that create
 - Running GI-Services serving as a proof-of-concept and creating pressure for political decisions
 - GDI-competence at participating institutions
 - Working networks for further GDI developments

Conclusions - Organizational

- GDI NRW – shortcomings (a personal view)
 - Urgently needed is a
 - a **legal framework to guarantee sustainability**
 - stable organization form
 - ***GDI clearly minimize transaction costs and improve geoinformation quality...***
 - thus fulfill important/valuable aspects of a (mainly) public infrastructure
 - ...but, on a mid term GDI probably (?) do not necessarily realize new GI-Businesses***
- ***Wrong expectations on new GDI (NRW) business models impede development and success***

Conclusions – Technical, some...

- OGC/GI Service specifications are powerful
 - already go beyond *web mapping*
- Networked GI-Services in a GDI
 - realize easy access to GI for non-Specialists
 - but probably do not need to replace GIS at all
 - *the balance of openness versus complexity/functionality is still to define*
- New issues:
 - Geo processing services are still missing (basic analytical services)
 - Support GI-services chains
 - Semantic interoperability...

Thank You for Your Attention!

And Thanks to

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Uwe Voges (con terra),
Andreas Wytzisk (Uni Münster/ ITC Enschede),

Questions & Comments ?

<http://www.gdi-nrw.org>

Web Registry Services (GDI NRW)

GDI NRW WRS Spec in a nutshell

- based on the ideas of the Basic Service Model
- Stateless and based on web profile (HTTP/XML)
- OGC Web Services Stateless Catalog Profile Vs. 0.0.6 (OGC 01-062)
- Using ISO19115- and ISO19119 metadata describing geodata and GI-Services
→ **2 logical Views on the registry:**
 - service registry (using ISO19119)
 - data registry (using 19115)
- GDI NRW WRS Spec supports taxonomies and hierarchies

Web Registry Services (GDI NRW)

The *service registry* (service catalog) view

- Describing services extending ISO19119 by
 - GeographicBox (=LatLonBoundingBox); already defined in GDI NRW Testbed I
 - DataCoupling
- 3 kinds of service-data coupling
 - *tight*
 - *loose*
 - *mixed* (coupled but open for additional data)
- Metadata of Coupled data are linked by reference on ISO19115 data set (1:n)
→ *Link from service to data is unidirectional !*
(There is no tag in 19115 defined to link to 19119)