

Technische Universität München
 Institut für Geodäsie, GIS und Landmanagement
 Fachgebiet Geoinformationssysteme

A Multi-Vendor Spatial Data Infrastructure for Local Governments based on OGC Web Services

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Scenario: SDI for utilities network information

Parkplatz im See

Wird die Hochwerke über Wasserlinie mindestens 1,00 Meter tief im Boden vergraben, kann den Leistungen der städtischen Privat nicht entgegen. Wenn ein Hausbesitzer über ein Grundstück in den Boden führt und das Rohr beschädigt, dann kann es sein, sehen wir am Donnerstagabend in der Landsharger Straße. Aus einer Hauptleitung 30 Zentimeter stark, strömt das Wasser auf die Straße und in ein Geschäftshaus. Die Hochwerke spritzt mit die Straße, und lässt die Leihung, ohne zu wissen, dass die

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- Approaches to combining distributed spatial data
- Motivation for using OGC Web Services
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Data integration and Service Oriented Architecture:
 Two approaches to combining distributed spatial data

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Comparison of the approaches

Data Integration	Service Oriented Architecture
File transfer	WWW as Distributed Computing Platform
<ul style="list-style-type: none"> Graphics/images e.g. TIFF, SVG Features e.g. Shape, SQD Model driven approach e.g. INTERLIS (CH) 	<ul style="list-style-type: none"> Graphics/images e.g. OGC WMS Features e.g. OGC WFS Model driven approach does not exist yet

↓ capability, complexity

OGC Web Services

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Motivation for using OGC Web Services

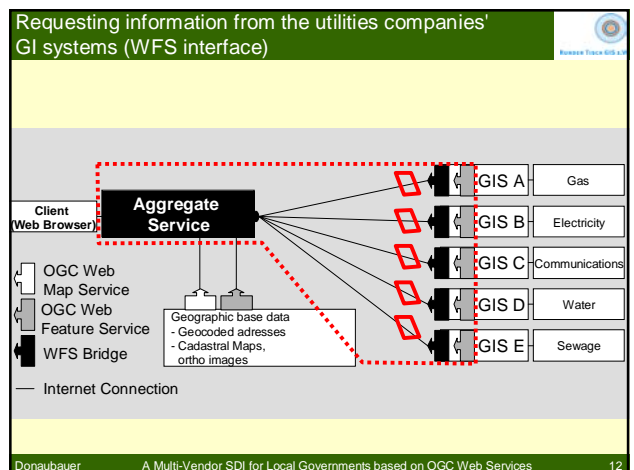
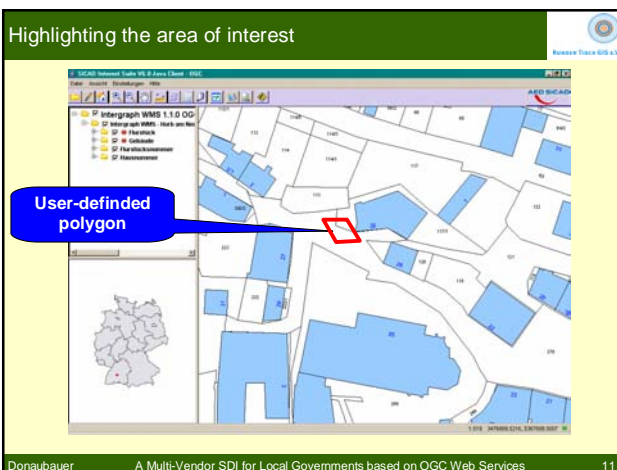
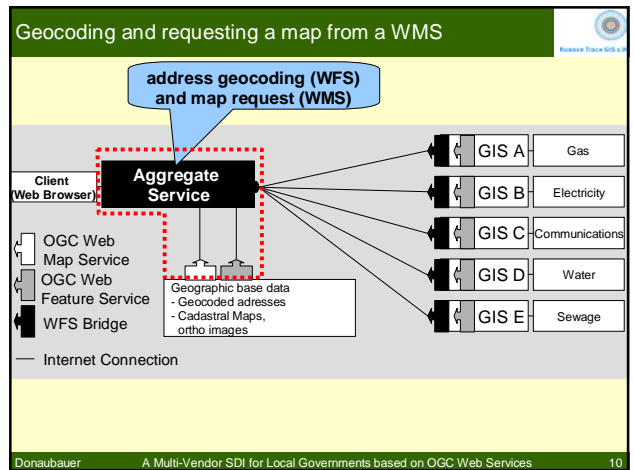
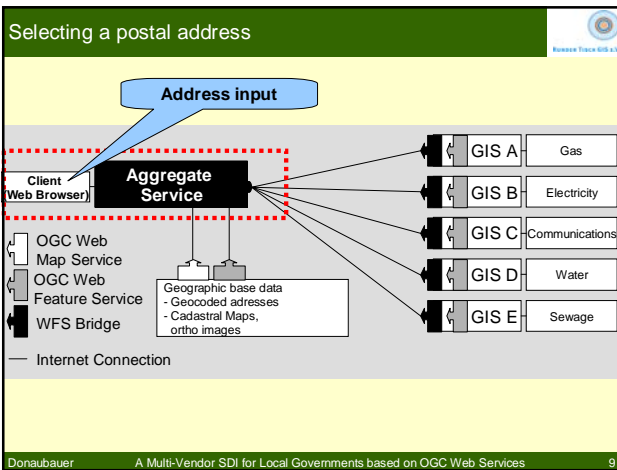
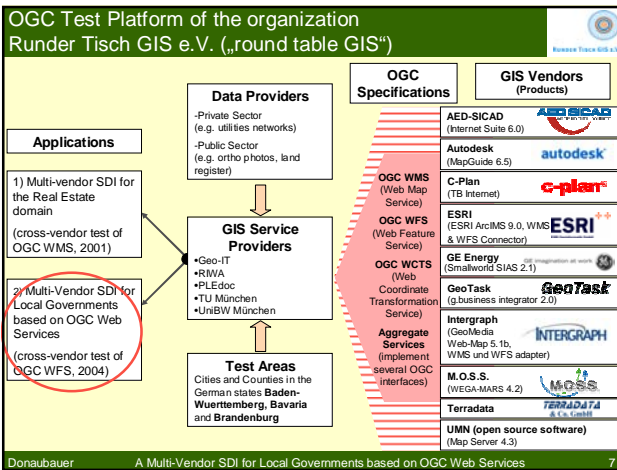
„The lower the user effort, the higher the number of users!“

User groups	Number of users
GIS developers	5%
Knowledgeable GIS users	15%
GIS-non-experts	80%

Internet, OGC Web Services

Source: Schlicher, Figures: City of Munich, Bavaria

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Consolidated answers to a user's request

Ergebnis der Anfragen an die verteilten GIS der Leitungsbetreiber:

Anfragen durchgeführt für Benutzer: root

Adresse:

Stadt:	Deutschland
Bundesland:	Bayern
Regierungsbezirk:	Schwaben
Kreis:	Unterallgäu
Gemeinde:	Bad Wiblingen
Gemeindefläch:	Bad Wiblingen
Strasse:	Bachstraße
Hausnummer:	10
Postleitzahl:	89255
Postleitzahl/Ortsname:	Bad Wiblingen

Web Service der Firma GE. Standort für die Sparte Wasser

Kontaktperson: Stefan Geis

Kontaktorganisation: N-SPDGE AD

Telefon: +49 911 90217021

Rechtlicher Hinweis: Achtung! Dies ist keine rechtswirksame Aussage. Für die Richtigkeit der Aussage keine Gewähr übernommen.

NICHT autorisiert.

Web Service der Firma GE. Standort für die Sparte Gas

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Benefits of and requirements to a multi-vendor SDI

Benefits:

- Minimized effort for using and combining spatial data on the users' side
- Reduced effort, lower costs and more efficiency on the service providers' side
- Increased information liability because of updateness
- Reusability of services

Requirements:

- Full coverage of spatial data in the area of interest
- GIS - and IT standards must be fulfilled
- Data providers must allow standardized access to their systems

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Potential of OGC Web Services

Increasing efficiency in using GIS for existing GIS users

Combining distributed, heterogeneous GI systems is simple

User effort is low

No outdated information because of direct access to the original data source

Re-use of geographic information resources

New users for existing geographic information resources (non-experts)

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Current limitations of the OGC Web Services approach

Practicability:

- Service chaining
- Consistency: OGC specifications, general IT standards
- Limitations of distribution and modularity

Functionality:

- (simple) read-only web applications
- lack of analysis
- functionality

Semantic interoperability

- Model driven data transfer

Acceptance (supply and demand):

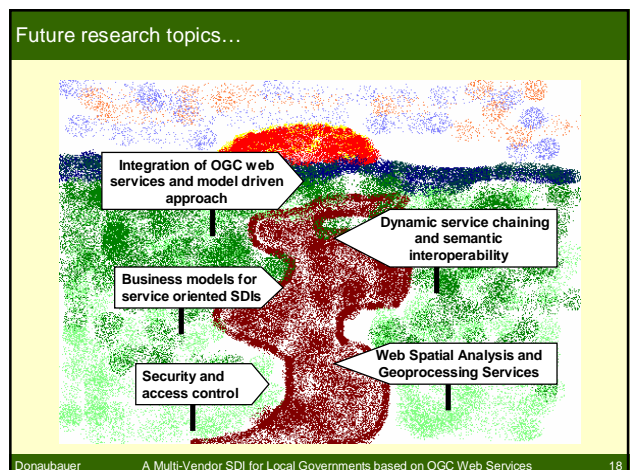
- reached for WMS, not yet for WFS
- absence of security and access control in the current OGC specifications

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Conclusions: When to use OGC Web Services?

	OGC Web Services	Data Integration
Quick and simple read-only access	+	-
Data updateness is critical	+	-
Combination of a wide range of data sources	+	-
Ad hoc data combination	+	-
Complex GIS analysis	-	+
Paper Map production	-	+
Write access	-	+
Model driven data transfer	-	+

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Thank you very much!

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