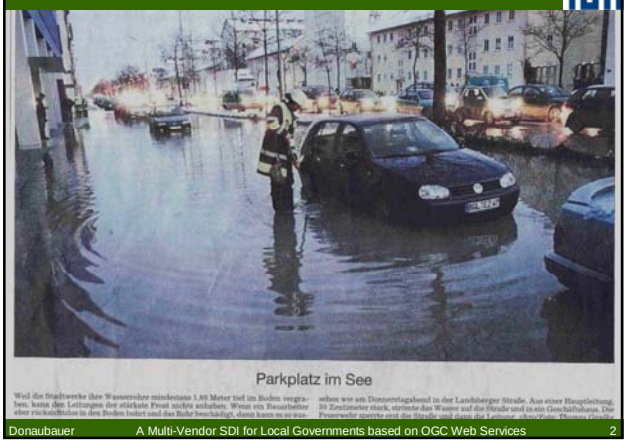
Technische Universität München
Institut für Geodäsie, GIS und Landmanagement
Fachgebiet Geoinformationssysteme

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

FIG Working Week 2005 and GSDI-8
Cairo, 16-21 April 2005

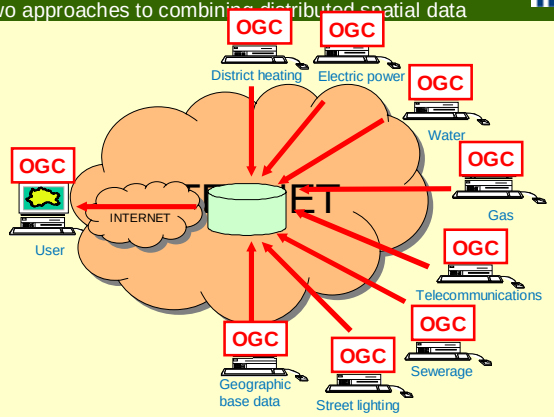
Andreas Donaubauer

Scenario: SDI for utilities network information



Contents

Data integration and Service Oriented Architecture: Two approaches to combining distributed spatial data



Comparison of the approaches

Data Integration
File transfer

- Graphics/images e.g. TIFF, SVG
- Features e.g. Shape, SQD
- Model driven approach e.g. INTERLIS (CH)

Service Oriented Architecture
WWW as Distributed Computing Platform

- Graphics/images e.g. OGC WMS
- Features e.g. OGC WFS

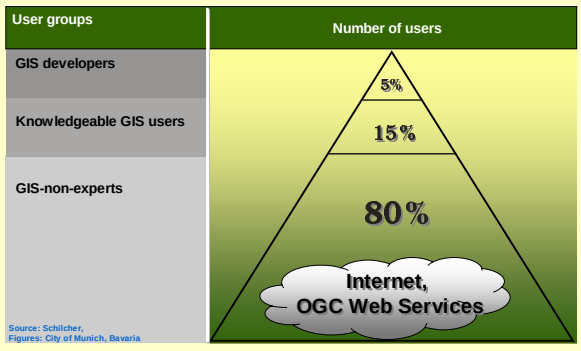
OGC Web Services

- Model driven approach does not exist yet

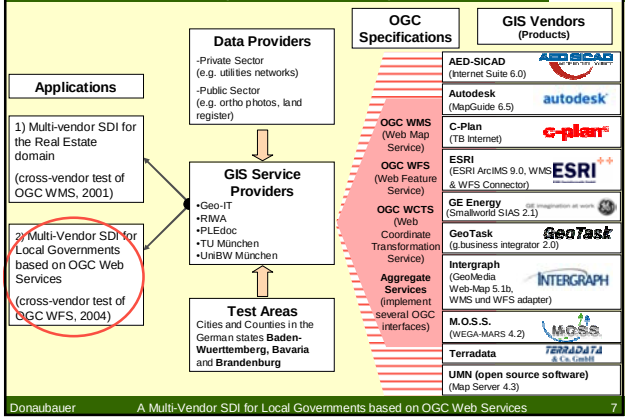
capability, complexity

Motivation for using OGC Web Services

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

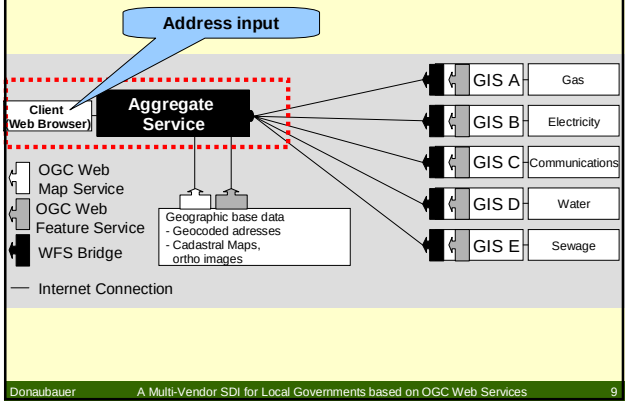


OGC Test Platform of the organization Runder Tisch GIS e.V. („round table GIS“)

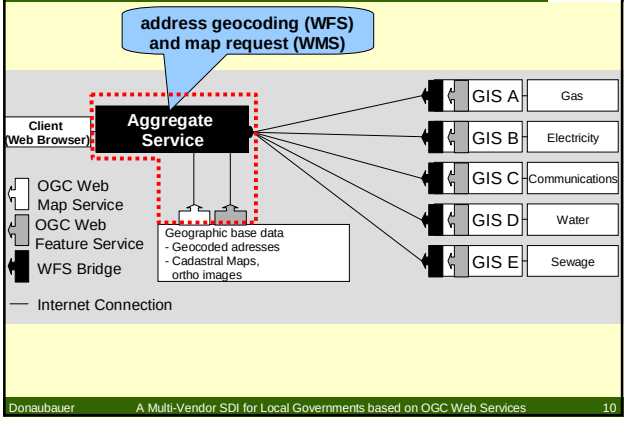


Benefits of the OGC Web Services Approach exemplified by a Multi-Vendor SDI for Local Governments

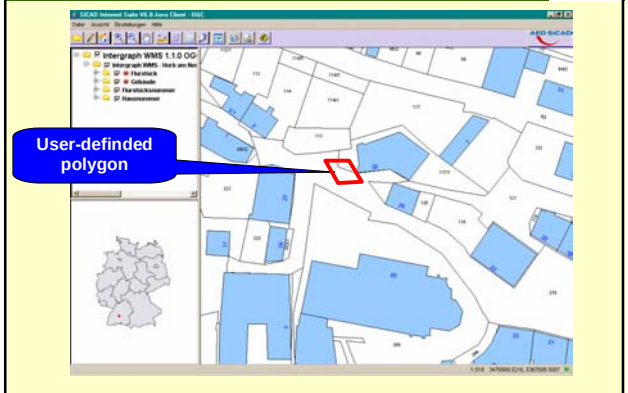
Selecting a postal address



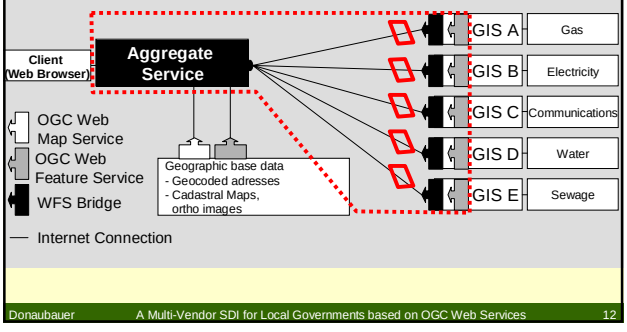
Geocoding and requesting a map from a WMS



Highlighting the area of interest



Requesting information from the utilities companies' GI systems (WFS interface)



Consolidated answers to a user's request

Benefits 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

Potential of OGC Web Services

Increasing efficiency in using GIS for existing GIS users

Combining distributed, heterogeneous GI systems is simple

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

User effort is low

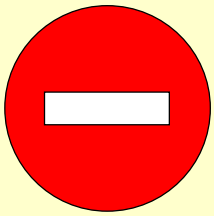
Re-use of geographic information ressources

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

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**



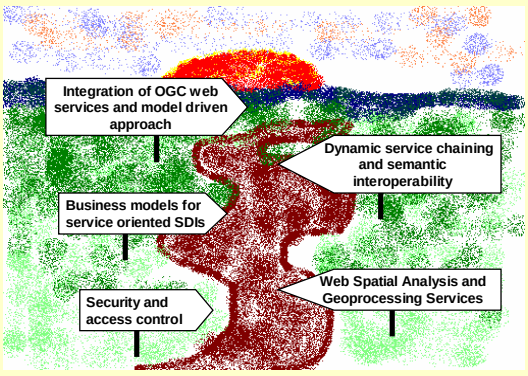
- **Semantic interoperability**
- **Model driven data transfer**

Acceptance (supply and demand):
- **reached for WMS, not yet for WFS**
- **absence of security and access control in the current OGC specifications**

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	-	+

Future research topics…



Thank you very much!

Dr.-Ing. Andreas Donaubauer
andreas.donaubauer@bv.tum.de