An Integration Platform for a Spatially Enabled Society

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Introduction

• PLR-Cadastre in Switzerland – Pilot project in Cantons of Nidwalden and Obwalden.

• How should a modern system architecture be designed, having
  – distributed responsibility for data,
  – existing, but distributed data sets,
  – existing Spatial Data Infrastructure,
  – broad band-with and high speed of the internet and
  – which may also supports other applications than PLR-Cadastre?
Requirements

- Minimal extension of established structures and processes is desired;
- Use of web-technologies, wherever feasible;
  - Real-time access of source data;
  - Real-time data query, analysis and reporting.
- Use of open-source components;
- Flexibility and scalability.

System Architecture (Marketing)
**System Architecture of GeoApps**

![Diagram of System Architecture of GeoApps]

**Client**

- Accessibility is key factor for success!
- Shift from WebGIS to «Web-Application»;
- Supports all kinds of information presentation like dash-board, map, pivot-tables enabling the best visualisation method for each information;
- Viewports are interconnected: interaction (like selection) in one view are propagated into other views;
- Map rendering based on OpenLayers.
Processing the PLR-Request

Select parcel(s) >> Service gathers PLR-data >> Spatial Intersect >> Analysis of relevant legal regulations >> PLR-extract

PLR-Application

GeoApps - Integration Platform for SES
Challenges

- Overall performance: sound data integration concepts is worthless when system is slow;
- Missing standards outside spatial domain (e.g. data model for legal data);
- Architecture poses new requirements on
  - (spatial data) infrastructure;
  - Data quality.

Benefits of our architecture

- User interface is intuitional;
- Definition of the rules (relationships) between spatial and data allows that queries may also be reversed: which legal regulation applies where;
- Preserving data ownership – the owners remain in control;
- Uniform treatment of spatial and textual data in the client.
Conclusion and Outlook

• PLR-Cadastre (information system) as an ideal test-bed for Spatially Enabled Society concepts.
• Future enhancements of PLR-Cadastre with:
  – Ownership from Land Register;
  – Site development from Infrastructure Systems;
  – Construction permits and construction restrictions;
  – Listed building / site preservation;
  – «Common» web data (crawlers, imagery), etc.
• Provide holistic views on real-world objects;
• Data integration in practise is hard work!

Project partners

• GIS Daten AG
  – www.gis-daten.ch/nw_oereb
• Geocloud
• Federal Office of Topography
THANK YOU FOR YOUR ATTENTION

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User Interface – components
User Interface – dynamic extracts

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User Interface – interconnected views

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