

# Towards a Swiss Geological Information System

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November 21, 2009 – Andreas Kühni & Nils Oesterling

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# Main Tasks of the Swiss Geological Survey

## Geological, geotechnical and geophysical survey of Switzerland

- Gather and archive geological base data
- Process base data into Geological Information and Knowledge
- Provide data, information and knowledge to the public

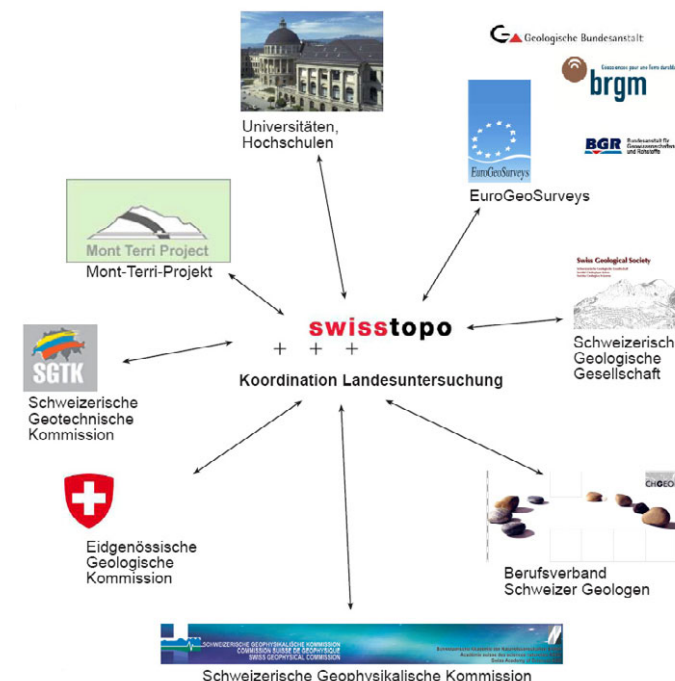
## Special Case Switzerland:

- Geological Survey very small
- Federalistic organisation of the surveying activities
- Many players with different goals
- Highly distributed and scarce financial resources

## Collaboration and Coordination is key:

- Make the best out of the situation
- Work towards a homogenous data base

## Turntable function according to Federal Law for Geo-Information (GeolG)





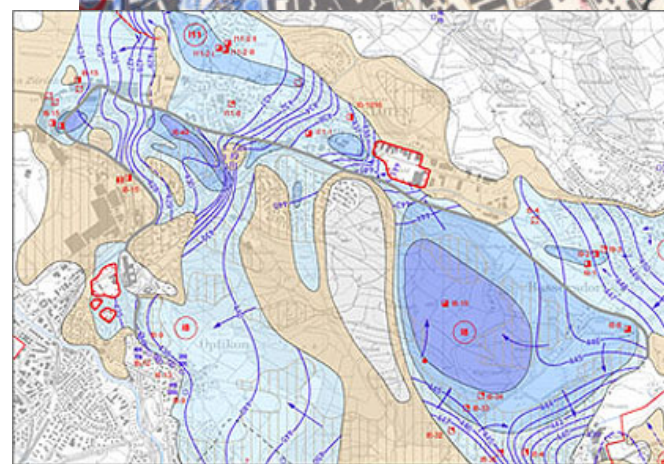
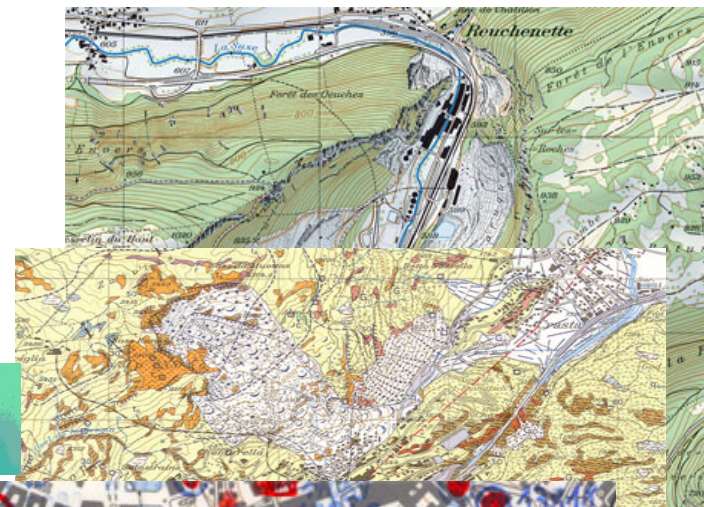
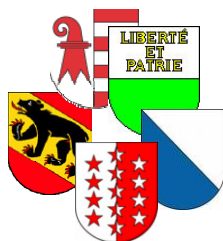
# Aim of the data policy of the SGS

- Make **available** as many geo-thematic data sets to as many customers as easily accessible as possible
- Raise **awareness** of availability and use of geo-thematic data in politics and public
- Increase **awareness** of importance of earth-sciences in general
- Make **available** geological data for professionals, decision makers, laymen, ...



# Geological Information: Challenges (I)

- **To coordinate wide variety of data producers & users**
  - Confederation
  - Universities & research groups
  - Cantons
  - Communities
  - Energy & consulting companies
  - Hobby geologists
- **To harmonise wide variety of data characteristics**
  - Locations, accessibilities, formats, scales, quality...



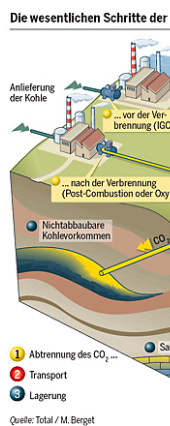
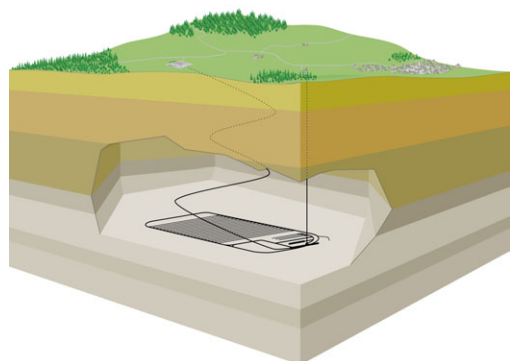
- Hydrogeological maps





# Geological Information: Challenges (II)

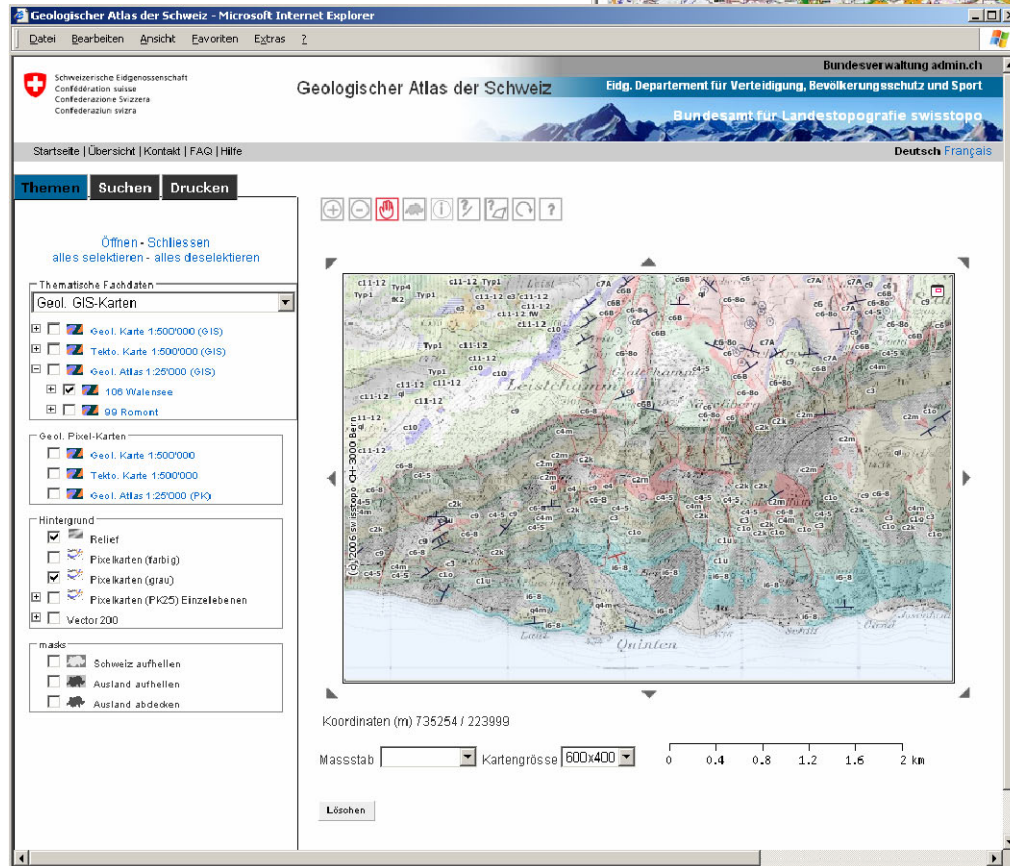
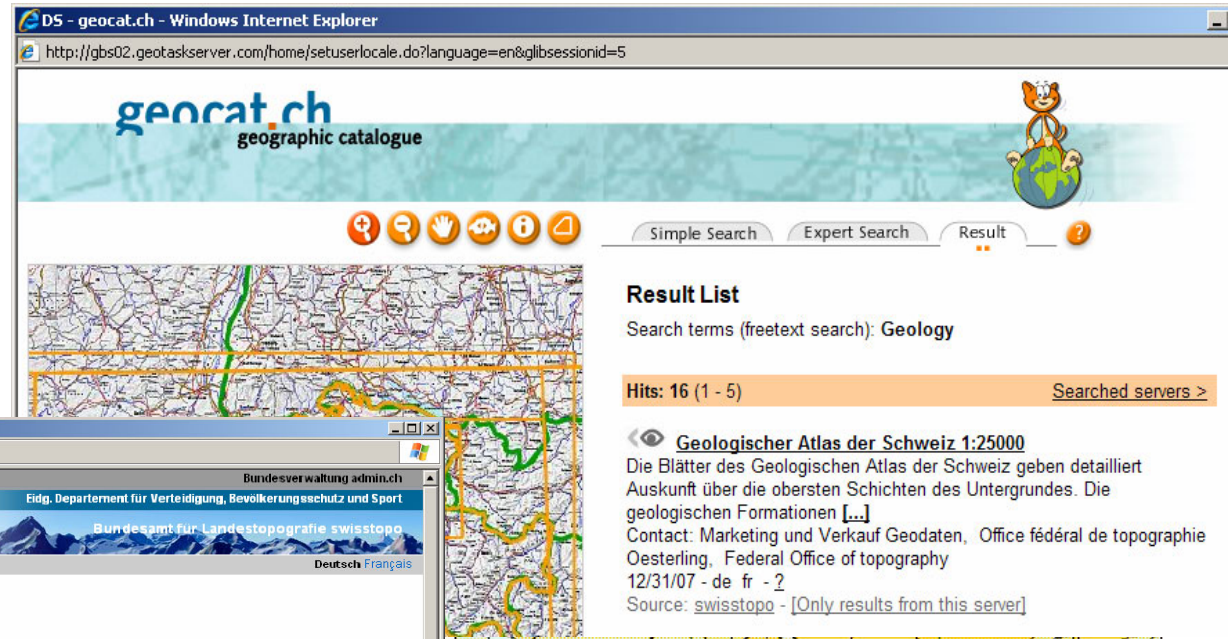
- **Fast growing demand** for (digital) geological datasets (vector format):
  - Increasing number of **natural and ecological hazards**
  - Growing importance of **environment and natural resources**
  - Growing number of **constructions** and need for **energy supply**
  - **National projects** such as:
    - Geological repositories for nuclear waste
    - CO<sub>2</sub>-Sequestration
    - Geothermal Energy
    - 3D urban planning





# Geological Information: Solutions

- **Metadata base for geological topics**



- **Data viewer**

- **Geological Information System**



# What is the Geological Information System?

*... a central gateway to all available data, metadata, information and knowledge related to geology*

- Web-based access
- Based on data, information, etc.
- Contribution to the NSDI Switzerland
- Tool for the Swiss geo-community (universities, commissions and cantonal, federal and private offices)

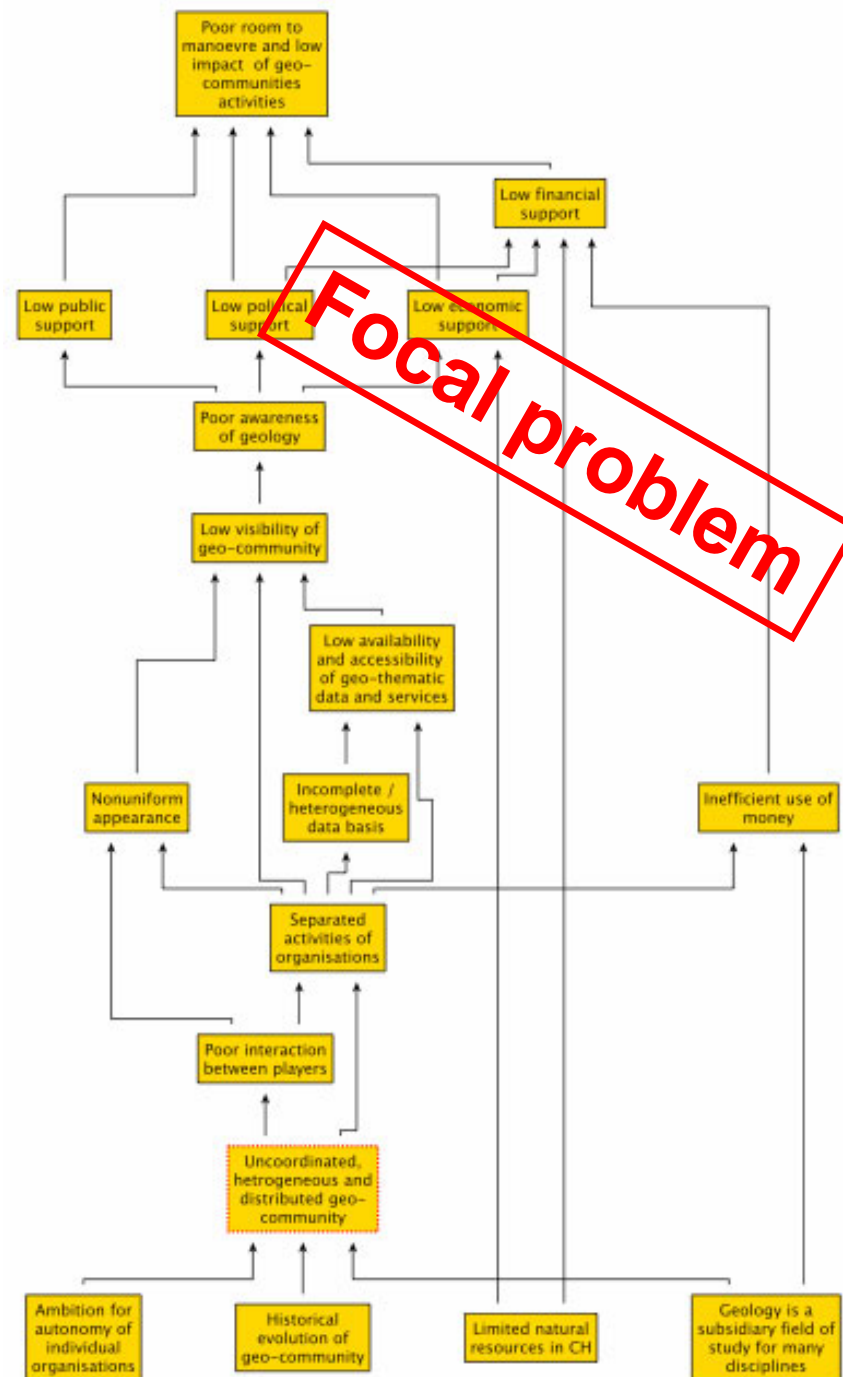




# Present-day situation

## Negative aspects:

- **Heterogeneous structure of geo-community**
  - Autonomy of players
  - Separated strategies and activities
  - Restricted availability & accessibility of geo-thematic data
  - Low visibility of geo-community
  - Low awareness & support







# Approach

- Perform **Present state analysis** concerning handling and distribution of geo-thematic data
- Perform **Poll on requirements** of potential users
- Elaborate **Basic concept** for development and implementation (Aims, target groups, design, architecture, roadmap etc.)

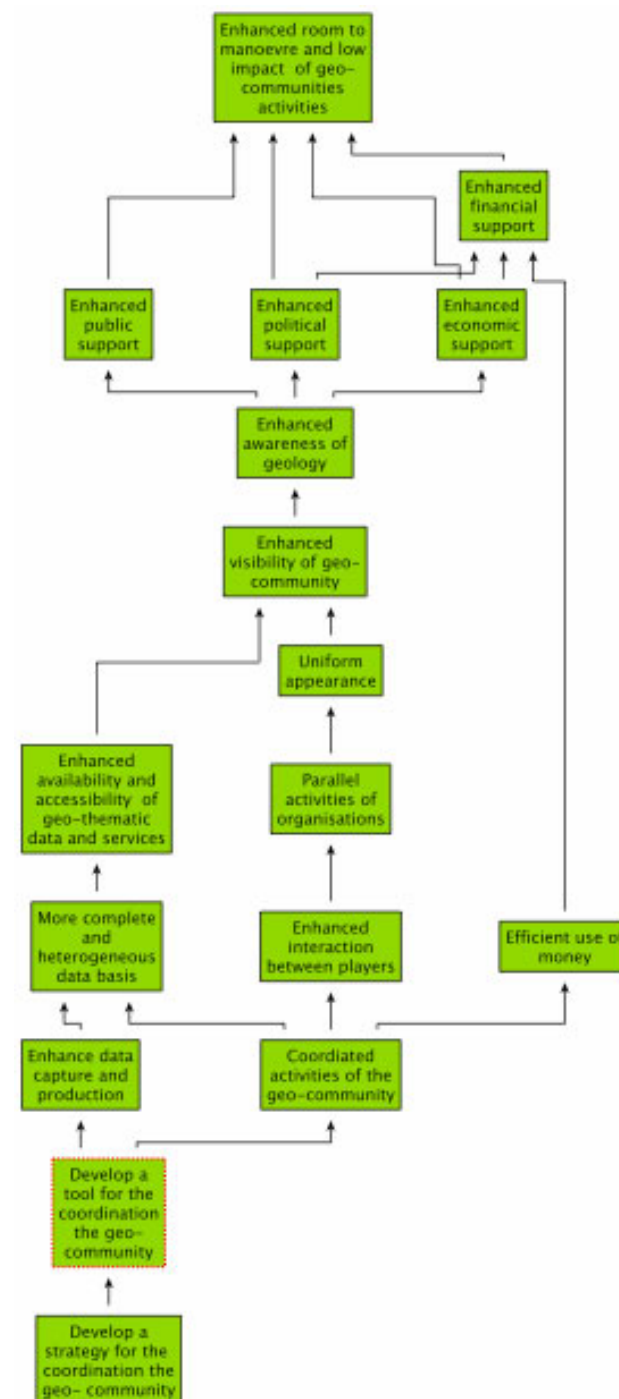


# Envisaged situation

## Homogeneous and coordinated geo-community

- Common strategies and activities
- Enhanced data availability & accessibility
- Enhanced visibility of geo-community
- Enhanced awareness & support

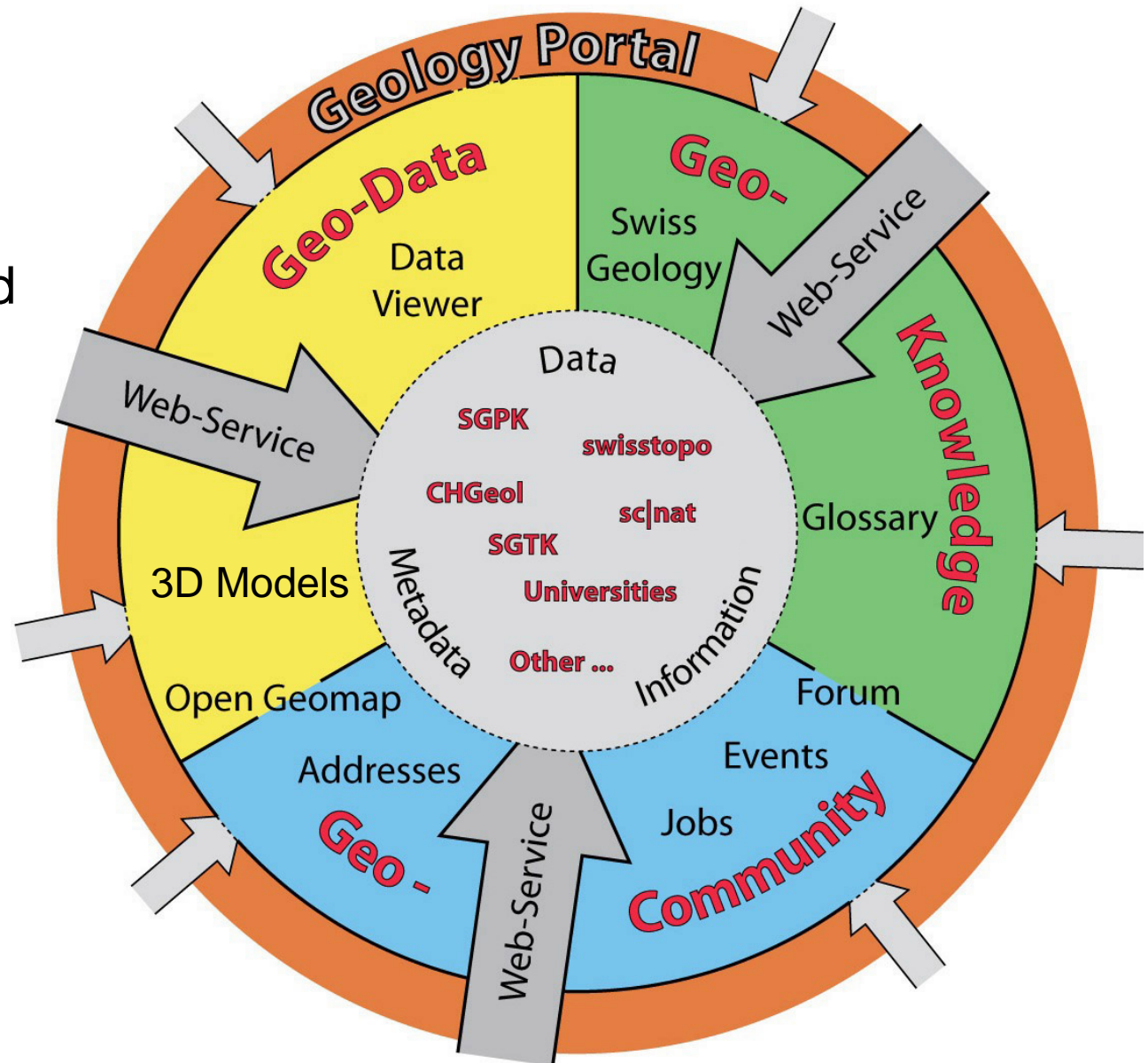
→ Tool for coordination and communication





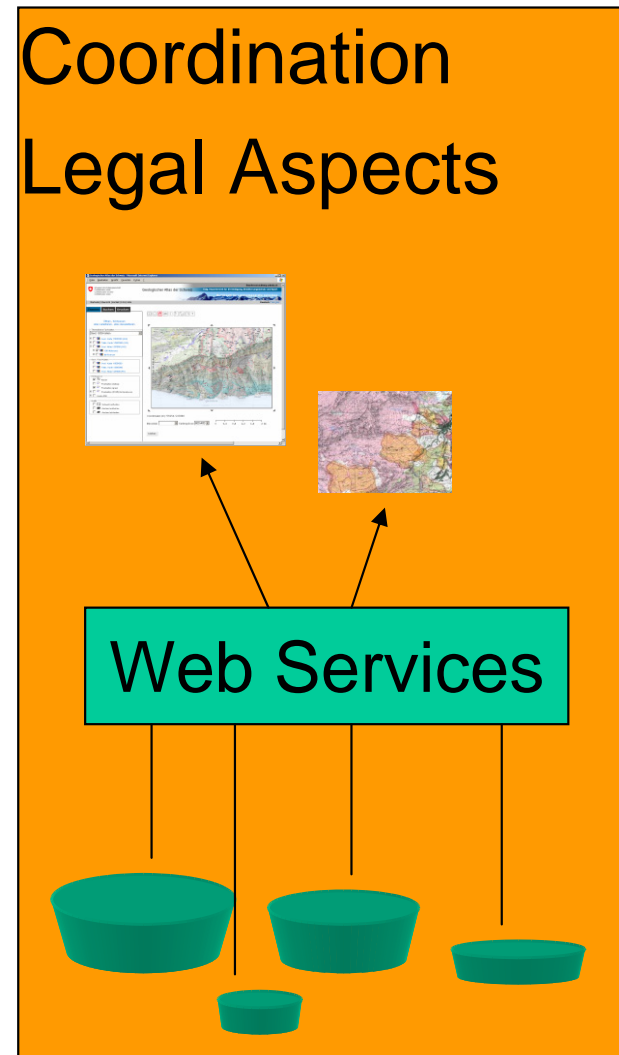
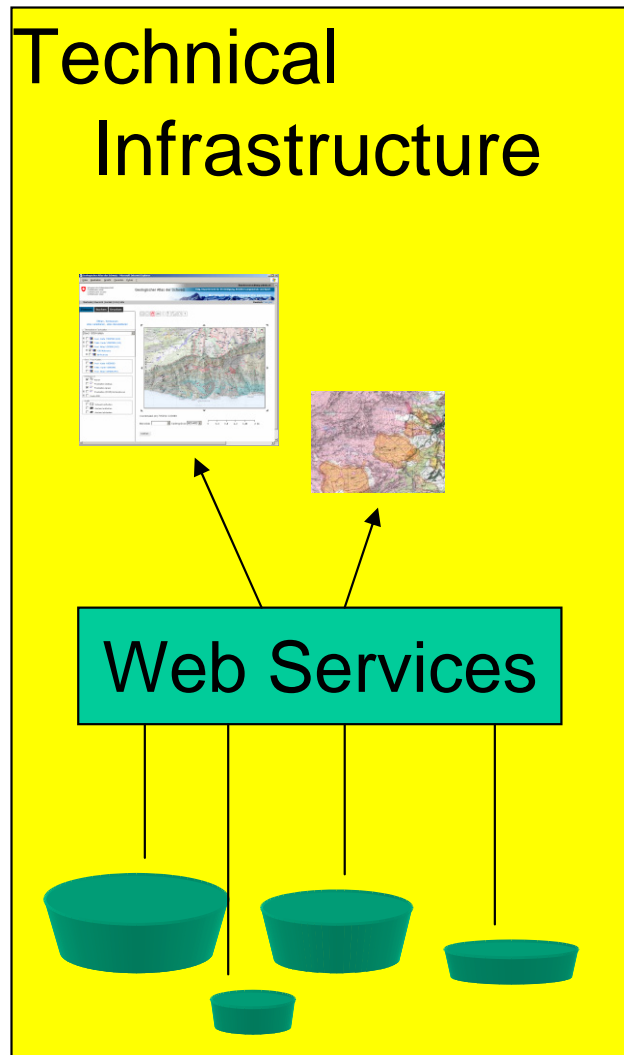
# Overall design

- Central
- Data = core
- Components grouped into 3 sectors
- Web portal, Web-Services
- Target groups:
  - Professionals
  - Multipliers
  - Laymen





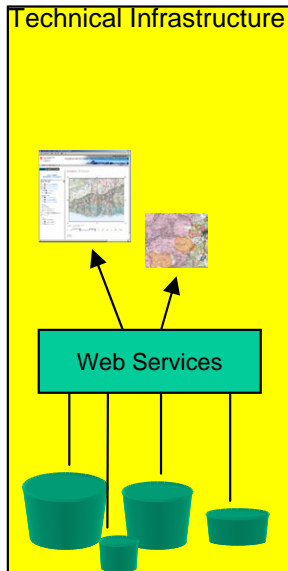
# Geological Information System Switzerland – Major fields of activity



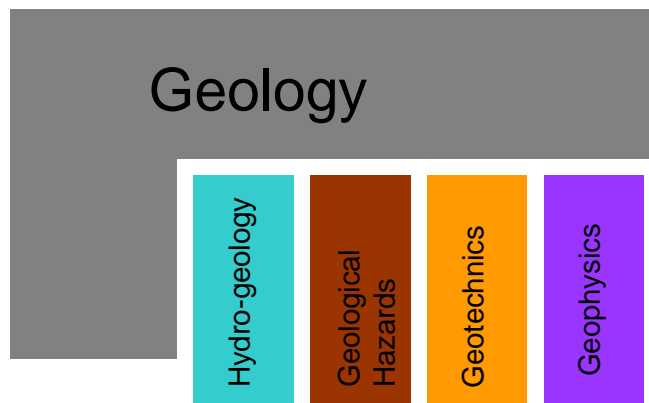




# Technical Infrastructure



- Provided by swisstopo «Coordination, Geo-Information and Services (COGIS)»  
National Spatial Data Infrastructure NSDI
- Geological Data Model based on requirements for map production:
  - as simple as possible
  - as flexible as possible
  - expandable for other data sets
  - compatible with data models of SDICs



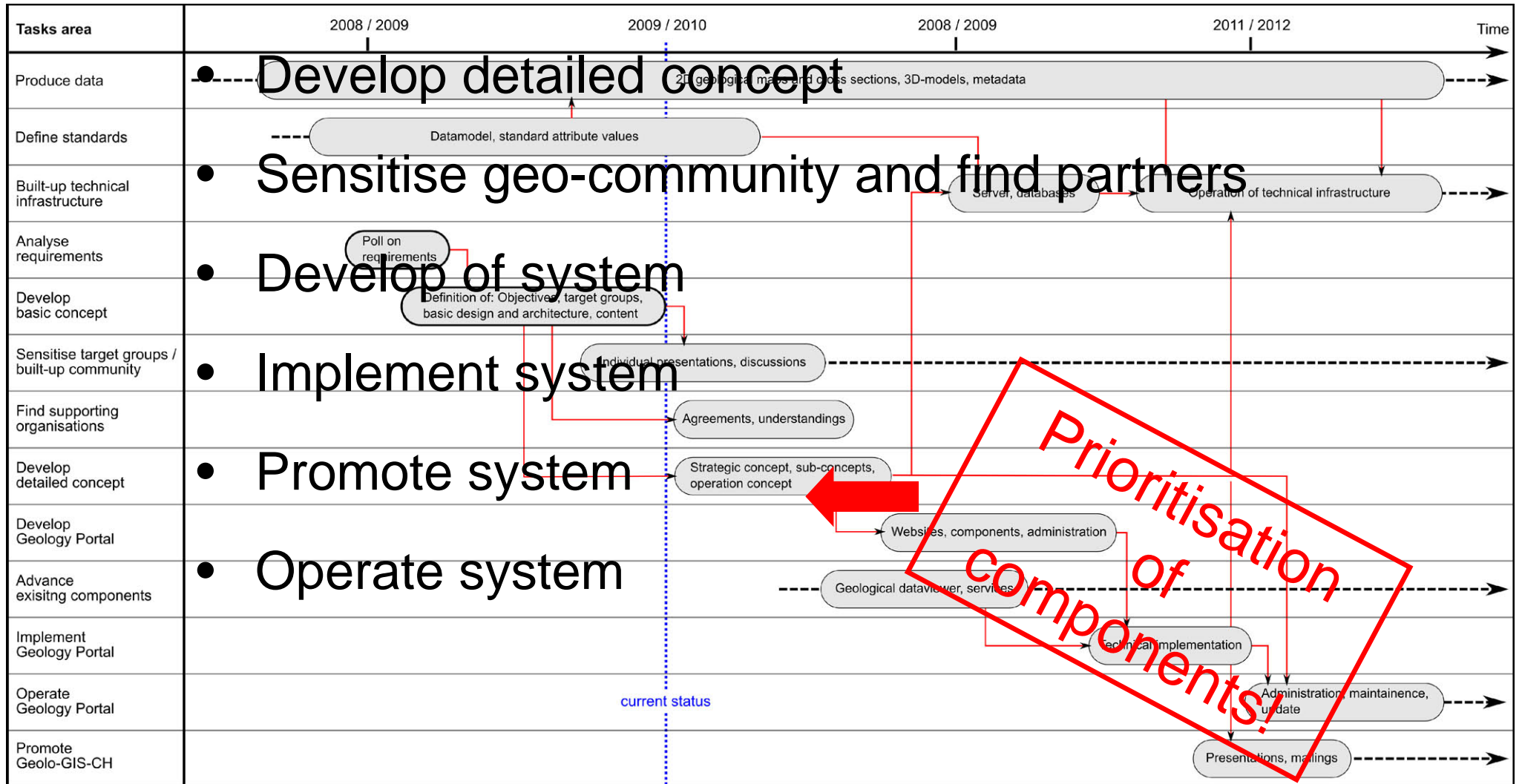


## Achievements

- **Thanks to activities during the last years we have achieved:**
    - Increased production
    - Engagement in the field of digital data
    - Improved coordination (support instead of imposition)
    - Increased PR activities
  - **Image of SGS has risen significantly among our customers, partners and the public!**
- ➔ Coordination of geological activities is much easier and very welcome!**



# Road Map





# Summary

We are in the course of building up a

**Centralised, web-based information system for geology-related issues**

in collaboration with

## **The Swiss Geology Community**

- **Scnat – Scientific Commissions**
- **Swiss Association of Geologists**
- **Cantons, Federal Offices**

to

- **Enhance accessibility and quality of data, information, etc.**
- **Increase the value of geological information for public and private economy**
- **Increase public awareness of geology**