



Switzerland towards INSPIRE

September, 6th 2017

INSPIRE Conference, Strasbourg

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Federal Office of Topography swisstopo – Switzerland's NMA

Our vision: Geoscience - for a changing society



Federal Office of Topography swisstopo

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swisstopo-Switzerland



- Federal Office of Topography of Switzerland (Swiss NMA).
- Legal mandate for developing, coordinating, and operating the Federal Spatial Data Infrastructure:
 - Geoinformation Act of 5th October 2007:
 - ... enable the **easy exchange and wide use** of the geodata and defines 354 basic geodata sets.
- The legal framework commits to:
 - Create at least one **conceptual model** for each basic geodata set.
 - Describe the data with a set of **standardized metadata**.
 - Provide **view** and **download services**.

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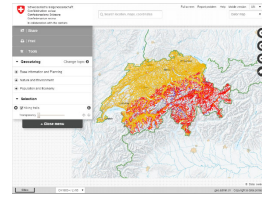
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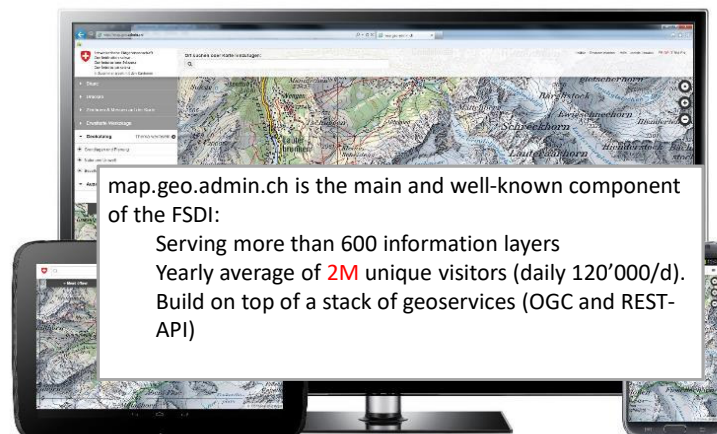
Status Quo

Currently...

- 65% of the **basic data models** have been ratified and published on the Model Repository. (models.geo.admin.ch)
- 57% of the federal basic geodata sets are offered as **view services** on the FSDI.
- 53% of the federal basic geodata sets are offered as **download service**.
- 86% of the **metadata** of federal basic geodata sets are searchable in metadata application (geocat.ch).



Federal geoportal with map viewer: map.geo.admin.ch





Switzerland - INSPIRE

- swisstopo participates as an **observer in INSPIRE** since the beginning and provides the **NPOC for Switzerland**.
- The **strategic necessity** of participating and contributing to an international GeoWorld is self-evident.
- Switzerland is **not member of EU** or EEA (European Economic Area), but member of EFTA and has contracts with the European Environmental Agency.

=> **no legal obligations** to implement INSPIRE, certain legal obligations towards EEA.

=> **Strategic goals** were defined until 2020 in which swisstopo would like its spatial data and products to adhere to international requirements.



swisstopo Strategy 2020

Improved, future-proof usability

swisstopo will improve the usability of its data and products.

swisstopo ...

...will gear its products towards future generations and their user behaviour;

... **will provide data and products that meet international requirements;**

... will provide basic geodata that can be easily linked to other attribute data (linked data);



INSPIRE/ELF @swisstopo: the project

- **Feasibility study:** started August 2016
- Selected test data sets: **Administrative Units, Geographical Names and Buildings**

Goals:

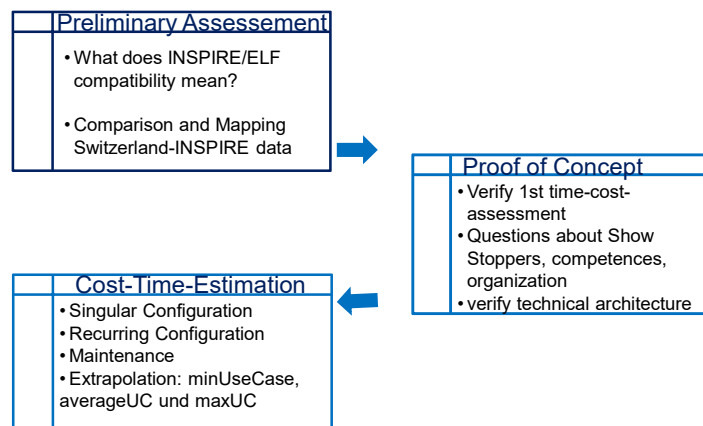
- Compare requirements Switzerland and INSPIRE/ELF.
- Mapping INSPIRE Themes to Swiss Reference Data Sets.
- Implement the semantic, syntactic and technical compatibility.
- Determine and quantify time and costs.
- Define architecture and verify processes

Challenges:

- Building (internal) awareness.
- Various INSPIRE validators with different error messages.
- Extend running infrastructure.



Approach





Requirements

General:

- **Existing models and services** of the current infrastructure must be **reused** and extended as far as possible.
- Stay as **close** as possible to the **existing Federal SDI architecture**.
- **Recycle processes** where possible.
- **Common solutions for INSPIRE and ELF/ELS**.
- **Reusing** the same **conventions** on all organizational levels (e.g for ids, namespaces or CRS).

swisstopo:

- Only one Server will be maintained: **MapServer**
- **National Data Models** are **not changed or extended**. Therefore a mapping to INSPIRE Models is necessary.



Methodology

1. **Time and cost estimation** based on **results of POC** for 3 test datasets.
2. Determine necessary, **singular configuration tasks** for **basic infrastructure** as well as **costs for yearly maintenance**.
3. List of **reoccurring activities** and **configuration** needed for transforming and publishing each new INSPIRE/ELF dataset.
4. **Extrapolation of time and costs** by defining use cases (min, average and max) .
5. **Allocate** each **Swiss reference dataset** to a use case.



Results - Mapping & Allocation

Mapping INSPIRE - Swiss Data Sets - Use Cases

INSPIRE Theme	Swiss Basic Geodata Sets	Complexity
Geographical Names	Swissnames2D (ID 40.1) oder Swissnames3D (ID 40.7)	minUC (2d)
Administrative Units	SwissBoundaries3D (ID 39.3)	averageUC (5d)
Transport Networks	Luftfahrt Daten (ID 5.1) Nationalstrassen (ID 86.1) Schienennetz und Haltestellen des öffentlichen Verkehrs (ID 98.1, 98.2) ... swissTLM3D (ID38.1)	maxUC (8d)
...

1:n relationships, different Federal Offices responsible for data sets



Results - Extrapolation

Configuration Use Case	Type	Time
Minimal Use Case	recurring	2 days
Average Use Case	recurring	5 days
Maximal Use Case	recurring	8 days

Extrapolation Recurring Configuration	Number of INSPIRE Themes	Time
swisstopo total	12	65 days
Federal data sets total	21	112 days



Results - Summary

- It takes an average of **one working week** to integrate, configure and publish a new INSPIRE theme on the Swiss Federal Infrastructure (=average use case)
- Investment for all Annex Themes concerning the Federal Government: **112 days**
- Investment for all INSPIRE Themes where swisstopo is concerned: **65 days**
- Configuration of infrastructure another **20 days**
- Yearly maintenance : **7d + 2'400 Euro**

⇒ The technical, organizational feasibility as well as the know-how can be provided by swisstopo.

⇒ Some organizational issues have to be clarified with the other Federal Offices.



Conclusion

- The path for Switzerland to INSPIRE is open in terms of feasibility (technical, organizational).
- The costs and time have been quantified and it is clear how much has to be invested.
- swisstopo wants to be active in the spatial community and participate.
- No more hole in the map.
- But will the services really be used?

