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Swiss Federal Office of Topography swisstopo
Federal Directorate of Cadastral Surveying

wissen wohin
savoir où
sapere dove
knowing where

swisstopo

The Swiss Cadastral System in the Digital Age

Dr. Daniel Steudler

The World Cadastre Summit

20-24 April 2015, Istanbul, Turkey






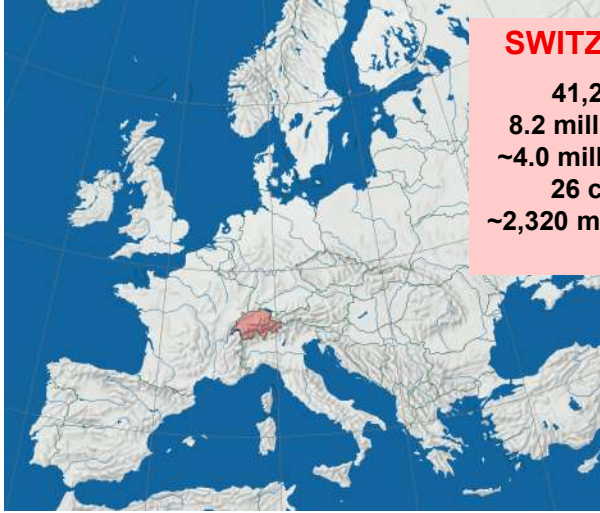
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legal basis, basic principles,
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surveying
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Basic Cadastral Dimensions




SWITZERLAND

- 41,290 km²
- 8.2 million people
- ~4.0 million parcels
- 26 cantons
- ~2,320 municipalities

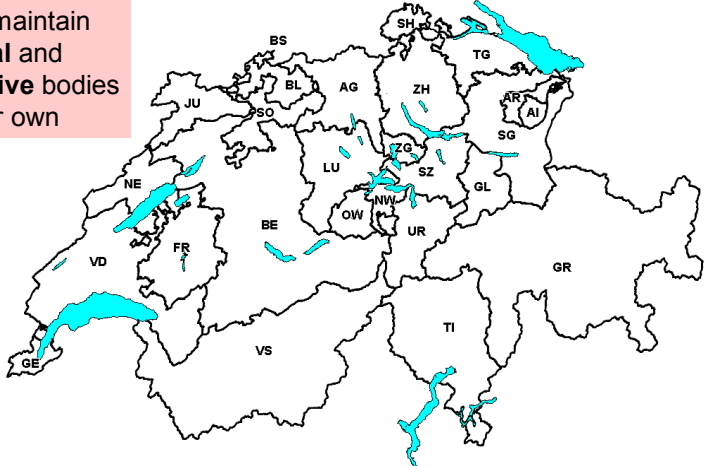
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Federated Country with 26 Cantons


Cantons maintain **political** and **administrative** bodies on their own



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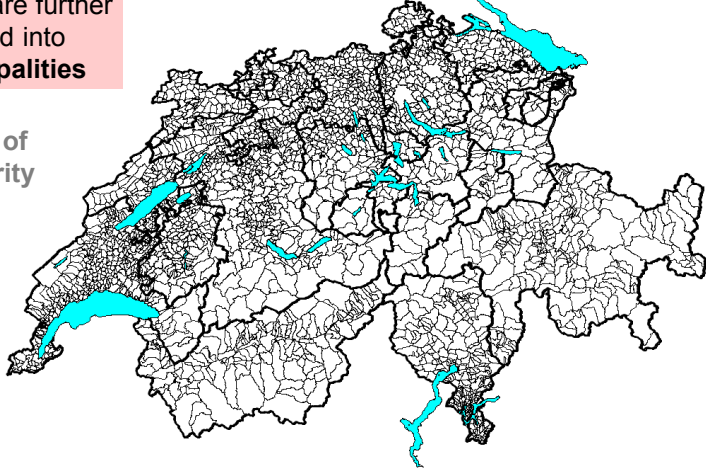
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 **... and 2,324 Municipalities**


Cantons are further divided into **municipalities**


Principle of Subsidiarity




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 **Four official languages**

- Deutsch
- Français
- Italiano
- Rumantsch
- Deutsch & Rumantsch
- Italiano & Rumantsch



German

French

Romansh

Italian

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Basic Principles (Swiss Civil Code, 1912)

- **No ownership without registration** (art. 656)
- **No registration without surveying** (art. 950)
- **No surveying without boundary definition** (art. 669)

- **Title registration system**
- **Title guaranteed by the government**

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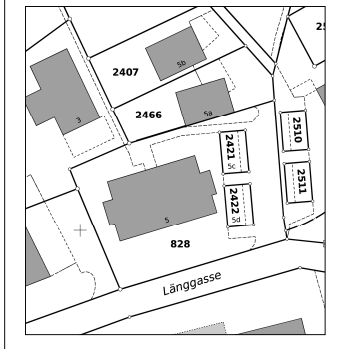


"Traditional" cadastral system

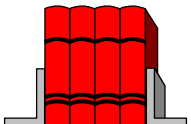
Cadastral Surveying

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Land Register




- main book
- auxiliary registers (in particular the list of property owners)
- deeds (records and evidences)
- description of properties
- day book



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New legislation

§§§

Ordinance on cadastral surveying (1993)


- The data of cadastral surveying shall serve as basis for **the establishment and the operation of land information systems** and shall be suited for public and private purposes.

Act on Geoinformation (2008)


- a **uniform legal basis** for all land information based on the various federal decrees
- incl. cadastral surveying, national surveying (topographic mapping), national geology, and the new **cadastre for public-law restrictions on landownership rights (PLR-Cadastre)**

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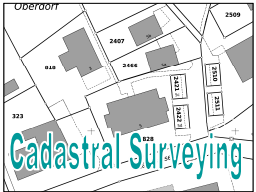

"Amended" cadastral system



guaranteed by




restricted by

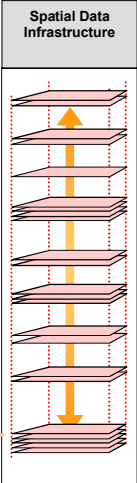



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17 Public-Law Restriction in Swiss Cadastre

PL-Restriction	Institution, stakeholder	textual information	spatial data, geoinformation	Spatial Data Infrastructure
Cantonal and municipal use planning	Land-use planning Dept.			
Project zones Construction lines	National Highway Dept.			
Project zones Construction lines	Railways			
Project zones Construction lines Aerial obstacles	Airport authority			
Hazardous waste	Environmental Dept.			
Ground water protection zones Ground water protection perimeters	Water Management			
Noise levels	Environmental Dept.			
Forest delimitation (in constr. zones) Forest distance lines	Forest Dept.			
Land registry, cadastre	National government State government Local government			

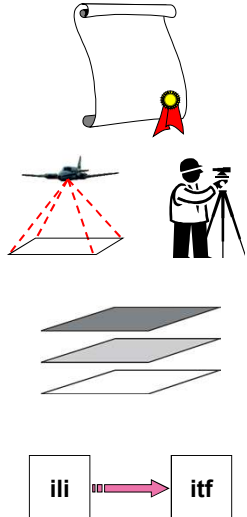
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Conceptual elements of digital cadastral surveying

- Clear **definition** of the product
- Freedom of **methods** and systems (as basis for tendering)
- Independent **information layers** (link between layers only through geographic location)
- Standardized way of **data description** and data transfer (INTERLIS)



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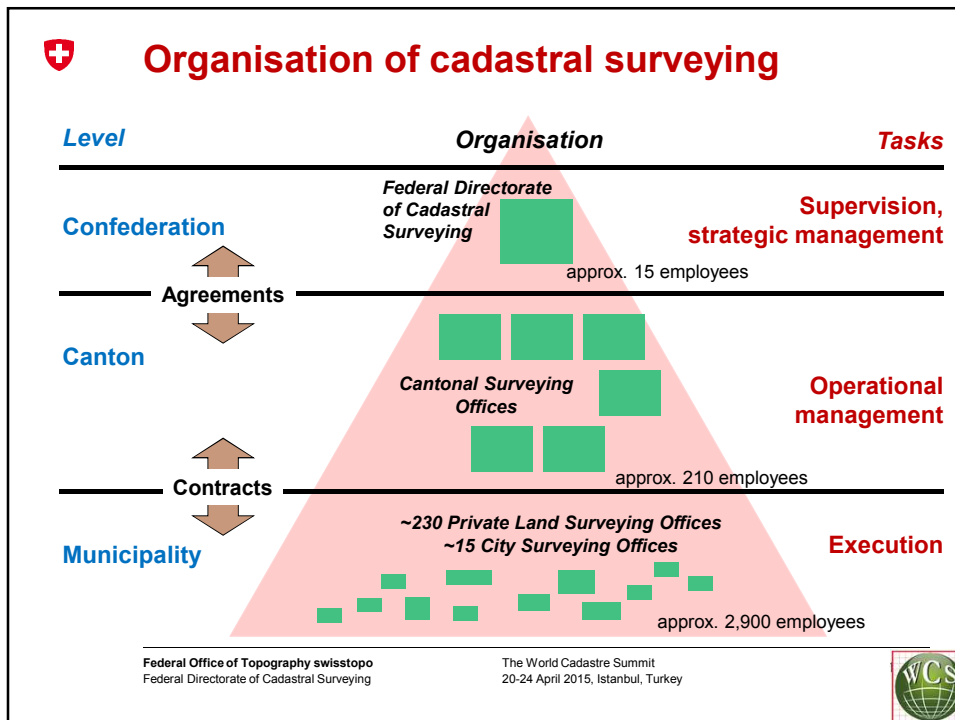
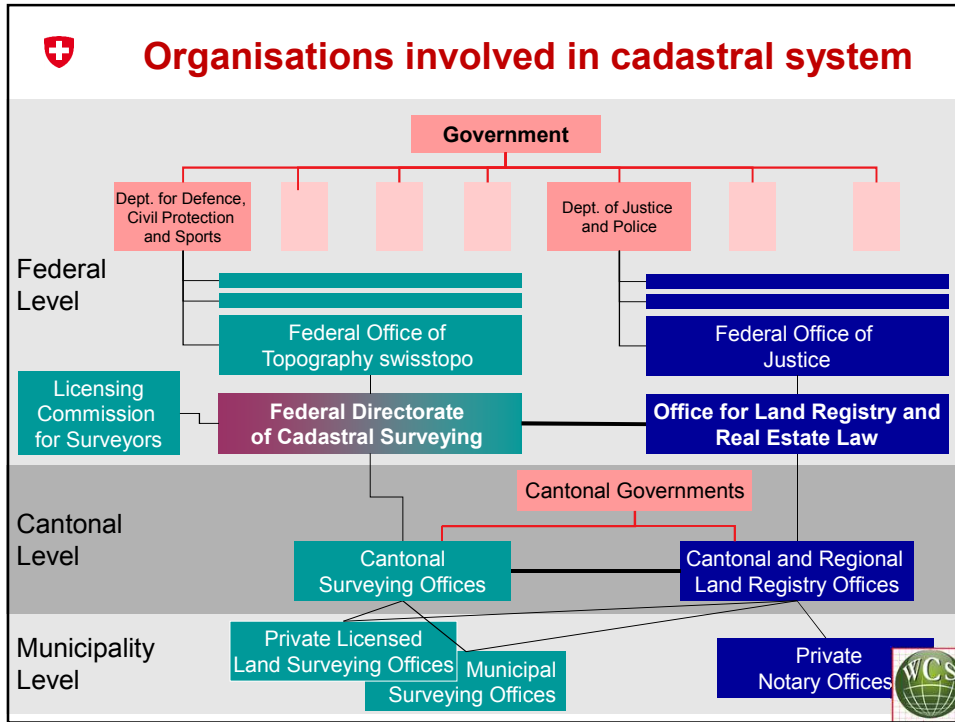


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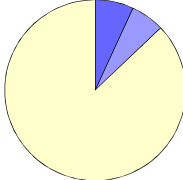




Public-Private Partnership in Swiss Cadastral Surveying


No. of staff active in cadastral surveying: **3,150**

- federal and cantonal administration: 6.7%
- other public sector offices: 5.7%
- private sector offices: 87.6%



Public Sector

- legislation (Federal and cantonal level)
- financing structure
- setting standards
- supervision
- co-ordination
- verification




Private Sector

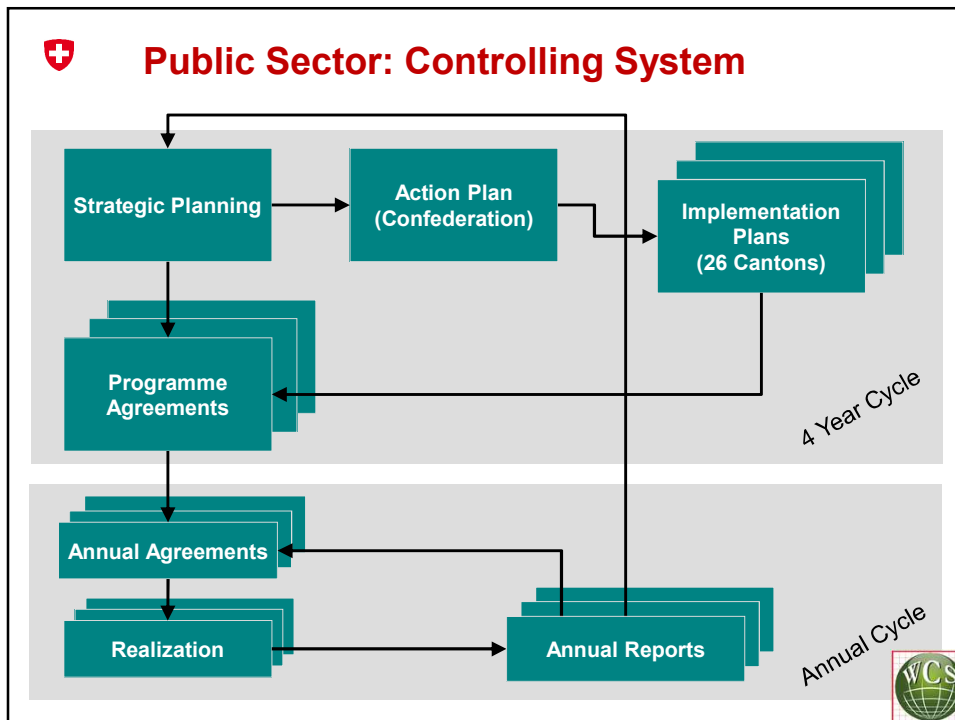
- production
- maintenance
- service to clients
- **innovation**

Two Partners !!!

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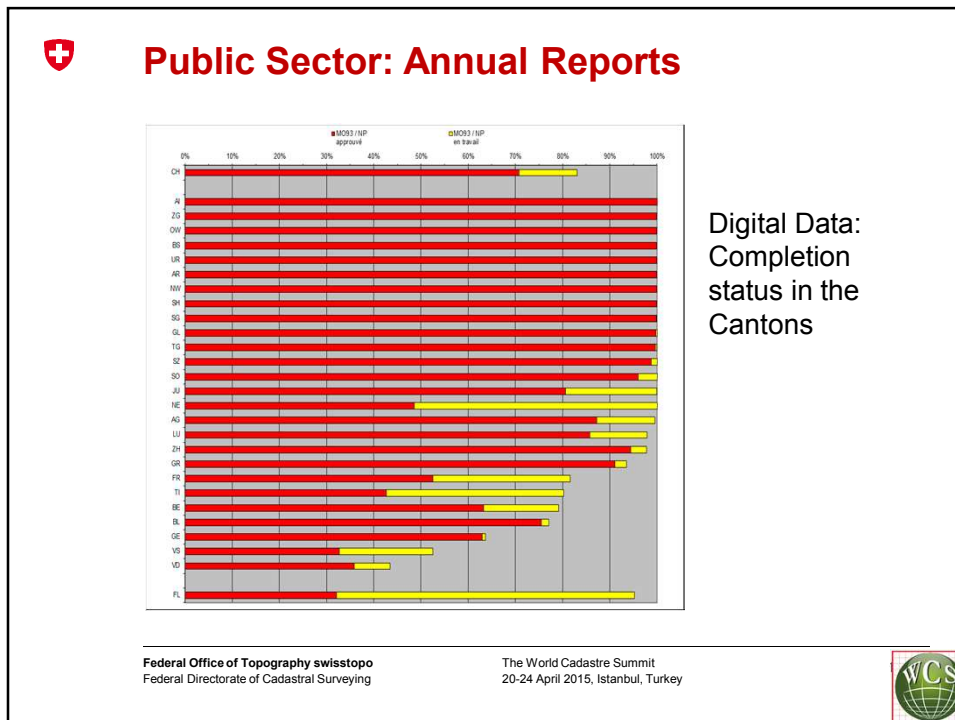


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Challenges

- legal basis on federal level allows for amendments by cantonal regulations
⇒ **inhomogeneous data** with **26 cantonal specialities**
- clients that need data across the whole country will have to talk and negotiate with **26 data owners**
- co-financing (federal subsidy for initial survey: 15% - 45%) also means a right to say
⇒ **joint responsibility** is not always helpful for planning and management

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Institutional issues

- **incomplete coverage**: is a primary target in the strategy of cadastral surveying for many years
⇒ lack of financial resources of the cantons and municipalities
 - majority of problems can be traced back to the fact that cadastral surveying is organized as a **joint responsibility** between the federal and cantonal levels, with distributed management tasks
- ⇒ **the federalist, decentralized system certainly has advantages, but it needs fine-tuning**

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