Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

armasuisse
Bundesamt für Landestopografie swisstopo
Eidgenössische Vermessungsdirektion

wissen wohin
savoir où
sapere dove
knowing where

swisstopo

The Swiss Cadastral System – well prepared for future challenges

Geospatial World Forum 2014

Geneva, 8 May 2014

Dr. Daniel Steudler

Scientific Associate

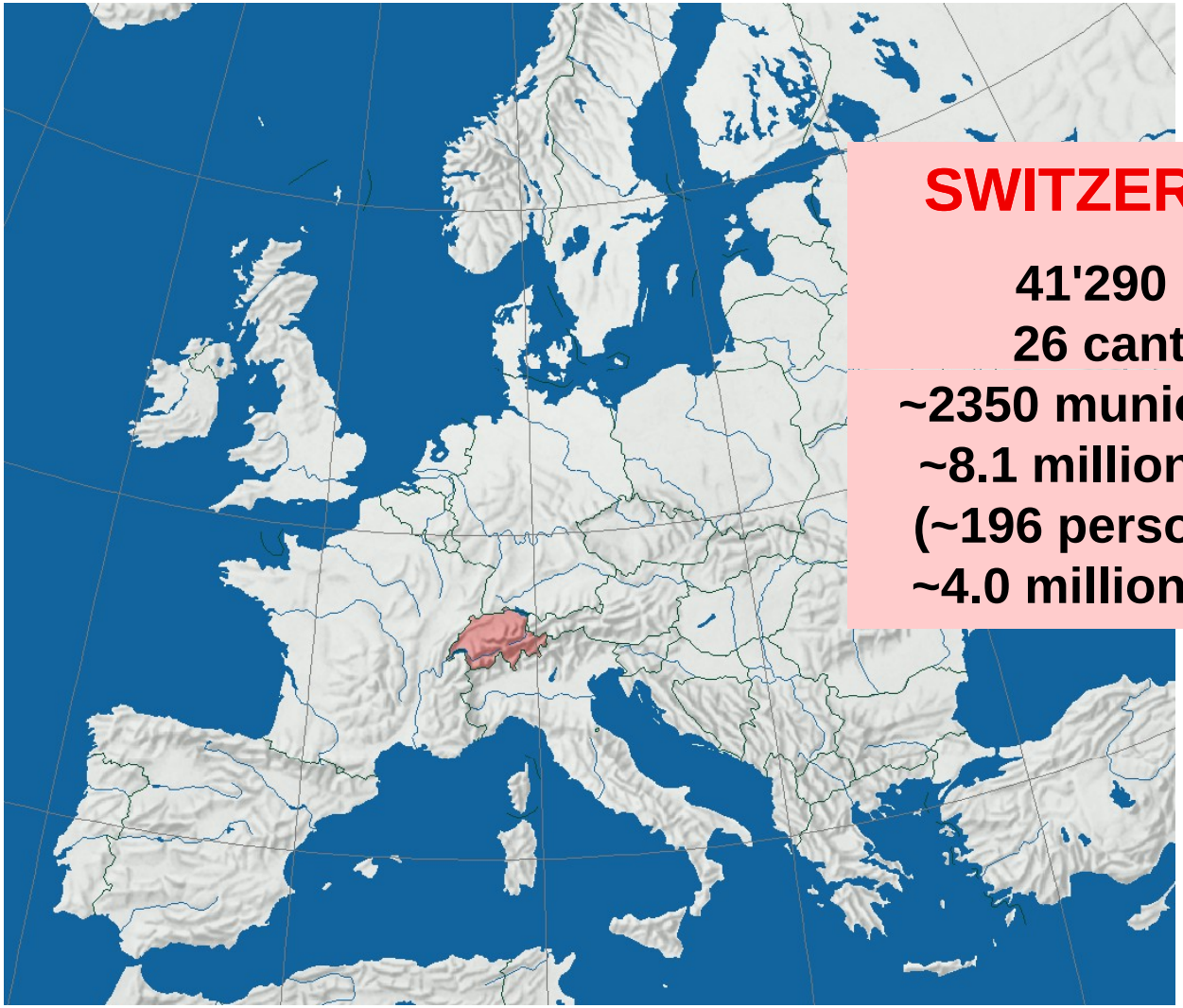
Content

- **Switzerland**
  size, shape, structures
- **Cadastral system**
  legal basis, basic principles, organisation, geoinformation
- **Conceptual and technical elements**
  standards, data integration concept
- **PLR-Cadastre**

Content

- **Switzerland**
  size, shape, structures
- **Cadastral system**
  legal basis, basic principles, organisation, geoinformation
- **Conceptual and technical elements**
  standards, data integration concept
- **PLR-Cadastre**

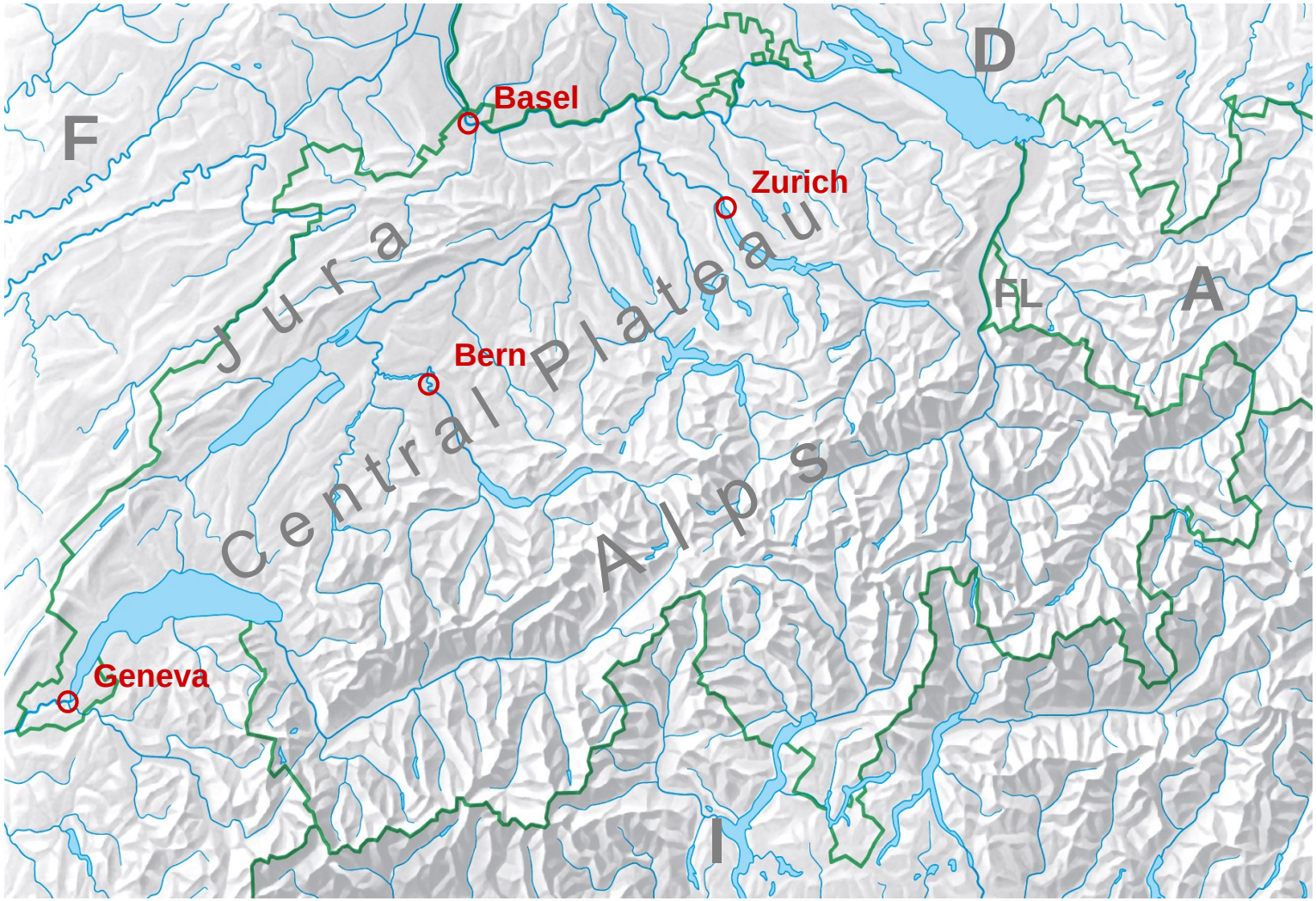
Size



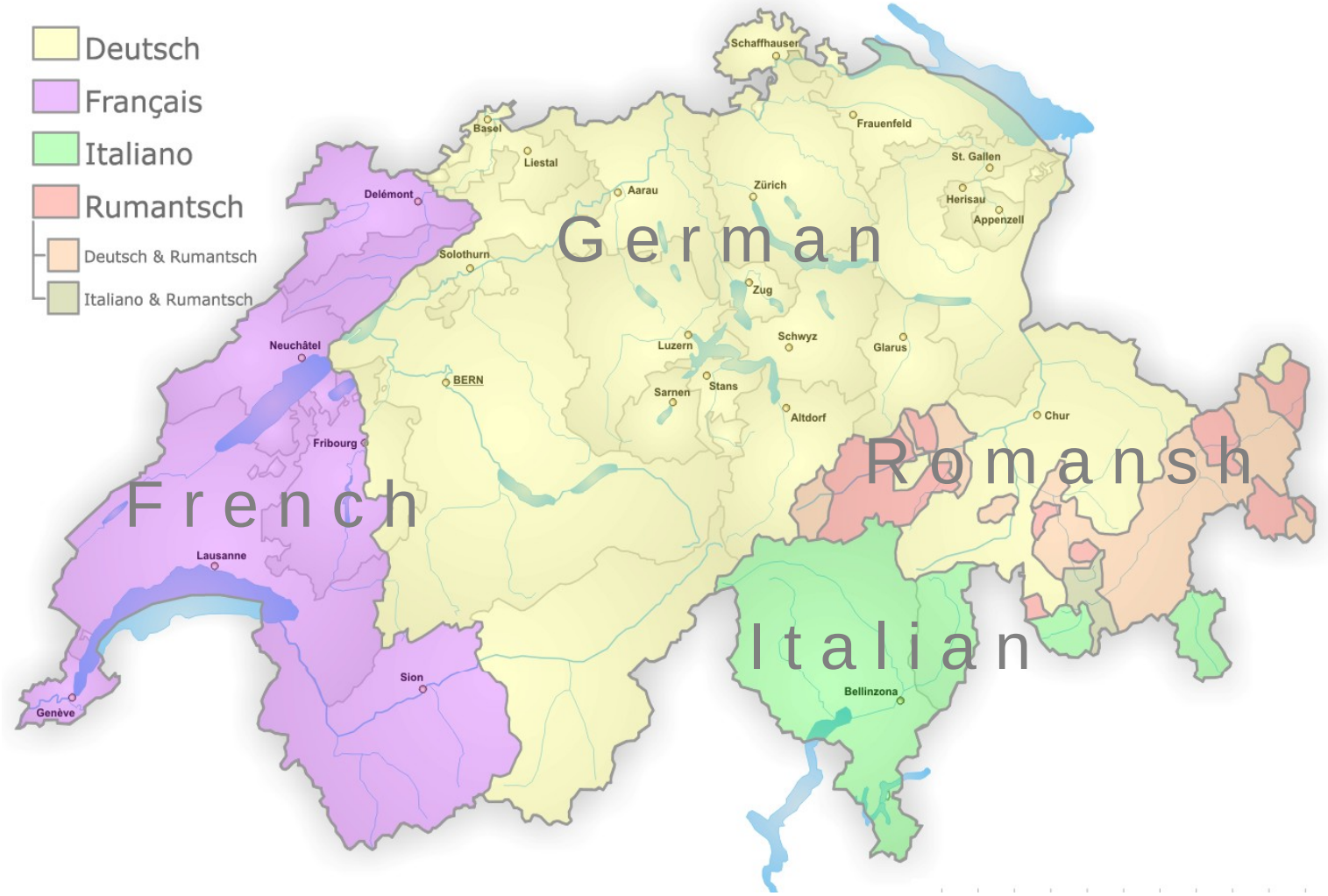
SWITZERLAND

41'290 km²
26 cantons
~2350 municipalities
~8.1 million people
(~196 persons/km²)
~4.0 million parcels

Topography



Four official languages



Federal structure

Areas of responsibility

1 Confederation

constitution, civil code, federal legislation, federal parliament, government, and administration

Foreign affairs, security, customs, monetary system, law giving, defence, transportation

26 Cantons

cantonal legislations, cantonal parliaments, governments and administrations

Health care, education, culture, taxation

~2350 Municipalities

communal regulations, municipal board, administration and staff

Register of residents, civil protection, school, social services, energy, land-use planning, taxation

Principle of Subsidiarity

Content

- **Switzerland**
  size, shape, structures
- ➢ **Cadastral system**
  legal basis, basic principles, organisation, geoinformation
- **Conceptual and technical elements**
  standards, data integration concept
- **PLR-Cadastre**

Legal basis

Swiss Civil Code, 1912

Objectives of the legislator: Security of ownership, efficient land market, and mortgaging of real estates

Art. 942

[1] All rights on real estates have to be registered in the land registry.
[2] The land registry consists of the main book with its associated maps, the auxiliary registers (in particular the list of property owners), the deeds (records and evidences), the description of properties, and the day book

Art. 950

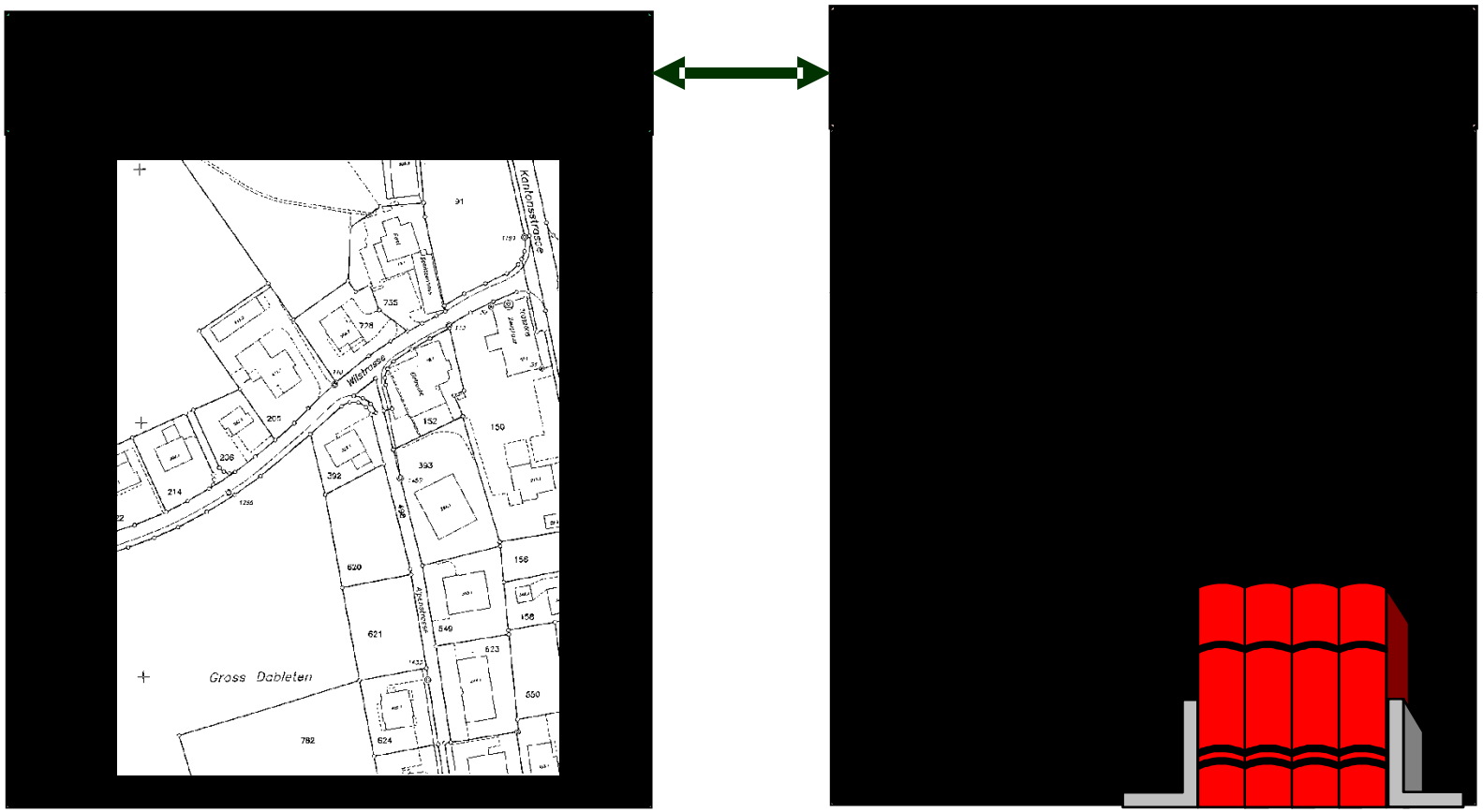
[1] Registration and description of the properties in the land register have to be done on the basis of a map, which as a rule, has to be the result of an official cadastral survey.
[2] The Federal Council decides on which principles these maps have to be based upon.

Basic principles (as in civil code)

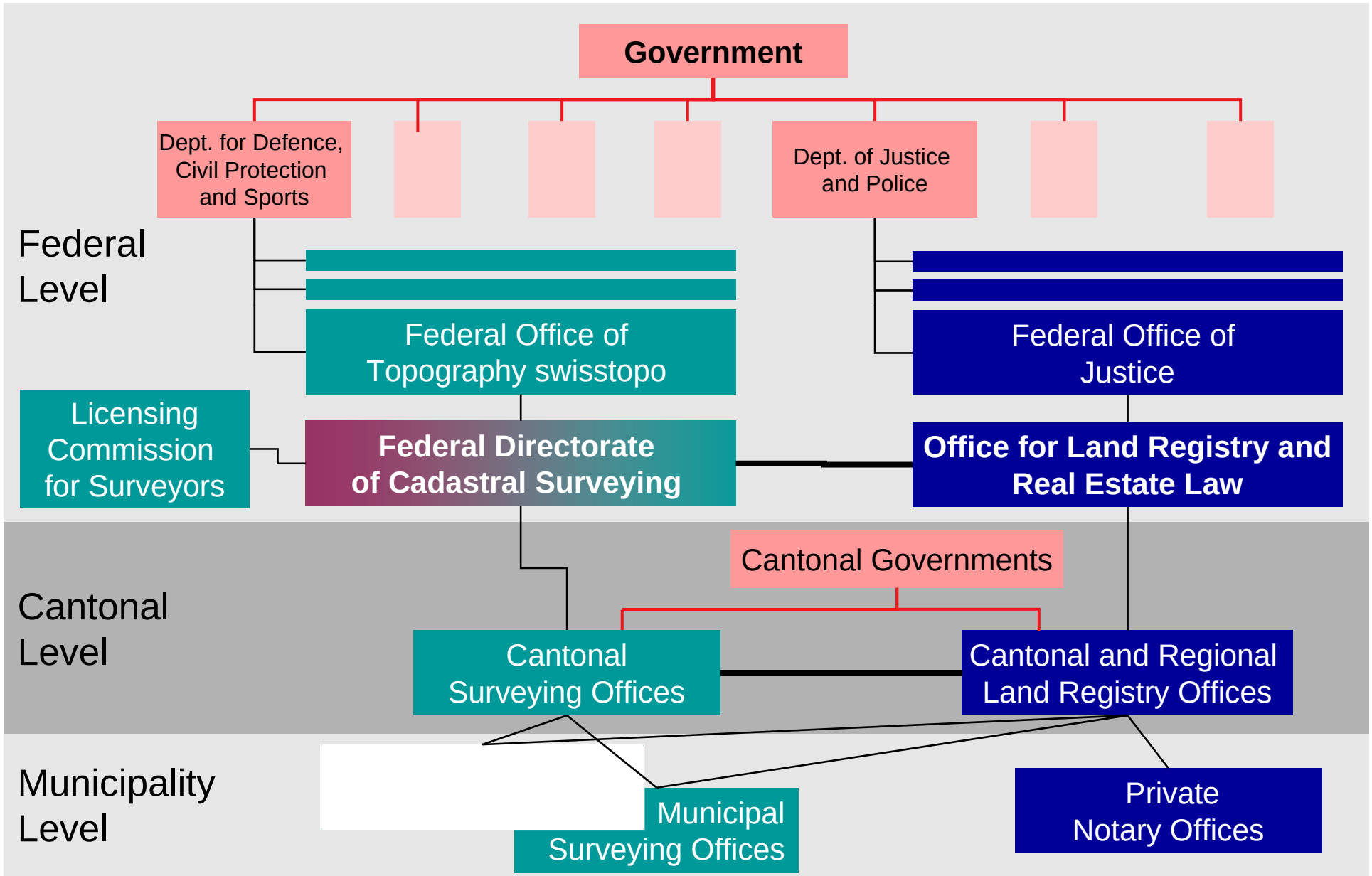
- **No ownership without registration** (art. 656)
- **No registration without surveying** (art. 950)
- **No surveying without boundary definition** (art. 669)

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

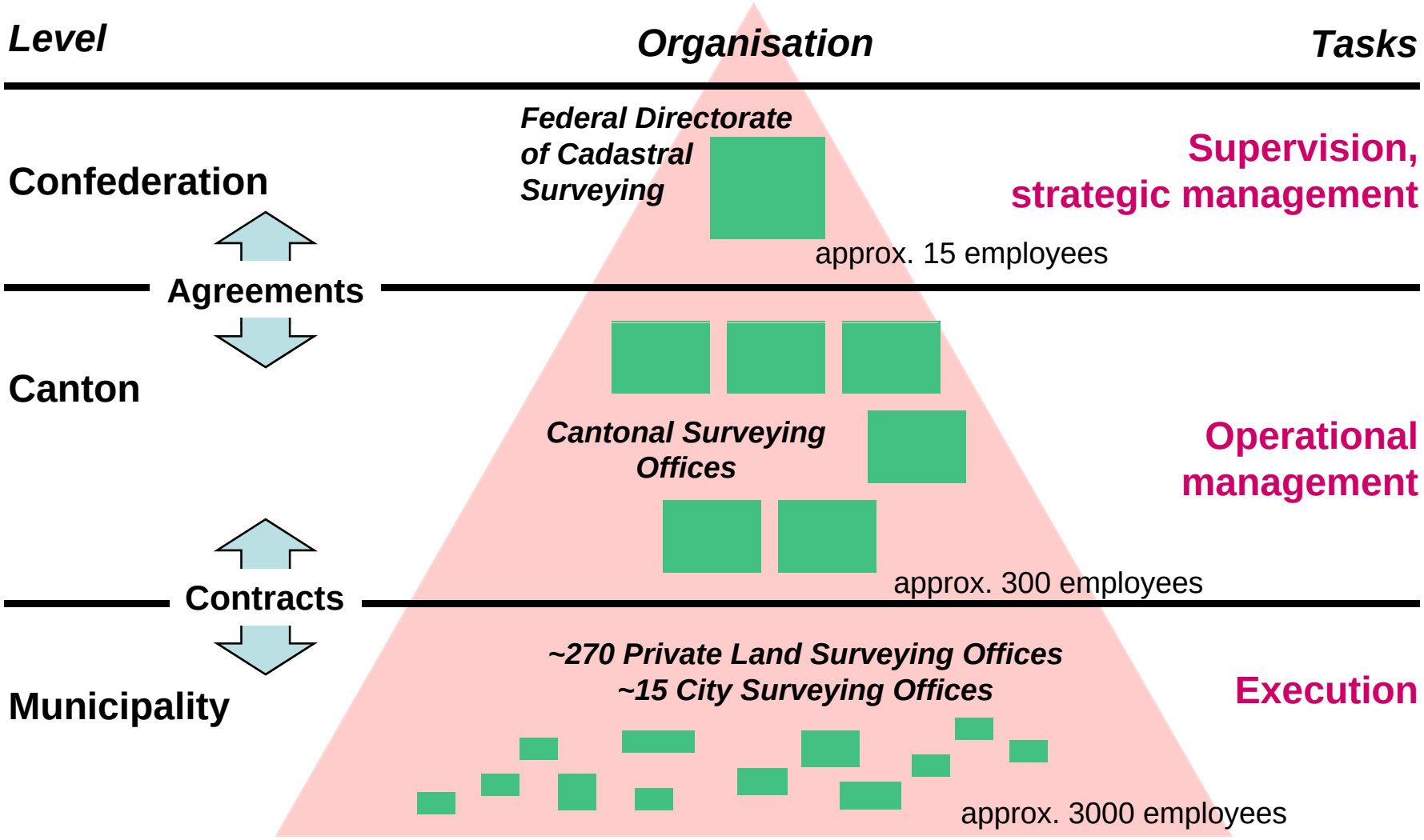
Two components of cadastral system



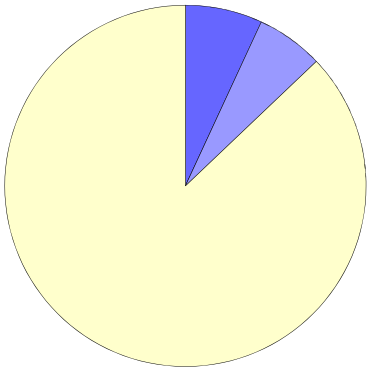
Organisations involved in cadastral system

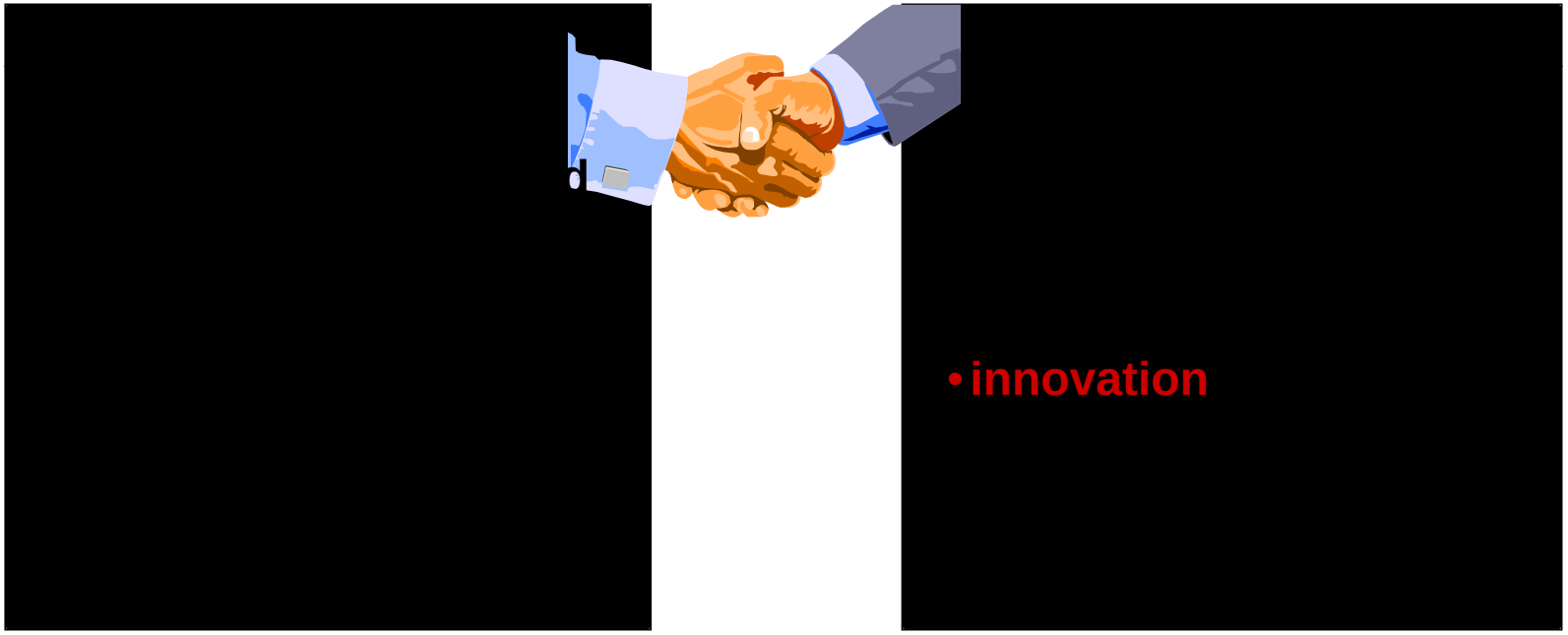


Organisation of cadastral surveying



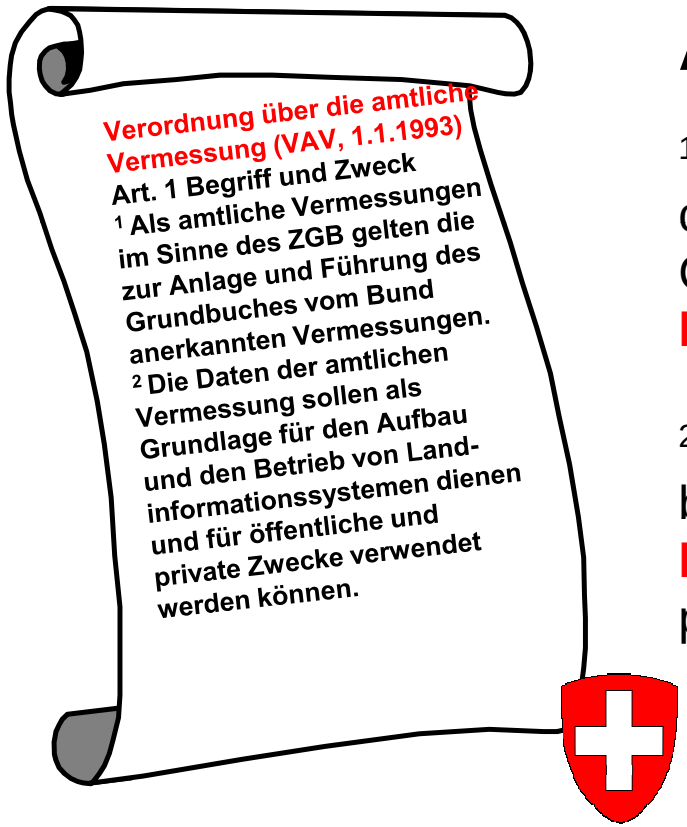
Public-Private Partnership





Two Partners !!!

New ordinance in 1993, adding a new and extended purpose



Ordinance on cadastral surveying (1.1.1993)

Art. 1: Definition and Objective

1 In terms of the Civil Law, cadastral surveying is considered to be surveying – approved by the Confederation – for the **purpose of operating the land registry**.

2 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)

Aim

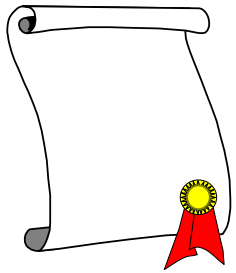
- a **uniform legal basis** for all land information based on the various federal decrees
- incl. cadastral surveying, national surveying (topographic mapping), national geology, and the new cadastre for public-law restrictions on landownership rights (PLR-Cadastre)

Content

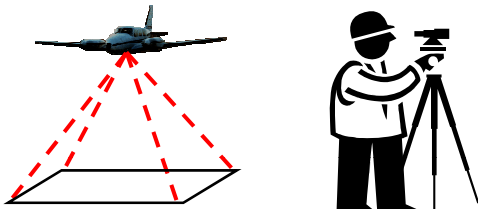
- **Switzerland**
  size, shape, structures
- **Cadastral system**
  legal basis, basic principles, organisation, geoinformation
- ➢ **Conceptual and technical elements**
  standards, data integration concept
- **PLR-Cadastre**

Conceptual elements of AV93

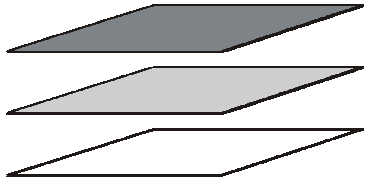
Clear definition of the product



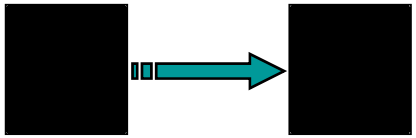
Freedom of methods and systems (as basis for tendering)



Independent information layers (link between layers only through geographic location)

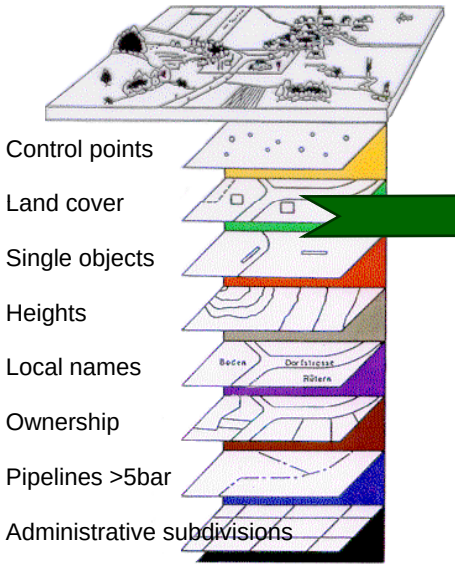


Standardized way of data description and data transfer (INTERLIS)



Standardized data modelling

System independent description of digital data (introduced in 1993)



[redacted]

[redacted]

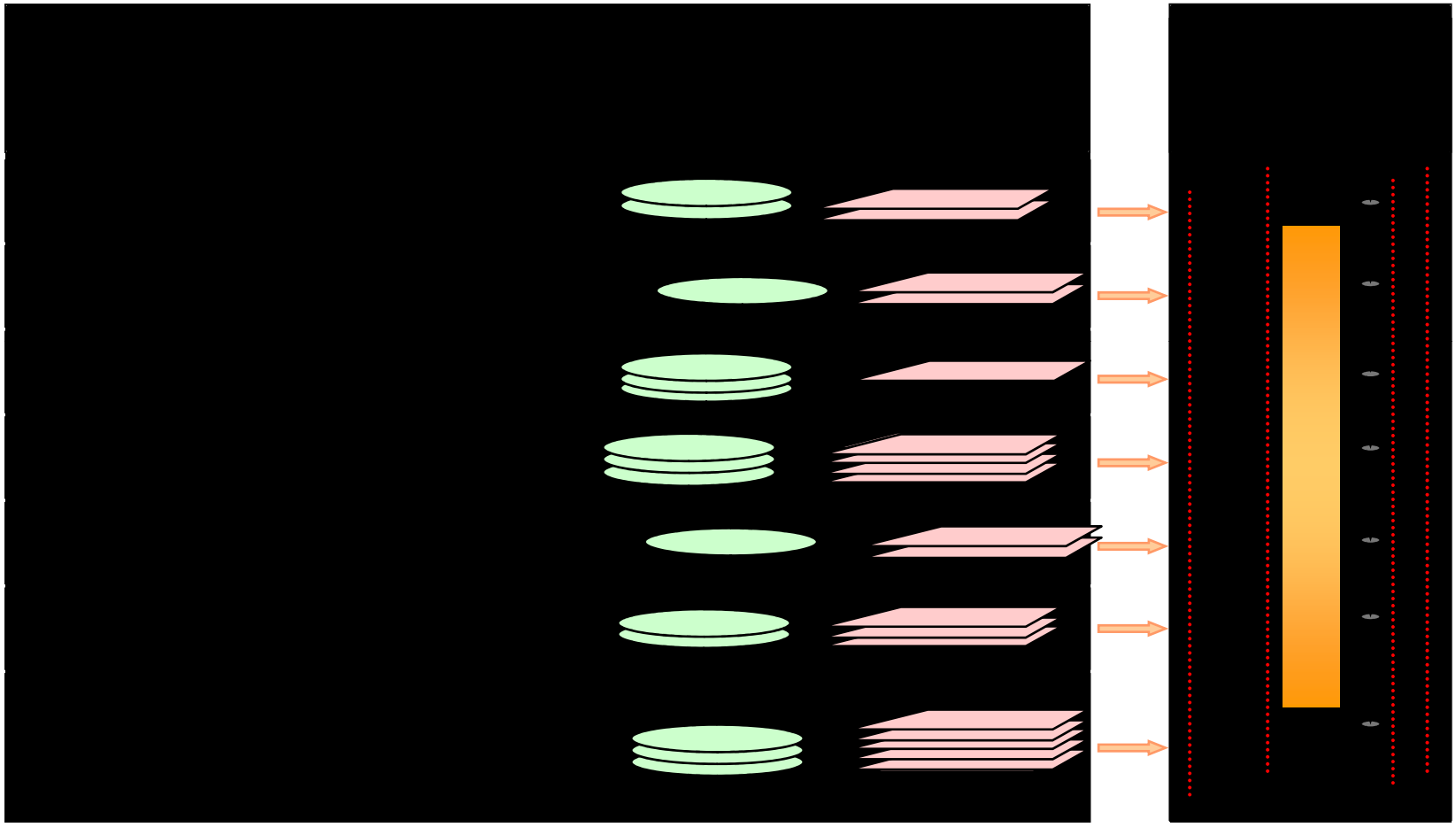
8 information layers
(Possibility to realise the layers separately)

Data model (UML)
(Entity-Relationship-Diagram)

Data description language
INTERLIS
(system independent)

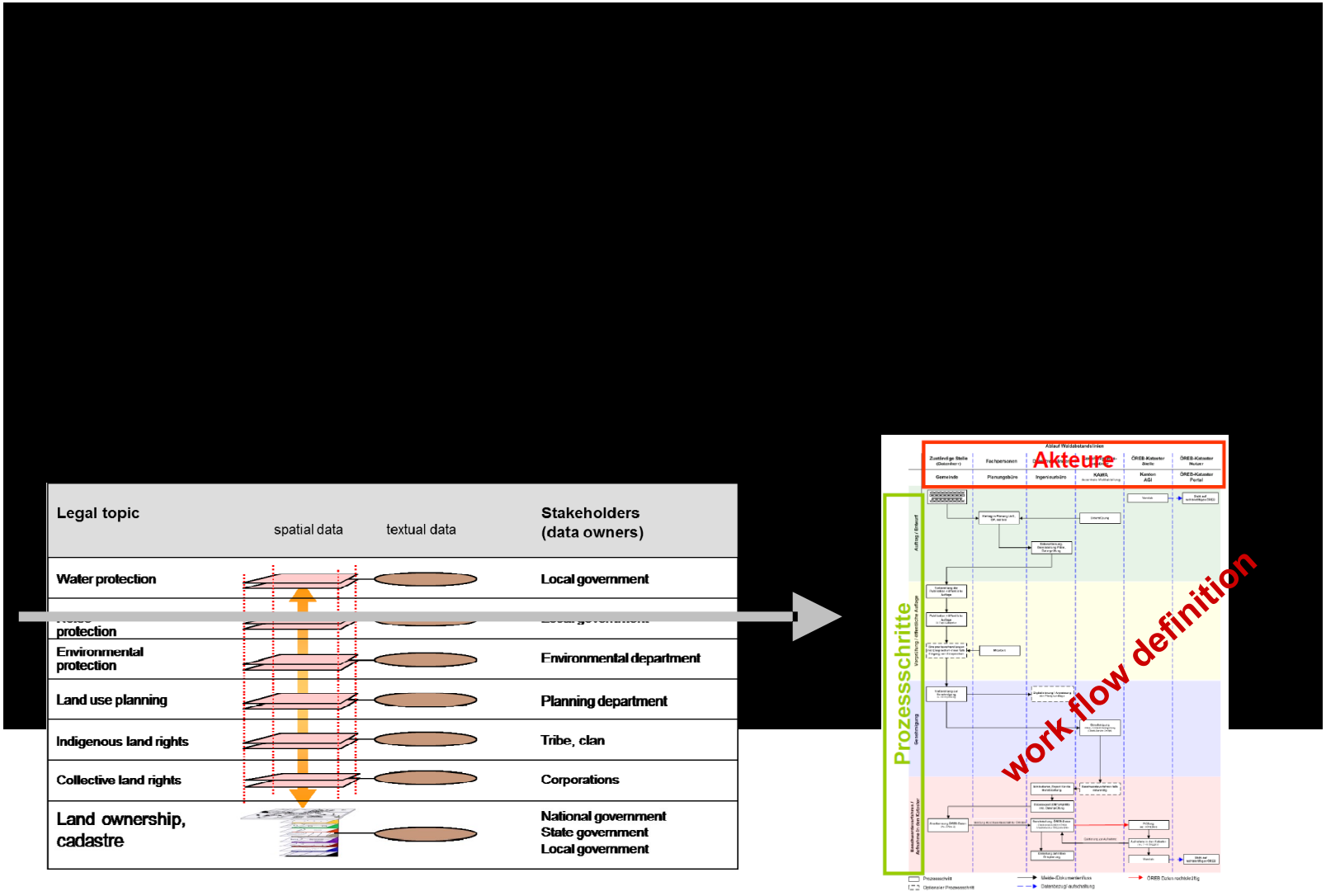
With the use of data modelling, the acquisition, use and exchange of digital data is independent from the brand of the GIS or software system.

Common Data Integration Concept



1) to respect the legal / institutional independence of stakeholders
2) to use a standardized data modelling concept
3) to use a common geodetic reference framework
4) no logic relations to objects in different topic except through geographic location

Independent information layers



Content

- **Switzerland**
  size, shape, structures
- **Cadastral system**
  legal basis, basic principles, organisation, geoinformation
- **Conceptual and technical elements**
  standards, data integration concept

➢ **PLR-Cadastre**

Cadastre 2014 – FIG Commission 7

FIG-Commission 7 -

<u>Working Group 1 (1994-98):</u>

- identify trends
- develop visions

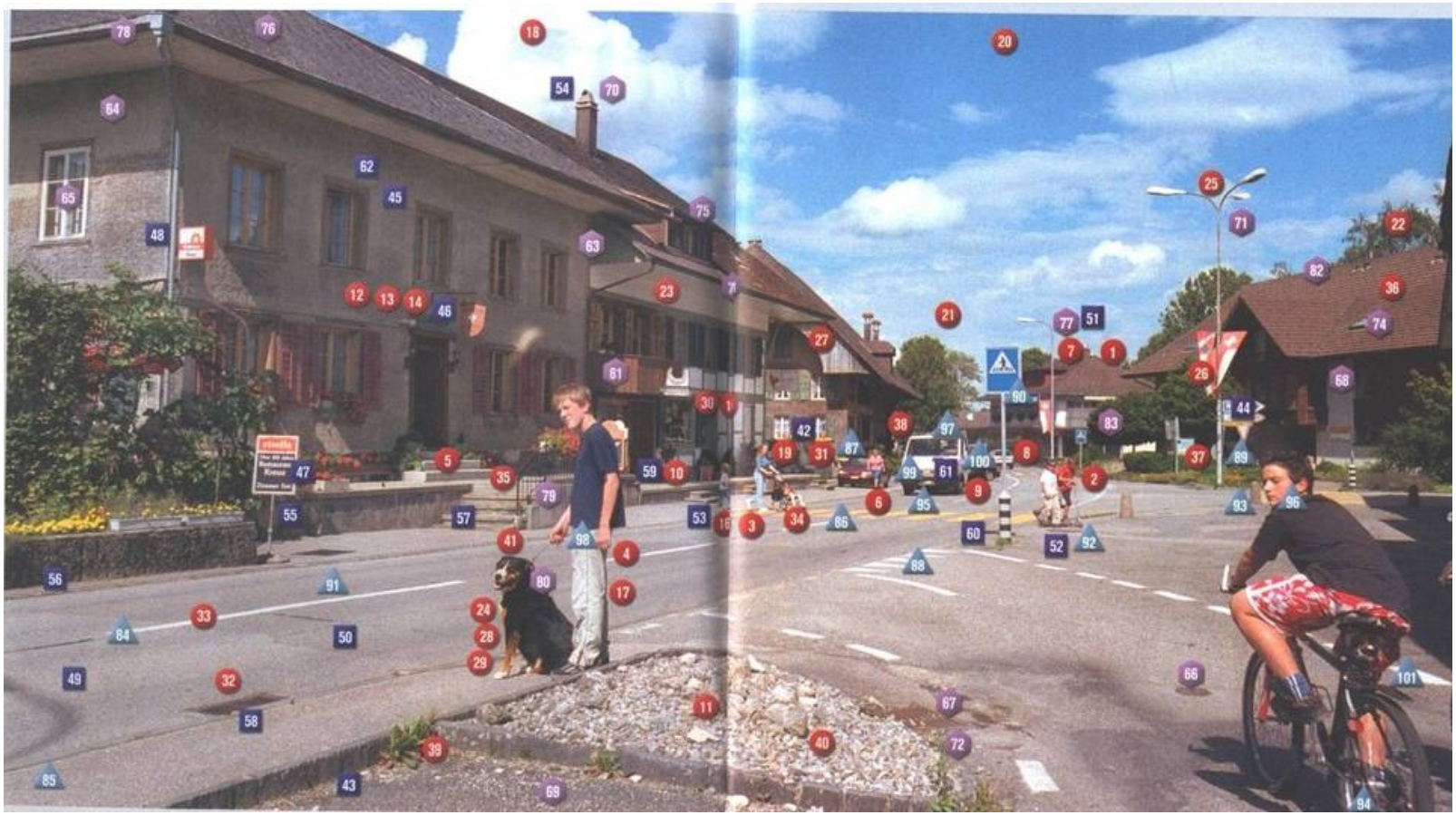
→ booklet presented at the FIG-Congress 1998 in Brighton, England

→ translations into some 25 languages since

http://www.fig.net/cadastre2014/

Flood of restrictions

Ortstermin in Ursenbach BE, Freitag, 20. August 2004 : 101 Gesetze, Verordnungen und Vorschriften müssen allein in dieser Alltagszene beachtet werden (aus FACTS, 2.9.04)

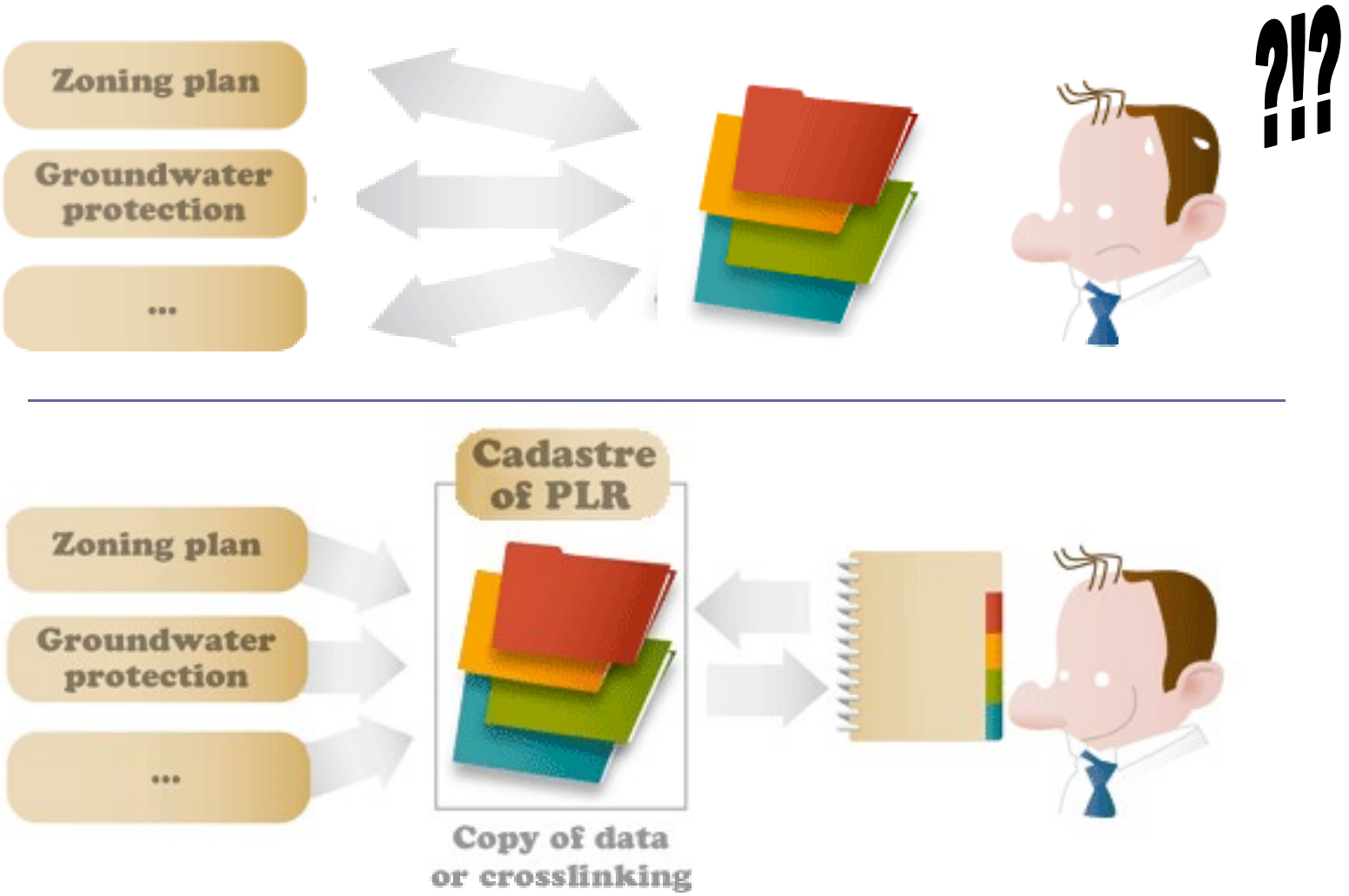


Landownership: the macro-economic dimension

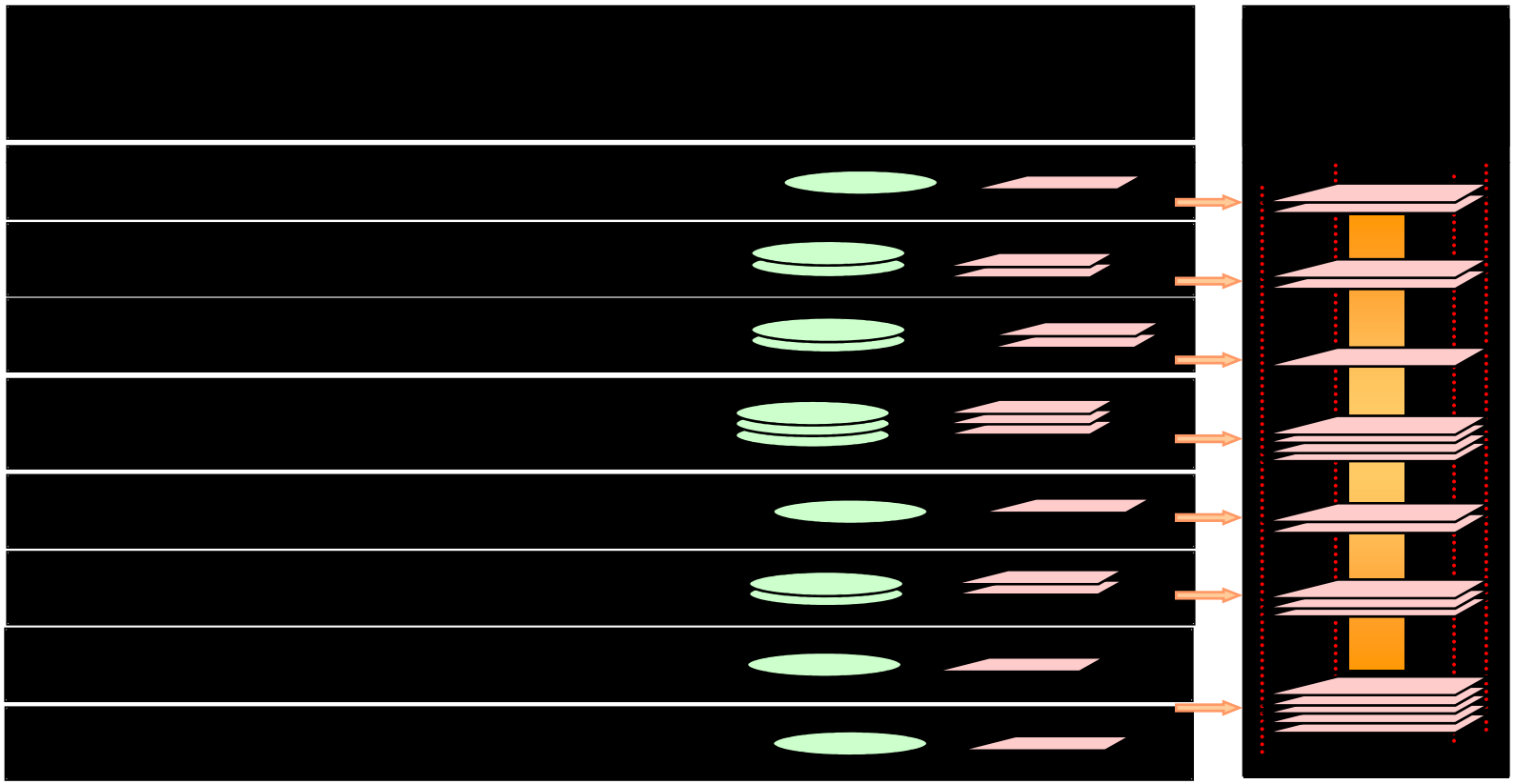
The Swiss cadastral system helps to secure mortgages in the order of CHF 700’000’000’000 (~EUR 580’000’000’000).

Landownership: legal security

Aim of PLR-Cadastre



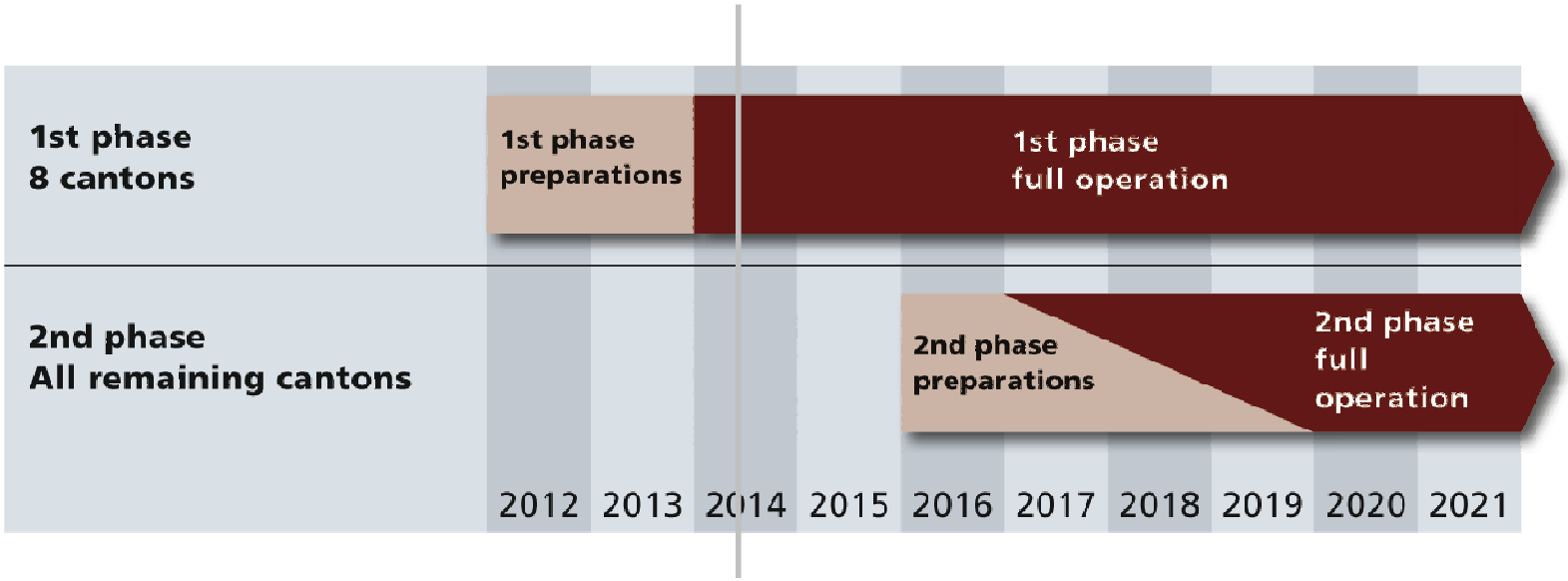
Start with 17 Public Law Restrictions



Introduction of the PLR-Cadastre

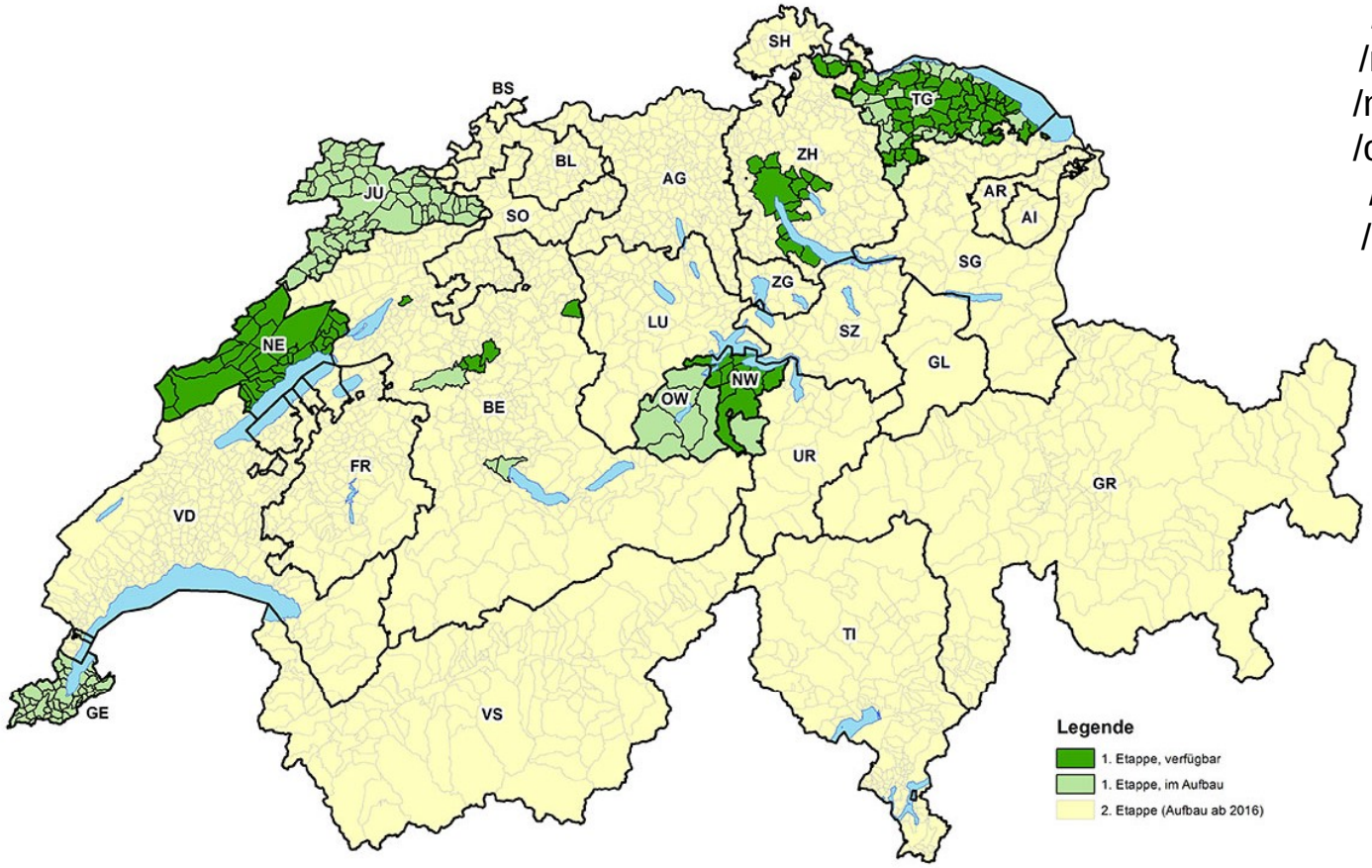
In **two phases**:

- **2012–2016:** 8 pilot cantons
- **2016–2020:** remaining cantons



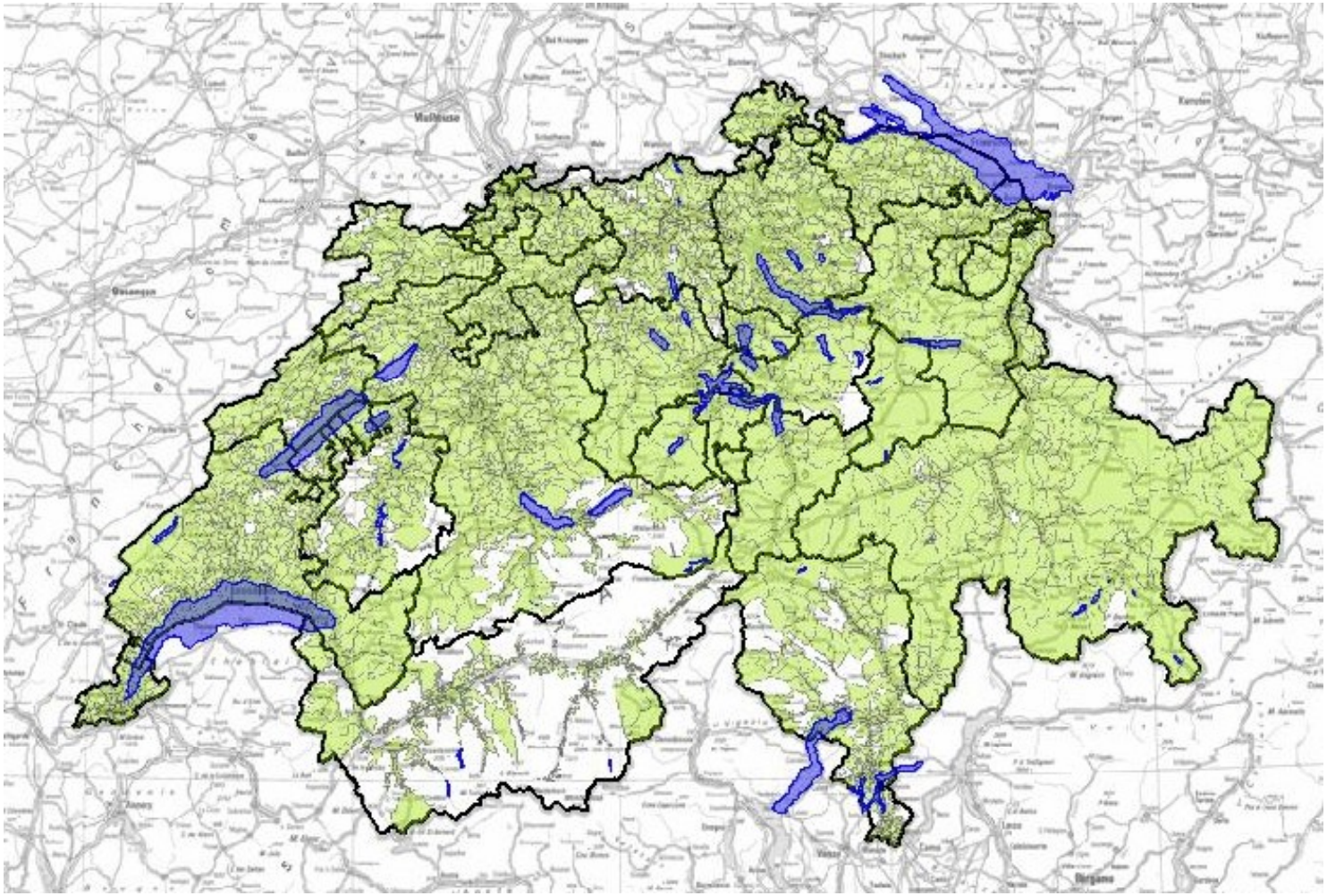
PLR-Cadastre: data from 8 pilot cantons

→ www.cadastre.ch/be
/ge
/ju
/ne
/nw
/ow
/tg
/zh



Thank you for
your attention!!!

Coverage of cadastral surveying data



31.03.2014