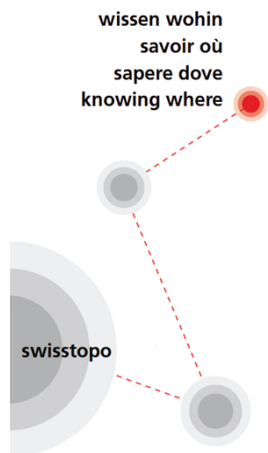




Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Bundesamt für Landestopografie swisstopo  
Geodäsie und Eidgenössische Vermessungsdirektion



# Common Data Integration Concept for Geodata Infrastructures

PCC/CLRKEN Conference  
Zagreb, Croatia  
16/17 June 2020

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Scientific Associate



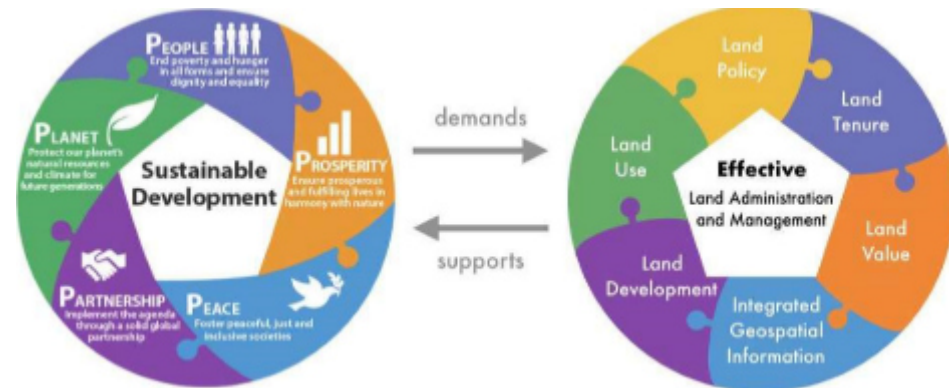
# Table of Content

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# Introduction

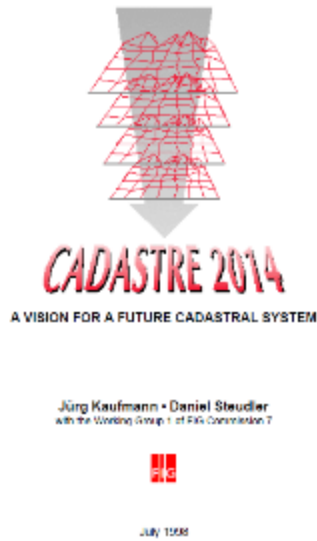
- Sustainable Development demands effective Land Administration and Management and is being supported by it (FIG, 1999 / FELA, 2019)
- more holistic approach to manage the resource "land" requires data from many thematic domains
- need to integrate and share spatial data → interoperability
- land ownership data is crucial
- basic principles about how to set-up a geodata infrastructure



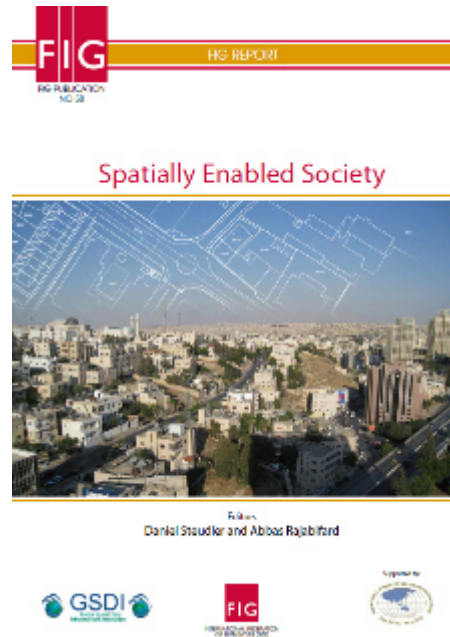
from: Framework for Effective Land Administration (FELA), Consultation Draft Dec. 2019



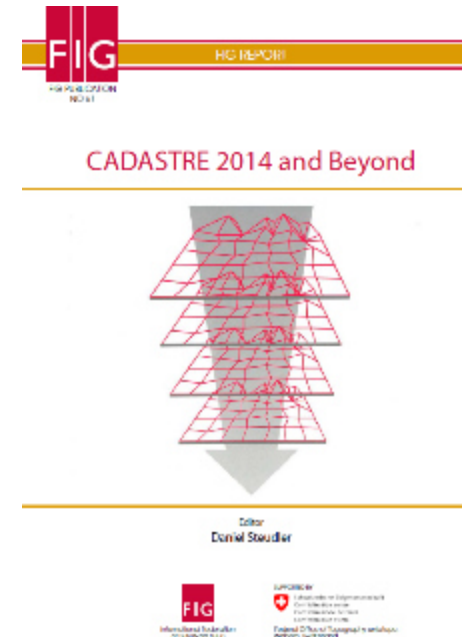
# FIG-Publications



<http://www.fig.net/resources/publications/figpub/cadastre2014/index.asp>



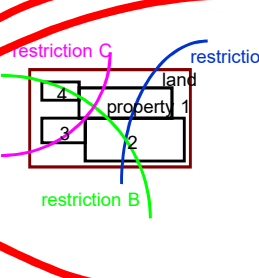
<https://www.fig.net/resources/publications/figpub/pub58/figpub58.pdf>



<https://www.fig.net/resources/publications/figpub/pub61/Figpub61.pdf>

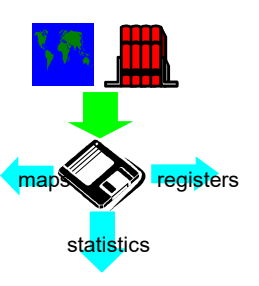


# FIG-Cadastre 2014 – Six vision statements (1998)



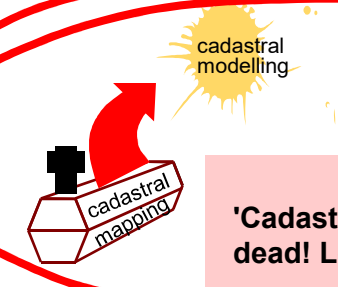
restriction C  
restriction A  
restriction B  
land  
property 1  
2  
3  
4

**Cadastre 2014 will show the complete legal situation of land, including public rights and restrictions!**



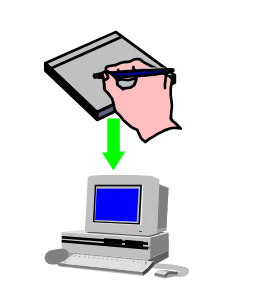
maps registers statistics

**The separation between 'maps' and 'registers' will be abolished!**

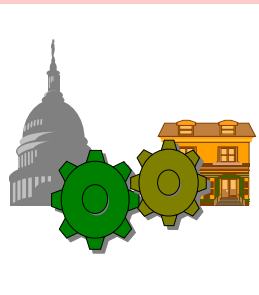


cadastral modelling  
cadastral mapping

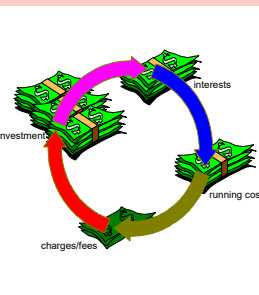
**'Cadastral mapping' will be dead! Long live modelling!**



**'Paper and pencil cadastre' will be gone!**



**Cadastre 2014 will be highly privatized!  
Public and private sector are working closely together!**



interests  
running costs  
charges/fees  
investment

**Cadastre 2014 will be cost recovering!**

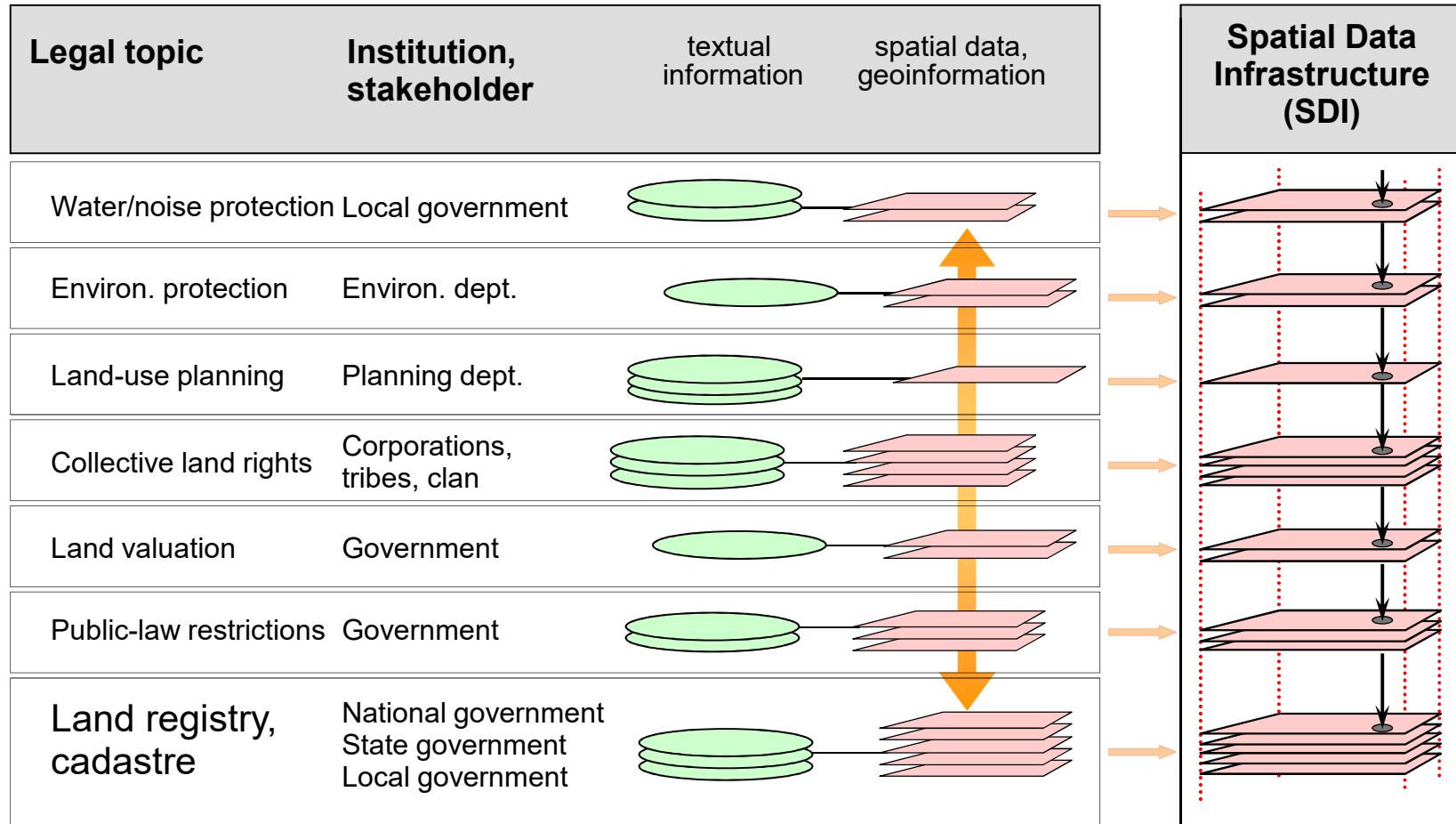


## FIG-Spatially Enabled Society – Six key elements (2012)

- ~~Legal framework~~ for basic geoinformation;
- **Common data integration concept;**
- **Positioning infrastructure** for the common reference framework;
- **Network infrastructure** to enable integration and sharing of spatial data through the spatial data infrastructure SDI;
- **Landownership information** as one of the basic information topics;
- **Data and information** principles.

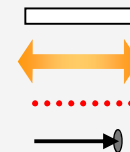


# Common Data Integration Concept



**Four basic principles for a 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 between objects in different topic except through geographic location

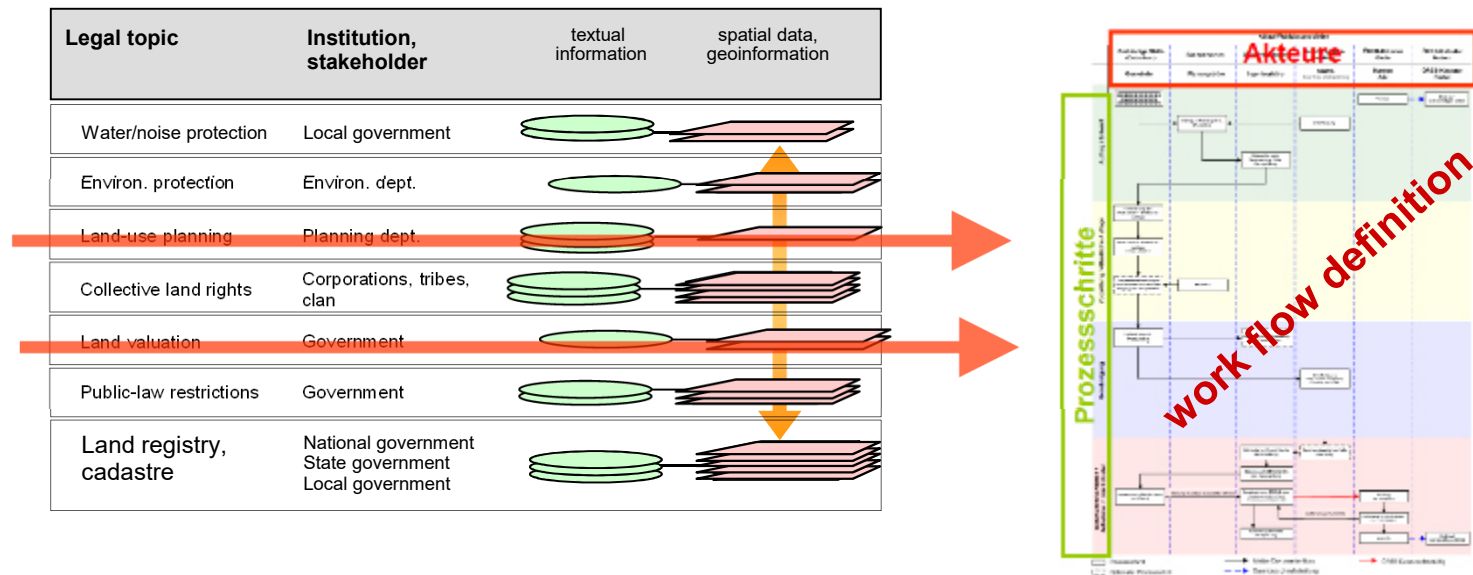




# Independent information layers (thematic domains)

## Advantages:

- stakeholders can and have to look after their own data sets; however, they have to respect the defined basic principles
- the fear of the different stakeholders – losing control over their data – can be overcome
- work flow and data flow can be clearly defined and managed for each stakeholder independent from the others

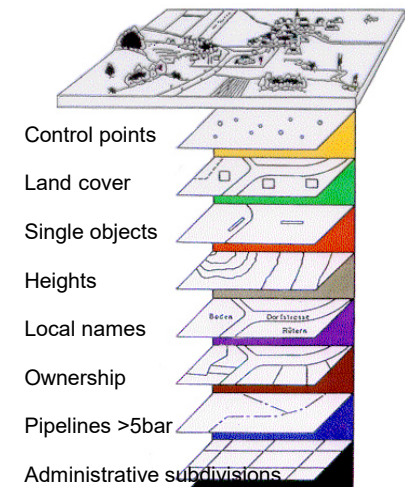
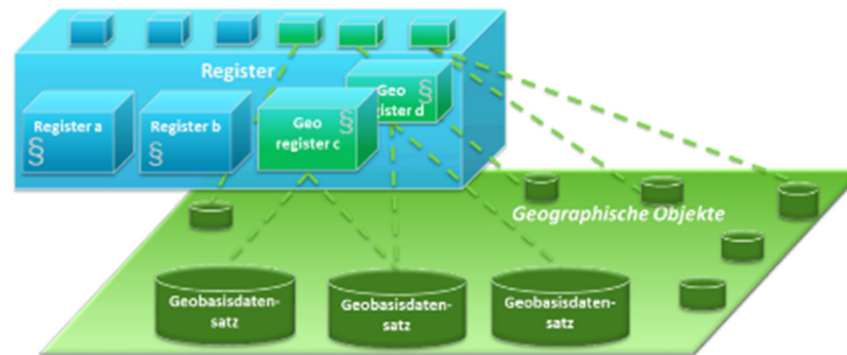






## Developments – Switzerland

- digital cadastral data since 1993 (11 thematic layers), with data modelling standards
  - cadastre of Public-Law Restrictions since 2012 (17 thematic layers), with the same data modelling standards
  - in discussion: key registers in a federal context
- crucial for a federated context: data modelling, common standards



information layers of Swiss cadastre



## Developments – UN-GGIM: 14 Global Fundamental Geospatial Data Themes (2017)

- adopted at 7<sup>th</sup> session in Aug. 2017
- foundation to support global geospatial information management and UN Sustainable Development Goals

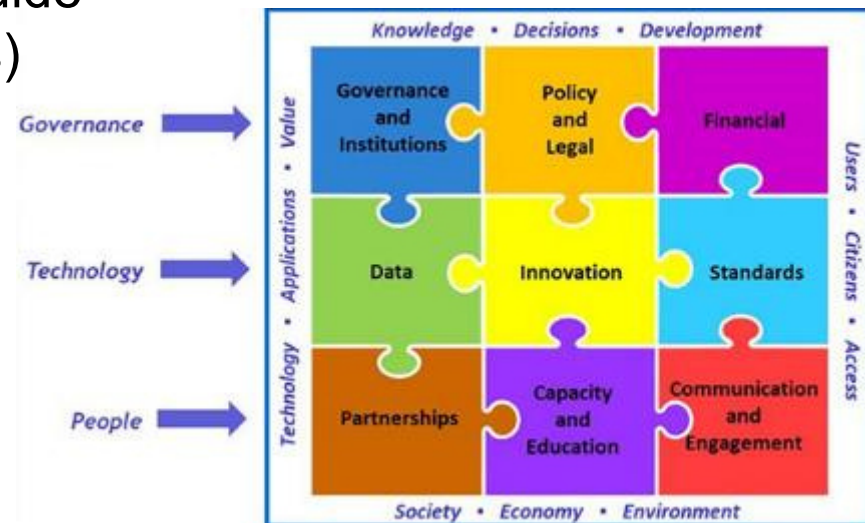


[http://ggim.un.org/meetings/GGIM-committee/9th-Session/documents/Fundamental\\_Data\\_Publication.pdf](http://ggim.un.org/meetings/GGIM-committee/9th-Session/documents/Fundamental_Data_Publication.pdf)



## Developments – UN-GGIM: Integrated Geospatial Information Framework IGIF (2018)

- basis and guide for developing, integrating, strengthening and maximizing geospatial information management and related resources in all countries
- it will assist countries in bridging the geospatial digital divide, secure socio-economic prosperity
- Part 1: Overarching Strategic Framework
- Part 2: Implementation Guide (with 9 strategic pathways)












<https://ggim.un.org/IGIF/>



## Developments – UN-GGIM: Framework for Effective Land Administration FELA (2019)

- reference to develop, renew, reform, strengthen and modernize land administration and management systems
- relates to the overarching IGIF
- FELA implements the IGIF for the land sector
- nine requirements and goals that are aligned with the 9 strategic pathways of the IGIF

	Goals	Requirements
 Governance, Institutions and Accountability	Transparency and accountability increased	Accountable and transparent governance
 Legal and Policy	Gender and vulnerable groups sensitive	Inclusive and recognize all forms of tenure
 Finance	Affordable investments and economic returns ensured	Affordable with sustainable business models
 Data	Reliable data and service quality attained	Data maintained, secure and not duplicated
 Innovation	Responsible innovation oriented	Upgradable systems and approaches
 Standards	Interoperability and integration supported	Considers internationally agreed standards
 Partnerships	Cooperation, partnerships, and participation leveraged	Strengthens partnerships and supports collaborations
 Capacity and Education	Capacity, capability and knowledge transfer shared	Facilitates capacity development and knowledge transfer
 Advocacy and Awareness	National engagement and communication advanced	Advocates for land administration and management



## EU Ministerial Declaration on eGovernment, signed in Tallinn on 6 Oct. 2017

- signed by 28 EU countries (incl. GB) + IS, FL, NO, CH
- ... the overall vision remains to **strive to be open, efficient and inclusive, providing borderless, interoperable, personalized, user-friendly, end-to end digital public services to all citizens and businesses** – at all levels of public administration.
- Policy action lines:
  - 1) Digital-by-default, inclusiveness and accessibility
  - 2) Once only
  - 3) Trustworthiness and Security
  - 4) Openness and transparency
  - 5) Interoperability by default
  - 6) Horizontal enabling policy steps



## Developments – EU: Directive on Open Data and PSI (2019/1024) (update of PSI Directive 2003/98/EC)

- to facilitate the re-use of public sector data with minimal or no legal, technical and financial restraint
- to make available high-value data for re-use
- particular focus on high-value datasets (Article 13)
- six thematic categories of high-value datasets:
  - Geospatial / Earth observation and environment / Meteorological / Statistics / Companies and company ownership / Mobility
- EU Member States have to adapt their laws accordingly until July 2021





## Conclusions

- GDI consist of digital data sets from different thematic sources with different stakeholders and authorities (will become even more relevant with future key register concepts)
- interoperability standards are crucial for those data sets to be shared and integrated
- only then, the overall benefits can take effect (decision-making, sustainable development goals)
- cadastral organizations need to recognize their role in this (important, but by far not the only dataset anymore)
- they need to come up with mechanisms and standards in how to integrate and share their cadastral data; on national and international levels