Cadastral systems in federal structures

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SUMMARY

The operation of cadastral systems in federative structures with decentral responsibilities is a special challenge. Successful solutions are possible provided flexibility, creativity, standards and commitment is available. The experience with federal structures can provide worthwhile impulses for the further development from cadaster systems to cadaster information infrastructures.

SUMMARY

Der Betrieb von Katastersystemen in föderalen Strukturen mit dezentralen Verantwortlichkeiten stellt eine besondere Herausforderung dar. Mit Flexibilität, Kreativität, Standards und Commitment können erfolgreiche Lösungen etabliert werden.
Die Erfahrungen in föderalen Strukturen können wertvolle Impulse für die Weiterentwicklung von Katastersystemen zu Kataster-Informations-Infrastrukturen liefern.

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Cadastral systems in federalistic structures

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1. INTRODUCTION

In decentralized organizations with distributed responsibilities one of the challenges is to serve the customer needs by having easy access to all cadastral information in a high quality through one user-portal.

The heavier challenge is it to change traditionally grown institutional structures. In the last decades too much energy was wasted in projects to change structures instead of investing in creative solutions to overcome the limits of these structures.

In decentralized systems the data maintenance and the data management take place in various areas and different organizational contexts. This flexibility in maintaining data is one of the advantages of federalistic structures. But how can a national user-portal be built without centralized spatial data infrastructure and without central authority?

In reality every federalistic level publishes its own data. In Switzerland this would mean one portal of the federation, 26 portals of each canton and more than 2000 portals of the municipalities. This would not be costumer friendly.

2. PRINCIPLES OF SUCCESS

2.1 Flexibility

Distributed structures offer big chances to satisfy the differing needs and requirements of the society. The principle that data are to be maintained at the place where the change happens is easy to be implemented. Decentralized data maintenance provides normally better data actuality and quality.

The question of private or public cadastral services can be answered in a flexible way. So the tradition of each system can be taken into consideration.

In the Trier-Architecture if SDI (data, business logic, user interface) the flexibility diminishes from down to up. The data management shall and should be handled flexibly according to the needs. The user interface in contrary should be as uniform as possible.

For future cadastral systems flexibility on every level is a crucial requirement (Lüthy J. and Kaul Ch. 2015).

2.2 Creativity

For successful solutions in federalistic systems the established concepts and techniques cannot be adopted as is. Creative impulses and approaches are needed. The following example shall illustrate this:

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In Switzerland the data of the official cadastral surveying are normally administered on municipal level. Only few cantons take care of the data on cantonal level. The Swiss Federation has no own cadastral data. The classical approach where every level sends a copy of the data to the Federation fails due to the autonomy of the cantons and municipalities.

The creative approach is to leave the data in the custody of the cantons or municipalities. A cascading business logic ensures that the client can make use of all the data with the help of a central portal.
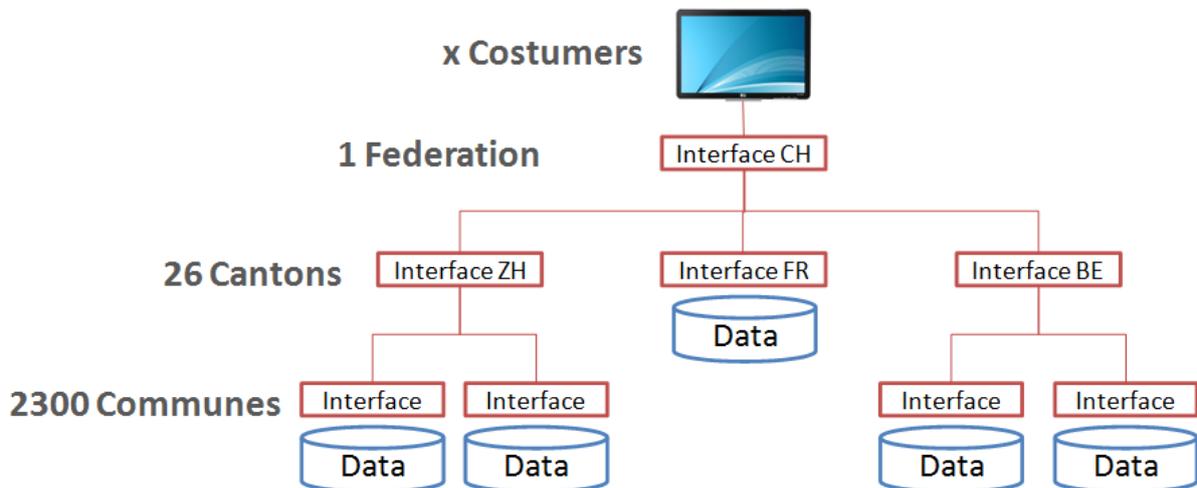

Fig. 1 Central use of decentralized data

2.3 Standards

Flexible and creative solutions can function optimally only when all involved components cooperate according to approved standards, In addition to common data models rules for services, algorithms and presentations are needed.

2.4 Commitment

All principles mentioned above are useless when the will to find common solutions covering all federal levels is missing. In particular between the Federation and the cantons a strong commitment to find always new possibilities is needed. For this purpose Switzerland has implemented e-geo.ch, a special panel for exchange and common decisions.

3. Look into the future

Independent from the question of federal or centralized cadastre organizations the cadastral systems are to become more flexible and dynamic to respond to the increasing future use requirements. The achievement of a Spatially Enabled Society (Steudler D. and Rajabifard A., 2012) is a big challenge. Within the general development from Spatial Data Infrastructures

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(SDI) to Spatial Information Infrastructures (SII) the cadastre is again the cutting edge (Lüthy J. and Kaul Ch., 2015). Experience in the field of federal systems provides worthwhile impulses.

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BIOGRAPHICAL NOTES

Christian Kaul is head of Department for Geoinformation at the Office for Spatial Development in Canton of Zurich (Switzerland). He obtained 1992 a master's degree in Rural Engineering and Survey from the Federal Institute of Technology Zurich (Switzerland). After ten years of experience in different domains like communal infrastructure, land management and SDI-Projects he worked a consultant in cadastral issues and procurement processes. Since 2013 he focuses as Department head on building modern cadastre systems and comprehensive spatial information infrastructures.

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