Slide 1

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Cadastre 2014: The Practical Realization of a Comprehensive Documentation of the Complex Legal Situation of Land Using a Simple Data Model and Sophisticated Information Technology

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Slide 2

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

The complex legal situation of land

- Cohabitation of humankind
- Beware eviroment form destruction
- Sustainable utilization of natural resources

New public laws with impacts on private land rights

- not taken into consideration during legislation process, because of urgency
- create increasing incertainty for land owners and investors
- exist everywhere, because laws are copied and adapted
- threaten the functioning of lands markets -> hamper social and economical development

Slide 3

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Aims of the presentation

CADASTRE 2014

Summarize the impact of Cadastre 2014 on comprehensive land right documentation

Explain the principle of simple modeling

Show how sophisticated information technology is used for solutions

Present a practical example

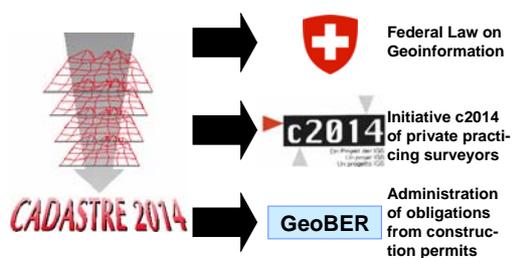## Slide 4

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Impacts of Cadastre 2014 on comprehensive land right documentation

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Slide 5

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Cadastre 2014 - approach to master the complex legal situation of land

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

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

'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!

Cadastre 2014 will be cost recovering!

Slide 6

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Impact of Cadastre 2014 on comprehensive land right documentation in Switzerland

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- → Federal Law on Geoinformation
- → c2014 — Initiative c2014 of private practicing surveyors
- → GeoBER — Administration of obligations from construction permits

Slide 7

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Federal Law on Geoinformation
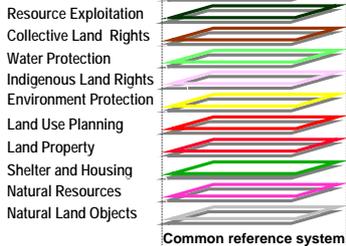
1. General Rules
2. Principles
   Quality and technical requirements
   Data capture maintenance and management
   Access and utilization
   Cadastre on restrictions by public law
   Services of the confederation
   Duties to support and to tolerate
3. National Survey
4. National Geology
5. Cadastral Survey
6. Organization
7. Final arrangements

Slide 8
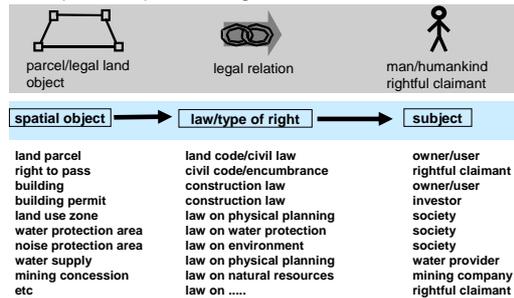
FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Cadastre on restrictions by public law
(Principle of legal independence)

....
Resource Exploitation
Collective Land Rights
Water Protection
Indigenous Land Rights
Environment Protection
Land Use Planning
Land Property
Shelter and Housing
Natural Resources
Natural Land Objects

Common reference system

Slide 9

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Explanation of simple modelling

Slide 10

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Principle of simple modeling

parcel/legal land object → legal relation → man/humankind rightful claimant

spatial object → law/type of right → subject

spatial object	law/type of right	subject
land parcel	land code/civil law	owner/user
right to pass	civil code/encumbrance	rightful claimant
building	construction law	owner/user
building permit	construction law	investor
land use zone	law on physical planning	society
water protection area	law on water protection	society
noise protection area	law on environment	society
water supply	law on physical planning	water provider
mining concession	law on natural resources	mining company
etc	law on	rightful claimant

Slide 11

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Sophisticated information technology for solutions

Slide 12

FIG XXIII Congress and XXIX General Assembly - Shaping the Change

Conceptual modeling technology
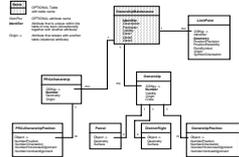
Conceptual object modeling

= using the data definition languages
INTERLIS/INTERLIS2

= clearly defined data models -> no misunderstandings

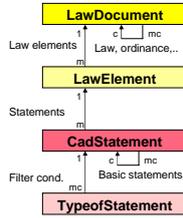= automatic transfer to XML/GML - format
-> easy model and data maintenance

Polygon overlaying technology

Request

Result
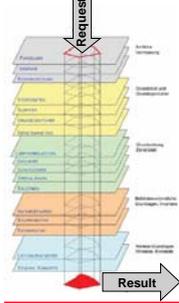
Polygon overlaying

= using the geometry to create the relation between objects

= simple data models -> easy maintenance of models

= no need for keeping and maintaining links between objects -> easy data maintenance

= no other objects, than the directly affected by changes are to handled -> efficient maintenance procedures

Jürg Kaufmann — - 13 - — Munich, 9 October 2006

Conceptual law modeling

LawDocument

Law elements

Law, ordinance,..

LawElement

Statements

CadStatement

Filter cond.

Basic statements

TypeofStatement

LegINPUT

Law modeling

= exact modeling of legal framework concerning restricting spatial objects

= exact model of legislation on all administrative levels: Confederation and cantons municipalities

= independent from spatial objects -> maintenance only when legislation is changed

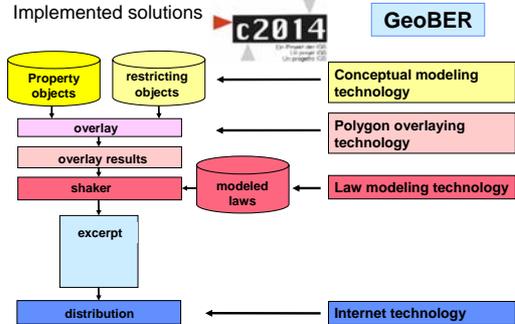Jürg Kaufmann — - 14 - — Munich, 9 October 2006

Internet technology

GeoWeb

Internet Technology

= easy distribution of information

= easy access for customers

= possibility for decentralized maintenance

Distributed Collaboration

ESRI++

Jürg Kaufmann — - 15 - — Munich, 9 October 2006

Practical example

Jürg Kaufmann — - 16 - — Munich, 9 October 2006

Implemented solutions

GeoBER

Property objects

restricting objects

overlay

overlay results

shaker

modeled laws

excerpt

distribution

Conceptual modeling technology

Polygon overlaying technology

Law modeling technology

Internet technology

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Thank you for your attention!!

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