

# The cadastral data and National Spatial Data Infrastructure

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# Cadaster and property register

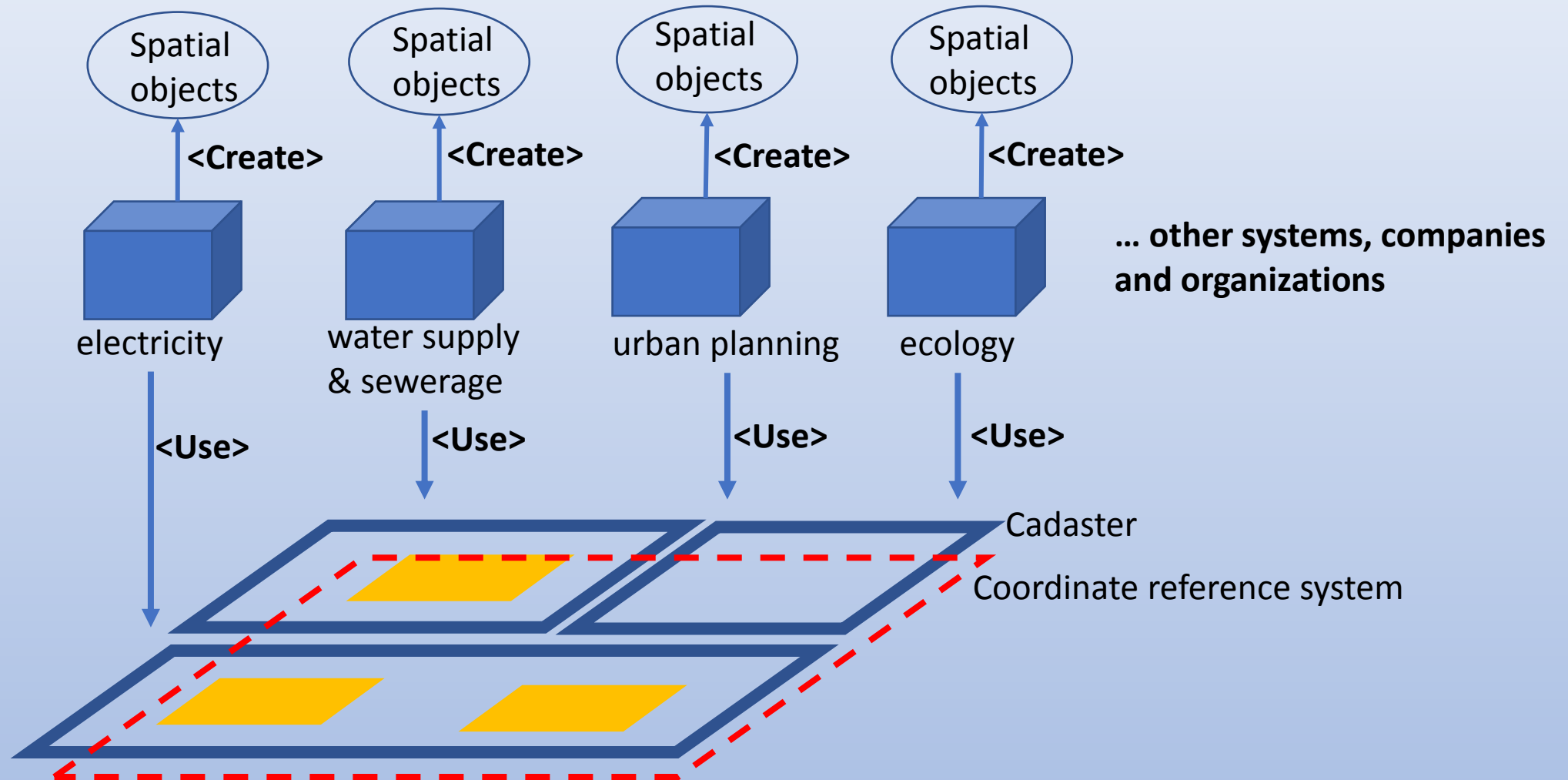
- Since 2000 Bulgarian cadaster has been developed as a part of the official ownership system.
- The goal is the development of property register, based on well defined property objects and property rights.
- The role of cadaster:
  - Defining unified property objects – physical and/or juridical property;
  - Preliminary property register – based on examination, collecting and restructuring information for property rights in one jurisdiction.

# Definition of the property objects

<b>LAND IMMOVABLE</b>	<b>Most common known as a “parcel” - piece of land with homogeneous ownership, defined by boundaries of ownership. Often the boundaries has no physical representation. There are no definition for boundaries “above” and “bellow” the land immovable.</b>
<b>BUILDING</b>	Defined by specific boundaries of a plot ratio. Often physical boundaries of the building are different. Part of the characteristics defines volume of the building – number of floors above and bellow land. Ownerships or other property rights do not defined the cadastral object “building”. Often the “building” has no homogeneous property.
Individual site/unit in a <b>BUILDING</b>	Cadastral object is a distinct part of building, space with homogeneous ownership bounded by physical boundaries (e.g. floor, roof, walls). Common parts (e.g. stairs) and adjacent parts are not cadastral objects.

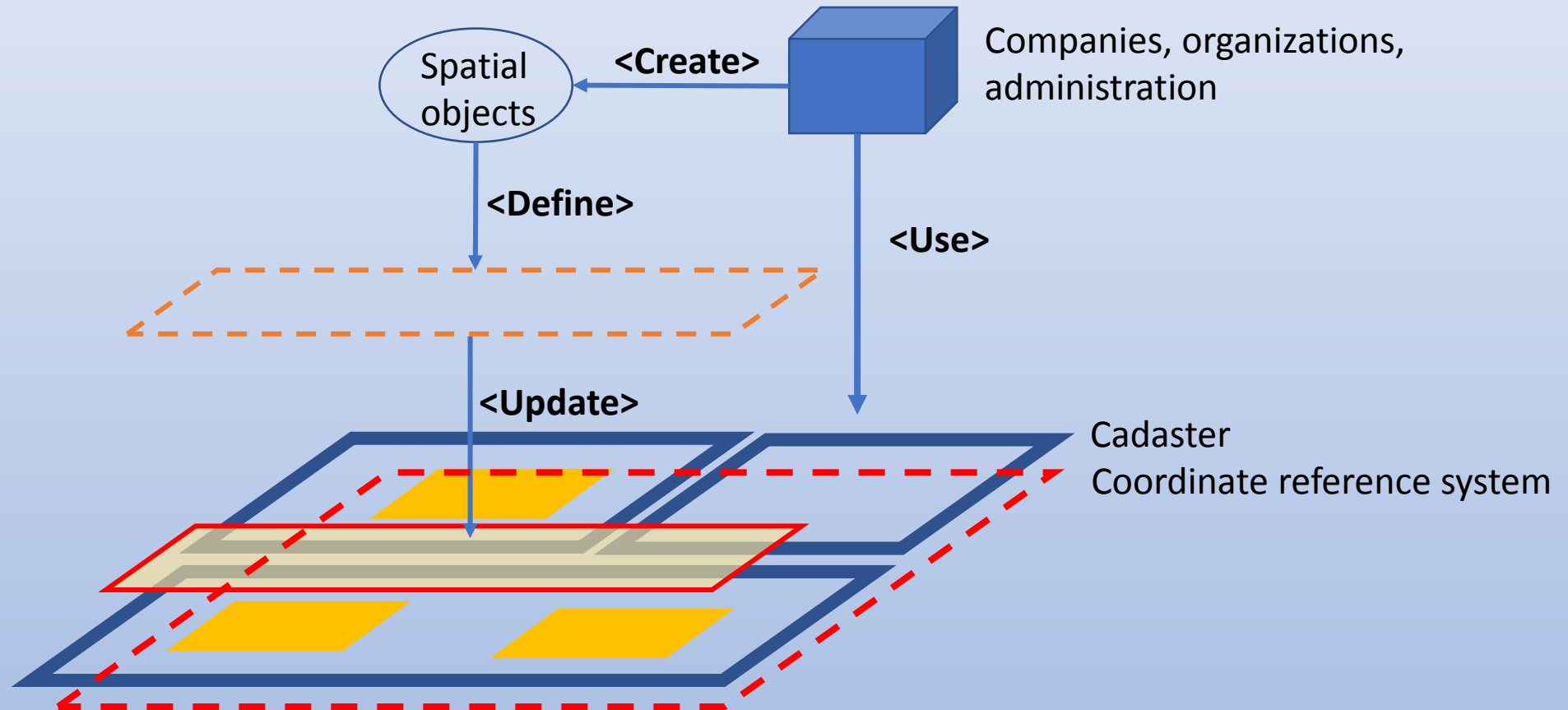
Despite the cadastral objects compose basic layer of the spatial infrastructure, there are objects, such as power lines, water supply, sewerage and many other, which are out of the cadastral scope.

Legal form of common spatial model – cadaster and property law, art. 32



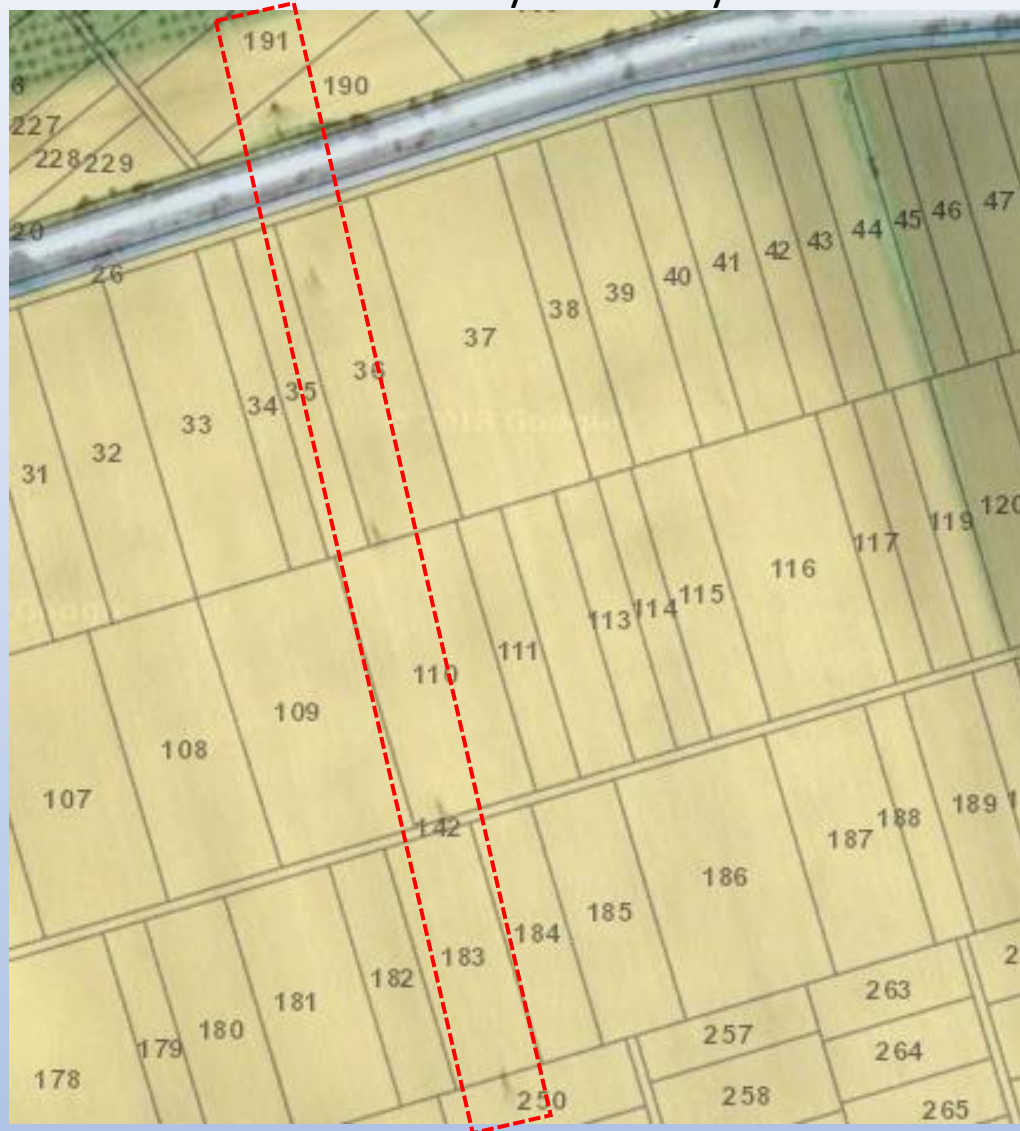
# Restricted zones

- New spatial objects in cadaster. Restricted zones define territory of property rights restriction.



# Examples...

Restricted zone defined by electricity line



Sketch of land immovable with restricted zone

**СКИЦА № 94-12345-1/23.05.2017 г.**  
на поземлен имот с идентификатор  
02626.501.2005

По кадастрална карта на гр. Банско, ЕКАТТЕ 02626, обл. Благоевград, одобрена със заповед РД-18-46/18.08.2011 издадена от Изпълнителния директор на АГКК.

Последно изменение: отстраняване на пепелнота или грешка, скица-проект: № 94-1234-1/16.02.2016 г.  
Площ на имота по КК: 551 кв. м.  
Територия с еднакво трайно предназначение: Урбанизирана  
Начин на трайно ползване: Ниско застрояване (до 10 м)  
Адрес на имота: ул. "Цар Калоян" № 9  
Предшни идентификатори: 02626.501.2005  
Номера по предходен план: пл. № 56 по кадастрален план, одобрен със заповед РД-12-03/1992 г. на община Банско  
Сгради в имота:  
**02626.501.1, жилищна сграда-еднофамилна, площ 71 кв.м, брой надземни етажи 1**

Съседни имоти:  
02626.501.2482, ниско застрояване (до 10 м)  
02626.501.204, средно застрояване (от 10 до 15 м)  
02626.501.2006, ниско застрояване (до 10 м)  
02626.501.4473, за второстепенна улица.

Имотът попада в зони на ограничение:  
149532/329116, сервитут, право на преминаване  
Господстващ имот: 02626.501.2482.  
Площ на зоната в имота: 98 кв.м

М 1: 500

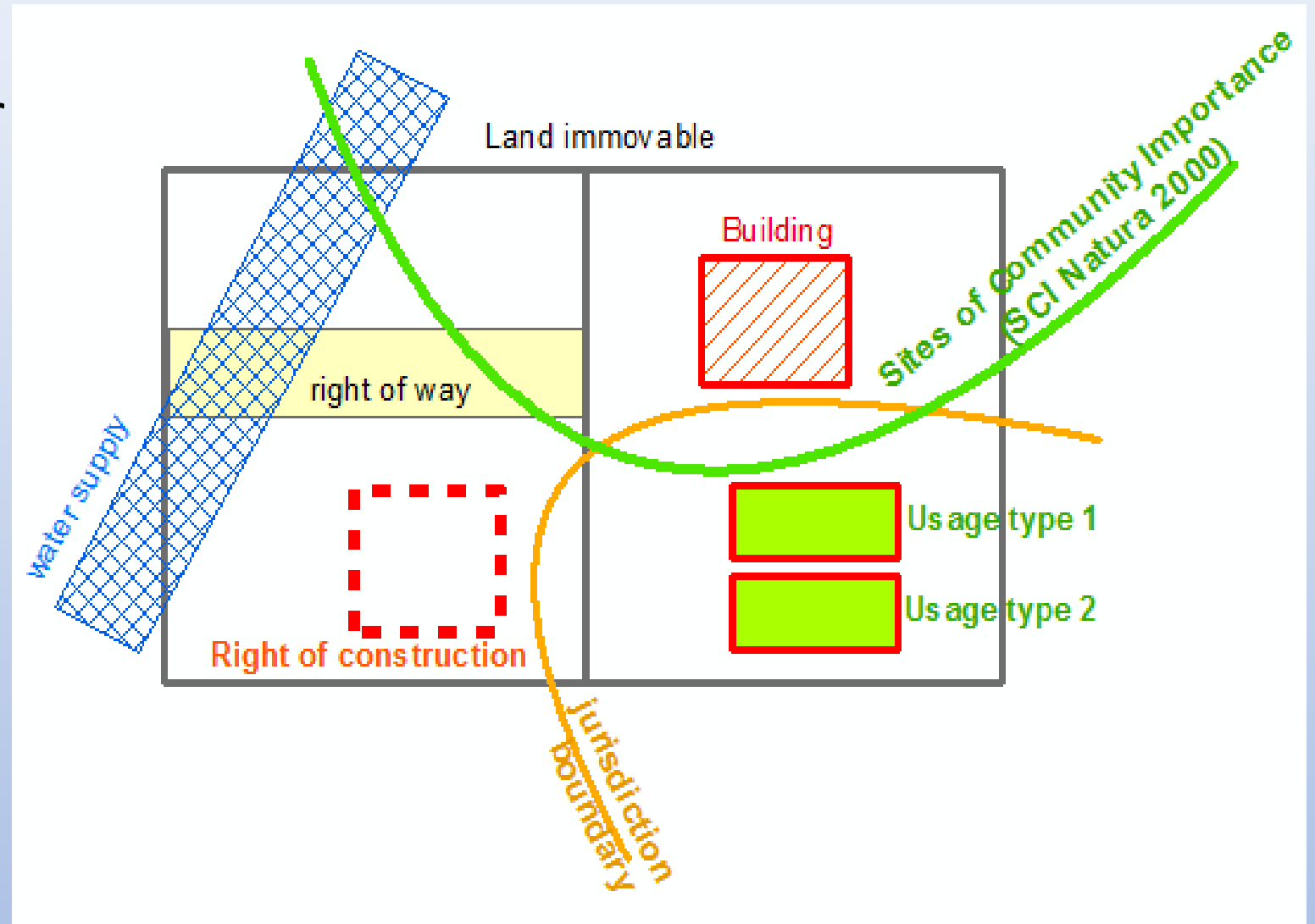
**Данни за вещните права и носителите по данни от КРНИ**

МАРИН ТОДОРОВ ЗАХАРИЕВ КАЛИНА ТОДОРОВА ИВАНОВА	Право на собственост Идеални части: 1/2/1 Вид на собствеността: частна	Нотариален акт № ... том... дело ... рег ... Регистриран в СВ гр. Разлог
ЗДРАВКО ИВАНОВ МЛАДЕНОВ	Право на собственост Идеални части: 9/21 от правото на собственост за имот 02626.501.2005 Право на собственост за имот 02626.501.2005.1 Вид на собствеността: частна	Нотариален акт № ... том... дело ... рег ... Регистриран в СВ гр. Разлог
ИВАН ТОДОРОВ ТОДОРОВ	Право на преминаване Зона на ограничение: 149532/329116	Нотариален акт № ... том... дело ... рег ... Регистриран в СВ гр. Разлог

Изготвил: ..... Н-к СГКК - гр. Благоевград: .....

# Enlarging scope of the cadaster

- Restrictions – new layer over the cadaster layer
- New boundary types are added
- Expands the possibilities of spatial objects registration



# Advantages and disadvantages

- More detailed description of property rights and restrictions.
- Enlarge the cadaster services and clients.
- The cadaster model followed rules of “Cadastre 2014” and “LADM”
- The spatial object for whose the restriction zone is registered is still out of the cadaster model.
- The registration process is not controlled by the Cadastre Agency. It totally depends on the will of the company/ administration/organization managing the spatial object.



# National Spatial Data Infrastructure (NSDI) and cadaster



- INSPIRE puts new challenge to cadaster model
- Overlapping between INSPIRE and the Cadastre Agency competency.
- ANNEX I – Coordinate reference systems, Geographical names, Addresses, Administrative units, Cadastral parcels,
- ANNEX II – Elevation, Orthoimagery.
- ANNEX III - Buildings, Land use

Definitely 10 of all 34 themes are in competency of CA.

Therefore the cadaster model playing main role in the process of covering INSPIRE requirements.

# Legal frame of the NSDI

**Possible base is a Cadaster and property register act**

**Art. 7, para 2 and 3:**

(2) The information systems of cadaster and property register (IISCPR) shall establish links also with:

- Unified classifier of administrative-territorial units ("EKATTE");
- Unified register of commercial entities("BULSTAT");
- Unified system for civil registration and administrative servicing of the population("ESGRAON" );
- the registers of state and municipal properties.
- (3) The provisions and procedure for establishment, maintenance and use of the IISCPRS, **as well as for the exchange of information between them and the specialized systems under Art. 32, par. 1, item 2** shall be regulated by an ordinance, adopted by the Council of Ministers by motion of the Minister of Regional Development and Public Works and the Minister of Justice.

# Legal frame of the NSDI

**The specialized systems under Art. 32, par. 1, item 2:**

Art. 32. (1) Departments, municipalities and other legal entities... shall organize the collection, maintenance up-to-date, and furnishing of specialized data about:

- immovable properties, other than basic cadastral data;
- buildings, structures and their easements and other improvements in land properties;
- underground linear utilities and facilities;
- perennial plantations;
- water courses and water surfaces;
- mineral deposits in the earth's womb;
- the relief of the earth's surface;
- other objects (spatial objects), determined in a regulatory act.

# Legal frame of the NSDI

Also ...

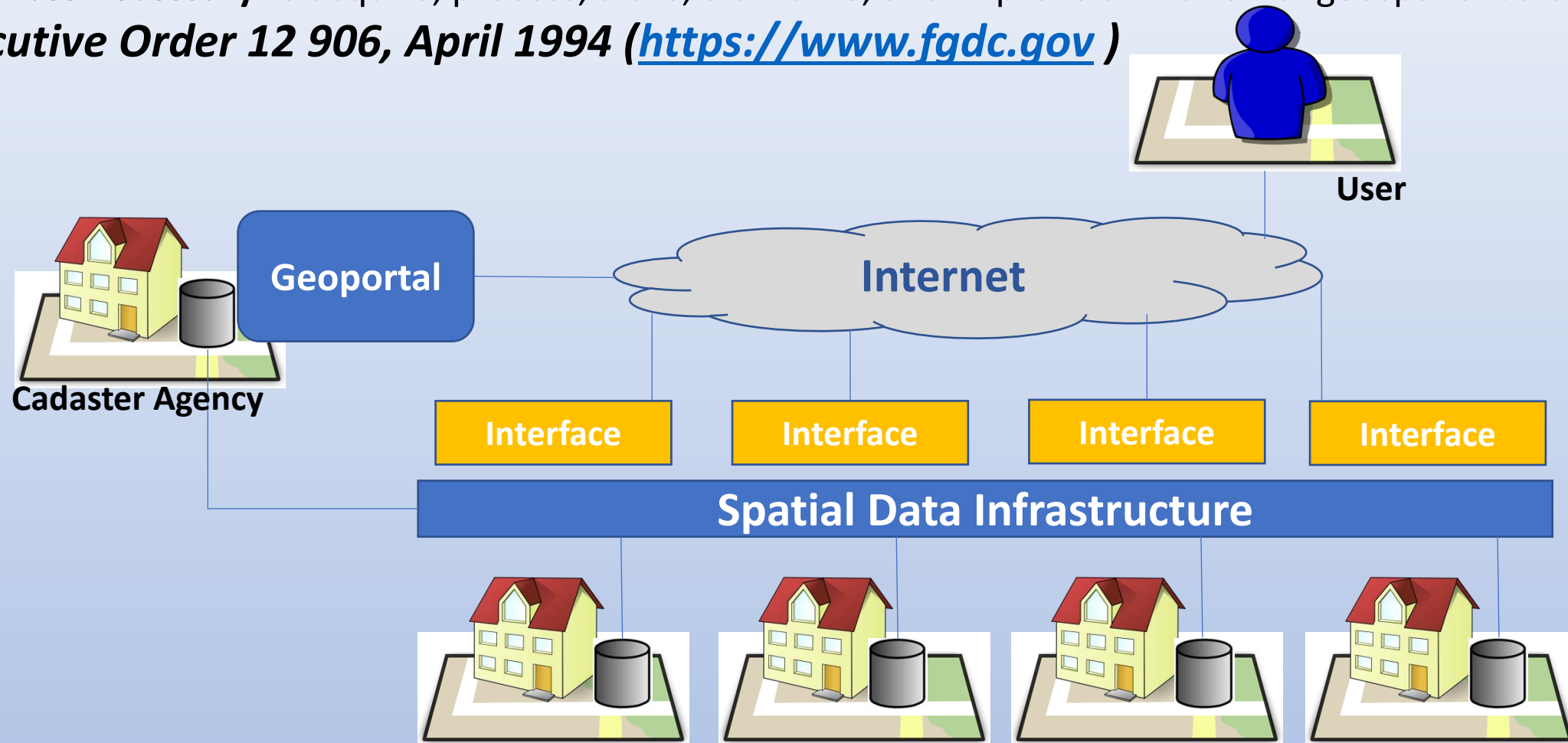
- Cadaster Agency and/or municipalities assign the production of specialized map for technical infrastructure and their easements, water areas and streams, landscaped areas and other public works objects in the urbanized territory (**art. 34**)
- The procedure of determination of the **addresses of properties** shall be laid down in an ordinance of the Minister of Regional Development and Public Works. (**art. 27, par. 5**)

# The engine of NSDI implementation

- eGovernment;
- INSPIRE Directive;
- National Legislative Framework;
- Fast development of IT sector;

# Basic NSDI architecture

“National Spatial Data Infrastructure” (“NSDI”) means **the technology, policies, standards, and human resources necessary** to acquire, process, store, distribute, and improve utilization of geospatial data  
*Executive Order 12 906, April 1994 (<https://www.fgdc.gov>)*



(Thorben Hansen, adapted)

**Departments, municipalities and other juridical persons maintained specialized data**

# Policies ...

- ❑ Organizational component of SDI:
  - ❑ Legislative framework – need improvements and new acts should be laid (addresses of properties);
  - ❑ Policy and governance – necessity of reorganization, growing up the role of the Cadaster Agency;
  - ❑ Collaboration – good partnership between organizations/bodies supplying spatial data and services, common understanding about their mission and final goal;
  - ❑ Marketing plan and financing– which kind of services we need? What is the priority? New budget should be approved.

# Spatial data and services

## Data and metadata

- Data – data for spatial object stored, up-to-dated, distributed and approved by the competent organization.
- Metadata – Who is data provider? What is the legal status of the data? What is the positional accuracy? Which data/services are provided? How can reach the data and services?
- Data framework – common understanding between partners about:
  - Used CRS and transformation parameters;
  - Procedures for up-to-dating;
  - Basic spatial data layer – common for all layer, facilitating spatial objects identification, localization and searching.

## Services – Need to analyze and specify list of services with spatial data?



# Technology and Standards

## ❑ Technology component of NSDI

- ❑ Data standard – National standard (CAD/ZEM) is a good start but is not enough.
- ❑ Classifiers for the spatial object attributes – common dictionary used by administration/organization delivering spatial data.
- ❑ Interoperability – Implementation of International Standards (ISO/TC 211, OGC, W3C ... ). Providing communication between system without people intervention. Spatial objects from different domains can be bind in one data layer, based on customer request.
- ❑ Service Oriented Architecture – based on web services, covered business processes for publishing, searching, discovering and using spatial data.

# Human resources

Implementation of NSDI is a big challenge and people are playing main role in the process.

- “Collaboration/good partnership”** means common understanding for a specific activities of different organizations.
- Implementation of **service orientation architecture (SOA) and ISO/TC 211** standards are not easy.
- ...
- For all above we need highly motivated and educated people.**

# Conclusions

- The role of the Cadaster Agency should be growing up but do not forget the primary role of the cadaster – **the property register is still not developed!!!**
- Legislative framework – need to develop and updating the regulations;
- Collaboration – responsibility for providing spatial data and service and respect to all partners;
- High motivation and education – training in different levels is needed:
  - Managers;
  - Administrations and organization collecting and providing spatial data;
  - IT staff;
  - End users;

# References

**Thorben Hansen**, Head of Division Danish Agency for Data Supply and Efficiency, **BUILDING A NATIONAL SPATIAL DATA INFRASTRUCTURE**, INSPIRE CONFERENCE 2017;

**Alan R. Steven**, Federal Geographic Data Committee, **THE US NATIONAL SPATIAL DATA INFRASTRUCTURE:WHAT IS NEW?**, ISPRS Workshop on Service and Application of Spatial Data Infrastructure

**Thank You!**