

Geo-data Management Issues for Urban Land Administration in Turkey

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XXIV FIG INTERNATIONAL CONFERENCE
Facing the Challenges-Building the Capacity
11-16 April 2010 Sydney / AUSTRALIA



Overview

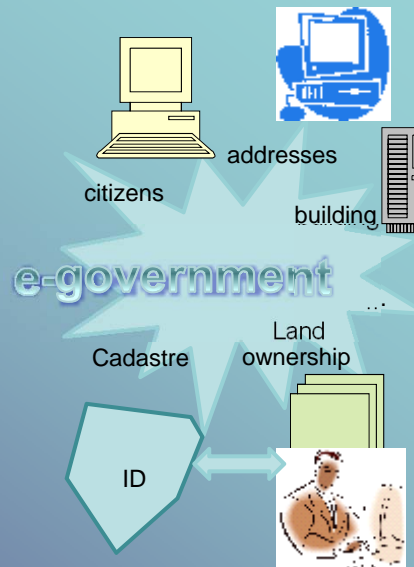
- Introduction
 - Geo-data management issues
 - Current situation for urban land administration
- Developing Geo-Data Specification for Turkey
- Case Study
- Discussion / Conclusion

Introduction

Land administration; “*process of determining, recording and disseminating information on ownership, value and use of land*”

Land-related information should be registered and structured at detailed level, high-quality and large scale...

Geo-data Infrastructure (GDI) enables the effective collection, management of geo-data at different administrative levels and between public institutions, private sector, and citizens.



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Introduction Geo-data...

- The General Command of Mapping- Standard Topographic Maps (STM), < 1:5000
- Land Registry & Cadastre Directorate (LRCD) and State Provincial- large scaled maps, >=1:5000
- !! Other public institutions and municipalities have produced maps and GIS projects serving their needs.
- Large Scaled Map Production Regulation (BÖHHBJY) with feature / attribute catalog + UVDF in 2006.
- !! Geo information standards are not designed to solve application-driven requirements for various GIS projects and to manage key-registers...



Introduction *Urban Land Administration*

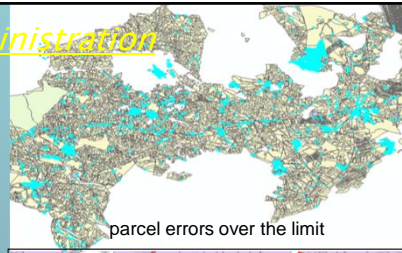
Integrating problems:

- Updating difficulties
- Conflicts between cadastre and land registry
- Problems for transferring the data ...
- Some geometric and topologic problems
- Most land ownership not defined with Turkey Republic ID and domicile information !!!...
- This hampers to interact with other e-government applications such as MERNIS, UAVT, AKS, UYAP, VEDOP ...

Urban GIS

3066 of the municipalities of Turkey (TUIK);

- 18 % (543) with numbering unit ..
- 4 % (126) working on Urban GIS.



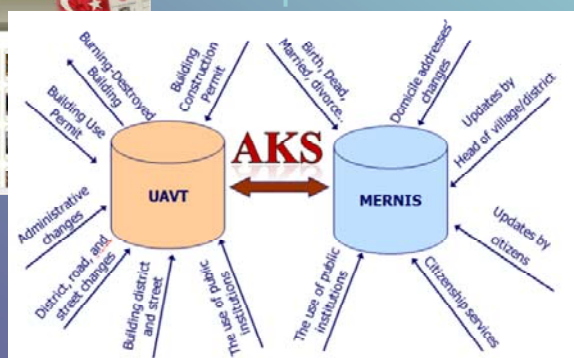
Address based Citizenship Registration System (AKS)

National Address Database (UAVT)

- in 2006, "Numbering and National Address Database Regulation" on
- the creation of address information,
 - registering in the databases.

Central Population Management System (MERNIS)

- Turkish Republic citizenship ID;
- Making the citizens unique,
 - Solving the problems among public institutions,
 - Controlling every process with a unique number from the birth,



domicile information with Turkey Republic ID

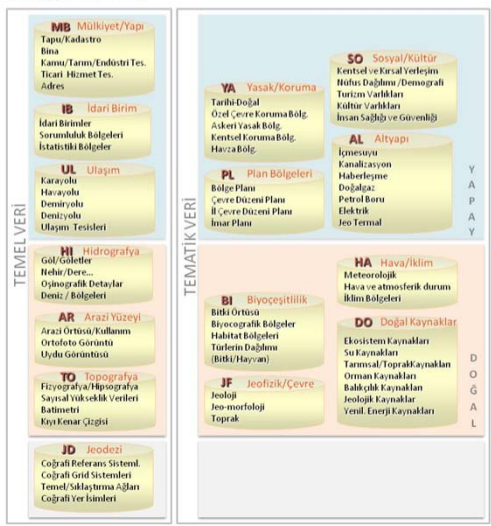
TURKVA:UVDM *Geo-data Exchange Model for Turkey GI*

- Geo-Data Sharing Model of Turkey.
- A new approach on GI management in Turkey
- Compliant with ISO/TC 211, the expectations of INSPIRE data specifications , Turkey National GIS actions.
- Object-relational data model
- A semantic model
- Designed with UML class diagrams in a Model Driven Approach (MDA).



TURKVA:UVDM *Conceptual Model Components*

UVDM Application Schema



UVDM Generic Conceptual Model

Scope / Application Area Components

- * Standard Hierarchy
- * Scale-Resolution&Applications
- * Generalization Approach
- * Building Province Level SDI in Turkey
- * Horizontal/Vertical Relationship

Technical Components

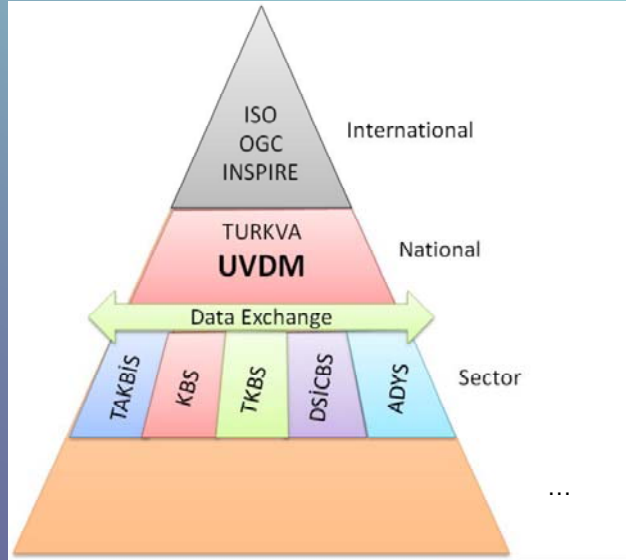
- * Principles
- * Reference Model
- * Application Schema Rules
- General Feature Model -Modeling Application Schema -Feature Catalog -Data Dictionary -Registers -Null Value Identification - Spatial Schema
- * Spatial Object Identifier
- * Spatial Object Versioning
- * Metadata
- * Quality
- * Multiple Representation

- + National GIS policies
- + INSPIRE standards
- + ISO/TC 211 standards
- + OGC standards

UVDM Conceptual Model specifies the components to determine application schemas of data themes and to harmonize spatial data and to produce application schemas of spatial data themes.

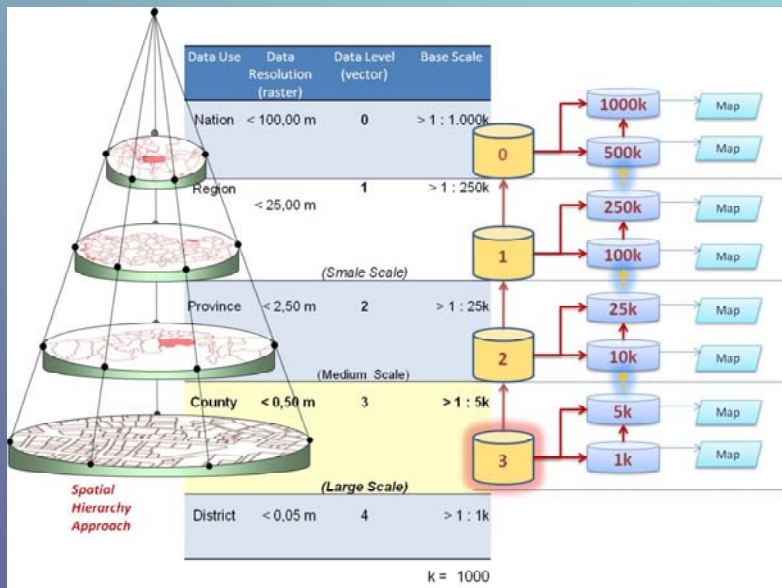
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TURKVA:UVDM *Standart Hierarchy*



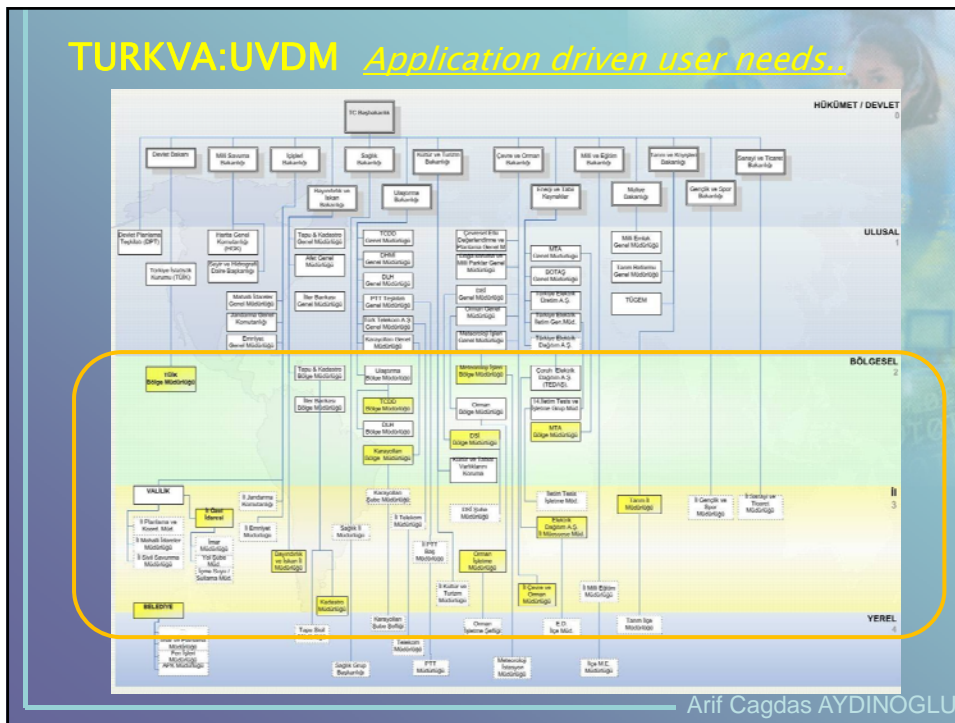
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TURKVA:UVDM *Generalization Approach*



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TURKVA:UVDM *Application driven user needs..*



TURKVA:UVDM *Application driven user needs..*

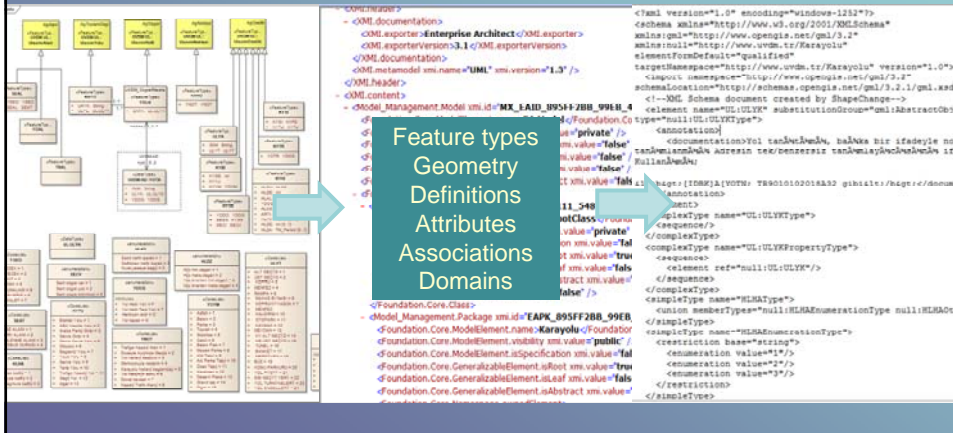
Function	Data	Application
	<p>User requirements were identified on</p> <ul style="list-style-type: none"> * the data content (e.g. feature types, attributes), * the level of detail, * relationships between objects, * data consistency, * updating and the temporal dimension of the data. 	<p>92 of maps or applications</p>

TURKVA:UVDM *Data Exchange UML → GML*

UML Application Scheme
prepared with EA
UVDM:UL:Road

XMI File

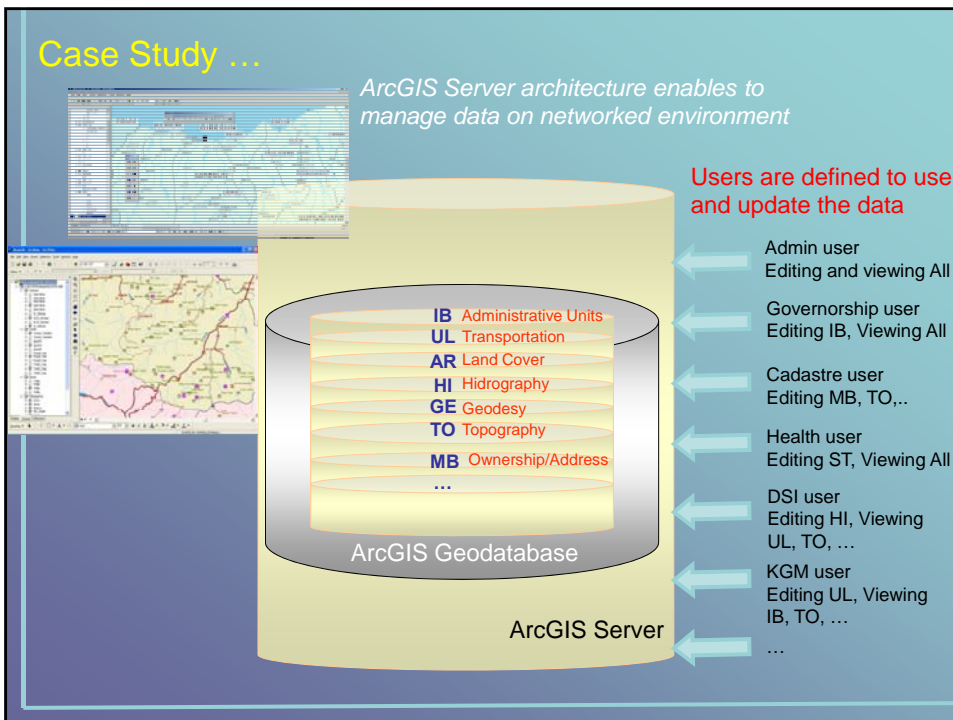
XML Application
Schema

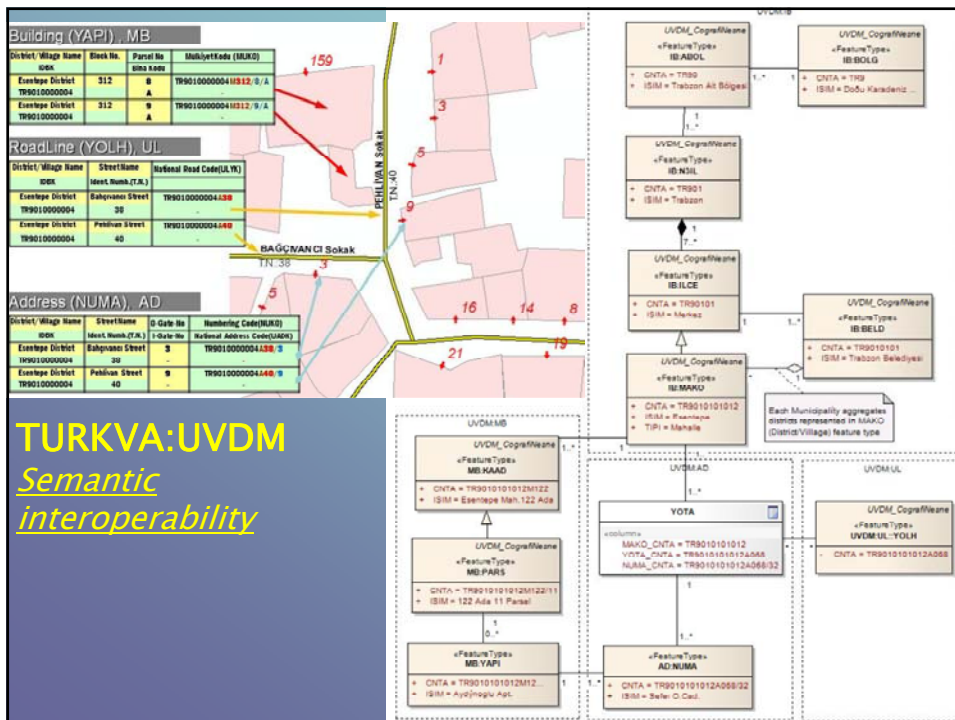
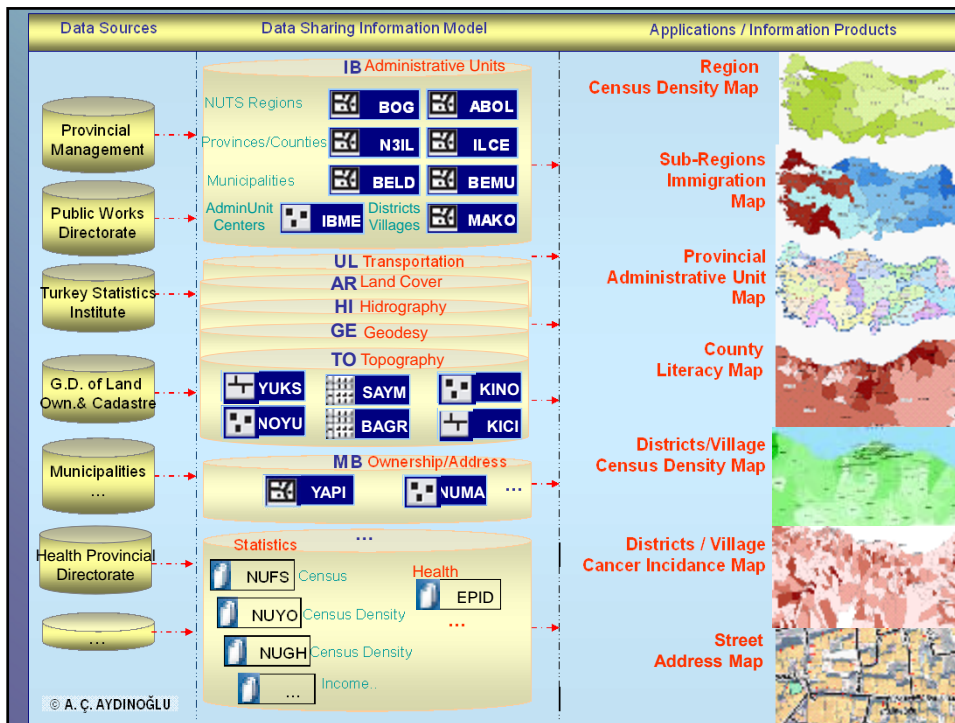


Case Study ...

ArcGIS Server architecture enables to manage data on networked environment

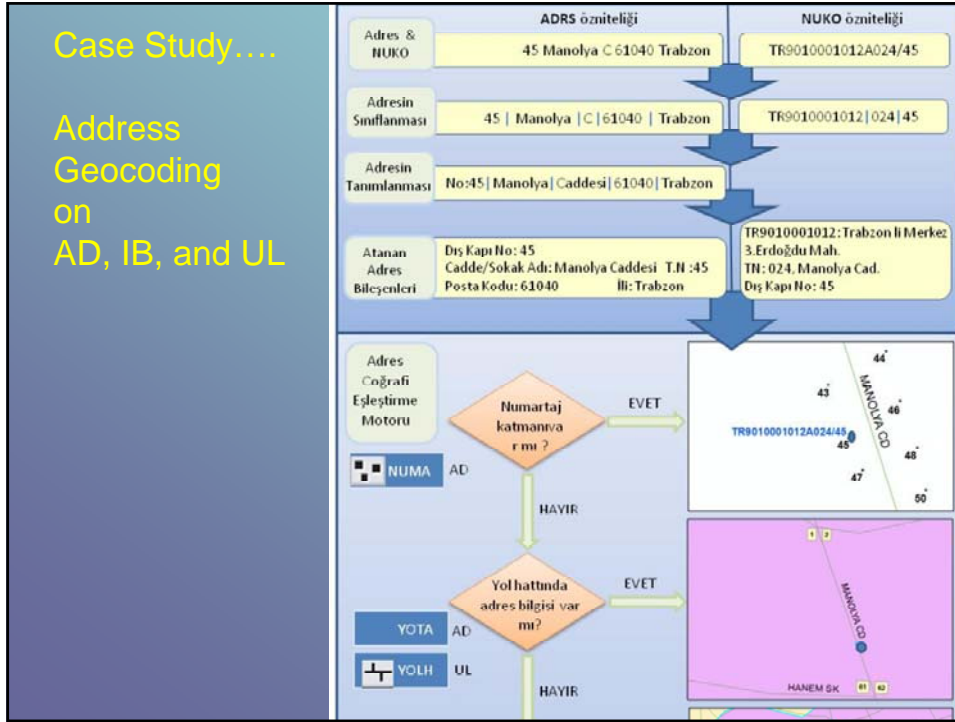
Users are defined to use and update the data





Case Study....

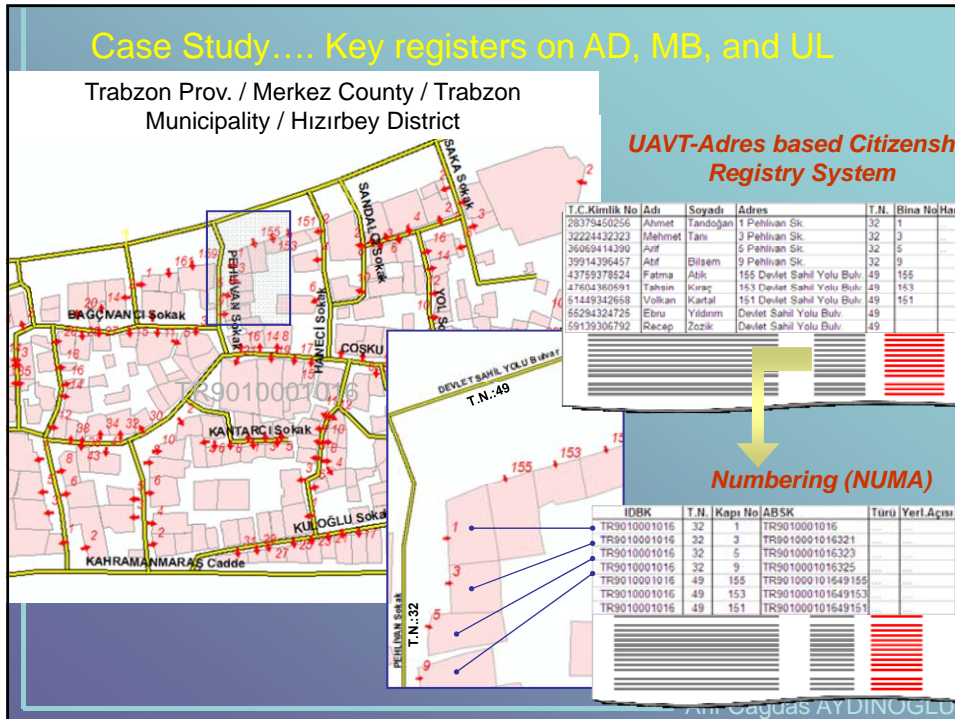
Address Geocoding on AD, IB, and UL



Case Study.... Key registers on AD, MB, and UL

Trabzon Prov. / Merkez County / Trabzon Municipality / Hızırbey District

UAVT-Adres based Citizenship Registry System



Case Study ...

@Trabzon Urban Atlas

Conclusion

- Dir. of Land Registry and Cadastre pioneers land administration activities with TAKBIS project
- e-government projects as MERNIS, AKS, Tax,... encourages to manage key-registers interoperable.
- BUT, harmonizing the geo-data coming from different directorates has difficulty. Urban GIS applications, topo-maps, ... do not support to manage key-registers spatially.
- TURKVA:UVDM can provide common terminology and definitions that are key factor for the harmonization of key-registers towards building national GDI.
- UVDM Conceptual model components enable to manage the data in terms of linking, sharing and multiple use.
- UVDM solves application-driven geo-data needs and supports decision making activities.

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Thanks for your listening...

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