Managing Geo-Data to Support Urban Planning Development Process in Turkey
Tahsin YOMRALIOĞLU & Arif Cagdas AYDINOĞLU, Turkey

Presenter
Arif Cagdas AYDINOĞLU
Istanbul Technical University, Turkey

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INTRODUCTION

- Rapid urbanization has occurred in most major cities in the developing world.
- Urban areas confront with land use problems.
- These is a lack of available land in these cities.
- Local government must design and apply some efficient land-use planning strategies ...

TURKEY
71 million population
%75 ... in cities
Plan Types in Turkey

- Planning process begins at the national scale with five-year development plans in regional bases.
- State Planning Organization takes account of socio-economic development trends, the growth potential of the settlement, and sector objectives to determine the distribution of sub-structures....
Plan Types in Turkey

Environmental Layout Plan of Istanbul, 1 to 100,000

general land-use decisions, policies and strategies for a provincial
ensuring the rational use of natural resources

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Plan Types in Turkey

Land Use Plan of Tekirdag, 1 to 5,000
Zoning Plan of Tekirdag, 1 to 1,000

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CAD solutions were generally produced to manage plan data.

There is no approach to produce and manage plan data in a GIS environment.

Act No. 3194 Zoning Law was insufficient in view of the plan legend to meet today’s needs.

Differences between municipalities using the same legend have occurred to develop zoning plans.

• Plan Types in Turkey

- managing plan data with GIS effectively.
- Combining legend for 1/1000, 1/5000 and 1/25000 plans in view of user-needs.
- Independent from technologic requirements and software
- Compliant with ISO TC211 and OGC standards, ...
- Following INSPIRE, CORINE, Plan4all, ISIC system, .. for managing planning data.
- Object–relational geo-data exchange model
- Preparing with model-driven approach using UML, and then converting GML 3.1.1 geo-data exchange...
Determining general rules and principles for designing geo-data themes and providing geo-data interoperability.

Modelling software–hardware independent feature types with properties and relations.

Conceptual Model Components

- **TRplan Conceptual Model**
- **TRplan Logical Model**
- **TRplan Physical Model**

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Legend

New regulation is initiated to provide uniform use of legends by planners all over the country.

11 categories and 330 sub-categories with name, code, definition, and symbology.
Each geo-object is defined with a unique geo-identifier nationally.

- Identification in view of Data Provider
  
  \{ TR, BBBBBB, PL, DDDDDDDD \}

  Data provider Data provider Identification of data provider

- UUID / GUID: Universal Unique Identifier (ISO 11156)
  
  \{ 6a54f172-6483-11dc-8314-0800200c9a66 \}

Logical Data Model

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TRplan General Feature Model ISO 19109

PlanSite + Attributes + Relationship

Topologic Relation between RoadArea and PlanSite

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TRplan.gml

GML3.X geo-data exchange format produced from UML Application Schemas of TRplan

TRplan UML → TRplan.GML

TRplan

XML Application Schema

Feature Type
Geometry
Definitions
Attributes
Relations
Domains

TRplan UML ➔ TRplan.GML

TRplan

XML

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Data exchange without common standard

Data exchange with common standard

Administrative

Public Stakeholder

Public

Land Sector

Local Government

Planning Dept.

Administrative

Public Stakeholder

Public

Land Sector

Local Government

Planning Dept.
CONCLUSION

New plan legends provide common use of plan data among all stakeholders.

TRplan Conceptual Model components support the interoperability of geo-datasets.

These rules enable to design a harmonized geo-data model for planning and to manage geo-data corporately in planning applications.

TRplan geo-data model for planning purpose is shaped for arrangement of data using with master, land use, and zoning plan projects.

TRplan.gml support exchange geo-data on networked environment as a part of National SDI initiative.

Thanks...

Asst. Prof. Dr. Arif Cagdas AYDINOGLU
Istanbul Technical University
Dept. of Geomatics Engineering
34469 Maslak-ISTANBUL
web: http://web.itu.edu.tr/aaydinoglu
e-mail: aaydinoglu@itu.edu.tr