GEODETIC INFRASTRUCTURE for GIS

Prof. Dr. Rahmi Nurhan ÇELİK
Geographic Information System
Components of GIS

• **Hardware**
• **Software**
• **Data**
• **People**
• **Method**
Geodetic Infrastructure Approach in GIS

• Unique Geodetic Reference System

• All Spatial Data (SD) should be at the highest quality and level as they could be

• Geodetic Reference System should be in international level

• Geodetic Reference System should be updated, and it should compensate the needs of future technologies that are going to be used for producing SD

• Geodetic Reference System should be consistent with the SD that change by time due to natural physical effects

• Monuments of Geodetic Reference Systems, that relate the system with life should be preserved

• Geodetic Reference System should be sufficiently densified for all type of GIS
Today
The Most Important Information
And
Everybody in The World Runs After is ..... ?

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Sectors of GIS Market

- Central Government
- Local/Municipality Government
- Utilities
- Telecoms
- Transport
- Emergency Services
- Education/Research
- Consumers
- Location Based Services
- Retail and Commercial
- Financial
- Defence and Military
- Health
- Environment
- Crime
- Property/Construction
- Other

Ref:
GINIE: Geographic information Network in Europe. EU 5th Frame Program, 2003
Specific GIS Applications

Various resolutions
GIS applications

City GML + BIM + IoT

Urban Information System

urban life & improvement

cadastral infrastructure

Land Information System

Digital Base Maps

4D Geodetic Infrastructure

IoT
Spatial/Geographic Information System

Positioning Technologies

Web GIS + IoT

Communication Technologies

Mobile GIS + IoT

Internet + IoT

LBS + IoT

Mobile Devices

Mobile Internet + IoT
INSPIRE Principles

INfrastructure for SPatial InfoRMation in Europe

• INSPIRE Data should be collected once and maintained at the level where this can be done most effectively
• It should be possible to combine seamless spatial information from different sources across Europe and share it between many users and application
• It should be possible for information collected at one level to be shared between all the different levels, detailed for detailed investigations, general for strategic purposes
• Geographic information needed for good governance at all levels should be abundant under conditions that do not refrain its extensive use
• It should be easy to discover which geographic information is available, fits the needs for a particular use and under which conditions it can be acquired and used
• Geographic data should become easy to understand and interpret because it can be visualised within the appropriate context selected in a user-friendly way
SD Portal

TKGM

Governmental Ins.
TCK, DSİ, DİE, ..., MTA

National Portal

Municipalities

HGM

CBSGM

Others

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Standard Data Structure

National

International
National Geodetic Infrastructure for GIS
Geographic Information System
Have a nice week...