SITMUN: Cooperating to Build Local SDIs in the Barcelona Region

Diputació de Barcelona
Territory and Sustainability Area
Territorial Information Systems Department

INSPIRE CONFERENCE
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SITMUN: Cooperating to Build Local SDIs in the Barcelona Region

- Diputació de Barcelona: What We Do in Terms of SDIs
- Government Management & Planning Needs (Local and Regional Levels)
- The INSPIRE Directive and Government Management & Planning
- Our Solution: SITMUN
- Benefits of SITMUN from the Point of View of DATA
- Benefits of SITMUN from the Point of View of TECHNOLOGY
- Conclusions
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The Region of Barcelona is composed of 311 municipalities.

About 80% have less than 20,000 inhabitants.

The aim of Diputació de Barcelona is to provide economic and technical support to these small-sized municipalities.

Our Territorial Information Systems Department helps them to achieve efficient and reliable government management and planning.

More specifically, we provide them technical support by creating, maintaining and evolving a customised GIS system and its SDI platform.
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Government Management & Planning Needs at the *Local Level*

Accurate, **harmonised** and **continuous** spatial data: essential for local governments

- to better plan their territory
- to provide a view of neighbouring territories
Government Management & Planning Needs at the *Local Level*

Enabling *cross-border* management!!

The same layers at different territories should share:

- name, scale, attributes
- coordinate ref. system
- symbology and codes

Data sets involved at local level:

- Addresses
- Municipal urban planning
- Civil defence
- Public space
- Construction licenses
- Industrial areas
- Facilities and services
- Residential areas
- Potable water supply network
- Sewage network
- Street lighting network
- ...
Government Management & Planning Needs at **Regional Level**

Accurate, **harmonised** and **continuous** spatial data: essential for higher levels of governments

- to give governments **a regional perspective when doing local planning**
- data sets: land uses, ecosystem services, natural areas, road network,...
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The INSPIRE Directive and Government Management & Planning

- INSPIRE requirements = government management & planning needs
  - common visualisation
  - continuous geographic data
  - enabling cross-border management
  - government management & planning data sets <-> INSPIRE themes

- INSPIRE has helped governments fulfill management and planning requirements by encouraging the development of SDIs

- Municipalities within Barcelona region implement their SDIs according to legislation:
  - INSPIRE European Directive - European level
  - LISIGE (INSPIRE Directive Transposed to Spanish Law) - National level
  - PCC (Catalonian Cartographic Plan) - Regional level
**ANNEX I**
1. Coordinate ref. systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. Cadastral parcels
7. Transport networks
8. Hydrography
9. Protected sites

**ANNEX II**
1. Elevation
2. Land cover
3. Orthoimagery
4. Geology

**ANNEX III**
1. Statistical units
2. Buildings
3. Soil
4. Land use
5. Human health and safety
6. Utility and governmental services
7. Environmental monitoring facilities
8. Production and industrial facilities
9. Agricultural and aquaculture facilities
10. Population distribution — demography
11. Area management/restriction/regulation zones and reporting units
12. Natural risk zones
13. Atmospheric conditions
14. Meteorological geographical features
15. Oceanographic geographical features
16. Sea regions
17. Bio-geographical regions
18. Habitats and biotopes
19. Species distribution
20. Energy resources
21. Mineral resources
The INSPIRE Directive and Government Management & Planning

• INSPIRE requirements = government management & planning needs
  ✓ common visualisation
  ✓ continuous geographic data
  ✓ enabling cross-border management
  ✓ government management & planning data sets <-> INSPIRE themes

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Our Solution: Municipal Territorial Information System (SITMUN)  
A Centralised Spatial Data Platform for Local Governments

In 2003: SITMUN project starts
- Community Initiative Interreg IIIB SUDOE Program
- 7 main partners (higher levels of government: Spain and Portugal)
  - Main goal: providing a GIS global service (not only a tool) to the small-sized municipalities who lack technical or economic resources
  - Economy of scale: providing support to 280 local governments and more than 1300 users (case of Barcelona region)

In 2005: SITMUN project ends having achieved its goal
- SITMUN Local Network: local governments as clients of this service  
  → economy of scale
- SITMUN European Network: European governments as providers of this service. Reuse and share software and cooperation between different levels of government → efficiency

In 2016: SITMUN continues evolving according to technical/legal requirements
Our Solution: SITMUN

SITMUN European Network Members

SITMUN Local Network Members

www.sitmun.org

sitmun.diba.cat

9 partners

280 local governments

(case of Barcelona region)
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Benefits of SITMUN from the Point of View of DATA

- SITMUN evolved to become a foundation platform to easily implement SDIs according to the applicable law
- It is the foundation of the Barcelona Region SDI (IDEBamburgera)
- It facilitates one of the INSPIRE principles: “data should be collected only once and kept where it can be maintained most effectively”. Example: addresses (municipal competence)
Benefits of SITMUN from the Point of View of DATA

Centralised ICT management

- Councils’ GI
- Diputació’s GI
- Other administrations’ GI

SITMUN platform

GIS tool
- Thematic map viewers
- Indicator mapping
- Gazetteer
- Metadata catalogue
- Geo-web services (open data portal)

Several processing tools:
- GI editing
- GI file validator
- GI extraction
- Addresses geocoding
- Coord. syst. conversion

SITMUN back-office

Regional SDI

Councils’ local SDIs
Example: IDEBarcelona (regional SDI): www.diba.cat/idebarcelona
Example: IDELocal geoportals (local SDI geoportal for each municipality)
Example: Continuous spatial data, the same attributes and symbology
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Benefits of SITMUN from the Point of View of TECHNOLOGY

Constantly evolving SITMUN among all interested regional governments

Collaboration and sharing among higher levels of governments to improve efficiency through SITMUN European Network:

- Share and re-use software and know-how
- Collaborate in SITMUN-related projects and distribute tasks
- Share best-practices to achieve efficiency

COOPERATION
Benefits of SITMUN from the Point of View of TECHNOLOGY

Several configurations installed at different European Network members
Benefits of SITMUN from the Point of View of TECHNOLOGY

Back-office tool to manage the system: different data, format, … each member

- Territories
- Users and User roles
- Applications
- Database connections
- Web services (WMS, WMST, …)
- Feature info
- Layers and Groups of layers
- TOC (content tree)
- File downloads
- Dynamic data download (extraction)
- Documents associated to layers
- Metadata associated to layers
- Reports
- Searches
- Cartography editing
- Indicator mapping
- Monitoring and logs
- Statistics

…..
Benefits of SITMUN from the Point of View of TECHNOLOGY

Case of Diputació de Barcelona

**SPATIAL DATABASE**

- Oracle w/ Locator: SDO_GEOMETRY object type
- FME utility for data loading (Safe Software)
- 460 tables, > 75,000,000 rows
- Data sets: Urban cartography 1:1,000, addresses, land register, classified activities census, trash containers, civil defence, public space, municipal inventory, construction licenses, premises, noise maps, cultural heritage, municipal urban planning, industrial areas, facilities and services, residential areas, potable water supply network, sewage network, street lighting network, road network, ...

**CARTOGRAPHIC DATA FILES**

- 76 Gb at file system
- Elements:
  - Ortophotos and imagery
  - Land uses
  - Ecosystem services
  - Administrative units
  - Open area network (SITxell)

**OGC SERVICES**

- Geonetwork for metadata
  - 15 INSPIRE compliant datasets
- 52North for WPS
  - 2 OGC WPS compliant
- Geoserver for editing and spatial analysing
  - 10 OGC WFS compliant
  - 11 OGC WFS-T compliant
- ArcGIS Server for visualisation
  - 31 OGC WMS compliant
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Conclusions (I/II)

- Importance of government management and planning
- It is absolutely necessary to have accurate, harmonised and continuous spatial data
- It is essential to enable cross-border management when visualising and analysing spatial data performing government management and planning

INSPIRE has helped to achieve this goal by encouraging the development of SDIs
Conclusions (II/II)

- **SITMUN**: centralised platform installed at higher government levels
- It helps to generate accurate, harmonised and continuous spatial data
- It fosters standardisation and organisation of geo-information
- It encourages reuse and cooperation between governments
- It is the foundation of the SDIs of Barcelona region
- It helps with compliance of spatial data to applicable laws
- It helps achieve higher efficiency and better governance
- Its main principle is **COOPERATION**

**SITMUN is helping to comply with INSPIRE**
Thank you!!

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