CentropeMAP and CentropeSTATISTICS
Cross-Border Geodata Infrastructure with User-Defined Thematic Maps

on behalf of the
Planungsgemeinschaft Ost (PGO)
(Eastern Austrian Planning Association)

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I. The Centrope Region
II. CentropeMAP
III. CentropeSTATISTICS
IV. Technical Implementation
V. Future Perspectives
• **Region**
  - Austria
  - Czech Republic
  - Hungary
  - Slovak Republic
• Czech Republic
  ▪ Region: South Moravia
  ▪ City: Brno
  ▪ *Interested: Olomouc*

• Slovak Republic
  ▪ Region: Bratislava, Trnava
  ▪ Cities: Bratislava, Trnava

• Hungary
  ▪ Region (county): Győr-Moson-Sopron
  ▪ Cities: Győr, Sopron

• Austria
  ▪ Region (federal states): Burgenland, Lower Austria, Vienna
  ▪ Cities: Eisenstadt, St. Pölten, Vienna
  ▪ *Interested: Wiener Neustadt*
CENTROPE Region

Population
- 6 million
- of which 3 million in cities

Economy
- 3.8 million employed
- 55 – 65 % employed in service sector
- unemployment rate between 4 and 14 %
- GDP growth between 0.8 % and 3.6 % since 2003

Infrastructure
- 3 international airports (Brno, Bratislava, Vienna)
- 2 Danube river ports (Vienna, Bratislava)
- Pan-European corridors

(Source: Wikipedia)
Political memorandum St. Pölten, 2005

Main goals

- international attractivity
- sustainable integration
- location with high quality of life
- professional co-operation
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Centrope MAP Challenges

- Legal planning responsibilities on different levels
- Data responsibilities on different levels
- Administrative boundaries = data boundaries
- No common data infrastructure available, only isolated applications
CentropeMAP is a **process, not a single project** - an ongoing cross-border exchange of planning related information with benefits for all participating partners.

CentropeMAP does not generate new data itself but relies on **integrating, structuring and harmonising existing information** from the data maintaining sources. Data will be made available via OGC standard compliant web map services.

Quality of CentropeMAP is depending on **quality and up-to-dateness of the provided information**

CentropeMAP is an **open system** able to integrate digital information from different scale levels and different sources. CentropeMAP data itself can also be integrated in external applications via OGC WMS.
Geodata

**Land use**
(Corine Land Cover 2006, Level 3, all layers separately)
34 categories used

**Administrative borders**
NUTS 2, NUTS 3, LAU 2

**Infrastructure (linear):**
road network
railway network
conductions, pipes

**Infrastructure (punctiform):**
transportation (stops, P+R)
education
health/social
administration
leisure/recreation
culture
supply and disposal
other

**Planning:**
building land
protection areas
Natura 2000
world heritage
ground water protection
flood protection
mining

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**Database**
NUTS 2, NUTS 3, LAU 2 (up to availability and meaning)

**Area:**
cadastral area, area of durable settlement, forest, water bodies, ...

**Population:**
development, migration balance, balance of births
prognoses, age groups, nationalities
educational qualification
household size, secondary residences
employed, unemployed
structure of income, purchasing power
settlement structure

**Occupation and Economy:**
places of work, business structure
branch structure, value added
jobs, commuter structure
agriculture, forestry, tourism

**Infrastructure:**
(Data linked with punctiform infrastructure data)
administration, education, social, leisure, recreation, tourism,
culture, ...

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**Visualisation**
of the data based on administrative borders
/maps, diagrams/

Remarks:
**Phase 1:**
downloadable print-ready maps (PDF)
**Phase 2:**
online interactive maps

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Input to Centrope Map
CentropeMAP Web Application

- datasets come directly from project partners → no redundancy, always up-to-date
- functions: Zoom, Pan, Query, Search, Tell-A-Friend, Measurement
- hundreds of layers for the whole region and sub-regions
- background maps from simplified views to high-resolution satellite images and aerial views (ortho-photos)
- map generation on the fly
Data Examples

elevation, road network, railway network, urban fabric, inland waters
high resolution orthophoto, environmental protected territory (Znojmo, CZ)
urban fabric, rivers, inundation risk areas, high ground water level (<2m)
(Danube, Lower Austria)
Corine Land Cover Level 3 (Lake Neusiedl Region)
Data Examples

building land (residential/commercial), road network (Krems, Lower Austria)
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CentropeSTATISTICS is a cross-border database project of these co-operating statistics offices/departments in the Centrope Region (on behalf of PGO - Planungsgemeinschaft Ost/Eastern Austrian Planning Association, and technically led by CEIT ALANOVA gemeinnützige GmbH)

- **Czech Republic:**
  CZSO - Czech Statistical Office – Český statistický úřad (ČSÚ)

- **Slovak Republic:**
  Statistical Office of the SR – Štatistický úrad Slovenskej republiky

- **Hungary:**
  HCSO - Hungarian Central Statistical Office – KSH - Központi Statisztikai Hivatal

- **Austria:**
  Statistics Departments of the three Austrian federal states Burgenland, Lower Austria and Vienna

**Workshops:**
September 2008 in Schwechat,
March 2009 in Schwechat,
September 2009 in Brno,
June 2010 in Schwechat
CentropeSTATISTICS Challenges

- Develop spatio-temporal matrix for attribute data
  - Which data for which region, collection date, classification, ...

- Define attribute data catalogue of “most wanted data classes“
  - demography, migration ← first data group, online since 2010
  - economy, household income
  - commuter, transport statistics
  - environmental indicators, ...

- Main issue: Overcome the “language barrier“ (extending the CentropeMAP Online Dictionary, a database with statistical and planning related technical terms editable by anyone)
### CentropeSTATISTICS User Interface

- **Functions:**
  - Show – Export – Query – Sort

- All available indicators are displayed
- Multiple choice allowed
- Results are shown as table
- Dynamic Database Live Query

→ **On the fly Map Generation**
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Centrope

MySQL

Centrope

Postgres

Centrope

Mapserver

Centrope

MAP

Centrope

STATISTICS

Statistic data of different origin
Technical Implementation

Statistic data of different origin

CentropeMySQL

CentropePostgres

CentropeMapserver

CentropeSTATISTICS

CentropeMAP
Statistic data of different origin

Technical Implementation

Centrope MySQL

Centrope Postgres

Centrope Mapserver

Centrope STATISTICS

Centrope MAP
Technical Implementation

Statistic data of different origin

CentropeMySQL

CentropePostgres

CentropeMapserver

→ SLD for Map Creation
Why Open Source for CentropeMAP and CentropeSTATISTICS?

- no problems with licences and licence costs
- There is already a large open source community in the field of web mapping.
- Open source software has been used in webmapping for a long time and therefore is technically mature.
- Software pieces and/or modifications pieces can be realised upon feedback and requirements of users.
- Together with web mapping software developers own software extensions can be created.
- OGC (Open Geospatial Consortium) compatibility of the used open source products, however, partial incompatibility of “closed source“ products
- identical or similar installations can be done with project partners, other regions, ...
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Geodata Infrastructures are a Pan-European Matter

- **INSPIRE** – Infrastructure for Spatial Information in the European Community
  The INSPIRE directive aims to create a European Union spatial data infrastructure. This will enable the sharing of environmental spatial information among public sector organisations and better facilitate public access to spatial information across Europe.

- **Example Project**
  Data harmonisation and access to planning-related data in Europe
  http://www.plan4all.eu/
  (European Network of Best Practises for Interoperability of Spatial Planning Information)

- **User-generated content, OPEN SOURCE DATA**
  (Open Street Map, ...)

**Prospects**
Thank you for your attention!

www.centropemap.org

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