

**Geospatial info-mobility service
by real-time
data-integration and generalisation**



GiMoDig

IST-2000-30090

**...methods for delivering
geospatial data to a mobile user**

<http://gimodig.fgi.fi>



Background

The project “Geospatial Info-Mobility Service by Real-Time Data-Integration and Generalisation” (GiMoDig) aims at developing the spatial data delivery from national primary geo-databases for mobile use. GiMoDig is funded by the European Commission via the Information Society Technologies (IST) programme. The IST programme is a specific programme for research on and technological development and demonstration of a user-friendly information society. The GiMoDig-project (IST-2000-30090) is a shared-cost RTD project, under the action line CPA3: Ubiquitous and intelligent info-mobility and geo-information systems.

Resources

GiMoDig started on November 1, 2001 and its duration is 3 years. The personnel resources for the project cover 19 person years. The Finnish Geodetic Institute acts as a co-ordinator for the project. The other participants are the University of Hanover, the Federal Agency for Cartography and Geodesy (Germany), National Survey and Cadastre - Denmark, the National Land Survey of Sweden and the National Land Survey of Finland.

Objectives

The objective of the GiMoDig project is to develop and test methods for delivering geospatial data to a mobile user by means of real-time data-integration and generalisation. The project aims to create a seamless data service providing access, through a common access interface, to the primary topographic geo-databases maintained by the National Mapping Agencies in various countries. Special emphasis will be put on providing the user with appropriately generalised map data suited for a mobile terminal with limited display capabilities. Sub-objectives of the project are:

- Development of methods and usage practices for **generalising** the graphic representation of geospatial data **in real-time**, to be suited for display of the data at varying scales on small, **mobile devices** with different display resolutions.

- Investigating the problems between national primary geospatial databases, often mutually heterogeneous in thematic definitions, and developing means for **real-time harmonisation** of data.
- Analysis of **mobile use cases** to adapt real-time generalisation and harmonisation of geospatial data to the requirements of users in varying situations.
- Development of methods for **real-time transformation** of spatial data from different national geo-databases to a common, EUREF-based coordinate system.
- Investigating and developing methods for **transferring vector-formatted spatial data** to a mobile user using emerging standards, like XML, and testing the applicability of the standards for Web-based spatial services in an international pilot project involving national primary geodata sets.
- Development and implementation of a **prototype** system that can be used as a test-bed for the developed methods.

The scientific aims of the project are based on the development of methods for real-time generalisation of spatial data - a field becoming increasingly critical in the modern networked society where up-to-date databases are to be directly accessed by consumers using a widely varying set of terminal devices. The spatial datasets in the GiMoDig project will be served in an XML-based vector format to facilitate flexible data integration and processing.



GiMoDig

Partners



Contact

Professor Tapani Sarjakoski
Head of Dept., GiMoDig co-ordinator
Finnish Geodetic Institute
Department of Geoinformatics and Cartography
Geodeetinrinne 2, FIN- 02431 Masala
FINLAND
Tel: + 358- 9 - 295 55 206
Fax: + 358- 9 - 295 55 200
e-mail: Tapani.Sarjakoski@fgi.fi

<http://gimodig.fgi.fi>

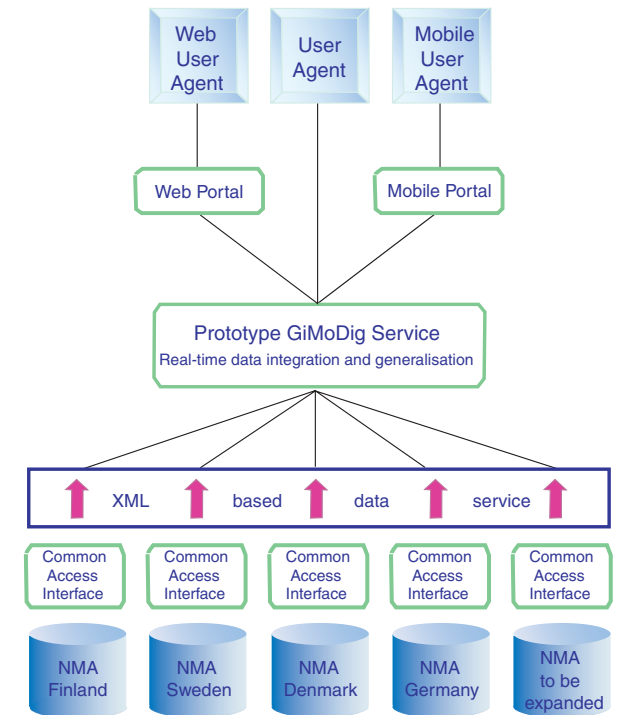
Workplan

At the beginning of the GiMoDig project a user requirements analysis is being carried out to identify a representative set of use cases for investigating the essential user needs for mobile use of map data in varying situations. Feedback from real user groups will be gathered during the project for effective validation of the service that is to be developed. Issues related to the small-display cartography will be investigated to find out how user requirements can be satisfied by applying different cartographic visualisations, depending on the specific characteristics of mobile devices having small displays.

A global schema is being defined for the integration of national primary geospatial databases. Thematic integration will be realised through the development of this global schema, while the use of a common, EUREF-based co-ordinate system will support seamless geometric integration. A common access interface, based on emerging standards, will be designed and implemented to the primary topographic databases maintained by national mapping agencies, to facilitate the testing of the integration approach in a multinational context. In the research on real-time generalisation, advanced methods will be investigated for carrying out the generalisation process in real time. Consideration will also be given to the analysis of the relative merits of a multiple representation database approach on the one hand, and the real-time generalisation methods on the other. The most promising methods will be tested by integrating them into the prototype system.

System architecture

The general system architecture will be defined for testing the approach to real-time integration and generalisation of geospatial data. Emphasis will be put on the use of XML-based representation for transferring vector-formatted geospatial data. The system should be scalable to support a potentially extensive user community, given the importance of the spatial datasets involved. The system architecture should also support internationally developed interface standards to achieve maximum possible benefit in the global mobile geospatial applications marketplace.



Expected results

The GiMoDig project can be seen as a case study, covering a representative subset of EC nations, yielding results that would be readily adaptable throughout the whole of Europe. The main practical result of the project will be a prototype of a cross-border spatial data service providing access through a common interface, conformant with international spatial Web standards, into the primary national geo-databases. The provision of a standards-compliant service will promote creation of third-party, value-added mobile information services needed in position-dependent applications, such as traffic guidance, rescue operation management and personal navigation. The GiMoDig project thus aims at facilitating efficient use of the extensive amount of resources invested in the creation of nationwide topographic databases, and at the same time advancing the exploitation of the multimedia capabilities available in technically advanced telecommunication networks.