

The InGeoForum - A MIS Activity in Germany

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Abstract. The InGeoForum sees itself as a forum for information and co-operation between suppliers and users of geodata, Geo Information Systems (GIS) and services. The basic goal of the InGeoForum consists in the establishment of a national infrastructure for geodata, which should support the currently underdeveloped geodata market.

Computer assisted Geo Information Systems (GIS) and digital data processing are essential to today's practices. Due to the complex tasks there is a high demand in many areas for accurate spatially related data. Geodata provide the essential building blocks for successful information systems. Up-to-date areas of application are all modern technologies in the fields of public planning and administration, conservation, traffic control and telecommunication all the way to the use of geodata on the Internet.

The InGeoForum is going to bundle the existing data which was previously widely distributed in a network of information and thereby make it known and available to wide audience.

1. Introduction

Geographic information applications vary greatly, but users have a recurring need for a few common themes of data. These themes include basic information about transportation, hydrography (rivers and lakes), geodetic control, digital imagery, government boundaries and land ownership information etc. A lack of investment, common standards, and coordination have created situations in which these needs are not being met. As a result important information is not available for many areas, and different organizations support duplicate data for other areas. Increased costs and reduced efficiency for individual organizations, as well as for the Nation is the result. Therefore a means to maintain and manage the common information being collected by the public and private sector is urgently needed.

The European Spatial Metadata Infrastructure (ESMI), a EU sponsored project, aims to solve these problems by linking spatial data users with metadata services using the Internet (www.geodan.nl/esmi).

At the German congress "Geodesy connects Europe" within the Intergeo '98, the InGeoForum was characterized as being the "latest example of a sensible cooperation of partners from public authorities and private industry in the field of geodata". It has constituted as an information and cooperation forum, as a mediator between providers and users of geodata. The objective is to open a market for the decentrally existing but not yet generally available geodata. The InGeoForum is equally supported and used by the public and the private domain.

2. Geospatial Metadata

Example: If you need to know where the boundaries are in Germany or Europe to do some thematic mapping then you need some geographic information. You already know the geographical area, you know what you want to do with the data, but you do not know where to look to find out what is available.

A Metadata Information System (MIS) could solve this problem. The Content Standards for Digital Geospatial Metadata were firstly adopted by the Federal Geographic Data Committee (FGDC) to describe geospatial datasets. The metadata standard documents the characteristics of data so users can determine whether the available data fits for their purpose.

Spatial data is the fuel of GIS-applications. According to the FGDC, the major uses for metadata are:

- to help organize and maintain an organization's internal investment in spatial data,
- to provide information about an organization's data holdings to data catalogues, clearinghouses, and brokerages, and
- to provide information to process and interpret data received through a transfer from an external source.

In order to describe the datasets we need a common set of terminology and definitions for the documentation of geospatial data. These informations are called metadata standards which include data elements for the following topics:

- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entity and Attribute Information
- Distribution Information
- Metadata Reference Information

The standard does not specify how this information is organized in a computer system or in a data transfer, nor the means by which this information is transmitted or communicated to the user. At this point in time, these formats are optional.

Additional Information about metadata materials are available from the FGDC Secretariat or the website www.fgdc.gov/pub/metadata.

3. The InGeoForum

The InGeoForum was founded in December 1997 as an Information and Cooperation Forum for Geodata. It has been established to bring together providers and users of geodata, software, hardware and services. This is done by different means, among which there are different mechanisms and tools from the latest information technologies like internet and internet-based services like www servers, metadata servers as well as e-mail requests and orders.

Furthermore the InGeoForum engages in the realization and application of existing and planned metadata standards (e.g. CEN, ISO) for the description, exchange, actualization and sales of geodata.

3.1 Objectives and Technical Basis

One of the major tasks of the InGeoForum is to support the geodata market by the promotion of communication between all participants. It interacts inside the geodata market in between the suppliers and users of geodata. In order to fulfill these objectives the following tasks and concrete activities are essential:

- Promotion of cooperations between geodata suppliers and users
- Propagation and use of geodata for politically and economically relevant objectives
- Development of a geo metadata information system
- Organization of information and demonstration events
- Organization of training and continuation courses for students and professionals working in this domain
- Push forward the establishment of a National Spatial Data Infrastructure

To provide information on suppliers of geodata, GIS and GI services, the World Wide Web Server, the Metadata Server, Telefon, Fax or Email can be used. On a cost basis Consulting and know-how-transfer for GI projects are offered. The support of new projects and products are using the mechanisms:

- Information on potential partners
- Arrangement and moderation of meetings of potential partners
- Implementation of own (research-) projects in cooperation with members

3.2 InGeo on Internet

Using the present internet address www.ingeoforum.de a graphical user interface (GUI) can be accessed to retrieve information from the metadatabase of InGeoForum or from other metadatabases wherever in Germany. At the moment the Metadata-Information System is using the simple HTML to generate the desired output and to communicate with suppliers und consumers. The connection between the Metadatabase (ORACLE) and the GUI of the www-server is realized through the Common Gateway Interface (CGI), see Annex 1.

The next step is to replace the CGI by Java; the output is then generated by Java pages. With this intermediate state there is the possibility of high level interactivity and dynamic and flexible GUI's. In the near future intelligent agents and an already well defined metadataformat (see 3.3.1) will be added in order to have the finale state of the Metadata-Information System, see Annex 2.

3.3 InGeo Information Center (InGeo IC)

In the long run it is planned that the InGeo Metadatabase will no longer offer metadata itself but only information about metadata servers which are run and actualized by the data suppliers. Therefore a project called "InGeo IC" has been started in July 1998 and will last up to June 2001. Together with the InGeoForum, Fraunhofer-Institute for Computer Graphics, Hessisches Landesvermessungsamt, Hessische Technologie-stiftung and Intergraph (Germany) the following goals were defined:

- Independent platform to provide access to different metadata servers for different (GIS-) clients
- Software modules which allow generation, maintenance and browsing of metadata

Annex 3 presents the final state of that project and Annex 4 shows the technical implementation with the InGeo Metadata Format as the basis.

3.3.1 InGeo Metadata Format

A first result of the above mentioned project is the development of the InGeo Metadata Format (InGeo MDF), which is freely available on internet (www.ingeoforum.de). It may be used as a basis to model the Metadatabase and also for external communication. With the integrated international standard (draft) CD 15046-Metadata the whole spectrum of geodata is compatible. All basic spatial data, photogrammetric pictures and satellite images as well as thematic spatial information are accessible. Furthermore for those special formats which are mainly used in Germany, the development of relevant tools in order to find metadata is in progress.

3.4 Future

The InGeoForum will continue its non-profit activities to support the geodata market by providing information about geodata, infrastructure and services. An important aspect of the future work will also be the organization of workshops and seminars in order to educate participants as well as to provide meeting points for the exchange of information on new ideas, tools, methods, products and projects. InGeoForum will also intensify its cooperation with Universities and other research institutions that help to investigate newest developments for the geodata market and enable the transfer of market requirements into research and student education. In addition an important task will be to identify potential partners and bring them together in meetings which initially may be guided by the InGeoForum. Finally these consortia should follow their own guidelines according to the partners' own business strategies. By these means InGeoForum will continue to support the enabling of a spatial data infrastructure from a regional level up to an international level.

Acknowledgement: This article was very kindly supported by the managing directors Dr. Christine Giger and Dipl.-Ing. Ralf Borchert of the InGeoForum.

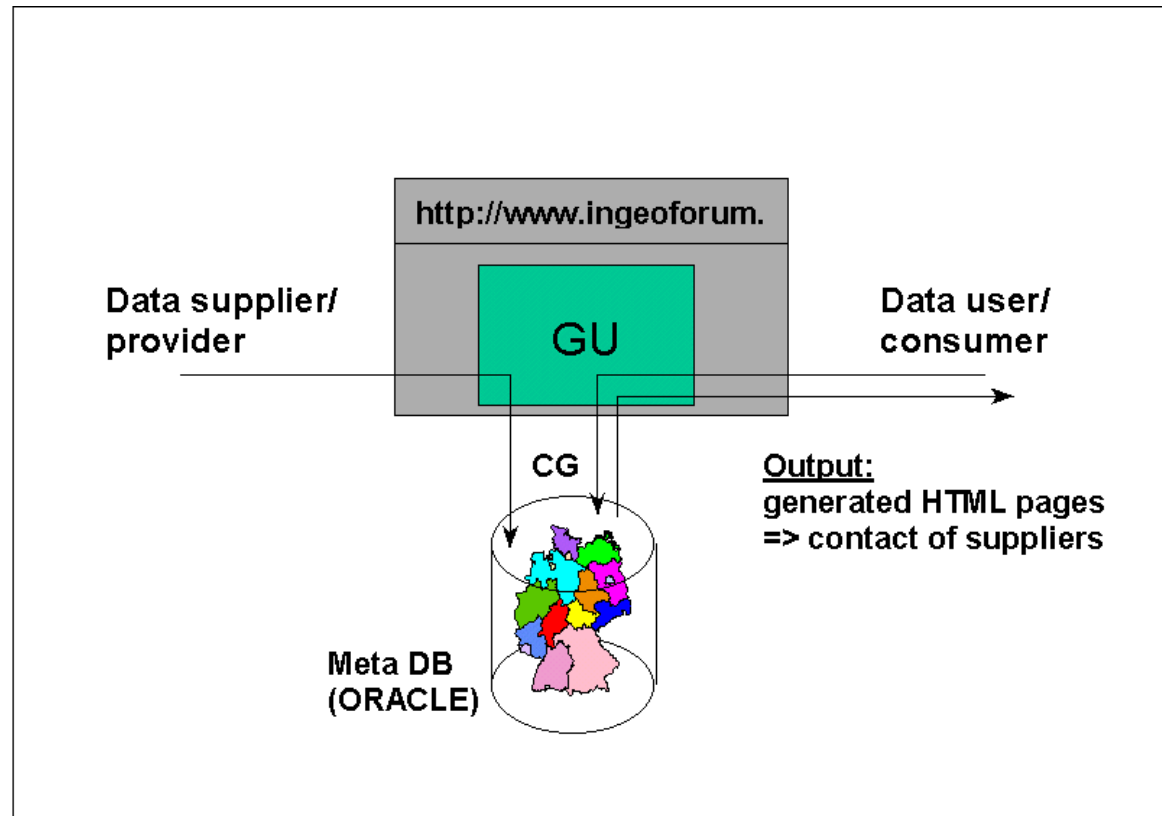
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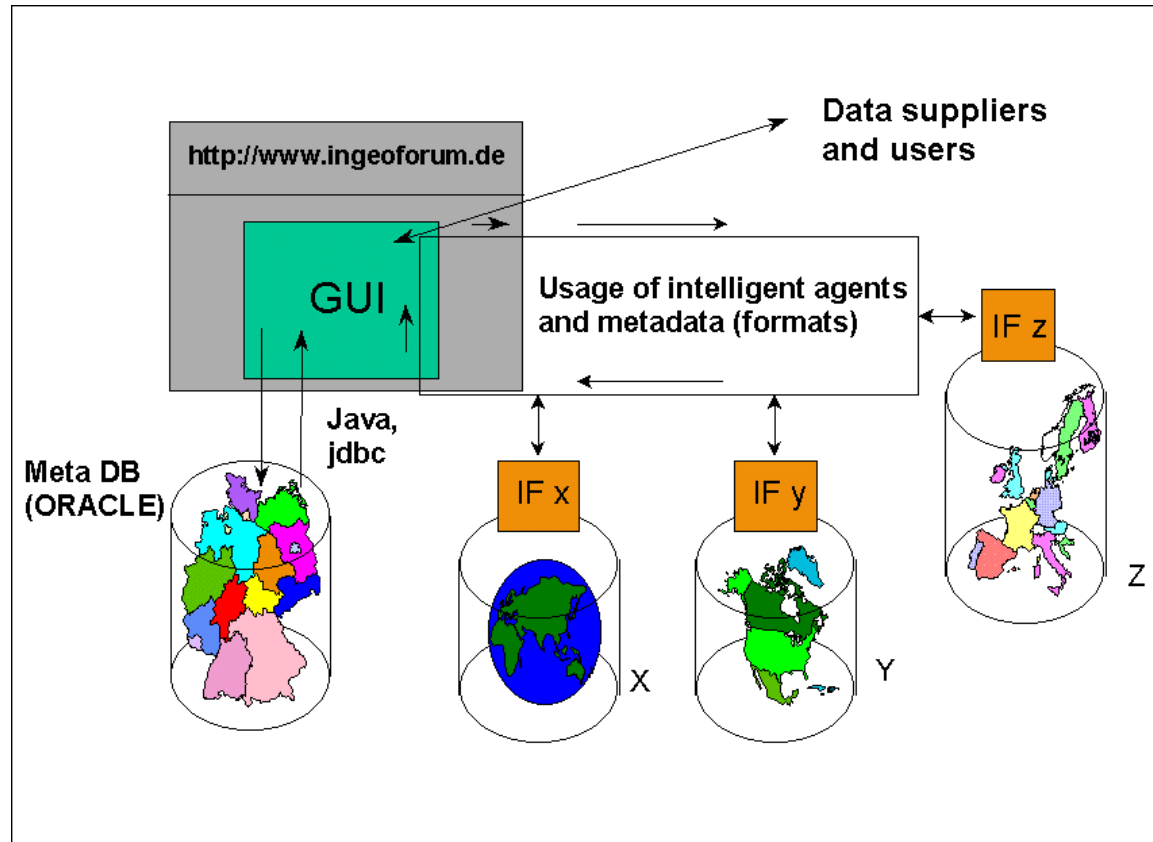
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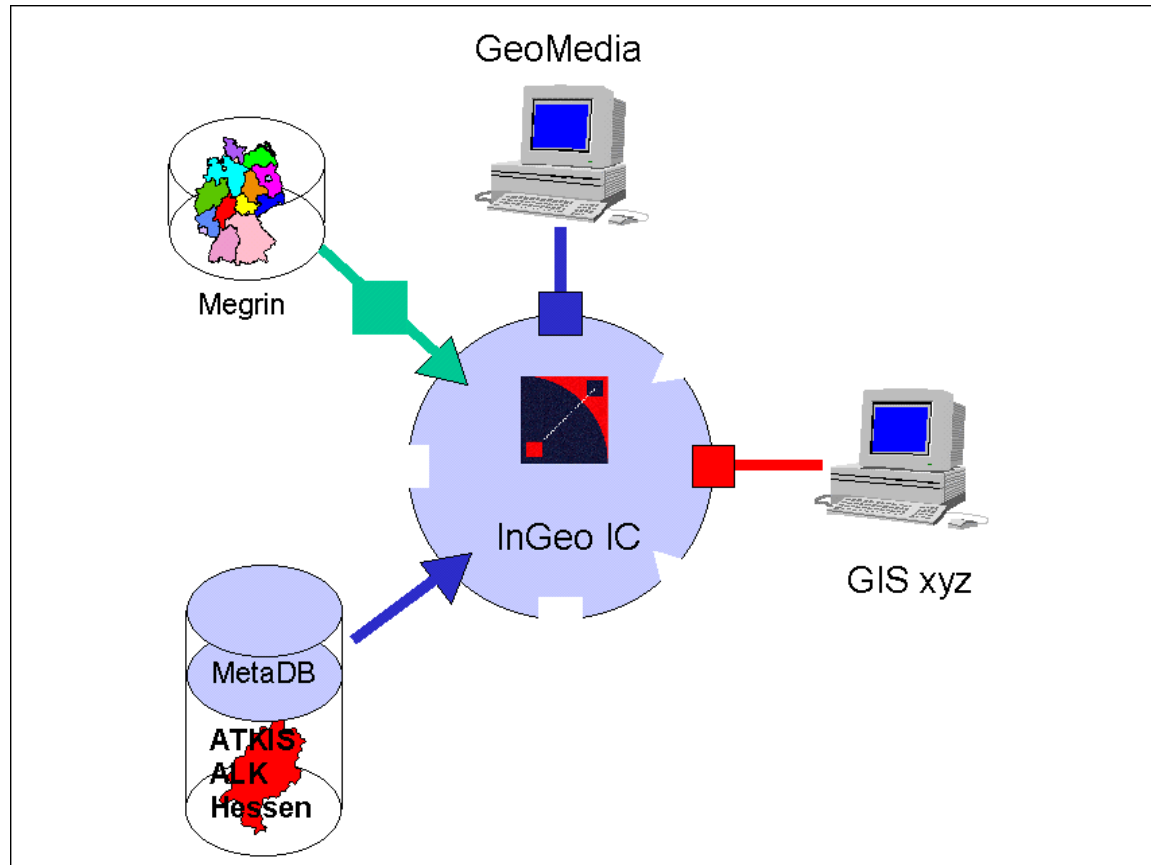
Annex 1: Actual state of the technical solution



Annex 2: Final state of the Metadata-Information System



Annex 3: The InGeo Information Center



Annex 4: The InGeo Information Center

