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Cartographic Information System "ÖROK Atlas Online" – AIS Austria as a Communication Portal of Austrian Basic Geo-Data

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ABSTRACT. "ÖROK Atlas Online" – Atlas Information System Austria (AIS-Austria) – is a research and development project of the Austrian Conference on Spatial Planning (ÖROK) for the construction of a prototype for an interactive, multi-media thematic atlas in cooperation with the Department of Geography and Regional Sciences (IFGR) – University Vienna, the Department of Geoinformation and Cartography (IGK) – University of Technology Vienna and the Austrian Institute of Regional Planning (ÖIR) – Information Services GmbH (I: D). The project started in September 2004. The project duration is 1,5 years.

In the prototype of the web atlas, on the basis of the topographical basic geo-data, predefined and prepared for several scales (the basic scale for Austria is 1:1,000,000), thematic contents will be visualized and made accessible over the interactive map based graphical user interface as a communication portal.

AIS-Austria is a hybrid system which should be able to ensure also the printed map in a high graphic resolution (the dual atlas principle).

The user navigation and system functionalities, which provide the geo-communication, will be presented.

Keywords: cartographic information system, thematic atlas, basic geo-data, map based interactive graphical user interface, scale dependent cartographic modelling.

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1. Introduction

“ÖROK Atlas Online” – Atlas Information System Austria (AIS Austria) – is a research and development project for the construction of a prototype for an interactive and multi-media thematic atlas¹ of The Austrian Conference on Spatial Planning (ÖROK).

The Austrian Conference on Spatial Planning (ÖROK) is an organisation set up by the federal, the regional and the local governmental administrations of Austria to coordinate spatial planning at the national level. The executive body at the political level, under the chairmanship of the Federal Chancellor, includes all federal ministers and state governors, together with the presidents of the Austrian Union of Towns and the Austrian Union of Communities and with the presidents of the social and economic partners participating as advisors. A Commission of Deputies as well as several committees and working groups have been set up at the administrative level to accomplish ÖROK's tasks. They are formed by the Senior Officials of the territorial authorities and the social and economic partners. The ÖROK office was established at the Federal Chancellery for operational activities.

One of ÖROK's principal tasks is to publish the “Austrian Spatial Development Concept” which is revised generally every ten years. Based on the last concept of 2001, embedded in projects there are ongoing studies and research on spatial development policy in Austria which are issued in a special publication series. Since autumn 2003, ÖROK serves as a platform of the territorial authorities for the formulation and implementation of an Austrian policy on elementary geo-data infrastructure (ÖROK 2003, Gartner et al. 2005).

2. Characteristics of Atlas Information System

As defined in the Lexicon of Cartography and Geomatics (Bollmann et al. 2002), an atlas map work is understood as a target and purpose oriented systematic set of maps in the form of a book or as a screen presentation – so called Atlas Information System – AIS. AIS with its global, regional and local character offers static and dynamic maps (2.5 D and 3D), texts, tables, pictures and graphics as well as dynamic, computer-aided sequences like language, sound, animations and videos.

Abraham Oertel, named Ortelius (1527-1598), published his “Theatrum Orbis Terrarum” with 70 maps on 53 sheets in 1585. It consisted of a map of the world, four maps of the continents, 56 European maps, six maps of Asia and three of Africa, all in copperplate (Leithäuser 1958). Ortelius' map collection was the first work satisfying to the atlas definition.

The word “Atlas” was first used by Gerhard Kremer, called Mercator (1512-1594). In 1585 Mercator gave his map collection of 74 maps the name “Atlas sive Cosmographicae Mediationes de Fabrica Mundi et Fabricati Figura”.

In accordance to formal and relevant features, the authors make distinctions among the atlases with regard to:

¹ The project started in September 2004. The project duration is 1.5 years.

- output medium and presentation form (paper, haptic, electronic and multi-media atlas),
- thematic contents (complex thematic atlas, special atlases),
- format and content size (giant-, hand-, book- and pocket atlas),
- user oriented (atlases fulfilling individual and group-specific demands and with general educational value) and
- representation area (world-, countries-, regional-, town-, space-, moon atlas).

Beside these traditional classifications of atlases, digital atlases are classified more specifically. Considering the level of interactivity and the analytic potential (Elzaker 1993, Kraak et al. 1996 and Ramos et al. 2005) classified digital atlases in:

- view-only atlases (print-only atlases or digital static maps without interactivity or dynamics),
- atlases that generate maps on demand (interaction with data set, changes of colour schemas, classification methods or number of classes) and
- analytical atlases based on GIS capabilities (queries to the databank through map as a graphical interface, in addition to provided map possibilities to create, analyse and visualise new data sets).

An atlas is defined as an intentional combination of maps, structured in such a way that given objectives are reached (Kraak et al. 1996). It is used primarily to locate geographic phenomena such as places, rivers or regions. It is very important that it is possible to understand geo-spatial patterns related to the physical, temporal or socio-economic human environment by means of atlases.

Atlases are one of the first cartographic products that people use, because they are introduced to students early in their education. Further, atlases can be considered the most widely known and ultimate cartographic products (Kraak 2001) and play an important role in cartography.

3. Paper atlases versus web AIS

Analogous maps in an atlas have a dual-purpose. On one hand they must store and on the other hand communicate the geo-information. Extent of spatial semantics related to qualitative and quantitative characteristics should be harmonically organized as well as constructed on a piece of paper. Markers and various kinds of stickers are employed by atlas users in order to find or compare map contents and define relevant objectives. The atlas maps are accompanied by explanatory booklets, containing notes, profiles, statistics, diagrams, pictures, etc.

Both the paper atlases and the web AIS have their advantages while browsing an atlas (Kraak 2001). In case of the paper atlas the browsing is random. The eyes find a geographic object, which captures the user's concentration. By digital browsing, the eyes may never be in touch with the object. The user follows the pre-defined paths or types the keywords which entail and help her/him to reach the needed hyperlinks to get the favoured geo-information.

In Table 1 Ormeling (1996) summarized a comprehensive list of characteristics of paper and web atlases.

Table 1. *Differences between paper and web atlases (Ormeling 1996, p. 33).*

Paper atlas/View-only atlas	Interactive atlas/Analytical atlas
Static	Dynamic
Passive	Interactive
Maps only	Maps and multimedia
Limited selective	Complete
Fixed map frames	Panning and zooming possible
Compromise for all types of use	Customised
Maps as final product	Maps as interface

Digital technology has liberated cartography from the limitations imposed by the nature of the conventional underlying media. Technology and interactive maps become ubiquitous. The obstacle of the paper and static maps in the view-only atlases will vanish perhaps in the near future (Ormeling 1996, Asche 2001).

3.1. Concept of web AIS

The beginning of the digital AIS was characterised by hardware limitations (storage capacity) as well as by software limitations (lack of authoring tool for developing more interactive applications). The first developed digital atlas was the Electronic Atlas of Canada in 1981 (Siekierska et al. 1996). Since then an increasing research effort in this field has been carried out by governments, universities and private companies (Ormeling 2001, Kraak 2003, Peterson 2005).

The first definition tried to explain the digital atlas by comparing it to the paper atlas (Siekierska et al. 1996). The most obvious difference emphasized was the medium (CD-Rom, videodisc, DVD). Further definitions (Ramos et al. 2005) were focused to the medium on the atlas use as well, by putting the tools for thematic or spatial-oriented navigation, information retrieval, analysis and presentation.

But there is one more difference between analogue (paper) atlas and contemporary digital AIS. It is the kind of atlas storage and publishing respectively. The expressive growth of the Internet audience (Peterson 2005) makes it possible to distribute the atlas content via wire/wireless network to many people. This is also the very effective way of distributing what cartography is as well.

In modern cartography of the late twentieth century WWW offers an ideal platform for making communication with maps more feasible. But at the same time, there has to be an understanding of the process and the methods how to generate cartographic models and then how to accurately and efficiently communicate spatial data, i. e. geo-information. Due to this focus, cartography has to fulfil the obligation

to achieve both – the creation of cartographic presentation forms for the new media and the accepting of responsibility for understanding the deep relationships within the whole cartographic communication system, which includes the user, the models and the data transmission.

3.2. Web atlas map as a user graphical interface

Goodchild (2000) stated that cartography is an indispensable part of any future for geography and the broader enterprise for geographic information science. The digital map world and the daily access to a larger number of maps have led to the paradox between the marginalization of cartography and the increasing need for good map products to be included in cartographic as well as geographic information systems (GIS) predominantly to be used for visual communication.

The communication of geo-information, facilitated through digital cartographic information systems (CIS) (Lechthaler 2003), is generally based on the use of maps as a user graphical interface, which not only restricts the visual recognition patterns, but the presentation of the earth’s surface too. The information exploration via map based interfaces depends on applied interactive tools. The acquisition of geo-information is not static, but dynamic. Users define, depending on their aims and their experience, their own form of geo-communication.

Cartwright et al. (1999) include the concept of interactive multimedia and hypermedia in the cartographic communication process. Multimedia cartography can be presented as sphere of cartographic potential, which moves across and into a space of geographical reality (composed of abstraction-level), allowing the user to control and to choose the process of presentation according to its needs, abilities and skills, depending on its point of contact (POC). POC is like the geographical window thro-

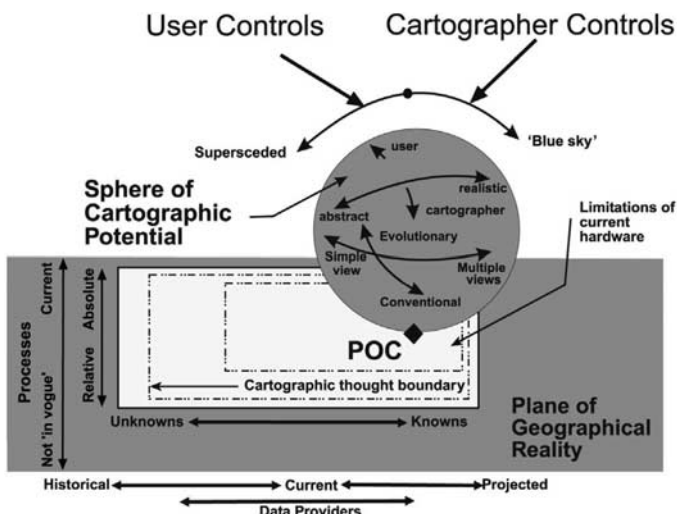


Figure 1. Sphere of cartographic potential and the plane of geographical reality (Cartwright et al. 1999, p. 8; Content changed with permission of the author).

ugh which the reality can be seen. The authors compare multimedia cartography with the metaphor of an atlas!

The tools and even the system functionalities (Fig. 1), closely linked to general web browser functionality allowed the user to make queries to the database and to select the data variable to be visualized. Often the users need their own result displayed with own map symbology (Lechthaler 2004a, Persson et al. 2005). So, the new web technology and lower equipment costs have allowed everyone, even those without cartographic knowledge, to communicate and visualise the geo-information by producing their own cartographic products. More than ever, there is the need to apply rigorous cartographic principles, good design techniques and skills with the aim of making the communication of spatial information from AIS richer, more efficient, and the process possibly more personalized.

4. AIS versus GIS

It is undisputable and already known that there are similarities between GIS and some kinds of AIS. Both of them enable the users to explore, measure, match (visual), compare, overlay and combine the geo-information visualised in the map collection at a similar scale and subsequent degree of generalisation and visualisation (Lechthaler 1996). But there are big differences between AIS and GIS. The aim of AIS is to develop and display a legible, graphically designed and scale dependent geo-data/-information (Lechthaler 2004a, Lechthaler 2004b). In GIS the major importance lays on retrieval and analysis, search and queries of data and on visualization of the achieved results as well. To the question, if GIS is a kind of atlas Ramos et al. (2005) answer undoubtedly – no. Bär et al. (1999) propose three approaches when creating high standard interactive atlases using GIS data bases:

- GIS in multimedia,
- Multimedia in GIS and
- GIS analytical functionality by developing interactive and multimedia AIS.

The third approach uses the analytical potential of GIS and the cartographic system environment as well, that transforms GIS objects with its features into cartographic objects (interactive and multimedia).

The differences between GIS and AIS are shown in Table 2.

5. The meaning of national atlases

A national atlas is the cartographical calling card of a country (Hurni 2004.) Unlike the topographical maps of the country national atlases convey in addition thematic information based on a consistent succession of map scales. Witschel (1998) made a comprehensive examination and classification of the conventional (analogous) national atlases. A number of electronic national atlases have been produced within the last twenty years. Through the new potential of the global net, national atlases become more and more important in society. Ormeling (2001) defines the concepts for multimedia national atlases and points at the new meaning of the web atlas

Table 2. *Differences between GIS and AIS.*

	GIS	Interactive/multimedia AIS
Purpose	Without, application admits any kind of data handling (retrieval, manipulation, analysis)	Always (view extension, format, theme/content, certain user group, output medium, ...)
Application	Static	Interactive, dynamic
Use of interface	Complex	Interactive, level of complexity depends on target user group
Users	Experts	Non-experts/experts
Computing time	Rather long, depends on target question, extent of database,	Rather short, specially if offered atlas map conform to the target question
Control by	Users	Author, who sets flexibility and restrictions
Main focus/tools for:	Handling of data (retrieval, manipulation, analysis), presentation	Visualisation of elementary geo-data (geometry, thematic) after cartographic rules, with/without handling of data
Data	Unprepared	Edited (selected, adapted or changed to suit the target theme)
Output form	Graphics, tables, diagrams, text, maps,	Maps(2.5D/3D), graphics, tables, diagrams, text, images, speech, sound, animation, video-clips
Output medium	Screen, paper	Screen, paper

map as an interactive interface, through which one can reach the current elementary geo-data portal (subnational, national, transnational and global data bases). Naturally, there are many still unanswered questions, especially regarding to national geo-data policy.

As an example of European national multimedia atlases, the following atlases have to be mentioned here (no claim to be an exhaustive list): National Atlas of the Federal Republic of Germany, Atlas of Switzerland, Online atlas of the Netherlands, prototype GeoInfo Austria². All these considerations were in the foreground during the development of the atlas prototype ÖROK Atlas Online – AIS Austria.

6. ÖROK Atlas Online – AIS Austria

6.1. Current ÖROK Atlas – analogue

More than 20 years ago the idea of the ÖROK Atlas was born in the competence of the ÖROK. The aim of this print-only map collection was always to represent the spatial development of Austria according to up-to-date environmental-planning po-

² AIS GeoInfo Austria is the result of a FWF project (1995-2000), developed in the Department of Cartography and Geomedia Technique, University of Technology, Vienna (Kelnhofer 2000).

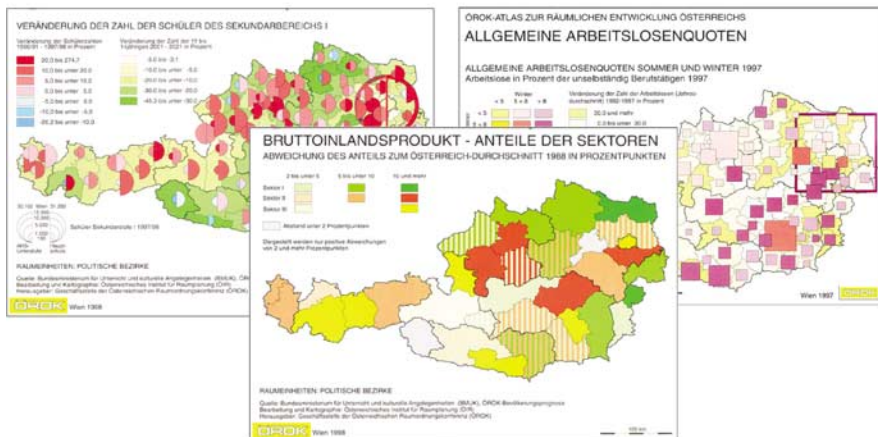
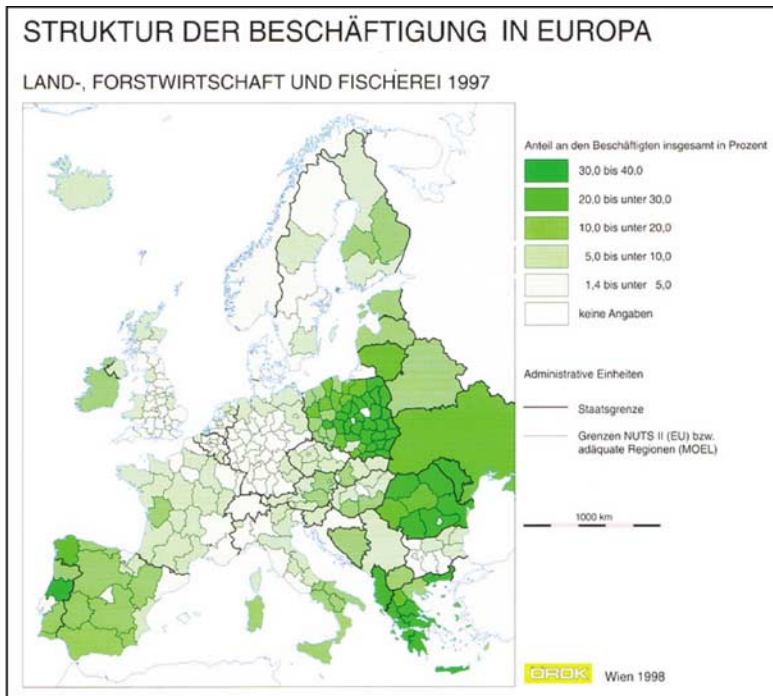


Figure 2. Thematic maps of Europe and Austria. Extracts from the analogous ÖROK Atlas (modified).

ints in a cartographically easily understandable and clear form. Every year since then, approx. 3,500 subscribers from administration, politics and schools get 10 to 15 maps with explanation texts, statistics and tables. The current thematic content is fixed from The Permanent Subcommittee of the ÖROK (Spanring et al. 2005) (Figure 2).

6.2. Concept of ÖROK Atlas Online – Prototype

Including innovative technologies, web techniques and the usage of new media the further development of the existing analogous ÖROK Atlas has been identified as an increasing goal by the ÖROK (Gartner et al. 2005).

After a series of workshops, presentations and intensive discussions a project consortium³ developed a concept of a prototype of ÖROK Atlas Online – AIS Austria (Atlas Information System Austria) (Figure 3). The ÖROK Atlas Online is a rule

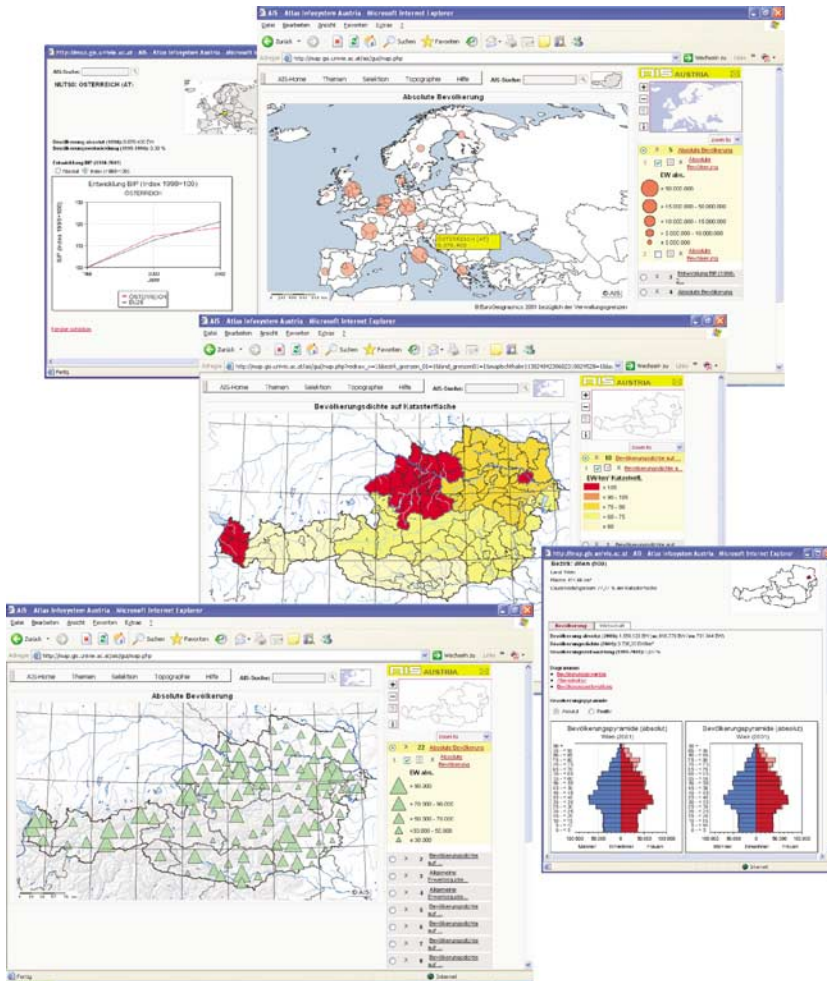


Figure 3. *The screen shots of the rule based interactive and multi-media information system ÖROK Atlas Online – AIS Austria.*

³ Department of Geography and Regional Sciences (IFGR) – University Vienna, the Department of Geoinformation and Cartography (IGK) – University of Technology Vienna and the Austrian Institute of Regional Planning (ÖIR) – Information Services GmbH.

based interactive and multi-media information system about Austrian elementary geo-data (geometry and statistical data) in the form of a thematic cartographical online information system. The system enables queries and analyses of the topographical as well as the thematic data. The central part of the system is the atlas map as a user information interface and therefore interactive communication portal for the queries, analyses and representation of space relevant objects, facts and phenomena.

Due to the complexity of the system requirements and the experiences with similar projects, three core issues have been identified (ÖROK 2003): global concept, cartographic concept and system architecture.

6.2.1. Global concept of the prototype

The construction of the prototype ÖROK Atlas Online is a dynamical process. The scheme of Garret (2000) in the Figure 4 describes well this process.

The first issue to solve when designing a product such as an online atlas is to determine the target user group. This audience defines the information content that needs to be provided as well as the form of its presentation. Based on the fixed user groups and initial tasks of the current analogous ÖROK Atlas, the following target user groups for the ÖROK Atlas Online were defined:

- political administration and decision makers,
- schools and educational institutions,
- scientific community and experts and
- general public.

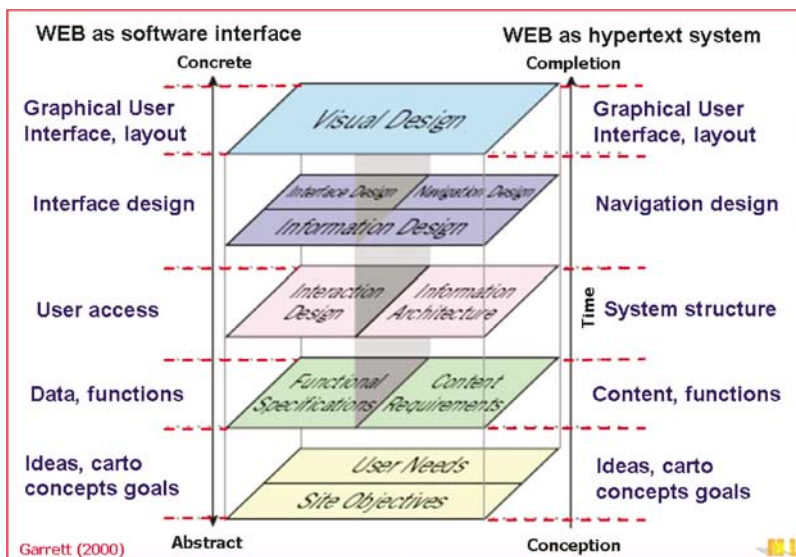


Figure 4. Sequential succession of the project steps from the conception to the realization of the prototype (source: Garrett 2000).

The thematic topics to be handled and presented follow the main points set by ÖROK:

- population and employment market,
- traffic and infrastructure and
- unspoiled nature area and environment.

From these data both the digital and the analogue maps can be generated. Attention must be paid to the guarantee of high cartographical quality in the foreground. The data bases must therefore be evaluated with respect to suitability, quality, availability, costs and the legal situation. Cartographical guidelines must be fixed. The important information levels match to the predefined main and zoom scales (Table 3).

Table 3. Main and zoom map scales and content levels.

Main scales	Region	Administrative units	Screen section
1 : 4 Mill. Overview map	EU level	Countries, NUTS3	Full screen
1 : 2 Mill. Detailed map	Austria as a whole	Countries, districts, communities	Full screen
1 : 1 Mill. Detailed map	1-2 countries	Districts, Communities	Full screen
1:250.000 Detailed map	1 country	Communities	Full screen

Zoom scales	Region	Administrative units	Screen section
1 : 2 Mill. Detailed map	EU level	Countries, NUTS3	Full screen
1 : 1,5 Mill. Detailed map	2-countries	Countries, districts, communities	Full screen
1 : 500.000 Detailed map	1-2 districts	Districts, Communities	Full screen
1:125.000 Detailed map	1 district	Communities	Full screen

It is of great importance to generate and check the functional possibilities of the prototype system. With regard to a “full solution” the following functional concept of the prototype shall be defined including innovative web techniques and usage of new media:

- tools for information processing, modelling and presentation,
- tools for monitoring,
- tools for analysis and exploration.

To be able to interact with the system ÖROK Atlas Online through the graphical map based user interface and to get the Austrian basic geo-data (geometry and thematic data) from the so called communication portal it still needs additional, user-oriented functions (Persson et al. 2005). This can be achieved via functionalities offered in a restrictive-flexible way by the atlas system (ÖROK 2003) through:

- interactions for accessing information relating to content (navigation, selection, analysis, exploration, modelling, visualization) and
- service interactions or rather user guidance interactions (user interface, application navigation).

The ÖROK Atlas Online interactive functionalities can be mentioned via user interface. The size and the complexity of the interactions can be summarized as follows:

- interactions in the process of the visualization of elementary geo-data (sensible manipulation of the method application and the change of graphic variables, change of the presentation forms: signature scales and the diagram types),
- interactions with the elementary geo-data sources (complex mono- and polyvariable queries of the database, analysis, construction of new data sets),
- interactions with statistical parameters (factual data transformations for creation of a further, personalized visualization),
- interactions to show connectivity via other types of visualisation (histograms, other statistical representations, integration of additional information) and
- system interactions which are not combined directly with cartographical modelling formations (Zooming, Pan and Scroll functions, hypertext connections).

The specified interaction groups form a wide spectrum of possibilities which the user can activate for his visual exploration via interactive user interface – screen atlas map. Thereby, the atlas maps online keep the same attributes: map-graphic defined and scale dependent as before.

ÖROK Atlas Online can be a monitoring instrument. It enables the user (within a framework) to conduct an independent and regular observation of certain fixed topics. In connection with this, it is important to guarantee the continuity of the data as well as the fixed observable topics and to offer a clear metadata catalogue of all available contents of geo-data bases included in the communication portal.

The main aim of ÖROK Atlas Online is its function as an analysis instrument, an advanced and extended statistical and geographical evaluation tool. This option should be taken into account in the basic conception so that the system remains expandable anytime.

6.2.2. Cartographic concept

The cartographic concept of the Internet based ÖROK Atlas Online shows some essential considerations and decisions regarding contents aims and user needs which are fixed in the start phase of the project.

The geometry of elementary geo-data represents the following regional units:

- countries,
- NUTS regions (nomenclature of territorial units for statistics),
- political districts, work districts,
- defined area types (rural, town regions, target areas),
- communities and
- units in neighbourhood countries of Austria according to INTERREG boundary.

The spatial reference geometries are a core element of every atlas information system, so the elementary geo-data quality is of high interest. Therefore:

- various data sources,
- different competence areas,
- different regional availability,
- geographical data -- statistical data and
- different metadata concepts

have to be evaluated regarding to their suitability, availability, costs and copyright (Spanring et. al 2005).

The AIS Austria is an online map based information system. Finally it shall consist of several scale dependent, cartographically predefined content levels or rather maps as user interfaces (Table 3) (Lechthaler 2005). The process of map generalisation is comprised of a series of steps, which cannot be formalised and completely automated in their complexity till these days (Lechthaler 2003). So it is not possible to create a common data model for all map scales.

As a matter of fact, there are different data sources for creating map geometry, which was originally modelled for specific purposes. This geometry has to be harmonized and visualised in the cartographic modelling process depending on the requirements of AIS Austria, including guaranteed legibility on screen (Lechthaler et al. 2005). This modelling process is done with the software ArcGIS 9.0 partly semi-automatically, including feature detecting, line simplification and feature matching tools.

In order to get ascertainable models which are readable and visually accessible, the guidelines of the cartographical modelling must take into account the technical restrictions of the screen as an output medium (screen size and resolution). Paper and screen are technically and through these capacity restraints quite different media. How much graphically legible information still can be transmitted depends on the resolution of the respective medium. This is decisive for the design of the map graphic, particularly with regard to the graphic minimum dimensions. The screen graphic must be much simpler and their minimum dimensions greater, because the screen technical restrictions than the graphic of printed maps. (Lechthaler 2005, Lechthaler et al. 2005).

The unique aspect of a cartographic database is that graphic attributes (symbol sizes, line widths, letters, etc.) are integral components in a database because they fundamentally define the map geometry. So each database of a certain map scale represents a self-contained system.

6.2.3. System architecture of ÖROK Atlas Online

With regard to a modular, expandable as well as platform-independent ÖROK Atlas Online system solution, lasting system architecture is required (Figure 5) (Spanring et al. 2005). The construction of the system therefore consists of different modules which are used for different tasks. Each of these constituents is consistent in itself and interchangeable from outside. This modular constituent system makes a completely open system possible regarding expansion capabilities. It is difficult to predict which functions and possibilities future software products will of-

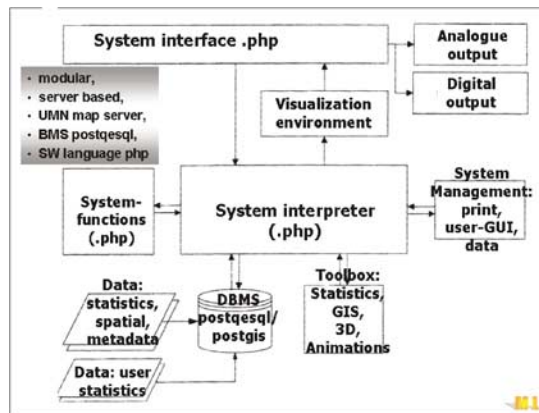


Figure 5. *Modular system architecture of ÖROK Atlas Online (Spanring et al 2005, modified).*

fer, therefore the way of the simple interchange ability and extendibility is the most flexible. The interfaces between the modules are also of importance in addition to the individual constituents. These should be kept as simple as possible to be further usable when an exchange of a module is desired. Ideally there would be predefined interfaces, such as the ones used by the Open GIS syndicate.

System Interpreter

The core of modular system architecture is the system interpreter, which steers the interplay between the individual modules via predefined interfaces.

DBMS

The geometric and thematic data as well as the metadata are managed in a database management system. In addition thematic data can still be added by the user.

Toolbox

All analysis and evaluation functions are summarized in this module. These can be statistic functions (descriptive statistics, cluster analysis), GIS functionalities (buffers, intersections), or generation of 3D models or animation functions. The toolbox has to be kept as flexible as in the case of all other constituents that additional functions can be integrated.

System management

This module has several tasks of managing. The user administration makes it possible to store prepared maps intermediately. The data management permits registered users to transfer thematic and geographical data to the client. Thematic maps can be turned into a print suitable format via print management.

Specifications of visualization surroundings

The specifications define thematic, cartographic and geometric restrictions which must be adhered by all users (coloration, line thickness etc.). For user laymen who make the usage as simple as possible, predefined maps must be prepared. The experts should be able to influence the specific data selects and to define the cartographic design.

The actual cartographical representation is a data output generated by the parameters inputted into the system interpreter. Graphics will be prepared and put onto the system interface.

System interface

The system interface of ÖROK Atlas Online is the connection of the system to the user by means of interactive atlas maps. The interface is that part of the application that the user sees and works with. The fact that many users associate the interface with the actual software therefore arises. But the graphic user interface is only the visible tool which allows to communicate and to interact with an application. It is crucial to construct a clearly arranged, comfortably operated user interface where intuitive task and navigation through the system is possible. Therefore all user groups and their different requirements must be taken into account through different system possibilities.

7. Conclusion

The ÖROK Atlas Online – Atlas Information System Austria represents a cartographic spatial information system which subdivides all functionalities into a cartographically conceptual and structured order. It is different from pure GIS because of its strong cartographic character and applied rules by the construction and visualisation of the map based user interface. Because of yet not existing full automatic generalisation and full automatic cartographic symbolisation, the map geometry (especially topographic data) for different scales must be predefined. The atlas maps are communication portals which interactively allow different user groups the access and exploration of Austrian basic geo-data (topography and thematic) from different geographical and thematic sources.

The ÖROK Atlas Online corresponds to the characteristics of the cartographical, rule-based and personalised information system. For the first time in the history of cartography the once passive user of a map becomes an active manager in geographic information acquisition, retrieval, analysis and visualisation (Gartner et al. 2005). The role of cartographers – system designers – has changed too.

In this project, the AIS Austria consortium realised and evaluated the first online prototype version of ÖROK Atlas Online (finished Mai 2006). The consortium developed formalization of cartographical rules for the legible thematic online data modelling and visualisation of geometry and thematic data in the given scale resolution, further the navigation through user interface and interactivity function, with the aim of producing the first marketable version of the ÖROK Atlas Online in the near future.

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Kartografski informacijski sustav "ÖROK Atlas Online" – AIS Austrija kao komunikacijski portal temeljnih geopodataka o Austriji

SAŽETAK. "ÖROK Atlas Online" – Atlas Information System Austria (AIS-Austria) – je znanstveno-tehnološki projekt Austrijske konferencije za prostorno planiranje (Österreichische Raumordnungskonferenz). U projektu je razrađen prototip interaktivnog, multimedijuskog tematskog atlasa na čijoj realizaciji sudjeluju Institut za geografiju i regionalne znanosti Sveučilišta u Beču, Institut za geoinformacije i kartografiju Tehničkog sveučilišta u Beču i Austrijski institut za regionalno planiranje. Projekt je započeo u rujnu 2004. i trajat će 1,5 godinu.

U prototipu atlasa bit će realiziran pristup temeljnim topografskim geopodacima, koji su kartografski unaprijed pripremljeni u nekoliko osnovnih mjerila. Nadalje, vizualizacija i interaktivni pristup tematskim podacima bit će dostupan preko korisničkog sučelja kao komunikacijskog portala, čiji je temelj kartografski prikaz (topografija ili već vizualizirana tematika).

AIS-Austria je zamišljen kao hibridni informacijski sustav, koji prema želji korisniku daje mogućnost izdavanja sadržaja po vlastitom izboru u vidu papirnate karte visoke kvalitete (dualni princip atlasa).

U članku će biti prikazane mogućnosti navigacije kao i funkcionalnost sustava, što podržava geokomunikaciju.

Ključne riječi: Kartografski informacijski sustav, tematski atlas, bazni temeljni geopodaci, interaktivno korisničko sučelje utemeljeno na kartografskom prikazu, mjerilom definirano kartografsko modeliranje.

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