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Official German Surveying and Mapping and the Geodata Market

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Abstract

Politics has recognized the importance of geodata. Official surveying and mapping in Germany, which belongs to the responsibilities of the 16 states (Laender), captures and provides the geobasis data with high personnel and financial effort - financed by fiscal resources – as a governmental service of general interest. The question which price shall be levied for the use of the data leads to discussions again and again. While the private users endorse a use as cost-free as possible, in the official surveying and mapping the opinion prevails the geobasis data should not be put into the economy cycle free of charge, as the geobasis data represent the first link of a value chain and therefore a high economic value.

Official Surveying and Mapping in Germany

Structure of Official Surveying and Mapping

Due to the constitution of the Federal Republic of Germany, official surveying and mapping belongs to the responsibilities of the 16 states (Laender). Based on authorisation by law or agreements between the administrations, third parties too are involved in the settlement of these tasks. The states are being supported by the "Bundesamt für Kartographie und Geodäsie (BKG)" (Federal Agency for Cartography and Geodesy). Moreover licensed surveyors as well as other administrative bodies at state or municipal level, fulfilling the relevant staff requirements, collaborate on cadastral surveying.

The majority of the survey and cadastre administrations of the states are assigned to the Departments of the Interior of the states and shows a three-stage organisational structure. Whereas the state survey offices are responsible for supply of medium-scale geobasis datasets, the local cadastre offices have to perform the tasks of the real estate cadastre and to provide large scale geobasis information.

The range of services of the survey and cadastre administrations includes:

- The permanently operating satellite positioning service - SAPOS[®]
- The geodetic control networks and their proof in the Authoritative Control Point Information System AFIS[®]
- The Authoritative Topographic-Cartographic Information System ATKIS[®]
- The task of furnishing proof on ca. 62 millions of land parcels within the official real estate cadastre (e.g. Automated Real Estate Map – ALK, Automated Real Estate Register - ALB and in the future Authoritative Real Estate Cadastre Information System ALKIS[®])
- The topographical map series, aerial photography and thematic mapping.

The state survey offices are responsible for establishment and maintenance of the topographical map series.

On behalf of the states, the Federal Agency for Cartography and Geodesy (BKG) is producing the topographical maps at scales smaller than 1:100 000.

Working Committee of the Surveying Authorities of the States of the Federal Republic of Germany (AdV)

The relevant administrations of the states of the Federal Republic of Germany responsible for official surveying and mapping, and the Federal Ministries of Defense, of Transport, Building and Housing and of the Interior have joined together in the "Working Committee of the Surveying Authorities of the States of the Federal Republic of Germany (AdV)" to work on matters of principle or of national importance. Permanent guests of AdV are the German Geodetic Commission (DGK), representing the universities, education and scientific surveying and the Bund/Laender Task Force for Rural Development (ArgeLandentwicklung), responsible for land consolidation and rural development in Germany.

Responsibilities of AdV

- Elaboration of recommendations and binding regulations for a uniform approach to establishment, maintenance and further development of the geodetic basis, of the topographic survey, of ATKIS[®], of the topographic map series and of the real estate cadastre
- Joint carrying out of state-overlapping projects
- Cooperation in development and application of new technical methods
- Comments on draft bills
- Discussion of questions related to organisation, staff, training, examination and discussion of issues concerning costs, licensing and use rights
- Cooperation with relevant authorities and administrative bodies and institutions of geodetic science and education
- Representing the interests of the official surveying and mapping in the European Union and in international institutions, and
- International cooperation, also in the field of development aid.

Organization of the AdV

Plenum		
Members: Baden-Württemberg, Bayern, Berlin, Brandenburg, Bremen, Hamburg, Hessen, Mecklenburg-Vorpommern, Niedersachsen, Nordrhein-Westfalen, Rheinland-Pfalz, Saarland, Sachsen, Sachsen-Anhalt, Schleswig-Holstein, Thüringen, Federal Ministry of the Interior, Federal Ministry of Defence and Federal Ministry of Transport, Building and Housing		
President	Advisory Group	Secretary General
Working Groups (AK)		
Spatial Reference	Real Estate Cadastre	Geo-Topography
		Information and Communication Technology

Fig. 1

Products and Pricing Policy in the German Geodata Market

Preliminary remark

Analogue products (e.g. maps, aerial photos) and digital products like the CD-ROM Top50 (topographical map 1:50,000) are not object of this paper. They are sold through own distribution channels of the surveying and mapping administrations or by resellers (e.g. bookstores.) The prices for these products have been agreed within the AdV. For resellers these are only recommended retail prices.

Data and Metadata

Geodata are data with a direct or indirect reference to the earth's surface. One distinguishes between geobasis data and special data.

Geobasis data are interest- and application-neutral and are captured by the surveying and mapping administrations due to legal regulations. They are essentially provided by the Authoritative Topographic-Cartographical Information System (ATKIS[®]), the Authoritative Control Point Information System (AFIS[®]) and for cadastral data by the Automated Real Estate Map (ALK) as well as by the Automated Real Estate Register (ALB) and in the future by the Authoritative Real Estate Cadastre Information System ALKIS[®]). Geobasis data and the information and products derived from have a central importance for political decisions, for protection of ownership, for other legal matters, for administration planning and administration execution as well as for the economic development of the state.

For specific tasks the geobasis data will be supplemented by private or public institutions with **special data**.

Geo-metadata inform about the geodata, their topicality, reliability, precision, completeness, origin, their price and their use.

Geodata Market

The geodata market is marked by various structures, targets and relations between the market participants both the provider's side (data producers) and the demand side (data users). Between data producers and data users are additional institutions active in the market, which process the pure geodata, link these with applications or develop products including the geodata. Increasingly also internet-based applications are available, which enable the online retrieve of geodata.

Provider's Side

On the provider's side public and private data producers are represented in the geodata market with different intentions. The public geodata producers capture and provide full-coverage geodata according to their legal task. The surveying and mapping administrations have specially the legal task to capture the geobasis data as an infrastructural act and to provide it as a basis for the different special data. Therefore the provider's side is mainly represented by the official surveying and mapping authorities. As a consequence of this the price of the geobasis data (or products) is less determined by supply and demand than by the principles of public charges. Compared with that the profit expectation is the centre of attention for the private geodata producers. Primarily in the mass market, which offers are mainly directed at the citizen as a final user, software enterprises or companies are engaged to refine the data as service providers and also to intensify the use of geodata by consumption oriented products. The data producers also attend increasingly

themselves to this market segment, to process and sell their data in line with market conditions.

Demand Side

The demand side is characterized by such users who:

- are interested in pure geodata or geobasis data without any further editing; and/or
- expect over and above data suitably prepared for applications.

Users are especially public sector administrations as well as private companies that have own geographical information systems (GIS) and the corresponding know-how. They generate their applications using the functionalities of the GIS.

These users expect from the geodata market:

- simple access to the data,
- a data size and a data quality according to their problem,
- topicality of the data,
- a marketable price structure (costs/use).

Requirements from the Politics

The topic "geoinformation" has gained importance in the politics (in the German Bundestag as well as in the parliaments of the states) within the last few years. The following points of view clarify this:

- Geobasis data are assets.
- The surveying and mapping administrations provide the uniform spatial reference, the topographic description of the landscape, the documentation of the space-stressing infrastructure facilities, the documentation of the real estates including the real property.
- To strengthen the position of the geobasis data on the market, PPP cooperation models should be open to the surveying and mapping administrations.
- The use of budget funds by the states for the official surveying and mapping has to be understood as an important tax financed infrastructure achievement.
- It is necessary to reach a consensus that basic data stock with restricted topicality and restricted resolution should be available free of charge for industry and commerce in the sense of a national geodata infrastructure. Examples are maps with administrative data or maps with a reduced content like in the standard issues of the topographical maps 1:100,000 or 1:500,000.
- To promote the use and the sales of geodata products the surveying and mapping administrations should be able and willing to give the producers time to pay their charges during the market introduction phase until they get sales returns. Due to the budgetary law of the public administrations this is not always possible. Therefore its development is imperative. In such cases a solution could be that the geobasis data are made available free of charge for test purposes and for a particular time period.
- Meta-Mapserver should be available for geobasis data stock.
- Data and workflow models of the surveying and mapping administrations should be public.
- The cooperation on standardization committees for the standardization of the geoinformation should be intensified.

Pricing policy on the German Geodata Market

The provision of geobasis data in the sense of a national geodata infrastructure is a politically relevant task of the official surveying and mapping, which is in direct context with that economics, technology and the infrastructure-political objectives of federation, states and communes. This is the precondition that the surveying and mapping administrations can devote themselves with the necessary political mandate and on an adequate legal basis to the improvement of an entire geobasis data supply. Beyond that they can contribute themselves in the creation of value added processes demanded by the market still more efficiently. The building up of extensive geobasis data stock of high precision, reliability and topicality is very cost-intensive due to the high manpower requirements and expensive real investments. A large part of these geobasis data has been financed by fiscal resources of the official surveying and mapping and is provided as a service of general interest. The question which price for this service has to be levied leads to discussions again and again. In principle lowest prices or even exemption from charges are demanded for official geobasis data, while for private data in principle market orientation is accepted at the pricing. Frequently the "Freedom of Information Act" (FOIA) in the USA is pointed out as an example, while the European, especially the German right of access to information, including the fee policy, is criticized as 'reactionarily'.

While the USA allows in principle a lighter access and more cost exemption, the European states regard their official geobasis data as a protect-worthy, but marketable product, which can contribute to a – at least partial – refinancing of the production and maintaining costs.

Beyond that in some states the state survey offices were converted into national enterprises (state office with special economic orientation) with the aim to increase the degree of refinancing and to decrease the state's budget.

A further argument against the cost exemption is that the geobasis data represent a value for the economy. They are inquired and provided as standardized, application-neutral and ready-made products of the official surveying and mapping, as geo-referenced background information for special data bases or as primary products for geo data services.

For example they are also the basis for planning systems, for 3D-city models and for geo marketing. Within the value chains they represent the database for various geo information products in combination with population data, address data, environmental data, data over natural resources, earth observation data, market investigation data, data over goods stream etc. Thus they form the first link of the value chain.

Further the state is obligated due to the public acts to provide the data to each user on the same conditions. That means, the quite usual procedure in industry and commerce, to grant individual conditions to the customers, it is not possible.

Finally also the copyright and the question of license fee plays an important role in the further utilization of the geobasis data. License costs represent a kind of utilization payment and are orientated to the benefits of the producers.

Conclusions

Geobasis data in Germany have been captured and provided by the official surveying and mapping with high personnel and fiscal resources as a governmental service of general interest. Although it is an infrastructural act and provides the geobasis data as a basis for the different special data the official surveying and mapping the opinion prevails these data should not be put into the economic cycle free of charge. As the geobasis data represent the first link of a value chain and therefore a high economic value, the states regard their official geobasis data as a protect-worthy, but marketable product, which can contribute to a - at least partial - refinancing of the production and maintaining costs.

References

Progress Report 2002 of the AdV

Geodateninfrastruktur in Deutschland (GDI) (only in German)

The documents are available at <http://www.adv-online.de/english/publications/index.htm#top>