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## **The Market for Geospatial Information: Potentials for Employment, Innovation and Value Added**

*Short Version*

commissioned by



**Bundesministerium  
für Wirtschaft  
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## 1. Initial Situation

The economic utilisation of geospatial information has a high economic potential and can develop into a market segment with major value added, qualified jobs and highly innovative products which serve as the starting point for important impulses for the entire economy. However, the market for geospatial information has remained far behind the expectations for many years now, although the technical possibilities are constantly being improved.

## 2. Analysis

The reasons for this are shown in the supply and demand analysis. Geospatial information represents a raw material for value added in all sectors of the economy, and therefore stands at the start of a value-added chain. It is in fact the integration of geospatial and factual data (content) by the user, which results in actual geospatial information that represents an added value. This occurs either with direct use of a map or in the form of an application. As a result, geospatial data, factual data and applications are closely interrelated, for only when demand-oriented content is present can a dynamic market for geospatial information with user-oriented applications develop.

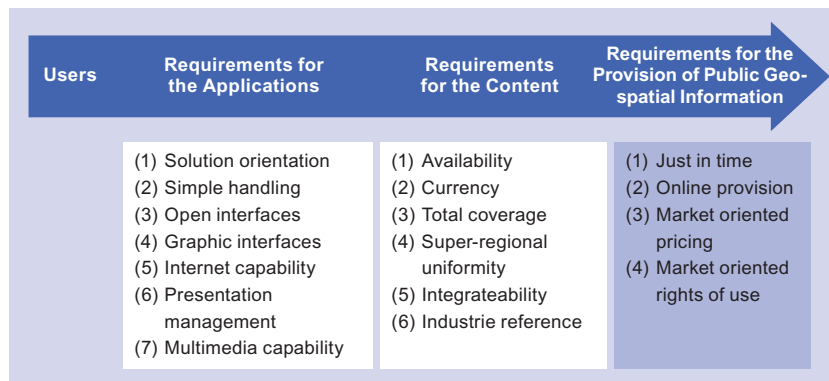
However, the analysis illustrates that the public data providers currently do not fulfil their role in the provision of the data basis for geospatial data applications either on the federal level or in the states and municipalities. The offering is non-transparent, the obtaining of data is linked to high transaction costs and the data themselves frequently do not correspond to the users' demand for quality.

In addition, the analysis shows that the geospatial information market is currently driven by offers with the consequence that geospatial information products are primarily based on the available content, but not on which tasks the users must carry out.

Consequently, the demand analysis follows a user-oriented approach by formulating the customer requirements for the applications, the content and the terms and conditions of sale using specific application examples. Here a considerable backlog for the suppliers is apparent, i. e. both on the part of the manufactures of applications and on the part of the public suppliers of geospatial information.

In view of the market barriers on the German geospatial information market, the geospatial information markets of selected countries will be examined.

### Central requirements of the users for applications, content and their provision



In the process, it becomes apparent that most western countries have meanwhile recognised the value of geospatial data and have reacted with initiatives for the establishment of a national data infrastructure, although they pursue quite different strategies in the process. These differ from each other primarily in the manner in and the degree to which the private sector is integrated in the national activities and the extent to which the establishment of a national data infrastructure in the sense of a public-private partnership is pursued. Before this background the geospatial information markets of four countries will be presented in detail as representative of respectively different approaches for the development of the information economy:

- In **Switzerland** the question of whether and how the private suppliers and service providers are to be involved is being neglected in view of the national debate on the basic conditions of data provision by the public suppliers.
- In the **United States** the state has realised the necessary inclusion of the private sector. However, during the formulation of the national initiative for the creation of a uniform data infrastructure, the fact that the companies not only invest in the market, but also want to profit from it was not sufficiently taken into account.
- In **Japan** the state leaves the initiative to the private sector. In the largely deregulated geospatial information market, in particular large companies are concerned with the establishment of a national market for which the foreign geospatial information markets are used for orientation.
- In **Great Britain** the tradition of the public-private partnership is currently not apparent on the geospatial information market. On the contrary, the government lays claim to a leading role in the activation of the information market that has left little room for other market participants up to this point.

Four factors are derived from the comparative study of international geospatial data markets which are decisive for the success or failure in the activation of the geospatial information market:

- Government activity
- Regulation
- Centralisation
- Public-private partnership

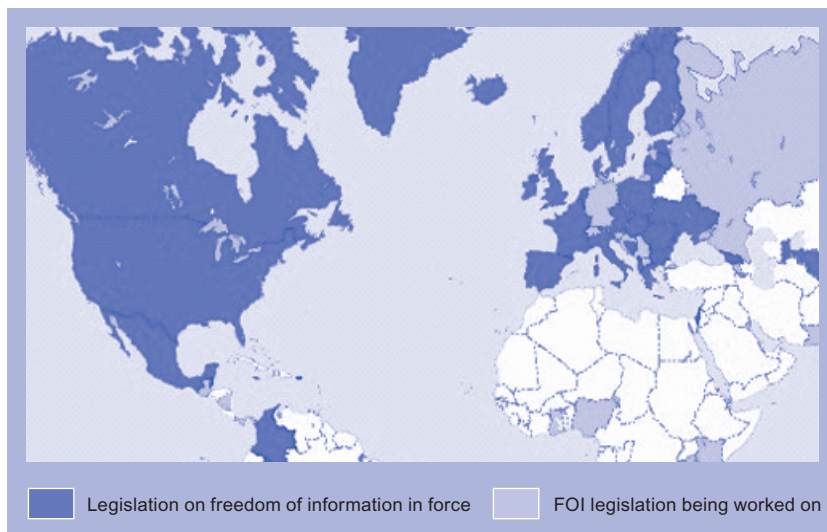
On the geospatial information market, a high degree of government activity means that the public administration acts as a supplier and service provider in one – frequently as a quasi-monopolist – instead of concentrating on the main task of data provision. The comparison of the markets implies that the public administration should limit itself to providing the geospatial information. Services such as sales or data refinement should be left completely to private suppliers. A minimum of government in this sense is ultimately expressed in the development of a demand-oriented market.

Applied to the geospatial information market, regulation means that government offices not only regulate the access to the data, but also the manner of its provision and its reuse. However, the condition for a prospering geospatial information market is the unhindered access to public content, linked to a liberalisation of the rights of use. The scope of government centralisation also influences the development of the geospatial information market. In Germany the failure within the federal structures to clearly define the responsibilities for geospatial information of the public authorities has had an inhibitory effect on the market. This illustrates the necessity for uniform federal sales and production structures.

On the geospatial information market, public-private partnership means that the state enters into business relationships with companies for promotion, and as a result combines government know-how with entrepreneurial know-how. In this way the state positions itself in the successful countries as a supplier of geospatial data, while the private business sector takes care of the marketing, application and refinement of the geospatial information.

The international comparison shows that Germany holds the last places for nearly all success factors for the establishment of a national geospatial data infrastructure. This becomes particularly clear for the question of the regulation of legal access to public information in an international comparison. Here Germany is far behind in one of the last places. Following the Scandinavian pioneers (Swedish laws on freedom of the press of 1766), all EU member countries have put legislation on document access into force up to 2002 – except for Germany.

### Laws of freedom of information in an international comparison



Source: Banisar, David:  
Access to Informations Laws  
Around the World,  
London, July 2002

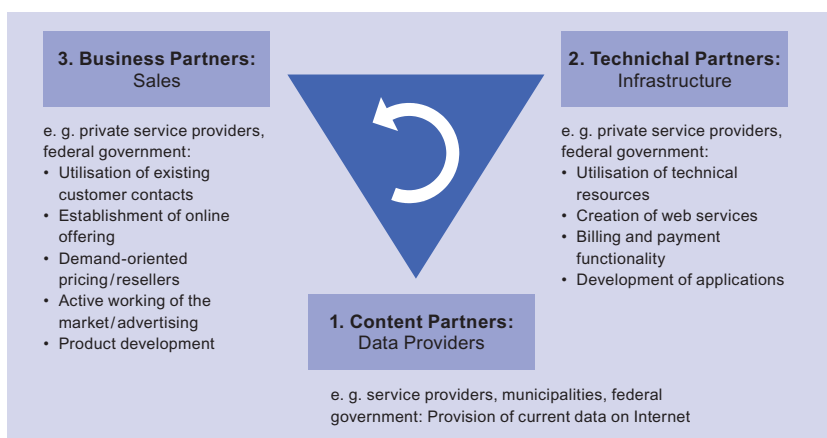
### 3. Concept

To open up the geospatial information market, three basic requirements must be fulfilled on all three administrative levels (Federal – State – Municipal):

- (1) Provide market-oriented content
- (2) Create technical conditions
- (3) Enter into sales partnerships

When providing basic geospatial data and localised factual data, the public area should concentrate on providing content. All other tasks can be realised in a more market-oriented, inexpensive and generally faster manner by partners, particularly from the SMC sector.

#### Partnerships as the key to the provision of geospatial information



Each government agency can define the scope of and tasks for which co-operations should be entered into with service providers:

- Establishment of content
- Technical realisation
- Online provision/sales

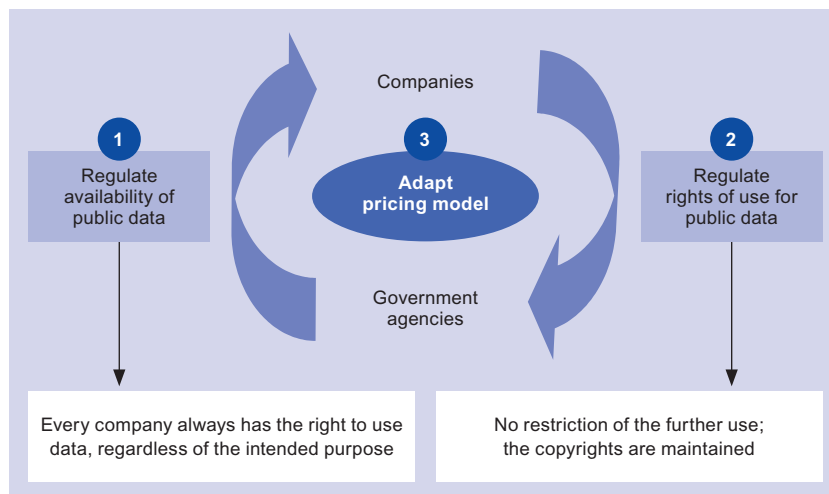
This “make-or-buy” decision is mainly dependent on the degree to which own know-how and corresponding resources are available, and generally correlates with the size of the respective institution.

To open up the market for geospatial information, three central conditions must also be fulfilled:

- (1) Improve the availability of public data
- (2) Control the rights of use for public data
- (3) Adapt the price model

In the concept solutions are pointed out that particularly take the fact into account that existing regulations and fee scales developed for analogue data do not comply with the requirements of eBusiness, especially not the online provision of data.

#### The three requirements for the customer-supplier relationship



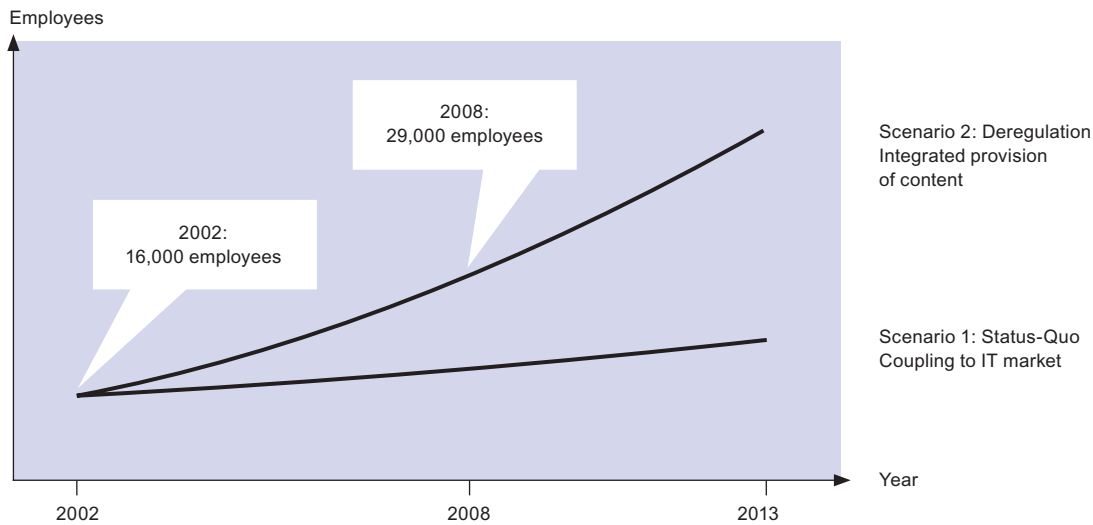
#### 4. Effects for Value Added, Innovation and Employment

The market-oriented provision of geospatial information leads to direct growth impulses and positive effects for innovation. As a result, the availability of geospatial information represents a decisive location factor for the information society and one of the key technologies for

the 21<sup>st</sup> century. For example, the unhindered access to geospatial information in particular is a main condition for achieving productivity increases and for remaining competitive in international competition.

Based on the development of the innovations on the geospatial information market, scenarios for sales and employment will be calculated. Here it becomes apparent that with unchanged basic conditions in the period up to 2008, the number of people employed on the geospatial information market can be slightly increased from the current 16,000 to 19,000. However, if suitable conditions are created, a clear increase by 13,000 to 29,000 can be achieved.

**Permanent employment growth can be achieved through innovation**



Due to the fact that the number of persons employed can be considerably increased with market-oriented provision of public contents, a corresponding enlargement of the market volume can be realised so that public geospatial information must be viewed as an economic factor.

In this study it is pointed out for the first time that not only basic geospatial data represent an economic commodity, but all localised and practically localisable factual data of public administration. It is common sense that approx. 80% of the data of the public sector are localisable information in this definition. As a result, basic geospatial data are the carriers of this information. This means that through the integration of localisable information, all calculations for value added and employment can be higher by approximately a factor of two if all data are provided localised with a spatial reference in the future.

## 5. Recommended Actions

To activate the geospatial information market in Germany we have formulated a total of ten recommended actions. Here the primary goal of achieving the integration of all geospatial information on the federal level by the year 2005 applies:

### **(1) Companies that enable unhindered use of public information (laws on freedom of information, consumer information law)**

The existing draft statutes primarily regulate the access of citizens to the information, however neglect the availability of public information for companies. This condition must be clarified so that a location advantage is offered especially for SMCs that contributes to the establishment of new service providers, and with it to the activation of the geospatial information market.

To gear bills like the law on freedom of information to the needs of the companies, i.e. to obtain public information quickly via the Internet at low costs, two basic conditions must be met. First, the issuing of information via electronic means must be provided for and second, a rapid passing in particular of the law on freedom of information must be targeted.

### **(2) Simplify rights of use and dispense with exclusive contracts**

The existing regulations for the rights of use must be simplified with the goal of an unhindered use of public information by companies. Different conditions of use on the state level are not acceptable for the customer.

Here the federal government should take the proposals that already exist on a European level as a starting point for the creation of a legislative basis for the commercial use of public information in Germany. At the same time, monopolistic structures must be avoided that furnish individual service providers with impermissible competitive advantages within the scope of exclusive contracts.

### **(3) Promote data provision with user-oriented, Internet-capable pricing models**

As a third component for the unhindered access to information for companies and the simplification of the rights of use, the user-oriented provision of data via the Internet must be established together with a new e-pricing model.

The different fee systems applied on the federal and state level must be replaced with uniform pricing that supports the provision of data via the Internet, and therefore reduces the entry barriers to the geospatial information market and the transaction costs of data provision.

**(4) Localise all factual data and reference them uniformly on a digital topographic map**

The localisation of available factual data is a challenge that especially the municipalities, but also the states and the federal government must meet as part of the horizontal integration of the data stocks. The condition for this is the uniform electronic generation and documentation of the geospatial and factual data by the administrative offices. All geospatial data should be localised and provided with a uniform basic geospatial reference – generally on the basis of a topographical map, the “Germany map”.

The existing working groups on the topic eGovernment, which have been formed as part of BundOnline 2005 and the Initi@tive D21, can be used very well, primarily for the implementation of the goal of uniform electronic processing.

The goal must be to illustrate all administrative processes electronically.

**(5) Establish mutual sales rights between the federal and state governments**

In the sense of a vertical integration it is essential to especially improve the data exchange between the states and the federal government. This should be carried out by the federal and state governments granting each other mutual sales rights, and therefore to ensure the creation of uniform sales structures.

In a first step the federal government could immediately unilaterally transfer its sales rights to the states.

**(6) Establish an institution as a G2B moderator of the federal government**

To fulfil its co-ordination function on the geospatial information market without which an activation of the market is not imaginable, it is advisable that the federal government also establish a G2B moderator. This person specifically seeks contact to SMCs, and therefore provides the actual growth impulses or eliminates recognisable barriers.

In addition, this would also be the suitable office to manage the large number of measures of this market study in the sense of consistent project management (controlling).

**(7) Appoint data brokers in all federal government offices**

Data brokers should be appointed in the federal government offices which provide geospatial data, who give qualified answers data queries and in particular enable fast, uncomplicated access to the data for companies. The data brokers would therefore be interfaces both for internal and external queries and would ensure an improved transparency for the provision of data.

**(8) Establish technical and sales structures together with SMC partners**

So that the public administration can quickly realise the data provision and integration, strategic partnerships must be entered into with SMCs to establish technical and sales structures. At the same time, funds will be saved through this procedure and a contribution will be made to lowering the government quota. Various models for public-private co-operation can be considered for this purpose that institutionalise the partner relationships to different degrees.

**(9) Agree upon the daily current online provision of geospatial information on the federal level and in the relationship to the states**

A delay between data acquisition and provision caused by media interruptions is especially unacceptable for companies and acts as a barrier on the market. However, the shortening of the time between acquisition and provision (time-to-market) requires electronic production and communication processes free of media interruptions.

But exactly that is also the goal of nearly all eGovernment initiatives. Therefore, this task should be carried into all committees concerned with this.

**(10) Communicate procedure to the European partners**

To activate the German geospatial information market, it is imperative to look beyond national borders. Here comparison with successful foreign markets should be sought and it must be ensured through international exchange that especially the European neigh-

bours become familiar with the German geospatial information market concept. In this way further advantages can result for the German geospatial information market from future co-operation relationships, and with it also for the overall German development.

To implement these recommendations for action, the necessary legal conditions must be created by 2003 and the technical realisation carried out by 2005, however at the latest by 2008.

**The goal is the integration of all geospatial information on a federal level**

