



PROSPECTS FOR BUSINESS MODELS OF GERMAN COMPANIES IN THE EUROPEAN AND GLOBAL GEO-INFORMATION MARKET

English Summary

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**PROSPECTS FOR BUSINESS MODELS OF GERMAN
COMPANIES IN THE EUROPEAN AND GLOBAL
GEO-INFORMATION MARKET**

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CONTENT

- 1. Introduction..... 1
- 2. GeoBusinessMaps..... 2
- 3. Good Practices 4
- 4. Business models..... 5
- 5. Analysis of the German Market for Geo-Information 6
- 6. Policy recommendations 9
 - 6.1. Policy Recommendations for Public Administrations 9
 - 6.2. Policy Recommendations for Organizations and Businesses 10

1. INTRODUCTION

The geo-information market has received a great deal of public attention as a result of Google Earth and Microsoft Virtual Earth. More and more companies are recognizing the business potential of geo-services and are developing solutions geared towards meeting a wide range of demands.

Industry-oriented solutions and applications for the geo-information market open access to new markets. On a national level, this realization has established itself firmly in the German Commission on the Economics of Geo-Information (GIW-Commission). Now the time has come for this to take place on an international level as well. Building on the results of the GIW-commission's work, the German Federal Ministry for Economics and Technology (BMWi) has charged MICUS Management Consulting with creating the study "Prospects for Business Models of German Companies in the European and Global Geo-Information Market."

The study will emphasize industries for which geo data is relevant and which are already the subjects of the GIW-Commission's lead projects:

1. The insurance industry – georisks
2. The reusable energy industry – geothermal energy
3. The industry for primary resources - aggregates and quarry products
4. The utility and banking industry - real estate
5. The media industry - 3D city models

A novelty is that the results of this study will be presented in a map-based web application, called GeoBusinessMaps, which are part of this documentation and can be accessed at www.geobusinessmaps.org.

Additionally, good practice solutions on the basis of geo data are introduced. In this section, business models, innovative solutions for web portals and exemplary applications in relation to the subjects of the GIW-Commission's lead projects will be discussed.

An important requirement for the activation of the geo-information market involves developing sustainable business models. This section introduces the elements of such business models, sales and distribution models and potential forms of cooperation. The emphasis will be placed on web-based business models in an international environment.

The geo-information market in Germany was first explored by MICUS in 2003. This market assessment will be updated. In this section the three most important market segments given by portable and on board satellite navigation, planning and documentation systems as well as geo-marketing will be considered.

Based on the results of the study, policy recommendations will be made. These address public administrations as well as organizations and businesses.

2. GEOBUSINESSMAPS

GeoBusinessMaps is a novel approach to illustrating the main results of the current study “Prospects for Business Models of German Companies in the European and Global Geo-Information Market.” This approach exceeds the usual written summary by employing a map-based web application for the first time, which depicts a broad range of key indicators for infrastructure, important markets and data sources.

GeoBusinessMaps is set up with the following goals in mind:

- To give access to information about basic economic and infrastructure conditions of individual countries and thus to the fundamental information necessary for the creation of business models in the geo-information sector.
- To give access to key indicators for specific markets that can be used as a decision criterion for estimating market potential during the conception of international business models.
- To give access to fundamental information on the sources and possible references for geo-information, which ultimately represent the primary resources for constructing business models in the geo-information sector.

Each segment includes specific information that can be depicted in a map-based application. The content layout of the application simultaneously represents the functional layout.

GeoBusinessMaps give access to market information in three steps and consecutively address the following questions:

- How high is the degree of **Internet usage** in the various countries?
- What are important **market indicators** with respect to the GIW-Commission’s lead projects and what do the markets in the various countries look like?
- What are the most important **sources** for basic geo data, environmental information, geological data, statistical data and meteorological data in the individual countries?

The evaluation of the above information permits an initial assessment of the market potential for each country. An example of what GeoBusinessMaps looks like is given below:

Startseite Impressum Beteiligte Weiterführende Links

Maps

GeoBusiness
GIW-Kommission

GeoBusinessMaps

Die GeobusinessMaps bilden die Ergebnisse der Studie „Chancen für Geschäftsmodelle deutscher Unternehmen im europäischen und globalen Informationsmarkt“ in einer kartenbasierten Internetanwendung ab. Das Portal stellt eine Vielzahl von Einzelinformationen zu geodatenrelevanten Märkten und Quellen bereit.

Information

GeoBusinessMaps stellen Marktinformationen in drei Schritten bereit:

1. **Internetnutzung:** Welches Land weist eine hohe Internetnutzung auf, um ein erfolgreiches Internetportal aufzubauen? Als Kriterien sind hierzu Indizes zur Internetverfügbarkeit in Haushalten und Unternehmen sowie zur Nutzung von Online-Services in Unternehmen abrufbar.
2. **Märkte:** Zu den GIW-Leitprojekten Außenwerbung, Georiskien, Geothermie, Steine und Erden und Liegenschaften. Zu jedem der fünf Märkte sind wichtige Kennzahlen zu den europäischen Ländern hinterlegt. Hierdurch lässt sich das Marktpotenzial einer Anwendung evaluieren.
3. **Geodatenbezugsquellen:** Wo können in den Zielländern Geodaten bezogen werden? Hier sind flächendeckend die Bezugsquellen für Geobasisdaten, Umweltinformationen, geologischen, statistischen und meteorologischen Daten hinterlegt.

Mit Hilfe der Anwendung entfallen aufwändige Recherchen. Sie können in kurzer Zeit eine erste Einschätzung der jeweiligen Märkte vornehmen und haben Bezugsquellen direkt verfügbar.

Internetnutzung

Märkte

Geodatenbezugsquellen

» [Internationale Bezugsquellen](#)
» [Glossar](#)
» [zum Download der Studie](#)



Beyond presenting market information and sources for geo-information in European markets, the study also aims to identify sources for geo data in selected international markets. The sources for basic geo data and cadastral registers, environmental information, geological data, statistical data and for meteorological information are included for the following international markets:

- Australia
- Brazil
- Canada
- China
- India
- Japan
- Russia
- South Africa
- United States of America (U.S.)

The comprehensive list of the selected international sources is available as a PDF-download in the application.

This study's systematic analysis of specific sectors shows that four countries exhibit particularly favorable pre-conditions for the successful creation of geo-portals:

- United Kingdom (U.K.)
- Spain
- France
- Italy

In these countries, the infrastructure is well developed. Especially the real estate, primary resources and geo-thermal sectors exhibit high potential in this regard, in addition to the respective economies being characterized by high productivity. Access to public geo data is also very easy to obtain in these countries.

3. GOOD PRACTICES

Good practices identify examples of successful, international web portals and applications. The featured cases distinguish themselves based on innovative business models, exemplary treatment of the subject matter as well as the commendable manner in which they address their target audience. Good practice applications are introduced for the following three categories:

1. Portals with an exemplary realization of business models
2. Innovative portals in the area of geo-information
3. Innovative examples of applications and approaches in the subject areas of the GIW-Commission's lead projects

A majority of the featured good practice applications comes from the U.K. This is no coincidence since the question of the reuse of public sector data is very successfully and efficiently addressed by the Ordnance Survey as a distributing entity for geo-information, by the Office of Public Sector Information as a sort of central data access and data reuse agency and by the Office of Fair Trading as an entity that observes the market and ensures competition.

The British portal Enact Energy www.enactenergy.com has received several awards and is operated by an energy-consulting firm by the same name. The portal serves as a multilayered information platform for the energy sector and primarily caters to municipal authorities and administrations, housing administrations, real estate construction companies and utility companies. Since 1996, the company has successfully worked with several different business models in order to work on projects that increase energy efficiency and reduce CO₂ emissions.

The Ordnance Survey functions as a central source for geo data in the U.K. The Internet platform www.ordnancesurvey.co.uk forms a comprehensive basis for information that does not just cater to expert needs but also to a variety of other target groups. In addition to business customers and solution partners, it is particularly interesting for students, teachers and beginners interested in informational material and applications in the area of geo-information, which can be accessed via www.ordnancesurvey.co.uk/oswebsite/education.

In Spain, most cadastral information can be obtained free-of-charge. Using the virtual office for cadastral information www.catastro.meh.es, which is operated by the Dirección General del Catastro, anyone can obtain comprehensive cadastral information on properties or real estate. This was featured as a good practice application by the European Union in 2007 www.ePractice.eu.

The Quarry Products Association is the British trade association for the aggregates and quarry products industry and operates a comprehensive information portal. Beyond informing about traditional industries and associations or member companies, it also reports on goals and intentions for sustainable mining methods.

Similar to the Ordnance Survey, it also operates an area targeted to a younger audience called the Youth Zone, which can be accessed at www.qpa.org/youthzone.htm.

4. BUSINESS MODELS

Based on the analysis of international good practices and the insights gained from various realized business model designs in the geo-information market, four factors that contribute to success can be identified:

- **Target-group oriented design:** Good practices show that portals offering products and services specifically geared towards a well-defined group of customers are particularly attractive.
- **Simple application and product:** Especially those applications where the value-added is immediately recognizable and which do not require any prior technical know-how reveal high user quotas. In the area of geo-computing, where precise and up-to-date information are particularly important for practical applications, the courage to simplify information is often-times necessary in order to realize business ideas for the masses. With respect to this, it is also decisive to offer simple and transparent pricing models.
- **Sustainable business models:** Web portals make it possible to offer several sales and distribution models simultaneously. The stability of these

business models can be increased if there is a mixture of revenues stemming from advertisement, online-shops and premium memberships. In this area, the ability to securely pay electronically is also important.

- **Cooperation with partners:** In order to cover the necessary know-how in the geo-information and Internet business, increased collaboration among various experts is required.

5. ANALYSIS OF THE GERMAN MARKET FOR GEO-INFORMATION

The 2003 MICUS study determined that the value of the geo-information market in Germany was 1.22 billion Euro for 2002. During the period 2002 to 2008, the “status-quo” scenario calculated an increase to 1.5 billion Euro, while the “deregulation” scenario calculated a market volume of 2.2 billion Euro.

The following assumptions formed the basis of the status-quo scenario: The growth of the geo-information market remains linked to the IT-market, i.e. the growth is not content-based but rather solely extracted from IT-technology. For this scenario, 3% annual growth was assumed.

For the deregulation scenario, the following assumptions were made: Unhindered access to public sector information, integrated access, simplification of user rights, appropriate pricing. These measures were intended to facilitate the de-coupling of the content-market from the IT-market, in order for content-based annual growth of 10% to become possible.

Now the question arises which of these scenarios has been realized or, in other words, how the market has developed.

In general, the market for public sector information has stagnated in recent years. The private sector has, for the most, turned to the private data market: private aerial photography, ever improving address databases and the development of private map designs have facilitated a rapid increase in this area. The possible substitution effect for private sector data, which was already forecasted by the 2003 MICUS study, has in the meantime become reality. Programs such as Google Earth and Microsoft Virtual Earth have tremendously increased the popularity of the market for geo data. At the same time, they have made the use of public sector data for mapping-applications obsolete in many cases.

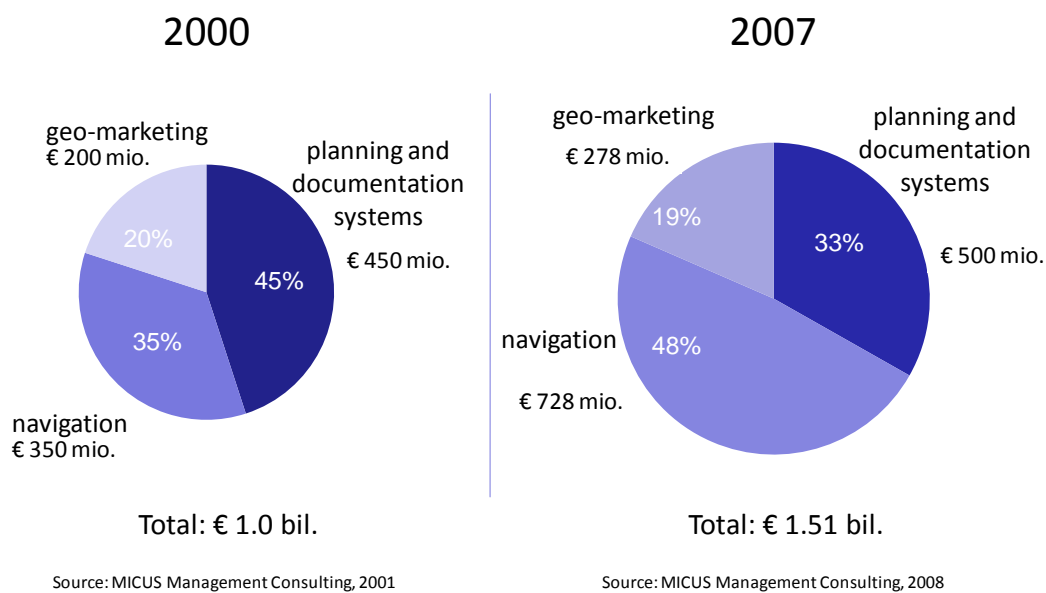
What consequences do these developments actually have on the geo-information market?

To illustrate the developments individually, the market will be broken down into its most important components. Three sectors will be considered:

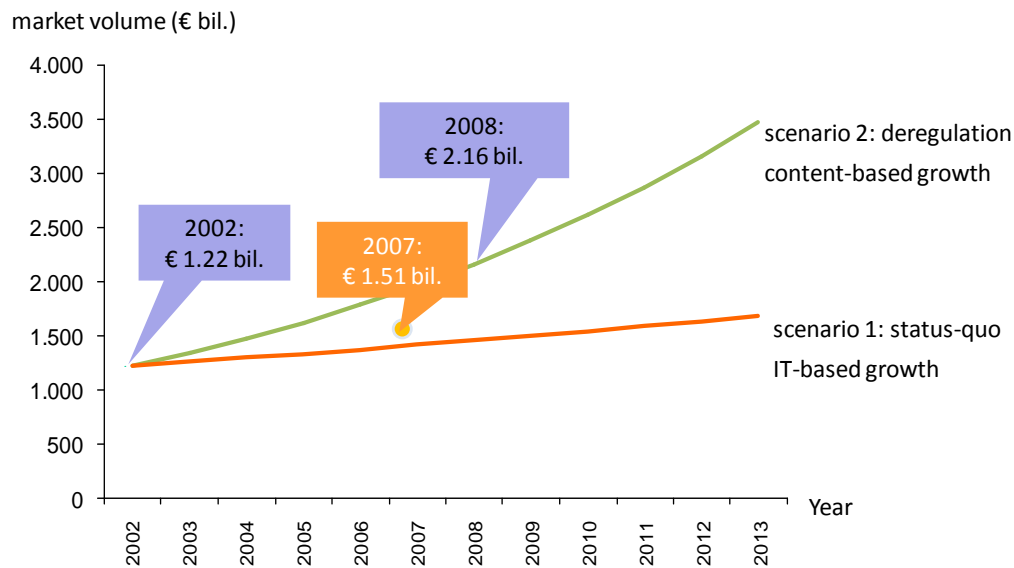
1. Planning and documentation systems
2. Portable and on-board satellite navigation
3. Geo-marketing

A clear shift is discernible in the geo-information market: In an initial market analysis, MICUS determined in 2000 that for an entire market volume of 1 billion Euro, the market for planning and documentation systems would make up the majority at 45%. In 2000, the market was mainly made up of experts who used geo-information as a basis for planning, while the market for navigation was not as developed yet.

In 2007, the market had a volume of 1.51 billion Euro and the navigation sector became the leader in the geo-information market at 48%. Thus, there is a clear shift in the importance of the respective sectors. The mere moderate increases in the absolute values for geo-marketing and planning and documentation services are also a result of the free-of-charge or alternative mapping services. In other words: Elaborate, expensive mapping services are replaced by cheaper solutions.



By comparing the most recent results for 2007 with the results obtained by the MICUS study in 2003, the following picture emerges: Content-based growth only took place in the private sector of the geo-information market. Conversely, the geo-information market on the basis of public sector information remained at or developed below the status-quo scenario.



Source: MICUS Management Consulting, 2003/ 2008

What does this mean for future developments in the market?

The traditional business models of geo-information system (GIS)-companies in the area of planning and documentation systems will continue to develop. Through a series of acquisitions, GIS- and mapping technologies were able to conquer new market niches. GIS components will increasingly be integrated in existing software solutions and will continue to develop in this area according to specific, application-oriented requirements. It can be forecasted that solutions will become more specialized and customized.

For the navigation sector, market saturation can be expected to occur by 2010; until then the market will continue to grow rapidly. Dynamic mapping features and the uniform mapping standard PSF (physical storage format), which is supposed to be introduced in 2011, will have stimulating effects on the market.

The importance of geo-marketing will continue to increase. However, similar to the planning and documentation system industry, this sector will continue to experience substitution away from high-quality data and software products towards simple and inexpensive mapping applications and use of open source software.

The substitution of public for private sector data will continue to become more significant in the future. In the U.S., Google Earth and Microsoft Earth are already used by federal administrations as standard applications with uniform coordinate systems on a daily basis.

6. POLICY RECOMMENDATIONS

What can public administrations, organizations and businesses do in order to create a better environment for German companies to establish themselves in the European and international geo-information market and to facilitate stronger growth in the German geo-information market? Nine recommendations can be made:

6.1. POLICY RECOMMENDATIONS FOR PUBLIC ADMINISTRATIONS

1. Continued development of GeoBusinessMaps as *the* information and communication platform of the geo-information market

This study presents version 1.0 of GeoBusinessMaps. Its underlying technology offers the possibility to develop the application even further and to supplement its content and functions.

Because of this, the existence of GeoBusinessMaps is secured, the application can be extended and the value-added can continue to grow for all users.

2. Make GeoBusinessMaps known on a European and international level and find new partners

The current version of GeoBusinessMaps is primarily concerned with the development of German companies' business models abroad. Business thrives on international exchange and international cooperation. GeoBusinessMaps offer an ideal approach to an inter-European solution that not only supports German businesses, but can also help foreign companies get involved in the German market.

3. Introduce monitoring of German geo-information business activities in a European setting

To promote the internationalization of the geo-information business, activities and successes of German companies abroad should be documented and published. Additionally, good practice solutions could serve as a motivating mechanism for other market participants to become more international.

4. Facilitate the reuse of public sector data for the business sector

The legal separation of access and reuse of information leads to an artificial splitting of a natural entity. Neither the freedom of information act (IFG) nor the environment information act (UIG) explicitly disclose or address the extent to which the obtained information can be used for commercial purposes. Not just the existing IFG, but all laws regarding the dissemination of information need to clarify whether they also regulate the reuse of information in the sense of the information reuse act (IWG).

6.2. POLICY RECOMMENDATIONS FOR ORGANIZATIONS AND BUSINESSES

5. Use of GeoBusinessMaps as a foundation for the internationalization of the German geo-information business

GeoBusinessMaps offers information that is important in developing business models for the international geo-information market. One can search for specific countries, which display good qualifications for web-based business models because of their high Internet access availability and use. In addition, important key indicators in sectors for which geo data are relevant can be researched. Based on this, target markets can be discovered and developed. The availability of the geo-data sources makes it easier to get in touch with the proper contacts to obtain publicly available geo-data.

10

6. Collaboration among national and international cooperation partners in the creation of business models

Operating geo-portals requires market expertise in areas such as data acquisition, Internet services, GIS-services, customer service and portal design but also knowledge of national and regional markets. To cover all these areas requires an increased collaboration with national and international partners, especially those who have country-specific market access.

7. Ensuring sustainability of business models by creating simple, demand-oriented geo-portals geared towards target groups

The long-term success of a geo-portal primarily depends on the sustainability of the business model. Only if profits can be made on a regular basis, can updates and technical adjustments be carried out. Therefore it is necessary to create service-oriented pricing models and appropriate products for the specific market.

In designing prices and products, the provider who is drawing on public sector information, is dependent on the latter's respective services and fees. This shows how important deregulation in this area is for business models to succeed on the basis of public data.

Examples from abroad show how appealing simple applications are. The value-added must be immediately recognizable to the user and the need for specialized knowledge cannot present an obstacle to portal-use. Short download periods and frequently updated information are important prerequisites for a high-user frequency.

The first geo-portals in Germany were oftentimes created by public geo-data providers. Even though technically highly developed, they were frequently not adopted by the actual target group. From the good practices cases, it can be inferred how important the creation of target group oriented portals is. With respect to geo-data, the courage to simplify, to reduce the complexity and to strengthen service-orientation is crucial.

8. Extend the use of geo-data onto other business processes

Even though the public interest in geo-data has increased tremendously as a result of applications such as Google Earth and Virtual Earth, their many versatile potential uses have not been exhausted. Many business processes such as sales, strategy planning, marketing, location scouting, or customer acquisition could be executed more effectively with the targeted use of geo-data.

9. Encouraging internationalization of organizations using GeoBusinessMaps

German organizations should take the results of this study and the GeoBusinessMaps application as an opportunity to form communication networks on a European scale. This is intended to encourage the opening up of new markets and to make it easier to network.