Final Publishable Summary Report

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Project objectives

The bridge2GEO project aimed to enhance the potential of the two RTD-driven clusters Salzburg (Austria) and North Rhine-Westphalia (NRW, Germany) in the sector of Geographic Information (GI) through interlinking research activities carried out by research organisations and private enterprises. The benefit of GI-technology was planned to be brought to **different economic branches** with affinity to chosen competence priorities of the two regions involved. New strategies, communication and business models were elaborated to promote implementation of GI-services in well-selected business fields. Five major strategic networks were selected which correspond to four business sectors (**Renewable Energy**, **Health Care**, **Tourism**, **Trade**) and one initiative of global concern (Global Monitoring for Environment and Security – **GMES**). The overall objective of bridge2GEO was the development of a cross-regional **Action Plan** of research-driven clusters in the thematic field of Geo-Informatics (GI) in order to enhance economic potential of SMEs through strategic integration and technology transfer and providing sustainable structures which help to integrate the two GI-clusters in European and global markets.

Work performed and main results

In **WP2** ***(Studies and Analyses)*** a detailed report was compiled which included **SWOT** *(Strengths, Weaknesses, Opportunities, Threats)* **Analyses** for the three topics *Geodata*, *Technology Trends* and *Mechanism*.

SWOT1 ***Geodata*** concentrated on the market potential of geodata, in particular the private and public geodata sector. Moreover the technology fields of GeoWeb/GIS2.0/Web2.0 applications as well as the GMES initiative were explicitly integrated into the analysis. Main focus within these analyses was given to collaborative working methods *(crowdsourcing)* (OpenStreetMap), Earth Viewer (Google Earth/maps, Virtual Earth), global players (Navteq and Teleatlas) as well as European data directives (INSPIRE and PSI).

SWOT2 ***Technology Trends*** comprised an analysis of the current RTD technology trends and structures within the two regions. The study did not try to define technology trends in a conclusive way. The relevant community defined trends through its discourse. For the identification of a spectrum of potentially relevant technology trends concerning the GIS branch *a multistage approach* was chosen: (i) Identification of relevant trends from a comprehensive literature analysis; (ii) Discussion of relevant technology trends based on the expertise of the involved project partners of the two GI-regions within a workshop in Bonn; this pretest revealed 20 technology trends; (iii)

Written enquiry to reach clarification about the relevance of the trends in the regions. The enquiry was sent to all entrepreneurial institutions and companies of the GIS-Clusters; (iv) Quantitative assessment of the relevance of the trends outside the region wherefore 462 projects of the EU-Seventh Framework Programme (FP7) as well as conference proceedings of AGILE (2006 and 2007) and Where2.0 (2005 and 2007) (in total 175 contributions) were evaluated and related to the trends derived from the workshop.

SWOT3 *Mechanism* concentrated on the current economic structures and dynamics of the two regions NRW and Salzburg as well as the five selected sectors and aimed at identifying their potentials and capacities. Therefore, a comprehensive *regional analysis* for each region including 22 *expert interviews* was carried out. Both *capacities* as well as *determining factors* are described including barriers that hold back the activation and sustainable development of the two geo business regions.

Some results of the SWOT analyses:

- the critical mass of the small GIS companies in Salzburg and NRW, which is essential for successful market participation, can only be reached through strategic cooperation (private-private, private-public).
- the GIS companies in Salzburg and NRW can strengthen their position as geodata producers and geodata service providers by (a) cooperation with research institutions, (b) large proper innovation potential and (c) innovative combination of basis geodata and technological innovative and valuable solutions
- there is a need for improved geodata infrastructure and clear strategies for geodata policy (deregulation, task-sharing between private companies and public institutions, creation of legal framework for re-use, implementation of European Directives like INSPIRE and PSI)
- The clusters are positioned more in a complementary way rather than competing
- Both regions follow recent, research-oriented trends. They are willing and able to innovate and accent their specific strengths. The relevant trends are dominantly derived from the discourse among the regional communities- superior IT-trends are less prevalent.
- The inter-regional **collaboration** between the actors of Salzburg and NRW has to **strengthen**, because it provides an extension of competences and knowledge of the cross-section GI-industry. This will increase the overall productivity of the companies, promotes the stimulating of new businesses and drives the innovativeness as crucial success factor to compete, nationally and globally.
- It is important to explicitly define clear and pragmatic **business models** and application areas that suit with the specific requirements of the different economic sectors.
- Although it is generally perceived by the public and private stakeholders that geo information as resources contain high importance to generate added values, it is

obviously still **difficult** for the GI-branch **to activate the overall economic potential** of the GI-market by providing new business fields and setting up inter-sectoral relations.

- The two Geo-Business regions NRW and Salzburg are significant sites of the GI-branch and an excellent example for an inter-regional strategic cooperation with the objective to commonly generate cross-sectoral business opportunities. Both regions are characterised by high competences within the field of geo-informatics and are a unique agglomeration of interdisciplinary knowledge, because of the located renowned universities, innovative federal land surveying authorities and the existence of a large number of national and international authorities and organisations. This breading ground is supported by strong promotional efforts of the local economic and promotion agencies.
- It is obvious that the companies and research institutions in Salzburg and NRW are **complementary** not only regarding the five selected sectors but also their regional potentials (e.g. substantial potential in the sectors Energy and GMES have been identified for the region Bonn/Rhein-Sieg/NRW whereas the companies in the region only address this market to a small degree. On the other hand companies in Salzburg have only small market penetration within the sectors Health and Trade/Retail although significant potential would exist for this region).

The results of WP2 served as starting point from which strategic actions and measures could be defined and provided important input for work in WP4.

WP3 ***(Strategies & Alliances)*** concentrated on organising activities (meetings, trade-fair participations, workshops, discussion forums, congresses and other network activities) within the four business sectors (Energy, Health, Trade/Retail and Tourism) and the European initiative GMES to enhance and facilitate the development of interdisciplinary strategic networks, the core and the heart of bridge2GEO.
Altogether nearly 70 activities were carried out within the five strategic networks addressing stakeholders and interest groups, companies and service providers, technical groups, different administrative levels and the public at large. The amount and nature of activities within the five strategic networks were very different and not necessarily balanced between the networks and regions. A measure for the success of the strategic networks is not only the amount of activities, but also the type of activity (e.g. Trade fair participation, congress, workshop, business meeting etc.).
Based on the experiences within the strategic networking RTD and business strategies were defined to guarantee future inter-exchange between the GI-discipline and the selected sectors and deepen the existing co-operation in the GI sector of the two regions.
During the project other fields of interest became obvious, too, e.g. Spatial Data Infrastructure (SDI). The cluster/network structures being different it was unequally difficult to influence in the regional policies.

Furthermore a Research Agenda for both project regions was formulated which describes the current situation in the regions as well as strategies for future research activities in order to enable better integration of SMEs and strengthen the innovation capacity and competitiveness of the GI sector in the regions.

In **WP 4** ***(Integration)*** the outcome of the five selected sectors was integrated into Regional Strategy Plans for RTD and Business and perspectives ("Leitbild") for each project region were developed. In Salzburg a workshop with an external moderator was carried out to formulate the "Leitbild" for Salzburg and to set up a first draft of the Joint Action Plan which afterwards was complemented by partners from NRW. The purpose of the "Leitbild" of Salzburg is to improve the cooperation between the R&D sector, the companies and the authorities to strengthen the whole sector and as a consequence also the regional economy. It is meant to be the basis for a common vision, which makes involved people aim for the same direction, and an improved consistent public perception of the GI sector in Salzburg.

In Bonn/Rhein-Sieg/Ahrweiler there already existed a cooperation agreement within the GeoInitiative. Main objectives of the GeoInitiative are creating awareness of the economic and societal potential of geoinformation and building up a regional GIS-related network. Core activities of the GeoInitiative are the organisation of joint trade fair presentations, conferences and match-making events. Here, the cooperation of the two European Clusters has added "critical mass" of topics and knowledge to the overall performance. The activities in the five "strategic networks" vitalised the relationship between the regional authorities (Departments for Economic Development, Chamber of Commerce) and the regional enterprises/research institutes. The integration of many players of the value added chain in geoinformatics has been supported: research institutes, SMEs and the regional "big players" using geoinformation technologies like Telekom or Deutsche Post or the United Nations offices located in Bonn. In the course of bridge2GEO, structures, tasks and networking activities could be further developed, so the GeoInitiative is now well equipped to represent the region in larger scale cluster activities like IKT NRW or GeoNet NRW.

Beside these main activities WP4 also addressed in addition to the five selected industry sectors one topic of both, regional and international importance. In the course of the INSPIRE directive regional and national **geodata infrastructures or Spatial data infrastructures (GDI/SDI)** are being developed. GDIs are distributed networks aiming at accessing and exchanging geoinformation online. Producers, service providers and users of geodata use these networks. GDIs are more than geoinformation systems hosted by regional authorities. A broad dialogue is necessary for making an infrastructure sustainable on which geo-related information is made accessible and can be exchanged between all stakeholders. In May 2009 the bridge2GEO consortium invited representatives from the public sector, actors of the economic and scientific communities as well as friends and colleagues from the GIS sector to a one day event in Salzburg with the objective to launch a consultation process for the GDI topic between all parties involved.

In **WP5** ***(Dissemination)*** a website (www.bridge2geo.eu) has been developed to attract local, regional offices and non-RTD partners. For internal communication and exchange of project documents a Wiki has been set up.
The project logo was used in all dissemination activities, which were carried out on regional, national and international level. Due to the great success of bridge2GEO it was decided to register the label as **trademark** for further anchoring the two regions' expertise in geoinformatics in promising economic domains – the process is still ongoing.

Fig. 1: bridge2GEO project logo

During the lifetime of bridge2GEO the project partners in Salzburg and NRW have elaborated several other project proposals under both, regional and national as well as EU programme schemes including Structural Funds in which references to bridge2GEO have been made.

The establishment of the **International GIS-Cluster Conference -** an international GI-lobby with strong European representatives - falls into the project's lifetime. The first conference of its kind took place in May 2008 in Gävle, Sweden with participation of GIS-Cluster Salzburg representing the bridge2GEO network and objectives. The second conference was held on 12 January 2010 in Biloxi, Mississippi, USA with bridge2GEO participation.

Work in this WP also included the preparation of a report on Exploitation and Dissemination as well as a report on Awareness and Wider Societal Implications.

Potential impact

While WP2 revealed the strengths, weaknesses, opportunities and threats and was more directed to the project partners as such, the strategic networking in WP3 supported the establishment of new contacts and new markets and helped to improve the cooperation between (a) SMEs, (b) research institutions, (c) SMEs and research institutions and (d) SMEs, research institutions and regional authorities within each region as well as between the two regions. New partnerships in new markets could be established according to the business models and the "Leitbild" for the two regions will lead to enhanced competitiveness of single SMEs and the whole region within the GI sector. Interdisciplinary transnational research projects (e.g. wood production/renewable energy: forest management and GIS – 2009/2010) open up new fields with a substantial economic and societal impact.

In fact, it is expected that many indirect and direct long-term impacts can make a particular portion of the total effects of this support action. It is still too early to estimate the long-term effects but it can clearly be stated that the regions have been growing together and potential markets have been successfully explored.

Although the topic 'spatial data infrastructure' (SDI) was not part of the original project proposal it became an essential part of the activities in the project. A first major expert round table should be mentioned, in particular, which was conducted in May 2009 in Salzburg in cooperation with the provincial government and the project partner ITG. The main activities in the SDI field will only be evident after the lifespan of the project but the partners have strongly influenced this process and will continue to be important partners. Specific expertise in this additional field – comparable to the 'strategic networks' already exist. This is especially true for the partners GIUB, PLUS, RSA and GISCluster. For 2010 the economic potential of geo information needs to be exploited further according to the business strategy plan. Also after the termination of the project it will be possible to set-up common events, to explore what kind of new business models and solutions would be meaningful to attract user group etc. This has all been made feasible through the project itself.

Bridge2GEO consortium

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