

008-0267

Operational Competitiveness of Regions
- the Baltic Logistics Example

Wolfgang Kersten, Mareike Boeger, Meike Schroeder, Carolin Singer

Institute of Business Logistics and General Management

Kühne School of Logistics and Management at

Hamburg University of Technology

Schwarzenbergstr. 95, 21073 Hamburg, Germany

E-mail: logu@tu-harburg.de, Phone: +49(0)40-42878-3525

POMS 19th Annual Conference

La Jolla, California, U.S.A.

May 9 to May 12, 2008

Abstract

The Baltic Sea Region (BSR) is one of the most dynamic regions in the European Union. However, there are discrepancies in the speed of the economic development, leading to different levels of competitiveness of regions and companies. Differences in logistics play a major role in this issue and no comparable analyses and investigations have been made until recently. The paper presents the results of an empirical logistics study which was part of the EU project LogOn Baltic. The logistics study was conducted in nine regions around the Baltic Sea in order to enable a first-time comparative analysis of the status quo of logistics. Selected regions are analyzed with respect to the logistics costs and their development. The companies' willingness to outsource logistics services is described with regard to the changing demands. Last, the results from the expert interviews reflect the level of satisfaction with the regional public authorities.

Keywords: Logistics, Competitiveness, Outsourcing, Regional Development, Baltic Sea Region

1 Introduction

1.1. Competitiveness of Companies and Regions

Globalization, shorter product life cycles and more individualized customer expectations are only few of the challenges companies have been faced with in recent years. For many companies it is not sufficient to remain competitive on a national level: The focus is more and more shifted to international competitiveness. In consideration of the latter, we understand the capability of a company to establish against competitors on national or international markets.

[1]

As companies seek to take advantage of global opportunities on the supply as well as on the demand side, internationally dispersed supply networks arise which can be spread over a number of countries. Companies try to achieve cost savings from cost differences and locate each production stage on its optimal position. [2] However, recently it has more and more turned out that cost advantages are not the only decision criterion for companies to settle down at a certain location. To be an attractive location, a country or – on a lower level a region – has to fulfill a number of additional requirements. While traditionally, factors such as production costs and the availability of employees are in the focus, nowadays, location factors such as the existence of standards or the transport connections gain in importance.

The competitiveness of a country can be defined as the ability to maintain and increase its productivity compared to other countries, i.e. to utilize the scarce resources as efficiently as possible. [3, 4] This indicator can analogically be used for defining the competitiveness of regions. As it is problematic to consider the overall economic average, the competitiveness of regions should be analyzed within the industry-specific context. [5] Logistics plays a major role on the cross-sectoral level: It is of great relevance for companies both from the

manufacturing as well as from the trading sector. A recent study conducted by the World Bank shows that there is a significant correlation between the economic growth of a country and its logistical capabilities. [6]

Therefore, the aim of regions must be to establish favorable local conditions regarding logistics and to fulfill the requirements of today's business models, production and logistics systems (just in time, distributed production, etc.). This holds true for the provision of an adequate infrastructure, for the provision of commercial premises, the settlement of logistics service providers, etc.

1.2. The Baltic Sea Region

The BSR is situated in the North-East of the European mainland and comprises Denmark, Iceland, Norway, Sweden, Finland, Northwest Russia, Estonia, Latvia, Lithuania, Northern Poland and Northern Germany (the Southern Metropolitan Region of Hamburg and Mecklenburg-Vorpommern). The dynamic region has about 50 million inhabitants. Almost one fifth of the inhabitants live in Russia, 16.8% are German while Estonia, Latvia, Lithuania and Iceland together make up around 15% of the BSR population. [7]

There are large differences in economic performance and growth between countries and regions in the BSR. While the Eastern European countries such as Estonia, Latvia and Poland have GDP growth rates of about 6% to 9%, the Western adjacent states only experience GDP growth rates between 1% and 5%. [8]

The BSR has been performing strongly from an economic point of view but it also faces several challenges. Although globalization has increased the level of competition, it has also opened up large markets. Companies located in the BSR do not only have access to the

region's consumers but also to the rest of the 460 million inhabitants of the EU and the 145 million in neighboring Russia. [9, 10]

The results presented in the paper have been gathered as part of the EU project called "LogOn Baltic - Developing Regions through Spatial Planning and Logistics & ICT Competence". The project was part-financed by the European Regional Development Fund within the Baltic Sea Region INTERREG IIIB Neighbourhood Programme. LogOn Baltic targeted on improving spatial planning and integration by transferring knowledge in ICT and logistics competence. The main aim was both to produce and to disseminate information for regional development agencies on how to support enterprises in the participating regions in their effort to improve ICT and logistics competence, therefore improving regional development. The participating partners - research institutions, logistics and transport associations, development agencies and regional authorities - were from the following countries: Estonia, Latvia, Lithuania, Poland, Germany (Hamburg region and Wismar region), Denmark, Sweden, Finland and Russia (St. Petersburg region). [11, 12]

2. Empirical Results from the Logistics Survey

2.1 Target group and sample

The **logistics survey** – by far the largest survey carried out in the BSR – reflects the current status and needs of logistics in the region's business community. The survey consisted of two parts: General questions and specific questions pertaining to the type of companies concerned. The same questionnaire was used in all regions, but each region had the opportunity to add up to two questions focusing on specific regional issues.

The aim of this explorative study was to evaluate the internal situation of companies, especially of SMEs, with respect to logistics, but also the view of the companies on their regional business environment and future trends. Thus, the main themes of the survey were:

- Current logistics costs and their development
- The need for further competence development
- Outsourcing – today's situation and the expected development within the firms
- Operating environment - an assessment of the regional advantages and disadvantages
- A self-assessment of the companies' logistics activities and to what extent they are coordinated.

The survey was mainly conducted as a web-based survey. In most regions, it was carried out from January to March 2007. [13]

The respondent companies were generally categorized according to the sector and the **company size** both of which were generally used as background parameters. Micro, small or medium-sized companies depending on the turnover are defined by the European Commission as follows: Micro companies are characterized by a turnover of less than €2 million, while

small companies have a turnover between €2-10 million and medium-sized companies achieve €10-50 million. [14] In total, more than 1,200 companies participated in the study. The number of respondents varied from about 80 in Pomerania / Poland to about 330 in Southwest Finland. More than 90% of the companies can be classified as SMEs. The distribution of participants supports the objective of the LogOn Baltic project to evaluate the needs to strengthen the competitiveness of SMEs in particular.

In addition to their size, companies were also classified according to their **industrial sectors**. The percentage of respondents is approximately evenly split into the three different sectors: 38% represent the manufacturing industry, 33% belong to the trading industry and 29% are logistics service providers. Thus, a broad picture on the perspectives from users as well as from logistics service providers can be guaranteed.

2.2 Logistics costs from the manufacturing and trading industry

The four major logistics cost elements examined in the survey are transport, warehousing, inventory and administration. All costs are given as a percentage of the turnover. The **overall logistics costs** in the investigated regions varied from 8% to 14% of the turnover of the participating companies (see figure 1). Only the German region Mecklenburg-Vorpommern deviates from this bandwidth; here, the logistics costs are slightly above 20%. An important reason is the structure of the companies in this region which is dominated by micro and small companies. In addition, the structure of the products is mainly composed of relatively low-value goods.

Another surprising result is that the logistics costs of the region Southwest Finland are among the lowest third of all regions. Former studies often came to the conclusion that due to the large distances between cities and due to the small population density, logistics costs in Finland are significantly higher than in other countries. [15] At least for Southwest Finland,

this does not seem to hold true. The southwest region around the city of Turku is one of the most densely populated regions in Finland with a well-developed infrastructure.

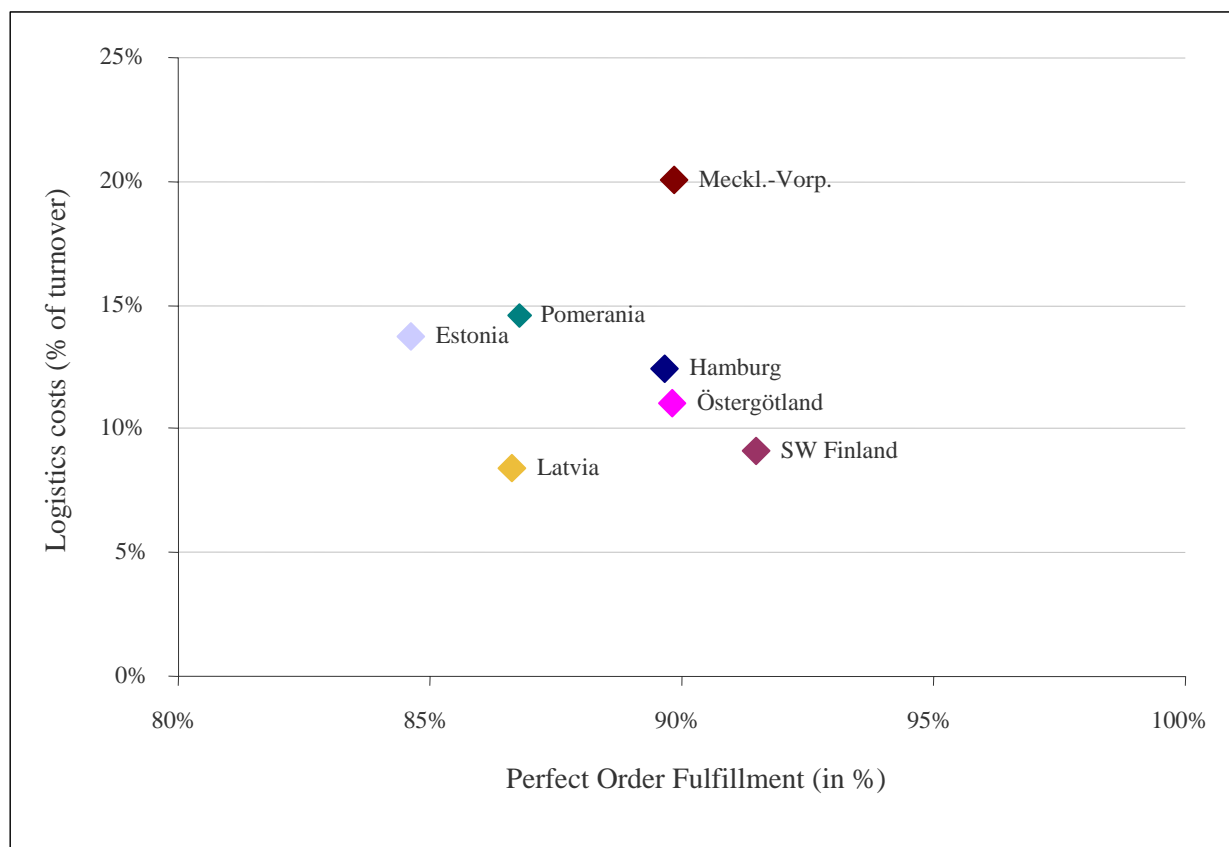


Figure 1: Costs versus perfect order fulfillment (manufacturing companies)

Source: Own Illustration, LogOn Baltic results

Regarding the **composition of logistics costs**, no significant differences can be observed between the regions. In all regions, transportation costs are the highest costs for all company sizes, followed by inventory costs. While large manufacturing companies have the lowest logistics costs in total, there are no significant differences in the sum of costs between micro, small and medium-sized companies.

However, the composition of logistics costs depends more on the company size. For instance, large companies seem to have their cost advantages mainly in transport and particularly warehousing costs, whereas administration costs are higher for them. One reason could be that logistics departments in SMEs are relatively small and hence easy to manage. From a certain size of a company onwards, the need for coordination and administration increases. [12]

In contrast to the composition of logistics costs, an advantage of the Western EU countries can be perceived in terms of the logistics performance of the regions analyzed. It was measured by the percentage of **perfect order fulfillment** (see figure 1).

Moreover, companies were asked about their expectations regarding the **future development of costs**. Here, the evidence seems to be clear: In all regions except St. Petersburg, more than 50% of the companies from the manufacturing sector believe that their logistics costs will rise in the next years, particularly the transport costs (see figure 2 for the latter). The remaining companies neither expect a decrease nor an increase. There are several reasons for the estimated rise in transportation costs. The increasing oil price leads to an increase in transportation costs, since the main factor influencing the price of fuel is the cost of crude oil. Taxes such as the petroleum tax represent another uncertain cost factor. Furthermore, the development of highway toll systems makes transport more expensive in Europe. For example, in Germany, the toll was introduced for trucks in 2005 and is expected to be increased during the next years. [12]

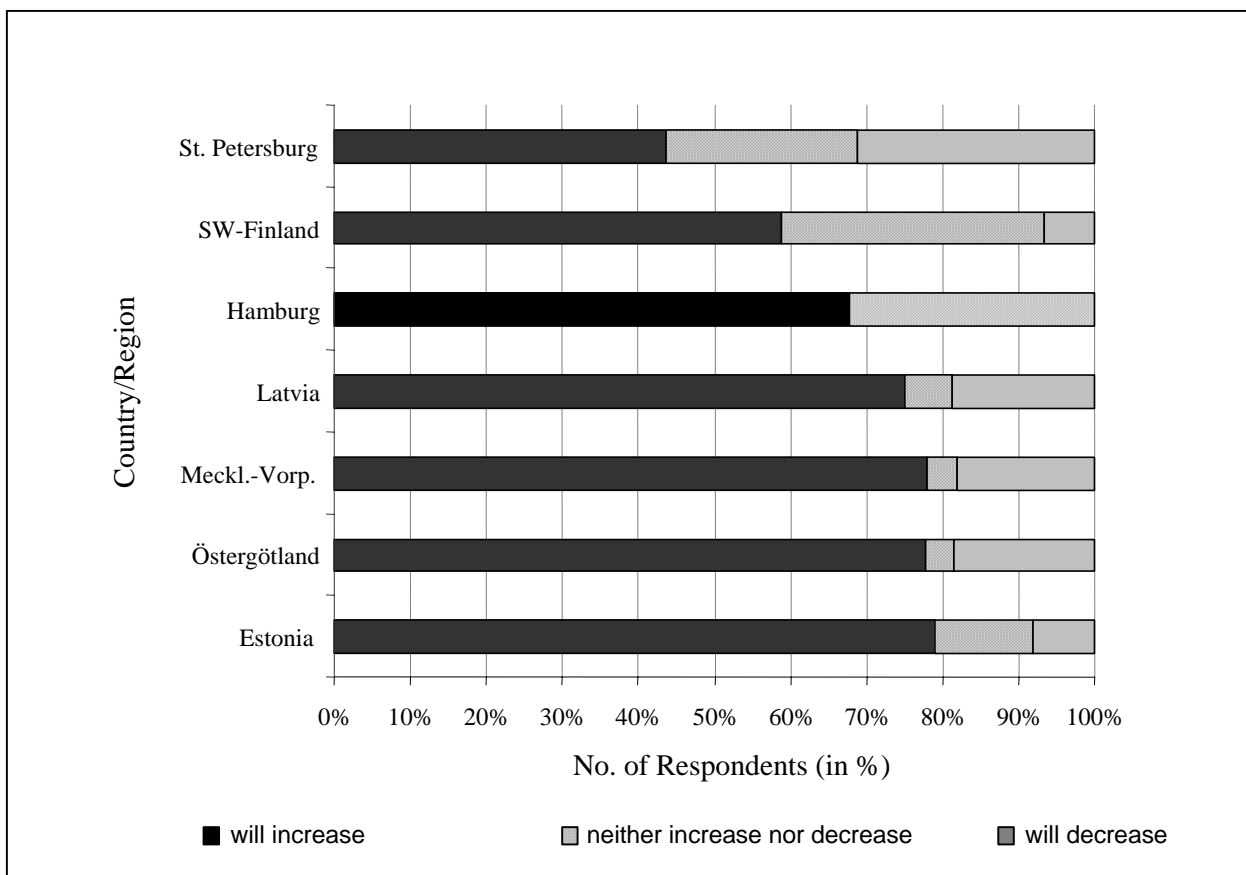


Figure 2: Development of transport costs (manufacturing companies)

Source: Own Illustration, LogOn Baltic results

More customer-oriented approaches to logistics involving higher flexibility, smaller batch sizes and more frequent shipping of goods represent a rather operational reason for higher logistics costs. The approaches also attribute to higher inventory carrying costs in the future, although companies try to reduce logistics costs with lean management methods. These methods as well as outsourcing lead to higher risks in the supply chains and therefore to a greater urgency about disruption systems. The implementation of these systems may in turn lead to a decrease in inventory carrying costs which is anticipated by more than 10% of the responding companies.

2.3 Logistics outsourcing

Concerning the **outsourcing** of logistics services, transport, reverse logistics and freight forwarding are the most commonly outsourced logistics operations in the surveyed companies. On average, about 75% of the companies said that more than 75% of their domestic as well as international transportation are handled by an external service provider. About 20% of the companies stated they outsource 1% to 75% of their domestic transport, 15% of the companies for international transport respectively (see figure 3). In these areas, manufacturing companies generally do not see their core competence and thus they do not lose any know-how when outsourcing them.

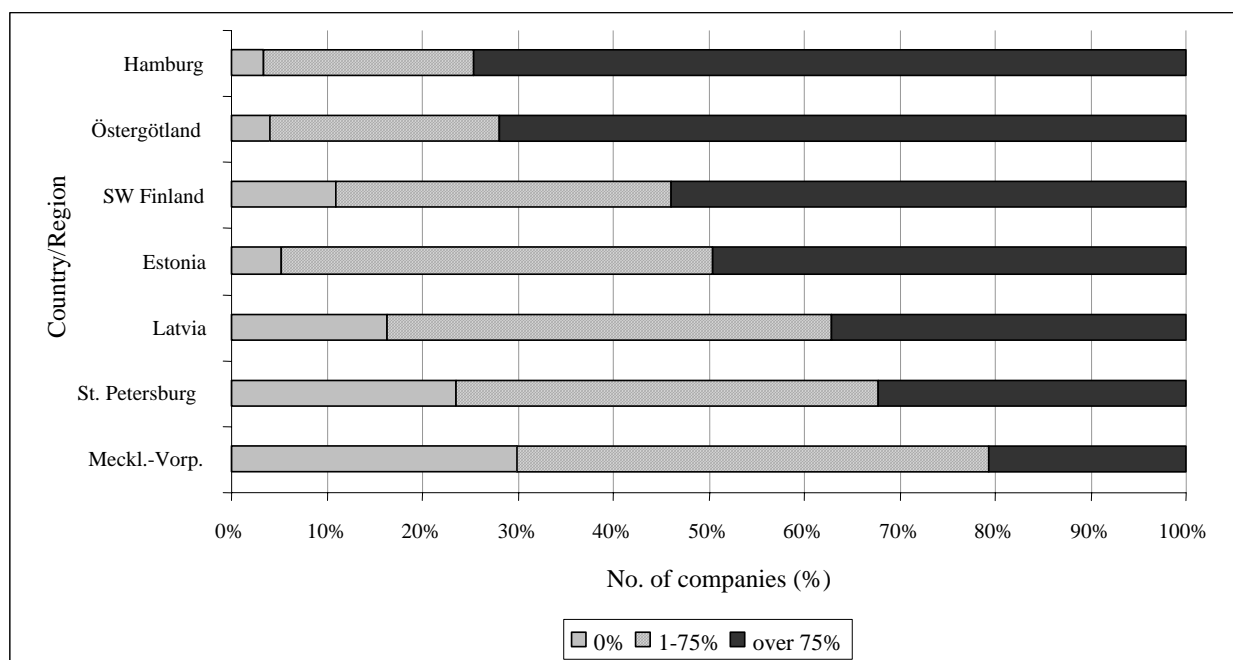


Figure 3: Logistics outsourcing of national transportation (manufacturing and trading companies)

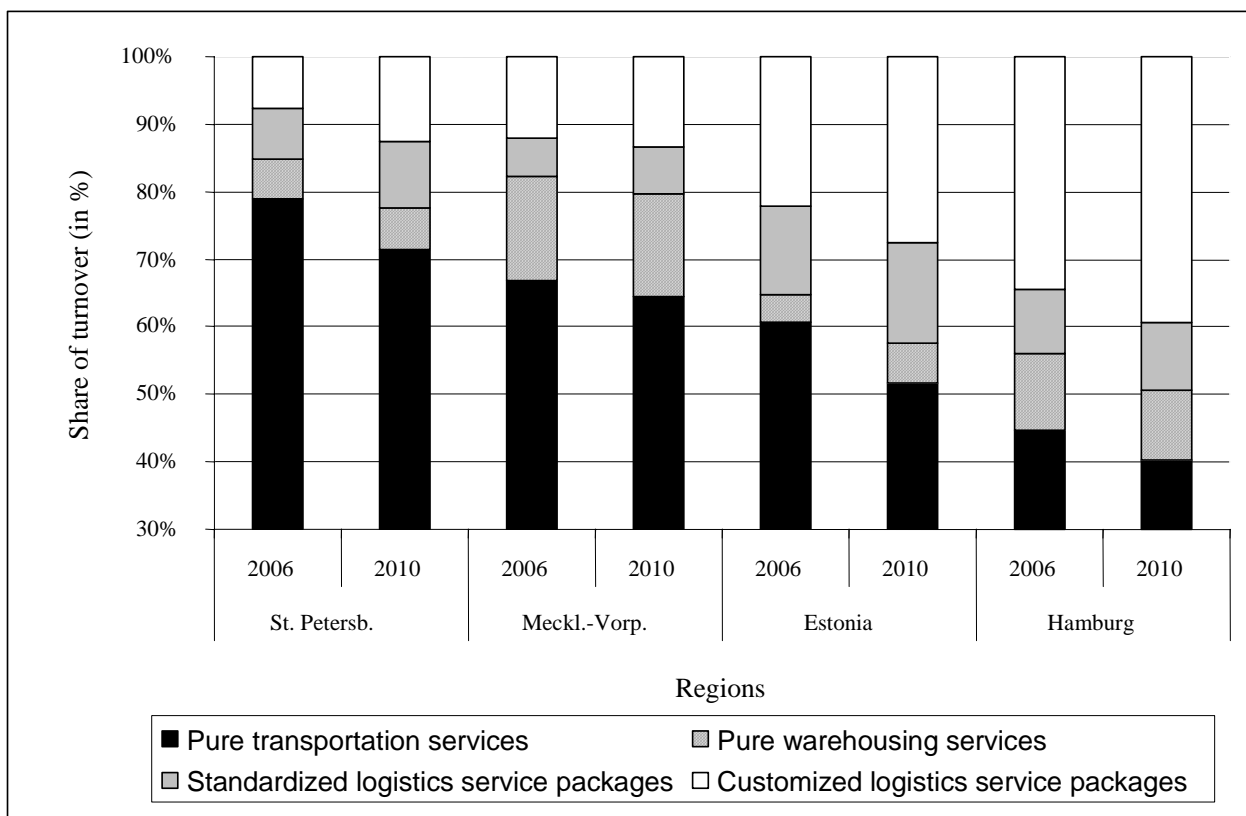
Source: Own Illustration, LogOn Baltic results

In addition, transportation, freight forwarding, and reverse logistics are areas that have a long history of expertise in the world of logistics service providers. These companies offer an excellent service at a much lower cost than trading and manufacturing companies because

they can achieve economies of scale. Since the main criteria for outsourcing decisions are usually cost factors, these functions are outsourced to third parties.

After presenting the outsourcing results from the manufacturing and trading sector, the findings from the logistics industry itself are even more important and are therefore discussed in the following. First, the logistics companies were asked to estimate the **distribution of the turnover** for the years 2006 and 2010. Here it was differentiated between the following types of services: Customized logistics service packages, standardized logistics service packages, pure warehousing and pure transportation services.

Figure 4 shows that in all regions, pure transportation services account for the largest part of the four service categories in 2006, although this share varies from region to region, showcased for the regions St. Petersburg, Mecklenburg-Vorpommern, Estonia and Hamburg. At the same time it can be seen that the share of pure transportation services will decrease in all regions until 2010. However, there are hardly any changes in pure warehousing services and standardized logistics service packages.



*Figure 4: Distribution of turnover for different types of services – 2006 and 2010
(logistics service providers)*

Source: Own Illustration, LogOn Baltic results

A clear trend towards customized, individual logistics services can be observed. Those services will be increasingly demanded by the end customer which are adapted to the individual customer's wishes and which contain an extended service package (contract logistics). Only those logistics service providers will be silhouetted against the competitors and will be able to generate essential competitive advantages, who integrate contract logistics into their business strategy. [12]

3. Support for the competitiveness of the regions

3.1 Target group and sample

While the logistics survey mainly focused on the current status and needs of the logistics community and allowed for a quantitative analysis, the expert interviews mainly followed a qualitative approach. The aim was to investigate regional strengths and weaknesses with respect to logistics and information and communication technologies (ICT). Nevertheless, expectations and future visions of different kinds of institutions and companies were to be determined as well. The complexity and multifariousness of the research questions required personal interviews and a qualitative approach. With ten to fifteen interviews in each region, it was possible to cover the major views on regional development regarding logistics and ICT. The interviews were conducted according to a half-standardized interview guideline. Most questions were open questions. A quantitative scale was used in addition to qualitative answers, when it seemed useful for a later comparison of the interviews. The interview guideline comprised five major parts:

- Trends in outsourcing and logistics
- Business contacts in the BSR
- Regional development measures
- Qualification in logistics and ICT
- Expectations

The objective was to choose a heterogeneous target group in order to guarantee for an analysis based on many perspectives. In each region, ten to fifteen interview partners were selected, representing seven different institutions or company groups: Local authorities, logistics consultants, logistics service providers, research institutions, support initiatives and companies from the manufacturing as well as from the retail industry.

3.2 Political support for maintaining competitiveness

The expert interviews focused to a large extent on the business environment of companies, namely regional development and support of logistics and ICT by local and regional municipalities. Especially the latter is an important decision criterion for companies when choosing the business location. It can mean general support for logistics, such as the extension of infrastructure, but also more individual services such as the provision of space for a given company. Figure 5 shows the evaluation of the local / regional support by the experts. They were asked to rate the level of satisfaction with the local authorities on a five-point-scale (“very unsatisfied” to “very satisfied”) giving reasons for their opinion.

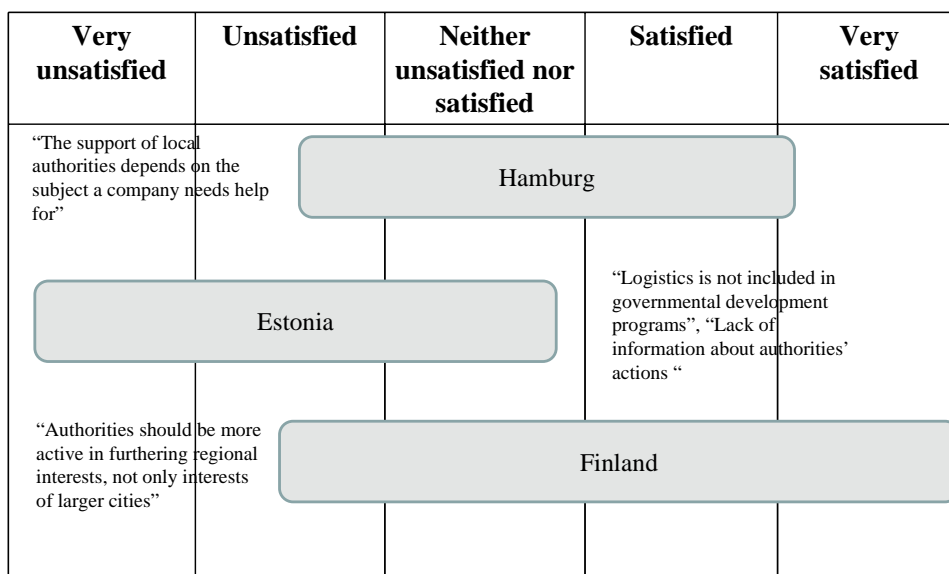


Figure 5: Satisfaction with support of local and regional authorities in the area of logistics

Source: Own Illustration, LogOn Baltic results

The experts’ scope of estimates in particular is remarkable. On the one hand, it reflects the composition of experts which are partly from private companies and partly from the field of regional development. On the other hand, it becomes clear that the satisfaction of respondents

depends very much on the topic which the companies require support for. This is a reason which was especially mentioned by the experts of the Hamburg region. The main areas of concern are versatile, reaching from general strategies of regional development to the information policy of public authorities, regional activities and to infrastructure projects. Estonian experts criticized that logistics is not an element of the national economic support programme and is hence underestimated. Experts from Southwest Finland, in contrast, complained that there is still a focus on large cities, therefore neglecting smaller regions. In general, experts observed that companies from the private sector are insufficiently informed about activities in regional development. Due to this kind of information policy, many offers are not accepted. Furthermore, there is a wide and unclear range of institutions with similar responsibilities, lacking an institution in charge of bundling activities.

4. Summary and Outlook

The aim of this paper was to present and to analyze selected results of a recent logistics study in the Baltic Sea Region. The discussion in the fields of costs, cost development and outsourcing showed the strengths and weaknesses of each region. They build the starting point for regional development activities in order to directly support small and medium-sized enterprises and to increase their competitiveness and that of the regions as a whole. More detailed analyses are currently taking place in the individual regions of the Baltic Sea Region. The objective for regional development institutions is to jointly determine strategies and concrete actions with the private sector. Further results of the logistics study and expert interviews can be found in the final report of the LogOn Baltic project. [15]

References

- [1] Kantzenbach, E.: Der Wirtschaftsstandort Deutschland im internationalen Wettbewerb, Diskussionspapier 11 des HWWA, Hamburg 1993.
- [2] Ihde, G.-B.: Wettbewerbsfähigkeit durch Standortarbitrage, in: Sierke, B.R.A., Albe, F. (ed.): Branchenübergreifende Erfolgsfaktoren, Controlling, Organisation, Logistik, Wachstum, Wiesbaden 1995, pp. 51-58.
- [3] Van der Linde, C.: Deutsche Wettbewerbsvorteile, Düsseldorf u.a.O., 1992.
- [4] Porter, M.E.: The Competitive Advantage of Nations, in: Porter, M.E. (ed.): On Competition, Boston 1998, pp. 155-195.
- [5] Fernau, A.K.: Werkzeuge zur Analyse und Beurteilung der internationalen Wettbewerbsfähigkeit von Regionen, Wiesbaden 1997.
- [6] Arvis, J.-F. et al.: Connecting to compete, Trade logistics in the global economy, Study of the World Bank, Washington 2007.
- [7] Baltic Development Forum: State of the region report (2006), <http://www.bdforum.org/>, retrieved 28/06/2007.
- [8] Buhr, E.: Suche nach gemeinsamer Identität, in: Ost-West-Contact 2007, Vol. 53, No. 1.
- [9] Europäische Kommission: Europa in Zahlen – Eurostat-Jahrbuch 2006-07, http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-CD-06-001-01/DE/KS-CD-06-001-01-DE.PDF, retrieved 28/06/2007.
- [10] Kersten, W. / Ojala, L. / Schröder, M. / Singer, C.: Innovative Regional Development for Logistics and ICT – The Baltic Sea Region Example, in: Kersten, W. / Blecker, T. / Herstatt Cornelius (ed.): Innovative Logistics Management – Competitive Advantages through new processes and services, Berlin 2007, pp. 343-359.
- [11] LogOn Baltic: Key objectives, <http://www.logonbaltic.de>, retrieved 24/06/2007.
- [12] Kersten, W. / Schröder, M. / Böger, M. / Singer, C.: Developing Regions through Spatial Planning and Logistics & ICT competence – Final Report, as part of the LogOn Baltic publication series, Turku 2007.
- [13] Kersten, W. / Schröder, M. / Singer, C. / Böger, M.: Logistics Survey in the Southern Metropolitan Region of Hamburg, as part of the LogOn Baltic publication series, Turku 2007.
- [14] European Commission: Enterprise and Industry, http://ec.europa.eu/enterprise/enterprise_policy/sme_definition/index_en.htm, retrieved 14/12/2007.
- [15] Kersten, W. / Schröder, M. / Böger, M. / Singer, C.: Developing Regions through Spatial Planning and Logistics & ICT competence – Final Report, as part of the LogOn Baltic publication series, Turku 2007.