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International Business – Baltic Business Development

Tallinn 2013

PL ACADEMIC RESEARCH

Competitiveness of Companies – Logistics in the Baltic Sea Region

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Abstract

The Baltic Sea Region (BSR) is one of the most dynamic regions in the European Union (EU). Differences in logistics play a major role in this issue. In this area, no comparable analyses and investigations have been made until recently. The aim of this paper is to describe the status quo and the development needs of manufacturing and trading companies as well as logistics service providers in the BSR. First, the paper explains the influence of core competencies on the competitiveness of companies. In practice, the outsourcing of services often results from the creation of core competencies due to the bundling of specific resources. Second, the findings of an empirical logistics study as part of the EU project LogOn Baltic are presented. Selected regions are compared with respect to the logistics costs and the outsourcing of logistics services. Last, development needs in logistics are described.

JEL classification codes: O57, R, R1, R11, R4**.**

Keywords*:* competitiveness, outsourcing, resource based view, logistics services, logistics costs, development needs, Baltic Sea Region

1. Introduction

Due to the dynamically changing business conditions, companies from nearly all industry sectors have been facing high cost pressures recently. In order to reduce costs, manufacturing and trading companies take measures such as outsourcing transportation. However, since the level of costs is already very low in this area, companies start to realise that further cost reductions are not possible anymore. Thus, there is a growing demand for external logistics services beyond transportation such as inventory management and increasingly also individualised service packages, raising the question of which logistics function should be outsourced in the trade-off between cost reduction and high service level requirements.

In different countries companies are in dissimilar states of the described outsourcing process. Their development needs and business threats vary. The aim of this paper is to analyse the status quo of logistics outsourcing in regions with

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different economic backgrounds and environmental conditions. In the following, empirical results will be presented which were gathered as part of the EU project called "LogOn Baltic – Developing Regions through Spatial Planning and Logistics & ICT Competence". The purpose of LogOn Baltic was to present solutions improving the interplay between logistics & ICT competence and spatial planning, on the one hand, and strengthening small and medium-sized enterprises' (SMEs) competitiveness in the BSR, on the other hand. The following regions – represented by research institutions, logistics and transport associations, development agencies and regional authorities – participated in the project: Estonia, Latvia, Lithuania, Poland (Pomerania), Germany (Southern Metropolitan Region of Hamburg and Wismar Region), Denmark, Sweden, Finland and Russia (St. Petersburg Region) (LogOn Baltic 2008; Kersten et al. 2007a).

In the remainder of this paper, the theoretical background is first provided for outsourcing decisions, namely the resource based view (RBV) of the firm. Afterwards, the empirical results of the above-mentioned study are presented in three sections: target group and sample as well as survey design, status quo and development needs in logistics as a whole. Finally, the paper closes with conclusions and a short outlook.

2. The Resource Based View

The logistics field is influenced by ongoing trends like individual and heterogeneous customer demands, shorter product life cycles, technological innovations, strong competition and dynamic changes in the environment. Companies which have so far always developed, produced and distributed products independently, now often add less value to the product than before and realise even more; they form part of globally distributed supply chains. As a consequence, they are forced to reduce their costs and to focus on core competencies. Activities and services that do not belong to their core activities have to be outsourced.

In connection with the sustainable competitive advantage of companies and the outsourcing of services, the resource based view is often referred to as an explanatory model in the business literature. According to Penrose (1995), resources include all "tangible things", such as buildings, machinery and raw materials, but also "intangible things", namely the staff's technical and management capabilities.[2] Instead of deriving the demand for resources from the market, the available resources are exploited and experiences are broadened.

2 The contributions were first published in 1959. Kristandl and Bontis (2007) derive a common definition for intangibles from the resource-based view analysing various definitions from different fields in the literature.

Based on Penrose's works, Wernerfelt applies Porter's five forces model to diversified companies and explores under which circumstances a resource yields a high return in a long-term perspective. He defines "resource position barriers" as partially analogous to entry barriers. Furthermore, Wernerfelt observes that companies have to strike a balance between the exploitation of existing resources and the development of new resources (Wernerfelt 1984; Porter 1998).

In contrast to Penrose, Barney (1991) distinguishes between three categories of firm resources, i.e. physical capital resources, human capital resources and organizational capital resources. On the assumption that strategic resources are heterogeneous and immobile, he discusses four attributes which resources must have in order to generate a sustained competitive advantage. They have to be valuable, rare, inimitable and not substitutable.

Prahalad and Hamel (1990) demand similar properties from core competencies in a company: Core competencies have to provide potential access to markets, must contribute to the customer benefits of the end product and have to be difficult to imitate. The authors distinguish between core competencies providing a basis for core products which on their part generate end products. In their view, the unique combination of production capabilities with technology enables the generation of competitive advantages. However, Stalk *et al*. (1992) expand this perspective by the special capabilities along the value chain as a bundle of processes. The resulting core competencies represent the outstanding and long-lasting capabilities leading to a high customer value.

The creation of core competencies through bundling specific resources often leads to the outsourcing of services. Continuously pushed by globalization, increasing requirements, by rising complexity of processes and products and susceptibility to risks, companies choose outsourcing in order to meet these challenges. Complexity and risks can be controlled or even reduced by transferring logistics services to professional value added partners. Other reasons for logistics outsourcing, for example, can be to achieve an increased flexibility and personal productivity or to improve services and to benefit from the use of new technologies (Kersten and Koch 2007; Koch 2011). However, one of the most frequently mentioned reasons for the outsourcing of logistics services is the reduction of logistics costs.

In the following it is demonstrated that reducing logistics costs belongs to one of the main motives when it comes to the outsourcing of logistics services within the Baltic Sea Region.

3. Empirical Results of the Logistics Study in the Baltic Sea Region

The empirical activities of LogOn Baltic compare the existing logistics services and competencies to the logistics needs in the participating regions, enabling the development of perspectives and action plans for strengthening logistics competence. In each region, a logistics survey, an ICT survey and expert interviews were conducted. In the following, the results from the logistics survey are analysed.

In the following, the target group and sample as well as the survey design are described.

3.1 Methodology: Target group and sample

The logistics survey has by far been the largest survey conducted in the BSR in the field of logistics. It was mainly carried out as a web-based survey in the first quarter of the year 2007. The e-mails sent out to target companies contained a link leading to a website where the participants could directly answer the questions. In order to increase the response rate, two reminders were sent at two-weekly intervals (Kersten et al. 2007c). Post and telephone were used as complementary measures in some regions. The response rate varied from about 2% in Hamburg to about 14% in Finland. In Mecklenburg-Vorpommern, personal interviews were used to collect data. In addition, the link to the survey was published on the websites of the participating institutions and in newsletters of regional logistics associations to broaden the data base.

In total, more than 1,200 companies participated in the study, the number of respondents varying from about 80 in Pomerania/Poland to about 330 in Southwest Finland. 38% of the respondents can be characterised as manufacturing companies, 33% represent the trading industry and 29% belong to the group of logistics service providers. Thus, a broad picture of the perspectives from users as well as from logistics services providers is guaranteed.

In addition to the industry sector, the respondent companies were also categorised according to the company size. Micro, small or medium-sized enterprises (SMEs) depending on the turnover are defined by the European Commission (2012) as follows:

- Micro companies: €0–2 million turnover
- Small companies: €2–10 million turnover
- Medium-sized companies: €10–50 million turnover

More than 90% of the 1,200 respondents can be classified as SMEs. The distribution of participants supports the objective of the LogOn Baltic project to

evaluate the needs in order to strengthen the competitiveness of SMEs in particular.

3.2 Survey design

The survey targeted at three company types: manufacturing companies, trading firms and logistics service providers, whereas the first two groups represented customers of logistics services. The aim of this explorative study was to evaluate the internal situation of companies – especially of SMEs – with respect to logistics, but also to the companies' views of their regional business environment. The same questionnaire was used for all regions. The first part of the survey contained identical general questions for the three types of companies, while the second part included specific questions pertaining to the type of the responding company.

The five major topics of the survey were as follows:

- Current logistics costs and their development
- The need for further competence development
- Outsourcing – today's situation and the expected future development
- The 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 with customers and suppliers.

The following sections encompass the first three of the afore-mentioned topics.

3.3 Logistics costs of manufacturing and trading companies

The four major logistics cost elements examined in the survey are related to transport, warehousing, inventory and administration. All costs were given as percentages of the turnover. For each category, a drop down menu was used, ranging from 0−40% at intervals of 1%. Companies indicating an amount of costs equal to 0% or greater than 40% were excluded from the sample for plausible reasons.

The *overall logistics costs* in the investigated regions mostly vary from 8% to 14% of the turnover of the participating companies (see Fig. 3.1). Only Mecklenburg-Vorpommern deviates from this bandwidth; here, the logistics costs account for more than 20%. An important reason is the structure of the enterprises since the region is dominated by micro to small companies rather than small to medium-sized companies in other regions. In addition, logistics costs vary sub-

stantially between different industries and the products are predominantly relatively low-value goods.

Another surprising result is that the logistics costs of Southwest Finland are among the lowest third of all regions. Previous studies often came to the conclusion that due to the large distances between cities and the small population density, logistics costs are significantly higher in Finland than in other countries (Klaus and Kille 2007). At least for Southwest Finland, this does not seem to hold true. The area around the city of Turku is one of the most densely populated regions in Finland with a well-developed infrastructure.

No significant differences can be observed regarding the *composition of logistics costs* between the regions (see Fig. 3.1). In general, transport costs account for the largest part of the logistics costs, followed by inventory costs. However, in terms of the logistics performance of the regions analysed – measured by the percentage of perfect order fulfilment – an advantage of the Western EU countries can be recognized (Kersten et al. 2007a; Ojala et al. 2007).

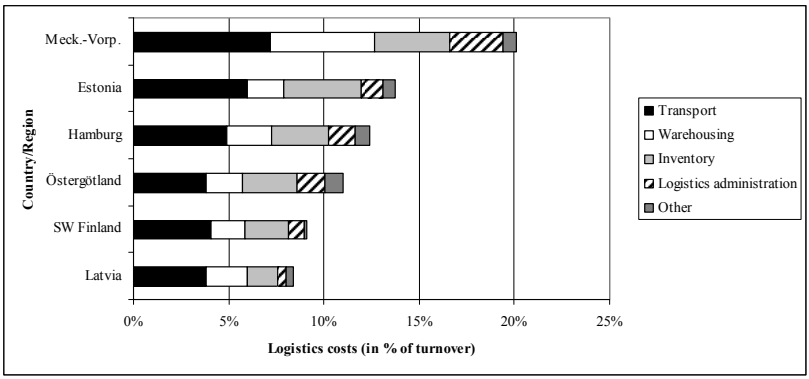

Fig.1: *Comparison of logistics costs and their composition of manufacturing companies as a percentage of turnover; Source: Kersten et al. 2007a; Ojala et al. 2007*

In addition to the level of costs, 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 in the field of transportation. There are several *reasons for the estimated rise in transportation costs*: The increasing oil price is the strongest reason why they may go up, as the main factor influencing the fuel price is the cost of crude oil. Furthermore, taxes such as the petroleum tax are an uncertain

cost factor. In addition, the development of highway toll systems makes transport more expensive in Europe.

A rather operational reason for higher logistics costs are more customer-oriented approaches to logistics involving higher flexibility, smaller batch sizes and more frequent shipping of goods. These solutions also attribute to higher inventory carrying costs in the future, although companies try to reduce logistics costs with lean management methods. The latter methods as well as outsourcing lead to higher risks in the supply chains and therefore a greater urgency about disruption management systems. The implementation of these systems may in turn result in a decrease in inventory carrying costs, which is anticipated for example by more than 10% of the responding companies in the Hamburg Region. Outsourcing is an efficient measure which companies adopt aiming at the reduction of transportation costs, but increasingly at inventory and warehousing costs as well.

3.4 Outsourcing of logistics services

As explained before, companies have to adapt their business strategies and activities to the changing environment. The comparison of logistics costs in section 3.3 has shown that transportation costs account for the largest part. One possibility to reduce logistics costs is to outsource transportation, because the transportation function does not belong to the core activities of manufacturing and trading companies. These resources saved may be used for improving the existing core competencies, described in section 2.

In the survey, companies were asked up to which percentage different functions are outsourced to external companies. The answers were grouped into three categories: 0%, 1%–75% and over 75%. *National and international transport services* combined show the highest share of outsourcing. Concerning national transport services, the logistically further developed regions rank the highest, with the majority of manufacturing and trading companies outsourcing more than 75% of all inland transport services to external service providers (see Fig. 2). The Baltic States are in the middle of the range, whereas St. Petersburg and Mecklenburg-Vorpommern rank the lowest. In the latter region, only 20% of the companies indicated that they outsource inland transport more than 75%.

However, a completely different result is shown when it comes to outsourcing of other logistics services such as *IT services*. These services are performed by the companies themselves to a much greater extent. In addition, the ranking of the regions differs. Estonia is the leader with respect to the outsourcing of IT services, since 17% of the companies indicated they outsourced more than 75%

of IT services. This is not surprising when considering the high acceptance of information and communication technologies in Estonia in general.

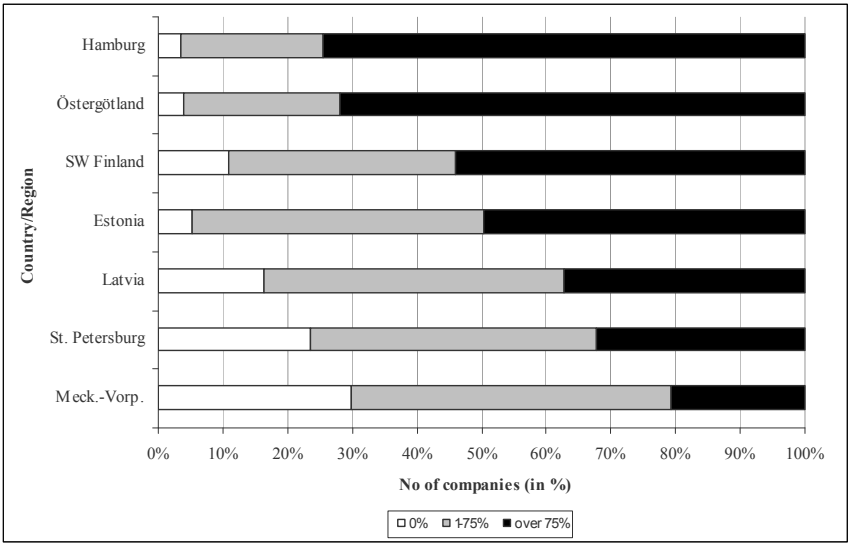

Fig.2: *Share of outsourced national transportation services by manufacturing and trading companies; Source: Authors' illustration*

Figure 3 exemplarily shows the outsourcing ratio of different kinds of services for the Southern Metropolitan Region of Hamburg.

Transport, reverse logistics and freight forwarding are the most commonly outsourced logistics operations in the surveyed companies (Kersten et al. 2007b). On average, about 75% of the companies in Hamburg declared 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 outsourced 1%−75% of their domestic transport (15% of the companies for international transport respectively). In these areas, manufacturing companies generally do not see their core competence and thus they do not lose any know-how when outsourcing them. In addition, transportation, freight forwarding, and reverse logistics are areas that have a long history of expertise in the world of logistics service providers. Since the main criteria for outsourcing decisions are usually cost factors, these functions are outsourced to third parties.