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LogOnBaltic

LOGISTICS SURVEY IN POMERANIA, POLAND

Anna Trzuskawska and Tomi Solakivi

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EXECUTIVE SUMMARY

The Logistic Survey Report is a part of the cross-national, European Union funded project LogOn Baltic, focused on the region: The Pomerania Voivodship in Poland. There were three types of companies: manufacturing / construction, trade and logistic operating in the region, asked to provide answers to web-based survey's questions regarding logistics. Additionally mail surveys, phone surveys and interviews were also used in order to increase the response rate.

The objective of the survey was to understand the current status and future development of logistics in the companies in Pomerania, Poland. The objective was achieved by gathering answers regarding business aspects such as company's current logistics costs and their development, the key logistic indicators used, the company's need for competence development, status and plans for outsourcing. Additionally the research focused on how the companies assess the operating environment in Pomerania and how they assess their own logistics activities.

The first chapter presents information about the LogOn Baltic project and about the participating partners. In the second chapter, the 81 surveyed companies are introduced and classified according to their size, industry and function of the contact person. Majority of the surveyed companies are micro and small companies, representing all three types: 28 manufacturing companies, 33 trade and 20 logistics companies. The chapter contains also international and domestic reference data.

In chapter 3, the actual survey results are presented concerning the manufacturing and trade companies.

The chapter 4 provides the survey results regarding the logistic service providers and analyses their market development, client structure and competencies. Furthermore the report contains information about the development needs of logistic service provider as well as perceived threats of the future, operating environment and self assessment.

The fifth, last chapter summarizes the results and provides conclusions regarding the current situation in the development of logistics in the surveyed companies as well as presents the key

strategic directions required to assure the companies and the regional development in The Pomerania Voivodship.

WSTĘP

“The Logistic Survey Report” – Raport z badań ankietowych dotyczących logistyki jest częścią międzynarodowego projektu, finansowanego z funduszy Unii Europejskiej, o nazwie LogOn Baltic. Niniejszy raport skupia się na regionie województwa pomorskiego w Polsce. Spośród przedsiębiorstw prowadzących działalność na terenie województwa pomorskiego wybrano trzy rodzaje: przedsiębiorstwa produkcyjne / budowlane, handlowe oraz dostawcy usług logistycznych oraz poproszono je o udzielenie odpowiedzi na pytania zawarte w ankiecie internetowej. Dodatkowo wykorzystano ankiety w poczcie elektronicznej, telefoniczne i wypełniane podczas wywiadów bezpośrednich w celu zwiększenia liczby uzyskanych odpowiedzi.

Celem badania było zrozumienie aktualnego stanu i przyszłego rozwoju logistyki w przedsiębiorstwach na terenie województwa pomorskiego w Polsce. Cel został osiągnięty poprzez zebranie odpowiedzi dotyczących zagadnień prowadzenia działalności gospodarczej, takich jak: bieżący poziom kosztów logistycznych i trendy ich zmian w przyszłości, kluczowe wskaźniki logistyczne, potrzeby przedsiębiorstwa w zakresie rozwoju kompetencji logistycznych pracowników, status i plany outsourcing’u. Dodatkowo badania skupiły się na tym, jak przedsiębiorstwa oceniają środowisko i warunki prowadzenia działalności gospodarczej w województwie pomorskim oraz jak oceniają swoją własną działalność logistyczną.

Pierwszy rozdział prezentuje informacje o projekcie LogOn Baltic oraz o partnerach projektu. W drugim rozdziale przedstawiono i sklasyfikowano 81 przedsiębiorstw biorących udział w ankiecie pod kątem ich wielkości, rodzaju przedsiębiorstwa (jednego z trzech) oraz pod kątem funkcji pełnionej przez osobę udzielającą odpowiedzi. Przeważająca część ankietowanych przedsiębiorstw to przedsiębiorstwa mikro i małe. Na ankietę odpowiedziało: 28 przedsiębiorstw produkcyjnych, 33 handlowe i 20 przedsiębiorstw świadczących usługi logistyczne. Rozdział ten zawiera również dane referencyjne z badań przeprowadzonych zagranicą oraz w kraju.

W rozdziale 3, zawarto wyniki ankiety dotyczące przedsiębiorstw produkcyjnych i handlowych zgodnie z celami prowadzonego badania.

Rozdział 4 dostarcza informacji o wynikach ankiety dotyczących przedsiębiorstw świadczących usługi logistyczne oraz analizuje rozwój ich rynku, strukturę klientów i kompetencje. W dalszej części raport zawiera informacje o tym, co jest najbardziej potrzebne dostawcom usług logistycznych dla ich rozwoju, jak również o głównych zagrożeniach dla ich przyszłości. Przedsiębiorstwa dokonały również oceny środowiska, w którym działają oraz samooceny na tle konkurencji.

Piąty, ostatni rozdział, podsumowuje rezultaty i przedstawia konkluzje dotyczące bieżącej sytuacji w rozwoju logistyki w ankietowanych przedsiębiorstwach oraz prezentuje kluczowe, strategiczne kierunki, które są konieczne, aby zapewnić rozwój przedsiębiorstw i regionu województwa pomorskiego.

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INTRODUCTION

1.1 Project introduction – LogOn Baltic

The LogOn Baltic project was approved within the Baltic Sea Region (BSR) INTERREG III B Neighbourhood Programme, which is sponsored by the European Regional Development Fund (ERDF), as part of the Structural Funds, and co-financed by national project partners.

The purpose of LogOn Baltic is to present solutions to improve the interplay between logistics and Information and Communication Technologies (ICT) competence and spatial planning and strengthening Small and Medium-sized Enterprises (SMEs) competitiveness in the BSR. This is primarily done by the production and dissemination of information for regional development agencies on how to support enterprises in the participating regions in the field of ICT and logistics, thus improving regional development.

The following regions are participating in the project:

- South-West Finland
- Östergötland (Sweden)
- Denmark
- Southern Metropolitan Region of Hamburg (Germany)
- West-Mecklenburg (Germany)
- North-East Poland
- Lithuania
- Latvia
- Estonia
- St. Petersburg (Russia)

LogOn Baltic provides an overview of logistics efficiency and logistics information systems and their exploitation, in order to improve the interaction between SMEs and other public/private actors.

On the one hand, the empirical activities of LogOn Baltic compare the existing logistics services and infrastructure with the logistics needs in the participating regions, making it possible to develop perspectives and action plans for strengthening the logistics competence in the

regions. On the other hand it describes the existing ICT infrastructure and services, revealing up to what extent they meet with the companies' needs for further development. In this way, LogOn Baltic focuses on:

a. identifying development agencies and evaluating their performance in each region
b. evaluating the level of logistics and ICT efficiency
c. suggesting concrete actions for regional and local public sector bodies

Data are gathered in each participating region using four tools, Development Measure Impact Analysis (DEMIA), Logistics survey, ICT survey and Expert Interviews; each of these is presented in a separate report. These results together with secondary data is presented in a regional report, that will describe the state of affairs in the region, with recommendations on what and how the region needs to develop. The regional reports are used as a basis for making an interregional comparison which is reported in an inter-regional report. All reports are available on the project homepage, www.logonbaltic.info.

1.2 Regional partner introduction

The regional partner in Poland, in Pomerania, is The City of **Pruszcz Gdański.** The city of Pruszcz Gdański is situated in the South part of the conurbation formed by Gdańsk, Gdynia and Sopot, so called: the Tri-City Agglomeration. Pruszcz Gdański is only 10 km from the city centre of Gdańsk. It occupies an area of 16.5 sq km, and is inhabited by 23,000 people. The city is an important node in the country road and railway transportation system. In the nearest neighbourhood there is the Tri-City ring and the newly constructed A-1 motorway.

Pruszcz Gdański is one of the most attractive cities in the Northern Poland for investors. This opinion is proven by investors directly as well as the country wide economic rankings. In the recent years the local authorities of the city of Pruszcz Gdański have been ranked in „The Gold Top 100" – the best cities for investors in Poland. Pruszcz Gdański has been awarded with the 3rd position and with the statue of the Polish King Kazimierz Wielki in the Polish cities investor ranking.

Pruszcz Gdański continuously develops: currently there is the new city centre constructed and a lot of effort and focus directed into the road system development investments. Few years ago the industrial park was created in the neighbourhood of A-1 motorway and it is still

growing - a lot of known companies located their plants there or have plans to locate soon.

The City established cooperation with the team members of the **Department of Logistics, University of Gdańsk** - Faculty of Economics in order to perform the LogOn Baltic Expert Interviews. The Department of Logistics at University of Gdańsk is one of the leading academic institutions in Pomerania and in Poland in research and education within the field of logistics. Courses are given both at the bachelor and master programmes at the Faculty of Economics as well as at the International Business and Master of Business Administration programmes. The Department of Logistics gathers 7 experienced researchers engaged in government (mainly Ministry of Transportation) and business logistics projects. The team has participated in EU founded research projects such as: TEMPUS, PHARE, INTERREG II, and NELOC. Beside the research work the team concentrates on academic teaching and developing the programmes for education in logistics.

1.3 Logistics survey introduction

The survey is one of four tools for primary data collection, reflecting the current status and needs of logistics in the business community in the region. Three versions of the survey have been used, focusing on the following three types of companies:

a. Manufacturing/construction companies
b. Trading companies
c. Logistics service providers

The questionnaires consists of two parts: one part with general questions (being the same for the three types of companies), and another part with specific questions concerning the type of companies mentioned above. The same questionnaire has been used in all regions. Each region has had the opportunity to add one or two questions focusing on specific regional issues. The regional reports will therefore differ slightly.

The survey is mainly conducted as a web-based survey, but mail surveys, phone surveys and interviews has also been used as a complement in some regions.

This is by far the largest survey conducted in the Baltic Sea Region in the field of logistics. In this report data and analysis will be presented for one region only.

The data is also used to make a cross-regional analysis, focusing on differences and similarities between the regions. The cross-regional analysis is presented in a separate report avail-able at the project homepage www.logonbaltic.info.

2 SURVEY DESIGN

2.1 Target group and sample

The research target group includes companies operating within Pomerania (The Pomorskie Voivodship) in Poland, from several industries such as: manufacturing industry, retail industry, logistics service providers. The size of the target group has been estimated based on the data published by the Central Statistical Office, based on a register called REGON where all legal entities, individual entrepreneurs and organizational entities without legal personality are registered. At the end of 2005 there were in total 226.4[1] thousand registrations in REGON for The Pomerania Voivodship. According to information provided by the Statistical Office in Gdańsk, there are:[2]

- 27,702 manufacturing companies – c.a. 22%[3] of employed people,
- 61,544 trade, service and retail companies – 15%[4] of employed people,
- 15,902 logistic companies (including transport, warehousing and telecommunication services) – 7%[5] of employed people

In the Pomerania region, the majority of companies are SMEs (Small and Medium size Enterprises); there is an estimate that only c.a. 3.2%[6] of the employed people work in large companies.

Since the survey was designed as an online based questionnaire, the team consisting of representatives of City of Pruszcz Gdański and the University of Gdańsk sent e-mails to around 1,230 employees of these companies in April, May and June 2007 and asked them to take

[1] Statistical Yearbook of the Regions – Poland, Central Statistical Office, Warsaw 2006, p. 183.
[2] Information provided by Statistical Office in Gdańsk during a phone call conversation to a representative of the City of Pruszcz Gdański
[3] http://www.klastry.pl
[4] Ibid
[5] Ibid
[6] Ibid

part in the survey. The e-mails contained a link leading to a website where the participants could directly answer the questions.

Most of the e-mail addresses were gathered from Internet databases such as Panorama Firm, Polskie Książki Telefoniczne and Pomorskiefirmy.pl. Other databases with a specific focus on companies in the logistics sector were used, for instance, from the Polish Freight Forwarders Association and one database prepared by alumni and students specializing in logistics.

After sending the first e-mail, two reminders were sent in a two-week interval in order to increase the response rate. Furthermore, the survey was sent by the Chairman of the Polish Freight Forwarders Association to the members with a recommendation to participate in the survey. Additionally, during the meetings with entrepreneurs which took place in June 2007 in Pruszcz Gdański, the Mayor of the City of Pruszcz Gdański invited the participants to take part in the survey. Finally there were direct phone calls and face-to-face meetings with entrepreneurs inviting them to participate in the survey. Some of the answers were collected in a paper form and then entered to the database. Altogether more than 1,360 people were contacted via e-mail - or directly – regarding the survey, and finally, 81 participants answered the questionnaire.

In this report, the responding companies were generally categorized according to the sector or the company size. Micro, small or medium size companies, depending on the turnover, are defined by the European Commission as follows (European Commission 2003):

- Micro companies: € 0 - 2 million
- Small companies: € 2 - 10 million
- Medium size companies: €10 - 50 million
- Large companies are characterized by a turnover of more than €50 million.

The company size and the industrial sector they belonged to were generally used as background parameters.

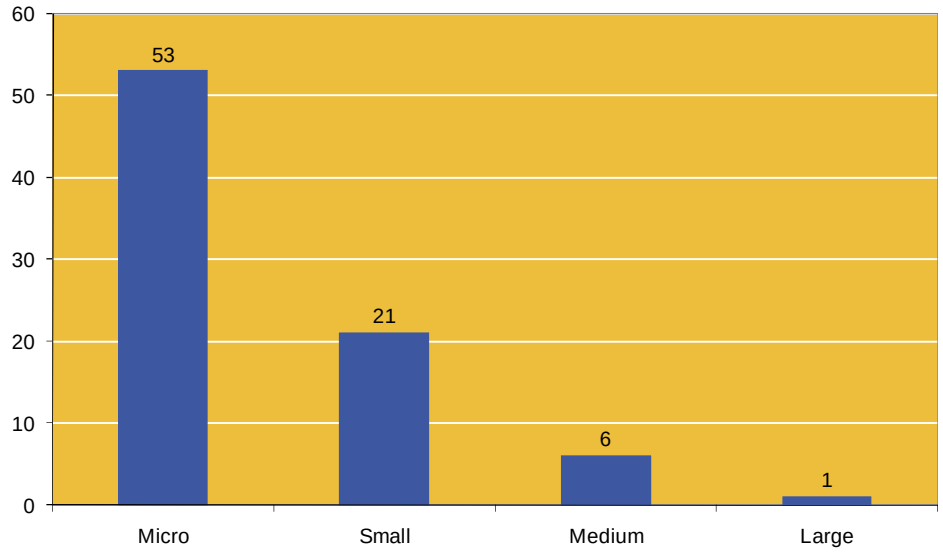

Figure 1 Number of respondents according to company size

Figure 1 shows the number of surveyed companies according to their size. From a total of 81 companies, 65% (53) represent the micro companies, 26% (21) are small companies, 7% (6) are medium-sized, and more than 1% (1) represent large companies. The distribution of companies shown in Figure 1 represents the trend in Pomerania. There are many enterprises: 103[7] per 1000 inhabitants; however, the majority of them are micro and small companies. In the year 2003, only 0.13% of all registered companies in REGON employed more than 250 employees and in the SME sector almost 95% of companies were micro companies.[8]

As a result of the survey, almost 99% of the respondents are classified as SMEs. This result slightly varies from the real market structure, but is very close and can be considered as representative.

[7] Statistical Yearbook of the Regions – Poland, Central Statistical Office, Warsaw 2006
[8] http://www.klastry.pl

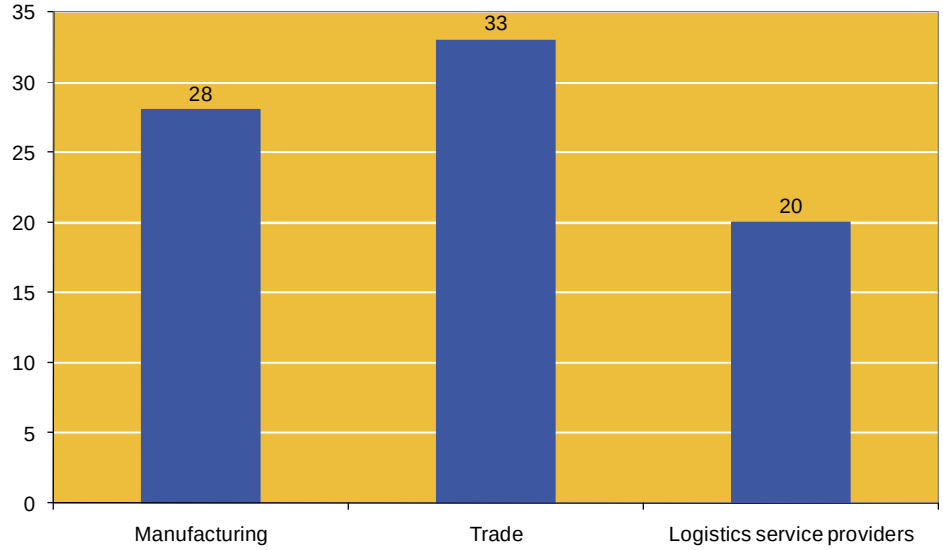

Figure 2 Number of respondents according to main industry

The surveyed companies were also classified according to industrial sector they belonged to (Figure 2). From the surveyed companies, a bit more than 34% represented the manufacturing industry, almost 41% represented the trading industry, and 25% represented logistics service providers.

These three main industries were especially defined for the purpose of the LogOn Baltic Project, since the companies belonging to these industries certainly deal with logistics.

The distribution of companies in the Pomerania Voivodship region according to the industrial sector, based on the REGON registration differs from the one presented in Figure 2. Approximately 12% of the companies are engaged in manufacturing, and 27% in trading and service. Approximately 7% of the companies offer different types of logistic services and telecommunication services. However, the criteria applied by the Polish Central Statistical Office to group and classify the companies differ from the grouping applied in the survey:

- Trade, service and retail companies in one group,
- Logistics and telecommunication in one group

In general the distribution of companies according to REGON contains a bigger group of trade, service and retail companies than manufacturing (the relation is 34% : 12%). Also in the survey the trade and logistic services representation is bigger than manufacturing (the relation is 66% : 34%). However the exact percentage share of each industry in the research sample can not be compared with the data

from REGON because the survey did not target all companies on the market but only the ones belonging to pre-defined industries. Using the above estimates the pattern of the sample was accepted as a representation of the researched region.

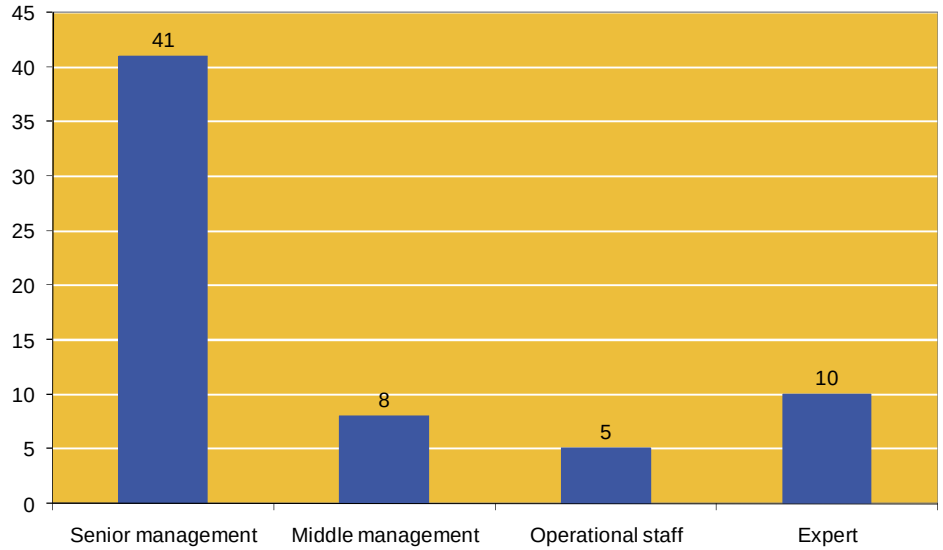

Figure 3 Number of respondents according to respondent's position in the company

The respondents were also categorized according to their position in the companies (Figure 3). Out of 81 survey companies 4 respondents did not provided answer to the question regarding his or her position in the company and further 13 respondents stated their position is different that the options provided in the survey. Almost 61% of the respondents either belong to the Senior- or to the Middle Management. A half of the respondents declared they are Senior Managers. This pattern reflects the fact that the majority of the respondents were from micro and small companies, where the participants were owners or co-owners of the companies, considering themselves as Senior Managers. In most of the cases, these people are the ones authorized to speak on behalf of the companies, have access to Internet and also have a broad overview of their current situation with respect logistics as well as their developments. The high number of Senior and Middle managers supports the credibility of the survey. Additionally, in small and micro companies, the organizational structure is very simple, flat, indicating that the management is also directly involved in operations

and day-to-day activities, having the right knowledge and experience to answer the survey.

2.2 Main themes of the survey

The questions concerning manufacturing companies and trade companies are similar and will be reported in chapter 4. The findings from the logistics service providers will be reported in chapter 5.

The main themes of the survey are:

- Current logistics costs and their development
- Key logistics indicators, including lead times, and customer service
- The need for further competence development
- Outsourcing, the situation today and expected development within the firm
- Operating environment, an assessment of the regional pros and cons
- Self assessment of the company's logistics activities and to what extent they are coordinated.

2.3 International reference data

2.3.1 Logistics costs and key logistic indicators

There are many different researches and publications concerning costs and key logistics indicators available however there are two probably the oldest among the once still continued and with the widest scope in terms of industries, countries and number of participating companies:

- Establish, Inc. (since 1975) by Herbert W. Davis and Company,
- State of Logistics Report™ (since 1990) by Rosalyn Wilson.

Establish Inc. created a data base and the annual report: "Logistics cost and service" that covered 31 different industries, many countries and several hundred companies globally: manufacturers, distributors and retailers, all companies with logistics operations of any kind.

In November 2005 the key conclusions of the report were:[9]

- Logistics costs have been declining since 2001 for most companies and are now at a 25-year low in percent of sales and cost per hundredweight.
- Customer service levels are still not improving.
- Logistics costs vary greatly between industrial groups.

The reasons of the logistics costs declinations shown is the reports were:[10]

- the average company in the trend group has successfully reduced inventories - inventory as a percent of sales is at the lowest level in 25 years,
- lower inventories reduced the pressure on warehousing, so warehousing costs have declined since the last recession (2001).

However the logistics costs dynamics looks opposite – increases instead of decreases – if they are not analyzed as percentage of sales but as the actual values. State of Logistics Report™ 2007 presented the logistics costs increases due to the following reasons:[11]

- Increasing demands for customer service and logistics precision,
- Service pressures causing companies to revert from the previous trend towards fewer, larger DCs to a higher number of smaller ones, moving inventory closer to customers - the result: rising inventory and warehousing expense,
- Inventory carrying costs raising significantly (up 13.5%), driven by a significant increase in total inventories, as well as sharp increases in short term interest rates (which impact the carrying cost calculation because they impact the cost of working capital). Short term interest rates were up more than 50% in 2006 over 2005 (and are still rising in 2007).
- Retail inventories appear lower due to programs such as Wal-Mart's "Inventory DeLoad" initiative and similar ones by other retailers took hold in 2006, but the result was less to reduce total inventories than to simply push them back up the channel. Retail inventories were up only 2.8%, less than total retail sales growth, but wholesale inventories were up - 9.5%,

[9] H. W. Davis and Company: Logistics costs and service 2005. Establish Inc. Nov 2005, p. 9
[10] Ibid, p. 13.
[11] D.Gilmore: State of the Logistics Union 2007. SC Digest, First Thoughts 14 June 2007, www.scdigest.com

- Longer global supply chains - transportation expense continues to rise, offshoring continues to drive significant increases in the amount of transportation consumed, fuel surcharge increases add large costs even in a benign base rate environment,
- Rail carriers have been able to increase rates even as rail and intermodal volume surge,
- Increased attention to risk mitigation,
- Improve overall supply chain efficiency, but at the cost of rising logistics expenditures.

R.Wilson notes that "Meeting these demands in the global environment has meant rethinking the way we have done business, setting aside time-honoured processes, and undoing things that were right 10 years ago. The fundamental changes we have made in the last several years are what are driving the [rising] numbers in our logistics model."

The Establish Inc. report's conclusions on the data analysis of logistics costs as percent of sales stated that in the average company the total logistics costs were 7.51% of sales and its structure included:[12]

- Transportation 3.36%,
- Warehousing 1.65%,
- Order Entry/Customer Service 0.48%
- Administration 0.25%,
- Inventory Carrying 1.76%

The summary of the logistics cost structure is presented in figure 4. The specific company logistics cost as percentage of sales varied for the average company's one presented above, depending on the industry, size of company and the product value.

The Establish Inc. report also presented detailed data analysis of logistics costs as percent of sales by basic industry classification – see figure 5. The data presented indicated the lowest logistics cost as percentage of sales was in pharmaceuticals and the highest in food, soaps, and cleaners.

[12] Ibid, p. 14.

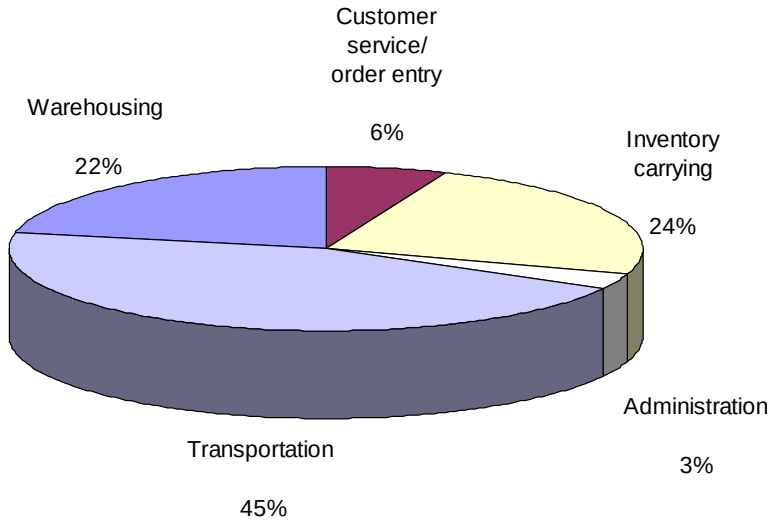

Figure 4 Different types of logistics cost share – answered as percent of sales (Source: H.W. Davis and Company: Logistics costs and service 2005. Establish Inc. Nov 2005)

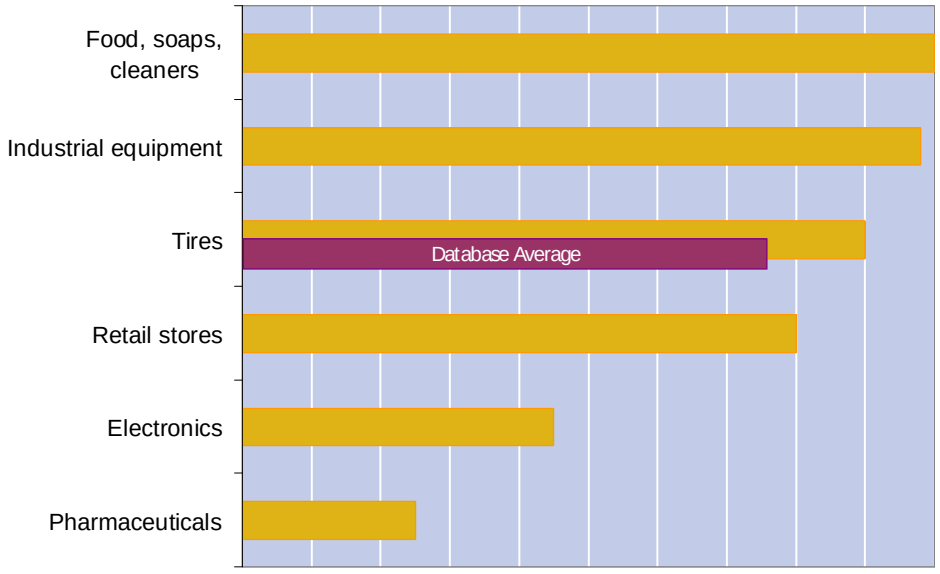

Figure 5 Logistics Cost - Percent of Sales by Industry Classification (Source: H.W. Davis and Company: Logistics costs and service 2005. Establish Inc. Nov 2005)

The Establish Inc. report also used the size of company as a differentiating factor in the logistics cost – see figure 6. In general the smaller companies pay more for logistics.

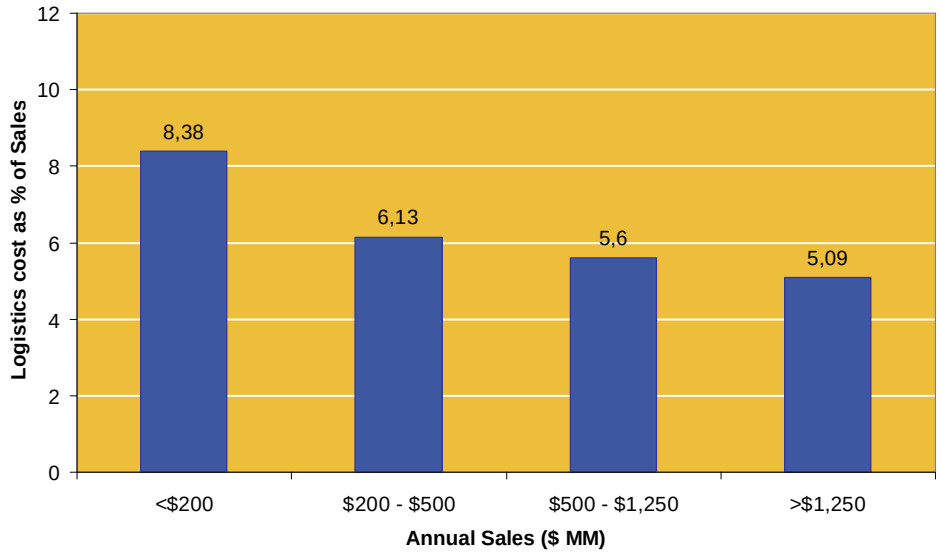

Figure 6 Logistics Cost - Percent of Sales by company's size (Source: H.W. Davis and Company: Logistics costs and service 2005. Establish Inc. Nov 2005)

The relation between GDP and the logistic cost was also analyzed both by H.W. Davis as well as by R.Wilson13. H.W. Davis compared the changes in GPD and the logistics cost as percentage of sales and proved there was a correlation between the years of recession (GDP down) and the increase of logistics costs as percentage of sales. R.Willson compared the logistics costs and GDP and calculated an index of logistics costs as percentage of GDP – see figure 7. Both reports result correlate with each other.

[13] R.Wilson: State of Logistics Report™ 2007, Council of Supply Chain Management Professionals, http://cscmp.org/

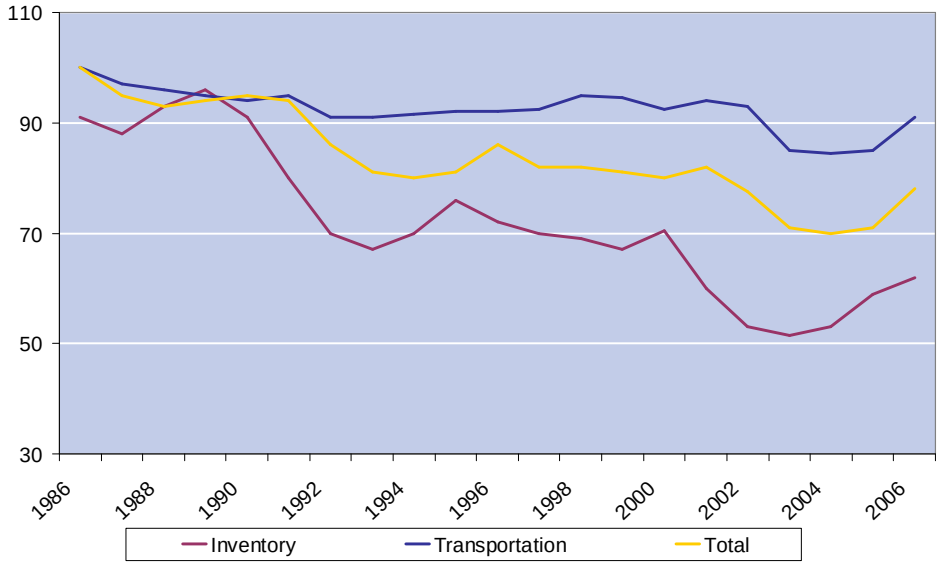

Figure 7 Index of logistics costs as percentage of GDP 1986 -2006 (Source: R.Wilson: State of Logistics Report™ 2007, Council of Supply Chain Management Professionals, available at: www.scdigest.com)

The Establish Inc. analyzed report also showed results concerning the key logistics indicators. H.W. Davis looked at the "Customer Service Level" defined as: "The prompt and complete delivery of goods ordered". In 2005 report the following numbers were presented:[14]

- Prompt = 7.7 days total order cycle time
- Complete:
  - Orders = 88%
  - Lines = 92%
  - Units = 94%

Additionally H.W.Davis presented the average performance regarding the total cycle time and product availability. Comparison made on entire data base since 1995 did not show any significant improvement. The total cycle time varies between 6 – 9 days with result in 2005 at the level of 8 days. Product availability measured with orders or order lines or cases also varies only by min 1 and max 6% with results in 2005 as above for complete orders, lines and units.

[14] H.W.Davis, op. cit., p. 31.

2.3.2 Outsourcing and the operating environment

The outsourcing trends in Europe could be analyzed data presented by H.C.Pfohl from Deutsche Industriebank (IKB)[15] regarding 2002, showing the percentage of business activities outsourced by companies in the area of logistic services. In Western Europe the most often outsource activity, in 95% of surveyed companies, was outgoing transportation and warehousing, in 91% of companies. Inbound transportation, customs operation and freight forwarding are the next most common outsourced activities (in c.a. 70% companies). Other areas are also consolidation, distribution, cross-docking, customs agency in the range of 55-65% companies. The lowest percentage of provided answers regarding outsourcing was for activities such as: consulting (14%) and selected manufacturing operations (19%).

H.C. Pfohl also presented[16] that in the next research performed in 2003 by Accenture the development by 9% of outsourcing was observed and also a research made by Cap Gemini Ernst & Young showed 100% increase of the value of contracted logistics from 1999 till 2005.

The key drivers for companies taking decision on outsourcing logistics activities were presented by H.C. Pfohl base on[17] German companies research performed by J.Weber, C.Engelbrecht, published in 2002: ”Outsourcing - In fremden Handen”. The most valid reasons of outsourcing indicated by companies were: cost reductions, elimination of fix costs, levelling the seasonal peaks of demand and higher flexibility. The less relevant reasons for outsourcing were certificates, logistics being out of key competencies scope, know-how transfer and shortages of management resources.

2.3.3 Self assessment of the company’s logistics activities

Besides the available reports analyzing the actual logistics costs, logistics performance and outsourcing there are also available reference data regarding how companies self assess themselves.

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[15] H.C.Pfohl: Trendy rozwojowe na rynku logistycznych [W:] Sieci Logistyczne na zintegrowanym rynku europejskim, Polski Kongres Logistyczny, Poznań 2004, p. 58.
[16] Ibid., p. 59.
[17] Ibid., p. 56.

ELC Group published a report concerning 104 surveyed companies in chosen European countries showing that:[18]

- 40% companies declared that they measure the performance of their suppliers,
- 25% companies confirmed they use *activity base costing* or *cost-to-serve* methods,
- 42% companies declared the awareness of costs related to stock outs,
- 27% companies analyses the profitability of products, distribution channels and customers considering entire supply chain,
- 43% respondents confirmed they use benchmarking of their supply chain activity base costs.

2.4 National reference data

The research regarding logistics in Poland is best developed and advance for logistics service providers. The regular research and with the widest scope is performed by H.Brdulak. The research classifies and defines the different types of logistics services, assess the economy environment and logistics service's development dynamics as well as the market structure, including the characteristics of the market leaders and customer requirements.

H.Brdulak presented[19] that in 2006 there was a high increase of the demand for logistics services in Poland due to the GDP increase of 6.1%. The logistics services increase is usually 2.5 times higher than GDP increase. The dynamics were driven by direct foreign investments (so called green fields) and 13% increase of export and 11% of import. The logistic service providers' revenues were 122% comparing to 2005 and the margins were 144% comparing to 2005. The highest percentage of the logistic service providers indicated that the main source of their incomes was transport and freight forwarding. 37% of all surveyed companies incomes come from those two types of services. Other key sources of incomes are warehousing and other logistic services. The research also focused on the further development of the services within one year so call "optimism" index and the result was

[18] ELC Group: Supply Chain profitability. Is it driving your business?, London 2004, www.elcgroup.com

[19] H.Brdulak: Analiza polskiego rynku TSL w 2006. [in:] Logistyka, transport, spedycja – dodatek do Rzeczpospolitej 2/2007, p. 30.

160% indicating there is further dynamic development expected with higher increase than in 2006.

The increases in the logistic services market in Poland mainly refers to volumes however there is expectation the portfolio of offered logistic services will develop too. At this moment there are only single companies offering advanced, integrated logistic services.

In 2004 H.Brdulak researched[20] customers of logistic service providers. First part of the survey was dedicated to logistics costs. 25% of companies did not provide the information even though they were only asked to estimate the costs as percentage of incomes. The logistics costs were estimated below the 2% level by 30% of companies (out of 75% of respondents who answered the questions) and next 30% of companies estimated them on the level between 2.1 – 5% of incomes. 13% of companies declared the logistic costs between 5.1 up to 10% of incomes and there was 11% of companies with logistics cost above 20%.

The companies were also asked about their interest in buying certain logistics services. The transportation and express currier services were pointed by 82.5% of companies, freight forwarding by 71.4% and customs services by 42.9%. Logistics services and warehousing were purchased only by 34.9% and 33.3% companies respectively. The lowest demand appeared for information services (12.7%) and financial services related to logistics (7.9%).

When comparing H.Brdulak (2004) results with presented by H.C.Pfohl (IKB:2002) results it is visible that the market of logistics services and the level of outsourcing are less developed in Poland than in Western Europe and the market demand structure is different.

[20] H.Brdulak: Satysfakcja klientów w branży TSL. [in:] Logistyka, transport, spedycja – dodatek do Rzeczpospolitej 4/2004, p. 24.

3 FINDINGS FROM MANUFACTURING AND TRADE

3.1 Logistics costs

3.1.1 Logistics costs Manufacturing

The manufacturing companies were asked to estimate their logistic costs as percentage of their turnover for categories such as transportation, warehousing, inventory carrying, logistics administration and all other logistics costs. There were from 6 up to 9 companies (out of 29 surveyed manufacturing companies), depending on the cost category, (21% - 31%) who did not provided answer for the question. Similar range of companies (25%) did not provide that kind of information during H.Brdulak research in 2004 (see paragraph 2.4 above). This situation could be caused by both: the lack of controlling procedures allowing to identify logistics costs by companies, lack of willingness to share cost information. In some cases, in direct conversations, the respondents also stated they were not aware of the logistics cost value in their company.

The below figure 8 presents the results gained from 23 manufacturing companies concerning transportation and 20 companies concerning other types of logistics costs. The transportation seems to be the highest costs. For almost 22% of companies answering the question the transportation costs are more than 20% of turnover. Only every fifth company said the transportation costs are not higher than 2% of turnover. The opposite trend is for the warehousing costs that are declared as much lower costs than transportation and any other logistics costs. 60% of companies answering this question said their warehousing costs do not exceed 2% and none of them had higher costs than 20% of turnover. The logistics administration costs in majority of companies answering the question are not higher than 5% and the same is for the all other logistics costs.

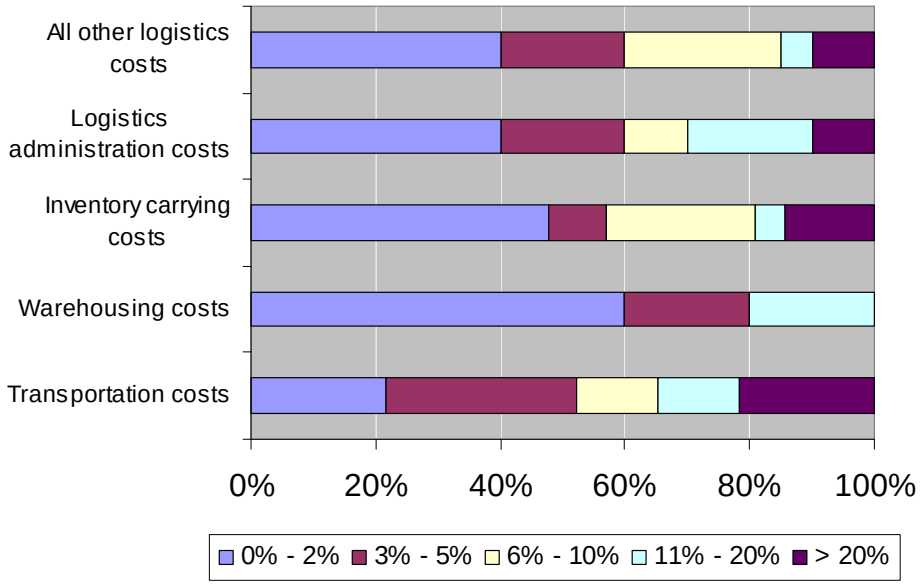

Figure 8 Logistics costs as a percentage of turnover, manufacturing companies

The inventory carrying costs are assessed as the second highest after the transportation costs. 20% of the companies answering the question said their inventory carrying costs were above 11% of turnover.

The surveyed manufacturing companies were also asked about their expectations concerning the logistics costs in the future. In general there is an expectation logistics costs will increase in the future. The results are presented in the figure 9.

The transportation costs will increase in 90% respondent's opinion. There were also more than 80% of respondents expecting that all other logistics costs, besides the mentioned categories would increase. 70% of respondents expect the logistics administration costs to increase. The warehousing costs increases are expected by the lowest number of respondents – only 50% and even 5% of respondents said the warehousing costs would decrease. Similar results the survey brought for the inventory carrying costs. There were 10% of responses saying the inventory carrying costs will decrease and only 60% said the costs would increase.

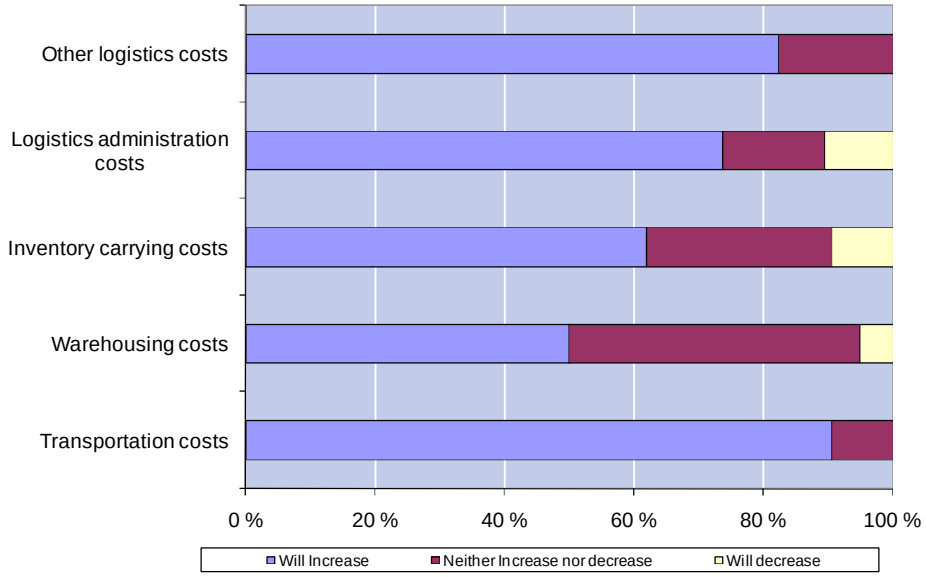

Figure 9 Estimate of the development of logistics costs, manufacturing companies

The overall expectation of logistics costs increases is related to the fact that currently due to the economy development in Poland there is higher demand on the market for logistics services than supply.[21] There is a shortage of people as well as fleet, equipment and infrastructure. The economy development drives also direct foreign investments and import and export and those three elements generate needs for longer distances transportation so the percentage of transportation costs compared to turnover could also grow.

Additionally there are expected oil prices increases driving higher transportation costs. In case of warehouses there is extremely rapid growth of land prices as well as all construction material prices leading to higher costs of warehouses. It is also worth to mention that Poland is planning to join the Euro zone and people expect this will also cause prices and costs increases.

[21] R.Przybylski: Popyt większy niż możliwości. [in:] Logistyka, transport, spedycja – dodatek do Rzeczpospolitej 2/2007, p. 6.

3.1.2 Logistics costs Trade

Similarly to manufacturing companies, the trade companies were asked to estimate their logistics costs as percentage of their turnover for categories such as transportation, warehousing, inventory carrying, logistics administration and all other logistics costs. There were from 6 up to 12 companies (out of 33 surveyed manufacturing companies), depending on the cost category, (18% - 33%) who did not provided answer for the question. Similar range of companies (25%) did not provided that kind of information during H.Brdulak research in 2004 (see paragraph 2.4 above) and also in case of manufacturing companies 21% - 31% respondents did not answer these questions. This situation could be caused by both: the lack of controlling procedures allowing to identify logistics costs by companies, lack of willingness to share cost information. In some cases, in direct conversations, the respondents also stated they were not aware of the logistics cost value in their company.

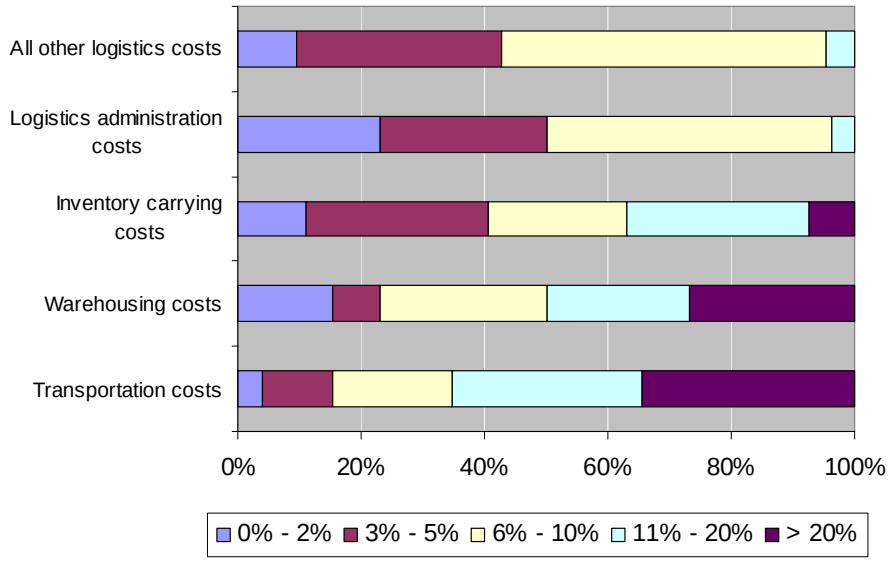

Figure 10 Logistics costs as a percentage of turnover, trading companies

In general, in trade companies the logistics costs as a percentage of turnover are higher than in manufacturing companies. This is natural situation because trade companies do not have fixed costs related to manufacturing machines and equipment, human resources such as

engineers, technical support and others, also the space used usually generates lower cost than in trade companies (e.g. energy).

However the pattern of which costs are high and which are low, is the same for both manufacturing and trade companies, except the warehousing costs. The warehousing, in case of manufacturing companies, generates the lowest costs and in case of trade is the third highest type of costs. This situation is also natural because wholesalers and retailers store products to have them easily available for consumers while manufactures rather push the inventory to distribution channels or to suppliers. In case of 21% respondents the warehousing generates costs on a level above 20% of turnover. Only 40% of companies declared costs below 5% of turnover.

Analogically the inventory carrying costs are also higher for trade companies and they are the second highest category of logistics costs.

The transportation costs are the highest ones and more than 30% of companies providing answer to that question estimated them on the level above 20% of turnover. Only 3% of respondents assessed the transportation costs below 2% of turnover.

The lowest logistics costs for trade companies are the logistics administration costs.

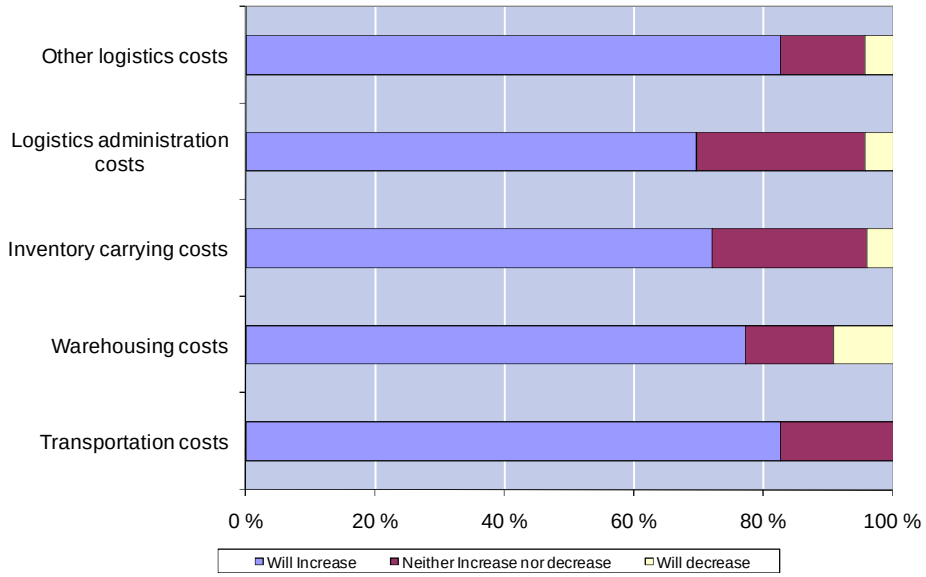

Figure 11 The estimate of the development of logistics costs, trading companies

Similarly like in case of manufacturing companies, the trade companies expect increases of logistics costs. And again the biggest

group of respondents expects the transportations costs to increase. In case of warehousing costs many people expects the costs to increase but there is 5% of people believing the warehousing costs will decrease.

3.2 Logistics competence

The LogOn Baltic research also aimed to understand the needs in the region regarding the required and desired competencies in the logistics areas. Both manufacturing and trade companies were asked about the competence area of their personnel, the development of which would most benefit to the company.

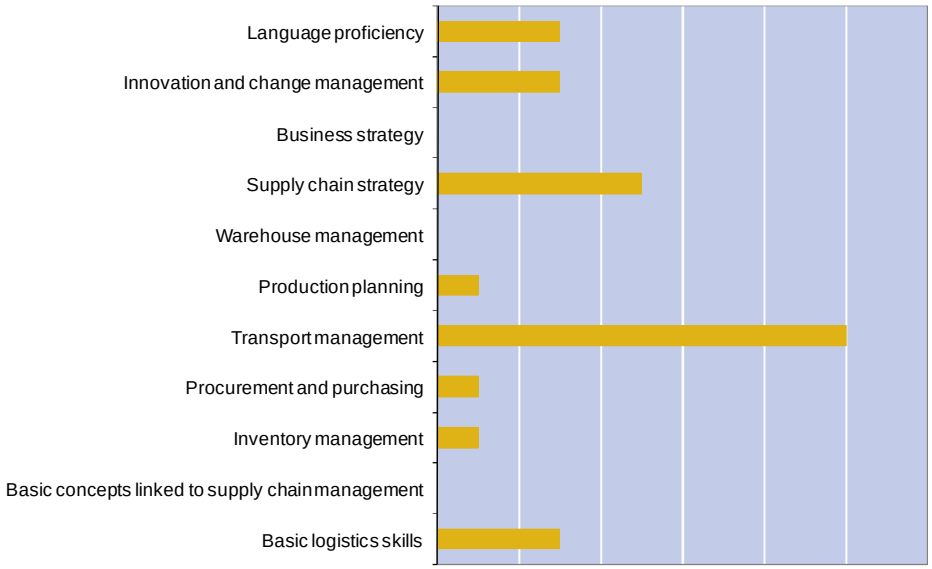

Figure 12 The development needs of personnel competence, manufacturing companies

The respondents representing the manufacturing companies valued most the competences related to transport management what correlates with the fact that the highest logistics costs were pointed in the transportation area. Naturally area generating highest costs focuses management attention and leads to requirements of having competent employees, because their effectiveness brings then the highest benefits to the company.

The second most often mentioned, by the respondents, competence is supply chain strategy. That indicates that Polish companies

recognize the market trends of outsourcing leading to the necessity of involving more than one partner into cooperation to be able to compete on the market. In order to be competitive it is necessary to effectively manage the relations and strategy of the supply chain and competencies regarding those relations and strategy could bring significant benefits to companies.

Also language proficiency and innovation and change management are valued high. This also reflects the market situation. After Poland joined EU and companies are more and more dependent on global supplies international trade reach even small companies and the language proficiency is required to run business. The shorter and shorter product life cycles lead companies to the need to be competent in the innovation and change management.

Surprisingly the production planning competence was valued were low in manufacturing companies. This facts correlates with data presented in the LogOn Baltic ICT Survey Report for Pomerania, where the lowest use of ICT solution is used for production planning. Both those observations lead to a conclusion that the production planning in most of the companies in Pomerania is not perceived as an activity important to the business results and not very complex from management perspective. The reasons for such an approach could be the fact that most of the companies are micro or small companies where the portfolio and volume of the production is small and the customer base is also small so the production planning is simple and can be managed manually without any special type of skills. On the other hand there is also an awareness aspect involved in the situation presented by the research results. The people running those companies did not have many opportunities to learn theory or gain know-how about modern production planning methodologies because the schools and universities only recently (e.g. since 3 or 5 year ago, in some single cases max 10 years ago) develop the advance learning programs, the same applies to courses on the market.

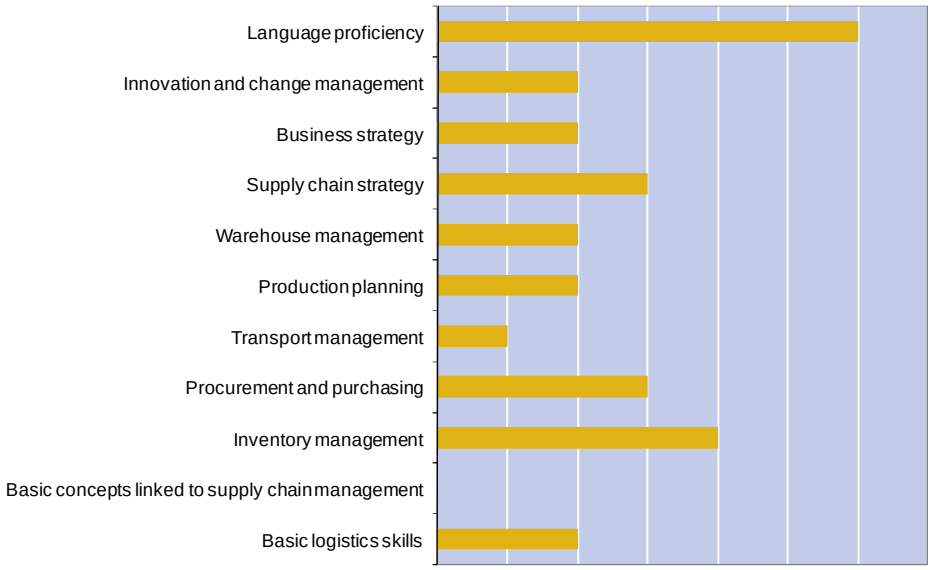

Figure 13 The development needs of personnel competence, trading companies

In case of trade companies the most valued competency is the language proficiency. This is related to the fact that 35% of surveyed trade companies purchase products / materials from outside of Poland and in case of 15% of those companies the import covers more that 30% of purchases. Also in case of 18% of surveyed trade companies a certain share of sales was generated outside of Poland. The share of import in purchasing and the share of export in sales are smaller than in other Western European countries but the dynamic of Polish international trade is very high the shares are expected to grow in many companies. Many of the companies who don't trade internationally today see such a future opportunity therefore they value the language proficiency as an important competency.

The second most valued competency is inventory management due to the fact inventories directly impact the cash flow and the inventory carrying costs which were the second highest logistic cost indicated by the respondents.

Procurement, purchasing and supply chain strategy are also higher valued competencies by trade companies and this is also understood because the success of a trade company highly depends on the supplies quality and price.

3.3 Outsourcing of logistics operations

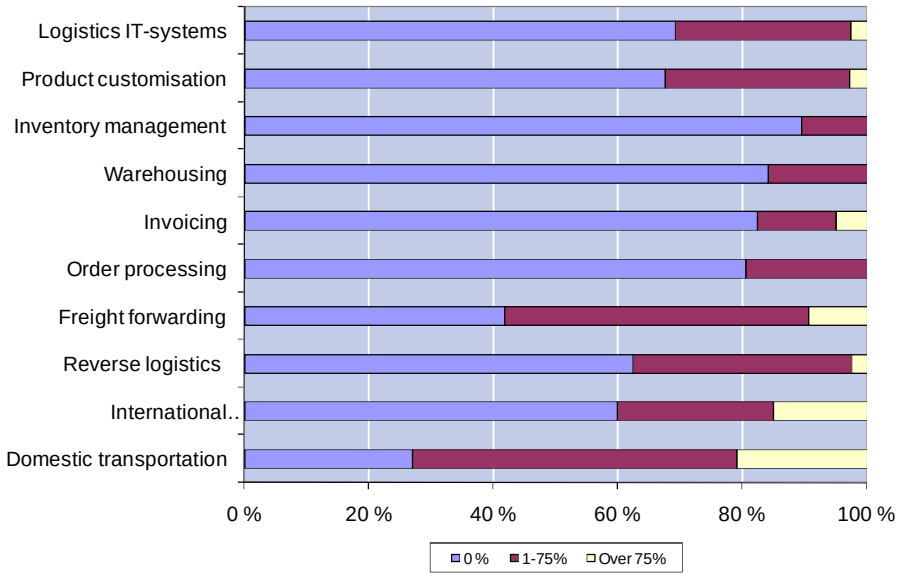

Figure 14 Outsourcing of different logistics functions, companies in The Pomerania Voivodship

The surveyed companies were also asked about the percent of the logistics operations that are and will be managed by an external service provider. The most often outsourced activities are transport (by almost 80% of companies) and freight forwarding (by almost 60% of companies). Those data are in line with the international and domestic reference data presented in paragraphs: 2.3 and 2.4 respectively. This also confirms that the logistics services are less developed in Pomerania that other regions of Western Europe.

The third most often outsource activity is reverse logistics and product customization. Much more developed than in the domestic reference data, is outsourcing in logistics IT systems (c.a. 30% vs. 12.7%).

The less developed outsourcing is for activities related to inventory management. This related to both: low demand and low supply for those type services. The low demand is because companies do not trust others enough to have them managing processes directly impacting the cash flows and costs plus small companies have to small scale of business to buy such services. The low supply is because of not sufficient awareness and competencies within the service

companies to offer such a service. The companies who outsource inventory management are mainly bigger, international companies.

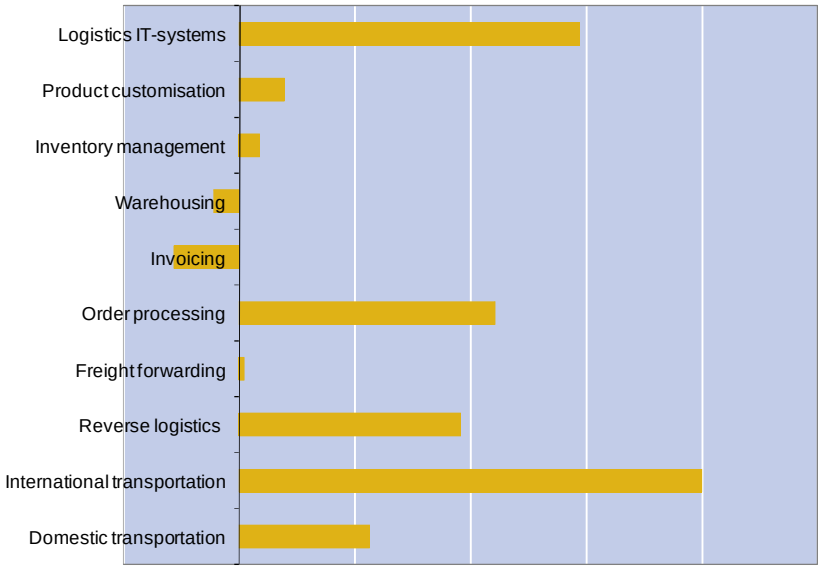

Figure 15 The relative trend of outsourcing, companies in The Pomerania Voivodship

The analyses of trends clearly show, the same as reference data, that the demand for outsource logistics services will grow. The respondents mentioned most often the international transportation and logistics IT systems as the one that will be outsourced in the future. Currently the reverse logistics and order processing are already outsourced in many companies but they both will be outsourced even further in the future.

3.4 Operating environment

The researched also focused on the operating environment of the companies in the Pomorskie Voivodship. The respondents were asked about their opinion concerning the infrastructure, efficiency and availability of logistics and facilities as well as locations of competitors.

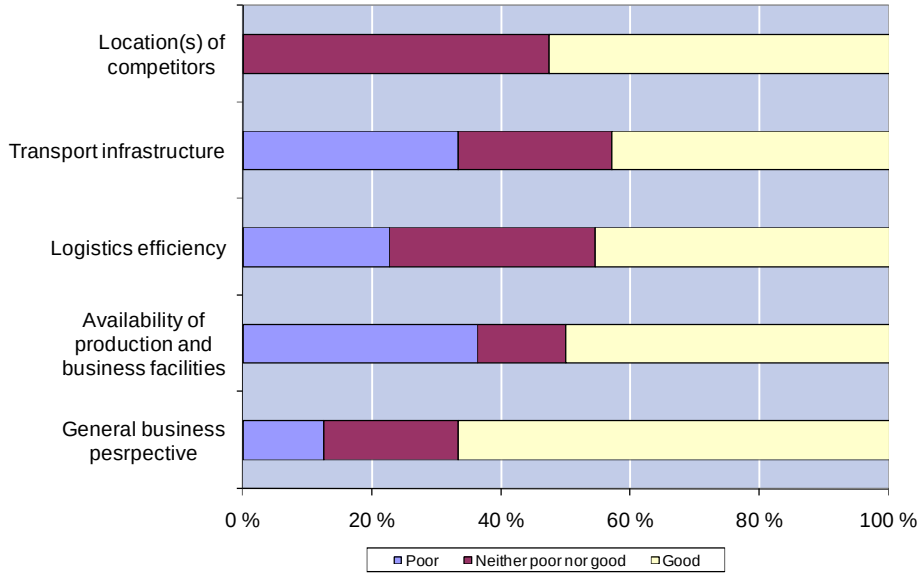

Figure 16 Manufacturing companies' opinions on their operating environment

As it is shown in figure 16, more than 65% of the manufacturing company's respondents assessed the general business perspective as good and only a bit more than 10% as poor. The results reflect the good trends in the developing Polish economy. However the challenges in running business come from the poor transportation infrastructure (opinion of 32% of respondents who provided the answer) and the availability of production and business facilities. The results are in line with the data gathered during LogOn Baltic Expert Interview where the experts pointed transport infrastructure and lack of professional logistics centres as two key weaknesses of the region slowing down the development. As a result less than 50% of respondents said the logistics efficiency is good.

The same view in assessing the operating environment is represented in the data from the trading companies' survey presented in figure 17. However the general business perspective is assessed less optimistically by the trading than by the manufacturing companies. Only a bit more than 40% said the environment gave them general good business perspective.

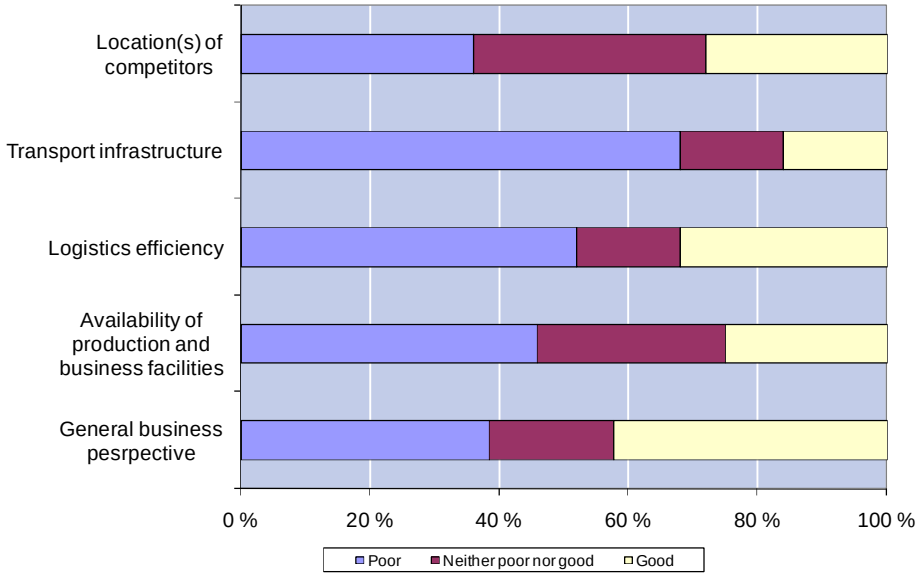

Figure 17 Trading companies' opinions on their operating environment

The trading and manufacturing companies were also asked about regular weekly usage of ICT systems in their business operations.

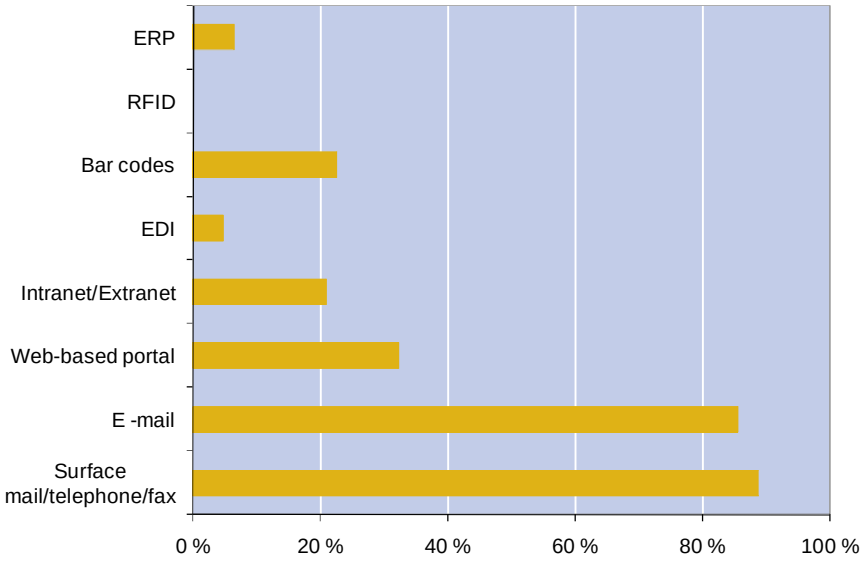

Figure 18 The usage of different ICT-systems, manufacturing and trading companies in the Pomerania Voivodship

Almost 90% of the companies use traditional methods of communication such as phone, fax, and mail. E-mail is used in more

than 85% of companies. Besides the basic methods of communication not many companies uses other more advanced. Only 32% of companies use web base portal and 20% Internet or Extranet. The automated Electronic Data Interchange (EDI) is used by only 5% of companies. When those data are compare with LogOn Baltic ICT Survey Report a conclusion could be drawn that big majority of the companies have access to Internet and have web site however the electronic business is not used in operations yet. Enterprise Resource Planning (ERP) systems are used by 6% of surveyed companies.

The questions were also focused to understand how widely the electronic product identification systems are implemented in Pomerania. 20% of companies use bar code systems and none of the companies used RFID.

3.5 Self assessment of the companies

Table 1 Companies' self assessment of transparency in the supply chain

	Much worse	Worse	Neither worse nor better	Better	Much better
My firm has been able to reduce the time between order receipt and customer delivery to as close as zero as possible	1	4	11	13	8
My firm is able to meet the quoted or anticipated delivery dates and quantities on a consistent basis	1	0	6	16	19
My firm is able to respond to the needs and wants of key customers	0	0	4	13	25
My firm is abel to notify customers in advance of delivery delays and product shortages	0	3	8	15	11
My firm is able to modify order size, volume or composition during logistics operations	1	1	12	13	11
My firm is able to accommodate delivery times for specific customers	0	0	12	12	15

The companies were asked to self assess their performance and transparency in the supply chain by comparison with the competitors. The best results of the self assessment are visible in Table 1 for the ability in responding to key customer's needs and wants – 60% of companies said they were much better than competitors and 31% said "better". The weakest performance aspect is the ability to reduce the

delivery time, 11% of companies assess themselves below the competitors and 22% on the same level. The ability to notify customers about delays and shortages seems to be also a challenge for some of the companies, every third company is not sure if they were better than competitors.

Even the companies said they were not always able to reduce delivery time and inform about delays they believed they were able to accommodate delivery times for specific customers. So they could do better but not for every customer – opinion of 69% of companies.

Table 2 Companies' views on the future development of the supply chain

	Strogly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
We regularly monitor and evaluate our logistics costs and performance internally	0	4	6	16	13
We regularly monitor and evaluate logistics costs and performance with selected suppliers and/or customers	4	6	9	11	6
We regularly benchmark logistics performance metrics against our competitors	2	6	10	11	5
Regular monitoring and evaluaton of logistics benefits our firm	0	3	8	14	9
We regularly monitor the environmental effects of our logistics operations	1	6	8	10	5

In order to understand the companies' views on the future development of the supply chain the research was directed on the areas of monitoring, evaluation and benchmarking the supply chain.

The internal monitoring and evaluation of logistics costs is implemented in the widest range of companies - 74% of respondents said it was done regularly. The result is aligned with data presented in paragraph 3.1.1 and domestic reference data in this report showing that between 21-31% of companies did not answered the question regarding logistics costs as percentage of turnover. Most probably they did not answer because they did not monitor them. The companies see benefits out of the monitoring and evaluation of logistics – 67% companies, who answered the question, agreed.

However less often companies assess the logistics costs considering the operating environment. Only 47% of companies regularly monitors and evaluate the logistics costs with selected suppliers and also only 47% benchmark them with competitors. Still in Poland companies are

more focused internally than externally, specially in case of micro and small companies. The supply chain management know-how is to be developed what was earlier proven in this report in the answers to the question concerning competencies.

The environment effects of logistics are measured by half of the surveyed companies. This trend is changing because of the Polish law and mentality changes as well as the companies applying for ISO 14000 certification.

Table 3 Companies' self assessment on the importance of logistics in their operations

	Strogly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Logistics has a major impact on our profitability	0	1	8	21	16
Logistics has a major impact on our customer service level	0	2	6	25	14
Logistics is a key source of competitive advantage for our firm	0	10	13	15	6
Logistis is a top management priority in our firm	3	10	12	12	5

The manufacturing and trading companies were also asked about the importance of logistics in their operations. Majority (80%) of companies recognizes the impacts of logistics on profitability and even more of them (94%) recognizes the impact on customer service level. Despite of the recognition there were companies (23%) disagreeing with the statement that logistics is a key source of competitive advantage. Even bigger group of companies (31%) did not have logistics as a top management priority.

Those results lead to a conclusion that the answers represent lack of consequence in some of the company's management strategies because a business element, such as logistics, recognized as a major impacting factor for profitability and customer service is not always a top management priority and is not treated as one bringing competitive advantage. This might also represent a certain know-how and education gap within the logistics area of the managers. This is confirmed by the facts on the market such as: one of the most rapid growths of new offers for education is in logistics.

The next research area was the internal collaboration in logistics operations. The results are presented in table 4. Most of the respondents (74%) said the operational information was shared within

the company however that was not always well supported by the information systems. Only less than 49% of the companies said they have information systems that provide sufficient and timely information to their managers.

Table 4 Companies' self assessment on internal collaboration in logistics operations

	Strogly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
We effectively share operational information within our firm	0	4	7	22	9
We are well prepared for internal disturbances and irregularities in our operations	1	5	9	18	9
Our information systems provide operational managers with sufficient and timely information to manage logistics activities	7	3	10	18	3
Strategic planning and target setting is done in collaboration between functions/ departments	2	4	8	19	5

Despite the weaknesses of the information systems in more than 50% companies still 64% of companies believed they were well prepared for internal disturbances and irregularities in operations as well as the strategic goals setting.

The data also shows needs for certain improvements in the area of collaborative strategic planning and target setting because in case of 16% of companies other departments and functions did not cooperate.

Table 5 Companies' self assessment on external collaboration in logistics operations

	Strogly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
We effectively share operational information with selected suppliers and/or customers	3	10	11	15	3
We are well prepared for external disturbances and irregularities in our operations	1	4	11	22	4
Our information systems support the sharing of operational information with selected suppliers and/or customers	2	4	3	15	1
We effectively collaborate with selectd suppliers and/or customers to facilitate operational planning and to improve forecasting	1	0	6	17	2

The external collaboration of companies was also researched. Data presented in table 5 clearly show that the effective external collaboration is a challenge for many of the surveyed companies in Pomerania. Only 18 companies out of 42 (43%) answering that question agreed they effectively share operational information with selected suppliers and/or customers. The lack of effectiveness in sharing information with suppliers and customers is mainly related to the lack of information systems support presented already in figure 18 of this report and confirmed by low number of provided responses (only 25 out of 42) in table 5, plus 36% of the respondents answering the question did not agree the information system support the external collaboration.

The question about effective collaboration with suppliers and customers was only answered by 26 respondents and 19 of them confirmed the collaboration is effective. The missing answers represent mostly those who said they didn't agree they shared effectively the information externally.

However 26 out of 42 companies (62%) still believed they were well prepared for external disturbances and irregularities in operations. That could mean they generated special costs such as e.g. inventory costs to make themselves ready or as result of those disturbances and irregularities. That is partly proven by the logistics costs structure both in LogOn Baltic and reference data where the inventory carrying cost is the second highest logistics costs, at the level above 6% of turnover for 60% of the surveyed companies.

The manufacturing companies also answered on the future developments and majority of them focused on the structural changes of the distribution network and utilizing mobile solutions.

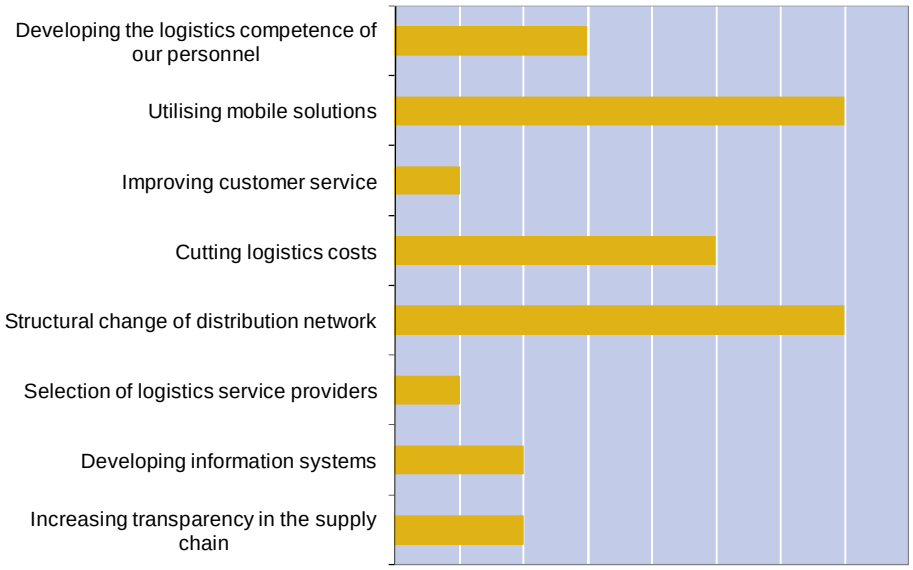

Figure 19 The most important future development needs of manufacturing companies

The data presented in figure 19 shows certain lack of consequent strategies of management. The surveyed companies showed weaknesses related to information systems, presented earlier in the report e.g. related to manager's access to reliable and timely information as well as external collaboration – information sharing, but at the same time, developing information systems is one the less important future development together with increasing transparency in the supply chain. Another lack of consequence is the high importance of mobile solutions indicated but technically this could not work without the information systems development which was ranked very low.

Another interesting aspect is the willingness of companies to cut costs in the future but selection of logistics service providers and information systems were not considered as important developments. Also the customer service was mentioned by low number of respondents.

In summary the majority of surveyed companies were micro and small companies that at this moment are not capable make investments in ICT solutions plus they miss awareness what ICT could do for them in logistics but the intuition says them the mobile solutions is the future as it is the overall market trend. The companies recognize they need to develop the logistics competencies of their personnel and they know they need to cut costs.

4 FINDINGS FROM LOGISTICS SERVICE PROVIDERS

4.1 Client structure and market development

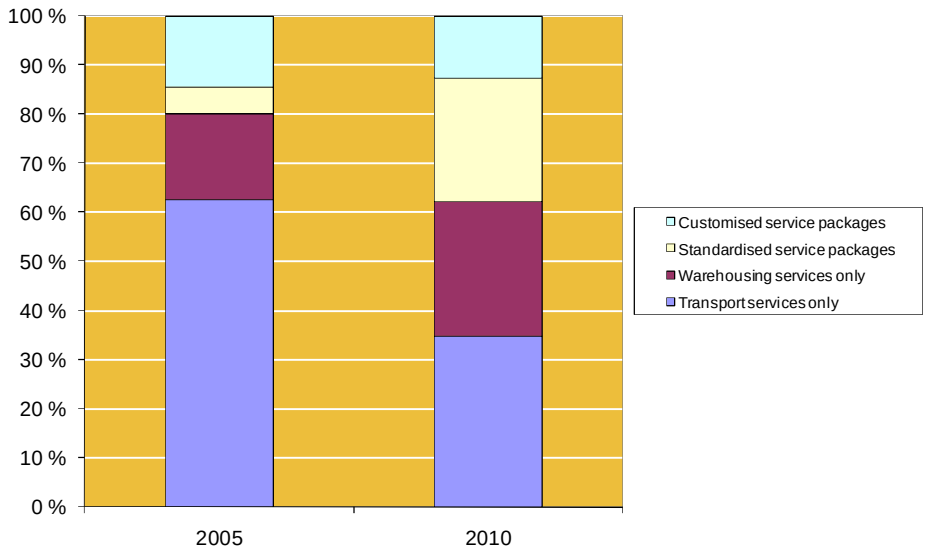

Figure 20 Distribution of turnover in logistic services companies for different types of services 2006 and 2010 (estimate)

The LogOn Baltic project also researched the logistics service providers. In the first step the market and customer structure were analyzed. The companies clearly said currently the majority of services relate to transport however the market and outsourcing develops and the other logistics services were and would develop. The most dynamic development is expected in so called standardized service packages that in 2005 only covered 5% of the business but are expected to increase up to c.a. 20%. Another area of growth is warehousing services which are expected to develop from c.a. 18% up to 25% share in the market.

The data presented in figure 20 reflect exactly the same trends in both the international and domestic reference data.

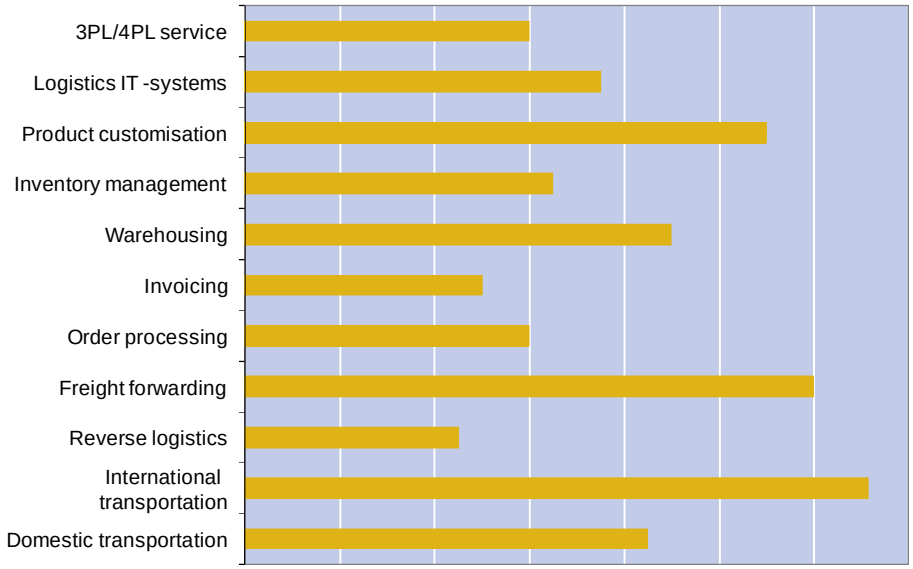

Figure 21 The relative trend of outsourcing, logistics service providers in The Pomerania Voivodship

The view of logistics service providers on the outsourcing trends is aligned with answers provided by the manufacturing and trading companies in the areas: transportation, freight forwarding considered as the most often outsourced activities. However the product customization mentioned as the third one most often outsourced activity was mentioned by the manufacturing companies on the fifth place. The logistics service providers also indicated the warehousing as an activity often outsourced while the manufacturing companies did not consider it as outsourced activity. Those differences could be easily explained by the fact that the logistic service providers mainly service medium and large companies and the respondents in the manufacturing group were micro and small companies therefore market perspective the companies have differs.

4.2 Logistics competence

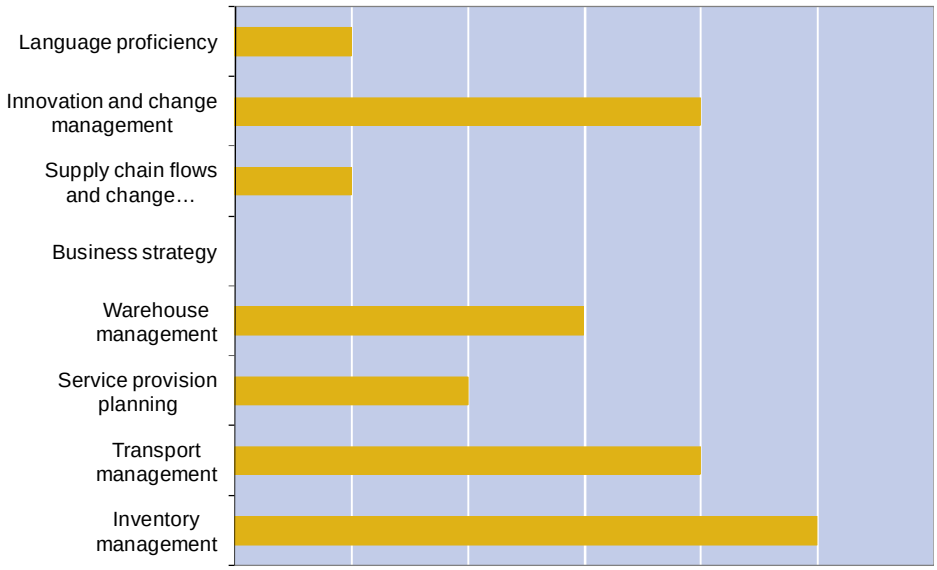

Figure 22 The most important development needs of personnel competence, logistics service providers

The most desired development of competencies is for inventory management and transport management just after the there is need for innovation and change management.

From logistics management theory perspective there is certain gap between the expected developments of services, market structure and important developments of competencies. First of all the inventory management service is the 7th out of 11th types of services in terms of outsourcing trend but the most important development need for the companies. Secondly the market structure shows that the logistics service providers will develop their portfolio of service what means they will do more for their customers and their customer's suppliers however only small number of companies recognizes a need for developing supply chain flows and change competencies. But at the same time they recognize importance of innovation and change management competencies. The gap seems to be a result of the lack of strategic management competencies in the companies. This hypothesis could be proven by the results of LogOn Batlic Expert Interview Report where the experts pointed the strategic planning and management as a weakness in Pomerania and also numbers in figure 22 show

companies do not recognize a need for the development of business strategy competencies.

4.3 Development needs and threats of the future

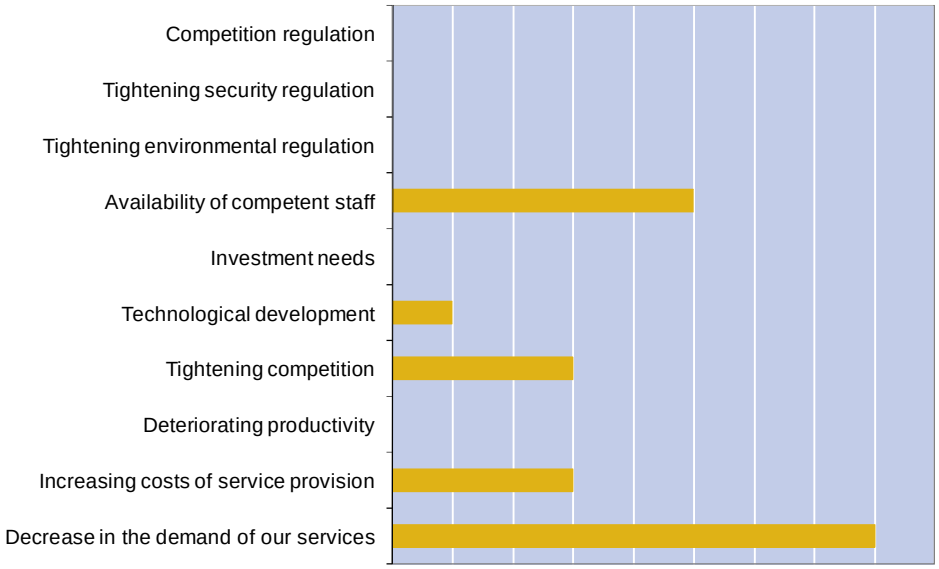

Figure 23 Largest threats to business, logistics service providers

The threats to business are mainly seen by the logistics service providers in the areas of demand for their services and availability of competent staff. The need for personnel is a general threat for business in Poland due to fast economy development and at the same time very intensive emigration of young and educated people. However the decrease in demand for logistics services is rather very long term potential risk because currently there is an increase seen and expected in the future for logistics services (see domestic reference data).

Some of the companies also mentioned competition and costs as largest threats. The logistic service providers do not envision any risks related to competition or security or environment regulations as well as investment needs.

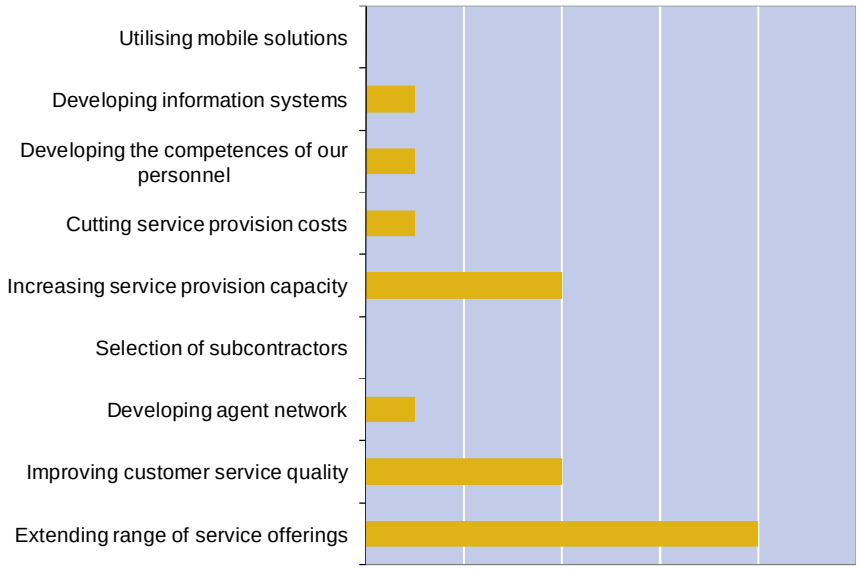

Figure 24 The most important development needs of the future, logistics service providers

In line with the expected development of the market most of the logistics service providers recognize the need to develop wider range of services offers as well as increase their capacities in provisioning services and improve customer service. In complete opposition to manufacturing companies none of the logistics service providers pointed the utilization of mobile solution even though on the market e.g. GPS is more and more widely implemented. Figure 24 presents other types of development needs mentioned by the companies.

4.4 Operating environment

The logistics service providers (LSPs) were also asked about their operating environment. 75% if them said the environment in general is good. Similarly like manufacturing and trade companies the LSPs are not satisfied with the transport infrastructure. More than 80% respondents did not answer the infrastructure is good. Also the availability of business facilities is assessed as poor by more than 40% of LSP companies.

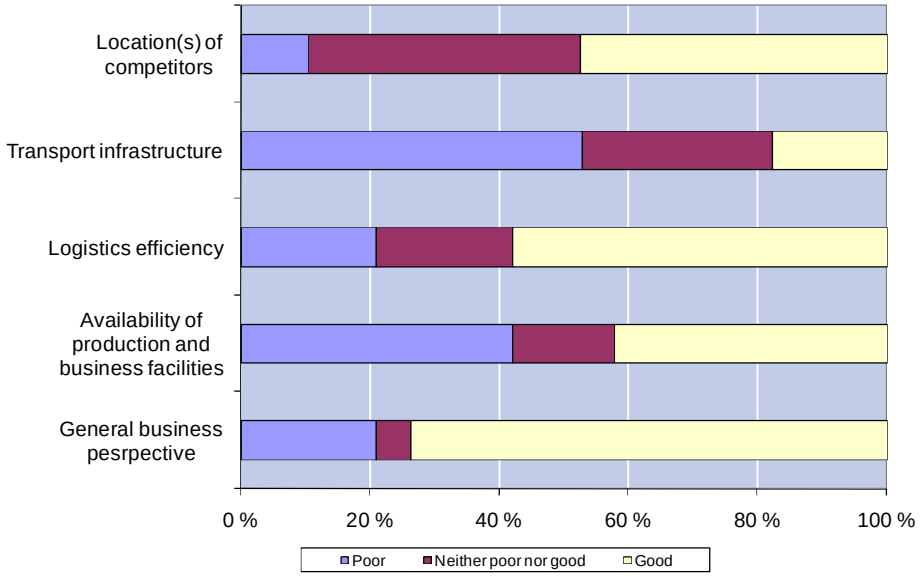

Figure 25 Logistics service providers' opinions on their operating environment

In general ICT solutions got wider penetration within LSPs than manufacturing and trade companies.

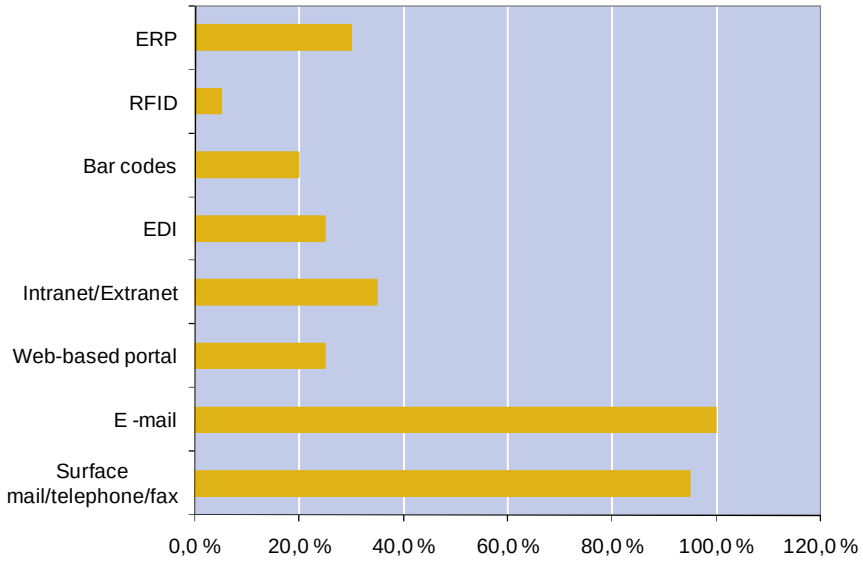

Figure 26 The usage of different ICT-systems, logistics service providers in South-western Finland

The e-mail is used in every company and 30% of LSP companies use ERP system while in trade and manufacturing only 6% of companies use ERP. Also RFID is implemented in some of the LSP companies. The EDI and web portals are used in more than 20% of companies.

4.5 Self assessment of the companies

The LSPs provided self assessment regarding the performance within the supply chain by comparison with competitors and the results are presented in table 6. The highest grades LSP assigned for themselves for the ability to respond to the needs and wants of key customers – 80% said they were better or much better. Also the LSPs are convinced they are better or much better (80%) in notifying customers in advance about delivery delays or shortages. The lowest score is for reducing delivery time only 58% LSPs believed they are better or much better than competitors.

Table 6 Companies' self assessment on complexity in the supply chain

	Much worse	Worse	Neither worse nor better	Better	Much better
My firm has been able to reduce the time between order receipt and customer delivery to as close as zero as possible	0	2	6	5	6
My firm is able to meet the quoted or anticipated delivery dates and quantities on a consistent basis	1	0	5	6	7
My firm is able to respond to the needs and wants of key customers	0	1	3	7	9
My firm is abel to notify customers in advance of delivery delays and product shortages	0	1	3	11	5
My firm is able to modify order size, volume or composition during logistics operations	0	1	5	7	5
My firm is able to accommodate delivery times for specific customers	1	0	4	9	5

Besides the performance the companies were asked also for their self assessment of the logistics costs management in the supply chain. The answers presented in table 7 show very similar results (75%) for the internal monitoring and evaluation of logistics costs as in case of manufacturing and trading companies. The external management of logistics costs and performance is much better developed by LSPs

than manufacturing companies. 89% of the respondents said they regularly monitor and evaluate the logistics costs and performance with selected suppliers. However benchmarking the costs and performance is not widely implemented, only 41% of respondents agreed their company did it.

Table 7 Companies' self assessment on the future of supply chain

	Strogly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
We regularly monitor and evaluate our logistics costs and performance internally	0	2	3	7	8
We regularly monitor and evaluate logistics costs and performance with selected suppliers and/or customers	2	0	4	9	4
We regularly benchmark logistics performance metrics against our competitors	2	0	6	6	1
Regular monitoring and evaluaton of logistics benefits our firm	2	1	5	9	2
We regularly monitor the environmental effects of our logistics operations	4	3	5	4	1

Regardless the fact that majority of the LSP companies monitor and evaluate logistics costs and performance not all seems to recognize those practices brings benefits to their companies. 16% of the respondents did not agree with the benefits and further 26% did not say they agree or disagree.

The environment effects are monitored less often, only by 5 out of 17 companies answering this part of the question.

The internal collaboration within LSPs is better assessed than in manufacturing and trade companies, especially in the area of strategic planning and target setting. 72% respondents representing LSPs agreed or strongly agreed there was collaboration in the strategic planning while in case of manufacturing companies more respondents did not agree and less agreed than in LSPs. The collaboration in all other categories, as shown in table 8, was confirmed by majority of the companies – all answers above 70% agree or strongly agree.

Table 8 Companies' self assessment on internal collaboration in logistics operations

	Strogly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
We effectively share operational information within our firm	1	1	3	8	7
We are well prepared for internal disturbances and irregularities in our operations	0	2	5	6	7
Our information systems provide operational managers with sufficient and timely information to manage logistics activities	0	3	3	9	4
Strategic planning and target setting is done in collaboration between functions/ departments	0	2	3	11	2

Table 9 Companies' self assessment on external collaboration in logistics operations

	Strogly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
We effectively share operational information with selected suppliers and/or customers	0	4	3	9	2
We are well prepared for external disturbances and irregularities in our operations	0	2	3	8	5
Our information systems support the sharing of operational information with selected suppliers and/or customers	1	4	3	6	3
We effectively collaborate with selectd suppliers and/or customers to facilitate operational planning and to improve forecasting	0	3	3	11	1

The external collaboration is assessed a bit lower than internal but still better than in case of manufacturing and trade companies. The weakest chain in the collaboration relates to information systems support. 5 out of 19 respondents said their information system did not support the sharing of information with selected suppliers or customers. This is also reflected in the answers provided in relation to the ICT solution utilization.

5 SUMMARY AND CONCLUSIONS

The logistics survey performed allows researching of the companies and their operating environment from different angles. The results show a significant potential in the Pomerania Voivodship market for logistics, both from the perspective of demand, expected development, values of logistics costs as well as from the perspective of the gap in logistics development between Poland and other Western European countries.

The significance of logistics to the business is reflected in the logistics costs as percentage of turnover. The total logistics costs could be estimated on the levels between 10% up to more than 30% of turnover. There is common expectation the logistics costs will increase. The companies indicated the transportation costs on the highest level. Summarizing the results of manufacturing and trade companies it is visible the inventory carrying costs are important because they already have significant share in the costs structure but they are also expected to grow more than other.

The lower level of logistics development in Poland than in Western European countries is clearly visible in the numbers regarding the level of outsourcing, ICT solutions utilization and the internal and external collaboration. The gap gives potential for creation of new advanced services, creation of jobs and development of companies. The manufacturing and trading companies expect to outsource logistics related activities and this will drive the demand and also quality. There are no threats related to any low regulations. Most of the companies recognize the importance of personnel development in the future.

However there are three key aspects that are and could further slow down the logistics development in Pomerania:

- Transportation and logistics services infrastructure,
- ICT awareness and investments,
- Supply chain and strategic business management competencies.

The first aspect is widely recognized: 55-65% of trade and LSP companies indicate that transport infrastructure is poor and also the availability of manufacturing and business facilities is pointed as a weakness in the operating environment. So the 2007-2013 EU founded

project programming will be crucial to adequately define projects systemically solving the transport and logistics infrastructure problems in Pomerania.

Unfortunately the ICT weaknesses seem to be not understood by many companies and ICT is not perceived as key development for the future even thought only from 5 – 20% of surveyed companies uses ERP systems or bar code systems, 25% - 35% of companies uses web based portals. None of surveyed manufacturing companies uses RFID. Also less than 49% of the companies said they have information systems that provide sufficient and timely information to their managers. Additionally 36% of manufacturing and trade companies and 26% of LSPs said the information systems do not support effective data sharing and collaboration with selected suppliers and customers. The research mainly concerned the micro and small companies that are capable to manage many logistics processes manually within the small volume business plus the investments in ICT are usually above their available capital. So due to the lack of capital and awareness companies do not consider ICT as a key development need for the future but this could drive to a situation that the companies are taken out chances to develop and be more competitive.

The structure of answers and also the pattern of missing answers to certain questions drive to conclusion that the supply chain and strategic business management competencies require development in the companies in Pomerania Voivodship. This is confirmed by the respondents from the LSPs companies.

The companies and the local authorities should closely cooperate in the near future to eliminate the three mentioned elements that are bringing risks to the logistics developments and as a consequence also to the development of the region.

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APPENDIX

Appendix 1 Interview guideline

[General Questions for all respondents]

G1. Background information

a) Company name / Name of business unit: [Open field]

b) Postal code: [Open field]

c) Email address (required only if you wish to receive the customised survey report): [Open field]

d) Respondent's position in the firm:

[Drop-down menu]

Senior management

Middle management

Operational staff

Expert

Other

G2. Please choose whether you wish to respond on behalf of the whole firm or a group of companies OR an individual business unit.

Both options are hereon referred to as "your firm".

[Drop-down menu]

I wish to respond on behalf of the whole firm or a group of companies.

I wish to respond on behalf of an individual business unit.

G3. Please indicate the number of employees in your firm at the end of 2005.

[Drop-down menu]

1-9

10-49

50-249

250-499

500-999

1000-1999

2000-4999

5000-10000

Over 10000

G4. Please indicate the turnover of your firm in 2005.

[Drop-down menu]

0-2 M EUR

2.1-5 M EUR

5.1-10 M EUR

10.1-25 M EUR

25.1-50 M EUR

50.1-100 M EUR

100.1-500 M EUR

500.1-1000 M EUR

1.1-5 billion EUR

over 5 billion EUR

[NOTE: this is a general scale used by Eurostat for EU statistics; please, provide us the corresponding national scales that conform to this in your national currency for Sweden, Estonia, Latvia, Lithuania and Poland!]

G5. Please choose the main sector that your firm represents.

[Drop-down menu]

Manufacturing and construction

Trading

Logistics services

[General scales and terms that need to be translated]

Will decrease significantly

Will decrease somewhat

Neither decrease nor increase

Will decrease somewhat

Will increase significantly

No response

Internally

With customers

With suppliers
With logistics providers

Much worse
Somewhat worse
Neither worse nor better
Somewhat better
Much better

Strongly disagree
Disagree
Neither disagree nor agree
Agree
Strongly agree

Very poor
Poor
Neither poor nor good
Good
Very good

[Questions for manufacturing firms]

M6. Please choose the industry that best fits your firm's field of business.
[Drop-down menu]

Manufacturing of food products, beverages and tobacco
Manufacturing of textiles and textile products
Manufacturing of leather and leather products
Manufacturing of wood and wood products
Manufacturing of pulp, paper and paper products
Publishing and printing
Manufacturing of coke, refined petroleum products, and nuclear fuel
Manufacturing of chemicals, chemical products, and man-made fibres
Manufacturing of rubber and plastic products
Manufacturing of other non-metallic mineral products
Manufacturing of basic metals and fabricated metal products
Manufacturing of machinery and equipment
Manufacturing of electrical and optical equipment

Manufacturing of transport equipment

Other manufacturing

Construction

M7. Please choose the option that best describes production in your firm.

[Drop-down menu]

Products are made to stock (MTS).

Products are assembled to order (ATO).

Products are made to order (MTO).

Customer specific products are engineered to order (ETO – including project-driven businesses).

Our business focuses on selling the manufacturing capacity of other firms to customers (capacity selling, CS).

M8. Please choose the option that best describes your firm's position in the production chain (see figure).

[Drop-down menu OR tick box, where only one option can be chosen]

Provider of raw materials

Provider of semi-finished products

Manufacturer / assembler of final products

M9. Please estimate how many percent of your firm's PRODUCTION CAPACITY was located in each of the following geographical areas in 2005.

NOTE! The total should add up to 100%.

[Drop-down menus (0; 1-100% range under each in 5% intervals)]

a) In the domestic market

b) Outside the domestic market but within the EU (incl. Norway, Iceland and Switzerland)

c) Outside the EU but within Europe

d) In the rest of the world

M10. Please estimate how many percent of your firm's SALES were generated in each of the following geographical areas in 2005.

NOTE! The total should add up to 100%.

[Drop-down menus (0; 1-100% range under each in 5% intervals)]

a) In the domestic market

b) Outside the domestic market but within the EU (incl. Norway, Iceland and Switzerland)

c) Outside the EU but within Europe

d) In the rest of the world

M11. Please estimate how many percent of your firm's PURCHASES originated from each of the following geographical areas in 2005.

NOTE! The total should add up to 100%.

[Drop-down menus (0; 1-100% range under each in 5% intervals)]

a) From the domestic market

b) From outside the domestic market but from the EU (incl. Norway, Iceland and Switzerland)

c) From outside the EU but from Europe

d) From the rest of the world

M12. Please estimate the following logistics costs of your firm expressed as percentages of firm turnover in 2005. [Drop-down menus (0-40% range under each in 1% intervals)]

NOTE! The total should NOT add up to 100%.

Direct logistics costs

a) Transportation and cargo handling (incl. transport packaging)

b) Warehousing (cost of running own warehouse or buying the service)

Indirect logistics costs

c) Inventory carrying cost (incl. cost of capital tied in inventory)

d) Logistics administration (costs from functions indirectly related to logistics)

Other direct and indirect logistics costs

e) All other logistics costs

M13. Please estimate how the relative share of the following logistics costs will develop by 2010 in your firm compared to firm turnover.

[5-point scale under each (Will decrease significantly…Will increase significantly) + "No response"]

Direct logistics costs

f) Transportation and cargo handling (incl. transport packaging)

g) Warehousing (cost of running own warehouse or buying the service)

Indirect logistics costs

h) Inventory carrying cost (incl. cost of capital tied in inventory)

i) Logistics administration (costs from functions indirectly related to logistics)

Other direct and indirect logistics costs

j) All other logistics costs

M14. Please estimate how many percent of the following logistics operations are and will be managed by an external service provider in your firm.

[5-point scale under each (0%; 1-25%; 26-50%; 51-75%; Over 75%) + "No response"]

M14.1. At the moment

a) Domestic transportation

b) International transportation

a) Reverse logistics
b) Freight forwarding
c) Order processing
d) Invoicing
e) Warehousing
f) Inventory management
g) Product customisation/finalisation
h) Logistics IT systems

M14.1. In year 2010

a) Domestic transportation
b) International transportation
c) Reverse logistics
d) Freight forwarding
e) Order processing
f) Invoicing
g) Warehousing
h) Inventory management
i) Product customisation/finalisation
j) Logistics IT systems

M15. Which of the following methods are used on a weekly basis in your firm for managing the order-delivery process?

[Separate tick box under each]

a) Surface mail / telephone / fax
b) Email
c) Web-based portal, e.g. Internet marketplace
d) Intranet/Extranet
e) Electronic Data Interchange (EDI)
f) Bar Codes
g) RFID (Radio Frequency Identification)
h) Enterprise Resource Planning system (ERP)
i) Other

M16. Please estimate your firm's logistics performance in terms of the following key figures.

[Open fields under each, which accept numbers only]

a) How many **%** of your customer orders are delivered by the requested day and time in complete and perfect condition including all documentation (perfect order fulfilment %)?
b) How many **days** is your average customer order fulfilment cycle time (i.e. average number of days required from customer order receipt to order delivery)?

a) How many **days** of end-product inventory does your firm hold in stock on average?
b) What is the average number of **days** of sales outstanding in your firm (i.e. average number of days between customer order delivery to receipt of customer payment)?
c) What is the average number of **days** of payables outstanding in your firm (i.e. average number of days between supplier order receipt to order payment)?

M17. Please assess the logistics performance of your firm relative to its major competitors.

[5-point scale under each (Much worse…Much better) + "No response"]

a) My firm has been able to reduce the time between order receipt and customer delivery to as close to zero as possible.
b) My firm is able to meet the quoted or anticipated delivery dates and quantities on a consistent basis.
c) My firm is able to respond to the needs and wants of key customers.
d) My firm is able to notify customers in advance of delivery delays and product shortages.
e) My firm is able to modify order size, volume or composition during logistics operations.
f) My firm is able to accommodate delivery times for specific customers.

M18. Please indicate the extent to which you agree or disagree with the following statements regarding *logistics performance evaluation* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) We regularly monitor and evaluate our logistics costs and performance internally.
b) We regularly monitor and evaluate logistics costs and performance with selected suppliers and/or customers.
c) We regularly benchmark logistics performance metrics against our competitors.
d) Regular monitoring and evaluation of logistics benefits our firm.
e) We regularly monitor the environmental effects of our logistics operations.

M19. Please indicate the extent to which you agree or disagree with the following statements regarding the *importance of logistics* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) Logistics has a major impact on our profitability.
b) Logistics has a major impact on our customer service level.
c) Logistics is a key source of competitive advantage for our firm.
d) Logistics is a top management priority in our firm.

M20. Please indicate the extent to which you agree or disagree with the following statements regarding *internal collaboration in logistics operations* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) We effectively share operational information within our firm.

a) We are well prepared for internal disturbances and irregularities in our operations.
b) Our information systems provide operational managers with sufficient and timely information to manage logistics activities.
c) Strategic planning and target setting is done in collaboration between functions/departments.

M21. Please indicate the extent to which you agree or disagree with the following statements regarding *external collaboration in logistics operations* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) We effectively share operational information with selected suppliers and/or customers.
b) We are well prepared for external disturbances and irregularities in our operations.
c) Our information systems support the sharing of operational information with selected suppliers and/or customers.
d) We effectively collaborate with selected suppliers and/or customers to facilitate operational planning and to improve forecasting.

M22. Please choose the most important future development need of your firm in terms of logistics operations.

[Drop-down menu]

Increasing transparency in the supply chain
Developing information systems
Selection of logistics service providers
Structural change of distribution network
Cutting logistics costs
Improving customer service
Utilising mobile solutions
Developing the logistics competence of our personnel

M23. Please indicate the competence area of your personnel the development of which would most benefit your firm.

[Drop-down menu]

Basic logistics skills
Basic concepts linked to supply chain management
Inventory management
Procurement and purchasing
Transport management
Production planning
Warehouse management
Supply chain strategy
Business strategy

Innovation and change management

Language proficiency

M24. Please rate the external operational conditions that your firm faces in its domestic location(s) in terms of...

[5-point scale under each (Very poor…Very good) + "No response"]

a) General business perspective

b) Availability of production and business facilities

c) Logistics efficiency

d) Transport infrastructure

e) Location(s) of our competitors

[Questions for trading firms]

T6. Please choose the industry that best fits your firm's field of business.

[Drop-down menu]

Retail: Food, beverages and tobacco

Retail: Other

Wholesale: Food, beverages and tobacco

Wholesale: Other

Agency

Sales of motor vehicles and motor vehicle parts

Sales of automotive fuel

T7. Please estimate how many percent of your firm's SALES were generated in each of the following geographical areas in 2005.

NOTE! The total should add up to 100%.

[Drop-down menus (0; 1-100% range under each in 5% intervals)]

a) In the domestic market

b) Outside the domestic market but within the EU (incl. Norway, Iceland and Switzerland)

c) Outside the EU but within Europe

d) In the rest of the world

T8. Please estimate how many percent of your firm's PURCHASES originated from each of the following geographical areas in 2005.

NOTE! The total should add up to 100%.

[Drop-down menus (0; 1-100% range under each in 5% intervals) OR open fields, which accept numbers only]

a) From the domestic market
b) From outside the domestic market but from the EU (incl. Norway, Iceland and Switzerland)
c) From outside the EU but from Europe
d) From the rest of the world

T9. Please estimate the following logistics costs of your firm expressed as percentages of firm turnover in 2005.

NOTE! The total should NOT add up to 100%.

[Drop-down menus (0-40% range under each in 1% intervals) OR open fields, which accept numbers only]

Direct logistics costs

a) Transportation and cargo handling (incl. transport packaging)
b) Warehousing (cost of running own warehouse or buying the service)

Indirect logistics costs

c) Inventory carrying cost (incl. cost of capital tied in inventory)
d) Logistics administration (costs from functions indirectly related to logistics)

Other direct and indirect logistics costs

e) All other logistics costs

T10. Please estimate how the relative share of the following logistics costs will change by 2010 in your firm compared to firm turnover.

[5-point scale under each (Will decrease significantly…Will increase significantly) + "No response"]

Direct logistics costs

a) Transportation and cargo handling (incl. transport packaging)
b) Warehousing (cost of running own warehouse or buying the service)

Indirect logistics costs

c) Inventory carrying cost (incl. cost of capital tied in inventory)
d) Logistics administration (costs from functions indirectly related to logistics)

Other direct and indirect logistics costs

e) All other logistics costs

T11. Please estimate how many percent of the following logistics operations are and will be managed by an external service provider in your firm.

[5-point scale under each (0%; 1-25%; 26-50%; 51-75%; Over 75%) + "No response"]

T14.1. At the moment

a) Domestic transportation
b) International transportation
c) Reverse logistics
d) Freight forwarding

a) Order processing
b) Invoicing
c) Warehousing
d) Inventory management
e) Product customisation/finalisation
f) Logistics IT systems

T14.1. In year 2010

a) Domestic transportation
b) International transportation
c) Reverse logistics
d) Freight forwarding
e) Order processing
f) Invoicing
g) Warehousing
h) Inventory management
i) Product customisation/finalisation
j) Logistics IT systems

T12. Which of the following methods are used on a regular basis in your firm for managing the order-delivery process?

[Separate tick box under each]

a) Surface mail / telephone / fax
b) Email
c) Web-based portal, e.g. Internet marketplace
d) Intranet/Extranet
e) Electronic Data Interchange (EDI)
f) Bar Codes
g) RFID (Radio Frequency Identification)
h) Enterprise Resource Planning system (ERP)
i) Other

T13. Please estimate your firm's logistics performance in terms of the following key figures.

[Open fields under each, which accept numbers only]

a) How many **%** of your customer orders are delivered by the requested day and time in complete and perfect condition including all documentation (perfect order fulfilment %)?
b) How many **days** is your average customer order fulfilment cycle time (i.e. average number of days required from customer order receipt to order delivery)?
c) How many **days** of end-product inventory does your firm hold in stock on average?

a) What is the average number of **days** of sales outstanding in your firm (i.e. average number of days between customer order delivery to receipt of customer payment)?
b) What is the average number of **days** of payables outstanding in your firm (i.e. average number of days between supplier order receipt to order payment)?

T14. Please assess the logistics performance of your firm relative to its major competitors.

[5-point scale under each (Much worse…Much better) + "No response"]

a) My firm has been able to reduce the time between order receipt and customer delivery to as close to zero as possible.
b) My firm is able to meet the quoted or anticipated delivery dates and quantities on a consistent basis.
c) My firm is able to respond to the needs and wants of key customers.
d) My firm is able to notify customers in advance of delivery delays or product shortages.
e) My firm is able to modify order size, volume or composition during logistics operations.
f) My firm is able to accommodate delivery times for specific customers.

T15. Please indicate the extent to which you agree or disagree with the following statements regarding *logistics performance evaluation* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) We regularly monitor and evaluate our logistics costs and performance internally.
b) We regularly monitor and evaluate logistics costs and performance with selected suppliers and/or customers.
c) We regularly benchmark logistics performance metrics against our competitors.
d) Regular monitoring and evaluation of logistics benefits our firm.
e) We regularly monitor the environmental effects of our logistics operations.

T16. Please indicate the extent to which you agree or disagree with the following statements regarding the *importance of logistics* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) Logistics has a major impact on our profitability.
b) Logistics has a major impact on our customer service level.
c) Logistics is a key source of competitive advantage for our firm.
d) Logistics is a top management priority in our firm.

T17. Please indicate the extent to which you agree or disagree with the following statements regarding *internal collaboration in logistics operations* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) We effectively share operational information within our firm.
b) We are well prepared for internal disturbances and irregularities in our operations.

a) Our information systems provide operational managers with sufficient and timely information to manage logistics activities.
b) Strategic planning and target setting is done in collaboration between functions/departments.

T18. Please indicate the extent to which you agree or disagree with the following statements regarding *external collaboration in logistics operations* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) We effectively share operational information with selected suppliers and/or customers.
b) We are well prepared for external disturbances and irregularities in our operations.
c) Our information systems support the sharing of operational information with selected suppliers and/or customers.
d) We effectively collaborate with selected suppliers and/or customers to facilitate operational planning and to improve forecasting.

T19. Please choose the most important future development need of your firm in terms of logistics operations.

[Drop-down menu]

Increasing transparency in the supply chain
Developing information systems
Selection of logistics service providers
Structural change of distribution network
Cutting logistics costs
Improving customer service
Utilising mobile solutions
Developing the logistics competence of our personnel

T20. Please indicate the competence area of your personnel the development of which would most benefit your firm.

[Drop-down menu]

Basic logistics skills
Basic concepts linked to supply chain management
Inventory management
Procurement and purchasing
Transport management
Production planning
Warehouse management
Supply chain strategy
Business strategy
Innovation and change management

Language proficiency

T21. Please rate the external operational conditions that your firm faces in its domestic location(s) in terms of...

[5-point scale under each (Very poor…Very good) + "No response"]

a) General business climate
b) Availability of production and business facilities
c) Logistics efficiency(availability of good quality logistics services)
d) Transport infrastructure
e) Location(s) of our competitors

[Questions for logistics service providers]

L6. Please choose the industry that best fits your firm's field of business.

[Drop-down menu]

Road transport
Rail transport
Water transport
Air transport
Stevedoring and storage
Supporting and auxiliary transport activities
Postal activities
Courier activities
Management of logistics information and logistics information systems
Other logistics services

L7. Please choose the *main* type cargo that your firm typically handles.

[Drop-down menu OR tick box, where only one option can be chosen]

Solid bulk
Liquid bulk
Unit cargo
General cargo
Valuables
Express cargo
Other

L8. Which part of the production chain does your firm *primarily* serve?

[Drop-down menu OR tick box, where only one option can be chosen]

Providers of raw materials

Providers of semi-finished products

Manufacturers / assemblers of final products

First tier distributors (e.g. wholesalers)

Second tier distributors (e.g. retailers)

L9. Please estimate how many percent of your firm's turnover was generated in each of the following geographical areas in 2005.

[Drop-down menus (0; 1-100% range under each in 5% intervals) OR open fields, which accept numbers only]

a) In the domestic market

b) Outside the domestic market but within the EU (incl. Norway, Iceland and Switzerland)

c) Outside the EU but within Europe

d) In the rest of the world

L10. Please estimate how many percent of your firm's turnover was generated in 2005 from…

[Drop-down menus (1-100% range under each in 5% intervals)]

a) Sales to your largest customer?

b) Sales to your 5 largest customers?

L11. Please estimate how many percent of your firm's turnover was generated in 2005 from…

[Drop-down menus (0; 1-100% range under each in 5% intervals)]

a) Pure transportation services?

b) Pure warehousing services?

c) Standardised logistics service packages?

d) Customised logistics service packages?

L12. Please estimate how many percent of your firm's turnover *will be generated in 2010* from…

[Drop-down menus (0; 1-100% range under each in 5% intervals)]

a) Pure transportation services?

b) Pure warehousing services?

c) Standardised logistics service packages?

d) Customised logistics service packages?

L13. Please estimate how the demand of the following logistics services will develop by 2010.

[5-point scale under each (Will decrease significantly…Will increase significantly)]

a) Domestic transportation

b) International transportation

c) Reverse logistics

a) Freight forwarding
b) Order processing
c) Invoicing
d) Warehousing
e) Inventory management
f) Product customisation/finalisation
g) Logistics IT systems
h) 3PL/4PL service [Third Partly / Fourth Party Logistics service]

L14. Which of the following methods are used on a regular basis in your firm for managing the customer service process?

[Separate tick box under each]

a) Surface mail / telephone / fax
b) Email
c) Web-based portal, e.g. Internet marketplace
d) Intranet/Extranet
e) Electronic Data Interchange (EDI)
f) Bar Codes
g) RFID (Radio Frequency Identification)
h) Enterprise Resource Planning system (ERP)
i) Other

L15. Please assess the level overall logistics competence...

[5-point scale under each (Very low … Very high) + "No response"]

a) Of your firm.
b) Of your customers.
c) Of your suppliers
d) Of your competitors

L16. Please assess the performance of your firm relative to its major competitors.

[5-point scale under each (Much worse…Much better) + "No response"]

a) My firm has been able to reduce the time between customer order receipt and service delivery to as close to zero as possible.
b) My firm is able to meet the quoted or anticipated service delivery dates on a consistent basis.
c) My firm is able to respond to the needs and wants key customers.
d) My firm is able to notify customers in advance of service delivery delays or other complications.
e) My firm is able to modify service composition during logistics operations.
f) My firm is able to accommodate service delivery times for specific customers.

L17. Please indicate the extent to which you agree or disagree with the following statements regarding *logistics performance evaluation* from the perspective of your firm.

[5-point scale under each (Much worse…Much better) + "No response"]

a) We regularly monitor and evaluate our logistics costs and performance internally.
b) We regularly monitor and evaluate logistics costs and performance with selected subcontractors and/or customers.
c) We regularly benchmark logistics performance metrics against our competitors.
d) Regular monitoring and evaluation of logistics benefits our firm.
e) We regularly monitor the environmental effects of our logistics operations.

L18. Please indicate the extent to which you agree or disagree with the following statements regarding *internal collaboration* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) We effectively share operational information within our firm.
b) We are well prepared for internal disturbances and irregularities in our operations.
c) Our information systems provide operational managers with sufficient and timely information to manage logistics activities.
d) Strategic planning and target setting is done in collaboration between functions/departments.

L19. Please indicate the extent to which you agree or disagree with the following statements regarding *external collaboration* from the perspective of your firm.

[5-point scale under each (Strongly disagree…Strongly agree) + "No response"]

a) We effectively share operational information with selected subcontractors and/or customers.
b) We are well prepared for external disturbances and irregularities in our operations.
c) Our information systems support the sharing of operational information with selected subcontractors and/or customers.
d) We effectively collaborate with selected subcontractors and/or customers to facilitate operational planning and to improve forecasting.

L20. Please indicate the most important future development need of your firm.

[Drop-down menu]

Extending range of service offerings
Improving customer service quality
Developing agent network
Selection of subcontractors
Increasing service provision capacity
Cutting service provision costs
Developing the competences of our personnel
Developing information systems

Utilising mobile solutions

L21. Please indicate the competence area of your personnel the development of which would most benefit your firm.

[Drop-down menu]

Inventory management
Transport management
Service provision planning
Warehouse management
Business strategy
Supply chain flows and networks
Innovation and change management
Language proficiency

L22. Which of the following do you consider to be the most serious threat to your firm?

[Drop-down menu]

Decrease in the demand of our services
Increasing costs of service provision
Deteriorating productivity
Tightening competition
Technological development
Investment needs
Availability of competent staff
Tightening environmental regulation
Tightening security regulation
Competition regulation

L23. Please rate the external operational conditions that your firm faces in its domestic location(s) in terms of….

[5-point scale under each (Very poor…Very good) + "No response"]

a) General business perspective
b) Availability of production and business facilities
c) Logistics efficiency
d) Transport infrastructure
e) Location(s) of our competitors

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