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REGIONAL LOGISTICS & ICT PROFILE: POMERANIA, POLAND (THE POMORSKIE VOIVODESHIP)

Anna Trzuskawska

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EXECUTIVE SUMMARY[1]

This report is part of the Baltic Sea Region (BSR) INTERREG IIIB European Union funded project LogOn Baltic. The main aim of the project is to advance regional development in the fields of logistics and information and communication technologies (ICT) through the exchange of experiences and know-how.

Apart from two high number on-line based surveys dealing with logistics and ICT, ten expert interviews have been conducted and support initiatives as well as regional development projects have been analysed. The results have been summarised and will be published in separate reports.

The Regional Logistics & ICT Profile of Pomerania, Poland is an essential part of the project. The profile integrates the individual empirical studies with secondary data and covers the following topics:

- Description of the LogOn Baltic project
- General information about the region
- Economic importance of the region
- Public sector support for enterprises
- Logistics in the region (transport infrastructure, associations,
- industry characteristics)
- ICT in the region (infrastructure, characteristics)
- Human knowledge base (professions, further education and training)
- Analysis of strengths, weaknesses, opportunities and threats

In the first chapter, information is given on the project in general, on the participating partners as well as on the report. Chapter 2 describes the Pomorskie Voivodship in the Baltic Sea Region, its location factors, the climate, regional administrative divisions, the relevant history for background knowledge as well as links to the BSR.

Pomerania economy and international trade is illustrated in chapter 3, while organisations on the different levels, types of support and logistics and ICT projects are explained in the fourth section.

[1] The executive summary text is prepared base on the master text published in the LogOn Baltic report: Regional Logistics & ICT Profile In The Southern Metropolitan Region Of Hamburg.

The fifth part shows Pomerania road, railway, air transport connections which play a significant role in logistics. Next, transport sector administration and industry associations as well as trade unions on different levels, social programs and policies are described. Furthermore, the logistics industry is characterized and results from the logistics survey are presented.

Chapter 6 explains the general ICT infrastructure in the region and characteristics of the ICT industry that have resulted from the ICT survey as well as the sector's development and an outlook.

The seventh part of the profile focuses on professions and their qualifications in the fields of logistics and ICT, education and training as well as on the development.

Finally, the strengths and weaknesses of the Pomorskie Voivodship region are summarised from the expert interviews and the region needs are pointed out.

STRESZCZENIE

Niniejszy raport został przygotowany w ramach projektu współpracy międzyregionalnej w regionie Morza Bałtyckiego (Baltic Sea Region (BSR)) INTERREG IIIB, współfinansowanego z środków Unii Europejskiej, o nazwie LogOn Baltic. Głównym celem projektu jest rozwój regionów w obszarach logistyki i technologii informatycznych (ICT) poprzez wymianę wiedzy, doświadczeń i know-how.

W ramach projektu, poza badaniami ankietowymi wielu przedsiębiorstw pod kontem rozwoju logistyki i technologii informatycznych, przeprowadzono 10 wywiadów z ekspertami oraz dokonano przeglądu, analizy i oceny efektywności podejmowanych inicjatyw rozwoju regionalnego w województwie pomorskim. Rezultaty tych badań zostały opracowane i opublikowane w oddzielnych raportach.

Raport zatytułowany: „The Regional Logistics & ICT Profile of Pomerania, Poland" to raport opisujący logistyczny i informatyczny profil regionu Pomorza i stanowi kluczową część projektu. Profil regionu integruje wyniki badań empirycznych przeprowadzonych w ramach projektu z danymi wtórnymi i dotyczy następujących zagadnień:

- Opis projektu LogOn Baltic,
- Ogólne informacje o regionie,
- Znaczenie ekonomiczne regionu,
- Wsparcie sektora publicznego dla przedsiębiorców,
- Logistyka w regionie (infrastruktura transportowa, stowarzyszenia, charakterystyka branży),
- Technologie informatyczne (ICT) w regionie (infrastruktura, charakterystyki),
- Zasoby ludzkie – wiedza i kompetencje (zawody, edukacja, szkolenia)
- Analiza słabych i mocnych stron oraz szans i zagrożeń regionu.

Pierwszy rozdział dostarcza informacji ogólnych o projekcie, o partnerach, jak również o raporcie. Rozdział 2 opisuje województwo pomorskie w regionie Morza Bałtyckiego, jego położenie geograficzne, klimat, administrację, tło historyczne, jak również powiązania z innymi częściami regionu Morza Bałtyckiego.

Ekonomia regionu i handel międzynarodowy są zilustrowane w rozdziale 3. Natomiast organizacje oraz różne szczeble i rodzaje wsparcia dla przedsiębiorców wraz z projektami dotyczącymi logistyki i technologii informatycznych zostały przedstawione w czwartym rozdziale.

Piąty rozdział pokazuje połączenia drogowe, kolejowe, lotnicze regionu, ponieważ odgrywają one ogromną rolę dla logistyki. Następnie opisano administrację i stowarzyszenia związane z branżą

Rozdział 6 wyjaśnia ogólnie infrastrukturę informatyczną w regionie i charakteryzuje branżę informatyczną na podstawie wyników przeprowadzonego badania ankietowego. Następnie rozdział przedstawia zagadnienia rozwoju tego sektora gospodarki i prognozy na przyszłość.

Siódma część raportu skupia się na zawodach i ich kwalifikacjach w obszarach logistyki i informatyki oraz edukacji, szkoleniach i rozwoju wiedzy logistycznej i informatycznej.

Na końcu raport podsumowuje mocne i słabe strony województwa pomorskiego na podstawie wywiadów z ekspertami oraz wskazuje na potrzeby tego regionu.

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1 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 area of 16.5 sqr 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 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 a cooperation with the Department of Logistics, University of Gdańsk, Faculty of Economics in order to create the LogOn Baltic Regional Profile. 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 UE founded research projects such as: TEMPUS, PHARE, INTERREG II, and NELOC. Beside the research work the team concentrates on academic teaching and developing the programs for education in logistics.

1.3 Regional Profile introduction

The Regional Logistics & ICT Profile (short form: Regional Profile) is one of the several support tools necessary for the analysis and description of the logistics and ICT competences in the region and the cross-national comparison.

Information from different areas of interest (i.e. economy, human resources, logistics infrastructure, ICT infrastructure, public sector, among others) together with the findings of the empirical activities carried out during the project converge into the Regional Logistics & ICT Profile, turning it into a reference document for the whole project.

All of the regions involved in the LogOn Baltic project are following the same content structure to help keep uniformity among the different Regional Profiles.

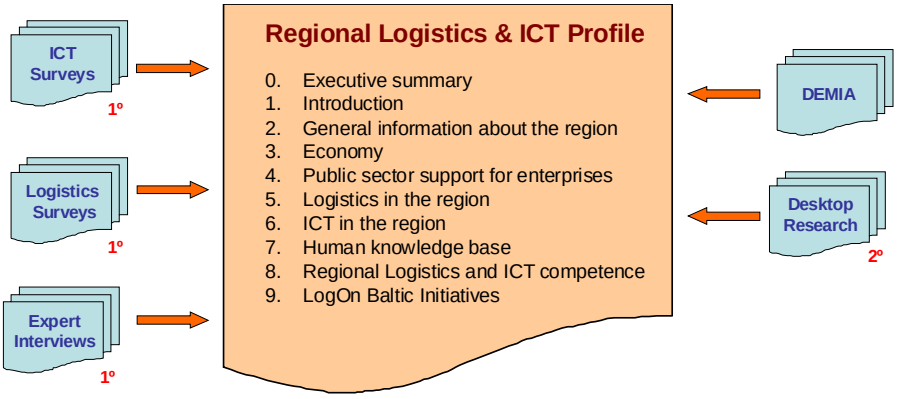

Figure 1 Tools used within the LogOn Baltic project

This tool is to be considered the main tool for secondary data collection, providing a comprehensive overview of the current situation and development in the logistics and ICT industry.

2 GENERAL INFORMATION ABOUT THE REGION

2.1 Pomerania in the Baltic Sea Region

The Pomeranian Province is situated in the North of Poland, providing access for Polish industry and trade to the South part of the Baltic Sea shore via the largest sea ports in the region: Gdańsk and Gdynia. The province has 316 km of coast line, which constitutes about 60% of the whole coastline of the country.[2]

Figure 2 Pomerania – The Pomorskie Voivodship in Europe. (Source: P.Szczygiel: Meeting the Lisbon Strategy goals in Regional

[2] The Province of Pomerania, Pomerania Development Agency Co., 5xmedia, Gdańsk 2003, p. 3

Operational Programme for Pomorskie Region for 2007-2013, Presentation: Open Days, Brussels, 12th October 2006)

The connecting routes of the Gdańsk Metropolitan Area predestine it to the role of a bridge leading from the Baltic into Central Europe. A cross-border cooperation network, encompassing not only the Baltic EU countries , but also Norway and the Kaliningrad District of Russia, is currently being established.

The seaports of Gdańsk and Gdynia are the main operators of multimode transport and specialist port services, related to the chemicals industry (crude oil, fertilisers and sulphur) and the metallurgical industry (shipyards and exports of steel products).

Many international organisations and programmes have their headquarters in the Gdańsk Metropolitan Area: UBC (Union of Baltic Cities), VASAB 2010 (Visions and Strategies around the Baltic Sea, 2010) and the office of the Baltic cultural cooperation network Ars.[3]

Pomeranian Province has a population of 2.2 million (5.7% of the population of Poland).[4] Pomerania is 7th largest population number among sixteen polish provinces.

The region is ranked as one of the most highly-industrialised provinces[5], c.a. 70%[6]. According the research performed in 2005 by The Gdańsk Institute for Market Economics the Pomerania region is:[7]

- the 7th most attractive region in Poland for advanced high-technologies investors,
- ranked in the top ten most attractive regions in Poland for running services business,
- ranked in the first twenty most attractive regions in Poland for running production / industry business.

[3] Memorandum of the Gdańsk Metropolitan Area, Collected works under the patronage of: The Marshal of Pomorskie Voivodeship Jan Kozłowski, The Gdańsk Academy of Banking at the Gdańsk Institute for Market Economics, Gdansk 2006, p. 13.
[4] http://www.wrotapomorza.pl/en/invitation
[5] Województwo pomorskie – gospodarka, Agencja Reklamowo-Wydawnicza S.c., Bydgoszcz 2000, p. 4.
[6] The Province of Pomerania, Pomerania Development Agency Co., 5xmedia, Gdańsk 2003, p. 8.
[7] T.Kalinowski: Atrakcyjność inwestycyjna Województw i podregionów polski 2005. IBnGR, Gdańsk 2005, p. 39 and 46.

2.2 Main location factors

The Pomeranian region economic strength is also created by the advantageous geographical location of the region, situated on the cross road of the main transportation corridors from North to South and from West to East. There are two European corridors: VI and IA going through Gdynia and Gdańsk to the South and to the East. There is also so called sea coast transport corridor from Gdynia, via Wejherowo, Lębork, and Słupsk. There are also the regional transport corridors:8

- from the East to the West:
- Gdańsk – Kartuzy – Kościerzyna – Bytów,
- Gdańsk – Starogard Gdański – Chojnice
- from the North to the South (joining the two above):
- Słupsk – Chojnice

However the quality of the existing infrastructure ranks Pomerania region in the group of the lowest transport accessibility regions in Poland[9] according to the research performed in 2005 by The Gdańsk Institute for Market Economics the Pomerania region.

The area of the province is 18 293 km2, and accounts for 5.9% of the Poland. It stretches from the small port in Ustka on the West, through the ports in Łeba, Władysławowo, the Hel Peninsula and the large Baltic ports on the Bay of Gdańsk, to Krynica Morska on the Vistula River Spit, which borders on the East with Russian Federation. Pomerania borders with four other Polish provinces: in the west with Western Pomerania, in the south Kujawsko-Pomorskie and in the east with Warmińsko-Mazurskie.

Pomerania is 8th largest state of Poland among sixteen polish provinces.

The geographical location of the region is also considered as a weakness due to the fact it is remote from the main Polish consumer population centres in the Centre and South of Poland. Two thirds of Polish population lives in the Central and South part of Poland, more than 350 km up to 700 km away.

The region's main spatial characteristics include:[10]

[8] The Pomorskie Voivodeship Development Strategy 2020, Office of the Marshal of the Pomorskie Voivodeship

[9] Ibid, p. 55.

[10] Office of the Marshal: The Pomorskie Voivodeship Development Strategy 2020, Gdańsk 2005, p. 31.

- location on the coast, where the Vistula flows into the Bay of Gdańsk, making up the longest part (over 60%) of the Polish coastal line;
- significant differences in natural development conditions – access to the Baltic Sea, Żuławy depression zone, the highest elevation in the Central European Lowlands; many forests and lakes; some of the best soils in the Vistula Valley and very poor soils in the lake districts; original landscapes of the Pomorskie coasts and Lake District, Hel Peninsula, Vistula Lagoon; extensive forested areas, including Bory Tucholskie;
- strong differentiation in settlement patterns – the Tri-City occupies 2.3% of the region's area with nearly 35% of the region's population, whilst only 40% of the population live in the coastal areas;
- complex and multi-functional coastal conurbation with metropolitan functions – one of the main centres of the South Baltic's developing metropolitan cities areas, it stretches along 60 km, production is indirectly and directly linked with the sea, sea transport and specialist services in tourism and fisheries and transregional services (science, education, culture, health care, media);
- the city of Słupsk with a population of almost 100 thousand, a regional centre and hub of activity in the north-west part of the region;
- the valley of Lower Vistula, a major transport corridor, which links the coastal area with other centres on the Vistula in Poland and with the south of Europe, a dense network of medium-sized cities;
- recreation and residential areas along the coast, which are a dominating feature of the area's development;
- large lake district, surrounding the coastal areas, with numerous forests, many big lakes, low population density, little development;
- multiple functions – an important academic and cultural centre, maritime economy, mining and processing industry, farming, tourism and recreation, forestry, trans-regional services and infrastructure;
- system of protected areas comprising 2 national parks: Słowiński and Bory Tucholskie (Primeval Forest), 9 landscape parks, 45 NATURA 2000 areas, and protected landscape zones. These zones, including NATURA 2000 areas, occupy nearly 1/3 of the voivodeship's area.

2.3 General climate conditions

The climate of the Pomeranian region is determined by its location at the Baltic Sea. The influence of the sea eases the climate: in winter is warmer and in the summer the heat is not as severe as it in other parts of Poland or Europe. The warmest month is July (average temperature 19.6°C) and the coldest month if February (average temperature is -1.4°C in the east of the region). The average temperature of the sea in July is 18.3°C and in January 2.1°C. Summer season lasts from early June until the end of September, with the peak occurring in July and August. The annual rainfall varies from 529.4mm (Northern part of Gdańsk) to 979mm (Lębork area).[11]

Pomerania has a moderate climate with both maritime and continental elements. This is due to humid Atlantic air which collides over its territory with dry air from the Eurasian interior. As a result, the weather tends to be capricious and the seasons may look quite different in consecutive years.

[11] The Province of Pomerania, Pomerania Development Agency Co., 5xmedia, Gdańsk 2003, p. 5.

Table 1 Meteorological data. (Source: http://www.stat.gov.pl/)

LATA *YEARS* STACJE METEOROLOGICZNE *METEOROLOGICAL STATIONS*		Temperatury powietrza w °C *Air temperatures in °C*			Roczne sumy opadów w mm *Total annual precipitation in mm*	Średnia prędkość wiatru w m/s *Average wind velocity in m/s*	Usłonecznienie w h *Insolation in h*	Średnie zachmurzenie w oktantach [a] *Average cloudiness in octants* [a]
		średnie *average*	skrajne *extreme*					
			maksimum *maximum*	minimum *minimum*				
Chojnice	2000	9,0	35,0	-14,1	570	3,6	1823	5,6
	2004	7,6	28,8	-17,5	709	3,9	1758	5,6
	2005	**7,8**	**31,0**	**-15,4**	**594**	**3,8**	**2022**	**5,1**
Hel	2000	9,4	30,7	-6,7	554	3,9	1894	4,8
	2004	8,4	26,3	-10,7	690	4,0	1790	5,1
	2005	**8,5**	**29,1**	**-8,9**	**500**	**3,8**	**1986**	**4,8**
Łeba	2000	9,1	30,6	-11,5	594	4,4	1871	5,3
	2004	8,0	28,7	-17,9	826	5,0	1877	5,4
	2005	**8,2**	**28,9**	**-13,1**	**479**	**4,7**	**1952**	**5,0**

2.4 Regional administrative divisions

The voivodeship comprises 16 poviats (counties), 4 poviat cities and 123 gminas (municipalities): 25 urban municipalities, 17 urbanrural municipalities and 81 rural municipalities.[12]

The capital of Pomerania is Gdańsk, which is also abode of region authorities.

Polish administrative system is composed of three authority levels: communal, county and provincial. Communes consists of the locally elected Commune Council (legislative body), Head of the Commune is Mayor or Lord Mayor (president). Counties – authorities consist of the County Council (legislative body) and County Board (executive body) chaired by a chairman called Starosta. The province authorities consist of the Regional Parliament, made up of elected councillors (legislative body) chaired. The Chairman called Marshal heads the Parliament.[13]

The below map represents all the administrative parts of the region and specifies the four poviat cities.

[12] Office of the Marshal: The Pomorskie Voivodeship Development Strategy 2020, Gdańsk 2005, p. 31.
[13] The Province of Pomerania, Pomerania Development Agency Co., 5xmedia, Gdańsk 2003, p. 6.

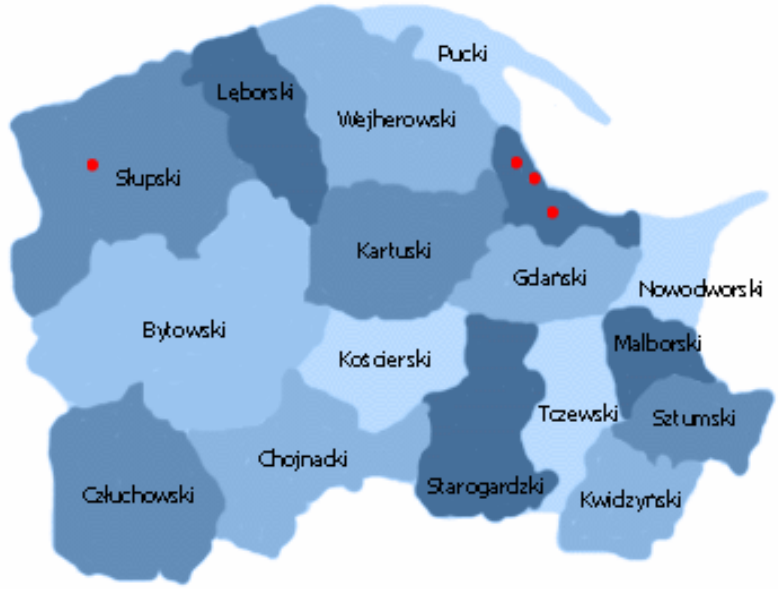

Figure 3 The 16 poviats (counties) in Pomerania and 4 poviat cities: Gdańsk, Sopot, Gdynia, Słupsk. (Source: http://www.wrotapomorza.pl)

2.5 Historical background[14]

Pomerania history is incoherent with Slav and German tribes, Pomeranian Princes of Gryfits dynasty and Dukes of Piasts dynasty. Teutonic Knights had also contribution in Pomerania as well as the Brandenburgers, Swedes and Danish. Historically Pomerania includes Eastern Pomerania and Western Pomerania. Today's administrative region of Pomeranian Province includes area that used to be Eastern Pomerania.

In 960, Polish prince Mieszko I, has annexed the Pomerania region, fortifying it connection with Poles kingdom by Christianization process

[14] Written base on facts listed on: http://en.wikipedia.org/wiki/History_of_Pomerania and http://www.gdansk.pl

between 1124-1128. For next two hundred years, Pomerania was ruled by dukes. Between 1454-1466 there was thirteen-year war for Eastern Pomerania. The Brandenburgers, Teutonic Knights and Vladislaus II of Bohemia and Hungary signed the peace treat in 1466.

After three hundred years of prosperity, Pomerania was lost by Poland in 1772, as a result of the first partition of Poland. For next one hundred and twenty three year Pomerania belonged to Prussia. There was short period of time 1807-1815, during Napoléon Bonaparte offensive, when Gdańsk recovered its independence. After 1872 Pomerania belonged to Germany. During the German Empire whole Pomerania remained an agricultural area. Some towns on the Baltic Sea became tourist resorts. In 19th century Pomerania province was virtually entirely German and Germanized.

In 1919 – 1939, as a result of agreements in Versailles, west part of Pomerania was still in Weimar Republic. Gdańsk with adjoining lands became Free City of Gdańsk, upon international authorities represented by League of Nations.

The dispute between Germany and Poland over rights to Free City of Danzig and land transit through the Polish Corridor (Polish Pomerania/Pomerelia) to the exclave of East Prussia, came to ignite Nazi Germany's invasion of Poland, which commenced on September 1, 1939. Pomerania was occupied between 1939-1945. Since 17th July 1945, Pomerania belongs to Poland. The economy and development of the region was significantly slowed down till 1989 due to the communist system. The new era of investments and developments started from the moment Poland joined European Union.

The history of Pomerania is strongly linked with the history of Gdańsk. Since its foundation Gdansk has been significant in the history of Europe. It is a multicultural town blending the past with the future, which creates a unique climate. The town with spirit of tolerance and liberalism. Gdansk has been home to many Europeans: Germans, Dutch, English, Scots, Scandinavians, Hungarians, Italians, French, Jews who coexisted with the Kashubians and Poles. These many nationalities created a special atmosphere consisting of various economic factors, customs and cultural trends of numerous nations, religions and ideas. World rules have fought for Gdansk strategic location but have never conquered its independent spirit. The Solidarity (Solidarność) was started in Gdańsk to end the communism in Poland

Gdansk has always been important because it is situated on the cross roads of trade routes, linking the east with the west, and the

north with the south. Located on the Vistula mouth, Gdansk has been a leading Polish sea port and one of the biggest in Europe

2.6 Links to the BSR

The Pomorskie Voivodship links to Baltic Sea Region were and are very strong due to the direct neighbourhood to the Baltic Sea as well as the rich and complex history. Through the ages the region of the Pomorskie Voivodeship was part of Pomerania (means "country by/next to/along the sea), its east part, known as Pomerelia or Gdańsk Pomerania. Due to its attractive geographical location, particularly the city of Gdańsk, the region was a place where different nation's interests and cultures met. Since prehistoric times the region was dominated and influenced by different nations such as Germanic, Scandinavian, Dutch, English, Scots, Hungarians, Italians, French, Jews, Kashubians and Poles. In 10th century Pomerania was conquered by the Polish duke Mieszko I. In the following ages Pomerania was part of Poland and Germany – the borders varied. Regardless the political divisions of the region there were always a lot of business and cultural connections to other BSR countries. The Amber Route, known to Roman traders, and the capital of the region, Gdańsk, the largest port on the Baltic for centuries as well as one of the richest cities of the Republic being part of the Hanseatic League, are located in the voivodship.

Today as well, trade routes cross the region, from Scandinavia to Mediterranean countries as well as from Western Europe to Russia, Lithuania, Latvia, Estonia and Belarus.

Since geopolitical changes that took place in the Baltic Sea region with Solidarity and the end of the Cold War Pomorskie is very active in all EU and BSR related initiatives such as:

- The Council of the Baltic Sea States (CBSS) - overall political forum for regional intergovernmental cooperation. The members of the Council are the 11 states of the Baltic Sea region as well as the European Commission. Between June 2004 - June 2005 CBSS had Polish presidency of the Council.
- The Baltic Sea States Subregional Co-operation (BSSSC) - a political network for decentralised authorities (subregions) in the Baltic Sea Region. Its members are regional authorities (level directly below the national level authorities) of the 10 Baltic Sea littoral states.

- An Agenda 21 for the Baltic Sea Region, in short, Baltic 21 - founded on the political will to accelerate the work on sustainable development in the Baltic Sea region and to implement Agenda 21 regionally. Involves the eleven countries from the Baltic Sea Region (the members of the Council of the Baltic Sea States, CBSS), the European Commission and a number of intergovernmental organizations, international financial institutions and international non-governmental networks. The Baltic 21 Action Programme addresses the three dimensions of sustainable development – the environmental, the social and the economic aspects – and includes goals and indicators.
- VASAB 2010 - Intergovernmental multilateral co-operation of 11 countries of the Baltic Sea Region in spatial planning and development. Guided by the Conference of Ministers responsible for spatial planning and development,
- The Union of the Baltic Cities (UBC) - founded in Gdańsk in September 1991 with the aim of developing cooperation and exchange between its member cities. The main goal of the UBC is to actively contribute to the democratic, social, economic and environmentally friendly development of the Baltic Sea area for the benefit of the citizens living in the region. UBC also watch over the interests of its member cities towards the national governments and international bodies. [15]

Besides the political government and regional authorities initiatives there are many links created as part of EU programs and projects e.g. PHARE, Interreg etc.

From economy perspective the strong links are related to the two sea ports Gdynia and Gdańsk located in the region. There are also a lot of links related to the universities and culture.

[15] http://www.ubc.net/

3 ECONOMY

3.1 Economic importance of the region

3.1.1 Macroeconomics

There is a gap between the level of development in the Pomorskie Voivodeship and that encountered in the European Union overall. The average level of GDP per capita in the voivodeship is 45.5% of the EU average. From the national perspective, Pomorskie is doing well at the macroeconomic level. But with too little investment activity, especially in the innovative sector, the region risks losing its competitiveness. The region's relatively strong innovation potential is not sufficiently utilised. This is the reason for enterprises, relatively low of innovative activity, because they have limited access to systems for implementing innovation. [16]

Within the region, economic growth rates differ largely, which is mainly caused by the strong concentration in business in the three cities of Gdańsk, Gdynia and Sopot. [17]

The region's traditional industries (seaports, shipbuilding, refinery, machines and fisheries) and advanced technologies (teleinformatics, chemicals, finance and insurance). The strongest industries (shipbuilding, refinery and paper) are represented by single, large enterprises.

High economic activity is the distinguishing feature of the Pomorskie Voivodeship. There are more than 100 enterprises registered per 10 000 population. A very strong entrepreneurial activity in the region is linked with a strong SME sector. Most businesses are located in and

[16] Office of the Marshal: The Pomorskie Voivodeship Development Strategy 2020, Gdańsk 2005, p. 37.
[17] Ibid, p. 37.

around the region's main cities, especially the Tri-City, Słupsk to a lesser degree and those poviat cities which are local economic centres.

Other areas have fewer businesses per capita and consequently lower economic potential.

The service sector is well developed, especially in tourism, finance and insurance. Alongside the traditional industries is the hi-tech industry with its fast growing ICT and IT sectors. Pharmaceutical and cosmetic industries are booming. Pomorskie's universities and research centres are a major contributor to the development of hi-tech industries.[18]

How does Pomorskie compare to the other Polish voivodeships:[19]

- Eight place for the largest area and population size;
- Fourth for rate of urbanisation;
- One of 4 regions with a positive balance of migration;
- Twelfth place when it comes to the number of people in employment per 1000 population;
- The unemployment rate exceeds the national average;
- Seventh when it comes to its contribution to the national GDP and fifth place for GDP per capita;
- There are more than 100 enterprises per 1000 population, which places the Pomorskie Voivodeship fourth;
- The highest dynamics of exports;
- Third for the number of tourists' accommodation and the second largest hospitality base per 1000 population;
- Second for the average disposable income per capita (after Mazowieckie region);
- The region's value added per one person in employment places the region second in the country.

A characteristic of the region is the high population density in and around the Tri-City conurbation (Gdańsk-Sopot-Gdynia). Number of citizens in the Pomorskie Voivodship is 2 201 thousand, of which 67.2% in urban areas, accounting for nearly 2/3 of industrial production. The unemployment rate in the region (as of 30.12.2006 r.) is at the level of 16.0%, which represents 130.2 thousand registered unemployed.[20]

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[18] http://www.wrotapomorza.pl/en/economy

[19] Office of the Marshal: The Pomorskie Voivodeship Development Strategy 2020, Gdańsk 2005, p. 32-33.

[20] "Information on socio-economic situation of voivodships", GUS Nr 3/2006, Warszawa 2006, http://www.stat.gov.pl/cps/rde/xbcr/gus/

3.1.2 Special Economic Zones

There are two enterprise zones in Pomorskie: the Pomeranian and Słupsk Special Economic Zones. Set up to attract investors, both sites offer corporate tax exemption until 2017 when investments are made and new jobs created.

The area of the Pomeranian Special Economic Zones is 382.82 hectares. By the end of 2005, there were 25 businesses offering more than 10,000 jobs. The Zone is managed by a Sopot-based joint stock company, specifically set up to run this site. The zone includes such cities as: Gdańsk, Kwidzyn, Malbork, Starogard Gdański i Tczew oraz gmin: Chojnice, Człuchów, Gniewino, Krokowa, Sztum i Tczew.

The Słupsk Special Economic Zone covers an area of 210 hectares within the city of Słupsk and outside it. By the end of 2005, 37 companies had moved in, offering more than 1,500 jobs. The Zone is managed by the Pomorskie Regional Development Agency.[21] The zone includes the city of Słupsk and the gminas: Słupsk and Debrzno

Till October 2006 r. the local authorities released 62 permissions for business activities in the both zones and it lead to investments of 1 643 mln.[22] The significant investments between Oct 2005 - Oct 2006 were:

- Elfa Polska Sp. z o.o. (5 mln PLN, 160 jobs);
- Suruga Polska Sp. z o.o. (12 mln PLN, 70 jobs);
- Shorewood Packaging Polska Sp. z o.o. (25 mln PLN, 50 jobs).

Besides the special economic zones there are efforts taken to create industrial, technology parks and technology incubators.

Between Oct 2005 and Oct 2006 there were two projects qualified to be financially supported 33.9 mln PLN, which is 3,6% of the value of all project in Poland, they were: Słupski Inkubator Technologiczny; Gdański Park Naukowo-Technologiczny.

[21] http://www.wrotapomorza.pl/en/economy/enterprise_zones
[22] Ministerstwo Gospodarki: Raport Regiony, Miejsca Pracy, Innowacje, Działania Ministra Gospodarki, Warszawa, Nov. 2006

Figure 4 Locations of industry and technology parks in Poland. (Source: Ministerstwo Gospodarki: Raport Regiony, Miejsca Pracy, Innowacje, Działania Ministra Gospodarki, Warszawa, Nov. 2006)

3.1.3 Foreign Investments in Pomerania

The regional economy development concentrates mainly on foreign investments and SME. The key companies for the region generating the highest value of sales are presented in the below table:

The region's major foreign investors include: International Paper Kwidzyn SA (USA), Philips Consumer Electronics Industries Poland Sp. z o.o. (Netherlands), Eaton Truck Components S.A. (USA), Pepsi Co. (USA), Coca-Cola (USA), Nestle Polska (Switzerland), Fabryka Makaronów Malma Danuta (France), Scania-Kapena (Sweden), Farm Frites (Netherlands), Intel Technologies Poland Sp. z o.o. (USA), Prime Food (Denmark), AT&T (USA) and supermarkets: Auchan, Tesco, Real, Geant, Carrefour, IKEA, Obi.[23]

[23] http://www.wrotapomorza.pl/en/economy/inward_investment

Table 2 Largest companies in the Gdańsk Metropolitan Area in terms of sales earnings. (Source: Memorandum Of The Gdańsk Metropolitan Area, Gdańsk 2006)

Company's name	Income (in thousands Euro)	Description
Grupa Lotos S.A., Gdańsk	2 479 813	Second largest fuel company in Poland
Energa Koncern Energetyczny S.A., Gdańsk	1 310 519	Largest energy distributor in Poland, supporting 2.7 mln customers in north and central Poland
Grupa Prokom Software S.A., Gdynia	473 909	Biggest IT company in Poland. First Polish company certified in terms of software quality provision
Flextronics International Poland Sp. z o.o., Tczew	443 997	The company is part of US concern Flextronics listed on NASDAQ. It offers comprehensive products for telecommunication infrastructure
International Paper- Kwidzyn S.A.*	440 583	Largest paper industry company in Central and Eastern Europe. Leading producer of cellulose and paper for photocopying, offset, newspapers as well as coated cardboard and envelopes
GE Money Bank S.A., Gdańsk	417 293	Part of GE Electric. One of the largest banks in Poland focused on consumer loans and mortgages.
Gdynia Shipyard S.A., Gdynia	410 897	Largest shipyard in Europe in terms of production. It has its own Design Department cooperating with the Gdańsk University of Technology and Ship Design and Research Centre
Grupa Stocznia Remontowa S.A., Gdańsk [Repair Shipyard Group S.A.]	309 374	Largest Polish repair shipyard. According to the ranking of the best and biggest repair shipyards by a specialist magazine Drydock, - "Remontowa S.A." - is among three best shipyards in Europe and the top five in the world.
STU Ergo Hestia S.A., Sopot	286 791	Insurance company with headquarters in Sopot. The company belongs to the ERGO Group
Jabil Circuit Poland Sp. z o.o., Kwidzyn*	248 264	Part of Jabil Circuit INC., the world leader in Electronic Manufacturing Services (EMS). The company offers innovative solutions in design, production and post-production services for the electronics industry.
Polpharma S.A., Starogard Gdański*	224 984	Largest producer of generic drugs and pharmaceutical substances. The company, based in Starogard Gdański, created one of the biggest R&D centres in Central and Eastern Europe. Its new dry mould department is one of the largest and most modern drug production plants in Europe.

The foreign investments in Pomorskie Voivodship has been about 3 billion (excluding foreign capital in banking and financial institutions) out of over 90 billion USD since beginning of political transformation in Poland The Central Statistical Office announced that in 2004 there were 70 companies in the region with foreign capital which invested over 1 million USD each, and which in total invested 1.7 billion USD. As for direct foreign investments, Pomorskie is ranked sixth in Poland

with share of 5.4%. Companies with foreign capital employ around 53,000 people.[24]

3.1.4 EU Funds in the Economy Development

The further economy development will be driven by the European funds as well as the Football Championship Euro 2012.

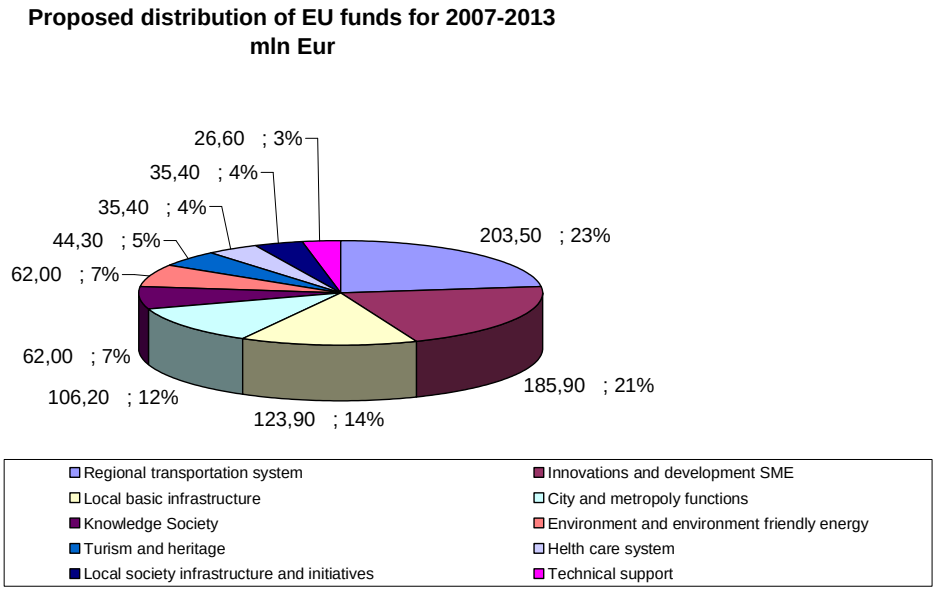

Figure 5 The proposed distribution of EU funds in The Pomorskie Voivodeship for 2007-2013. (Source: Pomorskie, Magazyn Samorządu Województwa Pomorskiego, nr 11-12 (58-59) listopad-grudzień 2006, p. 20.)

The strategy for Pomerania till 2020 concentrates on 3 priorities: Competitiveness – primarily economic, Cohesion – mainly social, Accessibility - essentially infrastructural. Part of the strategy is further detailed in “The Regional Innovation Strategy” for The Pomorskie Voivodeship. Base on the strategies there is an operational plan and a spatial development plan prepared. Base on operational plan the local

[24] http://www.arp.gda.pl/en/dokumenty/inwestycje_zagraniczne

authorities prepare the EU support budget and its distribution. The above graph shows the proposal presented to Polish government for 2007 – 2013. The budget will significantly influence the future of the economy in the region.

3.2 International Trade

The Pomorskie voivodship is number one export per capita region of Poland.[25] In 2005 the export realized by companies with foreign capital located in the region was 10.5 billion PLN, which was 5,9% of the export of products & services in this category in Poland. The number of exporting companies is increasing. As described earlier the Pomerania region is attractive for services, therefore the exported services were 10.5% of exported goods in 2005.[26] The most important export markets for Pomeranian exporters are not only the traditional trade partners (Germany – 28.2%, France – 6.2%, Italy – 6.1%, United Kingdom – 5.6%, Czech Republic – 4.6%), but also Russia, whose significance is growing. The main export products of the region are: ships, electronic products, petroleum, synthetic and paper products, as well as food and timber products.[27]

The import operations was performed by 456 different companies in the region in 2005 (43.8% of all companies registered in the region). The value of import by those companies was 7.5 billion PLN. The import increases year over year (e.g. difference between 2003 and 2005 was 17.8%). The biggest parts of the import (ca. 67%) are raw materials, materials and components for production. Subassemblies and assemblies for further manufacturing operations are the second biggest group in import value (ca. 27%).

[25] Memorandum Of The Gdańsk Metropolitan Area, Gdańsk 2006
[26] http://www.stat.gov.pl/cps/rde/xbcr/gus/
[27] http://www.arp.gda.pl/en/dokumenty/gospodarka

4 PUBLIC SECTOR SUPPORT FOR ENTERPRISES

4.1 Organisations and type of support

The Pomorskie Voivodship is a region of one of the highest entrepreneurship rates in the country: as many as 10 out of 100 run their own business. Equally high is the number of companies with foreign capital. The voivodship is ranked fifth in the country, with 14 foreign enterprises per 10,000 inhabitants.

The significance of the SME sector in the regional economy is best reflected by its highest index of participation in capital investment projects. In the whole country SMEs generate approximately 45% of capital investments while in Pomerania the rate is 54%. Beside intensive investment activity, the Pomeranian SME sector is distinctive with its R&D activity. In line with recent analysis, 12% of Pomeranian SMEs conduct research – the best result in Poland. Pomerania was ranked the third region in the whole country for investments in innovations, R&D activities in small companies and export sale of innovations in medium-sized enterprises.

In The Pomorskie Voivodship there are many institutions and organisations which support entrepreneurship, and provide a broad scope of services e.g.: information services, training and education, consulting, financial research and innovation services. It is estimated that about 120 organisations are busy in supporting entrepreneurship. Those of highest significance are: regional development agencies, local government units, business support, associations and funds, business incubators, technology incubators, science and technology parks, technology transfer centres, loan and guarantee funds and venture capital. Since 1996 the Pomeranian organisations have operated within a National Service System managed by the Polish Agency for Enterprise Development. Within this system 12 Consultation Points operate. They provide information and consulting services for SMEs. Consultation Points work is coordinated by

Pomerania Development Agency – one of the leaders in entrepreneurship support system in the region.

The highest density of the units supporting enterprises (in comparison with the number of enterprises in the different poviats) is in the Gdańsk, Gdynia and Słupsk poviat cities and in the poviat: Starogardzki. The lowest density of the supporting units is in the following poviats: Chojnicki, Nowodworski and Pucki.[28]

In each Poviat in the region there is The Labour Office which according to its statutory tasks, concentrates on stimulating the unemployed. Additionally there are other organizations listed in the table provided in Appendix 1.

There are also other institutions supporting business development listed in appendix 2.

4.2 Logistics / ICT projects. Cooperation programs, partnerships

The project related to logistics and ICT part-financed by the EU Programme could be defined under European Regional Development Found that in Poland has been allocated within 16 different Regional Operational Programmes (ROP) for 2007 – 2013, one of them is defined for the Pomorskie Voivodship. Additionally there are other structural instruments, operational programmes e.g. The European Territorial Cooperation, The European Neighbourhood and Partnership Instrument, Operational Programme Infrastructure and Environment, Innovative Economy Operational Programme. As the new programming period is being started there are no definitive projects defined yet. However there are proposed project being discussed.

The ROP for Pomorskie Voivodship has got 8 priority axes:

- Development and innovations in the enterprises
- Knowledge society
- Urban and Metropolitan Functions
- Regional transport system
- The environment and environment friendly energy
- Tourism and heritage
- Health care and rescue system
- Basic local infrastructure

[28] The Gdańsk Institute for Market Economics, based on PARP data (www.parp.gov.pl) and GUS data (www.stat.gov.pl)

- Local social infrastructure and civil initiatives
- Technical assistance

and the future logistics and ICT projects will be a consequence of those axes.

There are two priorities in ROP related specifically to transport:

- Priority IV - Urban and metropolitan functions
- Measures:
  - 4.1 Development and integration of public transport systems
  - 4.2. Increasing of attractiveness of the Urban space
- Priority V – Regional transport system

For example the air port development is planned under the ROP Action 4.1 - Development and integration of the public transport system: Construction of attractive public transport connections with the airport and the maritime terminals development is planned under Action 5.3 - Development of infrastructure of transport junction points and improvement of their accessibility: Investments in infrastructure of sea and inland ports as well as airports. The ROP listed the need for expansion of „Lech Wałesa" Airport in Gdansk and the establishment of operations at other regional airports not currently utilized by civil aviation (e.g. Gdynia-Oksywie Airport and Redzikowo Airport).[29]

There are also two programmes for The European Territorial Cooperation in Pomorskie Voivodship:

- South Baltic cooperation,
- Polish – Lithuanian - Russian cooperation.

The Office of the Marshal organizes the Partner Search Forum, a tool to identify and manage the project planned for realization in the period 2007-2013.

There are also project plans under Sectoral Operational Programme

- Transport.

From logistics in region perspective the most significant projects are expected in the areas of:

- sea ports development in Gdańsk and Gdynia covering very wide range of measures such as road transportation to connect ports with the A1 motorway, accessibility, logistic centres, terminals modernizations and development,
- air port development,

[29] Study on Strategic Evaluation on Transport Investment Priorities under Structural and Cohesion funds for the Programming Period 2007-2013, No 2005.CE.16.0.AT.014, Country Report Poland for European Commission, DG-REGIOECORYS Nederland BV, Rotterdam, September 2006 p. 25.

- transport infrastructure related to city road rings and railway development,
- modernisation of the railway connection from Gdynia to Warsaw.

A1 motorway is priority 25 and the railway modernization is priority 23, included in the priorities of Trans-european Transport Network TEN-T.

From ICT in region perspective the most significant projects are expected in the areas of developing “administration to business” and “administration to administration” and “administration to commerce” ICT solutions.

There are expected projects that will be a continuation of projects currently in progress or recently finished in the programming period 2003 – 2006 such as e.g. in logistics: Baltic Gateway Plus, Motorways of the Sea, BaSIM, A-B Landbridge, Strategic Logistics Alliance Hanse Passage, in ICT: eUW, e-Gdańsk.

For a broader discussion and evaluation of projects in the region, please refer to the report REGIONAL DEVELOPMENT IN POMERANIA, POLAND (THE POMORSKIE VOIVODESHIP): Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT”

5 LOGISTICS IN THE REGION

5.1 Transport, connections and infrastructure

The region's poor transport system is a major development problem. The western and eastern areas of the region need improved access and better communication links with regional centres and with the Tri-City in particular. The transport accessibility to the region was indicated as major disadvantage for investors in the study by The Gdańsk Institute for Market Economics.[30] The same problem was indicated in the ESPON project as presented in the below map – figure 6, which indicates that Pomerania is ranked in the second last category in EU for road accessibility. Also the region has got the worst category of accessibility in Poland, the same as all east boarder regions.

Access from the road network to the seaports of Gdańsk and Gdynia is also poor. One of the main problems of developing the Tri-City metropolis is that passenger transport is not integrated across the three cities. The region's road network is not made up of first class roads and most of them do not even meet the minimum standards. The condition of roads, bridges and other parts of the highway infrastructure network roads is bad, whilst the level of road safety is unacceptable.

Rail links and railway rolling stock fall into disrepair as more and more regional rail services are closed down. Consequently, rail journey times become longer, what makes the railway less competitive than road transport. [31] The problem is also indicated in the ESPON research reports where Pomerania is ranked as the second last in EU. However the railway accessibility of the region is comparable with other regions in Poland and Pomerania was ranked in the first category for Poland.[32]

[30] T.Kalinowski: Atrakcyjność inwestycyjna Województw… op. cit., p. 39 and 46.
[31] Office of the Marshal: The Pomorskie Voivodeship Development Strategy 2020, Gdańsk 2005, p. 39-40.
[32] Spiekermann & Wegener Urban and Regional Research: Update of Selected Potential Accessibility Indicators, ESPON, February 2007, p. 21

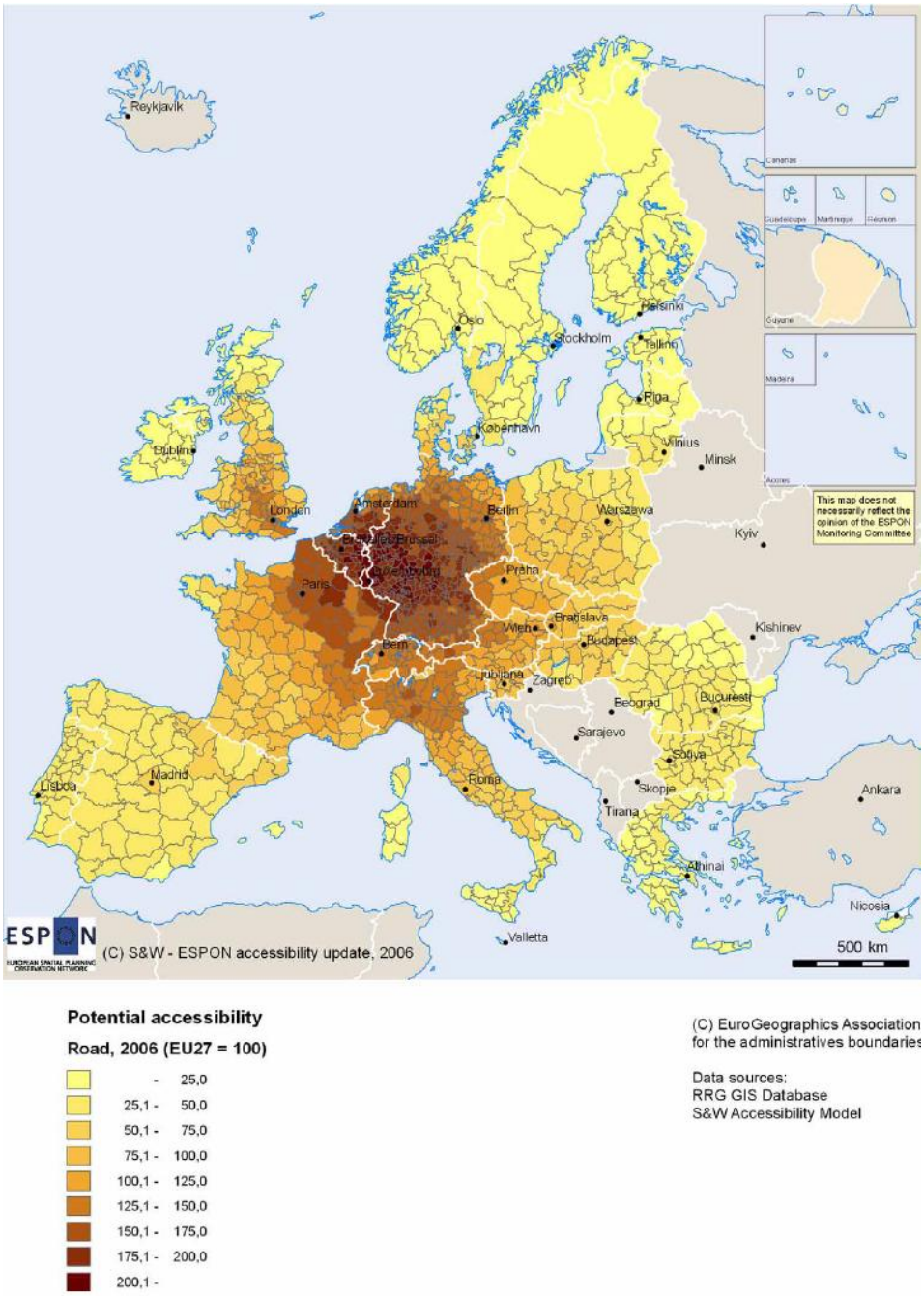

Figure 6 Potential accessibility by road in 2006. (Source: Spiekermann & Wegener Urban and Regional Research: Update of Selected Potential Accessibility Indicators, ESPON, February 2007)

The quality level of transport infrastructure within the Tri-City, the main regional transport hub, is increasing. This includes seaports, railway and road links and an international airport of growing importance. Ferry and sea container terminals are under construction, setting the stage for new, trans-regional, logistics and distribution centres.

National and regional transport infrastructure comprises:

- network infrastructure, which consists of the network of national roads (6, 7, 20, 21, 22, 55), national railways and inland waterways, including Vistula;
- transport nodes such as: seaports in Gdańsk and Gdynia with ferry and cargo containers terminals,
- regional Lech Wałęsa Airport in Gdańsk offering domestic and international services.

The quality of the infrastructure differs depending on the part of the region. The below map present the cohesion of the road infrastructure.

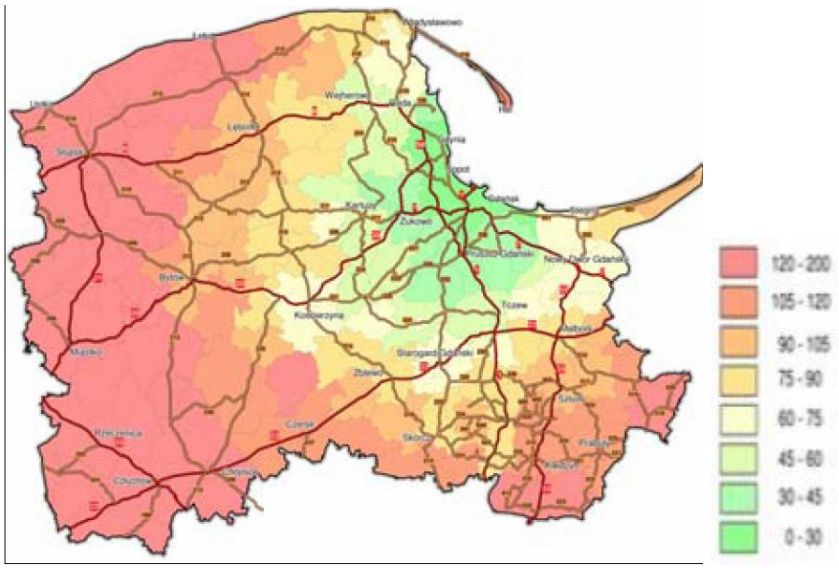

Figure 7 The road infrastructure cohesion – accessibility – driving time in minutes – Pomorskie. (Source: Regionalny program operacyjny dla województwa pomorskiego na lata 2007-2013, Dokument przyjęty przez Zarząd Województwa Pomorskiego w dniu 1 marca 2007 roku, p. 19.)

The present structure is the result of many years of development and is now stable. Two Trans-European transport corridors cut across the region: no. IA (Helsinki – Tallinn – Riga – Kaliningrad – Gdańsk) and VI (links Scandinavia with Central Europe via the Tri-City conurbation, Łódz, Warsaw and Katowice).[33] The network of international and domestic roads linking the region with Southern Europe via Slovakia (E-75, E-77), Eastern Europe via Kaliningrad (22), with Western Europe via Germany (E-28).[34]

The below summary table presents a sample of the key direction connections for the region:

Table 3 Characteristics of the Pomeranian region connections. (Source: created by B.Firmowski, University of Gdańsk's student, base on: http://www.pkp.pl/ , http://www.lataj.pl/ , www.odleglosci.pl)

Destination	Distance (km)	Air route (h)	Road route (h)	Rail route (h)	Waterways (h)
Berlin	500	2	7	9	-
Cologne	1,050	2	15	13	-
Cork	1,600	3	-	-	-
Dublin	1,500	3	-	-	-
Edinburgh	1,400	3	-	-	-
Frankfurt Main	1,070	2	14.5	12.5	-
Helsinki	800	4	-	43	4.5
Hamburg	760	1,5	11	11	5
Klaipeda	250	-	9	-	3
Copenhagen	500	1	-	17	-
Liepaja	300	-	9	-	6
London	1,400	3	-	-	-
Munich	1,200	1.5	14	15	-
Oslo	900	1.5	-	-	-
Rome	2,050	3.5	24	26	-
Stockholm	550	1	-	-	-
St Petersburg	900	No direct connection / via Munich	17	30	4.5
Warsaw	350	1	7	4	-
Wroclaw	610	1.5	12	7	-

[33] Office of the Marshal: The Pomorskie Voivodeship Development Strategy 2020, Gdańsk 2005, p. 32.
[34] http://www.paiz.gov.pl

The functional-spatial structure is presented on the below map.

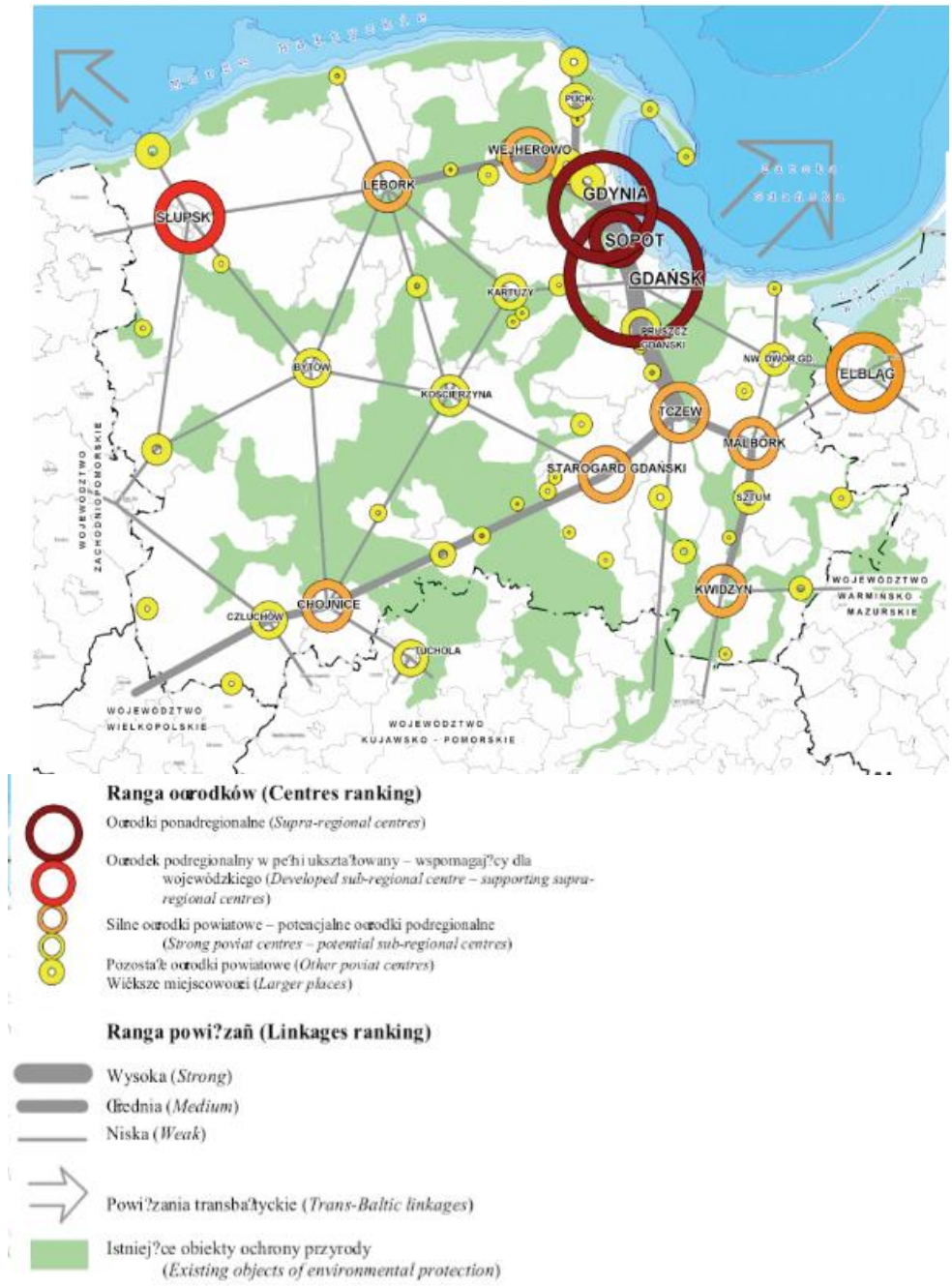

Figure 8 The functional-spatial structure– model. (Source: The Pomorskie Voivodeship Spatial Development Plan, Department of Regional and Spatial Development)

The road infrastructure in Pomerania is presented on the below map.

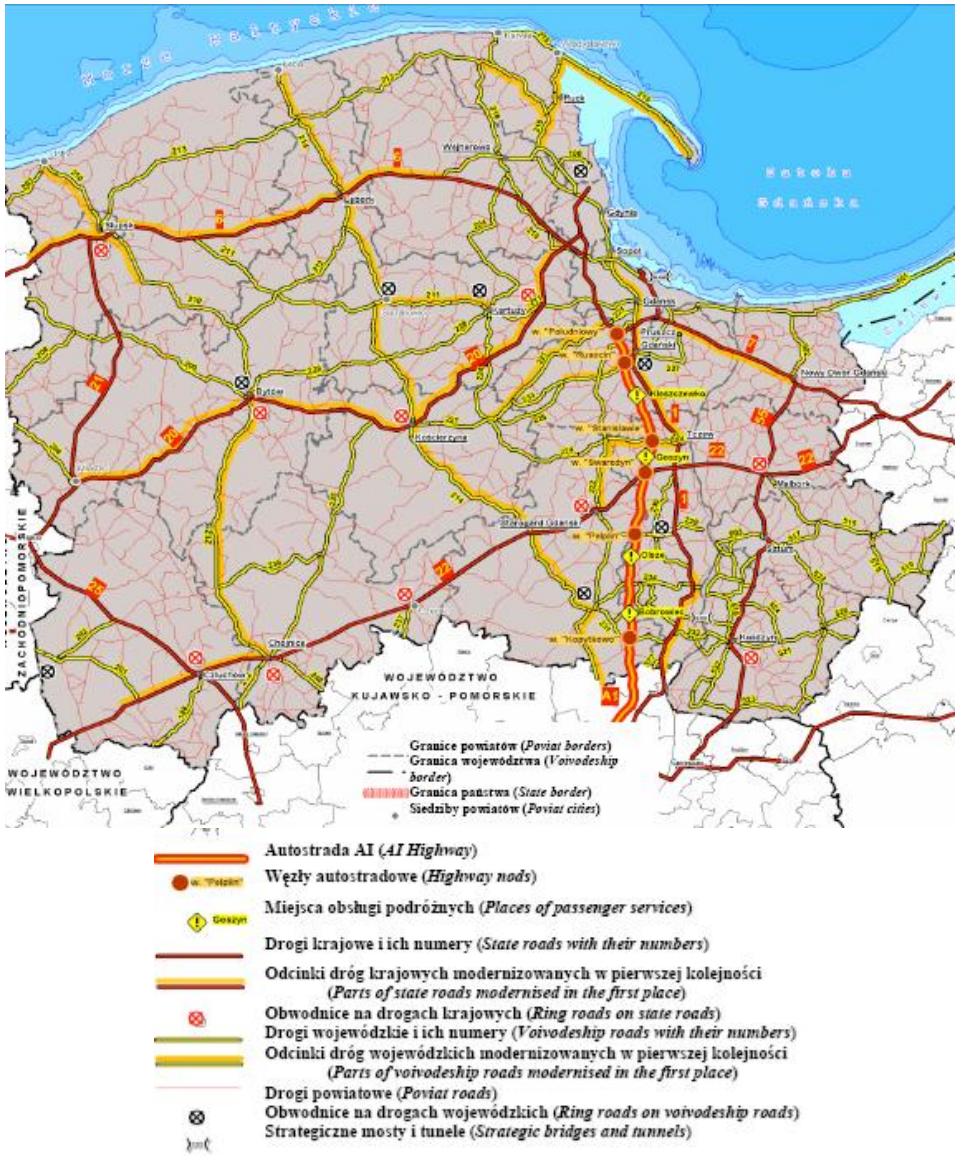

Figure 9 The road infrastructure, including planned motorway A1. (Source: The Pomorskie Voivodeship Spatial Development Plan, Department of Regional and Spatial Development)

The key road connection issue in Pomerania is the current lack of motorway connection between the region and the rest of the country and Europe. The below map presents the how the currently built motorway will connect Pomerania.

Figure 10 The planned A1 route – connecting Pomerania region. (Source: http://www.autostrady.pl/pl/a1.htm)

Pomeranian railway system plays significant role in the Polish and European transport system. Two main train trunk-lines in Gdynia and Tczew are adjusted to serve as “last-stop” in North-South transport and “mid-stop” in West-East transport; over-european transport corridor Gdańsk – Odessa. Gdynia is the third cargo station in Poland. Gdańsk is part of the European transportation corridor C-E 65 and E.

The worst quality of railway connection, expressed in “the speed of travel” is in the direction of Warsaw.

The Polish State Railway company: PKP SA announced the following modernization plans impacting Pomerania:[35]

- Gdańsk – Warsaw (2007 – 2013);
- Tczew – Bydgoszcz (2014 – 2020, and after 2020 further renovations);
- Tczew – Braniewo -the boarder with Russia (2014 – 2020).

[35] http://www.pkp.pl/

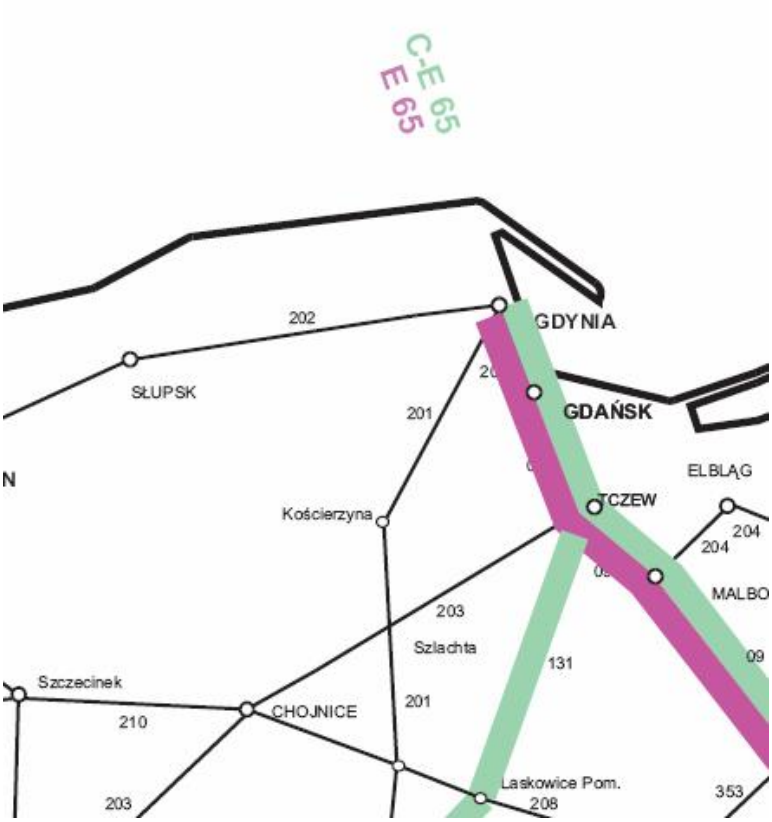

Figure 11 The railway corridors crossing the Pomorskie Voivodship. (Source: PKP Cargo)

Besides the railways infrastructure, the market demand for cargo transport is the condition for railway transport development. The cargo railway transport is fully dependent on the availability of railway terminals. Both sea ports have railway connection available but the capacity and quality of the terminals is not sufficient.

The internal metropolitan railway connections are operated by company SKM (PKP Szybkiej Kolei Miejskiej w Trójmieście Sp. z o.o.) and it is considered as a very effective, efficient solution for the Tri-City agglomeration.

The region compared to other regions in Poland is characterized as having average rail accessibility and comparing to other EU regions worse than average.[36]

[36] Study on Strategic Evaluation on Transport Investment Priorities …, op cit. p. 37

The statistical data concerning railway in the region are presented in the below table. There is a negative trend visible in the table showing a decrease of the number of trucks and lines in operations.

Table 4 Railway lines operated in the Pomorskie Voivodship. (Source: http://www.stat.gov.pl/)

RAILWAY LINES OPERATED [a]
As of 31 XII

WYSZCZEGÓLNIENIE	2000	2004	2005	SPECIFICATION
	w km *in km*			
O G Ó Ł E M	**1490**	**1308**	**1259**	***T O T A L***
w tym zelektryfikowane	347	458	451	*of which electrified*
Jednotorowe	1112	936	887	*Single track*
Dwu i więcej torowe	378	372	372	*Double and more tracks*
Na 100 km² powierzchni ogólnej	**8,1**	**7,2**	**6,9**	***Per 100 km² of total area***

[a] Normalnotorowe; dane dotyczą sieci PKP i innych podmiotów będących zarządcami sieci kolejowej.
[a] *Standard gauge; data concern PKP network and other entities managing railway network.*

The main airport in Pomerania is the Lech Walesa Airport, one of the four main international Polish airports. During last 5 years there has been a significant increase (four times more) in the demand and traffic at the airport. In 2002 the total annual number of passengers was 318 thousand but already in 2006 it has served 1.25 mln passengers in (the 4th biggest airport in Poland).[37] The increase is represented not only by the absolute number of passengers, but also by the percentage share in the total number of passengers at the Polish airports from 5.25% in 2004, through 5.89% in 2005, up to 8.13% in 2006.[38] Gdańsk Airport has established eight traditional air routes and seventeen low cost carrier routes to over twenty-six various airports in Europe (36 airports in 2008). All this courses are operated by twelve European enterprises.

[37] http://www.airport.gdansk.pl/konferencja_material_prasowy.pdf.
[38] www.ulc.gov.pl

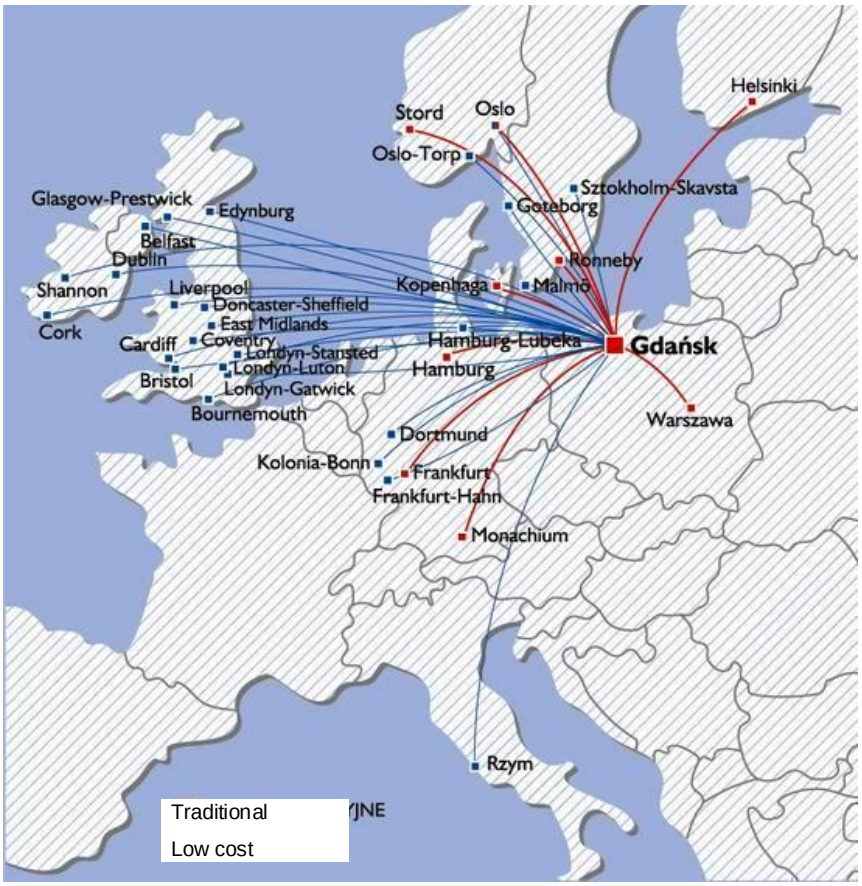

Figure 12 The offered air connection from the Gdańsk airport. (Source: http://www.airport.gdansk.pl)

The increases have been also noted for cargo. The cargo turnover increased from 11 586 ton in 2000 up to 17 672 ton in 2006. The detailed airport statistics are provided in the below table.

Due to the airport high standards, it has served for many years as an auxiliary airport for Okęcie Airport in Warsaw. Moreover, Gdańsk Airport received on 25th of May 2007 title of "Pomerania Company of the Year". Also the financial results of the airport improve from year to year with increased net incomes.

Table 5 Gdańsk airport operations statistics. (Source: base on data at www.ulc.gov.pl)

Year	Number of passengers	Cargo (ton)	Airport operations
2000	269 960	1 552	11 586
2001	319 174	1 953	14 052
2002	318 033	2 211	13 450
2003	365 036	2 686	14 346
2004	466 691	3 100	17 540
2005	677 946	3 458	19 046
2006	1 249 780	4 036	17 672

However, besides the successes of the airport, there are further developments required for the air transportation and the region accessibility. Currently the airport demand exceeds its capacities both for passenger traffic as well as cargo traffic.

The need has been identified by business and local authorities and it is reflected in the regional operational programme ROP. The program outlines the need for expansion of „Lech Wałesa" Airport in Gdansk and the establishment of operations at other regional airports not currently utilized by civil aviation (e.g. Gdynia-Oksywie Airport and Redzikowo Airport).[39]

In 2006 the planned investments were at the level of 21.1 mln PLN but all of them only considered relatively small changes such as aligning the port securities with the Schengen requirements, but they do not provide strategic solution for the air transport for the future. The airport presented strategic 8 year plan to achieve 5 mln passengers capacity in the airport and the required investments were at the level of 250 mln Euro. There is no final decision yet to approve the strategic investments because there is no single agreed strategy for the airport development with the government and local authorities. There are different conflicting ideas of: (a) developing the current airport or (b) developing the second one in Gdynia.

[39] Study on Strategic Evaluation on Transport Investment Priorities under Structural and Cohesion funds for the Programming Period 2007-2013, No 2005.CE.16.0.AT.014, Country Report Poland for European Commission, DG-REGIOECORYS Nederland BV, Rotterdam, September 2006 p. 25.

The waterway transportation in the Pomerania Region is related to the two sea ports Gdańsk and Gdynia. They offer many convenient connections with Baltic ports, the most common are: ferry lines, containers and ro-ro connections. The port in Gdynia specialises in containers, unit cargo and ro-ro.[40]

The ports play significant role also for Polish economy. In 2005 the sea ports in the region registered: 61.7% of Polish international sea turnover and 75.4% of transit sea cargo and 100% of Polish fishing on deep sea.

The statistics of the sea ports development in time are presented in the below figures. Detail statistical data are presented in appendix 3.

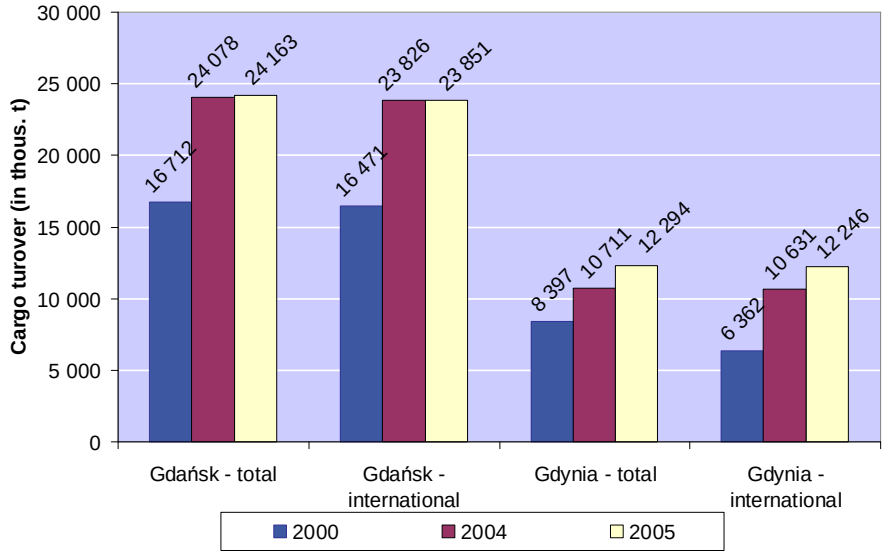

Figure 13 Cargo turnover in the seaports. (Source: based on data published: http://www.stat.gov.pl/)

[40] http://www.port.gdynia.pl/logistyka01.php

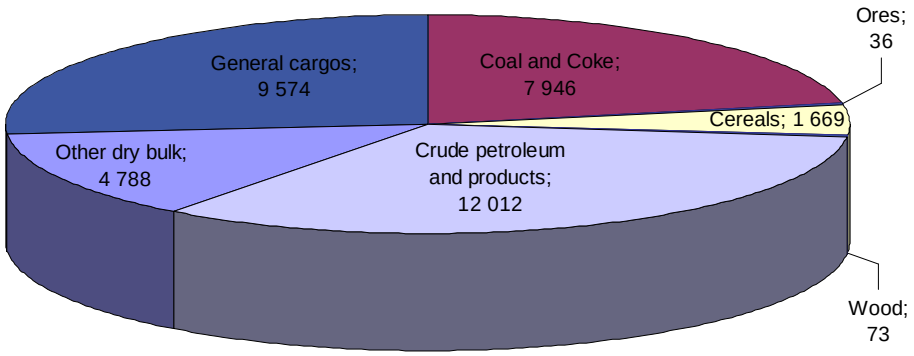

Figure 14 Cargo turnover in the Gdańsk and Gdynia seaports by category. (Source: based on data published: http://www.stat.gov.pl/)

Both seaports in Gdańsk and in Gdynia have got container terminals. The turnover of containers grew from 203 463 TEU in 2000 up to 470 187 in 2005[41]. The terminal in Port of Gdańsk turned over only 15% of all containers in 2005, the rest 75% were in the Port of Gdynia. The detailed statistics are presented in appendix 3. Since summer 2007 the Deep Water Container terminal has been opened in the Port of Gdańsk therefore the statistics for Gdańsk in coming months and years will be changed significantly for the Port of Gdańsk.

The capacities and the infrastructure available in the sea ports are presented in the tables provided in appendix 3. The Port of Gdynia has got the unitized cargoes services, such as:[42]

- Baltic Container Terminal (BCT) – 600 000 TEU
- Gdynia Container Terminal (GCT) – 150 000 TEU
- Ro-Ro Terminal – 1 200 000 tons
- Existing Ferry Terminal (Area: 2.5 ha; Loading Ramp: 1; Capacity: 2 ferries, 500 lorries vs. 2000 cars, 3000 passengers per day)

[41] http://www.stat.gov.pl/
[42] M.Karbowski: Investment of Port Gdynia regarding logistics development. InLoC Project Workshops, Poznań, 15-16.09.2005

The Port of Gdańsk capacities cover average cargo volumes per annum: 20 000 000 tons, 2 ferry berths and 3 ro-ro ramps [43]

The port in Gdynia supports transport connections presented on the below map.

Figure 15 Port Gdynia and the transportation connections. (Source: http://www.port.gdynia.pl/logistyka01.php)

The sea cargo shipment network is well developed. The ports of Gdańsk and Gdynia run regular shipping connections with dozens of ports worldwide. Container, general cargo and RO-RO ships (cargo of cars) sail from Gdańsk and Gdynia to the majority of large ports all over the world.

Every week ships leave from Gdańsk for:[44]

[43] http://www.portgdansk.pl/o-porcie/

- Antwerp in Belgium,
- Amsterdam and Rotterdam in the Netherlands,
- Klaipėda in Lithuania,
- Bremerhaven and Hamburg in Germany,
- St. Petersburg in Russia,
- Ipswich, Newcastle and Teesport in the UK.

Every month there are ships sailing from Gdańsk to:[45]

- Bilbao in Spain,
- Barranquilla in Columbia,
- South Korea,
- Baltimore, Houston and New Orleans in the US,
- Trinidad and Tobago,
- Guanta in Venezuela.

The currently most important investment in the ports is the new container terminal built in Gdańsk: Deepwater Container Terminal Gdańsk S.A., with capacity of 500 k TEU. This will increased the total capacity of all three terminals in Gdynia and Gdańsk up to 1 mln TEU.

Envisaged large investments in seaports:[46]

- Deep-sea container terminal in Gdańsk Seaport and a logistic and freight forwarding centre DCT Gdańśk S.S. build by a British investor,
- Sea Gas Terminal will be constructed in Gdańsk Seaport,
- Development and modernization of existing terminals in Gdańsk Seaport,
- Privatisation in progress: MTMG - Maritime Bulk Terminal Gdynia, BBM - Baltic Bulk Terminal, BTZ - Baltic Grain Terminal , PZT - Port Technical Company,
- To be privatised: WUŻ - Shipping & Services Gdynia , BTDG - Baltic General Cargo Terminal,
- Construction of new Prom Terminal in Gdynia Port,
- Construction of new container terminal in Gdynia Port by a Hong Kong investor, Hutchison Port Holdings Group.

There are also important investment plans in the Port of Gdynia. In January 2007 the spatial plan, covering 30 ha, for new logistic centre in the Gdynia port was approved by the local authorities and it opens the process for investors coordinated by the Headquarters of the Gdynia Port S.A. In order to create more attractive conditions for investors the

[44] Memorandum Of The Gdańsk Metropolitan Area, Gdańsk 2006
[45] Ibid
[46] http://www.paiz.gov.pl

process to include the port area dedicated for logistic centre into the Pomeranian Special Economic Zone was initiated.[47] Besides the logistic centre there are also other development activities in the Port of Gdynia such as:[48]

- Investments in 2004-2006:
- Kwiatkowskiego Road - phase III
- Reconstruction of Wiśniewskiego Street
- Road Network in the Wendy-Wiśniewskiego Axis - phase I
- Ro-Ro Terminal Enlargement -phase II
- Existing Ferry Terminal Enlargement
- Dutch Quay Reconstruction
- Investments in 2007-2015:
- Road Network in the Wendy-Wiśniewskiego Axis - phase II
- Extension of Bulgarian Quay and New Handling Yards
- Logistics Centre Infrastructure
- Modernization of Pomeranian Quay
- New Ferry Terminal Construction
- Deep-water Access to Basin III

5.2 Transport sector administration and industry associations

5.2.1 The country transport sector administration

The transport sector administration is within the responsibility of the Ministry of Transport whose main activity areas cover the issues related to road, rail, and air transport as well as telecommunications and post. The Ministry of Transport places great emphasis on the operation and development of the domestic infrastructure network, especially – construction, modernization, maintenance and protection of public roads, including motorways, railways and airports. The Ministry is also responsible for the issues concerned with the provisions of road, railway and air traffic, as well as safety in public transport and the conditions for the execution of road, railway and air transport.[49]

[47] http://www.port.gdynia.pl/logistyka01.php
[48] http://www.inloc.info/material/6_investment_of_port_gdynia.pdf
[49] http://www.mt.gov.pl/

The Ministry of Transport executes the supervision over President of the Civil Aviation Office, General Director for National Roads and Motorways, President of the Office for Railway Transport, General Inspector of Road Transport, and executes the activity connected with the ownership supervision over PKP Polish Railways JSC and PKP Polish Railway Lines JSC, and restructuring process of PKP Group.

The following entities are dependent and supervised by the Ministry of Transport:

- Office for Inland Navigation - delivers functions related to inland navigation:
- supervision of the inland navigation safety;
- inspection of ships and accident proceedings;
- compliance with legal provisions relating to inland navigation procedures, ship and cargo documentation;
- registers of Polish inland navigated ships;
- issuing ship and passenger documentation;
- establishing local laws.
- The Director General for National Roads and Motorways is the central authority of the government administration competent for the issues related to national roads. He acts as the administrator of national roads and implements the state budget as far as national roads are concerned. The Director General for National Roads and Motorways is also responsible for the following:
- transport policy in the roads sector,
- information on the network of national roads,
- road infrastructure for the national defense purpose,
- issuing permits for non-standard vehicles,
- cooperation with the road administrations of other countries and with the international organizations,
- cooperation with regional authorities in the scope of development and maintenance of road infrastructure,
- management of national road traffic,
- protection of historic road,
- tasks associated with preparation and coordination of construction and operation works or operation of the toll motorways,
- charging tolls.

The Director General carries out his tasks through the General Directorate for National Roads and Motorways. The General Directorate for National Roads and Motorways consists of the head office located in Warsaw and 16 divisions located in the voivodships.

The basic tasks carried out in the regions are the responsibility of the Divisions of General Directorate for National Roads and Motorways. In the Pomorskie Voivodship there is a division in Gdańsk.[50]

- General Inspectorate of Road Transport – responsible for monitoring, controlling, auditing the road transport participants by:
- Checking the documents related to performing the road transport and meeting requirements defined in the documents,
- Technical condition of motor vehicles,
- Checking the drivers in regards to work time and rest time,
- Checking if the regulations concerning transport of animals are followed,
- Checking the type of fuel/oil used in the vehicles,
- Checking if the regulations concerning transport of hazardous materials are followed,

The vehicles for people transport constructed for less than 9 passengers used for non-commercial purposes and 3.5 ton vehicles are included within the Inspectorate responsibilities.

In the Pomorskie Voivodship there is the Regional Inspectorate of Road Transport in Gdańsk and its local division in Chojnice.[51]

- The Civil Aviation Office of the Republic of Poland - a civil aviation authority, is responsible for providing and maintaining safe and efficient aviation services to, from and within Poland including:[52]
- compliance with legal provisions relating to the civil aviation & commercial aviation,
- operation of aircraft & certification of entities conducting activity in civil aviation,
- airworthiness of aeronautical equipment & the competency of the flight personnel,
- registers of: aircraft, aerodromes, aviation ground facilities, flight personnel, & landing areas,
- co-operation with the authorities to which the state aviation is subordinated & with other organisational units in air traffic management & in ensuring air traffic safety & services,
- co-operation with the aviation administration & supervision authorities of foreign states, local government authorities in

[50] http://www.gddkia.gov.pl/index.php
[51] http://www.witd.gdansk.pl/
[52] http://www.ulc.gov.pl/

matters related to civil aviation, ICAO & other international civil aviation organisations,

- flight safety in civil aviation, including the examination & evaluation of safety levels in civil aviation,
- application of civil aviation regulations,
- approving the boundaries of manoeuvring area of the aerodrome,
- international agreements - preparation & negotiations, legislative acts in civil aviation,
- National Civil Aviation Security Programme & National Civil Aviation Facilitation Programme -designing & direct supervision over its implementation,
- aerodrome security protection programs & security protection programs provided by entities conducting commercial activities in civil aviation & supervising implementation of such programs,
- organisation of aviation medical examination services,
- co-ordination of local town & country plans in municipalities where a new aerodrome location is projected or an existing aerodrome & ground aviation facilities are to be modernised.
- 'Polish Airports' State Enterprise (Polskie Porty Lotnicze PPL) - company constructs and operates commercial airports, renders services to Polish and foreign carriers, provides services to airline passengers. PPL operates Warsaw Frederic Chopin Airport, Rzeszów - Jasionka Airport and Zielona Góra - Babimost Airport. In addition, it owns shares in commercial law companies, such as the airports in: Bydgoszcz, Gdańsk, Katowice, Kraków, Poznań, Szczecin, Szczytno-Szymany and Wrocław.[53]
- PKP Polish Railways - manages about 19,000 km of railway lines in Poland. Railway lines infrastructure comprises about 28,000 km of main tracks and about 9,000 km of station tracks. Railway network in Poland is used by about 5,000 traction vehicles and about 120,000 freight wagons. Passenger transport by rail is served daily by about 3,500 scheduled passenger trains. Main task of the PKP Group SA is the most effective and successful reform and restructuring of the Polish railway. There is an ongoing dispute over the restructuring of Polish railways. The biggest bone of contention is the reorganisation of regional connections, which have come under the jurisdiction of voivodeship (provincial) governments, and as such should be divided into 16 separate companies. This solution is unacceptable

[53] http://www.lotnisko-chopina.pl/ppl.php?lang=en

to railway trade unions. And although an agreement has been signed on 3 February by the government and the unions, the end of this conflict has not been seen.

The responsibility for the organisation and management of local transport issues rests also with self-government. At the national level, it is carried out under the Transportation Policy of the Department of the Ministry of Transportation. There is no voivodship (regional) level administration. Investment in urban public transport issues tends to be funded and carried out by transportation management units of local self-government (within the Poviat and Commune).

Transport issues tend to be financed also by Commune and Poviat self-government. These resources are distributed for local road maintenance and construction, and public transport subsidy. National projects and costs are financed from the state budget and through funds acquired at the central Ministry level. There is also a significant amount of national/local co-financing of investments when projects have an impact at both the local and national level.[54]

The Ministry of Transportation is the responsible body pursuing its own Transportation Policy. However, only standards exist for technical road and street design conditions and other issued referred to within the Traffic Code. There are no policy standards concerning transport services, and no real policy towards towns and agglomerations. Existing regulations assume that related policies should be formulated and executed at the local self-governing level. World Bank experts have expressed dissatisfaction with this approach.

5.2.2 The regional level transport sector administration

At the regional level, transport policies have not been developed, with the exception of regions with a high level of urbanisation, and where there are spatial - functional conditions which necessitate such an approach.

At the town level, many have elaborated their own Local Transportation Policy Act, generally with sustainable development in mind (e.g. Warsaw, Lódz, and Kraków). The reality, however, is

54

http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/EXTECAREGTOPTRANSPORT/0,,contentMDK:20647583~pagePK:34004173~piPK:34003707~theSitePK:571121,00.html

somewhat different. Comprehensive and pro-active policy is exceptional Generally, the trend is towards the restructuring of urban space, changing of transport services, and enacting of politically determined tariffs. [55]

The public transport in the Pomorskie region does not have one management model and one regional administration. There is no legally defined organ of public administration that would be responsible for regional transport system. There was no transport strategy for the region – currently being created. Additionally there are different stages of restructurisation, different scope of market openness and different modes of transport depending on the city or town. For example in Gdańsk there is an organizator: Gdańsk Public Transport Authority and monopoly of operator Urban Transport Company, with trams and buses In Gdynia there is the Board of Public Transportation employing 9 operators, with trolleybuses and buses and the privatization of communal companies is in process. There is a plan, accepted by 13 cities and communes, to create Metropolitan Transport Association of Gdańsk Bay that would be responsible for creating transport policy.[56]

The Pomorskie Voivodship transport administration system is influenced by the location on the sea coast, there the following organizations focusing on the sea transport:

- Maritime Office in Gdynia – one of the three authorities at the Polish coast responsible for providing and maintaining safe and efficient maritime services including:[57]
- Sea port regulations,
- Vessel Traffic control,
- Centrum Bezpieczeństwa Morskiego (VTS Centre),
- Radio navigation system,
- Safety on the sea,
- Navigation signs and signaling,
- Protection of the sea environment,
- Maintenance and protection of the coast line.
- Polski Rejestr Statków S.A. (PRS) - aimed at ensuring the safety of life and property at sea and on inland waterways, safety of steel structures, pipelines, industrial installations and other land objects, as well as the environment protection. Company supervise rules regarding design, construction and operation of

[55] Ibid
[56] M.Wołek: Between region and metropoly: opportunities and threats for public transport in Tri-City, Poland. BUSTRIP seminar, Bremmen 30-31 May 2007.
[57] www.umgdy.gov.pl

marine and land objects. PRS Mission: "PRS is an independent expert institution acting on the international market, whose business is conducted for the benefit of the community. Through the formulation of the requirements, survey and issue of the appropriate documents, PRS assists State Administrations, Underwriters and the Society's clients in ensuring the safety of people, floating objects, land undertakings, the safety of carried cargo and that of the natural environment."[58]

5.2.3 Transport and Logistic Associations

In the Pomorskie Voivodship there are the following transport and logistic associations:

- Pomorskie Stowarzyszenie Przewoźników Drogowych – The Pomeranian Association of Road Carriers associates 760 transport firms from the North of Poland. In order to provide comprehensive services cooperates with The Office of Servicing International Transport at the Polish Ministry of Transport and The International Road Transport Union.
- Okręgowe Stowarzyszenie Drogowych Przewoźników Międzynarodowych i Spedytorów Wybrzeże w Gdyni,
- Zrzeszenie Transportu Prywatnego w Gdyni,
- Polska Izba Spedycji i Logistyki - Polish International Freight Forwarders Association – member of FIATA.
- Motor Transport Institute's representatives in Pomorskie – trainings for road transport companies:
- Centrum Doskonalenia Zawodowego "CREDO"
- Polskie Towarzystwo Ekonomiczne w Gdańsku,
- LEMAR s.c. w Gdańsku,
- Pomorskie Stowarzyszenie Przewoźników Drogowych,
- Zakład Doskonalenia Zawodowego w Słupsku,

[58] http://www.prs.pl/page152.html

5.3 Social and environmental issues in the transport sector

5.3.1 EU projects and support for environmental issues

Ecologically the Pomorskie Voivodship region represents relatively high standards of awareness among population, high rate of forests in the total area and higher than average for Poland civilization standards of life in particular in towns (access to all media, telecommunication network). The support for EU integration is one of the highest in Poland. The system of regional planning is well developed. Pomorskie has many specialists in the domain of regionalization active also in the central level of administration. Pomorskie is very active in many programs aiming at regional sustainable development (rsd) which are financed under INTERREG II and coming INTERREG III. Most of these projects are implemented within cooperation in the Baltic Region, especially Baltic Agenda 21 and VASAB 2010+ in which Poland and the Region of Pomerania have taken active part. International funding for regional eco projects constitutes relatively bigger amount in Pomorskie than in other case study regions in Poland.[59] The projects related to transport sector realized in Pomorskie were:

- MATROS - Development of Spatial and Transport Infrastructure Planning Methodology for Creation of the Integrated System of Maritime Transport in the Baltic Sea Region, Interreg II C, 1999-2001, concerning Sustainable development of transport in the Baltic Sea Region – trends, diagnosis, networks, scenarios, problems
- areas – strategy and visions in the context of sustainable development of entire Baltic Sea Region
- TINA – Future Transport Pattern and the; Sustainable Development of the TINA NETWORK (1999-2000) Interreg IIC, Phare concerning strategy of development of the development zone situated alongside the VI transport corridor TINA and harmonizing the Pomerania Regional GIS data base with a respective data base of Southern Sweden.

[59] E.Gończ: Strategies for 2000+. Future of the EU regional Policy after 2006 (restructuring of the Structural Funds). Partnering for sustainable future as a learning experience - New concept of development.

- BALTIC AREA SECTOR INTEGRATED ENVIRONMENTAL ASSISTANCE – Environment, Employment and Education (2001), European Eco Center in Niepoględzie

5.3.2 Environmental issues in the road transport sector

The environmental issues in the Pomorskie Voivodship relate to the three transport mode sectors: road, sea and air, each of them brings specific environment pressures.

Road traffic pollutions: air, noise and accidents danger to human life - during recent years, the numbers of vehicles in Poland have increased. Many vehicles are old and pollute the air to a large extent. Another problem is air pollution arising from traffic in towns, while the national road system in Poland is currently being developed, and for this reason, roads are increasingly congested. In the cities of Pomorskie the public transport is disintegrated as described in the previous paragraph, therefore the car usage in the cities is very high. Besides the public transport in general there is no integrated transport system for the Tri-City and it surrounding areas.[60] An inappropriate level of tariffs is not favouring conditions for the development of inter-modal transport and priority for public transport is not common. This is largely the result of a pro-car trend in the execution of transport policy.

Development of bicycle paths has, however, begun in many towns. This is one practical realization of sustainable development policies and an answer to inhabitants' needs. Some micro-regional development initiatives for recreation and tourism have been undertaken. The development of a natural bikeways network under the EuroVelo programme is limited to local initiatives and the principal problem is a lack of co-ordination at the regional and national level.

Since fuel and parking fees in town centres are relatively inexpensive, car use is increasing. However, parking policies in city centres are showing a trend towards restriction, with fees applying to the duration of parking. Generally, surface parking dominates. There are some parking garages in new office buildings, but they are only open to the users of the buildings. Each new investment must fulfil parking standard requirements (dependent on the town) but there is not a limit to the space allocated to parking.

[60] http://www.woj-pomorskie.pl/Pages/Lang/pl/Article/wazne,plan_uwarunkowania6.html

Many town centres, inner cities and residential areas, are implementing traffic-calming solutions. Street signs, humps and roundabouts, however, are only partial solutions in reducing traffic speeds. Without sufficient legal frameworks, other typical solutions such as traffic calming zones are not permitted. Some town zones also limit access to trucks of more than 10-15t. However, in general these solutions are impossible to apply or very difficult because road networks are insufficiently developed.[61]

The road transport of goods is also booming due to economy development and decreased volumes of railway transport caused by lack of intermodal infrastructure and very low quality of railway infrastructure leading to low train speed and long journey time. There are many areas in the Pomorskie Voivodship where the international and national cargo road transit traffic routes cross cities and towns e.g. Gdańsk, Gdynia, Pruszcz Gdański, Starogard Gdański, Słupsk.

Particularly in Tri-Cities the disintegration of the sea ports and national roads plus the lack of the A1 motorway cause particular pressures to the environment causing huge congestion and creating high risks of road accidents.

The worst air pollution situation (besides Tri-City) is in the following poviats: kościerski, tczewski, wejherowski. Due to rapidly developing economy as well as lack of intermodal transport terminals and low quality of railway cargo services, the road transportation density grows faster in booming way causing significant increases of air pollution with NO2.[62]

5.3.3 Environmental issues in the sea transport sector

The sea transport environment pressures relate to increasingly crowded shipping lanes. The Baltic Sea is considered to have one of the world's most dense shipping traffic. Moreover, the transportation of oil and other dangerous goods is growing significantly every year. According to the HELCOM ship traffic monitoring system which was launched in July 2005 almost 14,000 ships entered or left the Baltic through the Danish straits, during a three month period, approximately 25% of which were tankers. Major impacts of shipping to the marine

[61] http://www.rec.org/REC/Programs/Telematics/CAPE/qualsrvy/crpl.doc

[62] Program Ochrony Środowiska Województwa Pomorskiego na lata 2007-10 z uwzględnieniem perspektywy 2011-14, (projekt z dnia 03.07.2007)

environment are pollution by ship generated waste or from accidents, air emissions and introduction of alien species via discharge of ballast water.

Deliberate illegal oil discharges from ships have been regularly observed within the Baltic Sea since 1988. On an annual basis around 300-400 illegal discharges are detected. The average number of observed illegal oil discharges has gradually decreased every year seen in the light of increased traffic and increased surveillance. Although the number of observations of illegal oil discharges has been decreasing over the last 5 years it should be kept in mind that for some areas aerial surveillance is not evenly and regularly carried out and, therefore, there are no reliable figures for these areas. Only in 2004 there were 3 oil spills observed in the Baltic Sea area within and closed by the Pomerania costal line during aerial surveillance in 2004. There were 300 oil spills observed in the Baltic Sea basin. Additional risk of pollution is related to the ship accidents, for example in 2003 there were 3 pollution causing accidents along the Pomorskie costal line and 60 in total in the Baltic Sea region. [63]

Oil spills contaminate the water by creating an oily layer on the surface or by mixing and dissolving in the water. The most visible effects of oil spills are caused by the oil on the surface: seals and birds are smothered and their chances of survival are hampered by problems with their mobility or the insulating properties of their feathers or skin. Oil pollution also destroys habitats for many plants and animals, including the spawning areas of fish. Moreover, many of the chemicals in oil spills are toxic, and can have serious effects on plankton, fish and animals living on the sea floor. Oil decomposes slowly in the cold waters of the Baltic. Coastal areas contaminated by oil spills need to be actively cleaned up, which is a slow process. The necessary clean-up operations may themselves, unavoidably, harm marine life and coastal habitats. Oil spills can also have serious repercussions for tourism and commercial fisheries. [64]

[63] HELSINKI COMMISSION Baltic Marine Environment Protection Commission: Background information to the Baltic Sea Informal Meeting for Ministers of the Environment, 22–23 November 2005, Stockholm, Sweden, p.17-18
[64] Ibid p.17-18

5.3.4 Environmental issues in the air and rail transport sectors

The air transport generates the air and noise pollution. The Pomorskie Voivodship airport is localized 15 km from Gdańsk in Rębiechowo. The airport develops very dynamically the below graph presents the changes in the number of passengers. The main environment pressure is the noise pollution. The latest measurement made in year 2000 showed that air traffic related noise exceeded the limits on ca. 2.7% area of Gdańsk gmina. Since then the traffic significantly increased what is expressed in the number of passengers reported by the Gdańsk airport from 270 passengers in 2000 up to 1256 passengers in 2006. Assuming the increase of the air traffic correlation with the number of passengers the noise related to air traffic significantly increased.

In October this year there is a launch of new project expected called: acoustic map of Gdańsk, where 40 measurement points are to be installer monitoring noise level.

The noise pollution is also created by the rail transport. The Pomorskie Voivodeship is relatively low impacted by this type pollution. According to the data presented in 2005 in seminar in Cracow[65] Pomorskie Voivodeship is placed on the 10th positions (out of 16 voivodships in Poland) in terms of the size of household areas impacted by too high noise levels caused by railways. According to measurements performed in year 2000 there was noise level exceeding the norm level in 4.2% of the total area of the Gdańsk Gmina.[66]

5.4 Logistics industry: characteristics

The logistics industry in the Pomorskie Voivodship could be described base on the outcomes of the LogOn Baltic Project's Logistics Survey. The research focused on three groups of enterprises: manufacturing, trade and logistics and covered 81 companies operating in the region. The majority of respondent companies are SMEs (almost 99%), the distribution of participants supports the objective of the LogOn Baltic project to evaluate the needs and to strengthen the competitiveness of

[65] http://pl.osha.europa.eu/europejski_tydzien_2005/eustkr2.pdf
[66] www.infoeko.pomorskie.pl

SMEs in particular. 34% of the respondents represent the manufacturing industry, 41% belong to the trading industry and 25% are logistics service providers. Thus, all main industries where logistics plays an important role are covered. As the questions for manufacturing and trading companies were very similar, they will be covered together in the next section. The results from logistics service providers will be described in section[67] 5.4.2.

5.4.1 The results from the manufacturing and trade industry

The research focused first on the logistics costs in order to understand the significance of logistics to the business as well as the future development trends. The below figure represents the current logistics costs as percentage of the company's turnover.

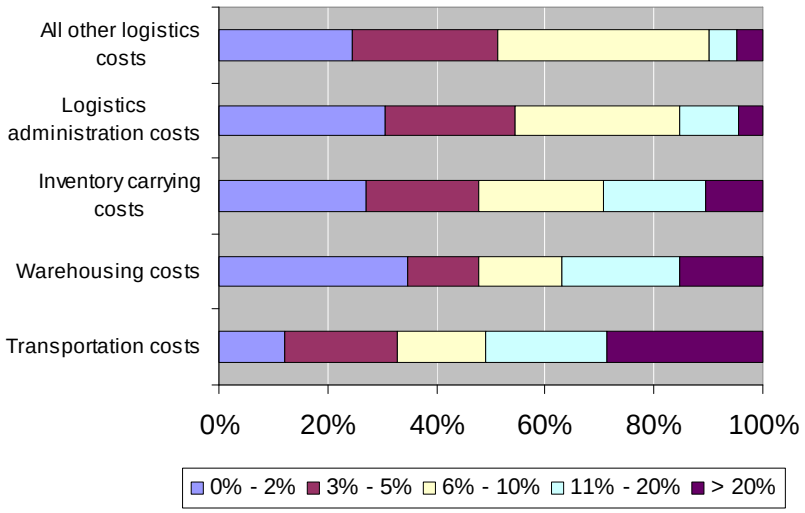

Figure 16 Logistics costs as a percentage of turnover, manufacturing and trade companies

For almost 30% of manufacturing and trade companies answering the question the transportation costs are more than 20% of turnover. The second highest category costs are warehousing and inventory

[67] For more details on the methodology and the results of the LogOn Baltic Logistics Survey in Pomerania please refer to: A.Trzuskawska: Logistics Survey in Pomerania, Poland, LogOn Baltic, 36:2007

carrying costs. The detailed data in the survey showed that the warehousing costs were the lowest for manufacturing companies but they were the second highest for the trade companies. However the inventory carrying costs were the second highest for the manufacturing companies and rather low for trade companies.

Only every tenth company said the transportation costs are not higher than 2% of turnover. The opposite trend is for the logistics administration costs that are declared as much lower costs than transportation and any other logistics costs. Almost 30% of companies answering this question said their warehousing costs do not exceed 2% and only less than 5% 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

Considering the logistics costs in the future majority of respondents (60% and more) expects all logistics costs to increase. In case of the manufacturing companies 90% of respondents said the transportation costs will increase and in case of trade 82% had the same opinion. The pattern of answers for other cost categories, for a question what costs will increase, 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. Analogically the cost increases for warehousing were pointed by the lowest number of respondents from manufacturing companies, but for trade, the third highest percentage of respondents said the warehousing costs will increase. This situation is 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. So the warehousing is more critical for trade companies than for manufacturing. Also the trade companies have usually lower fixed costs therefore the logistics (warehousing in particular) gives higher percentage of turnover.

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.[68] There is a shortage of people as well as fleet, equipment and infrastructure. The economy development drives also direct foreign investments and

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

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 mentioning that Poland is planning to join the Euro zone and people expect this will also cause prices and costs increases.

In general one of the ways to reduce costs is to focus on core competencies and outsource any non-key activities. The manufacturing and trade companies outsource most often the transport processes (by almost 80% of companies) and freight forwarding (by almost 60% of companies). The below figure presents the status of outsourcing for the Pomeranian companies.

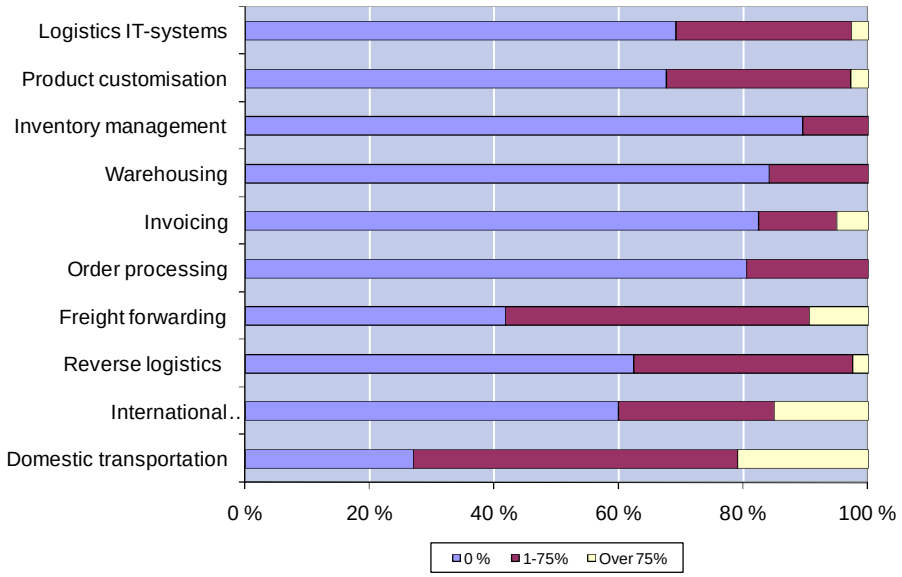

Figure 17 Outsourcing of different logistics functions, companies in The Pomerania Voivodship

Those data are in line with the international and domestic reference data presented in the Logistic Survey Report. Those data also confirm 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.

The surveyed companies the level of outsourcing will increase in the future in every category mentioned in the research except the warehousing and invoicing. The highest expected growth of outsourcing is expected in international transportation and logistics IT systems. Currently the reverse logistics and order processing are already outsourced in many companies but they both will be outsourced even further in the future according to the respondents..

The logistic industry characteristics could also be described by the business environment. The respondents were asked about their opinion concerning the infrastructure, efficiency and availability of logistics and facilities as well as locations of competitors.

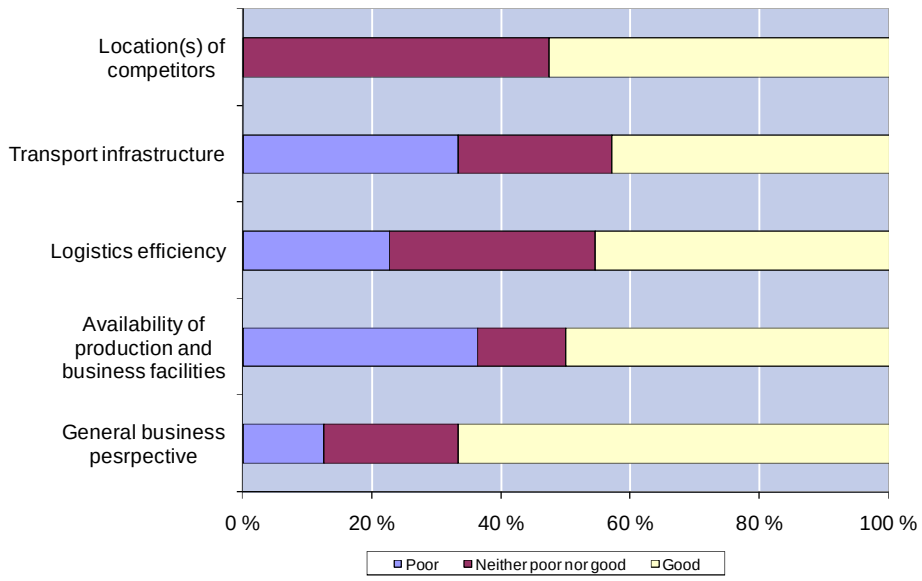

Figure 18 Manufacturing companies' opinions on their operating environment

As it is shown in figure 18, 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 reflects 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 19. 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.

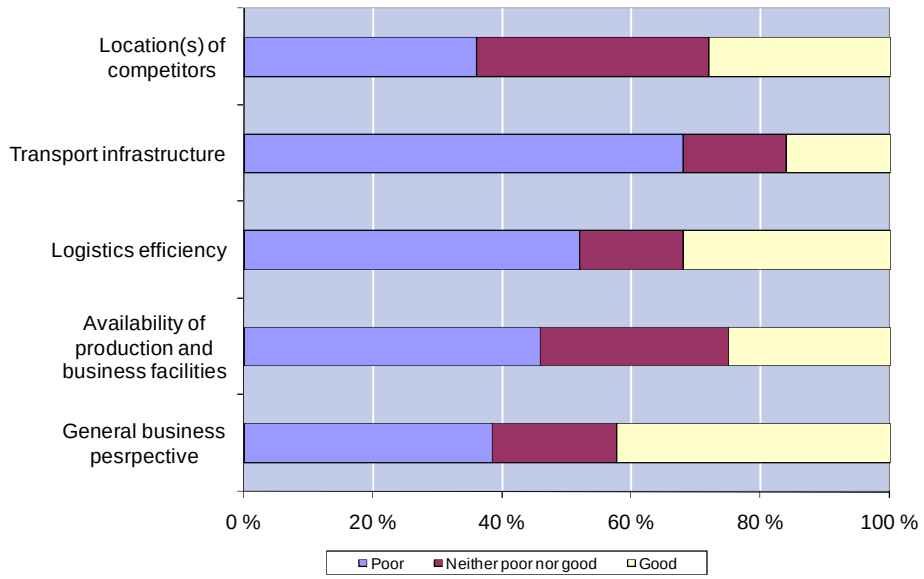

Figure 19 Trading companies' opinions on their operating environment

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

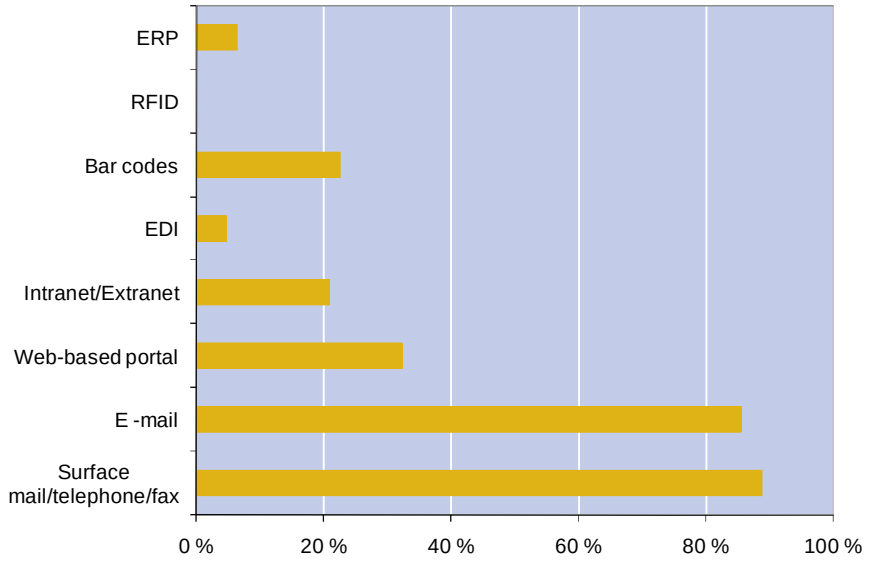

Figure 20 The usage of different ICT-systems, manufacturing and Trading companies in the Pomerania Voivodship

Almost 90% of the companies use traditional methods of communication such a phone, fax, 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 uses 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.

The assessment by manufacturing and trading companies regarding the importance of areas for staff development shows that manufacturers mainly consider transport management and supply chain strategy as key competences, while trading companies prioritize language proficiency and inventory management, which are usually their core competences.

Most companies use internal and on a very limited scale also external monitoring and performance evaluation measures 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 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.
However, logistics does not always have top management priority – 31% of respondents confirmed that. 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.

Still, the majority of companies consider themselves as better or much better when it comes to logistics performance, particularly with respect to 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.

Last, manufacturers define the most important future logistics development need from their perspective. The survey answers point out that a structural change of distribution network and the utilization of mobile solutions are the main issue.

5.4.2 The results from the logistics service providers

In this section, the results of the survey regarding logistics service providers (LSPs) are described. The topics covered in the research were the structure of turnover and market development, logistics

competence, development needs and threats of the future, operating environment, and self assessment of the companies.

First, logistics service providers were asked to estimate the distribution of the turnover for different types of services for the years 2006 and 2010. Currently, more than 60% of the turnover of the respondents is gained from transport services only; however, another almost 20% of the turnover is generated by warehousing service and 15% by customized service packages. Standardized service packages only contribute to roughly 5%.

For 2010, a bit different distribution of turnover is predicted: almost 50% decrease in transport service share due to significant increase of the warehousing services and even bigger increase in standardised service packages. The customized services share seems to stay the same. The future trend for the distribution of turnover confirms the trading companies' trend for outsourcing where e.g. warehousing was the second most developed area of outsourcing in the future forecast. However, the manufacturing companies did not consider it as the most often outsourced activity. Those difference 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.

The significant increase of the standardised services share represents the development of the market. Currently there is no many LSP providing professional, advanced logistics services therefore the companies have not developed yet their standard portfolio services.

The view of logistics service providers on the outsourcing itself and its trends is aligned with answers provided by the manufacturing and trading companies in the areas of: transportation, freight forwarding, that considered as the most often outsourced activities – see below graph.

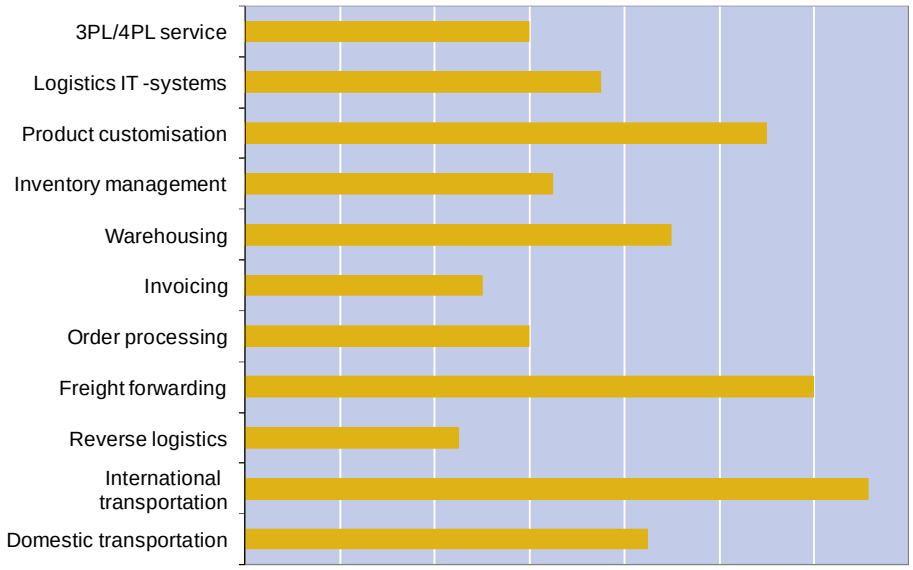

Figure 21 The relative trend of outsourcing, logistics service providers in The Pomerania Voivodship

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

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

In line with the expected development of the market most of the logistics service providers recognize the need to develop wider range of service offers as well as increase their capacities in provisioning services and improve customer service.

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

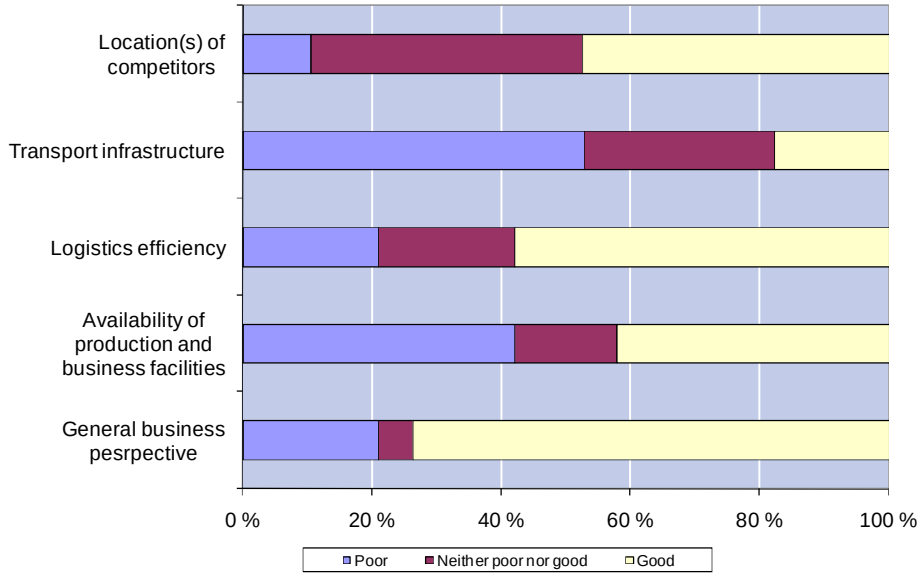

Figure 22 Logistics service providers' opinions on their operating environment

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.

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.

The LSPs provided self assessment regarding the performance within the supply chain by comparison with competitors. 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.

Besides the performance the companies were asked also for their self assessment of the logistics costs management in the supply chain. The answers show very similar result (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.

Regardless the fact that majority of the LSP companies monitor and evaluate logistics costs and performance not all seem to recognize those practices bring 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, specially in the area of strategic planning and target setting. 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.

5.5 Logistics sector development and outlook

The logistics sector in Pomorskie Voivodship is mainly influenced by the sea ports, industry development in the region and road infrastructure development.

There are already ongoing and planned project for both the Gdańsk and Gdynia sea ports described in this document. A Significant part in those development measures, for the region, are the increased capacity of the container and ro-ro terminals as well as the logistics centres with modern warehouses, logistic services and ICT solutions. An other area of potential logistics developments is the prepared by local authorities Baltic Investment Zone in Pruszcz Gdanski.

There are many foreign investments in the region in ICT, electronic, chemical, ship building and automotive industries influencing the development of manufacturing and services. Those investments bring

logistics know-how to the region as well as the demand for logistics services and infrastructure.

Both the port and the industry development could not happen without the required road, railway and air transport infrastructure therefore. The biggest emphasis should be put into assuring integrated and comprehensive transport system development for the region including such critical elements like connections of the ports and industry centres e.g. Baltic Investment Zone with motorway and railway and city ring roads, and modernization of railways and its terminal infrastructure.

There are also needed friendly conditions for logistics services development. The key elements of those conditions are:

- Incentives for the investors to invest in Pomerania (e.g. support from local authorities, easiness in running business, accessibility),
- Available area adoptable for logistics services premises,
- Available human resources with required competencies,
- Competitive conditions for running logistics type business,
- Promotion of the region.

6 ICT IN THE REGION

Nowadays the competitive and global market challenges companies, regions and countries with the need to gather, analyse, generate, share and communicate tremendous quantities of data and information in very short time. Therefore the level of information and communication technologies, known as ICT, determines the company business position and market share. In case of regions the ICT impacts the development of society, business, investments and as results it determines the development of regions and also in consequence the development of countries. The LogOn Baltic Regional Profile presents the regions from the ICT development perspective.

6.1 General ICT infrastructure in the region

In general the Pomorskie Voivodship's Information Communication Technologies (ICT) development is on a high level comparing to other Polish voivodeships e.g.:

- first when it comes to the number of personal computers per household, [69]
- fourth for the number of telephones per 1,000 population, [70]
- the ICT penetration (2006):[71]
- PC: household: 45%, company: 93%
- Internet: household: 36%, company: 89%
- Broadband: household: 22%, company: 46%
- one of the 3 regions with the highest percentage of companies providing e-mail address and web page address in the directory: Polskie Książki Telefoniczne,[72]
- one the highest density of ICT companies localized in the region,[73]

[69] Office of the Marshal: The Pomorskie Voivodeship Development Strategy 2020, Gdańsk 2005, p. 32-33.
[70] Ibid
[71] www.stat.gov.pl
[72] Oddziaływanie inwestycji ICT na rozwój regionalny – aspekty społeczne i ekonomiczne. Akademia e-rozwoju regionalnego, Materiały szkoleniowe projektu SIRMA-2-1-07.

- the highest e-service index by the 2004 research report by Cap Gemini, reflecting e.g. the on-line offered services and internet pages of public administration[74]
- fifth region in Poland that implemented regional internet portal.

However comparing the Pomorskie region to other EU regions it is on a low development level of ICT what is expressed in the ESPON report's "information society index" presented in the below figure.

[73] G.Micek: Sektor IT w liczbach, "Innowacyjny start", grudzień 2005
[74] Oddziaływanie inwestycji ICT … op.cit.

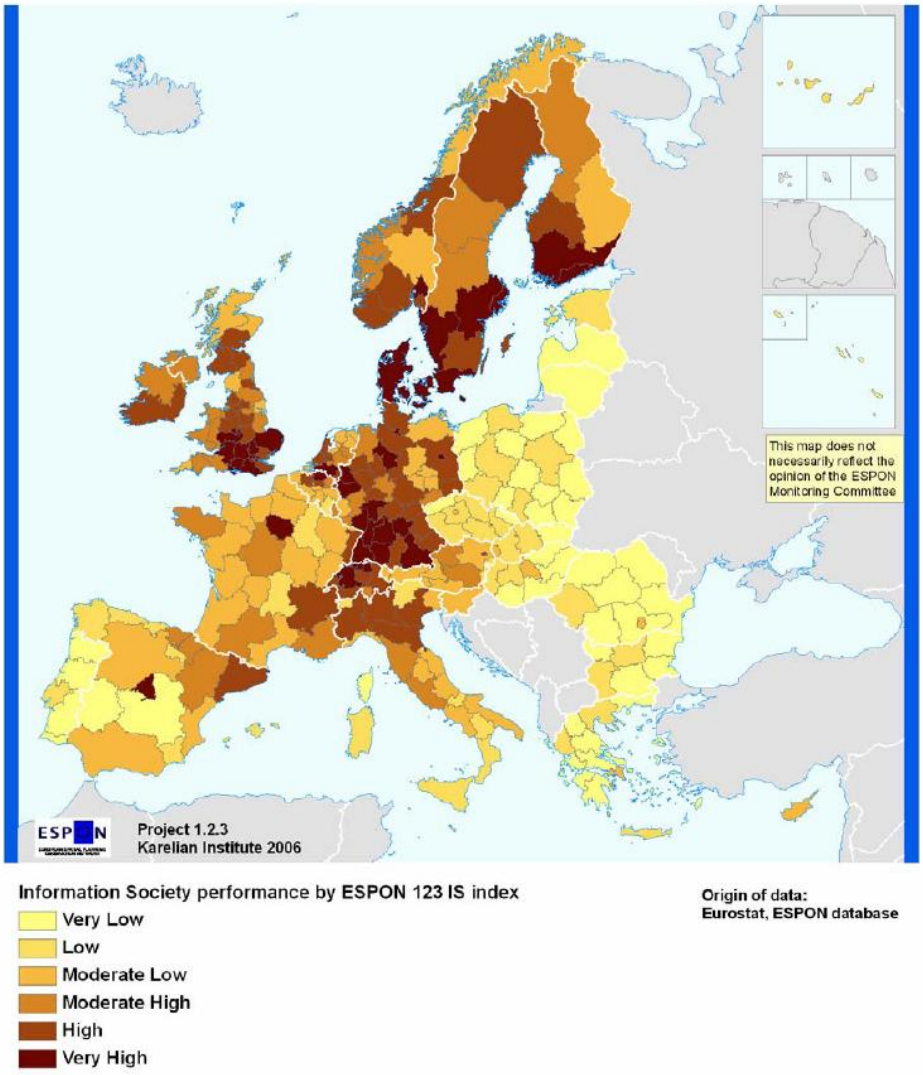

Figure 23 Information society index by ESPON report. (Source: ESPON project 1.2.3. Identification of Spatially Relevant Aspects of the Information Society, Draft Final Report, EUROREG, May 2006)

In 2006 there was a research performed by University of Gdańsk concerning Pomorskie Voivodeship ICT situation in MSE sector titled: "System Gospod@rki elektronicznej dla MŚP" – Electronic Economy for SME". The results shows the following facts:[75]

- in most of the industries more than 95% SME companies use computers, less than 95% usage is in hotel & restaurants due to

[75] http://www.sge.univ.gda.pl/

high number of very small bars and restaurants and agriculture + fishery;
- in most industries 90% and more SMEs use Internet connection, less than 90% usage is in fishery, power supply, grocery,
- 82% Internet connections are via DSL, 8% via ISDN modem, 5% wireless connections,
- LAN network is used by more than 60% SMEs, less than 60% usage is in agriculture, fishery, construction, grocery, hotel & restaurants sectors,
- in all of the industries less than 25% SMEs have got their own server, except the ICT industry.

One of the signs of the ICT in the region, most visible for society, is the launched on 4 October 2006, brand new internet portal. It includes a wealth of useful information for citizens and visitors alike, the new portal offers a first point of contact for anyone interested in the region.

The Pomorskie web portal is addressed to all those who are interested in the region but also to Pomorskie Voivodship citizens, investors and companies doing or planning to do business in the region. Apart from information about things like history, education, health or sport, visitors also have the possibility of avoiding tiring and time-consuming visits to the region's administrative offices. By clicking the 'digital office' link, users access the Pomeranian eOffice providing some 25 different eServices. It is intended to extend further the services available on-line so that, in future, citizens will be able to conduct all official business electronically.

6.2 ICT industry: characteristics

The ICT in the Pomorskie Voivodship could be described base on the outcomes of the LogOn Baltic Project's ICT Survey that investigated: the use of ICT systems and use of internet as well as e-commerce/ e-business and general assessment of ICT usage.[76] The research focused on three groups of enterprises: manufacturing, trade and logistics but also included companies from other industries and covered 71 companies. 77% (55) of the respondents represented the micro companies, 14% (10) were small companies, 7% (5) were

[76] Additional information about the ICT survey and especially the detailed analysis of results as a whole are summarised in a separate regional report regarding Pomerania (see Trzuskawska et al. 2007b) as well as in an aggregated ICT report in which the key results are analysed and compared among the Baltic Sea Regions.

medium sized, and more than 1% (1) represent large companies. The distribution of participants supports the objective of the LogOn Baltic project to evaluate the needs and to strengthen the competitiveness of SMEs in particular. In the research 49% of companies represented the manufacturing industry, 25% represented the trading industry, and more than 1% represented the logistics service providers. The remaining 24% were classified as “Others”, e.g. banking, health care.

The survey results show that both email and the Internet are used in more than 90% of the surveyed companies. However, there are still enterprises where no employee has got an email account or access to Internet as it is presented in the below figure.

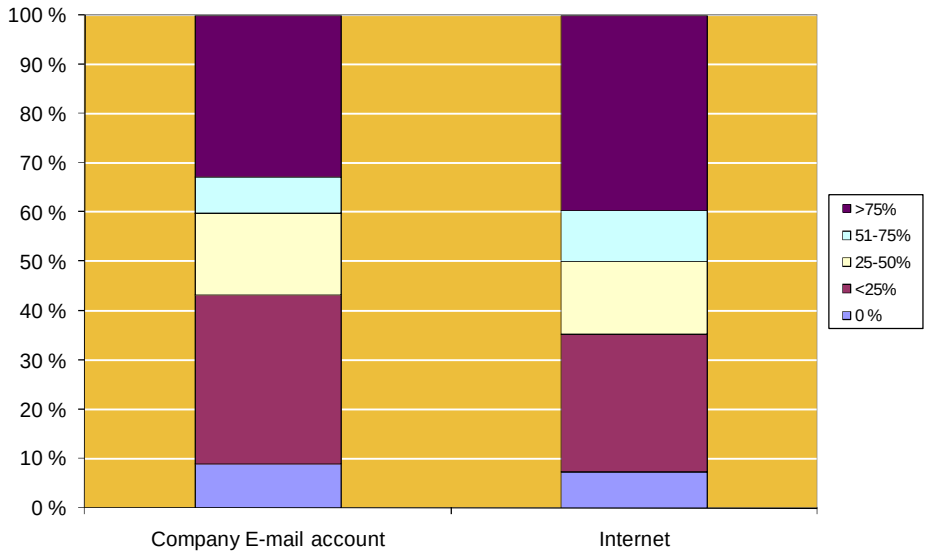

Figure 24 How many percent of employees have access to E-mail and Internet

In the companies who declare they have got e-mail accounts and Internet access only some employees have these; most of the employees do not. Only around 40% of the companies stated that over 75% of their employees had Internet access and even a few less companies agreed that their staff also had a company e-mail account.

Regarding Internet usage the data show that, even though the DSL has developed fast in Poland, and already 50% of the companies use it, still more than 40% of the surveyed companies use modems. Broadband connection allows to transmit data much faster than a dial-up modem, and enables people to make video and telephone conferences of good quality as well, and to send e-mails with big

attachments. However, more than 40% of the surveyed companies in Pomerania do not have:

- the connection technically available (not provided by the operator)
- a business need to use it, or
- enough capital to install and use the broadband connection.

Additionally the survey results show that 37 respondents – 52% of the companies - stated that they have their own website, and 46% do not have a website. The low percentage of companies having website, in the century when Internet becomes the basic mean of information exchange and business communication, confirms the still poorly developed ICT infrastructure and awareness in the SME's sector as well as in the Polish society. The lack of a web page is not always caused by the fact the entrepreneurs do not want them, but by the fact they do not expect customers and suppliers to use it. Therefore, the market environment does not motivate entrepreneurs strongly enough to implement a web page. However, the trend is changing because more and more enterprises are gaining access to Internet.

The main use of the Internet is to obtain information about public authorities and government organizations (37%) e.g. finding the right authority and contact person, addresses, opening hours etc. Similar number (32%) of companies use the Internet for downloading or requesting forms, e.g. applications for licenses, bulletins, regulatory frameworks etc., and also the same number for making online payments to governmental organizations.

However, the Internet is no used so much for completing and sending on-line forms; only 27% of the companies declare they use this way of cooperating with public authorities and governmental organizations. There are also 14% of companies who do not use Internet for dealing with public authorities and organizations. As stated earlier, 3% do not have Internet access at all, but other who do have access, do not use it for this purpose.

Besides Internet the companies answered also about the ICT systems. Finance and Accounting are the areas where ICT is used most often by companies (in over 80% of surveyed companies). Production and Production Planning are the areas where ICT is used the least (between 26 and 36% of the companies); 49% of the surveyed companies were manufacturing companies. There is a wider use of ICT in the business areas where companies interface with external environment: Marketing & Sales: 70% manage the relations and orders with suppliers; more than 60% use software solutions and cooperate with customers; more than 65% use software. In general

there is a relatively small development expected; less than 10% - in some cases even less than 5% - of companies plan to use ICT in a certain business area in the future, where they don't use it today.

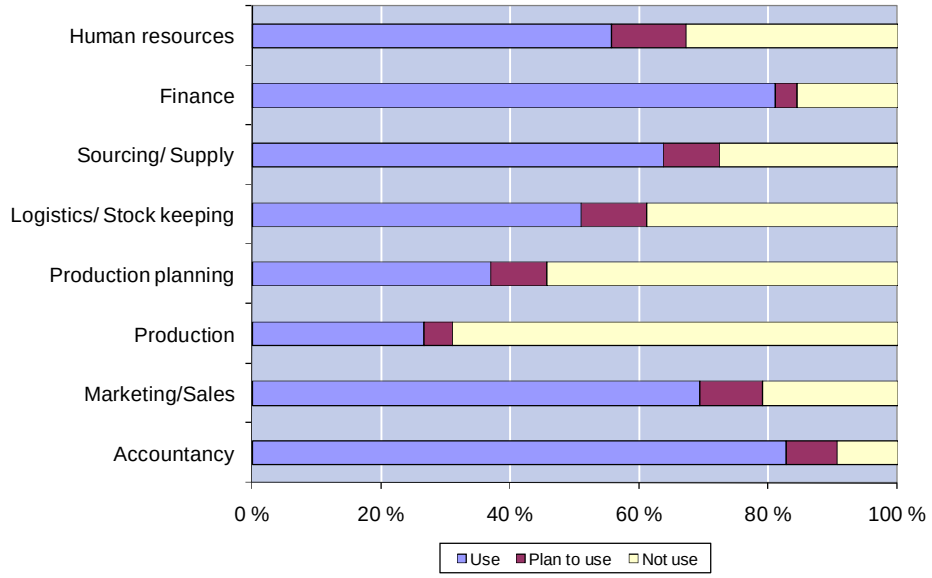

Figure 25 On which areas of business the companies are using ICT

The value added of Internet and internal ICT systems in the business activities could be leverage significantly when they are integrated and support business transactions and process between the customers and suppliers. Those type of solutions are known as e-commerce and or e-business. "E-commerce can be defined as the trading of goods and services over computer mediated networks, such as the Internet. Because e-commerce uses an electronic interface for exchanging and processing information, it offers the possibility at least of overcoming some of the geographically-defined obstacles to commerce in peripheral or low density regions. Although much of the focus of media interest in e-commerce has been on so-called 'business-to-consumer' (B2C) applications, it is actually in the field of 'business-to-business' (B2B) e-commerce that the most significant growth in markets has been demonstrated."[77]

The participants of the survey were asked which type of communication methods they use when communicating with customers

[77] ESPON project 1.2.2 Telecommunication Services and Networks: Territorial Trends and basic Supply of Infrastructure for Territorial Cohesion, p. 139.

and suppliers. As the below figure shows, telephone and fax are the most often used means for communication (more than 80% of the respondents indicated those methods as the one they use). These traditional methods are easily available for every company and do not require any specific skills as the modern ones do.

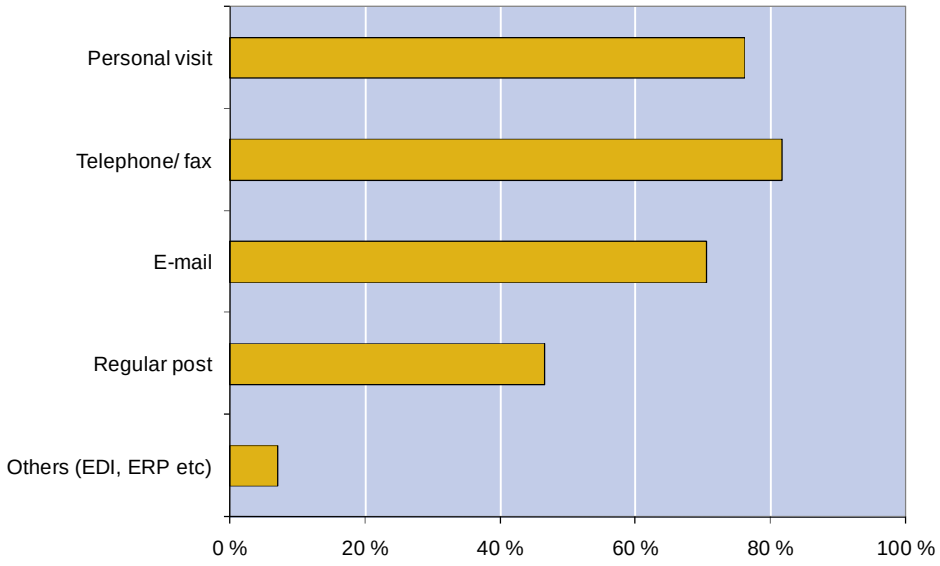

Figure 26 On which areas of business the companies are using ICT

Electronic orders and payments are the processes mostly handled electronically. However, in the case of orders, it is not always a B2B type of interface; it is rather an e-mail message where the order is sent in an attachment file. In case of payments, the banks widely implemented the electronic bank accounts so the payments are done electronically. On the one hand it is more common for the companies to send electronic orders to suppliers than receiving them electronically from customers, but on the other hand they make use more often of electronic means to pay than to receive payments from their suppliers. However, the companies plan to change this situation in order to start receiving more electronic payments from their suppliers. There is an 11% of expected increase in the use of electronic means of communication alone in this area - from 52% up to 63%.

Other areas between companies and their customers where a significant growth is expected in next 3 years are: tracing order and service status (from 24% up to 48%) and after sales support (from 20% up to 45%)

Companies in Pomerania - and in Poland in general - recognize that information for customers gives a competitive advantage. They also see that having information from suppliers is also critical for running business; therefore, they also expect an increase of electronic communication in the cooperation with their suppliers.

There are also 18% of companies with no electronic business with their customers and 15% of companies with no electronic business with their suppliers. Those data correspond with the earlier presented statements regarding ICT systems, Internet and web pages, and confirm that there is still a group of companies in Pomerania who are “disconnected” from ICT technologies in their business operations.

The surveyed companies were also asked about their view concerning the importance of e-commerce for their business. The results show that between 60 – 80% of the respondents assure that e-commerce helps their business.

However, at the same time most of them do not recognize that e-commerce can have a major impact on their profitability; only about one third of them agreed it could. This confirms the low ICT awareness and is also linked to the fact that SME’s scale of business is usually relatively small. E-commerce is mainly recognized as a tool that helps reach new business partners: customers and suppliers (80% of the respondents agree with this statement). Approximately 15% less respondents agree that it gives the company a competitive advantage. There is still a relatively low confidence in ICT in Poland; the answers reflect it. The companies do recognize that e-commerce can simplify the transactions.

6.3 ICT sector development and outlook

LogOn Baltic survey results show, that information and communication technologies are present in the business processes of companies operating in Pomerania and the situation is improving in Poland. The development can be visible when the results of this report are compared with the ESPON-report regarding ICT and also when analyzing the ICT market indicators published by the Central Statistical Office showing an increase from 10% in 2003 up to 31% in June

2007[78]. There is an expectation of further development reflected in the answers provided to the LogOn Baltic survey e.g.:

- future spending on ICT as percentage of turnover
- planned usage of ICT applications in new business areas by 10% of the companies
- 100% growth in handling business electronically for tracing orders and service status or after sales support
- planned increase of e-commerce usage in cooperation with suppliers and customers (including increased share of e-commerce in their business operations)
- products considered as applicable for e-commerce.

Despite the trend for ICT development, the micro and small companies consider their scale of business as not supporting a great necessity of using ICT to be able to operate. They also indicate that their scale of business does not support a recognition of significant benefits for cost reductions and profitability as results of ICT usage in business processes. Therefore the main barrier to use ICT pointed out by the surveyed companies was the lack of perceived benefits for the company and also supply of ICT not matching company needs. As a result, there are still almost 10% of companies having no access to Internet or e-mail, half of the companies use low performance modems to connect to the network, and almost 40% do not have regular IT support solutions implemented. Approximately 46% does not have an own website. Data security requires improvement, especially since the increase of electronic data exchange brings rapid growth of risks.

From the survey results the conclusion is drawn that there is a need to further support the ICT development within the SME sector by increasing the awareness as well as developing skills and triggering the investments in hardware and software by attractive programmes.

There are different development measures started in order to improve the ICT level in the region. Currently run EU financed ICT projects are from the programming period 2003-2006. They are co-financed from Integrated Regional Development Operation Program (ZPORR) action line1.5: IST. There is in general 16 projects with value of 27 mln PLN. Several of them are local projects (type: e-city, e-county, e –commune projects) with value of 15 mln PLN. There are also 2 regional projects with the value of 5.6 mln zł. The key projects are: e-UW, Pomorskie Gateway, ELEDOPIS, EOD, EMPES.

[78] Koniunktura gospodarcza. Usługi. Czerwiec 2007. nr 6/2007, Główny Urząd Statystyczny, Warszawa, 2007.

In the programming period 2007 – 2013 the main focus should be to provide ICT trainings aligned with specific business needs and increase awareness how certain SME business process could be effectively supported by ICT solutions affordable by SME companies. Besides awareness there is also funding support needed. The partners participating in the LogOn Baltic Expert Interviews stated that ICT and logistics awareness & competencies are needed in the local authorities and development agencies to help them to recognize their role in the logistics and ICT development in the region.

7 HUMAN KNOWLEDGE BASE

7.1 Professions and their qualifications

Poland has got whole country, unified education systems consisting of pre-higher education and higher education. There are the following levels of education:

- Pre-higher education with the 11 year duration of compulsory education:
- Primary School (Szkola Podstawowa)
  Length of program in years: 6; Age level from: 7 to: 13;
  Certificate/diploma awarded: Certificate of Completion of Primary School Education
- Lower Secondary: Gimnasium (Gimnazjum)
  Length of program in years: 3; Age level from: 13 to: 16
  Certificate/diploma awarded: Certificate of Completion of Education in the Gymnasium
- Technical Secondary: Technical Secondary School (Technikum)
  Length of program in years: 4; Age level from: 16 to: 20
  Certificate/diploma awarded: Certificate of Completion of Education in the Technical Secondary School
- Upper Secondary: General Lyceum (Liceum Ogólnokształcące)
  Length of program in years: 3; Age level from: 16 to: 19
  Certificate/diploma awarded: Maturity Certificate of the General Lyceum or Certificate of Completion of Education in the General Lyceum
- Vocational Secondary: Basic Vocational School
  Length of program in years: 3; Age level from: 16 to: 19
  Certificate/diploma awarded: Certificate of Completion of Education in the Basic Vocational School
- Vocational Secondary: Specialized Lyceum (Liceum Profilowane)
  Length of program in years: 3; Age level from: 16 to: 19
  Certificate/diploma awarded: Maturity Certificate of the Specialized Liceum) or Certificate of Completion of Education in the Specialized Lyceum

Pupils are admitted to secondary schools on the basis of entrance examinations. Schools implement the syllabus approved by the Minister of National Education. Secondary schools prepare for higher education and the Maturity Certificate is required to enter higher education universities and academies. Pupils have also an alternative to enter Post - secondary Vocational School with 1 up to 2.5 year program and could be awarded with the certificate: Dyplom Technika/ Technician Diploma.

- Higher education with the Bologne system consisting of two steps:
- 3 years bachelor level
- 2 year master level

There are the following types of higher schools in Poland:

- Universities
- Technical Universities,
- Medical Academies,
- Agricultural Academies,
- Economical Academies,
- Higher Teacher Education Schools,
- Academies of Music, Fine Arts,Theatre and Cinematography,
- Academies of Physical Education,
- Theological Academies,
- Merchant Marine Academies,
- Military Schools,
- School of Police),
- State Schools of Higher Vocational Education,
- Non-Public Higher Schools,
- Non-state Schools of Higher Vocational Education.

The starting point of the working life for young people who do not want to study at higher education schools are:

- finish of the Basic Vocational School with the Certificate of Completion of Education in the Basic Vocational School
- finish of the Specialized Lyceum with Maturity Certificate of the Specialized Liceum or Certificate of Completion of Education in the Specialized Lyceum
- finish of the Post - secondary Vocational School with the certificate: Technician Diploma.

The starting point of the working life for young people who study at higher education schools is:

- finish the first level (bachelor) higher education,
- finish the second level (master) higher education.

The universities offer also post graduate studies, Master of Business Administration studies and doctoral studies.

Besides the schools and universities education there are a lot of different courses and trainings available on the market including training and certificates such as: APICS, ELA, FIATA.

7.1.1 Professions and qualifications in logistics

In general logistics is treated as multidiscipline science and it is a very new subject for Polish educational system. Before the political and economy transformation in 90's logistics were only known in military education and practice. Logistics did not exist in non-military education till early 90's in Poland. The universities educated in the subjects of transport economics, transport management. First logistics appear at universities only as single subjects within the programmes of faculties of economics, then also within the programmes of technical universities at the departments of transport. The next step was to offer students a transport and logistics specialization at the master level. Only this year (summer 2007) the Ministry of Higher Education formally announced Logistics as a field of study. The ministry also defined the education standards for education in the field: logistics in the document: Standardy kształcenia dla kierunku studiów: Logistyka[79]. Also only recently the secondary and post-secondary schools started include logistics in their education and there is a new possibility to be awarded with the Post - secondary Vocational School certificate: Logistics Technician Diploma.

As a consequence of the history there is a significant demand from the market for professionals with the logistics education and obviously there is a significant demand for logistics education. For example the most often chosen specialization at the faculty of economics at the universities is logistics and transport. Currently every type of higher education school including economical, technical, technological, military, agricultural considers opening or already opened new field of education in logistics. There is a big boom for logistics education and many non-public schools earns a lot of money on the logistics education at the post-secondary, bachelor, master and post graduate levels.

[79] http://www.nauka.gov.pl/mn/_gAllery/17/08/17087/LOGISTYKA.pdf

At this moment the available resources on the market are people with the higher education with specializations in: transport, logistics, maritime trade, e-business.

In Poland there is a group of so called law regulated professions that required state controlled certificates, specifically in the area of logistics those professions are:[80]

- air transport related (full list available at: http://www.buwiwm.edu.pl/eu/public/db/?fullinfo=true&profisn=2),
- customs agent,
- customs officer,
- driver (car, track, tram, train, underground train, fork lift),
- transport engineer (rail related),
- railway related (full list available at: http://www.buwiwm.edu.pl/eu/public/db/?fullinfo=true&profisn=109),
- sea transport related (full list available at:
- http://www.buwiwm.edu.pl/eu/public/db/?fullinfo=true&profisn=99)

7.1.2 Professions and qualifications in ICT

The education in information technologies starts in the primary schools and it is continued in the secondary schools. At the secondary school level the pupils at the specialized lyceums as well as the post-secondary schools have the opportunity to choose the information science as a specialization of their education. There an information technologies technician certificate for the alumni of the post-secondary schools.

Within the higher education the information science / computer science exist as formal fields of education. The students are offered bachelor, master and engineer certificates at the universities and technical universities. There is a wide range of specializations preparing students for different types of jobs related to information technologies e.g. network administration, programming, webmaster etc. The education standards for education in the field: information science / computer science are described in the ministry document: Standardy kształcenia dla kierunku studiów: Informatyka.[81] However the information technologies specialist profession is not included in the law regulated, state controlled profession's list. There are no specific

[80] http://www.buwiwm.edu.pl/eu/public/
[81] http://www.bip.nauka.gov.pl/_gAllery/23/62/2362/45_informatyka.pdf

standards describing the scope of the profession as well as the minimum requirements.

Additionally there is a very dynamic development of e-business, e-commerce specializations offered to students as part of the field of education: economics.

In Poland there are two organizations dedicated for ICT professionals: The Polish Chamber of Information Technology and Telecommunications and The Polish Information Processing Society. The Polish Information Processing Society (PIPS) is a Warsaw-based, nation-wide association. Members of the Society, are individuals who have graduated from a computer-sciences or a related faculty or have a degree in information technologies or their applications, also any other college or secondary-school graduates whose occupation, for at least 3 consecutive years preceding admission to the Society, was closely related with information technology, as well as students at computer-sciences or related faculties, third year of studies or higher. The members' background is mostly that of higher-education and research institutions all over the country, also manufacturing industries and public administration. At present, the Society s membership includes approximately 1,200 IT specialists nation-wide.

In Poland there is also IT Promotion Center and IT Development Club e-@dministracja providing courses and publication for IT specialist with a specific focus for network administrators and IT specialists working for the government and local authorities' administration.

Polish IT professionals are highly valued all over the world and there is a significant emigration. Many IT professionals hold international certificates such as: European Computer Driving Licence (ECDL) and European Certification of Informatics Professionals (EUCIP) issued by The Council of European Professional Informatics Societies (CEPIS).

7.2 Education and training

The last decade has seen a constant increase in levels of academic and secondary education. The high level of skills gives a great advantage to the Pomorskie Voivodeship. The number of academy and secondary school graduates is higher than the national average. While Pomorskie's education structure is good in comparison to the rest of Poland, more than half of the population still has no more than a

primary or vocational education. Rural communities in particular tend to have lower skills, which is significant barrier to their development.

The region's education system has a well developed network of secondary schools, with some of the country's top schools located here. Higher education is mainly available in the Tri-City area, with Słupsk as the second largest academic centre. The presence of high schools which are country-wide respected makes the Pomorskie Voivodeship a top-ranking academic centre.

In recent years, in a bid to meet increased demand, the region's major cities have established new schools or opened branches of existing schools. Access to higher education has improved significantly, which is particularly important for areas with high unemployment. There are academic centres in, among others, Kwidzyn, Wejherowo, Tczew, Malbork, Pelplin, Skórcz, Człuchow, Chojnice, Starogard Gdański and Ustka. However there are some "black spots" remain in the central and western parts of the region.

The positive development of the academic education system in Pomorskie's means that the range of courses available is both wise and constantly expanding. However, more places for students are needed to meet the increasing demand and the increasing number of academies is not always a guarantee of increasing quality in education.

The high numbers of unemployed secondary school leavers suggests that secondary education policy at all levels should be revised. Because of difficult labour market conditions, the adult education market is rapidly developing. [82]

How does Pomorskie compare to the other Polish voivodeships:[83]

- When it comes to number of students Pomorskie is the eighth largest academic centre;
- Second in terms of university graduates (after Mazowieckie region);

Pomerania has three large, public universities which ensure well educated graduates with common and specialized knowledge.

University of Gdańsk: with almost 33,000 students in the nine faculties and 1,700 academic staff members the University of Gdańsk is the largest institute of higher education in the Pomeranian region University of Gdańsk adjusted the study system into The Bologna

[82] Office of the Marshal: The Pomorskie Voivodeship Development Strategy 2020, Gdańsk 2005, p. 34-35.
[83] Ibid

system to comply with other European Union universities.[84] The full list of faculties of the Gdańsk University is provided in the Appendix 4.

The Gdansk University of Technology is the oldest and the largest scientific and technological academic institution in Pomerania region, employing 2,500 staff including 1,200 academics. The number of students approximates 20,000, most of them studying full-time. The Gdansk University of Technology also implemented The Bologna system.[85] The full list of faculties at the Gdańsk University of Technology is provided in the Appendix 4.

Gdynia Maritime University was founded in 1920. GMU employs 390 academics, the number of students approximates over 8,000 in the six faculties – the full list is provided in Appendix 4:[86]

Besides the above mentioned higher education institutions there are others localized in the region. The below table presents numbers of students and graduates of Pomorskie Voivodeship universities in 2005.

Table 6 Students and graduates of Pomorskie universities in 2005. (Source: Memorandum Of The Gdańsk Metropolitan Area, Gdańsk 2006)

UNIVERSITIES	Students	Graduates
Overall	**97861**	**18769**
University of Gdańsk	29311	5582
Gdańsk University of Technology	17634	2168
Economic universities and colleges	9247	1931
Medical University of Gdańsk	4192	655
Gdynia Maritime University	7607	1790
Pomeranian Pedagogical University, Słupsk	8129	2846
Physical education universities	4106	817
Art universities and colleges	1472	256
Vocational colleges	12149	1322
Others	4014	1402

The regional profile of labour skills is partly reflected in the profile of the specialisation fields of the graduates. Base on the 2005/2006 academic year graduates profile, the following fields of knowledge were represented most often:[87]

- Management and marketing 2702 graduates

[84] http://www.ug.gda.pl
[85] http://www.pg.gda.pl
[86] http://am.gdynia.pl
[87] Memorandum Of The Gdańsk Metropolitan Area, Gdańsk 2006

- Finance, banking, accountancy 1401 graduates
- Medicine 655 graduates
- Economy 649 graduates
- Law and administration 545 graduates
- Information technology, econometrics 392 graduates

The education level influences the unemployment rate structure in the region – see the below graph.

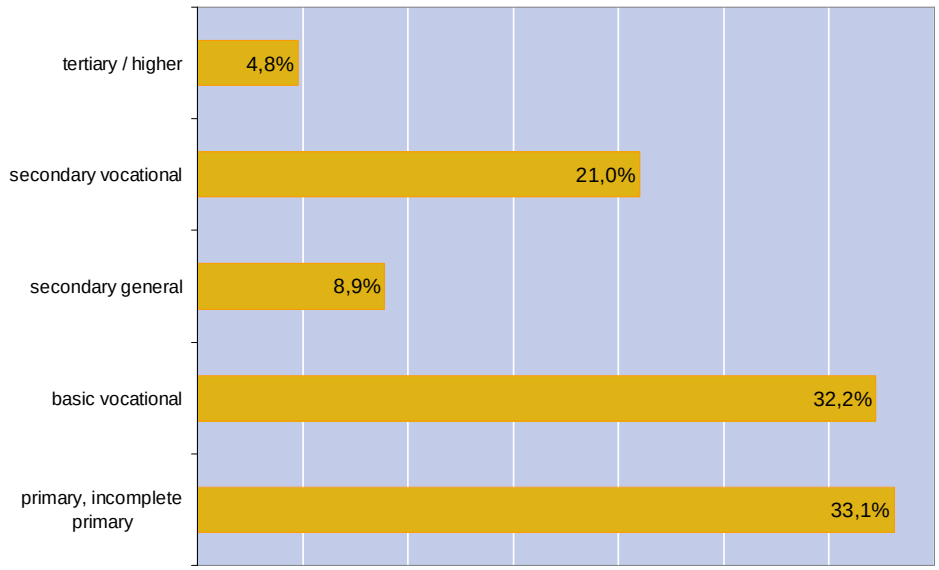

Figure 27 Unemployment structure by education in the Pomorskie Voivodship - data as of December 2006. (Source: http://www.paiz.gov.pl/)

7.3 Development and outlook

The strength of Poland is that in coming future there will be a lot of human resources available on the market with the logistics education due to the earlier described boom. Particularly Pomerania has got the advantageous situation due to the fact there is a high number of higher education schools and universities and most of the offers logistics education. The University of Gdańsk, Technical University of Gdańsk and The Maritime Academy in Gdynia have got teams of researchers and lecturers focusing on logistics since many years ago.

However as it was explained in paragraph 7.1.1 the logistics education, in general, is very “young” in Poland. It also means there is

lack of good brand programmes. The academia researchers and lecturers often raise the question about the quality and the need to further develop the standards of logistics education. There were researches performed and publications published focused on the market requirements regarding the knowledge, competencies, experiences of logistics professionals:

- G.Hat-Garncarz,E.Janowska-Bucka: Oczekiwania i wymagania pracodawców wobec logistyków,Przegląd Komunikacyjny nr 9/2007
- D.Kisperska-Moroń: Zarządzanie łańcuchami i sieciami dostaw jako nowe wyzwanie dla edukacji menedżerów logistyki. Logistyka nr 4/2006,
- L.Bukowski:Edukacja logistyczna powinna być dedykowana praktyce. Logistyka nr 4/2006,
- A.Trzuskawska at all: Oczekiwania rynku dotyczące: wiedzy, umiejętności, doświadczenia absolwentów szkół wyższych
  z wykształceniem w zawodzie logistyk, materiał konferencyjny UG.

The outcomes of the above pointed that the actual education was far remote from the market requirements. The universities are not focused to “produce” professionals they are focused on science not practice. The education programmes do not include elements of internship for students.

During the VIII Logistics Conference: “Modeling Logistics Processes and Systems” on the 7th Dec 2007 at the University of Gdańśk, Prof. D.Kisperska-Moroń lead a discussion panel regarding the education system. The conclusions were:

- the ELA education model could be a reference model to organize the Polish logistics education system,
- the Polish Logistics Associations should consider a initiative to organize the Polish logistics education system.

The education in ICT has got longer tradition and engineering overall in Poland has got very good traditions. So the level of higher education in general meets the market requirements however the ICT professionals can not finish their education when leaving universities. The ICT develops dynamically and requires continuous, permanent education.

As it was shown in the results of ICT and Logistics Surveys the level of ICT usage by business is very low. Therefore the focus in ICT

education should be also directed into other fields of education and into all levels of education in other to increase the ICT awareness.

8 REGIONAL LOGISTICS AND ICT COMPETENCE

8.1 Analysis of strengths and weaknesses

In this section, the results of the expert interviews regarding strengths and weaknesses of the region are presented.[88] The experts were asked where they see strengths and weaknesses with respect to logistics and ICT in the Pomorskie Voivodship.

Table 7 Strengths and weaknesses of the region

Strengths of the region	Weaknesses of the region
The economical potential of the Tri-Cities agglomeration: • the sea ports in Gdańsk and Gdynia, • the airport in Gdańsk and a new one planned in Gdynia • the number of inhabitants, businesses and universities, • economy growth. **The geographical location**, cross road of the main transportation corridors: North-South East – West.	Poor transport and logistic infrastructure: • lack of motorway connection with the rest of Poland, • lack of the city ring connections with the sea ports in Gdańsk and Gdynia (except the city congested streets), • lack of warehouses with specialized features and advanced logistic services, • very low quality of roads and streets, very congested, • lack of city rings (except Tri-city) e.g. Pruszcz Gdański and lack of the bridge connecting Kwidzyn

[88] A.Trzuskawska: Expert interviews in Pomerania. Results and Analysis of the intersectoral expert interview in the field of logistics and ICT, LogOn Baltic Regional Report, 46:2007

Strengths of the region	Weaknesses of the region
Investments in software companies, • strong job market for software developers, • universities providing resources for labs and ICT research & development	Poor long term horizon, strategic planning + execution for transport system, Remote from main Polish consumer centres, • 2/3 of Polish consumers lives 350 and more km from Tri-City, Lack of advanced, ICT supported logistic services Relatively low logistics / ICT usage, • lack of awareness, • too high cost, • lack of experienced resources, • lack of electronic signature, • low usage of ICT for business management purposes.

The most often mentioned strength of the region by the interviewed experts was the economical potential of the Tri-City agglomeration. In the Pomorskie Voivodship is know as one of the most business active region there are more than 100 enterprises registered per 10 000 population. A very strong entrepreneurial activity in the region is linked with a strong SME sector. Most businesses are located in and around the region's main cities, especially the Tri-City. The economical potential of the region is also related to the population of 2.2 million (5.7% of the population of Poland) and almost a half of the inhabitants live in and around the agglomeration.[89] Pomerania is 7th largest population number among sixteen polish provinces.

The Tri-City agglomeration creates attractive condition for business, particularly in the services sector, due to the presence and development of sea ports in Gdańsk and Gdynia as well as the airport in Gdańsk and potentially developed in Gdynia. The seaports of Gdańsk and Gdynia are the main operators of multimode transport

[89] http://www.wrotapomorza.pl/en/invitation

and specialist port services, related to the chemicals industry (crude oil, fertilisers and sulphur) and the metallurgical industry (shipyards and exports of steel products).

The region is ranked as one of the most highly-industrialised provinces[90], c.a. 70%[91]. The region has traditional industries and advanced technologies (teleinformatics, chemicals, finance and insurance). The strongest industries (shipbuilding, refinery and paper) are represented by single, large enterprises. The service sector is also well developed, especially in tourism, finance and insurance. Alongside the traditional industries is the hi-tech industry with its fast growing ICT and IT sectors. Pharmaceutical and cosmetic industries are booming. The universities and research centres in Tri-City are a major contributor to the development of hi-tech industries.

The expert also pointed that Pomeranian region economic strengths is created by the advantageous geographical location due to the fact that the Pomorskie Voivodship is situated in the North of Poland, providing access for Polish industry and trade to the South part of the Baltic Sea shore via the sea ports. Additionally the region is situated on the cross road of the main transportation corridors from North to South and from West to East creating a bridge leading from the Baltic into Central Europe.

This advantageous location of the region does not bring the expected competitive advantage. According to the interviewed experts the biggest weakness of the region is the existing transport infrastructure that ranks Pomerania region in the group of the lowest transport accessibility regions in Poland[92] according to the research performed in 2005 by The Gdańsk Institute for Market Economics the Pomerania region. The geographical location of the region is also considered as a disadvantage due to the fact the region is remote from the main Polish consumer population centres in the Centre and South of Poland. Two thirds of Polish population lives in the Central and South part of Poland, more than 350 km up to 700 km away from Pomerania.

The next most often mentioned weakness by experts is lack of modern warehouses and companies offering advanced logistic

[90] Województwo pomorskie – gospodarka, Agencja Reklamowo-Wydawnicza S.c., Bydgoszcz 2000, p. 4.
[91] The Province of Pomerania, Pomerania Development Agency Co., 5xmedia, Gdańsk 2003, p. 8.
[92] T.Kalinowski: Atrakcyjność inwestycyjna Województw i podregionów polski 2005. IBnGR, Gdańsk 2005, p. 55.

services. Freight forwarders and logistics operators complain about shortages of warehouse space for their customers' goods.

The above table also specifies the reasons for low usage of ICT in business processes and in logistics in particular. The situation is definitely a weakness of the region according to the experts.

Table 8 Opportunities and threats for the region

Opportunities of the region	Threats of the region
Globalization and EU enlargement: • growing trade volumes, • outsourcing into local companies, • dynamic economy growth in Poland, EU funds • driving strategic and critical developments: A1, sea and air ports, Foreign investments • creating demand for materials and human resources, • developing logistic infrastructure, • bringing know-how. **Euro 2012** (football European Championship) • attracting investors, • infrastructure and services development (e.g. hotels, restaurants etc.), • creating significant demand for all kinds resources (including human resources), • promotion of the region.	Competing regions: • dynamic development of alternative logistic centres and services in other regions, Low investment attractiveness due to poor accessibility, • lack of road infrastructure, • relatively low attractiveness of railway, air and sea connections, Emigration of young, educated people, • lack of resources on the market, Political changes • lack of development strategy and policy continuity, • risk for business e.g. slowed down legislations, too many law changes,

The LogOn Baltic Expert Interview's partners were asked about trends in logistics and ICT. The analysis of the answers helped to define the opportunities and threats for the Pomorskie Voivodship. The biggest opportunities are related to the fact that Poland joined European Union what results in:

- Economy growth,
- UE funds
- Implementation of structures and procedures promoting development of regions e.g. Regional Operation Program for 2007-2013 has got budget of 885.1 mln Euro.

The booming economy drives local and foreign investments. There are many government, local authorities and private developments such as new manufacturing, logistics plants, wholesale and retail centres. The demanded but very competitive market requires from business higher speed and quality of performance therefore the companies are forced to develop new, more advanced logistic processes and systems.

All the experts mentioned the trends created by the fact that Poland had been awarded as the organizer of European Football Championship - Euro 2012. This brings obligations to Poland to build required infrastructure to support the stadiums, the football teams and the spectators. Being an organizer of Euro 2012 brings tremendous opportunities for Polish business and the region.

8.2 Analysis of the region needs

The development needs of the Pomorskie Voivodship region are defined base on the SWOT analysis. This section answers how to further develop the defined strengths, take advantage of the opportunities, and to overcome the weaknesses and the threats. The following needs were identified and suggestions for improvement were made by the interviewed experts

8.2.1 The transportation and logistics infrastructure

In order to build on the strength related to economic potential of the region and overcome the weakness related to transport infrastructure it is important to take the opportunity of EU funds and Euro 2012 as well as the EU development programmes experts who could help with the strategic planning. The need for the construction of A1 motorway and

connections into it definitely was the first priority for all the experts. Some of the experts also added the requirement for the road connections between the see ports in Gdynia and Gdańsk and the motorway. The expert from Kwidzyn underlined the need for the bridge over Vistula to give access to and from the city. The expert from Pruszcz Gdański underlined the need to build the city ring.

Many of the experts also mentioned the expectation to reduce the traffic in the Tri-Cities and other cities of the region. The trade company's expert stressed the need to build a new railway connection between the airport and the Gdańsk centre due to the fact most of the new house estates were constructed outside of the Tri-City ring but there was no long term solution to assure the right level capacity transportation solution.

There was also a lot of focus on the recommendations for a further development of the see ports in order to meet the demand and maximize transit to South of Europe. Five experts pointed the need for creation of public logistic centres in ports (e.g. the project of the Logistics Center in the Port of Gdynia), close to container terminals and the motorway (e.g. the project of the Baltic Investment Zone in Pruszcz Gdański).

8.2.2 ICT usage development

Base on the expert interview responses the opportunity related to the economy growth in Poland and Pomerania, as well as development of business in this region drive growing demand for logistic services as well as requirements for developments of logistic processes and systems base on ITC. The positive trends are slowed down by very low usage of ICT which is a weakness and threat.

The answers regarding the trends in ICT show that the Internet and software business applications are required for companies and people to survive in today's market. However, despite the fact software development centres are present in Pomerania, still Polish companies are not building their competitive advantage based on an active usage of ICT solutions in running their businesses. Therefore there is a need to continue and speed up ICT projects that create friendly business environment (a specially the A2B, A2C interfaces). The experts recommended stimulating the improvements in ICT awareness of the society by encouraging and training people to use the e-office

application, assuring free access to Internet plus support the Internet development by public orders.

8.2.3 Other needs

The experts also expressed the needs of the region related to the policy, authorities and organizations. There is a need of more active in cooperation between the development agencies and business including clear dedicated information and support for Polish companies in building business relations with companies in BSR. Additionally business does not assess well the competencies of the local authorities and support agencies. In many cases there are no contacts with the agencies and the agency itself does not recognize its role in logistics development activities. 70% of the experts stated they did not know any support or policy of local authorities regarding logistics nor ICT.

It is necessary to continue networking and information exchange among the actors. One way of sharing knowledge and leveraging different types of measures, would be to include a databank on development efforts in this region in the Internet. In the Pomorskie Voivodship there is a data base: Pomorskie Partner Search Forum (Pomorska Baza Projektów) being created recently. It is focused limited number of EU projects only but there is not a consolidated source of information where all regional development measures – regardless what is the source of financing – could be found.

There was also an expectation expressed that the government, local authorities and support agencies provide more support for the development of the see and ports economy and related industries.

In relation to the weaknesses of the region and required trainings there was policy recommendation for having trained resources in logic coordination of spatial development plans and investments. Besides training there is also a need for long term development plans not destroyed by frequent (4 year) political changes in the local authorities.

There is also a need for grounds available for investors supplied with basic infrastructure such as electricity, water and gas. The experts see a role for the local authorities to prepare such an infrastructure in order to drive the regional development. Particularly there is a need for investments in modern logistic centres. The experts stressed the policy recommendation for maximizing ppp.

9 LOGON BALTIC INITIATIVES

9.1 Regional LogOn Baltic initiatives

The partner of the LogOn Baltic Project in Pomorskie Voivodship is the City of Pruszcz Gdański. In line with:

- the pointed weaknesses related to the lack of logistic infrastructure in region,
- the DEMIA workshop experts opinion and also the secondary research data pointing Pruszcz Gdański as an optimum localization for logistic / distribution centre type businesses,
- the experts recommendation to engage local authorities in creating investor friendly grounds supplied with basic infrastructure

there has been an initiative to create The Baltic Investment Zone (Bałtycka Strefa Inwestycyjna).

Pruszcz Gdański has been chosen already by companies who localized their modern logistic centres (e.g. LIDL, LPP, Poczta Polska, Rabat Pomorze, Investa, Romex Cargo Service) what confirms the strengths and opportunities of this sub-region related to this type of business activities but there are further needs to further develop the basic infrastructure.

As part of LogOn Baltic activities there were two studies performed to prepare The Baltic Investment Zone Project implementation. The feasibility and environment impacts studies are ready at the end of LogOn Baltic Project and will be used as a starting point to the second part of the initiative.

9.2 Links to the LogOn Baltic project

The LogOn Baltic DEMIA workshop gathered experts representing business, local authorities and development agency. The meeting was a great occasion for exchanging experience and knowledge but also few ideas and initiatives were created during the meeting.

One of the key initiatives that is currently being developed in the region, under the Pomerania Development Agency management, is a project called “Logistic Pomerania”. The idea proposes a consolidation of resources and efforts in promoting the region for investors as the right place to develop logistic services. The objective is to assure financing and development of started measures and future potential measures. The first stakeholders of the projects are the organization most interested in gaining investors interests:

- Port of Gdynia who plans to develop the logistics centre,
- Port of Gdańśk who plans to develop logistic centre,
- The City of Pruszcz Gdański who plans to develop the Baltic Investment Zone,

and Pomerania Development Agency who is responsible for the regional development.

The LogOn Baltic partners’ network is currently used in order to check if the “Logistic Pomerania” project could be realized together with any of neighbourhood partner from the BSR region.

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APPENDIX 1

Table: Public sector support organizations in Pomerania region

Name	Description – type of support
The Polish Agency for Enterprise Development (PAED)	(PAED) is a governmental agency subordinate to the Minister of the Economy. Its task is the management of funds assigned from the State Budget and European Union for the support of entrepreneurship and the development of human resources, with particular consideration given to the needs of small and mediumsized enterprises (SMEs). The objective of the Agency is the implementation of economy development programmes, in particular with respect to the support of: • SME development, • Export development, • Regional development, • Application of new techniques and technologies, • Creation of new jobs, tackling unemployment and human resources development.
The Polish Information and Foreign Investment Agency (PAIiIZ)	PAIiIZ exists to increase the inflow of foreign direct investment (FDI) by encouraging foreign corporations to invest in Poland. It serves to help them deal with all the administrative and legal procedures encountered during the investment process. PAIiIZ is creating a net of Regional Investor Assistance Centres (Regionalne Centra Obsługi Inwestora - COI) around Poland that will serve to improve the quality of investor's services in the regions, along with providing access to the latest information such as up-to-date investment offers and regional microeconomic data. These specialised offices, financed by the regional authorities, and employing staff trained by PAIiIZ, also serve as links

Name	Description – type of support
	between the investor and the local authorities. PAIiIZ can help the enterpises with the following:[93] • identification of potential business properties • liasoning with national, regional and local institutions • obtaining investment incentives • identification of a potential supplier • handling of investment incentives • assistance exploring new markets and creating partnerships for export growth • post-investment care • coordination of the negotiation process with 'large investors
Pomerania Development Agency Co.	SMEs assistance • offering advice on successful applying for EU grants • informing about EU Structural Funds and regulations of conducting business activities • organizing and hosting business missions • initiating and participating in regional projects focused on aimed at entrepreneurship development • monitoring Pomeranian SMEs sector Local authorities assistance • training specialists in successful EU funds obtaining and project management • providing assistance in obtaining external financing sources: preparing application forms and feasibility studies • advising on with investment offers and promotion • contacting with potential investors Investors assistance • informing about the economy of the region and available incentives • maintaining the database of the investment offers • assistance in finding business partners • organizing investors' visits to the region[94]

[93] http://www.paiz.gov.pl/

Name	Description – type of support
Investor Information Center	COII is the regional partner of Foreign Investment Agency (PAIiIZ). It operates on the territory of Pomorskie Voivodeship, within the structures of Pomerania Development Agency, on a non-profit basis. • maintaining the database of Pomeranian investment offers • promoting investment opportunities of Pomeranian gminas • preparing reports and studies about regional economy and society • informing about legal framework of conducting business activity in Poland and available incentives and support • contacting foreign entrepreneurs with potential business partners • organizing foreign investors' visits to the region • organizing and hosting business missions[95]
Regional Financing Institution	The Regional Financial Institution (RIF) is the biggest department of Pomerania Development Agency Co. RIF was established in 2002 following an agreement signed by the Pomerania Development Agency Co. and the Polish Agency for Enterprise Development (PARP). As a regional partner for PARP, cooperating with Pomeranian Voivodeship Self Government, the Regional Financing Institution manages and administrates EU programmes for micro, small and medium sized enterprises (SME), self governmental bodies, higher schools of education and institutions in the business environment. RIF accepts, verifies and assesses applications submitted under Structural Fund assistance programmes, discharging funds in case of some programmes.
Pomeranian Regional Development	PRDE (in Polish: PARR S.A) initiates, promotes and supports all types initiatives dedicated to wide scope of regional development. PRED is an administrator of

[94] http://www.arp.gda.pl/
[95] http://www.arp.gda.pl/

Name	Description – type of support
Agency (PRDE S.A.).	Słupsk Special informs and consults enterprices, local self-goverments, farmers and other organizations. PRDE applies for funds (including EU funds), realizes projects and help to gain funds by different institutions. PRDE projects influence the promotion of the region, support for creation of SMEs and development of the existing enterprises.[96]
Słupsk Special Economic Zone	Słupsk Special Economic Zone is administrated by the Pomeranian Regional Development Agency (PRDE S.A.). The principal role of PRDE S.A. as the zone administrator is to undertake all necessary actions aimed at managing and developing the zone. Some of the most essential responsibilities of the administrator are:[97] • securing access to the technical infrastructure for investors by developing existing structure and building new ones, • conducting all necessary legal procedures connected with opening a business in the Zone, • providing assistance in planning investments (issuing the necessary documents concerning the regulations for the developing of the property, giving permissions for general constraction, finding sub-contractors for: preparing technical designs, construction supervision, building infrastructure and other types of construction etc.), • providing assistance to foreigners (or companies controlled by foreigners) who are in the process of applying for permission (from the Ministry of the Interior and the Administration) allowing them to purchase property or shares, • promoting investments in the Zone among Polish and foreign entrepreneurs, • many years of experience and partnership between PRDA S.A. and the national government, local governments, job centres,

[96] http://www.parr.slupsk.pl/
[97] http://www.sse.slupsk.pl/

Name	Description – type of support
	training centres, educational centres and notary offices allow the Agency to provide investors with thorough business consulting and assistance.
The Pomeranian Special Economic Zone (PSEZ)	The Manager of the Zone is the Pomeranian Special Economic Zone limited liability company with its headquarter in Sopot. PSEZ encourages to invest on the territories characterized by attractive industrial localizations in the rural districts of Krokowa, Gniewino, Chojnice, Czluchów, Łysomice and Tczew and in the municipalities of Gdansk,Tczew, Kwidzyn, Starogard Gdanski, Malbork, Sztum and Stargard Szczecinski. The territories of our Zone are located in the areas with rich industrial traditions, well developed and complex transport infrastructure as concerns the sea, railway, road and air transport.[98]
Gdansk Science and Technology Park	Part of the PSEZ structures playing the following functions: • High-tech Start-ups Incubator, • Technology Transfer centre, • Centre for Advanced Technologies, • Conference and Training centre, • A small hotel for researchers, • PSEZ office.
Cooperation Fund -Euro info	Information Centre financed by Phare (Cooperation Fund)
Polish Agency for Regional Development	Government agency established in order to support 'risk' regions; implementation of STRUDER Programme and the Polish-Swiss Regional Programme
Agency for Industrial Development	Joint stock company created by the Government (State Treasury), Scientific Research Committee (KBN), supervized by the Ministry of Industry and Trade
Cooperation Fund	Foundation - assists the minister responsible for coordination of foreign assistance - implementation of

[98] http://www.strefa.gda.pl/

Name	Description – type of support
Programmes, Local Initiatives Programme (LIP)	Phare programmes (SME, PSD, LIP)
Polish Foundation for SME Promotion and Development	The foundation (registered on 5 September 1995) will form the key agency for the support and development of the Polish SME sector, policy towards the SME sector, lobbying; continuation of the SME/PSD PHARE Programmes, PSD Programme - Ministry Component (local mutual guarantee funds and other schemes), designing new programmes
Agency for Development of SME	Company established by Industrial Development Agency, managing Subcontracting Agencies Network (SAKK)
Euro Info Centre	Gdańsk Euro Info Centre PL415 belongs to a network of about 300 Euro Info Centres located in all countries of Western and Central Europe. This network operates under the auspices of the European Commission (Enterprise and Industry Directorate General) which co-ordinates, manages and co-finances the Euro Info Centres. Euro Info Centres inform, advise and assist small and medium-sized enterprises in all European Union matters. They answer questions, organize seminars, publish bulletins and guides. Euro Info Centres provide enterprises with information and advice on European regulations, public procurement, European programs and financing, searching for partners and many other EU-related matters. Euro Info Centres are hosted by local organisations such as Chambers of Commerce, development agencies etc. and operate close to the small and medium-sized enterprises in their region.[99]

[99] http://www.euroinfo.gda.pl/

APPENDIX 2

Institutions supporting business development in Pomerania region:[100]

- Business Centre Club - Gdańsk Lodge
- Gdańsk Business Club
- Gdańsk Employers Union
- Institute for Market Economics
- Cotton Chamber in Gdynia
- Polish Amber Chamber
- Polish Chamber of Maritime Economy
- Gdańsk International Fairs S.A.
- Dutch - Polish Chamber of Commerce
- Polish Chamber of Clothing and Textiles
- Polish Chamber of Forwarding and Logistics
- Polish-Swedish Chamber of Commerce
- Pomeranian Chamber of Crafts and Small and Medium Size
- Pomeranian Employers Organisation
- Agency Office of Schlezwig-Holstein
- Pomeranian Regional Economic Parlament
- 'Free Enterprise' Association, Field Branch in Gdańsk
- Technology Transfer Centre Association
- Pomeranian Association of Property Agents
- Swedish ENA Ltd. Office
- Trade Commission of Denmark

[100] http://www.gdansk.pl/en/

APPENDIX 3

The statistics and capabilities of the sea ports in Gdynia and Gdańsk are presented in the below tables:

Table i Cargo turnover in seaports: Gdańsk, Gdynia

CARGO TURNOVER IN SEAPORTS

WYSZCZEGÓLNIENIE	2000	2004	2005	2000	2004	2005	SPECIFICATION
	ogółem *total*			w tym międzynarodowy obrót morski *of which international sea turnover*			
	w tys. t *in thous. t*						
OGÓŁEM	**25137** [a]	**34809**	**36478**	**24879** [a]	**34464**	**36098**	***TOTAL***
w tym:							*of which:*
Gdańsk	16712	24078	24163	16471	23826	23851	*Gdańsk*
Gdynia	8397	10711	12294	8382	10631	12246	*Gdynia*
Węgiel i koks	7668	6996	7949	7657	6966	7946	*Coal and coke*
Rudy	86	48	36	86	48	36	*Ores*
Zboże	964	1347	1675	964	1332	1669	*Cereals*
Drewno	42	81	73	42	81	73	*Wood*
Ropa i przetwory naftowe	6185	12287	12242	5997	12104	12012	*Crude petroleum and petroleum products*
Inne masowe	4177	4383	4805	4174	4365	4788	*Other dry bulk*
w tym siarka	949	596	543	949	596	543	*of which sulphur*
Drobnica	6015	9667	9698	5959	9568	9574	*General cargoes*

a Bez portu Władysławowo.

a *Excluding Władysławowo port.*

Source: http://www.stat.gov.pl/

Table ii Containers in international sea turnover – Gdańsk, Gdynia

CONTAINERS IN INTERNATIONAL SEA TURNOVER

WYSZCZEGÓLNIENIE *SPECIFICATION* a – sztuki *units* b – TEU [1] *TEU* [1]		Ogółem *Grand total*	Z ładunkiem *With cargo*			Puste *In ballast*		
			razem *total*	wyładowane *unloaded*	załadowane *loaded*	razem *total*	wyładowane *unloaded*	załadowane *loaded*
2000	a	132910	99577	50242	49335	33333	14442	18891
	b	203486	154867	72460	82407	48619	25575	23044
2004	a	262832	200717	101636	99081	62115	28726	33389
	b	420976	324244	153257	170987	96732	54835	41897
2005	**a**	**293920**	**228102**	**117958**	**110144**	**65818**	**27654**	**38164**
	b	**470187**	**366482**	**178976**	**187506**	**103705**	**52475**	**51230**
porty morskie: *seaports:*								
Gdańsk	a	43101	30201	7859	22342	12900	5956	6944
	b	70022	49322	12120	37202	20700	11370	9330
Gdynia	a	250819	197901	110099	87802	52918	21698	31220
	b	400165	317160	166856	150304	83005	41105	41900

1 Liczba kontenerów w przeliczeniu na kontenery 20'.

1 *Number of containers calculated in containers 20'.*

Table iii Data regarding capabilities of the sea ports: Gdańsk, Gdynia

Port / terminal	Average cargo volume p.a	Quay length	Navigable depth	Absence of ice
Gdańsk	20 000 000 tons	10 000 m	15 m / 49,21 ft	12 month
Gdynia BCT	600 000 TEU	800 m	10,4 m (Max. draught)	12 month
Gdynia GCT	150 000 TEU	550 m	10,5 m (Max. draught)	12 month
Gdynia Ro-Ro	1 200 000 tons	1 600 m	9,1 m (Max. draught)	12 month

Port / terminal	Covered storage	Open storage	Refrigerated storage
Gdańsk	106 000 m^2	548,000 m^2	n/a
Gdynia BCT	25 000 m^2	18 000 TEU	n/a
Gdynia GCT	n/a	6000 TEU	n/a
Gdynia Ro-Ro	40 000 m2	40 000 m2 + 400 TEU	n/a

Port	Ferry berths	Ro-ro ramps	Rail connection
Gdańsk	2	3	Available
Gdynia	1	2	Available

Source: table created by the author base on: M.Karbowski: Investment of Port Gdynia regarding logistics development. InLoC Project Workshops, Poznań, 15-16.09.2005 and http://www.portgdansk.pl/o-porcie/

APPENDIX 4

Faculties at University of Gdańsk:

- The Faculty of Biology, Geography and Oceanology;
- The Faculty of Chemistry;
- The Faculty of Economics;
- The Faculty of Philology and History;
- The Faculty of Mathematics, Physics and Informatics;
- The Faculty of Social Sciences;
- The Faculty of Law and Administration;
- The Faculty of Management;
- Intercollegiate Faculty of Biotechnology UG and MUG (Medicine University of Gdańsk).

Faculties at Gdańśk University of Technology:

- Architecture;
- Civil and Environmental Engineering;
- Chemical Faculty;
- Electronics, Telecommunications and Informatics;
- Electrical and Control Engineering;
- Applied Physics and Mathematics;
- Mechanical Engineering;
- Ocean Engineering and Ship Technology;
- Management and Economics.

Faculties at Gdynia Maritime University:

- Faculty of Navigation;
- Faculty of Marine Engineering;
- Faculty of Marine Electrical Engineering;
- Faculty of Business Administration;
- Interfaculty of P.E. And athletics;
- Interfaculty of foreign languages;

LogOn Baltic Publications (as of 10.12.2007)

LogOn Baltic Master reports

1:2007 Developing Regions through Spatial Planning and Logistics & ICT competence - Final report
Wolfgang Kersten, Mareike Böger, Meike Schröder and Carolin Singer

2:2007 Analytical Framework for the LogOn Baltic Project
Eric Kron, Gunnar Prause and Anatoli Beifert

3:2007 Aggregated logistics survey report *(working title)*
Håkan Aronsson and Naveen Kumar

4:2007 Aggregated ICT survey report *(working title)*
Eric Kron and Gunnar Prause

5:2007 Aggregated Expert interview report *(working title)*
Matti Takalokastari

LogOn Baltic Regional reports

Development Measure Impact Analysis (DEMIA)

10:2007 REGIONAL DEVELOPMENT IN THE SOUTHERN METROPOLITAN REGION OF HAMBURG, GERMANY - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Janina Benecke, Jürgen Glaser and Rupert Seuthe

11:2007 REGIONAL DEVELOPMENT IN MECKLENBURG-VORPOMMERN, GERMANY - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Gertraud Klinkenberg

12:2007 REGIONAL DEVELOPMENT IN ESTONIA - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Jaak Kliimask

13:2007 REGIONAL DEVELOPMENT IN SOUTHWEST FINLAND - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Kaisa Alapartanen ja Heidi Leppimäki

14:2007 REGIONAL DEVELOPMENT IN LATVIA - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Riga City Council - Rode & Weiland Ltd.

15:2007 N/A

16:2007 REGIONAL DEVELOPMENT IN POMERANIA, POLAND (THE POMORSKIE VOIVODESHIP) - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Anna Trzuskawska

17:2007 REGIONAL DEVELOPMENT IN SAINT PETERSBURG, RUSSIA - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Mikhail Pimonenko

18:2007 REGIONAL DEVELOPMENT IN ÖSTERGÖTLAND, SWEDEN - Development Measure Impact Analysis (DEMIA) on regional development related to logistics and ICT
Håkan Aronsson and Staffan Eklind

ICT surveys

20:2007 ICT SURVEY IN THE SOUTHERN METROPOLITAN REGION OF HAMBURG, GERMANY
Wolfgang Kersten, Meike Schröder, Mareike Böger, Carolin Singer and Tomi Solakivi

21:2007 ICT SURVEY IN MECKLENBURG-VORPOMMERN, GERMANY
Eric Kron, Gunnar Prause and Tomi Solakivi

22:2007 ICT SURVEY IN ESTONIA
Seren Eilmann and Tomi Solakivi

23:2007 ICT SURVEY IN LATVIA
Riga City Council, Telematics and Logistics Institute Ltd. and Tomi Solakivi

24:2007 ICT SURVEY IN LITHUANIA
Darius Bazaras, Ramūnas Palšaitis and Tomi Solakivi

25:2007 ICT SURVEY IN SOUTHWEST FINLAND
Juha Läikkö and Tomi Solakivi

26:2007 ICT SURVEY IN POLAND
Anna Trzuskawska and Tomi Solakivi

27:2007 ICT SURVEY IN SAINT PETERSBURG, RUSSIA
Yuri Ardatov and Tomi Solakivi

28:2007 ICT SURVEY IN ÖSTERGOTLAND, SWEDEN
Naveen Kumar, Håkan Aronsson and Tomi Solakivi

Logistics surveys

30:2007 LOGISTICS SURVEY IN THE SOUTHERN METROPOLITAN REGION OF HAMBURG, GERMANY
Wolfgang Kersten, Mareike Böger, Meike Schröder, Carolin Singer and Tomi Solakivi

31:2007 LOGISTICS SURVEY IN MECKLENBURG-VORPOMMERN, GERMANY
Eric Kron, Gunnar Prause and Tomi Solakivi

32:2007 LOGISTICS SURVEY IN ESTONIA
Ain Kiisler and Tomi Solakivi

33:2007 LOGISTICS SURVEY IN LATVIA
Riga City Council, Telematics and Logistics Institute Ltd. and Tomi Solakivi

34:2007 LOGISTICS SURVEY IN LITHUANIA
Darius Bazaras, Ramūnas Palšaitis and and Tomi Solakivi

35:2007 LOGISTICS SURVEY IN SOUTHWEST FINLAND
Tomi Solakivi

36:2007 LOGISTICS SURVEY IN POMERIANIA, POLAND
Anna Trzuskawska and Tomi Solakivi

37:2007 LOGISTICS SURVEY IN SAINT PETERSBURG, RUSSIA
Valeri Lukinsky, Natalia Pletneva and Tomi Solakivi

38:2007 LOGISTICS SURVEY IN ÖSTERGÖTLAND, SWEDEN
Håkan Aronsson, Naveen Kumar and Tomi Solakivi

Expert interviews

40:2007 EXPERT INTERVIEWS IN THE SOUTHERN METROPOLITAN REGION OF HAMBURG, GERMANY - Results and analysis of the intersectoral expert interviews in the field of logistics and ICT
Wolfgang Kersten, Meike Schröder, Carolin Singer and Mareike Böger

41:2007 EXPERT INTERVIEWS IN MECKLENBURGVORPOMMERN, GERMANY - Results and analysis of the intersectoral expert interviews in the field of logistics and ICT
Gunnar Prause, Margitta Rudat, Gertraud Klinkenberg and Eric Kron

42:2007 EXPERT INTERVIEWS IN ESTONIA - Results and analysis of the intersectoral expert interviews in the field of logistics and ICT
Ain Kiisler and Seren Eilmann

43:2007 EXPERT INTERVIEWS IN SOUTHWEST FINLAND - Results and analysis of the intersectoral expert interviews in the field of logistics and ICT
Matti Takalokastari, Matias Suhonen, Petri Murto and Hilja-Maria Happonen

44:2007 EXPERT INTERVIEWS IN LATVIA - Results and analysis of the intersectoral expert interviews in the field of logistics and ICT
Riga City Council and Rode & Weiland Ltd.

45:2007 EXPERT INTERVIEWS IN LITHUANIA - Results and analysis of the intersectoral expert interviews in the field of logistics and ICT
Ramūnas Palšaitis and Darius Bazaras

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