

# **Logistics – related Entrepreneurship and Regional Development**

## **- An empiric study**

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Logistics is one of the booming branches in economics within the global market. Regarding only the German figures in Federal Office of Statistics is revealing a average growth of the German logistical sector by about 6,5 % in 2006. When it comes to a more detailed view of the impact of logistics on the regional development mainly the hot spots like Hamburg or Frankfurt are well known.

Within two big European projects called “LogOn Baltic” and “InterBaltic” Wismar University is participating in a variety of empiric activities in order to reveal the impact on logistics on job generation, entrepreneurship And regional. The focus of the projects is on the Baltic Sea Region where all of the project partners are coming from. With questionnaires, expert interviews, case studies, a development measure impact analysis and secondary research results these projects are trying to reveal the impact of logistics on regional development around the BSR.

In this paper the first results of the 2 – year study will be presented focussing on the Western part of Mecklenburg – Vorpommern representing the wider Eastern part of the metropol region of Hamburg towards Berlin, Szczecin and the Baltic Sea. The impact of the logistics activities on the rather rural area in the field of regional development and economic activities will be shown by new empiric data.

### **I. LogOn Baltic & InterBaltic**

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 & 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 Information and Communications Technologies (ICT) and logistics, thus improving regional development.

The following regions are participating in the project:

- South-West Finland
- Östergötland
- Denmark
- Hamburg
- West-Mecklenburg
- North-East Poland
- Lithuania
- Latvia
- Estonia
- St. Petersburg

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, Logistics survey, ICT survey, DEMIA 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.

A second project is called InterBaltic and its main aim is to promote shift of cargo transport from road to efficient intermodal sea/railway corridors.

InterBaltic is a pan-Baltic project covering the whole region (Interreg Baltic Sea area), and focusing on development of some common transport strategies for the region. It focuses on intermodality and on interoperability across national borders, as well as on the shift of transport from road to sea and railway. Considering the global trends for the transport sector and their impact in the Baltic Sea area, special focus is set on future cargo flows to and from China and Russia. Some of the expected outcomes of the project are:

- a sustainable and well functioning network between private players, public authorities and research institutions in the transport sector
- business related spin-offs as a result of better transport solutions and interregional networks
- a common understanding of the mega trends and future strategic situation related to cargo flows as result of economic growth and increased transport within, to and from and through the BSR
- identification of cargo segments and volumes most eligible for modal shift from road to rail and sea
- identification of the most important intermodal transport corridors in a TEN-T / Pan-European perspective

Both projects are running in the frame of the INTERREGIII B – program in the Baltic Sea region and they are representing the starting point for a couple of empiric studies at Wismar University.

## **II. Expert Interviews**

The expert interviews in the Mecklenburg region have been executed in accordance with a unique project questionnaire between November 2006 and January. All 12 participating experts have been asked in Wismar, Schwerin or Rostock and represented public authorities, associations of enterprises, logistics service providers and trading companies. The interviewed persons are part of the senior management of their companies and are in charge of logistics. The average time of an interview was between 1 – 2 h and all interviews are fixed in memos.

When it comes to the description of the actual situation in Mecklenburg-Vorpommern the experts complained about the weak industrial density and the lack of skilled workers due to the migration to the economic more developed parts of Germany especially to the Hamburg

region. But also self made problems were mentioned like to underdeveloped educational field especially in the logistics sector. As a regional strength the experts stressed the highly developed infrastructure erected since the reunification in 1990 which nevertheless needs to be improved in the upcoming future.

Most of the complaints about the weakness of region were related to soft factors. The experts are regarding the lack of a regional logistics strategy for Mecklenburg-Vorpommern as a strategic problem for the whole logistics sector. Additionally the level of the regional networking activities and the development of cluster structures in the logistical sector are remarkable underdeveloped so there are no regional offers for logistics services in Mecklenburg-Vorpommern. This structural weakness of the region is linked with a general lack in language skill and intercultural experience of the companies and an underdeveloped educational sector for the field of logistics.

As a consequence Mecklenburg-Vorpommern was not able to benefit from the EU-enlargement in 2004 like other regions despite its excellent geographic location at the Southern part of the Baltic Sea and its national position in between the metropol areas of Hamburg and Berlin with more than 6 Mio. People. So the weaknesses in the soft sector are representing the main reason why Mecklenburg-Vorpommern hasn't been able to benefit in an appropriate way from the boom in logistics in the Baltic Sea Region.

### **III. Regional expectations: Mecklenburg - Vorpommern**

During the LogOn Baltic project the experts have been asked also about their expectations concerning the future development in the logistics and ICT sector. The following topics have been mentioned:

- Optimisation of the Supply Chain Managements
- Optimisation of the demands of the transportation means and clients
- Standardisation of the intermodal interfaces in the logistical processes
- Outsourcing of the operative logistics processes of the companies, i.e. only the logistics management of the operative activities will be part the business.

By focussing more on the perspectives of the Mecklenburg-Vorpommern region the experts stated that the hugest part of the public money has been spent into the infrastructure since the

German reunification which was not sufficient to push the logistics sector in the region. This policy is not sufficient to support a sustainable development of the logistics sector especially when the regional administration has a lack in logistics knowledge and competence. More successful will be a development of a regional logistics strategy and usability concepts in logistics because from the view of the experts the need of concepts and related soft factors are getting more important as more underdeveloped a region is. So in general one of the main outcomes of the expert's interviews is the result that in service sectors the regional development is more depending from the governmental competence and the regional soft factors than from the infrastructural situation.

So as a direct consequence the public budgets trying to support logistics development should rather be spent to foster expert knowledge and to create cooperative regional activities in order to develop a support driven offers in the logistics sector. This conclusion could be under lined by experiences from successful regions where the attraction of logistics investments have been realised by offering reasonable concepts to the attracted companies which outlined the possibilities to save logistics costs or to increase strategic advantages for these companies. The development of company related concepts requires a profound knowledge about the logistics core business and the related business processes as well as the development of business concepts which have to be prefinanced by public sources.

As a first step in the direction of a cooperative and networking oriented approach in the logistics sector of Mecklenburg-Vorpommern would be the development of a regional logistics strategy and the foundation of a regional logistics initiative which should be supported by the regional government. One of the first activities of such a logistics initiative should be the preparation of a couple of important strategic logistics decisions:

- Development of the regional Baltic harbours
- Development of the regional air ports
- Regional PPP-models for logistics
- Harmonisation of logistics rules
- Ranking list for the future infrastructure measures
- Regional educational and R&D concept for the logistics sector
- Preparation and development of the Russia activities

#### **IV. Strategic location: Gateway M-V**

When it comes to the strategic positioning of Mecklenburg – Vorpommern in the logistics sector the experts proposed two directions:

- Gateway to central Europe
- BSR – Short Sea Shipping Centre

The “Gateway to Central Europe” – proposal is mainly based on the land based transportation modes considering Mecklenburg – Vorpommern as the transition area between Hamburg in the West and Berlin and Poland in the East. In this sense the main direction of the flows of goods through MV is the land based West – East corridor.

The other option is more related to Baltic harbours and their Hinterland connections. Due to its historical situation during the cold war time Mecklenburg – Vorpommern played the role as the sea access for the former GDR and the central European states like Czech Republic. Since this time there are still existing good hinterland connections and some of the most important infrastructural measures to be realised are focussing on this idea. So the main direction is a North – South corridor from the Baltic harbours to the southern hinterland where the main target regions the Baltic short sea shipping activities are seen in the Eastern part of the Baltic Sea especially Russia, the Baltic States and Finland. A special role is dedicated to Russia because of the special historic links between Russia and the former GDR but also due to the growing economic importance and power of Western Russia.

But the „Short Sea Shipping“ approach is also related with an other idea based on the experience around the successful wood cluster in Wismar which was developed in the last 10 years in the harbour environment. This development is regarded as a prototype for a regional economic policy combining the advantages of logistics and production where the germs of the development started in the harbour environment.

#### **V. Knowledge**

In order to safeguard a sustainable development in the whole regional logistics sector it was pointed out by the experts that a strong educational sector is necessary. One problem field in this context are the political aims of the cultural ministry of Mecklenburg – Vorpommern which is endangering the education of the middle and upper logistics management. Due to

budget reductions and related cancellations of professorships at Rostock University the logistics and maritime future potential of whole region is threatened. Unfortunately to the political driven development on the university level also on the level of the lower logistics management education a similar situation appeared where teachers and schools for logistics and maritime professions were closed or transferred to Hamburg. So the whole educational system for the logistical sector is not corresponding to the needs and the future perspectives in the sector.

The first preliminary results of the LogOn Baltic logistics survey are indicating the future growing service areas in logistics for the Baltic Sea Region [TS]. The survey revealed that the actual outsourcing activities for domestic transportation and warehousing in SW – Finland, Hamburg and Östergötaland are significant higher than in Mecklenburg – Vorpommern so due to the convergence process inside the European Union it is likely that this logistics services will generate new job in new regional SME. These jobs require highly qualified employees that have to be trained in regional educational institutions.

This need for an improvement of logistics related education and R&D activities in Mecklenburg – Vorpommern is also underlined by the results of the question of the logistics survey concerning the future development in outsourcing of logistics operations showing an increasing need in complex logistics operations around the whole BSR where ICT – systems, warehousing and inventory management topics are representing the top priorities. These logistics operations have to be done by high skilled employees that have to be educated and trained in regional institutions. Furthermore the mentioned issues like ICT – systems and higher logistics management services are also requiring innovative solutions that can be commercialised by new regional companies.

## **VI. Soft factors**

The needs for business education in Mecklenburg-Vorpommern are not restricted to the areas of the main logistics activities. The whole business sector in the region is slowed down in its development due to underdeveloped soft skills. Some of the curial soft gaps which could be improved by business oriented education shall be mentioned here:

- Underdeveloped international and intercultural skills
- Hierarchic and inflexible organisational structures
- Weak networking activities
- Weakness in innovation

In 2005 Wismar University and the Chamber of Commerce in Schwerin launched a regional survey on international activities of SME's where over 1.500 companies in the region of West-Mecklenburg - around Wismar and Schwerin - were surveyed where the majority of the companies have been responded by regional manufacturing and service companies [BP1,KP]. The region West-Mecklenburg is characterized by a dominating SME – sector where nearly 50% of the companies are micro-firms so it was no big surprise that only less than 10% of all regional turnovers are generated by international operations. Nevertheless nearly one third of all companies showed export turnovers but even half these export active companies only were to generate up to 10 % export turnovers (Median: 12,5%). As a reason for their weakness in international operations the asked SME leaders stressed that their language and intercultural skills are not sufficient enough to participate in foreign activities.

More than 15 years after the reunification there are still some considerable differences on the mental level between Western and Eastern Germany. In an empiric survey of the Institute of Sociology of the Friedrich-Schiller-University of Jena called the Jena study the research group around Rudi Schmidt analyzed 749 SME's from both sides of Germany and found out remarkable differences about the management [MMS]. The most important results were:

- only 10 % of the East-CEO's is younger than 40
- 94 % of the Eastern E-CEO's have academic degree
- the majority of the Eastern CEO's are engineers
- the majority of Western CEO's have a Business Administration background
- both parts of Germany are preferring a cooperative management style
- Eastern management style is rather authoritarian and capitalistic.

The Eastern situation appeared due to the quick privatisation process in the transition period after 1990 making it nearly impossible for the traditional East German big enterprises (combinats) to survive in the new economic environment. So a lot of high-tech spin-off companies have been started out of the combinats and they were founded and managed by technicians and their trustees.

These spin-off companies are organised according to the Eastern German tradition in a mainly hierarchical organisational form. Especially organisational principles like transparency and trust have been unknown values during the Eastern times causing problems for these companies to integrate younger high educated people and making it difficult to participate in networking activities.

Trust plays a mayor role in business theories of networking and cluster building. So for example in transaction costs theory a direct explanation is given how to understand the



linkage between organisational structures stating that the lesser the trust in a social-economic system the more formal structures are required in organisation and cooperation. Also game theory is leading to the conclusion that on the long run all parties interests are best achieved by a social environment which is as transparent as possible and favours cooperation, reciprocity and trust [AK].

Based on the observation of existing important mental difference between the East and the West related to networking Wölf and Ragnitz have worked out a study about networking and cluster structures in Eastern and Western Germany where they found out that the networking activities and cluster structures in the East are much weaker developed than in the West [WR].

The analysis of the networking situation in the seaport cluster of Rostock was part of a regional study at Wismar University outlining the statements of Wölf and Ragnitz [PR]. Furthermore the study revealed that knowledge spill-over effects inside the cluster have been regarded as relatively unimportant by the managers of the cluster companies. The perception of the interviewed managers was more focused on operational topics like cheap labour and land prices than on strategic soft topics like innovation and networking.

Linked with this weak perception for soft dimension is a neglect of trust as an important cluster dimension and the existence of moderators inside the cluster laying the ground for common cluster activities and is so fostering trust among the cluster population. So the underestimation of the soft dimensions is indicating a strategic weakness of the cluster and a threat for the future networking activities and cluster development [PR].

## **VII. Economic effects of logistics**

Hamburg is representing the German logistics capital with more than 5.000 classical logistics companies and approximately 150.000 employees in the logistics sector. By taking under account also the employees in the logistics service sector like consultation, IT services and transport assurances the number of employees in the larger metro pole region of Hamburg is even exceeding the number of 230.000 employees. This phenomena is heavily driven by the development of Hamburg seaport enjoying a steady growth rate of more than 10 % over the lasts years [HH].

In order to strengthen the development of the logistics cluster in Hamburg region in 2005 logistics initiative for Hamburg was founded with the target to establish additionally 14.000 new jobs in Hamburg and to generate an additional value added in Hamburg of ca. 6 Mrd €

The forecast for the effects of the activities of the logistics initiative was based on the Regionomia study [RS].

As main success factors for the further logistical development of Hamburg 3 topics have been identified:

1. free land for logistical operations
2. technical innovation projects in logistics
3. education and qualification in logistics

As a important bottleneck for the further development in the logistical sector the study identified a lack of educational capacity in Hamburg region since the increasing need of skilled workers and employees in logistics was threatening the whole logistics sector in Hamburg. So the logistics initiative stressed heavily the expansion of logistical education and qualification in Hamburg.

One important factor for the Hamburg region is the development of free land for logistical purposes because due to the high density in the Hamburg region there exists a permanent shortage of space. Under the precondition that the space problem will be solved in the next 10 years the study is estimating the creation of ca. 700 new logistical jobs in the 1<sup>st</sup> year up to ca. 8.500 new logistics jobs till 2015. With an average gross value added per employee in logistics of ca. 55.000 € for the next 10 years the total additional value added from new jobs in logistics was calculated to ca. 3 Mrd €

The indirect effects of the logistical initiative have been considered with respect to the following 3 topics:

1. effects from technology and innovation
  - Estimated effect: 1 % per year
  - New jobs: ca. 500
2. effects due to education and qualification
  - Estimated effect: 0,5 % per year
  - New jobs: ca. 500
  - Additional VA: 80 Mio €
3. effects due to cooperation
  - New jobs: ca. 750
  - Additional VA: 230 Mio €

The most interesting result of this analysis is the relative high values due to cooperation yielding in the same total effect like innovation and education together. The study contained the important statement that the estimated effects of cooperation have been detected already empirically during the writing of the study. Altogether the study estimated the total effect of the logistics initiative of Hamburg with 14.000 new jobs in direct and indirect logistical sectors and an additional value added for Hamburg of ca. 6 Mrd €

### **VIII. Logistics investments**

The general motivation of companies for an investment decision have been analysed by Ernest & Young in a study in 2006 [EY]. The results based on a sample of 1019 companies from all over the world where the most important top criterions for investments investment decisions have been investigated. The main result concerning the general reasons for a location for an investment could be expressed by two criterions:

1. quality of the infrastructure
2. quality of the employees

The quality of the infrastructure comprises the infrastructure for transportation, logistics and telecommunication. The quality of the employees consists of the level of labour costs, the qualification of the employees and the flexibility of the labour force.

When it comes to considerations about Germany as an investment location the transport and logistics infrastructure is surely a plus for Germany. More complex is the German situation when it comes to the quality of employees because on one side Germany is known as a high salary country but on the other side the German employees are highly qualified.

When it comes to the logistical sector then the study revealed that Germany is regarded as the most interesting European location for transport and logistics in front of Great Brittan, France and the Netherlands. Also when it comes to logistics centres Germany is representing the most important location even on the global level leading the ranking in front of USA/Canada, France, UK and Poland.

Coming back to the Situation inside Germany Hamburg is considered to be the most dynamic logistical region in Germany leading the ranking in front of Halle/Leipzig and the Rhein-Ruhr-Region. The reasons of Hamburg for being the German top logistical location is based on its trimodal gateway function in international trade and its interface role between the international trade and Central Europe. The important role of the Halle/Leipzig region is

heavily pushed by the development of the Leipzig airport towards an air cargo hub for Central Europe. The German DHL group has chosen Halle/Leipzig as one its headquarters and during the next 3 years ca. 10.000 new jobs will be created in the region where about 3.500 new jobs will be dedicated to logistics service providers.

## **IX. The Seaport of Rostock: A closer look**

The seaport of Rostock (formerly VEB Seehafen Rostock) has been a high-performance seaport of the national economy of the GDR up until the reunification of Germany. A „Kombinat“ (comparable to a corporation) combined the centralized management of marine and harbor management for all marine and harbor companies. This in whole was part of the mandate of the minister for transportation. According to the economic disposition of the centralized economy of the state each company assumed a monopolistic position within the system (this meant only one trucking company, one handling and shipping company, and so on).

The Seaport of Rostock was the central harbor for import and export of the former East German State. In 1989 20.8 million metric tons of goods were handled. Out of this: 3.5 million metric tons of fluids, 10.8 million bulk goods and 6.5 million metric tons of packaged goods (mostly general cargo) – reflected the economy and international trade of the GDR. The Sea trade was almost entirely handled through the Rostock harbor. Since the GDR attempted to be self-sufficient foreign handling of goods (especially in West-Germany) was only permitted in special cases. 4035 Ships were handled in one year.

The railroad was the main back-country carrier. In 1989 82% of the goods were transported via train and 9% via pipeline. At the end of 1989 the Rostock harbor company employed 5834 people, 3965 of which were business personnel. The last number results from the huge amount of labor-intensive of conventional piece goods and additional services that are not part of the main line of production (e.g. commuter traffic, canteens, day care centers, personnel residences, boiler houses, consumer goods production, etc.).

After the German reunification in 1990 the Seaport of Rostock had to undergo a drastic change. The free-market-economy replaced the centralism. The Seaport suddenly lost its international trade position and transformed to a port in a side sea.

The customers quickly began to use the more efficient harbors at the North Sea. Their back-country routes were often shorter, their marine network denser and far more modern. The management and the employees had to adapt, which was a very painful process. The Seehafen

Rostock AG (SHR AG), as the successor employed only 810 people. The Seaport quickly adapted to the demands of roll-on-roll-off traffic and ferry services. This easy-to-move cargo did not require so many workers in the shipping and handling as well as the storing department. The general cargo terminals were transformed to meet the new cargo structure demands with great financial investment.

There are now (since 1990) industrial companies working in the sea harbor area (this was up until then only the case in the old ‘Chemistry harbor’ as the industrial harbor of the petrol industry):

- The chemistry harbor docks are expanded for the fertilizer producer Düngemittel Poppendorf (to the company Tyara), imports of Ammonia and export of fertilizer
- The coal powerplant receiving coal from Russia, Poland and from overseas
- Silo installations of the grain traders and the malt house Malteurop Rostock
- Warhouses esp. Alsen AG and OAM Yeomon
- Crane construction and export by Liebherr Company
- Biodiesel production and loading installations of the Rostock Power Oil GmbH

The most workload intensive area is the crane construction of the Liebherr Company with at the present time about 210 employees. Here the benefit lies in the more effective manufacturing and transportation logistics of big modern cranes.

The development data of the harbor economy in Rostock illustrate how this traffic center developed into to a logistics center. The great numbers of the enterprises and employee as well as the branch variety characterize this process. The numbers on handled goods are an expression for this development:

	<b>Ferries</b>	<b>Liquid good</b>	<b>Bulk good</b>	<b>Piece good</b>	<b>Total</b>
1989	0	3,5	11	6,3	20,8
1990	0	2	7	4,2	13,2
1991	0	2,6	3,9	1,6	8,1
1992	1,2	2,9	4,9	1,4	10,4
1993	1,6	2,9	5,6	1,9	12
1994	3,3	3,6	7,2	1,7	15,8
1998	7,8	2,9	6,2	1,8	18,7
2005	12,8	2,5	5,8	1,8	22,9

In 1989 10.500 employees were working in 30 companies. At the beginning of 1992 this number had gone down to 5.500 employees in 218 enterprises. However, only the half of the

employees was employed in harbor-bound enterprises. Since 1994 the restructuring of the harbor economy proved its new outlines.

For this purpose the enterprises and institutions of the harbor economy were grouped into:

- Seaport traffic economy
- Harbor-Associated Economy
- Harbor- and maritime authorities and institutions

At first glance the following data turn up:

	1994	1998	2005
Number of companies	217	168	181
Total employees	7261	4443	5472

However, these numbers cannot be compared to the numbers of the Sea Harbor economic year in 1989/90, because there was a different economic system in place at the time.

The comparison of these three investigations provides two facts:

- The year 1994 is the first phase of the upheaval and the reorientation on the market.
- On the other hand from 1998 to 2005 there is a consolidation and growth phase.

In order to assess the entrepreneurship situation as well as the employees numbers (in particular under the aspect of the logistical service structures) from the analyses 1998 + 2005 detailed data on the structure must be consulted. The separate branches allow for the following statements:

- 1.1 *Seaport handling*.... here are the companies listed that have their first priority in handling. These maintain wharves as well as handling and warehouse facilities. These are mainly companies with share kept by SHR. Here it becomes obvious that the number of the employees has sunken continuously. The growing handling numbers however, characterize the increased productivity.
- 1.2 *shipping agencies / brokers* ... the great number of the enterprises is an expression of enormous activities in the field of entrepreneurship and marked competition. Especially the shipping agencies work as logistic service providers. The number of the employees was maintained in the last period, the number of the enterprises on the other hand was reduced as a result of shakeout competition. Baltic Lloyd GmbH (Case study 1) belongs to this group.

- 1.3 *Transportation companies...* The high number of the employees here, results mainly from Network and Cargo (among others Schenker Logistics), the German railroad company DB AG as well as from a great number of local transportation companies in harbor proximity. Both fields are not only harbor-sided but especially supraregionally active. Into this group belongs for example Homtrans GmbH (Case study 2).
- 1.4 *Piloting, towing .....* The growing number of employees corresponds to the number of handling services.
- 1.5 *ferry shipping companies.....* these are the big shipping companies, like Shipping line Laeisz and AIDA Cruises.
- 1.6 *Ship supply....* A big share of the increased number of employees results from the outsourcing of ship supply by the shipping lines. This is independent of the growing number of ship landings.
- 1.7 *Sea insurances...* The development figures are comparable to the 1.4.
- 1.8 *Maintenance/Repair...* These numbers can be explained with the growing service figures of the sea harbor.
- 1.9 *Travel agencies....* This group is of little importance to this survey.
- 2. *Seaport-associated Economy...* these are the above mentioned industry establishments. The growth is rather impressive. It marks the increase of turnover by the companies. This is especially true for Liebherr
- 3. *Authorities...* The growth of numbers for employees is also due to the extension of the federal office for navigation and hydrographics.

In a couple of empiric activities since 1994 the development of the harbor companies and their number of employees has been studied [B1 – B5, BP2]. The stated figures are based on questionnaires and on official lists about the companies located in the Seaport of Rostock. The following table is showing the result of the investigations and it is illustrating the development of the Rostock harbor economy in more details where the appearing numbers are resending the figures related to returned questionnaires. Due to the high return rate the figures are giving nevertheless a realistic picture of the real development:

	Harbor Companies			Number of Employees		
Branches	1994	1998	2005	1994	1998	2005
1. Logistics	151	125	101	4.736	3.116	3.341
<i>1.1 Seaport handling</i>	8	8	15	1.314	871	453
<i>1.2 shipping agencies / brokers</i>	40	32	15	152	102	90
<i>1.3 Transportation companies</i>	19	13	14	346	553	537
<i>1.4 Piloting, towing</i>	5	5	5	107	74	117
<i>1.5 Shipping companies</i>	15	17	9	2.371	1.190	1.371
<i>1.6 Ship supply</i>	17	16	14	243	190	553
<i>1.7 Sea insurances</i>	8	10	6	33	38	27
<i>1.8 Maintenance/Repair</i>	22	20	28	107	93	191
<i>1.9 Travel agencies</i>	11	4	2	27	7	2
<i>2. Seaport-associated Economy</i>	34	17	11	1.039	555	476
<i>3. Authorities</i>	23	26	25	1.017	772	617
<b>Seaport total</b>	<b>208</b>	<b>168</b>	<b>137</b>	<b>6.792</b>	<b>4.443</b>	<b>4.434</b>

In order to describe the direct and indirect effects of the Rostock Seaport cluster on the region economy it is necessary to use mathematical methods to estimate the job impacts on secondary fields. By using these methods we are getting the following results expressing the employment effects in 1998 and 2005:

	1998	Data 2005	Estimation 2005
<b>Direct job effects</b>	4.443	4.434	5.697
<i>Regional effects</i>	<i>3.713</i>	<i>3.835</i>	<i>5.034</i>
<b>Indirect job effects</b>	n.a.	1.639	3.165
<i>Regional effects</i>	<i>1.370</i>	<i>1.229</i>	<i>2.296</i>
<b>Total job effects</b>	n.a.	6.073	8.862
<i>Regional effects</i>	<i>5.083</i>	<i>5.064</i>	<i>7.300</i>



## **X. Conclusions**

This short presentation of the development and the general conditions of the Rostock harbor economy leads to the following statements:

- The change from a centrally led harbor (Transformation process after the German reunion) into a harbor economy on condition of the free market economy was carried out in relatively short time. The conditions of an economical and political reunion of two states are special. This change generated a remarkable start-up and entrepreneurial potential. In spite of the risks involved numerous specialists put sound specialist knowledge, competence and courage of the old East-German harbor economy into action.
- The two case studies „Baltic Lloyd” and „Homtrans” are showing the strategic importance of networking activities and soft factors for the success of a company.
- The change of the harbor into an efficient logistics location dominated by SME improved the level of innovations and created a lot of new jobs and services.
- The handling amounts and the company structure clearly indicate that the harbor has positioned itself successfully as a logistics turntable of the Baltic Sea and is well situated for the future.

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