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DHL Freight (Finland) 2020 – Foresight study on Logistics in South-Eastern Finland

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## ABSTRACT

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in South-Eastern Finland

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Keywords

foresight, Delphi, logistics,

The research is a foresight study on Logistics in Southern-Eastern Finland in 2020.

The research was made as a case study

The aim of the study was to find a way to strengthen the competitiveness of the area's logistics and especially the case company's strategic management through finding the trends and innovations that might influence the transit business in the year 2020.

The research was conducted as a case study, and Delphi method was used in getting the foresight knowledge. There was an expert panel that answered the questions on the future, upon which the scenarios were created.

As a result, there were three scenarios created: Succeeding through International cooperation and networking, Steady middleman arises from ashes and Squabbling Haven. In all the scenarios is seen the influence of the local politics, the possible breakthrough in technological innovations concerning the customs procedure, and most strongly the Russian situation that influences strongly in transit business overall. Any bigger changes cross the border dramatically affect the business. It is strongly recommended for the case company to prepare for the future and its possible changes by following the trends in logistics that arise from this study as well as from the wider foresight studies made in Europe at the same time.

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# 1 INTRODUCTION

## 1.1 Overall context

The aim of the study was to create scenarios for DHL Freight (Finland) Oy – what the logistics business will be like in 2020. The logistics field is constantly changing and is influenced by several variables: e.g. economic situation, politics, natural forces, technological development etc. All these variables influence globally and nationally, since usually logistics chains are international. The typical situation in DHL Freight (Finland) Oy is that the goods come from Far East through Middle Europe by ship, then with smaller vessels to port of Hamina or Kotka, and after middle warehousing they are transferred to Russia and CIS countries.

The research was conducted via Delphi process to several oracles, i.e. experts in logistics, who answered the questions on the logistics future in the area. The answers were used as a base to create scenarios for DHL Freight (Finland) Oy in 2020 together with previous studies about the subject. In the end three different scenarios were created: Succeeding through International co-operation and networking, Steady middleman arises from ashes and Squabbling Haven.

There has not been any foresight research in DHL before, even though Deutsche Post has its own department for research development and planning in Germany.

In May 2010 Heiko A.von der Gracht and Inga-Lena Darkow conducted a study “Scenarios for the logistics services industry: A Delphi-based analysis for 2025” in European Business School (EBS), Supply Chain Management Institute Germany. The study was wider look at the future of the logistics services. This study was only used as a comparison to the results of the study conducted at the Southern Eastern Finland logistics field.

In 2009 there was a foresight study made on the maritime transports in Gulf of Finland in University of Turku: “Maritime transportation in the Gulf of Finland in 2007 and three alternative scenarios for 2015” by group of researchers that is being used as background when creating the scenarios after Delphi study. (Kuronen, Lehtikoinen and Tapaninen 2009.)

The present study is a part of ELLO project. ELLO-project is partly financed by European regional development fund, and its aim is to develop the competitiveness of the Southern-Eastern Finland's logistical corridor. The project develops international marketing campaign to enhance the conspicuousness of the possibilities Southern-Eastern logistics corridor can offer. (Ello project)

## 1.2 Objectives and research question

The overall aim in the study was to find the way to strengthen the competitiveness of the Southern-Eastern Finland in logistics market in the future. That was done by finding out the future situation of local logistics.

The objective was to make foresight study to DHL Freight (Finland) Oy to help them plan the future better in Kotka-Hamina area. It was done by defining the sources of the information on future and tools to be used, determining the scenarios through professional interviews, and finding the way to utilize the gathered information in business management and marketing management.

Research questions are:

What will be the goods in transit business in future that will go via ports of Kotka-Hamina area?

What are the values and trends guiding the business?

What will be the technological innovations that influence the logistics business?

## 2 DEUTSCHE POST DHL AND ITS OPERATING ENVIRONMENT IN SOUTHERN-EASTERN FINLAND

### 2.1 Deutsche post DHL

The case company in the study was DHL Freight (Finland) Oy. DHL is part of Deutsche Post DHL. Organizational hierarchy of the group is illustrated in Figure 1. The Group generated revenue of more than 46 billion Euros in 2009. DHL's international network links more than 220 countries and territories worldwide. DHL offers

services in express, air and ocean freight, overland transport, contract logistics solutions as well as international mail services.

DHL was founded in San 1969 by 3 entrepreneurs - Adrian Dalsey, Larry Hillblom and Robert Lynn. DHL has become the leader in the industry globally, and has expanded fast.

DHL started with shipping papers by airplane from San Francisco to Honolulu, and has grown to a world leader gradually working around the globe. The Biggest changes in 2000-decade have been 2002 Deutsche Post World Net acquiring Exel, its biggest rival in December 2005. (DHL)

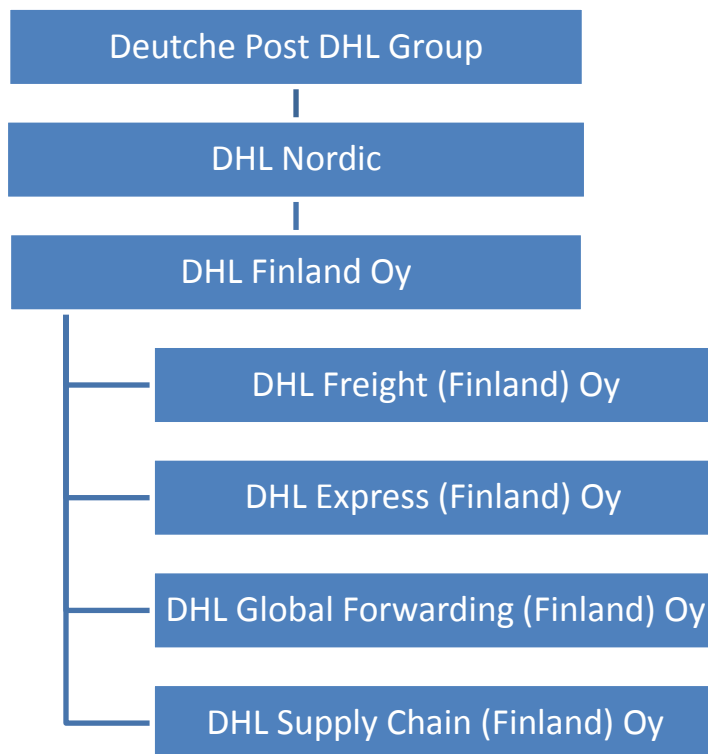


Figure 1 Deutsche Post DHL Group Hierarchy

DHL Freight is one of the largest operators in overland transportation business in Europe. DHL Freight operates national and international full-truck-load and less-than-truck-load services, via road, rail or intermodal transportation. (ibid.)

## 2.2 DHL Finland

The DHL Finland was created in 2003, when Deutsche Post World Net made branding and combined Danzas and DHL. Big changes become also when Exel was bought 2005, and two rivals were combined under same roof. In 2010 DHL employ 1150 in four units:

- DHL Express
- DHL Freight
- DHL Global Forwarding
- DHL Exel Supply Chain(DHL Finland)

## 2.3 DHL Freight (Finland) Oy

DHL Freight (Finland) Oy has its headquarters at DHL Business Park in Vantaa. International transport operations and customer service are concentrated in Turku (Scandinavian traffics) and Vantaa (the rest of Europe). These are also the locations of international road freight gateway terminals. DHL operates in smaller units around Finland providing customs clearance, special logistics services and / or act as sales offices. DHL Finland has quality and environmental certification ISO9001 and ISO 14001.

Finland's geographical position has become marketing advantage for DHL Finland due Russian market. DHL Freight provides transit warehousing, cross-docking, and value-added services in Hamina, where it is operating some 55,000 square meters of terminal and storage space.



The head of DHL Freight (Finland) Oy is Peter Krohn, Managing Director. In total, DHL Freight employs almost half of the total DHL Finland employees. (ibid.)

## 2.4 Operating context

The Port of Hamina is located in South-Eastern Finland, 35 kilometres' distance from the Russian border. It is also a significant transit traffic port. In 2008 the port was the 9th largest port in total volumes and in transit traffic it was the third biggest port in Finland. In the year 2007, the share of transit traffic was 29 % in international traffic. Main cargoes in import include general cargo in containers and liquid bulk, such as chemicals and oil products. In export the most important product groups are forestry products and chemicals. The port is a municipally owned private company.

The deepening of waterway and the expansion of the container terminal are the main investment projects in port of Hamina in 2010. The deepening of the fairway enables the port cargo capacity can increase by even 50 % as bigger vessels can enter the port of Hamina. (Port of Hamina 2009). The fairway leading to the port will be righted and deepened to 12 meters, beginning in August 2009. The new fairway will be in use in 2011. (Finnish Maritime Administration 2009.)

The liquid terminal is specialized in the storage and handling of liquids. Hamina is the third biggest liquid port in Finland (Port of Hamina 2009). In 2008 the amount of international traffic in the Port of Hamina was 3.8 million tons (Finnish Maritime Administration 2009).

A big change in Port of Hamina will come if the merge with the neighbouring, competitor, Port of Kotka will happen. 25 October 2010, meetings of the City Boards of Kotka and Hamina will decide whether or not the port merger will be presented to the City Council. 8 November 2010, meetings of the City Councils of Kotka and Hamina will decide whether or not to merge the ports. (Port of Hamina)

## 3 METHODOLOGY

### 3.1 Introduction to the Research Process

Figure 2 shows the research process as a flow chart. The whole process started with mapping the interest of the all three parties: The Company, the Ello-project and au-

thor. As the goals and interests were mutual, the real base work for foresight study on the DHL Freight (Finland) Oy started as a help to face the future. To the base of the whole study was first an examination of the previous studies. When contacting the DHL Finland's directors and experts as well as the senior manager of business development in DHL Freight in Bonn, Germany, it was found out that no previous studies were made. Only at the end of the study when the actual research work was made, the Gracht and Darkow's (2010) study on European Logistics future 2020 was found, as well as the scenarios for 2020 by ELY (Centres for economic development, transport and the environment in Finland) and Regional Council of Kymenlaakso, which were used as a base for the final scenario work.

As the previous studies were not available, to help to create the Delphi questionnaire, scenario drafts were made just to see the possible trends and big lines that might affect the future in logistics in the area. The scenarios were made only based on my personal experiences and knowledge on the logistics business in Southern-Eastern Finland and the subjects that have been under discussion in local and national media. After the questionnaire had been created, a list of expertise fields needed to answer the questions was made, and it was used as a basis to choose the possible oracles. The first two oracles were chosen on the basis of as wide expertise as possible (DHL local management) and they were asked who they thought to be the experts. The same followed for a few rounds. Most of the oracles were chosen this way, and the list was only completed at the end with some experts to get as wide point of view to the research.

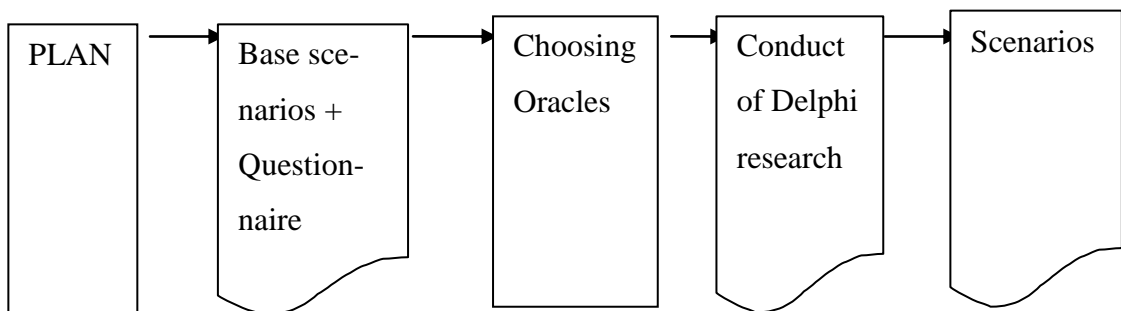


Figure 2 The Research Process

### 3.2 Case study

The study was made by conducting a case study as it was the most natural way of approaching the matter, through a company and its operating context. Another option considered was an action research oriented study, but more controlled way to research was sought in order to keep it more organized. As the case study was selected there was a need to search for a suitable foresight method.

The research will be conducted as a case study. A case study is expected to catch a whole of a single case or multiple cases. A case study is a study of the particularity and complexity of a single case, coming to understand its activity within important circumstances. A case study aims to answer specific research questions and seeks evidence. Multiple sources are used if evidence is needed to get sufficient data. Interviews, observation, questionnaires and existing data can be used in case study. (Gillham 2000; Järvinen and Järvinen 2004; Stake, 1995.; Yin, 2003)

When choosing the methodology, there were two options; a case study and an action study, but as it was desired that the research would be more controlled in rather struck boundaries in order to keep in the schedule and to keep the research more controlled, the result was a case study.

As interviews, observation, questionnaires and existing data can be used in a case study, it seemed to be the best option, by having all the needed elements. Interviews were used to get the base knowledge on the previous studies in the area/subject as well as to get to know candidates for oracles. Observation had been done already mostly beforehand as I worked in the case company and was following carefully the local politics and development in the port of Hamina. Questionnaire was the most important tool in form of Delphi study to get the all needed information from the oracles, and existing data was a well needed aid. Unfortunately only at the end of the study was found some scenario work made in the region (by ELY and Regional council of Kymenlaakso) as they could have been very useful already when making the question form. Also the Gracht and Darkow (2010) study would have helped from the beginning if it had been available.

### 3.3 Foresight study

Foresight studies are somewhat new way to research phenomena in business, and the previous foresight studies were searched the Delphi study and scenario work seemed to have been the most popular ones, and had had best feedback from the researchers. Delphi study also gives the researcher concrete tools how to start the research and how to guide the prophecies to the right field. Delphi study is a perfect base for scenario work, as it gives as well as details as the major guide lines which to follow. Delphi method gives a straight route which can be followed step-by-step to reach the goal, which enables its usage in different situations.

In futures studies, especially in Europe, the term foresight has become widely used to describe activities such as critical thinking concerning long-term developments, debate and effort to create wider participatory democracy, shaping the future, especially by influencing public policy. (Kauppinen, Kuusi, and Söderlund, 2003)

Most often discussions of Foresight methods focus on prospective - the futures methods of forecasting and analysis of alternative futures. Methods can be characterized as qualitative, quantitative or semi-quantitative.

Qualitative methods usually provide meaning to events and perceptions, which are often being based on subjectivity or creativity that is often difficult to support, for example opinions, judgments, beliefs, attitudes, etc. In Figure 3 are presented 15 qualitative methods: back casting, brainstorming, citizens' panels, environmental scanning, essays, expert panels, futures workshops, gaming, interviews, literature review (LR), morphological analysis, questionnaires/surveys, relevance trees, scenarios, and SWOT analysis. (Gavian, Scapolo, 1999; Popper 2008.)

Reliable and valid data, such as socio-economic indicators are often generated by quantitative. The Figure 3 shows three quantitative methods: bibliometrics, modeling/simulation, and trend extrapolation/megatrends. (ibid.)

Semi-quantitative methods are in essence rational judgments and viewpoints of experts and commentators i.e. weighting opinions and probabilities. The mapping in Figure 3 includes six methods from this category: cross-impact/structural analysis,

Delphi, key technologies, multi-criteria analysis, stakeholder mapping and (technology) road mapping. (Popper, 2008)

Differentiating between methods that are based on various types of knowledge is:

- more based on data and the processing of data by statistical methods and modelling (e.g. extrapolation, computer simulation)
- more based on expertise and the judgement, opinions, and reasoning of experts (e.g. expert essays, Delphi surveys)
- bringing together different players to interact in face-to-face or online settings (e.g. in workshops, seminars and conferences)
- emphasising creativity, whether classic individual creativity (e.g. writing fiction) or development of compelling narratives and visions (e.g. through scenario workshops). (Popper, R. 2008)

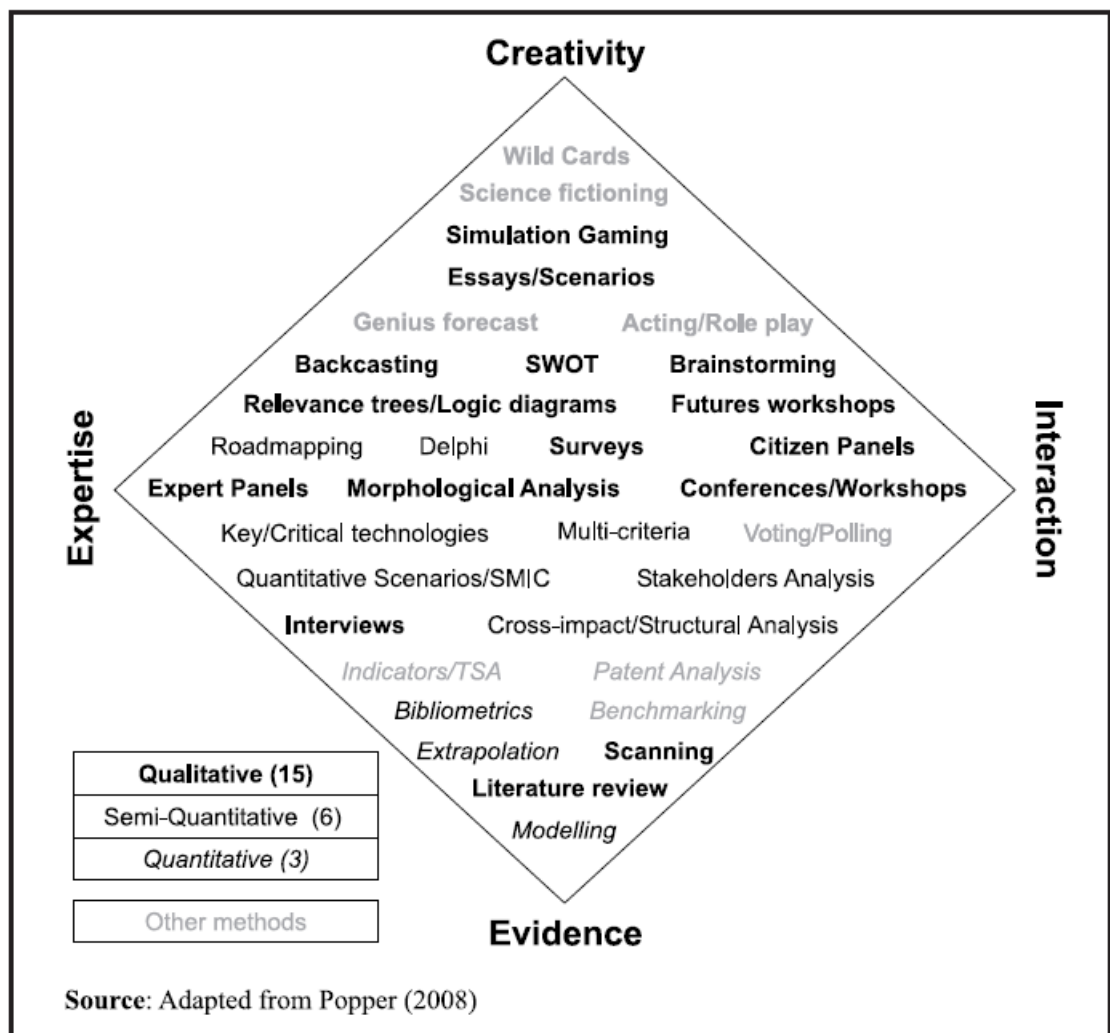


Figure 3 The foresight diamond (Popper, R. 2008)

In Figure 3 are described the four main attributes: expertise, evidence, interaction and creativity.

The skills and knowledge of individuals are referred by expertise in a particular subject or area and are frequently used to support management. These methods rely on the indirect knowledge of people with advantaged access to needed information or with accumulated knowledge from working experience on a particular area. Expertise often allocates more broad understanding of the theories, hypotheses and observations of a study.

It is important to try to explain or predict a particular event with the support of reliable documentation e.g. statistics and various types of indicators. The actual state of development of the research issue can be easily found with these actions.

It is proved that when experts gather around they gain expertise. That is especially useful in foresight studies, especially in societies in democratic environment. Also imagination and innovative thinking is helpful when skilled people are brainstorming together. (Darkow and Gracht 2010; Popper R. 2008)

The methods used in this study are Expert Panels, Interviews Scenarios and Literature Reviews. Expert Panels go to the furthest left, closest to the expertise, which is critical in this study. The reliable knowledge on the logistics, its history and future is needed in order to understand what lies in the future of Southern-Eastern Finland's Logistics. A bit to the evidence side is Interviews-method that will be used to full fill the holes in the information gained by expert panels. Closest to the evidence is Literature reviews that are used as a base knowledge for the study, e.g. Finnish Parliament's scenario work and foresight study theories. Creativity is shown in scenarios, which are first made ON the basis of the questionnaires and then refined by the answers of the expert panellists.

### 3.3.1 Scenarios

Definition of the scenario in a dictionary is 'an outline of a natural or expected course of events'. Anyhow, each business and non-business organization has its own defini-

tion to the scenario. Fahey and Randall (1998) describe scenarios as descriptive narratives of plausible alternative projections of a specific part of future. They are methodically researched and developed in sets of three, four or more to study how an organization, or one of its decisions, would fare in each future in the set. Scenario planning has been identified as one of the most appropriate approaches for long-range planning and to support decisions in uncertain situations (Phelps et al., 2001, 223-224; Powell, 1992, 551; Vapaavuori, M. and von Bruun, S. 2003).

Mannermaa (1999) discusses differently scenarios defining scenario method being “a creation of a logical chain of events that is showing how possible, assumable, desirable or threatening state of future is developing step-by-step”.

Michael Godet (1997) divides the scenarios into two groups: explorative and normative. The explorative approach means to look how a situation can evolve from the present into different alternative futures. This is often a participatory process, involving many stakeholders and perspectives and encourages speculation. The normative approach takes one specific and desired future as a starting point and looks at different possible paths to achieve this desired future. The challenge for foresight practitioners is how to combine these two approaches in various contexts taking into account variables such as culture, economics, and politics.

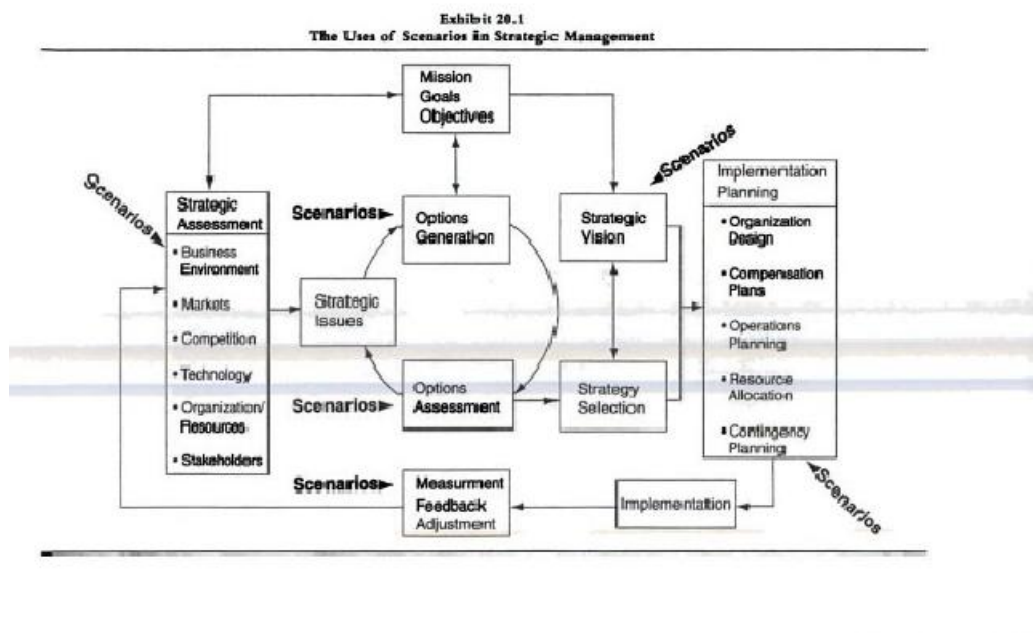


Figure 4 Uses of Scenarios in Strategic Management (Fahey and Randall, 1998)

At the corporate level, scenarios are used to identify the corporate strategies viable against the range of future opportunities and threats. Figure 3 illustrates Fahey and Randall's (1998) perception on the use of the scenarios in strategic management. The model shows how scenarios should be taken care of several phases in strategic planning.

Several big companies have made scenario work already in earlier decades and have shown its importance. The most famous ones are Shell's scenarios that made them cope through oil crisis better than the competitors. (Schoemaker 1993.) Nowadays Scenario work is part of strategic management and it is used widely both in business world (private sector) as well as in public sector. (Costanzo, and MacKay, 2009)

### 3.3.2 Delphi-method

The Delphi method is a systematic, interactive foresight method which relies on a panel of experts. The experts answer questionnaires in two or more rounds. After each round, a facilitator provides an anonymous summary of the experts' forecasts from the previous round as well as the reasons they provided for their judgments. Thus, experts are encouraged to revise their earlier answers in light of the replies of other members of their panel. It is believed that during this process the range of the answers will decrease and the group will converge towards the final and revealing answer. Finally, the process is stopped after a pre-defined stop criterion (e.g. number of rounds, achievement of consensus, and stability of results) and the mean or median scores of the final rounds determine the results. (Darkow and Gracht, 2010; Gavian and Scapolo 1999 ; Kauppinen, Kuusi, and Söderlund, 2003; Rowe and Wright, 1999.)

Delphi process as described by Mannermaa (1999) consists of the following phases illustrated in Figure 4:

1. Selecting subject and gathering the expert panel
2. Creating the questionnaire

Unclear, incoherent or ambiguous words, expressions and concepts are minimized and possible pilot query is made. Questionnaire should be as compact as possible and it has to be filled in less than half an hour at its best.



### 3. Choosing one or more Delphi-panels (=oracles).

Panel should consist on experts that know more than average Joe on the given subject and who should be able to make predictions on the future on the selected area. The size of the panel can vary. It is presented that the ideal number of persons in panel is 10 to 20. If the size is raised over 30 persons the extra value is not gained anymore, only the amount of work is growing. Quality is more important than the amount.

Also the commitment of the panellist is important as at least two rounds of questioning are needed. It is as well possible to use two separate panels for these rounds.

### 4. First round

Information is gathered either be interviews or by mailed questionnaires. The results are gathered and statistics are counted. The outermost answers are lift up and further questions are made to the panellist. The information is interpreted that either the separating answers is due exceptional knowledge of the area or that the person is uncertain on the subject and might be useful to hear the others opinions.

### 5. Feedback

The panellists with the outermost answers are re-questioned on their answers and the additional arguments are asked.

### 6. Seminar

At this point it is possible to gather seminar where the information is valuated. Simultaneously the questions for second round are created. This might diminish the need for more repeated rounds.

## 7. Second round

The results of the first round are sent to the panellist with the added arguments. New answers are asked again. In an ideal case the questionnaire is the same as in first round, maybe with additional questions.

## 8. Gathering and evaluating the information

The aim is to gain stability in answers so that the answers would not change much when there would not be need for extra rounds.

## 9. Possible repetitions

Extra rounds and evaluations may be needed, but quite often two rounds are enough.

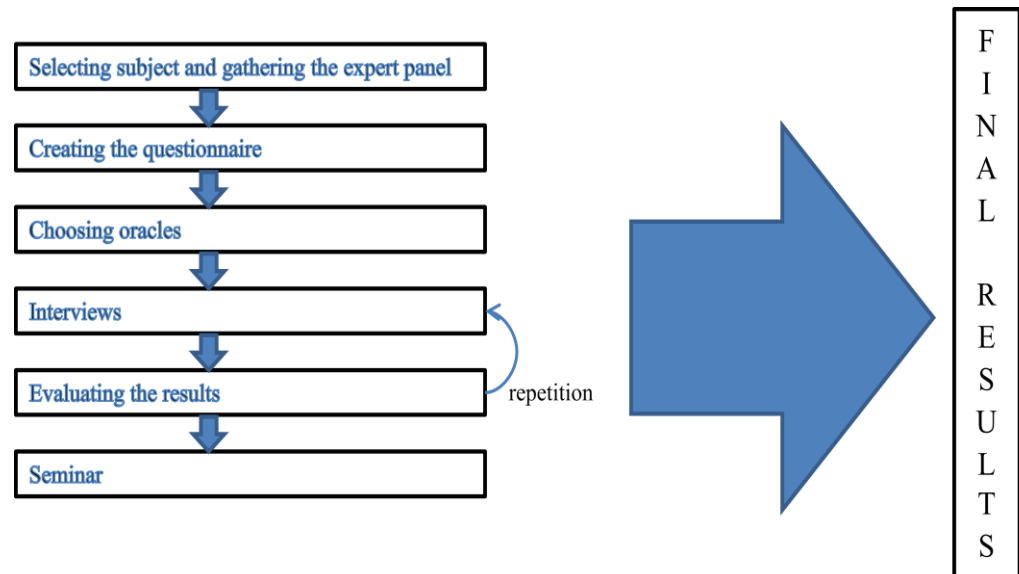


Figure 5 The Delphi process (Mannermaa 1999.)

Costanzo and MacKay (2009) present a shorter three-step model, where first information is gathered, and according to it the diagnoses are made and results interpreted, and finally strategy is formulated and implemented. This study will be somewhat blend on Delphi process Mannermaa introduced and the foresight process Costanza and MacKay presents. The basic structure is adopted from the Mannermaa, but shortened to the process that resembles the Costanza and McKay model, as there were no repetitions.

## 4 THE SURVEY

### 4.1 Basis of the survey

As a basis of the query were used relevant data and earlier future studies by other researchers. One of the newest studies concerning the matter is Finnish Government's Foresight committee published report 'Russia 2017 – three scenarios', in which they have formed the following scenarios: 'Becoming global influence with energy knowhow', 'Comprehensive mosaic-Russia' and 'Strong Power Russia'. When looking at the effects that it might bring to Finnish logistics business, there are key points in every scenario. In the first scenario, the continuous strengthening of energy export. The second one shows the emphasize on the middleclass – its needs and services it is consuming. In the third scenario the oligarchy is stressed by showing how the ones in power get all the money and rules the country, which might bring more instability on the bureaucracy and import legislation.

The reason for using only this one previous study was that there were not available any relevant studies by the time the research process started. As the process went forward more studies were published. If the Darkow and Gracht (2010) foresight study on European logistics or similar had been available before beginning this study, it would have been very useful, as it could have been used as a basis for structuring the survey.

### 4.2 Scenarios drafts as basis for the Delphi questionnaire

I created the following scenario drafts to the basis of Delphi questionnaire in which the most important subjects were RFID Technology and its influence in human resources management, automation in stevedoring and container handling and its influence in human resources management, paperless forwarding and its benefits and harms, the importance of railways due oil price changes, the influence of climate change in business and especially in logistics and environmental awareness of the clients. The subjects originated from the my own work experience within DHL and transit logistics as well the current news on technological innovations and local political changes influencing the port of Hamina. These 'puzzle pieces' helped to create 'wild scenarios' that were freely brainstormed around the vision on the future transit business in port of Hamina and DHL Freight (Finland) Oy.

These drafts raised three major themes: technological development, energy/oil price development and the possible rise of ecological awareness. These themes were used as a basis for the Delphi questionnaire, which was later completed with some current issues on local politics that might influence strongly to the future of the DHL and all operations in port of Hamina.

### 4.3 Creating the Delphi Questionnaire

The Delphi survey was created based on the created scenarios. It was translated both into Finnish (Attachement1) and into English (Attachement2), and it had questions on three categories: the first part dealt with the current competitiveness in port of Hamina and its possible merge with the port of Kotka, the second part included questions on the technological development and its affects, and the third part focused on environmental changes and its effects on the logistics. As part of the chosen experts (oracles) were outside the DHL Freight (Finland) Oy, there were two versions on the questionnaire, on which the second version had the term ‘ a warehousing company in the port of Hamina’ instead of the company name. These questions are introduced in the following paragraph in more detail.

All the questions were in arguments that were asked to be evaluated in a scale of five: 1= strongly disagree, 2= disagree, 3=neutral, 4=agree and 5=strongly agree according to the oracles own perspective. Every question had also space for free commenting in order to help the oracle open up his perspective or explain the choice of certain answer.

In total, the query form can be divided into three parts. The first part concerned the regional questions. Discussion on merging the port of Hamina and port of Kotka is going on currently. One of the options is the fusion to the one big company. Oracles were asked to assess the possibility of the merger.

- a. “Port of Kotka and Port of Hamina will merge into one company by the year 2020.”
- b. “If you answered 1 or 2, which year you thing the merge will happen?  
Year XX, after 2020, never”

Also the affects of the merger were asked to be commented by the following statements:

- c. "Possible merger will strengthen the competitiveness against the other big ports in the area (St. Petersburg, Estonia, Vuosaari)"
- d. "Possible merger would cut the costs in DHL Freight (Finland) Oy."
- e. "Possible merger would strengthen the competitiveness of DHL Freight (Finland) Oy"
- f. "The role of the Russia's own ports is rising in import and export. Even though the economic growth is raising the flow of goods, more cargo will go directly to Russian via its own ports instead of Kotka and Hamina, and therefore the current capacity is enough, and there is no need for expansion by the year 2020."

Answering to these questions demand the knowhow not only on the local logistics, but also the wider perception on the competitive situation in the Baltic Sea area. The local decision-makers have really strong standpoint also based on the feelings and politics, so one goal was to see how the expertise point of view differs on that. To get reliable answers it is also important to get wide range of oracles, furthermore on the geographical point of view.

The final question on the local range was discussing the transit business and its future. For a long time the biggest group of transit goods coming from Asia via Finland to Russia was the one employing the people in Hamina-Kotka area. In DHL Freight (Finland) Oy it was mostly the electronic goods, such as home entertainment, cameras, printers etc. When recession came, the demand on the goods diminished and it affected directly the traffic in Hamina-Kotka area. Some of the changes seem permanent, and new customers and product ranges are being searched constantly. The final question discusses which group would be the biggest in transit business in year 2020.

- g. "Which product groups you expect to be the biggest in transit between Finland and Russia in the year 2020?"

Obviously the question is challenging as it has so many components that affect the situation - not only the economic situation on Russia, but also the competitiveness of the Baltic countries and other possible routes as well as the Asian situation.

The second part consisted of technological questions. New technical and automatic solutions are developed constantly. In the biggest ports of the world robots have replaced stevedores in many ways (Hoshino, 2009), and different kinds of sensors and coding systems are used in goods identification. Especially RFID technology has been under discussion. RFID, Radio-frequency identification, is the use of an object (typically referred to as an RFID tag) applied to or incorporated into a product, or person for the purpose of identification and tracking using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader. RFID tag contains chip with saved information, and antenna to send it to the sensor. It can be installed either at the production phase or afterwards (RFID Lab Finland).

First two questions discussed the robotics in stevedoring:

- a. “At the port of Hamina robots conduct at least 50% of the container lifts and moving.”
- b. “If you answered 1 or 2, which year you think the merge will happen? year XX, after 2020, never”

Answering these questions demands expertise in operational logistics and perspective to the technological development in operational systems in the port. The next question discussed the RFID technology that is used increasing in logistics, but not yet in DHL Freight (Finland) Oy.

- c. “RFID is everyday technology in DHL Freight (Finland) Oy warehouse in the year 2020.”

Finally the electrical, paperless, forwarding was examined in three separate questions. “Year 2020 paperless forwarding and customs are everyday work

- d. In imports
- e. In exports
- f. In transit.”

Paperless, electrical, forwarding is being developed together with customs constantly. It has not been only question on the technological development, but also question on the attitudes, legislation and cultural differences. In order to be able to answer this, the oracle needs knowhow not only on the everyday forwarding business but the knowledge on the Russian business culture and politics.

The last part was all on the environmental questions. Climate change, measuring carbon footprint and other environmental values are becoming part of business life, and

the consumers are getting more conscious. This fact there values have been in stronger place in Western-Europe than e.g. Eastern-Europe or Asia. The researches list the carbon footprint one of the important meters when evaluating and planning the supply chain – traffic causes 13% of the global greenhouse emissions, and in Finland as well as in the European Union the fifth of all the greenhouse emissions (ilmasto.org). Nevertheless traffic increases constantly. Already 2003 it was discussed that yearly growth of 70% in traffic will cause more emissions than the aims of diminishing emissions that were decided in United Nations Framework Convention on Climate Change in Kyoto (Maan ystävät 2003).

The first question discussed the estimates on the attitudes in Russia, if they change to the same direction as in Western Europe or not:

- a. “Year 2020 the environmental friendliness of the products is one value Russian consumers evaluate in their everyday life so strongly that it has to be taken into account in Russian business.”

Strong knowledge of the current culture in Russia, and consuming habits are needed in order to be able to evaluate that. The following questions had the logistics company’s own perspective, what the climate change will cause to operational logistics in economical perspective:

- b. “Environmental questions demand investments from the logistics companies in the year 2020 in order to diminish the carbon footprint.”
- c. “What is the oil price in January 2020? (compared to the July 2010 \$79/barrel)”
- d. “Do circulate the biggest effect the oil price would make (feel free to comment below)
  - i. The price of the transportation will rise from the current
  - ii. The finding of the new ways of transportation will become rational
  - iii. The clients’ attitude towards fossil fuel becomes negative.
  - iv. Energy efficiency will become important
  - v. Something else, what?

#### 4.4 Choosing oracles

After the questionnaire was created and needed expertise was evaluated, the oracles were chosen. Logically the first thing needed was the expertise on the DHL Freight (Finland) Oy's own field. The process started by asking the product manager of DHL Freight (Finland) Oy, who he considered to be expert in order to answer the questions, and the persons he recommended were asked the same question. This chain created a group of people that was completed with some general experts. The complete list is introduced in table 1.

Table 1 The Oracles

<b>Interviewee</b>	<b>position</b>	<b>Expertise</b>
<b>1</b>	DHL Management	DHL Freight, logistics
<b>2</b>	DHL Management	DHL Freight, transit logistics
<b>3</b>	DHL Management	transit logistics, Russia
<b>4</b>	DHL Management	operative logistics, DHL Freight
<b>5</b>	DHL Management	DHL Freight, transit business
<b>6</b>	DHL Management	DHL Freight, transit, Russia, Asia
<b>7</b> <b>(considered himself not be correct person to answer, did not answer)</b>	DHL Management	DHL, operative logistics



<b>8</b>	DHL Management	transit logistics, Russia, DHL Freight
<b>9</b> <b>(did not reply)</b>	Expert from outside	Logistics, Management of Finnish legislation
<b>10</b> <b>(did not reply)</b>	Expert from outside	Logistics, transit logistics,
<b>11</b>	Expert from outside	Transito, operative logistics
<b>12</b>	Expert from outside	Transito, logistical management, logistical planning, legislative management
<b>13</b> <b>(did not reply)</b>	Expert from outside	Operative logistics of Southern-Eastern Finland,
<b>14</b>	Expert from outside	Business in Southern—Eastern Finland, Logistics in Southern-Eastern Finland
<b>15</b>	Expert from outside	Operative logistics in Southern-Eastern Finland, operational logistics in transit business.

## 4.5 The Interviews

The questionnaires were sent to the oracles by email attached to the covering letter either in English or Finnish (Attachment 3 and 4), and they were given one week time to answer the questions. Some of the questions that were especially on DHL Freight's future were corrected to the version "warehousing company operating in the port of Hamina" to the Oracles out of the company.

After the time period exceeded the reminder (Attachment 5 and 6) was sent to those oracles that left unanswered and they were given one more week time to answer the questions. All the answers are shown in a table in Attachment 7.

## 4.6 The survey results

### 4.6.1 Regional questions

The results of the oracles were gathered and analyzed not only by the commonest answers but also considered the reasons and background for possible outermost differences. E.g. If two of the oracles were thinking that port of Hamina will not merge, but the rest believed strongly in the merger, the background and expertise on the matter of the oracles was weighted and the reliability was evaluated. If the ones disagreeing are far away from the everyday local life of the area, there was lighter weight on their opinion.

Discussion on merging the port of Hamina and port of Kotka is going on currently. One of the options is a merger into one big company. The oracles were asked to assess the possibility of the merger. There was a strong opinion for merger's success among the oracles dealing with operational logistics, or local politics. The ones being uncertain or not believing were the oracles furthest from the local politics. The merger is strongly political question, mainly as the both counterparties are owned by municipalities, and the ones deciding on the merger are politicians, not logistical or financial experts. The estimates on the time of the merger were between 2010 and 2012, while only one saw it after 2020

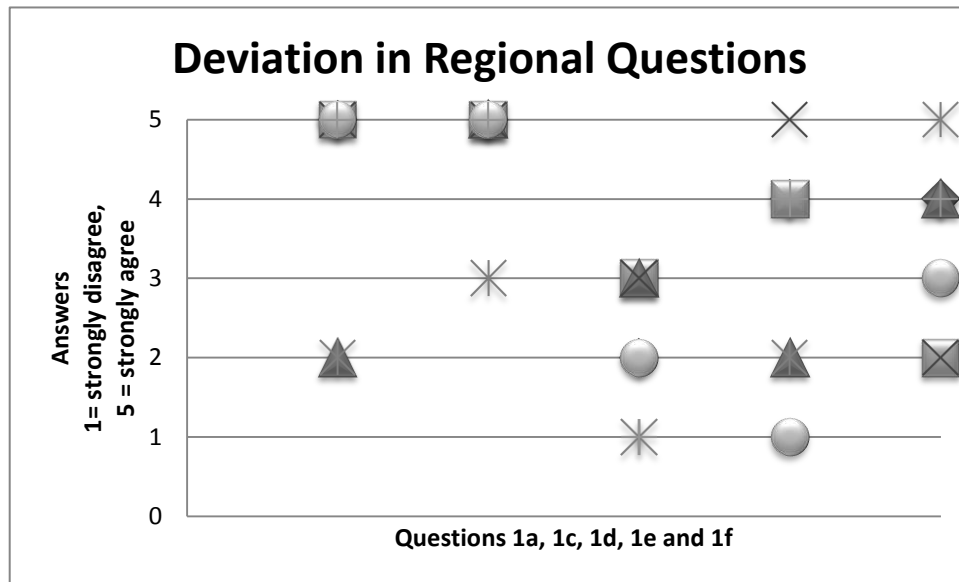


Figure 6 Deviation in Regional Questions on Oracles answers.

Also comments on the effects of the merger were asked. The significance of the possible merger's effects to the competitiveness against the other big ports in the area (St. Petersburg, Estonia, Vuosaari) were strongly agreed by all the oracles. Comments mentioned saving in investments, the benefits scale of economics, and the importance of logistical route to the Russian markets from the EU. When the effects on the single warehousing company were asked in statements: "Possible merger would cut the costs in DHL Freight (Finland) Oy." and "Possible merger would strengthen the competitiveness of DHL Freight (Finland) Oy" the opinions were that there will not be any cost savings coming from the merger. Simultaneously there was a strong belief in the positive effects it has to the competitiveness, even though there was quite some deviation. There was not any visible trend shown in the answers, and therefore there must be a second round for that question. The deviation of the regional questions is shown in Figure 6, where is clearly shown the wide deviation question 1 has compared to other questions.

The next question in regional subjects was the need for investments in ports of Hamina and Kotka by 2020. The opinions were rather unanimous that there is no need for extra investments. Finally the oracles were asked to assess the three biggest product groups in transit business between Finland and Russia in year 2020. Consumer goods were generally considered to be the largest group, as well as liquid bulk (in export). The trend of valuable special freight is strong with oracles opinions as well. One of the oracles refused to name the groups but stated that it is based on Russian customs

regulation. Duty and tax rules always change which will change the target. Only one answer had percentages assessed so that part of the question is left out.

Table 2 Biggest product groups in transit between Finland and Russia 2020.

<b>Product group</b>	<b>Votes from oracles</b>
Special/Valuable cargo	4
Fluid bulk/ Chemicals	4
Electronics	3
Consumer goods	2
Car components and Cars	2
Medical	1
Ore	1

According to the oracles there would not be dramatic changes to the current situation. Table 2 shows that fluid bulk (chemicals) and consumer goods (incl. electronics) keep their strong position. The visible trend was in special /valuable cargo. There has been a discussion on its possibilities in transit markets, and e.g. Nurminen Logistics built a new warehouse to the port of Hamina in 2010 just for the special transit cargo going to the Russia. Its possibilities have been in discussion in media, and as all the ones referring to it are the ones strongly attached to the port of Hamina, there must be considered the affect of the media and local investments – the ones operating further did not mention it. Surprising was also, that cars that were major product group in transit before recession do not get high parts any more in oracles foresees, but Car components were separately mentioned twice. The trend of components and spare parts in electronics and cars has been seen during past few years, and it seems that some of the oracles still see future for them. There has been made research on the trend in University

of Turku (Gubanova 2009.) which claims that car components are growing business, but Russians aim to make transportation of these goods directly by sea to its own ports. Finnish transit ports as Hamina and Kotka are only stand-by solutions, although, the ones trusting to that business are not in touch with the warehousing/logistics business or the customers.

#### 4.6.2 Technological questions

First two questions discussed the robotics in stevedoring. The Oracles were asked to assess if at the port of Hamina robots could/will conduct at least 50% of the container lifts and moving in 2020, and if that happens later, what year it might be. Those furthest to the real everyday contact with the business trust that robots come before 2020, but the ones in charge say there are not going to be any - no resources for investments. Figure 7 shows visibly how question 2a had biggest deviation on all the technological questions.

The next question on RFID technology had similar results. The ones in operational everyday business comment that there are no resources for RFID, and saw no future for it in warehousing business in Hamina. The ones further relied on strong future of RFID.

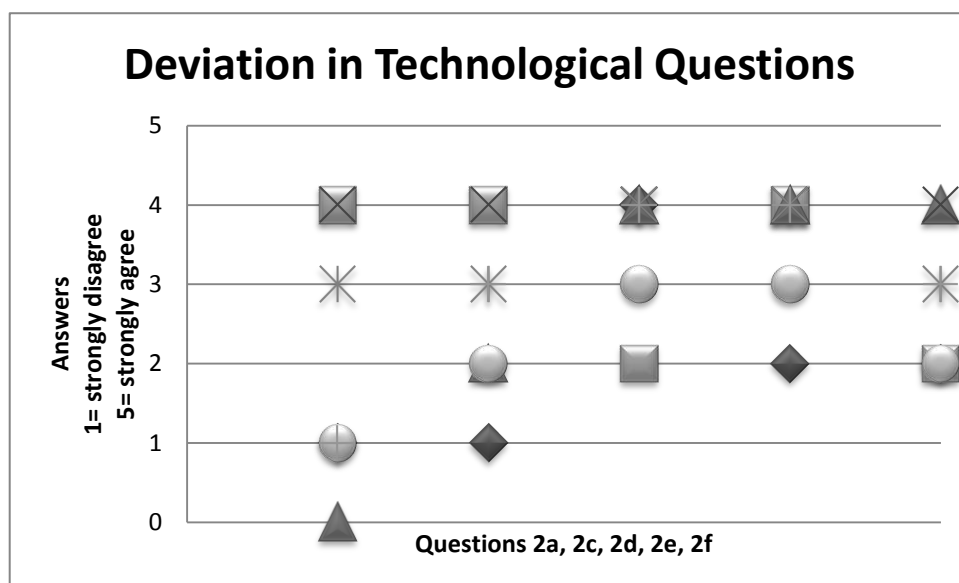


Figure 7 Deviation in Technological Questions.

Next three questions were discussing the future of the paperless/electronic forwarding in three separate areas: imports, exports and transit. There was a strong belief in it in imports, and some belief in exports, but transit business is seen to have its troubles still after 10 years. Comments were that CIS countries and Russia will have such regulations even after 2020 that traditional forwarding will be needed instead of electronic one.

#### 4.6.3 Environmental questions

The first question discussed the estimates on the attitudes in Russia, if they change in the same direction as in Western Europe or not. The argument as: “Year 2020 the environmental friendliness of the products is one value Russian consumers evaluate in their everyday life so strongly that it has to be taken into account in Russian business.” The answers were somewhat unanimous - The ones not in contact with Russian customers are the only ones trusting the change in attitudes, the ones most tightly in contact say it is impossible. Still, when asked the needs for investments in Finnish company according to the new environmental way of thinking, were all the oracles strongly agreeing that investments must be done. Figure 8 illustrates the unanimous view that all the oracles have on the arguments.

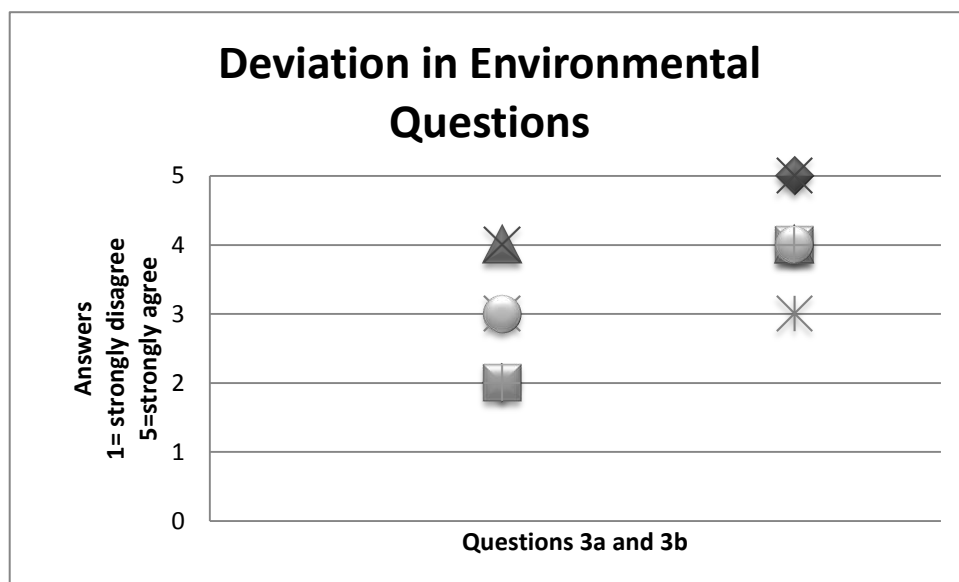


Figure 8 Deviation in Environmental Questions.

Last two questions were more practical questions on the climate change and environmental issues. Firstly the Oracles were asked to assess the oil price compared to the

July 2010 (\$79/barrel). Some must have thought it too hard as it was partly left unanswered, but the trend seemed to be, excluding one, that oil price will rise. Two of the Oracles assessed slight rise to \$85 and \$90, but two oracles saw dramatic rise to \$200/barrel. The last oracle trusted the price go down to \$50-60/barrel. The final question was that what would be the most important practical effect to the price change assessed. Two answers rose upon others: energy efficiency will become important and the price of transportation will rise. The thoughts of customers' attitude change against fossil fuel or finding new ways of transportation did not get any support.

There were not any further rounds, as the answers were rather unanimous.

#### 4.7 Comparison to the Gracht and Darkow study

In the study Gracht and Darkow (2010) on the whole European logistics future the results were somewhat different. The results were:

1. The problem of energy supply (e.g. scarcity of fossil fuels, nuclear power) remains unsolved globally
2. Global sourcing, production and distribution are common practice in almost all markets and value chains worldwide
3. The quality of a company's global networks and relationships has become the key determinant of competitiveness
4. Many developing and emerging countries have narrowed the gap to the industrial nations by economically catching up in the tertiary and quaternary industry sectors
5. Customer demands for convenience, simplicity, promptness, and flexibility have turned logistics into a decisive success factor for customer retention
6. Paperless transport has become common practice in national and international transport business
7. Due to the integration of physical and electronic document flows, almost all documents reach their receiver the same day
8. The demand for high-value, customized logistics services has increased disproportionately

9. Small and medium-sized specialized logistics service providers have merged into global networks in order to stay competitive
10. Customers increasingly demand consultancy services from logistics service providers in order to cope with the increasing complexity and dynamism in their markets
11. The market for digitized document logistics has largely displaced the market for physical document logistics
12. Alternative distribution networks have been established in the CEP-market (courier, express, parcel). Petrol stations, kiosks, and local public transport are increasingly used for pickup and delivery of parcels. (Darkow and Gracht, 2010.)

Of the asked questions numbers 1, 6, 8 and 11 are similar to the ones asked in the study, and number 9 is similar to the question on the merger of the ports of Hamina and Kotka. Even though the two researches are separated, and the Darkow and Gracht research was not available when the foresight study to Southern Finland logistics was made, are similarities shown. It is also rather presumable that none of the oracles have read the Darkow and Gracht research. The comparison is shown in table 3 where these four similar arguments are put into same line. From the comparison it is clearly seen that even though Finland is assumed to go along with the forecast made to the whole Europe, the Russian transit business sets its special requirements that stay with traditional work styles due political, technical and financial issues.

Table 3 Comparison to Darkow and Gracht research.

<b>Result in Darkow and Gracht research</b>	<b>Result in Foresight study to Southern Finland logistics</b>	<b>Comparison</b>
The problem of energy supply (e.g. scarcity of fossil fuels, nuclear power) remains unsolved globally	Question 3d: Oil price change will force logistic companies to emphasize energy efficiency and cause direct rise in the price of transportation	There is a clear trend going throughout the Europe that people really start to see the consequences of climate change, and scarcity of fossil fuels. It also concerns logistics, when



		the need for fluid is essential in order to move the goods.
Paperless transport has become common practice in national and international transport business	Questions 2d, 2e, 2f: Paperless transport may be practice in imports, but export and transit business still uses traditional physical documentation due CIA and Russia legislation and type of business.	In Western Europe and other 'Western' countries paperless transportation is easy, especially in side EU. But as the business moves towards east legislative and technical problems arise that usually also have political dimension, demand still physical documents.
The demand for high-value, customized logistics services has increased disproportionately	Question 1g: The high-value customized project cargo was seen as a biggest part of the transit logistics between Finland and Russia.	The trend is seen clearly in both studies. Consumers have more detailed and customized needs which creates market for high-value customized services.
The market for digitized document logistics has largely displaced the market for physical document logistics	Questions 2d, 2e, 2f: Paperless transport may be practice in imports, but export and transit business still uses traditional physical documentation due CIA and Russia legislation and type of business.	As mentioned before, in Finland this is seen only in national transport and transport with western Europe. All the transport going to CIS countries or Russia still needs physical documentation.

## 5 SCENARIOS FOR DHL

Scenarios were made by analyzing the answers from the Delphi research, but as a basis were used also there four research/scenario works that were made previously: Darkow and Gracht (2010) research, EVA global scenarios 2020, Kymenlaakso scenarios 2020 made by Regional council of Kymenlaakso and Russia 2017 by Future committee of Finnish Parliament (EVA 2010, Future Committee of Finnish Parliament; Darkow and Gracht, 2010, Kymenlaakso Region 2010)

### 5.1 Base material

Darkow and Gracht research results were already presented in chapter 4.1.4. EVA's 4 global scenarios 2020 were:

1. West recreates its skin: Market economy and democracy are advantaged by west, the USA and the EU are leading the world together in communication with the east and climate change is put into control.
2. Chinese Capitalism: The emphasis on economic reformation moves to Asia, Middle-East OPEC-countries and market lead know-how-networks, strong economic growth of 4-6% in global GDP, Opportunism and Capitalism without democracy, EU has no political value.
3. Fight of the Blocks: Rise of regional trade blocks, protectionism and state capitalism, USA isolates, Russia and Europe have common way with energy and technology, Fight against climate change is regional.
4. Stimulus and Collapse: Old rescue methods are not working anymore to global economical crises, world of long low economical growth, USA's positions as international world leader has collapsed, and there is no new leader, no global co-operation, areal conflicts, panepidemics, giant migration, EU's competitiveness has weakened and has only namely position, bad relationship with Russia. ((EVA 2010, Future Committee of Finnish Parliament, Darkow and Gracht, 2010, Kymenlaakso Region 2010))

Regional council of Kymenlaakso has used EVA's scenarios to create its own scenarios that are accordingly:

1. International Kymenlaakso: Investments to east and west communication and deepening integration.
2. Riding bear to get to dragon: Using Russian relations to get connections to China
3. Royal duchy of Kymenlaakso: Being the middle man between EU and Russia.
4. Cracking the border: Southern-Eastern Finland becomes the centre of safety know-how. (EVA 2010)

These scenarios are used in order to create regional strategy that includes logistics strategy and investments plans as well. They have a big impact on the development of the local logistics and its competitiveness. The points in Kymenlaakso strategy that would have the largest effect would be creating the logistic centre and emphasize to Russian relations. In all actions the relations to Russia are seen as a key point and an absolute basic. The highlight to knowhow in Russian logistics, the position of the high-value services, co-operation between the harbours in the area and branding of safety and Kymenlaakso's central position in logistics is stressed. (ibid.)

The Russia 2017 scenarios were already as a basis for the draft scenarios used in development of the Delphi query, and are introduced in chapter 4. The three scenarios: 1. Becoming global influence with energy knowhow: The continuous strengthening of energy export, 2. Comprehensive mosaic-Russia: emphasizing Russian middle-class' needs the services for consumers, and 3. Strong Power Russia: The oligarchy that is stressed by the ones in power who get all the money and rule the country, have got updated in 2010 by Future Committee with fourth Scenario, 4. The Russia of agreements: More co-operation between neighbouring countries – freedom of visa to short visits between EU and Russia, highlighting the Eastern-Finland's position to Russian tourists, Russian migration to Finland and its consequences. (Finnish Parliament Future Committee 2010, Kuusi, Smith, and Tiihonen, 2010.)

## 5.2 Delphi query as basis for scenario

Creating scenarios starts with analyzing the Delphi results in three stages according to groups in query. Each part is divided into two: success and failure and its consequences.

### 5.2.1 Regional questions: Merger of ports and its consequences

Majority of respondents trusted in merger, and if the merger is decided in November 2010, it will happen probably at the beginning of the 2012. The tentative proposal would guide big container vessels to Mussalo (Kotka) and Hamina would get RoRo and StoRo vessels, fluid tankers and project cargo mainly, and the cargo using railway transport (Kymen Sanomat). In Figure 8 is illustrated the procedure in author's perception created through the answers from the oracles and scenarios used as a base material which such contract might cause.

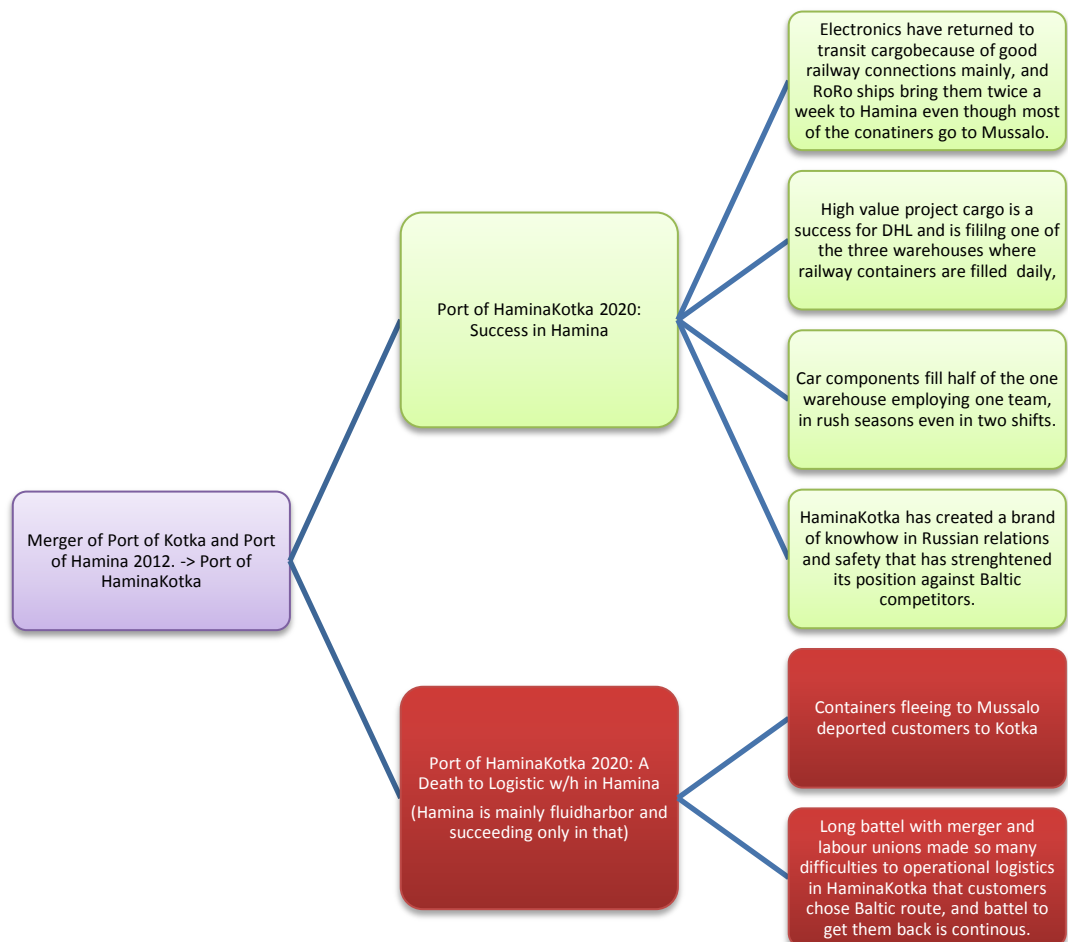


Figure 9 The consequences of port merger (Author's perception)

In the better alternative DHL would benefit its good railway connections directly from its two warehouses (possibility to load railway containers from covered railway deck), its knowhow and contacts in sparepart business, and would expand its business aggressively to high-value special carho transports. In co-operation, port of HaminaKotka would create its brand in safe and flexible high value port as a gateway between Russia and rest of the world. In worse alternative Hamina's concentration to fluid cargo hampers DHL performance by rising the costs (container haulage to warehouse and return of empty container) and as the merger with all its political and labour union fights is clearly visible in media as well as troubles the flexibility in transport, will the customers flee to better routes.

### 5.2.2 Technological questions: Paperless forwarding and its consequences

As the trend was rather clear with robotics and RFID, that there are no resources for such investments is the major question in paperless/electric forwarding and its consequences.

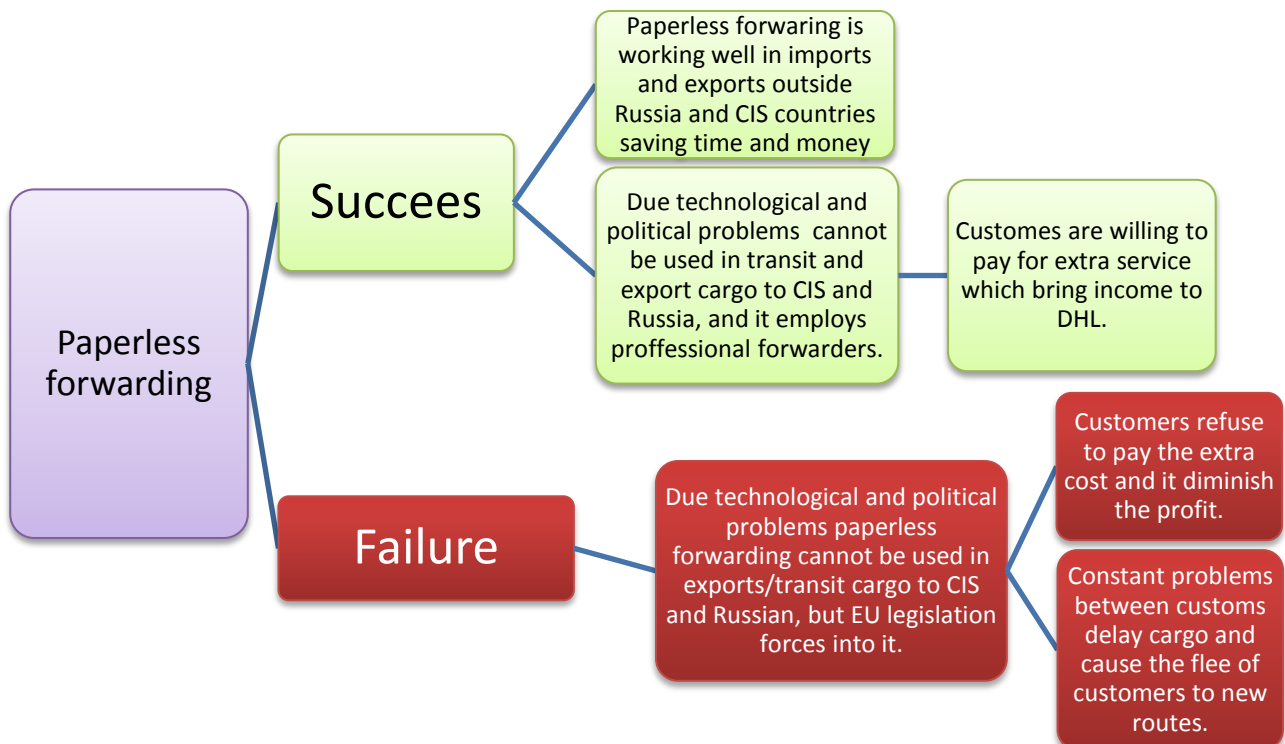


Figure 10 Paperless forwarding and its consequences (author's perception)

In Figure 10 is demonstrated the possibilities paperless forwarding might bring. It has been created on the basis of the answers of the oracles and base material scenarios In

succeeding route with paperless forwarding DHL is able to profit from working paperless forwarding in imports and exports outside CIS and Russia by saving money and time, but also by making traditional forwarding to CIS and Russia an extra service that can be also used for gaining extra profit. In a poorer route EU legislation would push towards paperless forwarding in order to involve to double-invoicing and other misappropriation of cross-border trade, but Russian political and technological abilities would not be able to meet the needs. In result there would be extra costs that customers would not be necessarily willing to pay, and in long run it might cause delays in border bureaucracy which would make customers find better routes.

### 5.2.3 Environmental questions: The attitude changes climate change might cause

The companies have to start to make actions to diminish carbon footprint and fight against climate change in western world through public pressure. These actions need to be done whether Russians join the fight or not. These actions will have economical effects that should be taken into account in strategy planning.

Figure 11 shows the two routes mainly concentrating on the preparation the economical change climate change will cause with or without Russians involvement.

The ability to prepare to changes climate change will have to attitudes is shown in Figure 10 in author's perception created through the answers from the oracles and scenarios used as a base material. The two routes divide the success and failure according to preparation to change and ability to work according to Russians values without extra costs. The success is possible with or without Russians environmental awakening: if Russians understand the possibility to influence with consuming habits, should DHL be prepared to it and use it as competitive advantage. Having a carbon-sparing way to function already ready for action, makes DHL first choice to environment-conscious partners. If the Russians stay regardless of global responsibility towards environmental issues, DHL should be able to keep up with the change by concluding the fight against climate change in its long term strategy and this keep the cost as low as possible so that it would not affect the business with Russians.

The failing route has the same alternatives with Russians attitudes; if Russians wake to the climate change but the consumers only concentrate on consuming the goods produced near diminishing the carbon footprint by shortening the supply chain and mid-

way warehousing will DHL lose. Also possibly the EU legislation is influencing the carbon emissions, which DHL should take into account in their long-term strategy. If not, it will have greater influence on costs and make competitors and alternative routes more appealing.

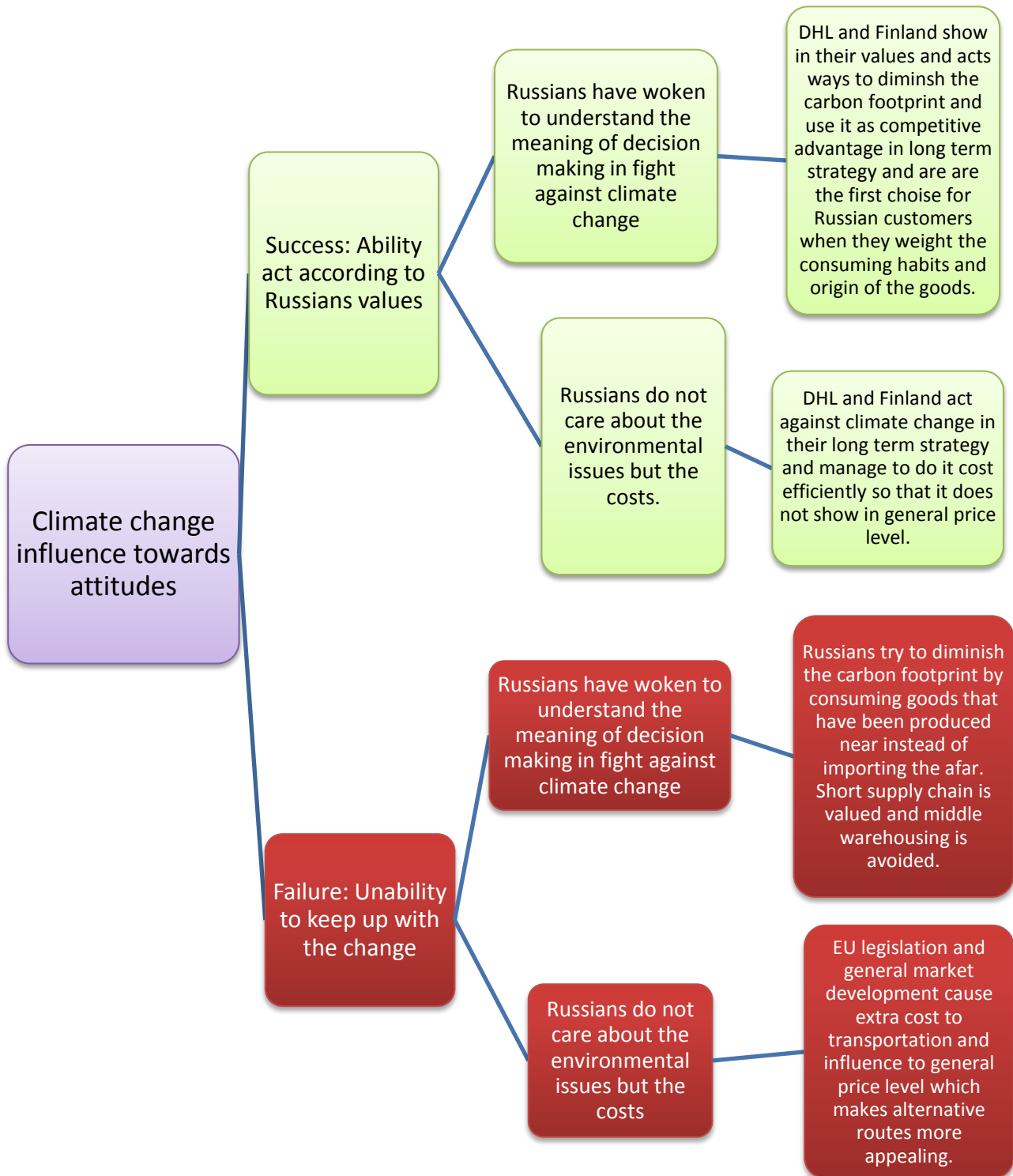


Figure 11 Climate changes influences towards attitudes and preparation.

### 5.3 Creating scenarios

Scenarios are created on the basis of EVA global scenarios 2020 and Kymenlaakso 2020 scenarios with the details from Delphi query and adjustment from Future committees Russian 2017 scenarios and Darkow and Gracht research results.

#### 5.3.1 Scenario 1: Succeeding through International co-operation and networking

Merged Port of HaminaKotka with international competitiveness gives strong base for logistics businesses to work; Port is well known globally on its gateway position to Russia and its logistics centre of high quality that is network of different warehouses.

Value-added project logistics services have become a core competence in DHL due its good cooperation between global network of DHL Freight, DHL Global Forwarding and DHL Supply Chain which gives it competitive advantage against challengers. Russian and Finnish DHL have found a good communication and are developing the business together. The transit-team in Hamina and St. Petersburg are making sales together in small Finnish lead team which respected leader is well experienced in Russian business speaking fluent Russian and having working experience from Finland and Russian in logistics field.

Paperless forwarding has become easier due to mutual way of thinking between authorities in Finland and Russia. In those situations where it does not work yet it is marketed as high-value special service which customers are willing to pay. Co-operation with the Customs in Hamina is continuous and customs are developing its practices by consulting DHL in best practices.

Full utilization of railway connections is enabled as the Trans-Siberian route in full action and DHL has covered railway decks inside two warehouses, which allows taking all the advantages railways have. Full trains leave every week to Russia and CIS countries from Hamina having majority of the containers loaded from DHL not only with special high-value cargo but also with electronics and car components with which DHL was strong know-how.



New technology allows the fight against climate change without enormous costs; long term- strategy enables to invest to low-carbon engines (bio-fuel, low fuel consumption), railway stressed transportation, and energy efficient thermo transportation.

### 5.3.2 Scenario 2: Steady middleman arises from ashes

Port of Hamina Kotka has got rid of the problems it had at the beginning of the merger and traffic has risen steadily since recession. Southern-Eastern Finland has become middleman in EU/Russian politics in all areas, and it has strengthened HaminaKotka's position as safe transit harbour, secure option to St Petersburg's or Estonian's harbours in the world where the neighbouring countries are not trusted.

As it has created value and brand as a trustworthy transit harbour, new and old customers have begun to move their cargo go through HaminaKotka, and DHL has got its part. Electronics and car component business has not reached its high which it had mid 00-decade, but again in high seasons there has been need for two shifts and when big projects are at their peak, some subcontractor's rented workforce has been needed. The discussion on how RFID technology aids in dealing with the traffic peaks is going on continuously, as some of the competitors have invested in it, but DHL still has not got enough resources to put it into practice.

One big part of the cargo becomes from wind energy technology which has become a leading technology in the area. Long relations to local windmill factories have helped in networking, and the ability to use DHL Global forwarding (sea fare) services fluently with DHL Freight services has given strong competitive advantage when handling the big wind mill components.

Paperless forwarding is everyday practice in imports but due Russian politics and technology traditional forwarding is still used in all export and transit cargo going to CIS and Russia. DHL has a good reputation of its knowhow in traditional forwarding. Many companies in logistics business in Southern Eastern Finland had to dismiss their forwarders during recession a decade ago. These specialists fled to different field, but DHL managed to keep the best in the house through well manager human resources policy and it is now high-value asset compared to competitors.

### 5.3.3 Scenario 3: Squabbling Haven

Port of HaminaKotka merged almost a decade ago, but it is still struggling with its problems – strong area politics between Hamina and Kotka are taking resources from investments and bad decisions trying to save labour costs have inflicted labour union led work battles that slow down the traffic flow. In Mussalo, part of the Hamina-Kotka port that is in Kotka, warehousing business is going better than in Hamina, from where the customers have slowly flown due to the change that container vessels are centred to Mussalo. Only fluid tankers come to Hamina and occasional RoRo vessels with trailers on them.

DHL still has some long term customers loyal to them in the single warehouse from where they deliver goods (electronic, spare parts and some project cargo) by railway and truck to Russia mainly. There have been several layoffs due to recession in order to be able to make needed investments the new legislation demands to stop climate change. Asian customers understand the need for these actions, but it has been difficult to convince the Russians for extra costs, and some are pushing the suppliers for choosing different routes. Luckily Finland and HaminaKotka has the safety aspect as its competitive advantage against Baltic rivals.

In overall safety brand that Finland has in the eyes of the Russians the key is in marketing the services. It is the aspect that keeps HaminaKotka and its companies desirable even though the EU push towards paperless forwarding and diminishing carbon emissions cause extra costs and investments also to Russian partners. Extra cost comes also from rising oil prices which cause companies to find the new solutions for more effective ways of using energy in order to keep the price of transportation lower.

Table 4 The summary on the scenarios

<b>Succeeding through International co-operation and networking</b>	<b>Steady middleman arises from ashes</b>	<b>Squabbling Haven</b>
<p>1. The High Value of Port of HaminaKotka gives competitive advantage to all companies operating in the area</p> <p>2. Value-Added Special Services and Project cargos make DHL Freight with its affiliates market leader through co-operation</p> <p>3. Strong strategy management brings cost efficiency in investments and turns challenges into victory.</p>	<p>1. Trusted middleman position brings customers from less stable routes to Port of HaminaKotka</p> <p>2. Several traffic peaks and strong knowhow in staff enables employment of numerous personnel in addition to rented workforce.</p> <p>3. Local renewable energy cluster uses DHL Freight due the flexibility its global affiliates give.</p>	<p>1. Political dispute together with labour union battles has caused violates to traffic flow and deport customers.</p> <p>2. Loyal long term customers keep the remains of DHL Freight in Hamina even though EU legislation adds extra costs compared to competitive routes</p> <p>3. Safety brand of Finland as an arbitrator between Russian and EU is the last corner stone keeping the areas logistics alive.</p>

## 6 DISCUSSION

Big global companies have shown an example how the best way out of the crisis is strategic management, foresight study and scenarios. It was the way Shell got out of oil shock, and helped many other companies. By being prepared to something that might happen helps in solving the problems earlier, or by seeing the possibilities in the future helps in creating the aim and strategy to reach it.

It could be thought that the scenario 1 “Succeeding through International co-operation and networking” would be the most desirable one – it has the elements from the Kymenlaakso region 2020 scenario “International Kymenlaakso” which Regional Council of Kymenlaakso sees a way to get up from recession quickest back to economical welfare. The key points in the scenario are the well -managed merger of the local ports into port of HaminaKotka, and the as well manager backwash in order to get the business rolling and rising from the recession. If the scenario comes true the companies operating in the area of port of HaminaKotka are dependable on the marketing and brand management of the port of HaminaKotka, as if it is well managed it gives strong base for business to all companies operating in port area and also attracts new businesses.

The way DHL Freight itself can influence on its reaching the picture painted in Scenario 1 is to develop the co-operation between the affiliates in Finland and in Russia. Mutual strategy between Hamina and St Petersburg would help both in developing the business forward and attracting new customers and tighter co-operation with affiliates would give the benefit on dominance in all areas: rail, road, sea and air. The need for attitude change from jealousy towards endeavour to common gain is a fundamental step. That together with strong strategy management would bring victory after recession- not only concentrating to rescue breathing but already making all the moves in long term orientation would be crucial move when the traffic flows start to move more vigorously again.

The second scenario is not the worst possible, but not the best either. It follows somewhat “Royal duchy of Kymenlaakso” scenario for 2020 from Regional Council of Kymenlaakso. Its key points are that together the region, the port of HaminaKotka and its companies create a brand as a safe middleman between Russia and the EU, which will bring the traffic, flows to HaminaKotka instead of its rivals. The long term orientation in Human resources enables the availability of skilful workforce when traffic flows escalate again. Skilful, experienced workforce has always been a big asset for DHL Freight but recession caused layoffs which has apparently lowered the motivation. The way up comes from internal marketing, as when the staff is working towards common goal the results come quicker.

The third key point is networking with the local wind mill factories. Renewable energy has been forecasted as a leading market in future, and the saviour for the region. It is only beginning its business, but networking in early stage gives a change to be one step forward to the competitors when it becomes serious business. It is a market that should not be underestimated.

The last scenario – “Squabbling Haven” is so called worst case scenario. Its basis is in “Cracking the border” –scenario of the Regional council of Kymenlaakso. It shows what will happen if there is no co-operation in the region – if everyone is concentrating on fighting with each other instead of fighting to get to the common goal. Biggest influence is on local authorities that may ruin the business in the whole area by managing the merger of the ports poorly. Its affects could be still visible after a decade, and it may become a death to the ports – especially in Hamina which is more vulnerable to the poor management. Importance in management is also crucial in DHL Freight – as if the long term orientation and strategic planning is not used in management the possible legislative extra cost may make more harm.

If the middleman position and safe haven- brand can be established apart from the dispute, may it well be the saving point – but trusting only that is only a rescue breathing and short term management and may help only as long before Estonia or other Baltic countries manage to get same position – and it is well possible that in 2020 that status has been reached and it is no longer monopoly for Finland.

As a summary could be commented that it seems that the ways up from recession to the success in 2020 for DHL Freight in Hamina are long-term strategic planning, and strong co-operation with its all partners: locally, nationally and internationally. Getting ready for big changes might just pay back many times.

## 7 EVALUATION ON RESEARCH

### 7.1. Evaluation of research process and methodology

In the end the process went as was planned. Some oracles left unanswered, but the most important answers were gained. The missing ones would have been more or less completing, but probably not necessarily giving and new lines to follow. A little displeasure came from the collective answer from the DHL local managers, as their indi-

vidual perceptions would have been very valuable, and it might have affected the final results. There is strong know-how on the Russians and their way of thinking in logistics due some manager's personal work history and relations. There is some doubt that if those ideas in the future could have risen more strongly, the result could be even more valuable and accurate, as now they might have melted into milder outcome, or not all have gone their opinion through. Fortunately that know-how is well used inside the company, and it affects the way of handling the customer relations and developing the business.

Surprising was how different the final scenarios were from the draft ones made only for the basis of the questionnaire in order to determine the question areas. My strong belief in the awakening to the environmental problems and its influence in business life were not as strong among the oracles. The perception was quite unanimous, and especially those mostly in contact with the actual clients strongly trusted that environmental awareness will not have a major influence on business life.

I believe that the process was well chosen and helped to get to the desired goal. As the foresight study is only rising, there were not many useful previous studies in hand to be used, but it would have been a big help to have some similar studies to be compared during the process in order to avoid making the same mistakes. Eventually that was not too big problem anyhow.

## 7.1 Contribution

The foresight study was rather new field to me and needed deep studying before the real research could be started. Strong help from the instructors assisted, and it helped through the points were the road rose up.

Every research process is an opportunity to learn something new, and in this case seem of the major points in professional learning really related to the process itself and process management. When the process and its forwarding does not only influence on one person, but on many, it is harder to keep progressing. The more people there are involved, more struggle it is to get the needed information on time for advancing. Therefore also interpersonal and negotiating skills were very much needed and ensued.

Three lessons I learned from the scenario process:

1. There has to be as wide base for the oracles as possible and their expertise must be evaluated beforehand. What is the expertise of a certain oracle, and is it really of use in this certain study?
2. As important as it is to evaluate the expertise, it is to evaluate the detachment of the oracle. What lies behind his answers? Is he trying to guide the research to the certain direction to advance his own interests?
3. When the right questions are asked the quiet wisdom arises. There might be clear visions in experts minds that no one has said aloud before as it has never been asked.

It is impossible to know the future as we do not have crystal balls or other miracle making gadgets to see what lies ahead, but I trust to the professionalism of the chosen oracles, and their history in business. The locality and knowledge on the local current issues seemed to help in seeing the foresight total differently compared to oracles geographically further. That showed that it is always important to know not only your business, but its operating environment and forces influencing on it. There is definite need for observing the surrounding as well as what is happening inside the business.

Figure 12 illustrates the forces influencing the business that should be taken into account in all planning. It also reminds that there are activities outside the actual operating environment that might change the whole field of business, such as major change in trends, global politics or global changes in business environment. Any major conflict globally might soon affect the area where business is operating either directly or through clients' or suppliers' operating environment. There should be scenarios and strategies prepared also for such a state of emergency. Too often only changes nearby are considered, just like in this research, but there is need for preparation also for further conflicts. That could be a subject for the next research made in the company.

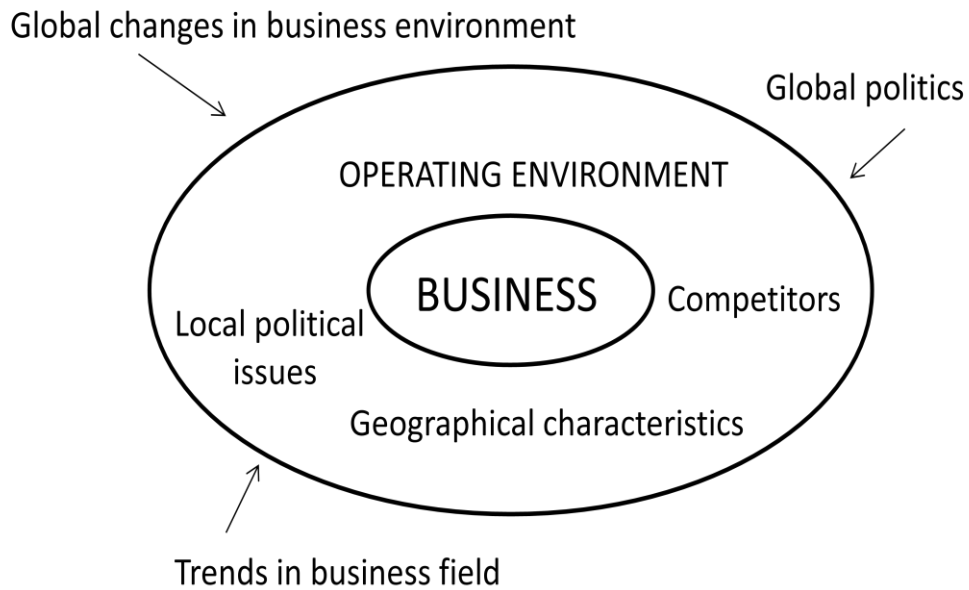


Figure 12 The forces influencing the business environment.

## 7.2 Usefulness of the study

On my own perspective this study is useful to DHL Freight (Finland) Oy. No similar studies were made before neither for this unit or in the whole corporation. I wish the study is used for strategic management and business planning in the company, and hopefully is used as a base to the similar studies made elsewhere in corporation. As the research was very strongly stressed to the geographical characteristics of the business and its vital Russian relations due transit logistics, it cannot be easily used in other departments, but the process itself is tested and working and useful to the all departments. DHL Express might also benefit on Gracht and Darkow research that should be used as a base just to get local details by new foresight study.

I strongly wish and recommend that the management of the company reads the study and the scenarios carefully, and starts serious strategic management. Gracht and Darkow study came into similar conclusions on the coming trends as the majority of the oracles in the study, and I see there a future of the DHL Freight (Finland) Oy as well. Seeing the coming trends early enough and handling the business management accordingly gives strong advantage against the competitors. One of the competitors have already acted on the special project deliveries and sees the geographical advantage the port of Hamina brings, but it is not too late to evaluate the possibilities it gives to DHL, and develop the idea. The company has all the needed elements for the future



success: professional work force, strong know-how on Russians and their way of making business, strong know-how on Asian business, direct connection to the railroads from the warehouses, good relations to the local politics, and good position concerning renewable energy business. Now the only thing needed is the courage to act looking further than only one financial year forward. Longer look in customer relations and strategy might be the key for success.

I find the study useful not only for this certain company but to the whole field. Of course it is competitive advantage to be better prepared than the competitors so I would not recommend the spread of the results / scenarios widely to the logistics field. As the business field is very vulnerable for changes should all the companies especially be prepared for the future and develop their strategic management further.

I also see the usage of the study and its scenarios in the area. 8<sup>th</sup> November 2010 was decided that the port of Hamina and the port of Kotka will merger into port of HaminaKotka in 2011. The 'worst case scenario' – Squabbling Haven – shows the worst possible outcome of that and its affects to the local logistics business. There is a need for co-operation also in politics in supporting the local businesses, as they really need one and other. They can succeed only together. If the politicians and the harbour corporation are battling and wrecking the reputation and credence of the logistics in the Kymenlaakso, it is more or less impossible to operate successfully in port of HaminaKotka even though there would be economic boom and all the other elements were successful.

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Arvioikaa väittämät ympyröimällä oikea vaihtoehto

1= olen selvästi erimieltä

2=olen jokseenkin erimieltä

3=en osaa sanoa

4=olen jokseenkin samaa mieltä

5=olen selvästi samaa mieltä

1. Kotkan ja Haminan satamayhtiöiden yhdistymisestä on käyty keskustelua. Yksi vaihtoehtoista on satamayhtiöiden täydellinen fuusio yhdeksi yhtiöksi.
  - a. Kotkan ja Haminan satamat yhdistyvät yhdeksi yhtiöksi vuoteen 2020 mennessä

1            2            3            4            5

mahdollinen kommentti

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- b. Mikäli vastasitte em. 1 tai 2, minä vuonna uskotte yhdistymisen tapahtuvan?  
vuonna \_\_\_\_\_ vuoden 2020 jälkeen            ei tule yhdistymään

- c. Mahdollinen yhdistyminen kasvattaa satamien kilpailukykyä verrattuna muihin alueen (Pietari, Viro, Vuosaari) satamiin.

1            2            3            4            5

mahdollinen kommentti

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- d. Mahdollinen yhdistyminen vaikuttaisi yksittäiseen Haminan satamassa toimivaan yritykseen kustannuksia alentavasti.

1            2            3            4            5

mahdollinen kommentti

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- e. Mahdollinen yhdistyminen nostaisi yksittäisen Haminan satamassa toimivan yrityksen kilpailukykyä.

1            2            3            4            5

mahdollinen kommentti

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- f. Venäjän omien satamien roolia Venäjän tuonnissa ja viennissä ollaan kasvattamassa. Vaikka talouskasvu kohta lisäisikin tavaraliikennettä, niin yhä suurempi osa liikenteestä tulee jatkossa kulkemaan Venäjän omien satamien kautta ja sen takia Kotkan ja Haminan satamien nykytilanteen yhteenlaskettu kapasiteetti on riittävä, eikä laajennustarpeita ole näkyvissä vuoteen 2020 mennessä.

1            2            3            4            5

mahdollinen kommentti

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- g. Minkä oletatte olevan suurimmat tuoteryhmät Suomen ja Venäjän välisessä transitossa 2020?

1. \_\_\_\_\_ % 2. \_\_\_\_\_ % 3. \_\_\_\_\_ %

mahdollinen kommentti

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2. Uusia teknisiä ratkaisuja ja automaatiota kehitellään jatkuvasti. Maailman suurissa satamissa robotit ovat korvanneet ahtaajien työn monien koneiden kuljettajana, sekä tavaroiden tunnistuksessa käytetään yhä enenevässä määrin erilaisia antureita ja koodilaitteita. Erityisesti RFID tekniikka on puhuttanut mahdollisuuksillaan. RFID, eli radiotaajuinen etätunnistus on menetelmä tiedon etälukuun ja -tallentamiseen käyttäen RFID-tunnisteita. RFID-tunniste tai saattomuisti on pieni laite, joka voidaan sisällyttää tuotteeseen valmistusvaiheessa tai liimata jälkikäteen tarralla. RFID-tunnisteet sisältävät piisirun tiedon prosessointiin, muistia tiedon tallentamiseen ja antennin jolla tunniste vastaanottaa käyttöenergiaa lukijalta ja välittää sille pyydettyjä tietoja muististaan.. Seuraavassa on joitakin väittämiä tekniikan kehityksen arvioiduista vaikutuksista logistiikan toimialaan.

Haminan satamassa vuonna 2020 automaattiset robotit hoitavat vähintään 50 % konttien siirroista

1            2            3            4            5

mahdollinen kommentti

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- a. Minä vuonna uskot em. muutoksen tapahtuvan  
vuonna \_\_\_\_\_ vuoden 2020 jälkeen      ei tule tapahtumaan
- b. RFID-teknologia on jokapäiväisessä käytössä transitovarastolla tavarankäsittelyssä vuonna 2015.



1            2            3            4            5

mahdollinen kommentti

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c. Vuonna 2020 täysin paperiton huolinta ja tullaus ovat arkipäivää.  
tuontiliikenteessä

1            2            3            4            5

mahdollinen kommentti

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vientiliikenteessä

1            2            3            4            5

mahdollinen kommentti

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transitoliikenteessä

1            2            3            4            5

mahdollinen kommentti

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3. Ilmastonmuutos, hiilijalanjäljen mittaus ja muut ympäristöarvot raivaavat tilaa myös liike-elämässä, ja kuluttajien valveutuneisuus kasvaa. Toistaiseksi nämä arvot ovat olleet suurempia Länsi-Euroopassa kuin esim. Itä-Euroopan tai Aasian alueella.

- a. Vuonna 2020 tuotteiden ja palveluiden ekologisuus vaikuttaa Venäläisten kuluttajien valintoihin siinä määrin että se on otettava huomioon Venäjälle tehtävässä kaupassa.

1            2            3            4            5

mahdollinen kommentti

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- b. Ympäristökysymykset edellyttävät investointeja logistiikkayrityksiltä vuonna 2020 hiilijalanjäljen pienentämiseksi.

1            2            3            4            5

mahdollinen kommentti

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Ja lopuksi vielä pari kysymystä joihin toivon teidän vastaavan oman arvionne

c. Mikä on öljyn hinta tammikuussa 2020? (vrt. heinäkuu 2010 79\$/tynnyri)  
\_\_\_\_\_ \$/tynnyri

d. Ympyröi tärkein vaikutus arvioimallasi öljyhinnalla (voit kommentoida alle)

kuljetuksen hinta nousee nykyisestä

uusien kuljetusmuotojen etsiminen tulee järkeväksi

asiakkaiden asenne fossiilisiin polttoaineisiin muuttuu kielteiseksi

energiatehokkuuteen pyrkiminen muuttuu tärkeäksi

muu, mi-

kä? \_\_\_\_\_

mahdollinen kommentti

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**Kiitos osallistumisestanne!**

Please do assess the following arguments by circulating the correct option.

- 1= strongly disagree
- 2= disagree
- 3=neutral
- 4=agree
- 5=strongly agree

4. Discussion on merging the port of Hamina and port of Kotka is going on currently. One of the options is the fusion to the one big company.

h. Port of Kotka and Port of Hamina will merge into one company by the year 2020.

1            2            3            4            5

Further comment

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i. If you answered 1 or 2, which year you think the merge will happen?  
year \_\_\_\_\_ after 2020            never

j. Possible merger will strengthen the competitiveness against the other big ports in the area (St. Petersburg, Estonia, Vuosaari)

1            2            3            4            5

Further comment

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k. Possible merger would cut the costs in DHL Freight (Finland) Oy.

1            2            3            4            5

Further comment

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l. Possible merger would strengthen the competitiveness of DHL Freight (Finland) Oy

2 2 3 4 5

Further comment

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m. The role of the Russia's own ports is rising in import and export. Even though the economic growth is raising the flow of goods, more cargo will go directly to Russian via its own ports instead of Kotka and Hamina, and therefore the current capacity is enough, and there is no need for expansion by the year 2020.

1 2 3 4 5

Further comment

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n. Which product groups you expect to be the biggest in transit between Finland and Russia in the year 2020?

1. \_\_\_\_\_ % 2. \_\_\_\_\_ % 3. \_\_\_\_\_ %

Further comments

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5. New technical and automatic solutions are developed constantly. In the biggest ports of the world robots have replaced stevedores in many ways, and different kinds of sensors and coding systems are used in goods identification. Especially RFID technology has been under discussion. RFID, Radio-frequency identification, is the use of an object (typically referred to as an RFID tag) applied to or incorporated into a product, or person for the purpose of identification and tracking using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader. RFID tag contains chip with saved information, and antenna to send it to the sensor. It can be installed either at the production phase or afterwards. There are some arguments on this technological development in logistics business to be evaluated.

a. At the port of Hamina robots conduct at least 50% of the container lifts and moving.

1            2            3            4            5

Further comment

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b. Which year the change would happen

Year \_\_\_\_\_ after year 2020    never

c. RFID is everyday technology in DHL Freight (Finland) Oy warehouse

1            2            3            4            5

Further comment

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Year 2020 paperless forwarding and customs are everyday work

In imports

1            2            3            4            5

Further comments

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In exports

1            2            3            4            5

Further comments

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In transit

1            2            3            4            5

Further comments

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- 4 Climate change, measuring carbon footprint and other environmental values are becoming part of business life, and the consumers are getting more conscious. This fare there values have been in stronger place in Western-Europe that e.g. Easter-Europe or Asia.
- e. Year 2020 the environmental friendliness of the products is one value Russian consumers evaluate in their everyday life so strongly that it has to be taken into account in Russian business.

1            2            3            4            5

Further comments

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- f. Environmental questions demand investments from the logistics companies in the year 2020 in order to diminish the carbon footprint.

1            2            3            4            5

Further comment

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At the end couple of questions I ask you to evaluate according to your own opinions.

g. What is the oil price in January 2020? (compared to the July 2010 79\$/barrel)  
\_\_\_\_\_ \$/barrel

h. Do circulate the biggest affect the oil price would make (feel free to comment below)

The price of the transportation will rise from the current

The finding of the new ways of transportation will become rational

The clients' attitude towards fossil fuel becomes negative.

Energy efficiency will become import

*Something else, what?*

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Further comment

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**Thank you!**



**Research on the future of logistics in Southern-Eastern Finland****Dear Sir or Madame,**

This research is part of larger ELLO- project. ELLO-project is partly financed by European regional development fund, and its aim is to develop the competitiveness of the Southern-Eastern Finland's logistical corridor. Project develops international marketing –campaign to enhance the conspicuousness of the possibilities Southern-Eastern logistics corridor can offer.

This query asks you to assess the future of logistics in the area by your own perceptions and knowledge via different arguments. The answers are used to create scenarios on the 2015 situation.

This research is also part of Development Project Thesis of the International Business Management student in Kymenlaakso University of Applied Sciences.

Confidentiality

The answers are handled in statistical manners and no individual answers can be separated in the final results.

Return of the query

You are kindly asked to fill the attached questionnaire and return it to [Katja.andrejev@student.kyamk.fi](mailto:Katja.andrejev@student.kyamk.fi) by **1<sup>st</sup> October 2010**. It will take about 10 minutes to fill up the questionnaire.

Additional Information

Katja Andrejev [katja.andrejev@student.kyamk.fi](mailto:katja.andrejev@student.kyamk.fi) tel. +358 44 5089206 or

Thesis Instructors Research manager Juhani Talvela, [juhani.talvela@kyamk.fi](mailto:juhani.talvela@kyamk.fi)

tel. +358 44 702 8227

or Programme Head Ari Lindeman [ari.lindeman@kyamk.fi](mailto:ari.lindeman@kyamk.fi) tel. +358 44 702 8225

Thank you in advance on your co-operation!

Sincerely,

Katja Andrejev

**Research on the future of logistics in Southern-Eastern Finland****Dear Sir or Madame,**

This research is part of larger ELLO- project. ELLO-project is partly financed by European regional development fund, and its aim is to develop the competitiveness of the Southern-Eastern Finland's logistical corridor. Project develops international marketing –campaign to enhance the conspicuousness of the possibilities Southern-Eastern logistics corridor can offer.

This query asks you to assess the future of logistics in the area by your own perceptions and knowledge via different arguments. The answers are used to create scenarios on the 2015 situation.

This research is also part of Development Project Thesis of the International Business Management student in Kymenlaakso University of Applied Sciences.

Confidentiality

The answers are handled in statistical manners and no individual answers can be separated in the final results.

Return of the query

You are kindly asked to fill the attached questionnaire and return it to [Katja.andrejev@student.kyamk.fi](mailto:Katja.andrejev@student.kyamk.fi) by **1<sup>st</sup> October 2010**. It will take about 10 minutes to fill up the questionnaire.

Additional Information

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Thesis Instructors Research manager Juhani Talvela, [juhani.talvela@kyamk.fi](mailto:juhani.talvela@kyamk.fi)

tel. +358 44 702 8227

or Programme Head Ari Lindeman [ari.lindeman@kyamk.fi](mailto:ari.lindeman@kyamk.fi) tel. +358 44 702 8225

Thank you in advance on your co-operation!

Sincerely,

Katja Andrejev

Hyvä vastaanottaja,  
Tutkimuksen nopean toteuttamistahdin vuoksi  
pyydämme Teitä vastaamaan kyselyyn mahdollisimman pian ja  
palauttamaan sen viimeistään **torstaihin 7.10.2010 mennessä**  
sähköpostitse [katja.andrejev@student.kyamk.fi](mailto:katja.andrejev@student.kyamk.fi). Kyselyn täyttö vie enimmillään 10 minuuttia.

Asiantuntemuksenne on todella tärkeä tutkimukselle. Jokaisen vastauksen mukaan saaminen on tärkeää kattavan kuvan muodostamisessa. Vastaukset käsitellään luottamuksellisesti.

**Lisätiedot**

Katja Andrejev [katja.andrejev@student.kyamk.fi](mailto:katja.andrejev@student.kyamk.fi) puh. 044 5089206 tai

työn ohjaajat Tutkimusjohtaja Juhani Talvela, [juhani.talvela@kyamk.fi](mailto:juhani.talvela@kyamk.fi)

P. (05) 220 8227 tai 044 702 8227

tai Lehtori, koulutusohjelma vastaava Ari Lindeman [ari.lindeman@kyamk.fi](mailto:ari.lindeman@kyamk.fi) p. 044 702 8225

Kiitokset jo etukäteen vastauksistanne, ja hyvää syksyä!

Kunnioitavasti,

Katja Andrejev

Dear Sir or Madame,

Due the fast conduct of the research we kindly ask you to answer the questionnaire as soon as possible and return it by e-mail to [katja.andrejev@student.kyamk.fi](mailto:katja.andrejev@student.kyamk.fi) by Thursday 7th October 2010.

Your expertise is very significant to the research. It is important to get all the answers in order to get reliable results. All the answers are treated on a confidential basis.

**Additional Information**

Katja Andrejev [katja.andrejev@student.kyamk.fi](mailto:katja.andrejev@student.kyamk.fi) tel. +358 44 5089206 or  
Thesis Instructors Research manager Juhani Talvela, [juhani.talvela@kyamk.fi](mailto:juhani.talvela@kyamk.fi)  
tel. +358 44 702 8227  
or Programme Head Ari Lindeman [ari.lindeman@kyamk.fi](mailto:ari.lindeman@kyamk.fi) tel. +358 44 702 8225

Thank you already in advance on your answers and happy autumn time!

Yours Sincerely,

Katja Andrejev

Question 1 a	Question 1 b	Question 1c	Question 1d	Question 1e	Questions 1 f	Questions 1 g	Question 2 a	Question 2 b	Question 2c	Question 2d	Question 2e	Questions 2 f	Question 3a	Question 3b	Question 3c	Question 3 d
5	2011	5	2	4	4	1. Special cargo with added services 30%, consumer goods 20% 4. fluid bulk 15%	1 after 2020	1	4	2	2	2	2	5	\$90	Energy efficiency will become more important
5	2012	5	3	4	4	1. Electronics and components 2. Ore 3. Fluid Bulk	4	4	4	2	4	2	2	4		Energy efficiency will become more important
2	2012	5	3	2	2	1. Medical 4. 2. Small electronic	don't know	2	4	4	4	4	4	4	\$200	Energy efficiency will become more important
5		5	3	5	5	1. Electronics 35%, Other valuables 20% 2. Car components 10% It's based on Russian customs regulation. Duty / tax rules always change then target will be changed based on it.	4	2016	4	4	4	4	4	5	\$85	Energy efficiency will become more important
2 after 2020		3	1	2	2	1. consumer goods 2. investment goods 3. chemicals (especially export to Europe) 1. Liquid bulk (export) 2. Valuable goods 4. 3. Cars	3		3	4	4	3	3	3		
5		5	2	1	1		1	2050	2	3	3	2	3	4	\$200	The price of transportation will rise
5		5	1	4	4		1		3	4	4	3	2	4	\$55	The oil consuming will diminish