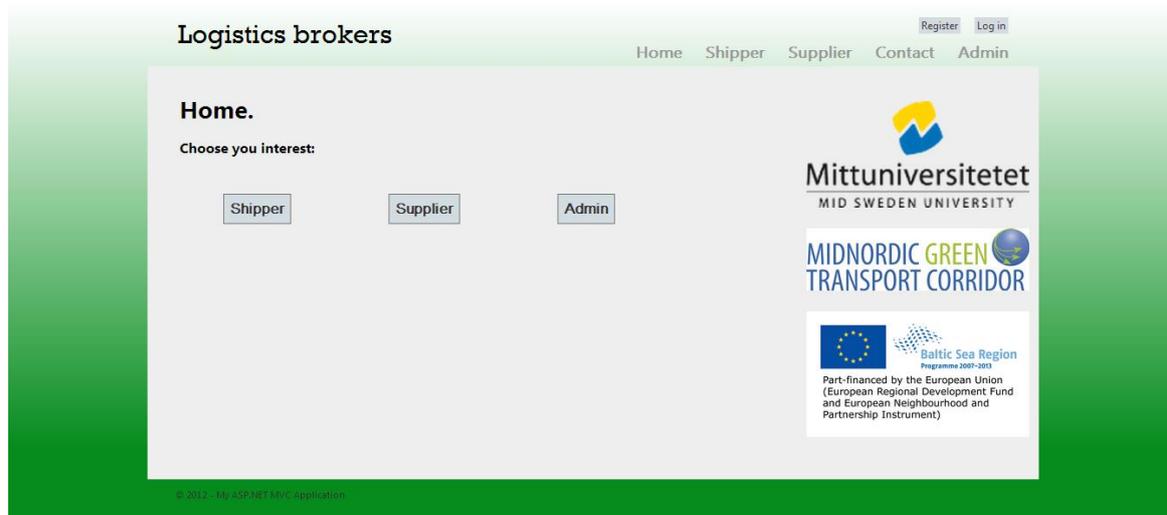


# MARKET ANALYSIS OF AN ICT PORTAL FOR TRANSPORT MATCHING



REPORT  
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NORTH EAST CARGO LINK (NECL II)  
WP 5 Activity 6

## MARKET ANALYSIS – ACTIVITY 5.6

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## EXECUTIVE SUMMARY

A market analysis was performed in the Sundsvall area regarding a newly developed system for matching transports with cost, time and emissions as criteria. The results from this study consisting of companies from a diversification of sectors indicate that this system is unique and interesting for these companies. Especially the ability to include environmental aspects, such as, emissions directly in multi criteria fashion is very interesting. Furthermore, have no one of the interviewed person seen or heard of such a system before. We are currently discussing the future development of the prototype with a potential investor.

## 1. INTRODUCTION

In this introducing chapter, we will present the background, aim, objective and methods with the market analysis. Then we present the formation and the results from this market analysis in chapter 2 and our conclusions in chapter 3. The report ends with a reference list.

### 1.1 Background

The proportion of empty or partially filled carriers in freight transportation is an issue of growing concern for transport agencies according to many reports, for instance, from the former Swedish Institute of Communication Analysis [1]. Efficient coordination using single objective optimization methods have been used for a long time focused on low cost, short time or a mix of these in transportation research, and a rather old but good survey can be found in [2]. Low carbon transports have also received attention the latter decades, mostly due to the green house debate [3]. A lot of research has been performed looking at a single transport and the so-called “external costs” associated with the transport such as different types of emission costs and noise cost included as described in [4],5] and [6]. In these cases, they try to convert, for instance, carbon emission quantities and time quantities into a total cost to be compared with other costs, similar to the way as carbon emissions contracts are traded on the market, for instance the ICE ECX Emissions [7]. Succeeding with this would make the necessary optimization calculations single objective and straightforward to solve with cost as the only quantifiable identity. However, regarding the problems with trading emissions that have been emergent during recent years we do not believe this is possible and hence we measure the costs in monetary terms, the carbon emissions in CO<sub>2</sub>/mt and the time in hours.

We have developed a prototype (Figure 1.1) of a transport matching system and we published a technical specification of this development in [7]. Although there exist portal solutions as postponed above, for instance, during the system lasset.se we have developed a system that take other aspects into concern..



Figure 1.1: The frontpage of the prototype

One advanced feature is that the mathematical optimization program minimizes cost, time and emissions in a multi criteria way to optimize the routes with respect to this criterias jointly. This system will, thus, enhance support for freight planers, as well as, minimize the amount of partially filed transport, if properly used. The optimization core using a multi-criteria approach that has been published as several scientific papers during the project [8], [9], [10] and [11] and these technicalities will not, hence, be considered anymore in this report.

We instead focus on the prototype in Figure 1.1 that has been used for demonstrations on how this system works with real world data. With the system proven to handle real data and having an interface with possible interaction from users, we have demonstrated these features for both suppliers and shipping agents during the market analysis presented in this report.

## 1.2 Aims and objectives

The purpose of this activity is to examine the potential of the ICT system and what course of action that we can do in the future. At the point of this market study we are indecisiveness as to what sort of “product” the system should be and what purpose it would fill in the transport market. The aim with this study is, therefore, to answer these questions.

## 1.3 Methods

The method of this market analysis is to target companies with potential use of the system and to demo the prototype along with asking targeting questions to try to build a perception of what use the system would fulfil. Another addition to this strategy is to target companies located in Sundsvall, Sweden. We made this decision since the real world data, described in [9] and [13], used in the system and shown in the demonstrations is from Delta Terminal in the Sundsvall area. This case is, hence, relatable to local companies and our focus can, therefore, be on the “product” itself rather than focusing on explaining the case.

The companies in this survey have a differentiation in business sector. The idea behind targeting different branches, or business sectors, is to get a complete picture of interest and not only a segmented picture of the market. Companies are allowed to be anonymous during the study since the questions in the survey are sensitive to their current transportation solution.

## 2 MARKET ANALYSIS

This chapter gives the complete market analysis presented from its formation to the results.

### 2.1 Formation

The market analysis consists of demonstration of the system itself along with five questions. We asked the first two questions prior to the demonstration of the prototype and the last three after this demonstration. These questions are given below.

1. Do you feel that your current transportation solutions are optimal?
2. Can you actively make choices regarding your suppliers' environmental impact?
3. Have you ever seen any system handling three-way optimization like this one?
4. Would you use a system of this kind if you had the chance?
5. In what way do you think the system should be available?

The first two questions we strategically asked to build a picture on the company current supplier relationships. The following two focused on the prototype itself and the last one we asked to get a feel of what direction we, or some other, should take in the future development.

The first four questions is presented graphically in figure 1 to figure 4 with three answer options and the last question as a summary of the statements given.

The scope of the analysis was to target thirty separate companies to get their opinions. Regarding business sector, roughly

- 50% is from the industrial and transportation line of business,
- 30% is from building and crafting,
- 10% is from the IT and data sector,
- 10% is from banking and healthcare.

Hence, there is a good diversification in the study consisting of mostly suppliers but also some shipping agents.

### 2.2 Results

This chapter presents the results from the five questions as diagrams. First we present the three questions that was asked prior the demonstration of the system depicted in Figure 1.1. these answers are presented in Figure 2.1, 2.2 and 2.3.

#### 2.2.1 Question 1

**Do you feel that your current transportation solutions are optimal?**

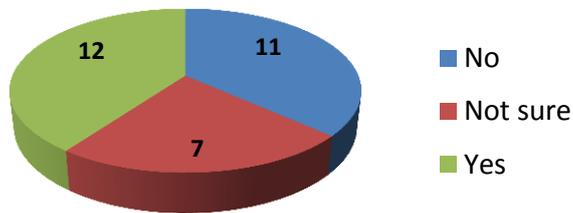


Figure 2.1: Market analysis; Question 1 results.

### 2.2.2 Question 2

**Can you actively make choices regarding your suppliers' environmental impact?**

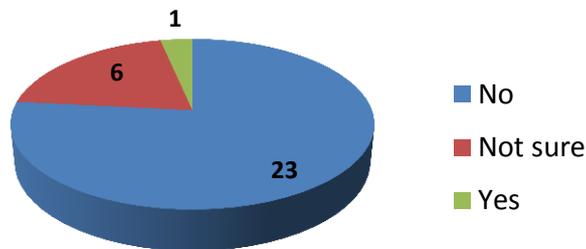


Figure 2.2: Market analysis; Question 2 results.

### 2.2.3 Question 3

**Have you ever seen any system handling three-way optimization like this one?**

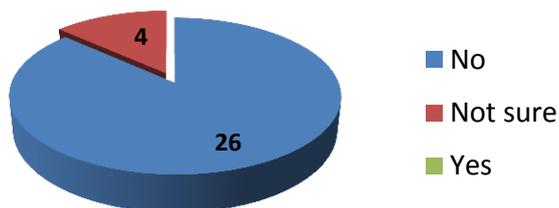


Figure 2.3: Market analysis; Question 3 results.

After these questions the system in Figure 1.1 are demonstrated and after this demonstration, two more questions are given with the answers given in Figure 2.4 and in chapter 2.2.5.

#### 2.2.4 Question 4

Would you use a system of this kind if you had the chance?

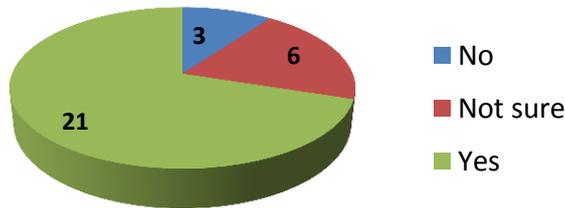


Figure 2.4: Market analysis; Question 4 results.

#### 2.2.5 Question 5

In what way do you think the system should be available?

This question we naturally divided into two separate schools of thought.

- Roughly 70 % of the companies thought that the prototype should be a free-to-use online system where suppliers own the right to put up available transports to a certain price and customers can input their criteria and choose from transports that matches these input criteria. Notably this would not affect all of a company's transports because some transportation regarding huge quantities and/or sensitive material companies and suppliers already have a mature relationship and couldn't be changed or "up for grabs" on an open market.
- The other 30 % would like this system to be able to be bought and implemented into an ERP-system or such. The prototype would then serve as an indicator and mathematic tool to be able to regulate the companies overall costs, environmental impact and time consuming. Cases were made and related to models such as JIT(Just-in-time) where it would serve perfect use along with different environmental policies that has recently been implemented into organizations.

#### 2.2.6 Commercialization

In addition to this survey we have also found an investor that is interested in the portal and its future development. During this study this investor with good relation to a local shipping agent and one of their biggest customer is interested to develop this open available portal further. Discussions have been initiated and further discussions will be held during the summer of 2013.

### 3 CONCLUSIONS

This chapter sums up the question and their answers in an attempt to make predictions about a future state for the system.

The answer to question 1 show roughly a half and half split between satisfactions for current transportations solutions and seven companies answered that they were not sure. This is an

indication of that there is work to do in getting the satisfaction percentage up, but more importantly, the seven companies that wasn't sure actually didn't understand the concept of "transportation solution" which proves that there is market that is currently unexplored to some extent.

The answers of questions 2 and 3 are a strong indicator of our systems uniqueness. The fact that no one of the companies had earlier seen a system working like this along with not being able to make choices of environmental impact in the hard climate of environmental regulations proves that we have the right timing and possibility to make an impact. The one company that answered "Yes" to question 2 was because they had a very in-depth relationship with their supplier and shared environmental policies across their borders. Important to note is that this is a two-way contract and it's very complex to negotiate and change, in relation to our system where you can simply choose and weight your environmental impact in a much easier way..

Answers to question 4 showed a dominant interest in using our system for planning of transportations. The companies that responded negatively made the case that transportations are too complex to be handled like our system does it, and expressed their frustration about not being able to have deeper relationships with suppliers. This is something that we need to specify for our system: our main role in the market and our relation to current suppliers. Maybe our system can't handle all transports from a company, but the more simple ones with larger quantities is surely possible to handle.

The answer to question 5 showed a dominance of displaying our system as a free-to-use online system. Much like having an open market with transports up for grabs, parable to the Swedish "Blocket"-market. This is something to discuss further when the system in a more complete stage, for example, if it is going to be a free-to-use online system where suppliers dominate the market, how important is usability. The GUI then needs to be supported, but the questions is how. There won't be training available for users of the system as there would be if it were implemented in an ERP system. At this stage since this is developed during and EU project the parts developed during this project is free of use for anyone, supporting the idea of an open system.

To conclude, although systems exist on the market or in different projects such as [www.lasset.se](http://www.lasset.se) these systems are not compatible with our developed system for many reasons as the answer to our questions indicate.

Especially the environmental part and those emissions can be considered in a multi criteria way together with cost and time is something that we have not found to be implemented anywhere in the scientific community. This is now also supported by the fact that no one of the thirty companies in this study has seen this type of system before.

Currently there also exists one interested investor for going on with the development of the portal on a commercial basis. This is also an indication on that further development of the prototype probably will take place in the near future, by us, or some other actor.

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# MIDNORDIC GREEN TRANSPORT CORRIDOR

## Development project North East Cargo Link II

### **NORTH EAST CARGO LINK II PROJECT**

Development project in Baltic Sea Region Programme 2007–2013.

Duration: 2010–2013

Budget: approx. 2,7 M€.

22 partners from all Midnordic regions, Sweden, Finland and Norway.

#### **Expected results**

- ❖ Close cooperation with national transport authorities and industry and other related projects and transport corridors.
- ❖ Affect the infrastructure planning in various countries in the direction of investment promoting the Midnordic transport corridor.
- ❖ A fully working operational ICT-system for transport operators and cargo owners.
- ❖ Remove border obstacles that inhibit trade and transport between countries.
- ❖ A valuable base for environmental efforts towards a transition from road to rail and marine transport, which will improve the environment.
- ❖ Better transport service and improved goods transport solutions for region's existing companies.

[www.midnordictc.eu](http://www.midnordictc.eu)



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