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Faculty of Technology Management
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FUTURE PROSPECTS OF SHORT DISTANCE RAIL BASED PASSENGER TRANSPORT IN NORTHERN EUROPE

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ABSTARCT

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The worlds' population is increasing and cities have become more crowded with people and vehicles. Communities in the fringe of metropolitans' increase the traffic done with private cars, but also increase the need for public transportation. People have typically needs traveling to work located in city centers during the morning time, and return to suburbs in the afternoon or evening. Rail based passenger transport is environmentally friendly transport mode with high capacity to transport large volume of people. Railways have been regulated markets with national incumbent having monopoly position. Opening the market for competition is believed to have a positive effect by increasing the efficiency of the industry. National passenger railway market is opened for competition only in few countries, where as international traffic in EU countries was deregulated in 2010.

The objective of this study is to examine the passenger railway market of three North European countries, Sweden, Denmark and Estonia. The interest was also to get an understanding of the current situation and how the deregulation has proceeded. Theory of deregulation is unfolded with literature analyses and empirical part of the study is constructed from two parts. Customer satisfaction survey was chosen as a method to collect real life experiences from the passengers and measure their knowledge of the market situation and possible changes appeared. Interviews of experts from the industry and labor unions give more insights and able better understanding for example of social consequences caused from opening the market for competition. Expert interviews were conducted by using semi-structured theme interview.

Based on the results of this study, deregulation has proceeded quite differently in the three countries researched. Sweden is the most advanced country, where the passenger railway market is open for new entrants. Denmark and Estonia are lagging behind. Opening the market is considered positive among passengers and most of the experts interviewed. Common for the interviews were the labour unions negative perspective concerning deregulation. Despite the fact deregulation is considered positive among the respondents of the customer satisfaction survey, they could not name railway undertakings operating in their country. Generally respondents were satisfied with the commuter trains. Ticket price, punctuality of trains and itinerary affect the most to customer satisfaction.

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Väestönkasvu ja kaupunkien ruuhkautuminen ihmisistä ja kulkuneuvoista asettaa haasteita julkiselle liikenteelle. Suurien kaupunkien läheisyyteen muodostuneet asuinalueet lisäävät yksityisautoilusta aiheutuvaa liikennettä ja samalla tarve julkiselle liikenteelle kasvaa. Työmatkat kaupunkien keskustaan aamuisin ja paluuliikenne iltapäivisin lisäävät ruuhkia. Raidepohjainen henkilöliikenne on ympäristöystävällinen kulkumuoto, joka mahdollistaa suurien matkustajamäärien kuljettamisen. Rautatieliikenne on ollut hyvin säädeltyä, ja valtiollisilla operaattoreilla on ollut monopoliasema henkilöliikenteen operoinnissa. Markkinan avaamisella kilpailulle uskotaan olevan positiivinen vaikutus lisäämällä toimialan tehokkuutta. Kansallinen henkilöliikenne on avattu kilpailulle vain muutamissa maissa, kun taas kansainvälinen liikenne Euroopan Unionin alueella avattiin vuonna 2010.

Tämän tutkimuksen tavoitteena oli tutkia raidepohjaisen henkilöliikenteen markkinoita kolmessa Pohjois-Euroopan maassa, Ruotsissa, Virossa ja Tanskassa. Tämän tutkimuksen avulla haluttiin saada ymmärrys maiden tämänhetkisestä tilanteesta ja miten markkinan vapautuminen on edennyt kohdemaissa. Sääntelyn vapauttamisen teoriaa käsitellään kirjallisuuskatsauksessa. Tutkimuksen empiirinen osa rakentuu asiakastyytyväisyystutkimuksesta ja asiantuntijoiden haastatteluista. Asiakastyytyväisyystutkimuksen avulla haluttiin saada selville matkustajien kokemuksia ja tietämystä rautatiemarkkinan vapautumisesta. Rautatieoperaattoreiden, ammattiliittojen sekä valtiollisten toimijoiden haastattelut suoritettiin puolistrukturoituina teemahaastatteluina.

Tutkimuksessa tehtyjen havaintojen mukaan henkilöliikenteen vapautuminen on edennyt erilailla kohdemaissa. Ruotsi on edelläkävijä verrattuna Viroon ja Tanskaan, markkina on kokonaan avoin uusille operaattoreille. Henkilöliikenteen vapauttamista pidettiin positiivisena sekä asiantuntijoiden, että matkustajien keskuudessa. Negatiivisin näkökanta henkilöliikenteen vapauttamiseen oli ammattiliittojen edustajilla. Vaikka vapauttamista pidettiin positiivisena, matkustajat eivät osanneet nimetä matkustajaliikenteen operaattoreita, jotka toimivat kyseisessä maassa. Yleisesti matkustajat olivat tyytyväisiä lähijunaliikenteeseen kohdemaissa. Junien täsmällisyys sekä lippujen hinta koettiin vaikuttavan eniten asiakastyytyväisyyteen.

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Tiina Poikolainen

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ABBREVIATIONS

BRS	Baltic Rail Services
CPTA	County Public Transport Authority
DB	Deutsche Bahn, German incumbent
DSB	Danske Statsbaner, Danish incumbent
EAKL	Eesti Ametiühingute Keskliit, the Estonian Trade Union Confederation
EEC	the European Economic Community
ER	Eesti Raudtee
ERAÜ	Eesti Raudteelaste Ametühing, the Railway Employees' Trade Union
ERTMS	European Railway Traffic Management System
EVA	Locomotive Workers' Trade Union
EVKL	Eesti Vedurimeeste Kutseliit, the Estonian Locomotive Workers' Vocational Union
ICC	the Interstate Commerce Commission
IFC	International Finance Corporation
JNR	Japanese National Railways
LO	Landorganisationen i Sverige
PSO	Public Service Obligation
RFF	Rèseau Ferré de France
SEKO	Facket för Service och Kommunikation
SJ	Statens Järnvägar, Swedish incumbent
SLFF	Swedish Engine Drivers' Union
SNCF	Société Nationale des Chemins de Fer Français, French incumbent
TALO	Teenistujate Ametiliitude Keskorganisatsioon, Estonian Employees' Unions' Confederation
ST	Statstjänstemannaförbundet
TJ	Sacoförbunder Trafik och Järnväg

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1. INTRODUCTION

This study is concentrated in examining passenger railway market in three North European countries, Sweden, Denmark and Estonia. Data for this study is gathered with customer satisfaction survey and expert interviews. Literature review is focused on understanding passenger railway market deregulation and current situation in the target countries. Especial interest is given for the short distance passenger traffic in the countries' capitals, Stockholm, Copenhagen and Tallinn. The proceeding of the deregulation process, confronted challenges and the opinions of different interest groups are unfolded. This master's thesis is executed in Lappeenranta University of Technology, Kouvola Unit and it is partly used in research report for the Finnish Transport Agency (Progression of the Deregulation in the North European Railway Passenger Markets – Building insights via customer satisfaction survey and expert interviews).

1.1 Background of the research and research gap

Transportation sector can be dived in two: Transportation of goods and transportation of passengers. According to Quinet and Vickerman (2004) the exact size of the transport sector is difficult to determine as sub-sectors, like private transport done by households and freight transported on companies own account is not counted. The importance of the transport sector also as a major employer cannot be forgotten, when the number of people directly and indirectly related to transport are counted together. Air, railway, road and sea are considered the main transport modes. Road transport has grown its share, and in the same time railway has experienced declining volumes. Air transport has rapidly increased its popularity, and the development trends of transport sector have been similar everywhere. (Quinet and Vickerman, 2004)

EU countries economic growth has followed similar patterns and economics and transport can be linked together in some level. In order to achieve economic activity, certain amount of transport is needed. Developed economies have faced the situation, where the structure of cities has changed, metropolitan areas have

increased popularity and rural areas have been depopulated during the past decades. New communities have grown to metropolitan region, which causes more traffic and longer journeys. (Quinet and Vickerman, 2004) According to Ausubel and Marchetti (2001) people around the world use one hour per day for travelling.

Increasing traffic volumes can be partly explained with increased number of passenger cars, in 2010 the number of cars per 1000 people was 474 in EU27 (Eurostat, 2011). In all of the three studied countries the number of cars has grown from the 1990 levels. The most visible volume extension has been realized in Estonia. In 1990 there were 154 cars per 1000 peoples and in 2008, the according figure was increased to 412 (see table 1). People desire independent housing within a stable population, on the urban fringe. Increasing population causes also demand for effective public transportation systems. (Quinet and Vickerman, 2004) In two countries of this study the number of population has increased during the past ten years (Sweden and Denmark), but decreased in Estonia according to Eurostat (2010).

Table 1 Number of passenger cars per thousand inhabitants (Eurostat, 2010)

	1 990	1995	2000	2005	2006	2007	2008
Sweden	419	411	450	459	461	464	462
Denmark	309	320	347	362	371	378	381
Estonia	154	269	339	367	413	391	412

First railway in Europe was established 1820s in the UK. Primarily the railway was used to transport coal and small number of people could be transported in these freight trains. In 1828 a private railway line was also opened in France, where it was also used to transport coal from mines to factories. Railways were extended rapidly and dominated land transport until 1930s, when trucks were introduced. (Quinet and Vickerman, 2004) After the Second World War the share of railway in transport declined and several bankruptcies occurred around the world. Deregulation of the railway freight market was considered as a solution to promote competition between the different transport modes. (Laisi, 2009) Difference between freight and passenger markets are that passenger side has been

mainly regulated and supported from public funds and freight carriers are expected to operate without support (Thompson, 2009).

According to Alexandersson and Hultén (2009) deregulation has been argued to increase efficiency of the market, but organizing the deregulated market engenders opinions among experts, politicians and other stakeholders. Different types of solutions have been suggested for example privatized monopoly, competition in some markets, competitive tenders or auctions and some suggest that operators can compete on the same track in order to provide the best service. (Alexandersson and Hultén, 2009)

The railway passenger market deregulation has proceeded differently in the target countries. The process of deregulating the railways in Sweden started in the 1980s and has continued since slowly but surely (Holmgren, 2005). The first competitive tendering took place in 1989 and 1990 the first new entrant started operating in regional traffic. (Jensen and Stelling, 2006). According to the Network Statement (2010) Sweden has opened the railway passenger market completely in 1st October 2010.

Denmark has partly deregulated the market and the first operator besides the national incumbent won a tender in 2002, and entered the market 2003. The second market entry of a private company was in 2009. There are also private railway networks in Denmark and through those few private operators have been operating before the market opening. (Kivimäki et al., 2010)

Estonian Railways have gone through the privatization process twice, 1990s and 2000s, when 66 percent of company was sold to foreign investors. In 2007 the state bought the company back to its possession in order to get EU funding to improve the infrastructure. There exist three operators providing passenger transport and one of them is state owned (Elektriraudtee). State subsidies enable the passenger transport in Estonia and although the market is opened for new entrants, new companies have not appeared. (Hytönen, 2010)

Deregulation of the railway freight market is more widely researched than passenger market. Studies concerning railway passenger market have mainly concentrated on country level, Sweden, Estonia and Denmark have not been studied together before. Customer satisfaction surveys are often done in companies, but passenger satisfaction and its affect to public transportation have also grabbed researchers' interest (see for example Grdzelishvili and Sathre, 2011; Eboli and Mazzulla, 2011; Nathanail, 2008). Several of the studies made concerning passenger rail market are based on interviews or literature analyses made from previous studies. The restructuring of the railway market in Europe and USA, and the future of it have been confronted in several studies (see for example Hilmola and Szekely, 2006; Nash, 2008; Nash 2010; Waters, 2007)

The Swedish Passenger railway market is more studied than the Danish or Estonian markets (see for example Alexandersson and Hultén, 2006a; Alexandersson and Hultén, 2009; Holmgren, 2005; Jensen and Stelling, 2006). Deregulation is seen positive in Sweden and tendering system has opened the door for new market entrants. The Swedish passenger rail marked is stated to be more efficient and also the passenger volumes have increased after opening the market. Hytönen (2010) has studied the development of railway passenger traffic in Baltic States: Estonia, Latvia and Lithuania, between years 1991 and 2009. According to Hytönen the passenger volumes have declined and busses and cars have gained market share. Poor economical situation in the studied countries has also led to the deterioration of locomotives and rolling stock. Passenger railway market in Denmark is studied the least of these three countries.

1.2 Objectives of the research and research problem

The objective of this study is to examine the passenger railway market of three chosen North European countries, Sweden, Denmark and Estonia. Theory of deregulation is unfolded with literature analyses. The interest was also to get an understanding of the current situation of both commuter and long-distance operations. Customer satisfaction survey was chosen as a method to collect real life experiences from the passengers and measure their knowledge of the market situation and possible changes appeared. Interviews of experts from the industry

give more insights and able better understanding for example of social consequences caused from opening the market. This study combines the two methods in order to unfold novel information.

The main research question of the study is:

How rail passenger market deregulation has proceeded in target countries (Sweden, Estonia and Denmark)? How the changes are confronted among experts and passengers?

The sub-questions are:

1. What is the situation in target countries currently?
2. What kind of social consequences the liberalization has unfolded?
3. Has the market deregulation and decontrol practically realized in cooperation with the interest groups?

1.3 Delimitations

The Swedish passenger railway market is researched more than the markets of the other two countries, Denmark and Estonia. Concerning deregulation of passenger market many studies have been also made of Germany and UK. Extensive studies concerning deregulation of railway freight market have been made to the Finnish Transport Agency (see for example Laisi, 2009). Due to the fact, this study concentrates in railway passenger market, freight market is excluded.

Literature analysis is concentrated to the three target countries and companies operating in the markets. Several of the companies mentioned have large volumes of passengers in other countries, but these functions are excluded from this research. Limitations concerning interviews can be stated the fact, that only one person from each company was present in majority of interviews. All persons interviewed were in managerial or such position in the companies and only three out of the 20 interviewees were women. Interpreter was used in two interviews in

Estonia. The possibility of misunderstanding thematic entities is possible, when there is no common language between the persons.

1.4 Definitions of the key concepts

Commuter transport

Commuter traffic refers to transport mode, where people are taken in the morning to city centers and back to suburbs in the evening. Local traffic or regional traffic can be used as synonyms.

Long- distance railway transport

Long-distance refers to longer voyages made with train for example business or leisure.

Railway market deregulation

Deregulation refers to opening the market for competition, market with only one operator is monopolistic and when the market is deregulated there is possibility for several companies to enter. Synonyms for deregulation are open the market and market liberalization.

Railway passenger transport

Passenger transport on rails can be done with trains, light rail or metro.

Railway undertaking

Railway undertaking is also known as railway operator or railway company. Railway undertaking in this study refers to private company.

1.5 Research methodology

Research types can be divided in two: Qualitative and quantitative methods. Quantitative method is based on finding meaning from standard numerical data and analysis is based on diagrams and statistics. Qualitative data is controversially based on meanings expressed via words. Analyzing qualitative data can be done

through conceptualization. (Eisenhardt, 1989; Saunders et al., 2000) When understanding the subject is crucial in the study, qualitative method is used. Furthermore, the method is used often when subject is not widely researched. (Hirsjärvi et al., 2009)

This study utilizes two research methods for collecting the data, case study and survey. Structured questionnaire is used to conduct the survey and interviews of experts are used to gather empirical data. According to Yin (1981) case study can be done with utilizing both, qualitative and quantitative evidence. Eisenhardt (1989) has also noted when accomplishing case study qualitative and quantitative data collection types for example interviews and questionnaires can be combined.

Inductive and deductive approaches are the two perspectives, where qualitative analysis can be commenced. Deductive position is based on using existing theory or descriptive framework in formulating research questions and objectives by utilising theory in qualitative research, instead of developing it from the work. Analysing the data without predetermined theoretical or descriptive framework is called inductive approach, where collection and analysis of the data emerges the theory. Researcher identifies the relationships between the data, develops hypotheses and questions to be able to test these. (Hirsjärvi et al., 2009; Saunders et al., 2000) According to Hilmola (2003) in case studies both, inductive and deductive approaches are often combined. This study consists of customer satisfaction survey and interviews of experts and according to the objective of the study, new findings are tried to discover from the interviews and confirm old via inductive method.

1.6 Structure of the research

The topic of the study is introduced in the first chapter. Furthermore, introduction enlightens the background for this work and describes the research questions and key words. Delimitations and research methodology are also presented in this chapter. Second chapter unfolds the theory of passenger railway market

deregulation and its history. Deregulation is approached from European Union level and country level, also history is unfolded. Third chapter describes the target countries passenger railway market and key stakeholders' responsibilities in the sector. Fourth chapter concentrates on the research methodology and empirical part (chapters 5 and 6) describe the results gathered with customer satisfaction survey and expert interviews. Final two chapters 7 and 8 represent the main findings of the study and argue with them, also limitations and suggestions for further research are presented.

2. PASSENGER RAILWAY MARKET DEREGULATION

Railways have been greatly dominated by freight traffic as in USA and Canada over 99 percent of intercity traffic was freight, when this was investigated years 1980, 1988 and 2007. In Russia about 92 percent of rail traffic was freight, but in China the percentage was about 76 and decreasing. In the European Union there are both freight and passenger dominant countries, where the share of freight was 43 and falling. Difference between freight and passenger markets are that passenger side has been mainly regulated and supported from public funds and freight carriers are expected to operate without support. (Thompson, 2009) In the recent decades also the communities have grown and the size and shape of cities has changed in developed economies, which has also increased the traffic and length of journeys. Communities have grown close to metropolitan regions due to increase demand for independent residential housing. (Quinet and Vickerman, 2004)

2.1 History

In the transport sector there is a long history of monopolies and removing of them has been one of the objectives when moving towards liberalism. Natural monopoly has often obligations of public service and that creates certain characteristics. The characteristics and challenges can be seen in the railways and are often used as an example when discussing how public service obligations should be organised for example through private companies, franchises or regulated competition. (Quinet and Vickerman, 2004) Term “deregulation” refers to measures done to privatize and/or expose former state monopolies to competition. Monopolies have traditionally been protected with legislation and regulations, changes in regulatory structures are often prolonged and proceed slowly. (Alexandersson and Hultén, 2009).

Railways have been regulated markets in many countries and United States (US) was one of the first, where a regulatory board was established in 1887. The Interstate Commerce Commission (ICC) controlled freight rates, oversaw mergers

and acquisitions and enhanced competition between the modes by preventing ownership in different modes. Rail transport lost market share and competition was beneficial to airplanes and road transport. The outcome was that whereas in the 1920 the railways were responsible for 75 percent of all intercity freight movements, but by 1975 the share had fallen to 35 percent. By 1960s the railway industry was sinking financially and many bankruptcies appeared. Railroad Revitalization and Regulatory Reform Act was established 1976 and it eased regulations on rates, line abandonment, and mergers. In 1980 congress followed up with the Staggers Rail Act of 1980 and largely deregulated the industry. The Staggers Acts' features were granting of greater pricing freedom, streamlining merger timetables, expediting the line abandonment process, allow having multi-modal ownership and permitting confidential contracts with shippers. The experiences of deregulation in North America since 1980 were mainly positive; rail freight traffic had grown substantially. Although the railway sector productivity and financial situation have improved after the deregulation. Achieving the high market share it had in the past is not considered to be possible. (Rodrigue et al., 2009; Waters, 2007)

In US company called Amtrak -the National Railway Passenger Corporation was established 1971 by the Congress to operate a nationwide passenger train system as railways were rapidly ending their passenger services. Passenger sector in the US operated at a deficit estimated to be 1.7 billion US dollars in 1970. Amtrak is a semi-governmental enterprise and designed to make profit. Technically it was not a governmental agency, but it was under a direct governmental supervision. In the beginning Amtrak had considerable success in improving passenger service and annual volume of passengers increased from 16.9 million in 1973, to 22.1 million in 1993. (Due, 1997) After the success in early 1990s, the trend towards improvement was reversed; passenger volumes started to fell and the deficits increased. The Congress was reluctant to provide more funds to the company causing reductions in service, resulting further losses in traffic. The future of Amtrak in long-range seemed difficult. Cutbacks and service deterioration could lead back to the situation US was in before Amtrak was founded. Amtrak had been supported by the state, but 1996 state support was decided to end. Amtrak

was scheduled to be liquidated, if it will not become self-supporting. (Due, 1997) Year 1997, a law was enacted by the Congress and the President for Amtrak to be self-sufficient (run without federal subsidies). Reform Act authorized totaling about 5.2 billion US dollars for 1998 through 2002 to Amtrak. Cutting cost was not successful and leaders of Amtrak decided to concentrate on growing the revenue to be able to cover expenses. Company's annual revenues rose by 440 million US dollars between years 1997 and 2001. Unfortunately the same increase was realized also in the costs, 929 million US dollars, increasing the company's operating loss. (Congressional Budget Office, 2003**)** Years later Amtrak is still operating nationwide rail network that covers over 500 destinations in 46 states and three Canadian provinces on over 21 000 miles of routes. Company is the nation's only "high speed" intercity passenger rail provider and operates nearly 60 percent of its trains at speeds in excess of 90 mph. In annual report of 2009 company reported a net loss of 1,264.4 million US dollars when compared to a 2008 net loss of 1,132.8 million US dollars, there is an increase of 131.6 million US dollars or 11.6 percent. During fiscal year 2009 Amtrak experienced a decrease in revenues (100 million US dollars) and an increase in expenses caused (97.6 million US dollars) as compared to fiscal year 2008. Amtrak relies on cash flows from operations and from the United States government (1.5 billion US dollars per year) to operate the national passenger rail system and maintain the infrastructure. Each Amtrak ticket sold is subsidized by state an average of 54.78 US dollars. (Amtrak, Annual Report, 2010; Amtrak, 2011; Transportation and Infrastructure Committee, 2010)

A success story of a private railway company is found from Hong Kong. Guangshen Railway Company was established on January 1st 1984, when the Guangshen Railway was separated from Guangzhou Railway Sub-administration under the former Guangzhou Railway Administration. In 1993, Guangzhou Railway Administration was renamed as Guangzhou Railway Company. In 1994, Guangshen Railway Company was one of the 22 pilot companies nationwide participating on shareholding restructuring. Guangshen Railway Company Ltd. was established as the first joint-stock railway company in China on April 9th in 1996. The company has been a success story compared to for example US

passenger operator Amtrak. Principal businesses areas are railway passenger and freight transportation, railway network usage and services, which collectively generated 92.9 percent of total revenue in 2009. In 2009, total revenue of the company was 12,385.8 million RMB with increase of 6.0 percent from 11,688.7 million RMB compared to 2008. Revenue from railroad passenger transportation service was 7,195.7 million RMB, freight transportation service was 1,210.1 million RMB, railway network usage and services were 3,105.6 million RMB and other businesses were 874.3 million RMB, respectively. Profit attributable to shareholders was 1,364.5 million RMB, representing an increase of 11.5 percent from 2008. (Guangshen Railway Company, 2011; Guangshen Railway Company, Annual Report, 2009)

In the UK rail reformation occurred in the 1990s and the idea was to privatise and separate functions, discussions had been going on in the government since 1980s. In the freight sector partial deregulation could be seen already in 1989 through privately owned terminals, locomotives and wagons. The government's proposals, how the privatization would be effected, were published after the General Election in July 1992 in the White Paper called "*New opportunities for the Railways: The Privatisation of the British Rail"*. Officially the privatisation of British Rail was realized between 1994 and 1997. (Knowles, 1998; Laisi, 2009) The key question of how to make British Rail attractive to private sector purchasers was addressed by the Railways Act in 1993. The mainly unprofitable rail passenger business was completely franchised to the private sector as objective was to reduce the amount of public subsidy required (Knowles, 1998). The privatisation process in the UK did not have desired effects: Passenger train accuracy was lower than ever, lacking investments on infrastructure and increase of accidents. Furthermore, government was still needed to support the industry financially. In 2002 UK government decided of a 10-year plan and support of 34 billion pounds to modernize the railway system. (Hilmola and Szekely, 2006) According to Kivimäki et al. (2010) there are now 45 companies serving passenger rail transportation services in the UK, but even the biggest operators market share is around 10 percent together (South West trains, First Great Western and National Express East Anglia). Operating companies are based on franchising contracts

with increasing number of economic incentives. Common view has been that time after the National British Rail has lead to deterioration of service as the rail network condition is poor and capacity increase is not possible. Passenger volumes have grown, but the problem is bad condition of the infrastructure, which is the result of deregulation or lack of funds.

Germany also restructured its railway market in the 1990s after the poor financial situation of the state owned monopoly Deutche Bundesbahn (merger of West German and the former German Democratic Republic railway companies) in the late 1980s. Differently from the UK the governmental ownership of the railway network was retained. Germany introduced an “internal market structure”, which consisted of a holding company and five independent public limited operating companies. (Greyer and Davies, 2000) There are over 300 companies operating in the German railways. Railway passenger transport is also operated with private companies, but only in local and regional traffic. The market share of state owned DB is still over 80 percent. Long-distance passenger operators have had possibility to enter the market since 1994, but operations are mainly done by DB. Only four operators are organizing long distance passenger transport besides DB. There has been a discussion to privatize DB and divide it to three entities: passenger traffic, freight traffic and infrastructure with logistics. Infrastructure would still remain in the possession of state and one fourth of others would be privatized. The economic crisis has postponed the privatization process; starting earliest mid of 2011. (Kivimäki et al., 2010)

Japanese National Railways (JNR) was privatized already in 1987. JNR was divided into six passenger railway companies (JRs) and one freight railway company, when privatization occurred. (Matsumoto, 2007). According to Quinet and Vickerman, (2004) the reform of Japanese railways was realized in 1989. When the JNR was divided, the new companies were free from control of the state. There was hardly any competition as companies had own territories to operate. Companies could develop and decide fares, which become a bit higher. Result of privatization was better services, passenger needs were better taking care of and frequency of trains increased. This led also to increase of traffic with

20 percent between years 1987 and 1991. Companies become more efficient, when the number of workers was decreased. Main objective of privatization was to reduce the power of labor unions, not to introduce competition. (Quinet and Vickerman, 2004)

Railway reform in France has been more limited than in other countries presented in this sub-chapter. The French national railway company (SNCF) was also reformed to be able to separate infrastructure management, freight and passenger operations. In 1997 a public agency Rèseau Ferré de France (RFF) was established to take over the infrastructure management. (Quinet and Vickerman, 2004) According to Nash (2008), there is three alternative models of rail restructuring: Swedish, German and French. French model involves the separation of infrastructure from operations, but no competition, a monopoly operator is responsible for the traffic.

2.2 European Union

The European Council was established in 1949 and one year later the European Coal and Steel Community ties the countries of Europe together economically and politically in order to achieve lasting peace. European Union was founded by six states (Belgium, France, Germany, Italy, Luxembourg and the Netherlands) who signed the treaty in 1951. Free movement of people, goods, services and money inside the European Union area was one of EU's achievements and in 1957 the European Economic Community (EEC), also known as "Common Market" was presented. (History of European Union, 2011) Since the 1950 there has been enlargements and several actions has been done to improve the situation of the members and the union's economy for example, in the 1960s customs charges were removed when trading was done with members. There have been difficulties in implementing fluent trade between the member states due to different legislative base and restrictions, but in the 1990s the "Single Market" was completed and also the time of cold war was ended. (History of European Union, 2011)

The rail sector directive 91/440 in year 1991 laid the ground for opening the market by establishing the First Railway Package in 2001. In few countries for example Sweden, Germany and UK the market had been opened already in the 1990s. Two other packages followed the first one. (CER, 2010) White Paper *"A Strategy for Revitalising the Community's Railways"* was established year 1996 to complete and reinforce the work begun with Directive 91/440. Due to the first White Paper the member states should free railways from debts and regularize their financial issues according to Community rules with States' support. Infrastructure management and railway services should be separated and public service obligations should be fulfilled with contracts between operators and governments. Aim was the harmonization of technical standards to achieve interoperability of networks and allowing the workforces retraining and restructuring. Second white Paper *"European Transport Policy for 2010: Time to Decide"* was submitted in 2001. Objectives of the White Paper were now ensuring the share of traffic carried was appropriate compared to capacity when moving freight from roads to rails. Secondly enlargement in form of new member states brings challenges also to railways as they have large scale investment requirements to reach international standards. (Summary of First Railway Package, 2010; Quinet and Vickerman, 2004)

In 2004 the Second Railway Package was introduced. Revitalizing the railways through the rapid construction of an integrated European railway area was the aim of the package. The White Paper was the base for actions presented. The objectives were improved safety, interoperability and opening up of the rail freight market to competition in January 2007. Proposition to establish European Railway Agency was also established in the package. European Railway Agency would be responsible for giving technical support in the safety and interoperability work. (Summary of Second Railway Package, 2010) The Third Railway Package was introduced in 2007. Main objectives of the package were uniform locomotive driver license and certificate, passenger rights were also introduced. International passenger traffic including cabotage was liberalized based on the Third Railway Package in January 1st 2010. Member states can also open their domestic market to competition, if they are willing to do so. (CER, 2010; Summary of Third

Railway Package, 2010) Current situation with the implementation of the directives and recommendations given by the European Commission varies between different countries. Some countries for example Sweden and UK have reformed their railways much further than required in the directives. (Quinet and Vickerman, 2004)

The Rail Liberalization Index (LIB Index) gives information on the relative degree of market opening in enlarged are of European rail transport market consisting both freight and passenger transport. LIB Index has been introduced for the first time in December 2002 and figure 1 is from January 2007 as there was need for updating due to rail freight market opening and enlargement of EU with Bulgaria and Romania. It can be stated that countries included in the index have opened their rail markets. Countries are divided in three categories by the stage of liberalization: Advanced, on schedule and delayed. (The Rail Liberalization Index, 2007)

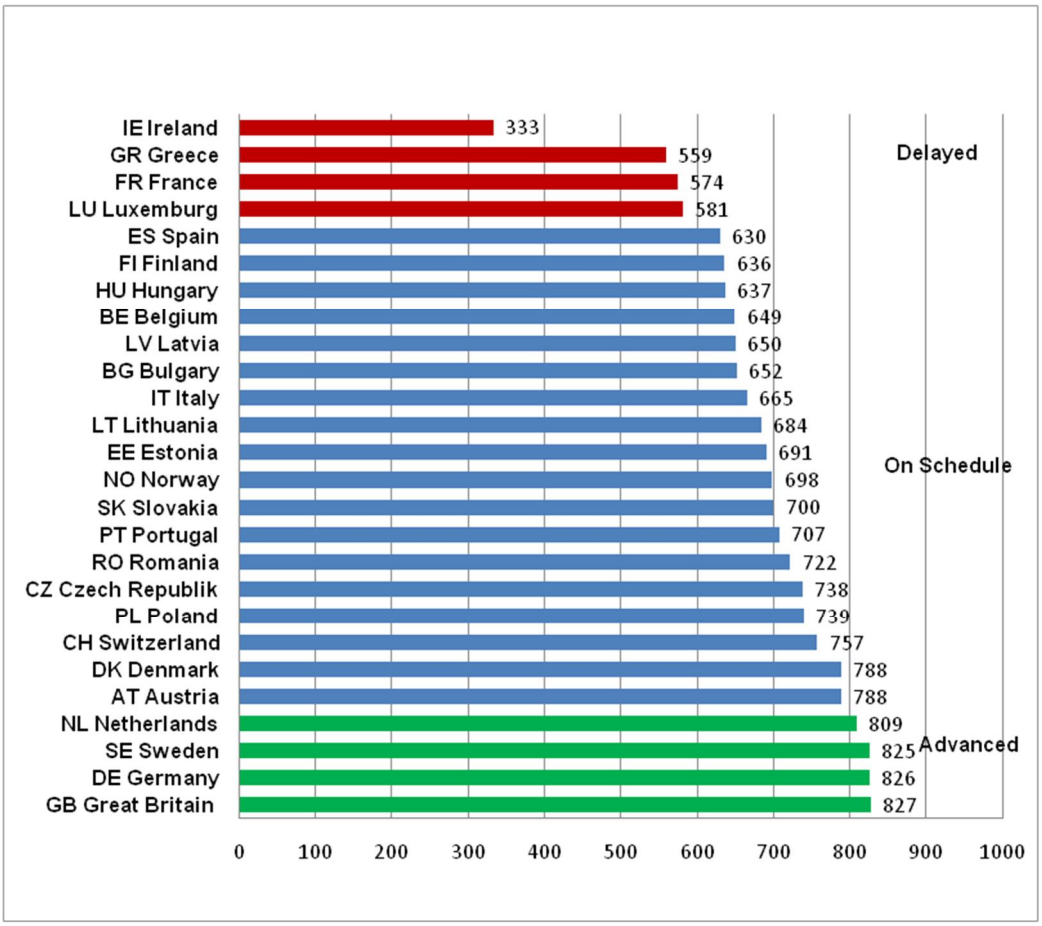


Figure 1 LIB Index 2007, country division (Adapted from the Rail Liberalization Index, 2007)

Figure 1 presents the countries liberalization stage. Great Britain, Germany, Sweden and Netherlands are considered to be "advanced" what comes to opening the market. Most of the countries are "on schedule" including Denmark, Finland and Estonia. Four countries have "delayed" status: Luxemburg, France, Greece and Ireland.

Altogether passenger rail transport in Europe has been decreasing in the last decades as in 1970s (EU-15) rail's share was over 10 percent while in 2006 (EU-27) it was 6.9 percent of passenger transported on land. The falling of freight volumes has stopped and the declining of market share for rail in freight has slowed in recent years as significant structural changes has been made in Europe's railways. Initiatives for opening the railway freight market to competition in full extent and technical harmonizing have proven to have positive effect. More

competition causes pressure for both the operator and infrastructure managers to rationalize, innovate and cut costs by being more efficient, increasing amount of return on investment can be also achieved. Many railway undertakings in Europe operate at profit, but certainly not all and railway's production costs are high to compete with other transport modes. Furthermore, billions of euros are given every year by the European Union governments as state aid to the Europe's railways to use for infrastructure and restructuring of loss-making enterprises. (European Commission, 2008)

The EU has liberalized the market for international passenger traffic January 1st 2010. Licensed and certified railway undertakings established in the EU are now able to offer international passenger services in the international routes. Two branches in the passenger transport sector are expected to have bright future: Commuter traffic and high speed passenger transport. Commuter traffic is area where competition can be created for the public service contracts. International high-speed services have increased, and further development of the trans-European high-speed network is facilitated by the European Rail Traffic Management System (ERTMS). Airlines are serious competitor when talking about long distance travelling; new initiatives are needed and promoting competition can be a way to achieve those. Opening of the countries' national rail passenger market to able cross-border competition is one of future possibilities. (European Commission, 2008)

According to Alexandersson and Hultén, (2009) the future will bring two new types of competition to European railway market. First form of competition is on-the-track on international lines, which is based on the cabotage principle. Traffic is between EU member states and allows picking up passengers from stops along the line, stops in the foreign countries are allowed without having a contract with local operators. Second form of competition is on-the-track in national market. This kind of competition is limitedly used in the UK and regulatory framework is currently under work in Sweden. (Alexandersson and Hultén, 2009)

European railways have to confront several changes in the coming years. Legal, technological, demographic and market changes create challenges also for training end educating of employees in the railway sector. Deregulation and internalization of the rail freight and passenger sectors has also effect to the needed workforce to ensure the competence of the European railways. Rail Training Study 2020, (2007) recognized over 100 facilities in Europe providing rail training. Of these facilities about 50 percent were governmentally owned and 50 percent privately owned. In addition also railway undertakings have own training facilities or they provide apprenticeships. In general the duration of locomotive driver's training takes minimum of 23 weeks and maximum of 41 weeks, longest training reported in the study was 160 weeks. The study estimated that approximately 11 thousand locomotive drivers and 20 thousand other staff related to railways are educated in European training centers every year. According to the study the European Railway Sector employs over 900 thousand people. In the future years there is a lot of retiring railway workers and difficulties might appear when their positions are needed to be filled and the industry is not attractive in the eyes of younger people. Future challenge for the training centers is hiring qualified trainers, who prefer to teach and not work in train operations. Majority of the facilities are owned by railway undertakings and when the market of training is liberating, companies are expected to offer the use of their facilities to other operators, when more competition occurs. New market entrants benefit from the competitive situation as it easier for them to get access to training of the staff. The effects of liberalizing the railway market will reflect also to the demand of training. The number of operators in the industry is increasing, which can lead to more competition between training centers. Challenge for the training centers is to adapt to the changes in the market for example peaks for training demand can be created, when concessions are won. One more challenge is the demand for employees to be more flexible and have wider range of expertise in order to do various tasks in the company. (Rail Training 2020, 2007)

Directive 2007/59/EC of the European Parliament and of the council was established October 23rd 2007 concerns the certification system for locomotive and train drivers on the European Union (EU) rail network. Aim of the directive is

to have a uniform license and a harmonized complementary certificate inside EU rail network. The procedure for obtaining the license and certification contains many specific requirements. License identifies the driver and the authority responsible for issuing it, also duration of validity is mentioned. Issuing of the license is done based on application, where is stated the driver meeting requirements concerning medical state (also psychological), education and professional competence. The certificate states the holder has received training under railway undertaking's safety management system. The certificate authorizes in one or more of the categories: Shunting locomotives and work trains and/or carriage of passengers and/or goods. Following modes are excluded from the directive: Metros, trams and other light rail systems, networks that are functionally separated from the rest of the rail system and used only to operate local and urban services. Also privately owned railway infrastructure is excluded. Phasing the directive is realizing in different stages, at the latest on October 29th 2018, all drivers should have licenses and certificates in conformity with the directive. (European Union, Train driver directive, 2010)

Contracting types are quite similar in EU countries. Public Service Obligation (PSO) contract is common in areas where organizing public transport is not commercially profitable. For example, the international market for regional train services that cross borders is quite small, in many places border areas are not densely populated. In cases like this the international PSO contracts are commonly applied to cover created operational deficits. PSO contracts can also be used to international long-distance services to ensure the continuity. Regional market for trains financed under PSO contracts is also growing. Several routes have enjoyed a revival, after being neglected by their incumbent operators for many years. In many EU countries private operators compete with incumbent operators for the PSO contracts already, and in rest of the countries this is expected to realize in the near future. (TREN, 2010)

Railway sector tendering has been introduced in several EU countries: Sweden, Great Britain, Denmark, Germany and the Netherlands (Alexandersson and Hultén 2006a). It has been a common way at least in Sweden to attract operators

to bid for operating contract for a certain parts of the railway for example the tender for operating Stockholm commuter trains. In tendering system the authority usually provides rolling stock. There have been two types of contracts: Gross cost contract or net cost contract. In gross cost contracts the operators bid for lowest amount of subsidy it needs to cover costs (+ profit margin). Local authority does the planning and marketing, decide on ticket prices and take all revenues from fares. Penalty system is used when delays occurs. Contract period is normally three to five years with possible extension. In net cost contracts the operators have to project both costs and revenues, bidding for the minimum amount of subsidy needed to cover the deficit (+ profit margin). Contract duration is normally five years with possible extension. Gross contract type has been more used in Sweden and has proven to have cost reducing tendency. In the UK net contract type has been more used but their franchising system has not functioned as well as the Swedish model. (Alexandersson and Hultén 2006b; Nash and Wolański, 2010) Due to Alexandersson and Hultén (2006a) a problem of very low bids has become a problem, which has led to the situation that the operator has failed to deliver the contracted train service. Examples can be found in Great Britain, Germany and Sweden, these examples raise concern for negative effects both in national and regional level.

2.3 Sweden

Deregulation has been argued to increase efficiency; Sweden and EU have proceeded in deregulating railways based on this fact. Organizing the deregulated market engender opinions among experts, politicians and other stakeholders. Different types of solutions have been suggested for example privatized monopoly, competition in some markets, competitive tenders or auctions and some suggest that operators can compete on the same track in order to provide the best service. (Alexandersson and Hultén, 2009) The process of deregulating the railways in Sweden started in the 1980s and has continued since slowly but surely. A new transport policy decision was made in 1988 and Sweden became the first country that separated the construction and administration of the railway infrastructure both organizationally and legally from the train operations.

Infrastructure authority, the Swedish National Rail Administration “Banverket” and Swedish State Railways “SJ” were established through this division. (Holmgren, 2005) In 1990 County Public Transport Authorities (CPTAs) were given responsibility of the county lines (SJ was responsible for main lines and freight transportation) and this was the first step towards new actors entering the market. First competitive tendering took place in 1989 and 1990 the first entrant started operating in regional traffic. As the effects were positive CPTAs were given more rights in mainlines of their counties. Since July 1st 1996 freight carriers have had free access to the tracks. (Jensen and Stelling, 2006)

Concerns about the deregulation have also been presented. When a monopoly is broken to several sub-markets and operations within a highly specialized market, the situation may lead to increasing transaction costs. Broking the monopoly in the British Railway industry in 1990s, the outcome of privatization was more than 80 companies. When large railway companies are split to smaller entities, there is a possibility for new monopolies to appear. Also if companies operate only to make profit, the learning and efficiency can turn out to be smaller than expected through in the competitive market. (Alexandersson and Hultén, 2009)

Jensen and Stelling (2006) have evaluated the Swedish deregulation model in general terms and made following conclusions. Deregulation has been generically cost effective in terms of reducing costs in both infrastructure management and train services. Competitive pressure created between the operators has reduced costs. The vertical separation of infrastructure management and traffic operations has increased some deregulation related costs such as restructuring and transactions, but this is covered with the net effect achieved from competition between operators. Technology, intermodal competition and general political pressure explain about half of the cost improvements (observed periods 1970-1988 and 1989-1999) explaining these solely by deregulation cannot be done. (Jensen and Stelling, 2006)

As mentioned in previous paragraphs Sweden has been a pioneer in deregulation of the rail market. Share of rail in passenger transport is eight percent and in

freight the percentage is 40 (tonne-kilometres) of transported goods. In Sweden there are currently several companies that offer rail passenger transport services. Long distance operating has been done by national SJ exclusively. In June 2009 the Swedish government decided of needed action, which aims to open the market in different stages. In July 2009 the traffic on weekends was opened to competition and in October the international passenger traffic was also deregulated. Original schedule of the government was to completely open the passenger railway market in December of 2011. The market opening was realized one year in advance in October 1st 2010. Since then any railway undertaking with a registered office in EES or Switzerland has the right to operate passenger rail traffic in Swedish rail network or Trafikverket's rail network. (Network statement, 2010) Private companies operating in the Swedish passenger rail market are Veolia, Arriva, DSBFirst, Tågkompaniet and A-train, 25 percent of total train kilometers in Swedish are under competition. Tendering system offers contracts of five years and the contracts have strict content about for example schedules, rolling stock and maintenance. Experiences of deregulation have been positive in Sweden and passenger volumes have increased. (Kivimäki et al., 2010)

2.4 Estonia

Baltic countries joined European Union in May 1st 2004. Since joining EU, Estonia has been obliged to follow the legislation of EU concerning railway industry. The privatization process in Estonia was considered to be quite easy going when compared to other countries in Western Europe. The state-owned company Eesti Raudtee (ER) had only been operating since 1992 and the privatization process started 1996. (Hytönen, 2010) ER was split to several new entities in 1997: Eesti Raudtee AS (freight carrier), Edelaraudtee (domestic passenger lines), Elektriraudtee Ltd. (suburban operating) and EVR Express (international passenger operations). Edelaraudtee was privatized and 49 percent of EVR Express was sold to investors. Rest of the companies remained publicly owned. (TERA International Group, 2005) Edelaraudtee AS became the rail passenger operator in 1997 and owner of the railway network on the lines it was operating. Edelaraudtee was also responsible for operating passenger transport in

the railway network owned by ER, with diesel locomotives. International rail passenger operator EVR Express (nowadays AS GoRail) had several lines, but most of them were ended, nowadays only one train is operated to through Narva to Moscow. (Hytönen, 2010; TERA International Group, 2005) In February 2001 GB Rail (UK) won the Edelaraudtee tendering and company was privatized. GB Rail demanded increased subsidies for lines Narva-Tallinn and Tarto-Tallinn, otherwise some lines would be closed. Subsequently, the Narva-Tallinn line was actually discontinued. (Ojala and Queiroz, 2001)

The privatization process in Estonia has had a lot of American and British influence. In the final stages of the privatization process of the Eesti Raudtee a consortium called Rail Estonia won the tendering at a price of 1.71 billion kroons (96 million US dollars) on December 13th 2000. Majority (90 percent) of Rail Estonia belonged to international consultancy called Kingsley Group, with two U.S. railway companies, CSX Corporation and Rail America together represented with ten percent. The structure and accuracy of information concerning Rail Estonia was questioned and in February 2001 a group of judges was appointed to investigate the process. (Ojala and Queiroz, 2001; The Baltic Times, 2001) The Supreme Court annulled the decision on June 20th 2001, made by Estonian Privatization Agency on December 13th 2000, which stated the offer of Rail Estonia to be the best. The government formally selected the second best offer (Baltic Rail Services) after the Supreme Court's decision. The bidder who placed third in the competition was Raudtee Erastamise Rahva AS (RER), a consortium of Estonian business people and Sweden's national railway company SJ. (Eesti Raudtee, 2011a; The Baltic Times, 2001) The main source of income for the Estonian Railway has been oil transportation from city of Narva (located near Russian border) to the Port of Tallinn (Lumiste et al., 2008).

In August 2001, 66 percent of ER was sold to foreign investors; this was the first privatisation of a vertically integrated European national railway company. New main owner of ER was Baltic Rail Services (BRS). BRS was owned by several entities: Ganier Invest of Estonia, RailWorld Estonia LLC, which was a subsidy for RailWorld U.S, Railroad Development Corporation of U.S and Emerging

Europe Infrastructure Fund of U.K. The acquisition of ER was financed partly by a loan from the International Finance Corporation (IFC). (TERA International Group, 2005) The situation in 2001 was following: The whole rail network was privatized and state owned only Elektriraudtee and 33 percent of ER. In 2007 the state decided to acquire Eesti Raudtee back to its possession. One of the reason effecting the purchasing decision was surely EU funding for the developing railway network, funding could not be applied for privately owned rail network. In January 14th 2009 the rail network maintenance and traffic operations were separated by establishing two subsidiaries: AS EVR Infra and AS EVR Cargo. The Estonian railway market is open for freight companies to access and two companies are carrying freight. Passenger rail market is also open for new companies to enter but no new entrants have appeared. (Hytönen, 2010)

2.5 Denmark

Denmark has not taken passenger railway traffic deregulation as further than Sweden, but some private companies are in the market. In Denmark there are nine companies operating in the passenger railway service market. State owned DSB has over 90 percent market share. DSB is divided in Copenhagen local traffic (DSB S-Tog) and long-distance traffic. Two companies (Arriva and DSBFirst) have won traffic from DSB in 2002 and 2008, and operate via tendering system. There are five regional companies, which are owned by regional governments and private shareholders (ten percent). There is an agreement with DSB that maximum of 15 percent of the railway lines can be put under competition. (Kivimäki et al., 2010)

3. PASSENGER RAILWAY MARKET DESCRIPTION AND KEY STAKEHOLDERS

3.1 Models for organizing passenger railway transport

The traditional model for organizing railway passenger traffic has been the model, where one operator, the national incumbent is responsible for the market. The incumbent has a monopoly position to run the passenger traffic. In these cases the authority buys the service from the incumbent. The three main models organizing the traffic via competition are franchising, tendering and open access, besides these transportation services can be purchased directly from the operator. (Kivimäki et al., 2010)

In the tendering system public authority makes a detailed contract about certain entity of traffic with the operator, who has won the tendering process. The contract contains strict regulations for example about the duration of the contract, ticket price and quality factors. There are two types of contracts: Gross cost contract and net cost contract. In gross contracts the operator bid for lowest amount of subsidy it needs to cover costs (+ profit margin) and the revenue from tickets is collected by the authority. In net contracts the operator has to project both costs and revenues, bidding for the minimum amount of subsidy needed to cover the deficit (+ profit margin). The gross contract is stated to be better for new entrants, as operators who have been longer time in the industry have better picture of the behavior of the market and formation of ticket revenue. When operating with net contract the operator must pay attention to service quality and marketing to attract as much passengers as possible. (Alexandersson and Hultén, 2006b; Kivimäki et al., 2010)

Franchising has same features than operating with net cost contract. Market entry is realized through bidding process. The risk concerning costs and revenue from tickets are handled by the operator. Compared to net contract, franchising gives more liberty for the operator and it is more market orientated model than the net contract. The major difference between these two models is planning

responsibility of the traffic. In franchising the operator plans the traffic according to the bid, where in net model the authority is responsible for planning the traffic. (Kivimäki et al., 2010)

Open access is the most market orientated model. Describing its features is challenging, due to the fact it is executed only in small scale. In open access operator has the liberty to decide offering, prices and tariffs. Basically in open access railway undertaking can apply for track capacity from the infrastructure manager. The infrastructure manager is responsible for combining all desired schedules together and granting track capacity. (Kivimäki et al., 2010)

3.2 Sweden

Sweden is a long country with surface of 449 964 square kilometres and 9.4 million inhabitants (Eurostat, 2010). The railway network in Sweden is 12 000 kilometres long and approximately 90 percent of it is electrified (Trafikverket, 2010). The railway gauge is standard of 1435 mm (Eurostat, 2011). Although, the Swedish passenger railway market is deregulated, the national incumbent SJ has still remained its market share in long-distance operations according to Kivimäki et al. (2010).

Table 2 Total annual passenger transport, million passengers-kilometers (Eurostat, 2011)

	2004	2005	2006	2007	2008	2009
Sweden	8634	8910	9617	10261	11146	11340

The annual passenger railway transport volume measured in passenger-kilometers has continued to grow every year (see table 2). In 2004 the annual total was 8634 million passenger-kilometers and in 2009 the according figure increased to 11340 million passenger-kilometers.

Table 3 Swedish railway undertakings percentual market share per gross ton kilometres, January-November 2010 (Pers.Com. Hans Wolf, 21.1.2011)

Operator	Gross ton km, Jan-Nov 2010
SJ AB	64,1 %
DSB First (Skånetrafiken)	14,2 %
Stockholmståg KB	12,9 %
Svenska Tågkompaniet AB	3,6 %
A-Train AB	1,5 %
Veolia Transport Sverige AB	1,1 %
Tågkompaniet	1,1 %
Arriva Tåg AB	0,4 %
Kalmar Länstrafik AB	0,3 %
Tågåkeriet i Bergslagen AB	0,3 %
DSB First Sverige AB	0,3 %
Östgötatrafiken AB	0,2 %

Table 3 illustrates the percentual market share of Swedish passenger railway undertakings and Figure 2 their operated lines (excluding incumbent SJ and operators in Stockholm area). The national operator SJ has been dominant in the national long-distance traffic with the share of 64.1 percent. DSB First (green lines) operates in Skåne region with the second biggest share of 14.2 percent. DSB First Sverige AB has several subsidiaries and joint ventures: DSB Upland, DSB FirstWest, DSB First Öresunds Swerige, DSB First Øresund Danmark and Roslagståg. Commuter train operator Stockholmståg had 12.9 percent share of total passenger train traffic in 2010. According to Stockholmståg (2011), company is responsible for routes (Gnesta) Södertälje - Märsta and Nynashamn - Bålsta. Approximately 250 000 trips with the commuters are made daily, which represents approximately 65 percent of all rail travel in Sweden. (Stockholmståg, 2011) Svenska Tågkompaniet has 3.6 percent share and the company's trains are running in Central Sweden (black lines).Veolia operates between Malmö and Åre (blue) with the share of 1.1 percent. Other private companies with small market shares are Tågåkeriet, operating between Göteborg and Karlstad (light blue) and Arriva Tåg in South Sweden (red lines), mainly Malmö - Helsingborg area. DSBFirst connects Sweden and Denmark (green lines). Inlandsbanan is between

Gällivare and Kristinehamn (part of the route between Mora and Filipstad is operated by bus) (mauve).

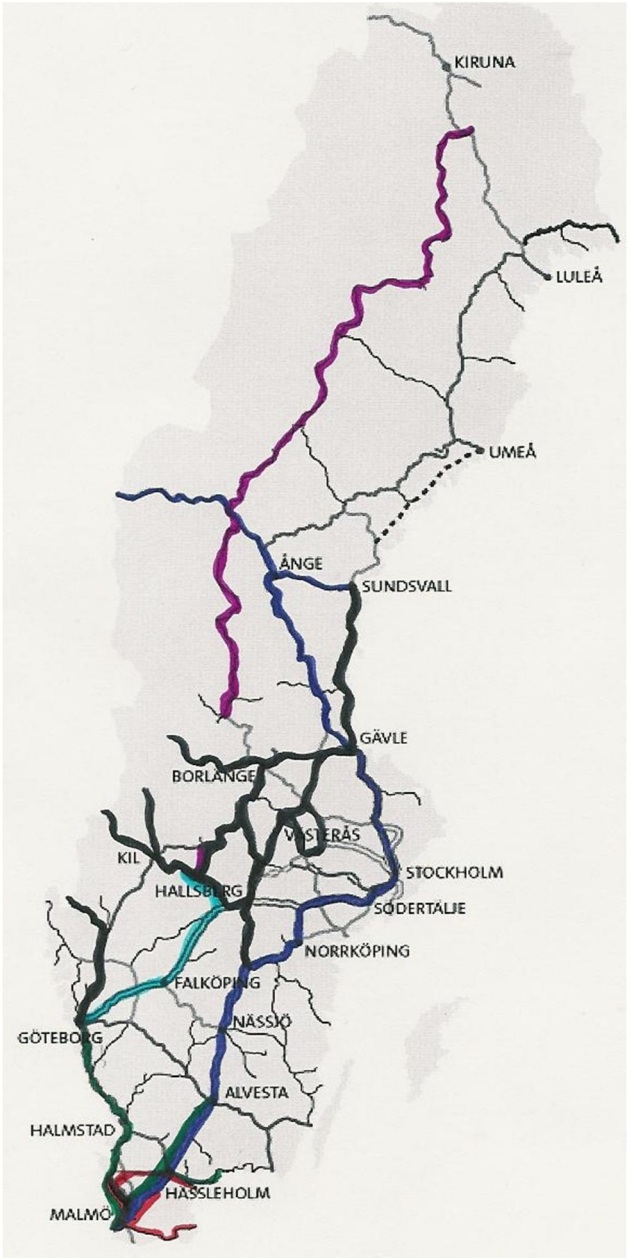


Figure 2 Passenger railway undertakings' market areas in Sweden, excluding the incumbent and operators in Stockholm area (Arriva Tåg, 2011; DSBFirst, 2011a; Inlandsbanan, 2011; Svenska Tågkompaniet, 2011; Tågåkeriet, 2011; Veolia, 2011)

The public transportation (bus, metro, light rail and commuter trains) in Stockholm is organized by one company AB Storstockholms Lokaltrafik, commonly known as SL. Companies are chosen to operate for SL based on

tendering system. Stockholm County Council owns SL and the SL Board is appointed by the Stockholm County Council Assembly. Half of the company's income is received from taxation and the rest mainly from ticket revenue. Besides organizing transportation, SL has been also responsible for the development of Stockholm County Council's transport policy and overall transport planning since mid of 2009. Services provided by SL were used by 705 000 people daily in winter time 2009, the same figure from year 2008 was 701 000 people. The transportation volumes have increased as well as financial profit. In 2009 the company made a profit of 404 million SEK as 2008 the profit was 282 million SEK. (SL, 2010)

The city of Stockholm is growing with approximately 30 000 new residents every year, which causes demand also to the public transportation system. Several major track extensions are executed in Stockholm area for example The Citybanan line, the Tvärbana Norr line, Spårväg City and the Roslagsbanan light railway. The Citybanan is the biggest investment since building of the metro system and it will be ready in 2017. The amount of investments for the next 10 years is 35 billion SEK. (SL, 2010) According to Trafikverket (2011) Citybanan is a six kilometres long railway tunnel between Stockholm south and Tomteboda. The new tunnel with two tracks should increase the punctuality of the trains and able tighter schedules. Today all rail transport: Light rail, regional, long-distance trains and freight trains are crowding the same tracks.

Table 4 Number of journeys made with Stockholm public transportation between 2001 and 2009, million journeys (adapted from SL, 2010)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Metro	283	283	279	279	276	297	303	307	307
Commuter rail	64	64	63	62	63	64	66	68	69
Light railways	25	25	27	29	30	32	34	35	34
Bus	258	257	258	253	254	267	269	270	277
Total	**630**	**629**	**627**	**623**	**623**	**660**	**672**	**680**	**687**

Table 4 describes the passenger volumes transported with the public transportation system between years 2001 and 2009. Starting from 2001, declining was realized, but after 2005 the volumes have started to grow. Total of 689

million journeys were made in 2009 with different modes of public transportation in the city of Stockholm. As there were approximately two million residents in Stockholm year 2009, the average number of journeys made per resident during the year was 343.5. The 100 kilometers long Stockholm Metro system is operated by a Hong Kong company MTR since 2009. The metro was the most used public transport mode with 307 million trips in 2009. Secondly largest number of journeys was made with busses, 277 million. The number of journeys with commuter trains and light rail were much smaller compared to metro and bus. Stockholmståg has operated commuter trains since 2006. The commuter system contains three lines, which length together is 200 kilometers and there are 50 stations. In Stockholm there are also five local train lines. Råslagståg operates the 65 kilometers long Roslagsbanan, and Veolia operates the four remaining lines (together 44.9 kilometers). (SL, 2010; SL, 2011)

Figure 3 presents the key stakeholders in the Swedish passenger railway industry, freight industry is excluded. Government, governmental authorities and other regulatory bodies are responsible for politics and regulations. Infrastructure managers and railway undertakings are represented below these three.

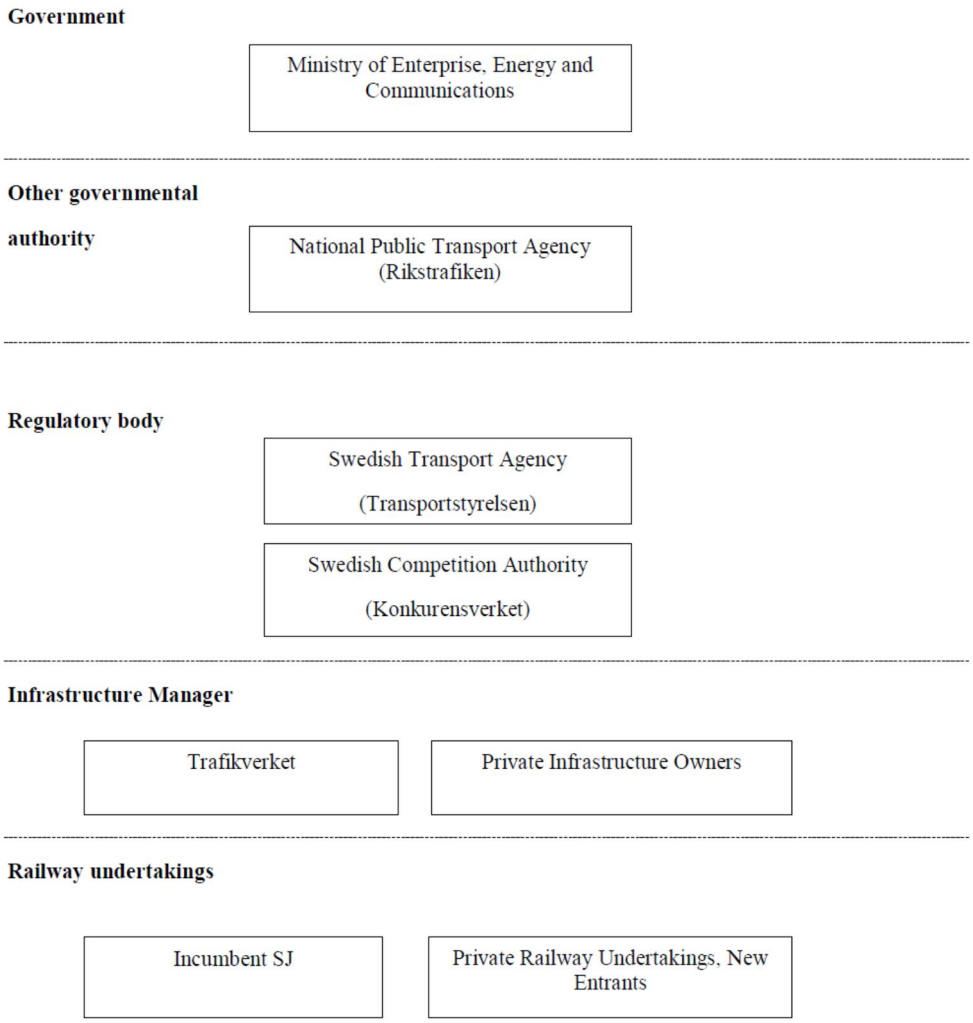


Figure 3 Key stakeholders in the Swedish railway industry (Adapted from figures of Anttila and Wallin, 2010; Laisi, 2009)

Ministry of Enterprise, Energy and Communications is responsible for the politics concerning railways together with the National Public Transport Agency (Rikstrafiken). The ministry also grants the funding for Trafikverket to maintain the infrastructure. Rikstrafik is also responsible for developing and coordinating of the public transport system and for example competing of the national train traffic. (Anttila and Wallin, 2010; Laisi, 2009) The Swedish Transport Agency (Transportstyrelsen, former Järnvägstyrelsen) is responsible for forming regulations, examining and granting permits to companies willing to operate on the Swedish railway infrastructure. Permits granted by the agency are for example licence to provide tractive power and conduct rail traffic, safety certificate and

special permits. The Transport Agency also supervises safety issues in the railways (including light rail and underground). (Transportstyrelsen, 2011) The Competition Authority supervises that the laws are obeyed in competition situations (Anttila and Wallin, 2010; Laisi, 2009). Maintenance of the tracks was solely performed by SJ before year 1988. In July 2001, the Banverket decided to open up the maintenance for free competition. For several parts of the track, companies were asked to bid over maintenance contracts in 2002. (Holmgren, 2005)

Over 90 percent of people employed in the railway sector in Sweden are organized in labor unions. Landorganisationen I Sverige (LO) is the central umbrella organization for the majority of affiliated unions which organize employees in the private and public sectors. The 16 affiliates of LO have about 1,918,800 members. LO coordinate for example wage bargaining, international activities, trade union education and equality of sexes and social security. TCO has 17 affiliated unions, with together about 1.3 million members. Saco-förbundet Trafik och Järnväg (TJ) is an umbrella organization for 26 university graduates unions, it has 569,000 members. In 2005, approximately 4,440 employees from the railway sector were members of (TJ) Facket för service och kommunikation (SEKO) is the national Swedish labor union for people working in the services and communications sector. SEKO has 165,000 members in nine different branches and railway branch consists of around 27,000 members (for example locomotive drivers, onboard services and maintenance workers). Statstjänstemannaförbundet (ST) represents workers in the public sector. The union has nearly 100,000 members. ST represents over 1,200 locomotive drivers. Swedish Engine Drivers' Union, SLFF is a labor union only for drivers. (European Foundation for the Improvement of Living and Working Conditions, 2006)

3.3 Estonia

The first railway line in Estonia was opened in 1870 between Tallinn and Narva, the same year is regarded as the establishment year of Eesti Raudtee (Estonian Railways). In 1940 the railways of Estonia were joined to the railway network of the Soviet Union until the Republic of Estonia became independent 1991. After being independent Estonia became a transit channel. State owned company Eesti Raudtee was formed as a public limited company in 1997. (Estonian railways, 2009) The privatization process of Eesti Raudtee is described more specifically in chapter 2.4.

Estonia is quite sparsely populated country with surface of 45 227 square kilometres. The total population of Estonia is approximately 1.3 million inhabitants (Eurostat, 2010.) Majority of people and economic activities are concentrated to the biggest cities and their proximity. (UN Estonia, 2009) The length of rail network in Estonia is 1200 km, where 900 km is public railway. The length of e1ectrified rail network is 133 km. Double track is found from 107 km length. (The Estonian Technical Surveillance Authority, 2011a) The railway gauge in Estonia is 1 520 mm (Tallinn City Government, 2010). Passenger volumes transported nowadays in the railway are quite small (see table 5) and majority of traffic is cargo transport, which is mainly transit traffic from Russia to Western Countries. (The Estonian Technical Surveillance Authority, 2011b) According to Estonian Railways (2009), Annual report 2009 stated decrease in the volume of total local freight, it was 2.84 million tons 2009 and 4.06 million tons 2008. Volume of international transport was 22.54 million tons 2009 and 22.01 million tons 2008.

Table 5 Total annual passenger transport, million passengers-kilometers (Eurostat, 2011)

	2004	**2005**	**2006**	**2007**	**2008**	**2009**
Estonia	193	248	257	274	274	249

Table 5 illustrated the total annual volume of passenger railway transport, measures in passenger-kilometers. The peak was reached in 2007 and 2008, when there were 274 million travelled passenger-kilometers.

Table 6 Ratio of public and private transport used in Estonia, percents (UN Estonia, 2009)

Mode of transport	**2004**	**2005**	**2006**	**2007**
Private cars	65,1	67,3	65,9	66,5
Public transport total	34,9	32,7	34,1	33,5
Road transport (buses)	20,6	18,4	19,1	17,9
Incl. urban transport (buses)	4,3	3,2	3,4	3,4
Tram and trolleybus transport	2,0	1,5	1,5	1,6
Railway transport	*1,6*	*1,7*	*1,7*	*1,8*
Maritime transport	4,6	3,7	4,2	4,8
Air transport	6,0	7,5	7,5	7,4

Table 6 describes the ratio of different transport modes used in Estonia. Private car is the most used transport mode as the percentual ration has been over 65 in the four years presented in the table. The total share of public transport has fluctuated during the observed years between 34.9 percent and 33.5. Busses are the most used mode of public transport with 17.9 percent in 2009, although there is also decline compared to previous years. Passenger railway transport has remained almost the same with the share of 1.6 percent in 2004 and 1.8 percent in 2007. According to UN Estonia (2009) when observed only work related trips, the use of cars is also increasing and the share of public transport is decreasing. In 2004 the share of public transport in work related trips was 29.4 percent when in 2007 it was 26.3 percent. Environmentally friendly transport modes are emphasized in Estonia, but in the Transport Development Plan it is admitted that due to country's small size and the fact inhabitant density is small outside capital area, road transport will remain the main mode in the domestic transport. (UN Estonia, 2009)

In Estonia there are three railway undertakings, which provide railway passenger transportation services. Two operators have national services and one international service (Edelaraudtee, 2011; Elektriraudtee, 2011; GoRail, 2011). Figure 4 presents the national railway undertakings' market areas.

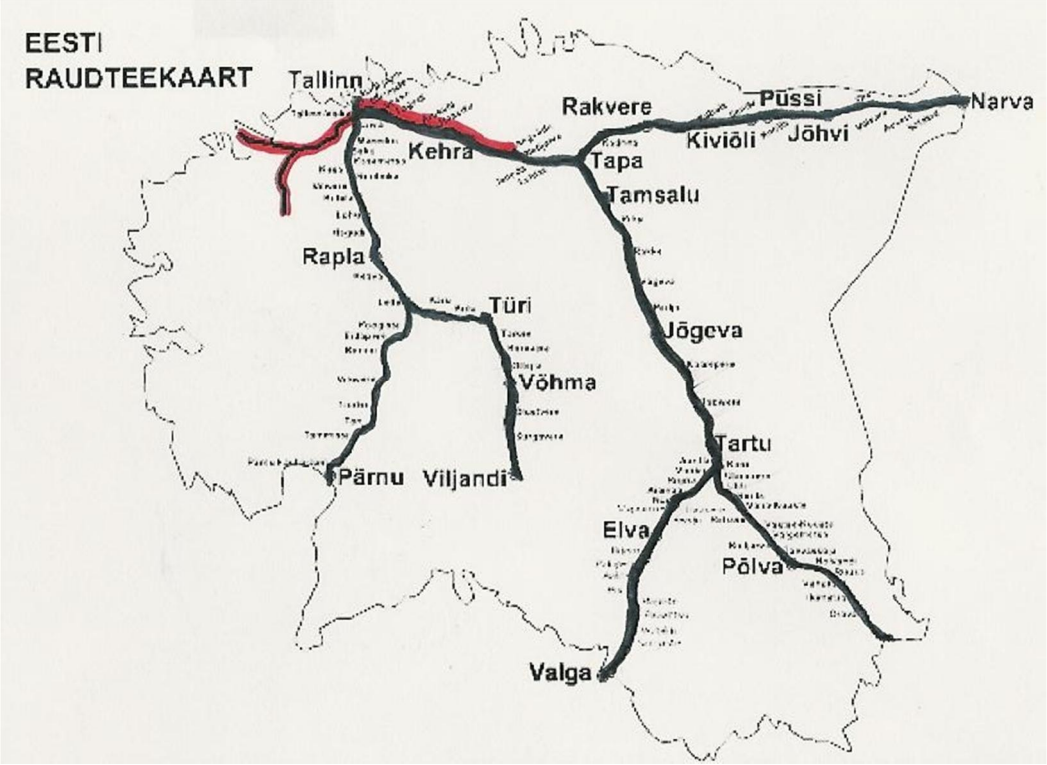


Figure 4 Passenger railway undertakings' market areas in Estonia, excluding GoRail (Edelaraudtee, 2011; Elektriraudtee, 2011)

Edelaraudtee AS is the long-distance operator and operates with diesel trains. Edelaraudtee operates lines from Tallinn to Tartu, Viljandi, Pärnu, Narva and Orava (black area in figure 4). (Edelaraudtee, 2011) Elektriraudtee AS operates commuter traffic (six lines in 2009) with electric trains in Tallinn and Harju county area (red area in figure 4). (Elektriraudtee, 2011) International passenger traffic from Tallinn to Moscow through Narva is handled by GoRail AS. Company operates the traffic with night trains, departures are from Tallinn and Moscow in the evening and arrival in the destination is in the next morning. (GoRail, 2011) Table 7 describes the development of the passenger railway traffic in Estonia.

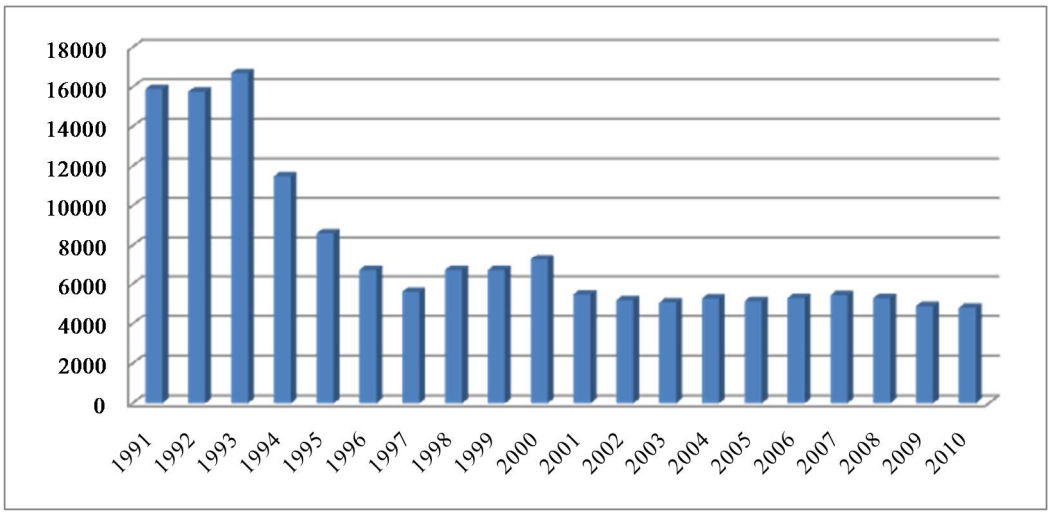


TABLE 7 RAILWAY PASSENGER TRAFFIC IN ESTONIA BETWEEN YEARS 1991-2010, 1000 PASSENGERS (ADAPTED FROM FIGURE OF STATISTICS ESTONIA, 2011)

Passenger railway transport volumes have declined dramatically from the 1990s. The peak in volume was reached in 1993 with 16.7 million passengers. After the peak there has been declining or rather steadily volumes despite of small increase between years 1998 and 2000. Volumes have remained quite steadily around four and five million passengers per year after 2000 according to Statistics Estonia (2010).

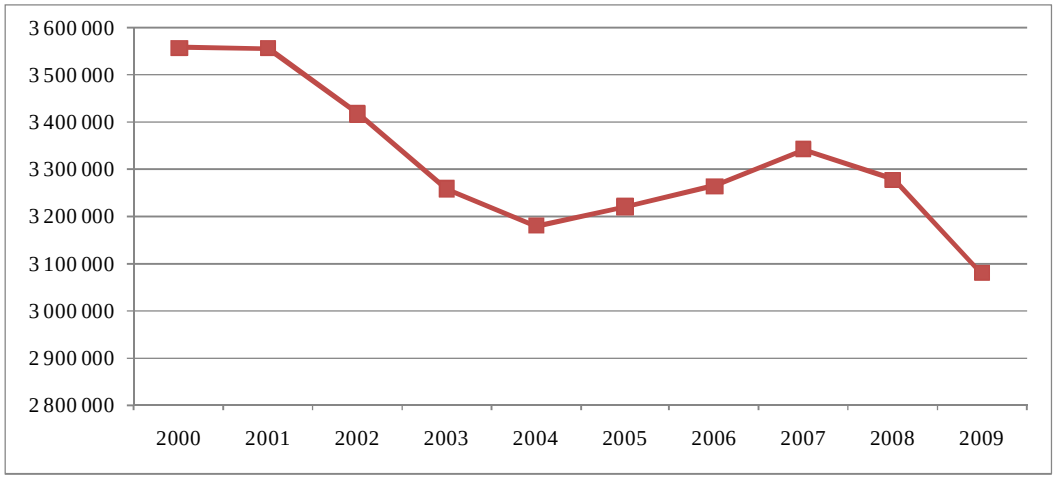


TABLE 8 THE NUMBER OF TRIPS MADE WITH ELEKTRIRAUDTEE TRAINS BETWEEN 2000 AND 2009, (ADAPTED FROM FIGURE OF ELEKTRIRAUDTEE, ANNUAL REPORT 2009, 2010)

The number of trips made with Elektriraudtee commuter trains (Table 8) have decreased during the past ten years. The decline has not been rapid, but in 2000 the number of trips was approximately 3.6 million as in 2009 it was approximately 3.1 million. When compared years 2008 and 2009, the decrease

was six percent. According to company's Annual Report 2009, the reason for declining volume of passengers is high unemployment rate as people do not travel to work daily and it has lead to decrease also in the number of 30-day tickets bought. (Elektriraudtee, Annual Report 2009, 2010)

Despite the small ratio of railway passenger transport, railways have been improved in Estonia and investment are made, new locomotives and rolling stock have been ordered for the passenger train operator. (UN Estonia, 2009) The current rolling stock used to transport passengers is from the 1960s and 1970s. The new trains are delivered between years 2013-2014 for the governmental operator Elektriraudtee. With the new trains and investments to the railway network and railway stations, the Ministry of Economic Affairs and Communications hope to increase the passenger volumes and popularity of public transport. The new trains are funded 85 percent through European Union Cohesion Fund and the rest from the state. (The Baltic Cource, 2010)

Another future prospect for Estonian railway sector is Rail Baltica, a railway connection between Tallinn, Riga, Kaunas and Warsaw to Berlin. A wider concept of Rail Baltica is to have a tunnel under the Baltic Sea to Helsinki from where is a railway connection to St. Petersburg. (Rail Baltica Growth Corridor, 2011) There are different route options for Rail Baltica through Estonia and also the difference in gauge between Estonian and European gauge can cause challenges. Different route alternatives are through Pärnu or Tartu, Pärnu is considered to be better when thought about passenger traffic, but it is stated not to be cost-effective. It is one possibility to build a new railway line with European gauge or construct old lines to meet the demands. Travelling speed should also be analyzed whether it should be 160 km/h, 200 km/ or even 300 km/h. Rail Baltica should take in account the development of Baltic region and it can be important route to both freight and passenger transport. The actual realization of the project can take years, but for example the planned travel time from Tallinn to Warsaw is 5-6 hours as currently it takes 1 hour 40 minutes by airplane. When flying you must take into consideration also the time for passport checks and other

procedures as when travelling by train it is possible to travel directly from city centre to another. (Eesti Raudtee, 2011b)

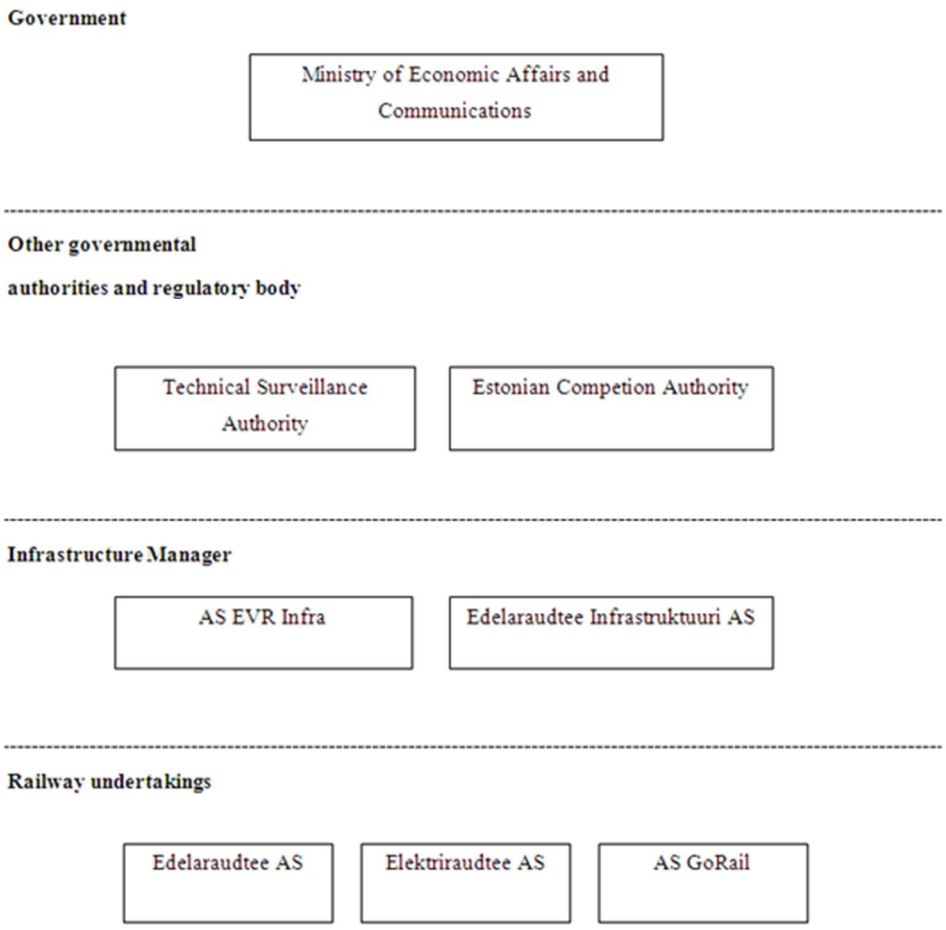


Figure 5 Key stakeholders in the Estonian railway industry (Adapted from Estonian Technical Surveillance Authority, 2011b)

In Estonian railway sector the Ministry of Economic Affairs and Communications is the institution responsible for the elaboration of the legal framework. The Ministry's Road and Railways Department elaborate national development plans concerning for example railway infrastructure, logistics, passenger transport, freight transport and rolling stock. Furthermore, the fields related to safety of the railways (implement development plans, preparation of draft legal acts) are also concerns of the department. Ministry of Economic Affairs and Communications

supervise the Railway Inspectorate (a governmental organization). The Railway Inspectorate performs for example national surveillance and applies national enforcement in the railway field stipulated by the law. Railway infrastructure is privatized in Estonia; railway freight carrying is done on the basis of private law. Two rail networks are for public use in Estonia, which belong to AS Eesti Raudtee and Edelaraudtee Infrastruktuuri AS. In Estonia there are both state owned and privately owned companies acting in the railway sector. In 2000, the Railway Administration in Estonia started to issue locomotive drivers` licences. At the end of year 2005, approximately 550 valid locomotive drivers` licences were issued. In addition documents for issuing approximately 200 locomotive drivers` licences were under process. (The Estonian Technical Surveillance Authority, 2011 b)

In Estonia approximately 12 percent (80 thousand members) of all employees are members of labour unions. The number of union members dropped significantly in the 1990s. Estonia has two trade union confederations, EAKL and TALO. EAKL is considered as a manual workers' confederation and TALO is primarily a confederation of non-manual workers. (Worker-participation, 2010) EAKL has 19 branch unions that represent state and municipal government officials, education workers, health care workers, transport workers (road, railway, sea and air transport), industrial workers (energy, light industry, food industry, timber and metal industry) and people employed by the service sector. (EAKL, 2011) There are three unions for railway workers and locomotive drivers in Estonia, which belong to EAKL. Railway Employees' Trade Union (ERAÜ), Locomotive Workers' Trade Union (EVA) and the Estonian Locomotive Workers' Vocational Union (EVKL). (Eurofound, 2004)

3.4 Denmark

The total area of Denmark is 43 560.76 square kilometres and the number of inhabitants is 5.5 million. The length of rail network in Denmark is 2667 kilometres, of which only 642 kilometres is electrified and 514 kilometres is private railway. The railway gauge in Denmark is 1435 mm. Mainly the railway

traffic in Denmark is transit freight traffic. (Statistics Denmark, 2010) The section with most traffic is between Copenhagen and Østerport, where 445 trains are run daily from Monday to Friday. Almost all of the sections have more than 20 trains per day, 124 passenger trains and 50 freight trains cross the Great Belt every working day. On average all Danish people travel 40 kilometers every day. The motorways have extended and the distance between home and work/education has increased. These factors might explain the considerable increase in the number of passenger cars. Positive is the fact that also travelling with train has increased. (Statistics Denmark, 2010)

Table 9 Passenger transport performance in Denmark, percents (Adapted from figure of Statistics Denmark, 2010)

	1988	2008
Car	77	77
Bus	9	9
Train	7	8
Bisycle	5	3
Other	1	2

As illustrated in Table 9 car has kept its position with 77 percent when comparing passenger transport performance. When examined the public transportation, bus has been used the most and has also remained its nine percent. Train has increased its share from seven percent to nine percent. In 2008, on average of 182 000 journeys were made with train. Bicycle has lost its share from five percent to three percent. Interesting fact about Danes is that they cycle 420 kilometers a year on average. (Statistics Denmark, 2010)

Table 10 Total annual passenger transport, million passengers-kilometers (Eurostat, 2011)

	2004	2005	2006	2007	2008	2009
Denmark	5921	5961	6097	6163	6267	6161

Table 10 describes the total annual passenger railway transport in million passenger-kilometers. The annual volumes have remained quite steadily since

2004, but still small increase has been experienced. The peak was unfolded in 2008 with 6267 million passenger-kilometers.

Table 11 Passenger railway traffic in Denmark, million train km (Statistics Denmark, 2010)

Year	1998	2006	2007	2008
Railway traffic, total	68,2	80,5	78,7	81,8
Metropolitan S-trains	14,9	15,7	14,9	15,3
Other passenger transport by rail	39	48,5	47,5	49,9
Copenhagen Metro	-	4,4	4,5	5
Private railways	7,4	8,2	8,7	8,5

Table 11 describes the growth of total passenger railway traffic, also presented in Table 10. In 1998 the total amount of railway traffic was 68.2 million train kilometers as ten year later in 2008 it was already 81.8 million train kilometers. When passenger railway traffic is divided into long-distance and regional traffic can be seen from the figures of Statistics Denmark (2010) that there has been small fluctuation between observed years, but mainly all modes have increased their volumes. S-trains (S-Tog) are in Copenhagen and have also increased their share, in 2008, the volume was 15.3 million train kilometers travelled. (Statistics Denmark, 2010) The Copenhagen Metro was opened in 2002 and total lengths of the two lines are 21 kilometers, which contains 22 stations. (Copenhagen Metro, 2011). The volume of the metro has also grown from 4.4 million train kilometers to 5.0 million train kilometers between the observed years.

Table 12 The average train products of railway undertakings in Denmark in 2010, excluding private railway networks (Pers.Com. Kim Feldborg, 25.1.2011)

Operator	Average percentage in 2010
DSB	55,7
Arriva	17,60
DSBFirst	25
SJ	1,7

Table 12 presents the average train products of railway undertakings operating in Danish railway network. National incumbent DSB has the largest share with 55.7 percent. DSBFirst (see green area in figure 6) operating the Kystbanen between

Denmark and Sweden and has 25 percent share. Arriva (black area in figure 6) has gained 17.6 percent share. Swedish incumbent SJ has only 1.7 percent market share.

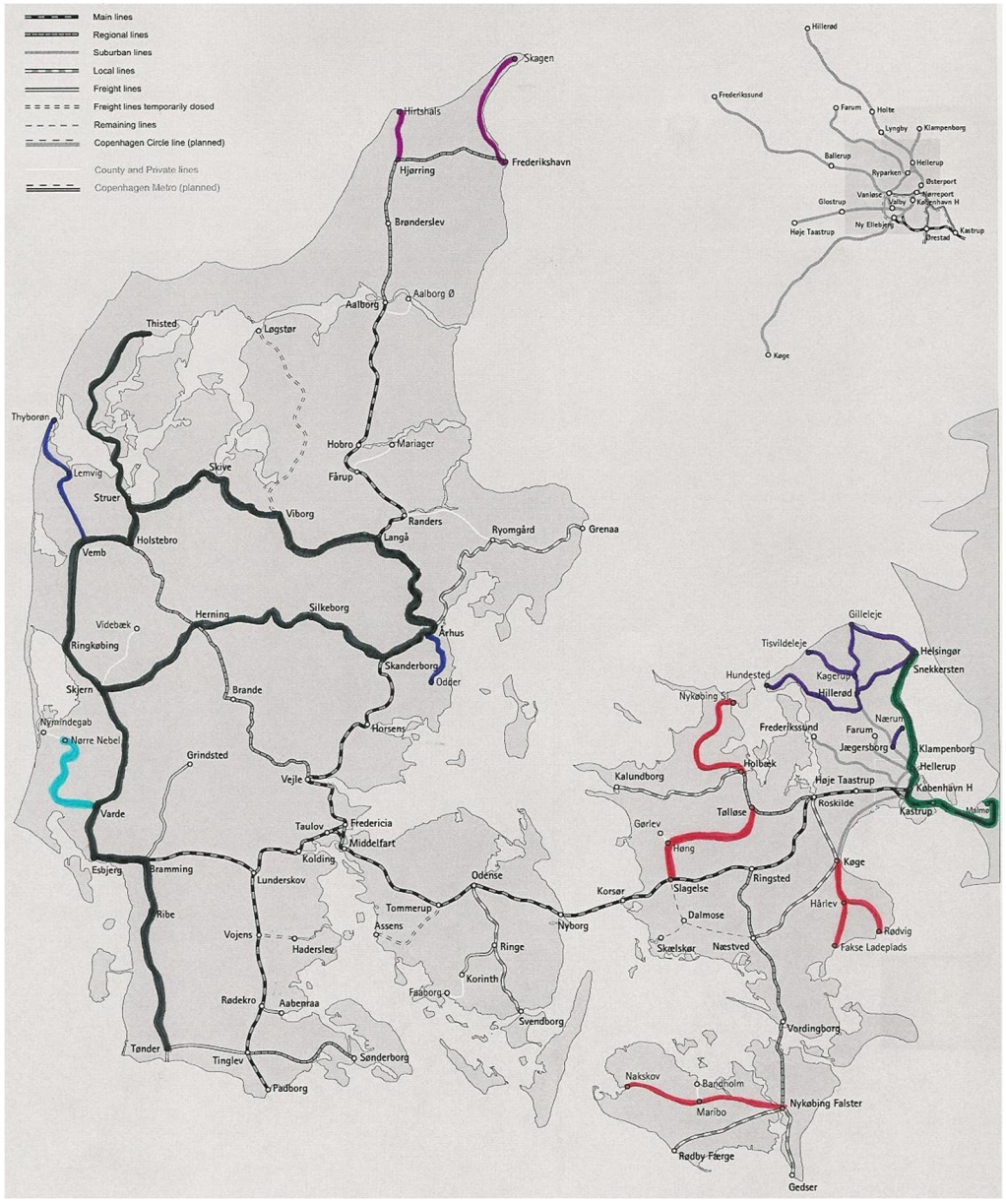


Figure 6 Passenger railway undertakings' market areas in Denmark, excluding the incumbent DSB (Arriva, 2011; DSBFirst, 2011b; Lokalbanen, 2011; Midtjyske Jernbaner, 2011; Nordjyske Jernbaner, 2011; Regionstog, 2011; Vardebanen, 2010)

As illustrated in figure 6, besides the operators mentioned in table 12, there are five operators acting in the privately owned railway networks. These are Lokalbanen (mauve, north from Copenhagen), Regionstog (red), Vardebanen

(light blue), Midtjyske Jernbaner (blue) and Nordjyske Jernbaner (lilac in north Jutland).

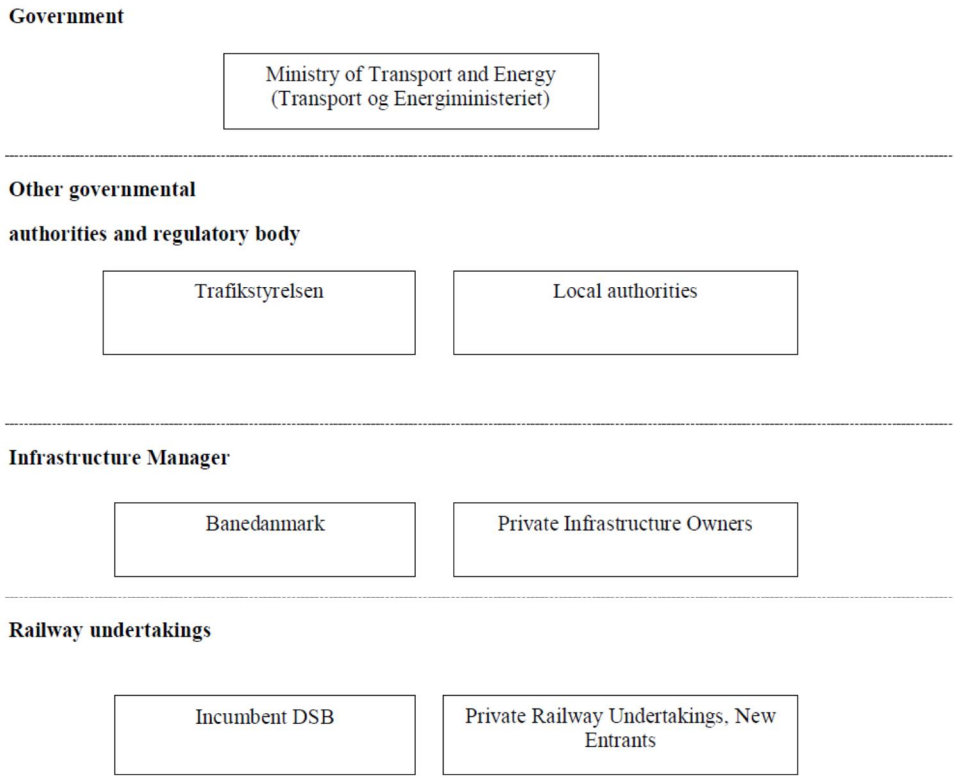


Figure 7 Key stakeholders in the Danish railway industry (Adapted from figure of Anttila and Wallin, 2010)

Figure 7 illustrates the key stakeholder in the Danish railway industry. Ministry of Transport and Energy is responsible for the railway politics, access charges and contracts together with DSB and Banedanmark. Regional authorities have also responsibilities as they are partly responsible for regional traffic. Trafikstyrelsen is responsible for planning the railway services, ensuring of investment being properly utilized and monitoring the operators that they obey the contracts. (Anttila et al., 2010) Banedanmark is a state-owned enterprise operating under the Danish Ministry of Transport and Energy. Banedanmark also known as Rail Net Denmark is responsible for maintaining the tracks, signals and safety systems. Infrastructure management and building new lines belong also to Banedanmark

duties. Other operations are monitoring of rail traffic and steering the trains. Banedanmark is responsible for 2,323 km of railway tracks and approximately 2,700 trains run on the rail network daily. (Banedanmark, 2011)

In Denmark majority of people employed by the railways belong to Danish Railway Association (DJF). The labor union has approximately six thousand active members and five and half thousand retired members. DJF belongs under Unions Denmark (LO) which has together 1.2 million members in 17 member unions. (DJF, 2011; LO, 2011)

4. RESEARCH ENVIRONMENT AND DATA GATHERING

4.1 Research approach

The idea of this study was to find out how the passenger railway market functions in target countries. Furthermore, the interest was to unfold has deregulation affected the markets in the three countries. The objective was to gather the opinions of passengers in the railway stations with customer satisfaction survey and measure their satisfaction level, in order to find out the true situation in the countries. As the level of deregulation and actions done to promote it vary between countries also experts from the industry were interviewed to get a wider view. Sweden has totally deregulated the railway market in 2010, but the effects are not yet realized in full extent. Denmark and Estonia are lagging bit behind, few operators have started to operate in Denmark, but the market is not completely deregulated. In Estonia the market is open, but it seems unlikely that there will be new operators in addition to the three already operating, due to the small size of the market. All of the three countries have national peculiarities, which affect also to the transportation sector. Sweden has started the deregulation process already in 1989 with tendering system. Denmark has a history of country where people cycle and private railway networks are part of the market. Estonia is a former Soviet country, where the national railway company is restructured and privatised several times. All the three countries have also high rates what comes to using and owning cars.

Although researcher avoids making mistakes while conducting a study, the reliability and validity of results can vary. Endeavour to estimate the reliability of the research is important and various methods can be used to state this. Repeatability of the research is considered as reliability. Validity of research is stated as the ability of the research method to measure the wanted target. When researcher clearly and truthfully describes for example the phases of the interviews the reliability of the research increases. Furthermore place, circumstances and duration of the interviews are reasonable to mention. (Hirsjärvi et al., 2009)

To ensure reliability of the interviews conducted for this research all interviews were recorded. After transcription the memos were sent to the persons interviewed for checking and to get approval to use their answers in the research. As Lappeenranta University of Technology's Kouvola Unit have done interviews for rail freight operators with the content and number of questions being quite similar, there regarded to be no need for a test interview, which is recommended by Hirsjärvi et al. (2009). Additionally, the customer satisfaction survey was formed based on carefully thought previous similar surveys.

4.2 Theme interview

Theme interview is an intermediate form of structured and open interview and quintessentially themes to discuss are known, but certain order and strict form for questions is lacking. Theme interview cannot be stated just a method for qualitative research. It is suitable also for quantitative research as from the data gathered can be calculated frequencies and form the data so that it can be statistically analyzed with several methods. The method was introduced by Merton, Fiske and Kendall 1956 in their book "The Focused Interview". Theme interview has four characteristics: 1) interviewees have experienced a certain phenomena, 2) researcher has preliminary knowledge about the subject: its' sections, structures, processes and entity, 3) researcher will settle a framework for interview, and 4) interviewer focuses the interview to the subjective experiences about the topics concerned which have been pre-analyzed (Hirsjärvi et al., 2009; Merton et al., 1956) Benefits of the method are that the researcher can adjust the interview e.g. change the order of the questions, make specific questions to clarify some themes and the interviewee can be reached afterwards to make further questions or follow up. A negative side is the interview itself and planning of the questions takes more time than other methods. (Hirsjärvi et al., 2009)

According to Hirsjärvi and Hurme (2010) theme interview focuses on certain themes, which are discussed with the interviewee. Substantial are the themes not single questions. A semi-structured interview method is placed between a form

interview and an open interview; the themes discussed are the same in all interviews of the same research. The themes carry through the interview and interviewee's standpoints arise. It is possible the person interviewed might feel the interview situation threatening and also person can give socially acceptable answers, which vary between countries and cultures. Data received from interviews is often tied to the context or the situation and respondent might speak differently in the interview than in some other situation, due to this fact generalisation of the results should not be aggrandized. (Hirsjärvi and Hurme, 2010)

Three groups of experts were interviewed for this study: Operators, governmental actors and labour unions. These three groups of experts were selected to get different perspectives concerning the topic and a wider view of the sector, and actors related to it. The interview questionnaire has four to six main themes and all themes are divided into sub-themes in chronological order. The difference in the themes was caused the position of the actors in the industry as not all the actors could answers the same questions. The six themes follow the research's structure. Company background represents the railway undertaking or other organisation, the market entry process and the market environment is discussed under the second theme. Infrastructure part concentrates on the country's transport infrastructure. Cooperation with labour unions is the fourth theme and when interviewing labour union representatives, theme was cooperation with passenger rail operators. Furthermore, the interviewee was asked questions about governmental bodies' actions, the role of European Union and railway undertakings' attitude towards the European Union legislation. Some themes were discussed more profoundly depending on the expertise and position of the interviewee in the organization.

4.3 Collecting the data

Data for this study was gathered by using customer satisfaction survey and expert interviews. The procedures of both customer satisfaction survey and expert interviews are described below in subchapters 4.3.1 and 4.3.2.

4.3.1 Customer satisfaction survey

Customer satisfaction survey was done in October 2010 in three cities: Stockholm (Sweden), Copenhagen (Denmark) and Tallinn (Estonia) (see table 13). Surveys were organized in Stockholm and Tallinn on Wednesday the 6th and Copenhagen the next day 7th October. In all the three cities the surveys were realized in quite similar circumstances, which enable the comparability of the results. When conducting the surveys there was approximately the same time of the day (morning and afternoon) in the middle of the week and the place was central railway station. Strict safety regulations caused challenges in the railway stations in Stockholm and Copenhagen as interviewers were removed from the stations. The team should have had a permission to conduct the survey in the station. Despite the confronted challenges adequate number of responses was gathered.

Table 13 Customer satisfaction survey

Date	Location	Number of responses
6.10.2010	Tallinn, Estonia	78
6.10.2010	Stockholm, Sweden	37
7.10.2010	Copenhagen, Denmark	53

Customer satisfaction survey was done with structured questionnaire. Structured form was chosen so that the results would be easier to analyze. Additionally, the passengers waiting for the trains were main respondents and they did not have a lot of time to use for answering. In order to maximise the number of answers a printed form with structured questions was considered to be the best way to conduct the survey. Due to Hirsjärvi et al. (2009) survey is a form of study has several advantages but also disadvantages. Positive sides are that it is effective; large amount of answers can be gathered in a relatively short time and the

analyzing of the results can be done with several different computer programs. Negative sides are that the answers got from the survey are often kept superficial and cannot be stated how seriously the respondents have answered to the questions or has there been some misunderstandings. (Hirsjärvi et al., 2009)

International exchange students (see appendix 3) from Lappeenranta University of Technology were helping the researchers in order to gather as many responses possible. In all the three cities a representative from Kouvola Unit was present to ensure the gatherings of the answers proceeded as planned. In Tallinn the survey was conducted with the help of five exchange students and two supervisors (Dr. Juha Saranen and trainee Tiina Poikolainen) and the number of answers gathered was 78. In Stockholm there was one supervisor (M.Sc. Milla Laisi) and four students and the number of answers received was 37. M.Sc. Milla Laisi continued from Stockholm to Copenhagen, where she supervised group of five students and the number of gathered answers was 53. Students formed groups of two or three persons and moved around the platforms and waiting halls to find people who waited for their train to answer the survey. The questionnaire was translated to Estonian and Swedish so respondent would find it easy to answer and language would not cause misunderstandings. Additionally, 500 flyers were distributed in the three cities. The surveys Internet address www.helinasurvey.fi was printed to leaflets so there was a possibility to answers also in Internet (in English, Swedish and Estonian language). Furthermore, only few answers were got through the Internet. More information about the research and the results of the customer satisfaction survey can be also found from the Internet page. Questionnaires were numbered and all three cities had their own codes so when results were entered to Internet, answers from different cities could be separated. The answers gathered in the stations were entered to the Internet page to preserve those and ensure accessibility.

The customer satisfaction survey consisted of 13 questions, including both multi-choice and entirely open sections (see appendices 1 and 2). The questionnaire form was printed in the country's own language in Estonia and Sweden, in Denmark the questionnaire was also in Swedish, but the company names were

changed. According to Saunders et al. (2000) Structuring of the questionnaire affects the response, the reliability and validity of the data gathered with it. Explicit layout with carefully designed questions and testing in beforehand can maximise the number response, validity and reliability. Linking data collection methods is called multi-method approach where for example interviews are done to complement data gathered with questionnaires so that deeper understanding can be achieved of the matter. The main results of the survey are presented in paragraph 5.

4.3.2 Expert interviews

Expert interviews were held during November and December 2010 in Sweden, Estonia and Denmark. Persons selected to the interviews were representatives of passenger railway undertakings, labor unions, infrastructure managers and other public authorities. Together 31 companies and organizations were contacted (appendices 4, 5 and 6). The total number of people interviewed was 19, representing 17 companies or organisations (see table 14). One interview was done via telephone, as no suitable time for meeting was found.

Table 14 Expert interviews

Date	Country	Company/organisation	Title
4.11.2010	Sweden	Tågåkeriet	CEO
9.11.2010	Sweden	SEKO	Representative
9.11.2010	Sweden	Stokholms Lokaltrafik (SL)	Project manager
10.11.2010	Sweden	Stockholmståg	Development manager
11.11.2010	Sweden	ST	Research officer
11.11.2010	Sweden	Råslagståg	Traffic manager
12.11.2010	Sweden	Trafikverket	Strategist
17.11.2010	Estonia	ERAÜ	Chairman
18.11.2010	Estonia	EVKL	Chairman
19.11.2010	Estonia	City urban planning department	Coordinator
18.11.2010	Estonia	Edelaraudtee	Passenger Traffic Manager
20.11.2010	Estonia	Ministry of Economic Affairs and Communications, Road and Railways Department	Head of Railways Division
6.12.2010	Denmark	Dansk Jernbaneforbund	Secretariat Manager
6.12.2010	Denmark	Trafikstyrelsen	Contract Manager
		Trafikstyrelsen	Head of Section
8.12.2010	Denmark	LO	Economist
8.12.2010	Denmark	Arriva	Commercial Director
9.12.2010	Denmark	Banedanmark	Key Account Manager
		Banedanmark	Key Account Manager
10.12.2010	Denmark	Nordjyske Jernbaner	Director

Contact information for the companies and organisations were found from the Internet and some were familiar through previous researches completed by Lappeenranta University of Technology's Kouvola Research Unit. Firstly selected persons were contacted by e-mail containing a contact letter (see appendices 7 and 8) and brief message about the research. Contact letter was written in English and Swedish and both were sent to the recipients in Sweden and Denmark. Contact letters to Estonia were also in English, but after telephoning to the organisations where answers were not received vie e-mail the letter was translated to Estonian with the help of Google Translate as persons did not speak English.

One week after sending the contact letter to the persons, who had not responded by e-mail were contacted again by telephoning them to ensure, if they had received the e-mail. If there was some other person in the company, who would be more suitable to participate in the interview, the contact letter was sent to him/her. In Sweden together ten organizations were contacted (five operators, three labour unions and two governmental authorities) and seven persons agreed to participate. In Estonia seven organizations were contacted (three operators, two labour unions and two governmental authorities) and five interviews were done. In Denmark 14 organizations were contacted (8 operators, 4 labour unions and 2 governmental authorities) and 6 interviews conducted. All confirmations of interviews were done by e-mail. After the interview date was confirmed the respondents got the interview questions (see appendices 9, 10 and 11) by e-mail approximately one week before the interview in order to prepare themselves beforehand.

The interviews were held in the companies and unions facilities despite of one interview, which was held in a hotel cafe. One telephone interview was held as suitable time for the interview was not found. Beforehand was told to the person interviewed that the interview will take one to two hours and mainly it was executed. Shortest interview duration was 40 minutes and longest was three hours when for example the company's maintenance facilities were also introduced to the interviewer. Mainly the interviews were done in English and there was only one person from the company present, despite two exceptions. In Denmark there were two persons from one company in two interviews and three persons from

same company in one interview. In Estonia two interviews were done with the help of interpreter. All interviews were recorded and persons interviewed gave their permission to do so. After the interviews, minutes of the meeting were written down and sent to respondents to get confirmation for the information received. Checking the written memo gave the respondents a possibility to correct possible misunderstandings occurred.

4.4 Methods used to analyze the research data

The core of research is analysing, interpretation and making conclusions of the gathered data. When analyzing the data, the type of answers to research questions transpires to the researcher. When conducting an empirical research three different prefaces must be done. First face is verification of research data: Is something missing or is there fallacious information. Second stage is to augment the data, for example enlarge answers given in the interview. Third face is systematising the gathered information for saving and analyzing. (Hirsjärvi et al., 2009)

When analysing the data gathered with interviews, certain characteristics that are common for several interviews can arise and be closer examined. These might be based on the themes of the interview and it is predictable that main themes come up, but several unexpected themes might also appear that are often more interesting than original themes. Themes that are raised from the statements of interviewees when analysing the data are always interpretations made by the researcher. It is unlikely that two interviewees express their answers precisely the same way, but the researcher can code answers to the same category. (Hirsjärvi and Hurme, 2001)

There are several methods that can be used to analyze the gathered data and the suitable method is dependent on the type of research. Inductive and deductive approaches are the two perspectives, where qualitative analysis can be commenced. Deductive position is based on using existing theory or descriptive framework in formulating research questions and objectives by utilising theory in

qualitative research instead of developing it from the work. Analysing the data without predetermined theoretical or descriptive framework is called inductive approach, where collection and analysis of the data emerges the theory. Researcher identifies the relationships between the data, develops hypotheses and questions to be able to test these. (Saunders et al., 2000; Hirsjärvi et al., 2009) According to Hilmola (2003) in case studies both, inductive and deductive approaches are often combined. As this study consist of customer satisfaction survey and interviews of experts, can be stated that both methods are used. According to the objective of the study, new findings are tried to discover from the interviews and confirm old via inductive method. Deductive method is used to understand the factors of the customer satisfaction survey.

5. CUSTOMER SATISFACTION SURVEY

The customer satisfaction survey for this study was conducted in the capitals of the three target countries: Tallinn (Estonia), Stockholm (Sweden) and Copenhagen (Denmark). The survey was done in October 2010. The survey consisted of several specific and multi-choice questions, but respondents could also give their opinions in entirely open sections. More information how the survey was elaborated is found in sub-chapter 4.3. All the results of the customer satisfaction survey are not presented in this work, due to the wideness of the survey.

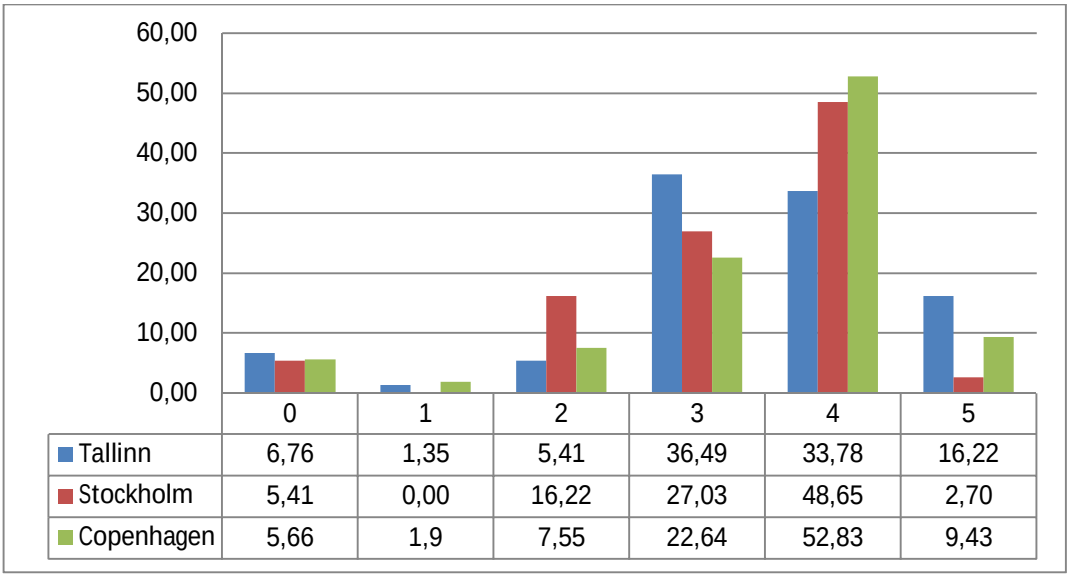
In general respondents were satisfied with commuter trains in the three cities and same factors arise when people are asked what influences to their satisfaction level the most. The price of tickets, punctuality of trains and itinerary are highly appreciated among passengers. Respondents of this survey mainly considered new entrants in the passenger railway market as a positive thing. Respondents thought new entrants would bring more competition, lower ticket prices and more frequency to operated lines. Some of the respondents thought possible new entrants are foreign companies and that deregulation brings also negative effects, for example lower quality and damage the economy of the country. Sweden has the largest number of operators already providing passenger transportation services, but recognizing the companies is difficult also to the Swedes. In all the countries the level of knowledge among passenger concerning deregulation can be stated to be rather low. Results are presented more detailed below in sub-chapters 5.1 – 5.4.

5.1 General Evaluation of the Commuter train Traffic

Information about timetables was mainly searched from the Internet irrespective of city where the survey was conducted. 77.4 percent of the respondents in Tallinn and 77.8 percent in Stockholm used Internet as their main source of information. The same figure for Copenhagen was 72.4 percent, respectively. Traditional sources such as timetable books and displays were only used by few respondents. The elderly respondents without access to Internet found this discriminating.

Drivers' manner of driving was noted smooth, comfortable and overall positive in all three cities. In Tallinn 68.9 percent and in Stockholm 62.1 percent of the respondents gave quite good or very good grade. Similarly, in Copenhagen over half (58.6 percent) of the respondents gave a good grade. There were only few unsatisfied respondents in every city, giving very poor or quite poor grade for the drivers' manner of driving.

Train services' punctuality divided opinions between cities. Although in Tallinn all five alternatives were supported, mainly positive grades were given: 40 percent were quite good and 24 percent very good. Stockholm and Copenhagen differ from Tallinn as in Stockholm 40 percent and in Copenhagen 35.8 percent of the respondents stated punctuality is neither good nor poor. 32.4 percent of the Swedish respondents gave grade very poor or quite poor, whereas 20.8 percent of the Danish and only 10.7 percent of the Estonian answers were on the negative side. In Copenhagen positive grades (quite good and very good) were given together 36.9 percent of the answers. The respondents' answers about trains' tidiness and comfortableness of the fittings inside the trains followed the same trend in all cities. Over one fourth of the respondents in all three cities stated neither good nor poor to these questions. Estonians took the tidiness most positively, as 51.3 percent gave quite good or very good grade. The overall appearance of trains' fittings was noted quite good or really good in all cities: Copenhagen ranked first with 66 percent, Stockholm second by 64.8 percent and Tallinn third by 34.3 percent.



	0	1	2	3	4	5
Tallinn	6,76	1,35	5,41	36,49	33,78	16,22
Stockholm	5,41	0,00	16,22	27,03	48,65	2,70
Copenhagen	5,66	1,9	7,55	22,64	52,83	9,43

Figure 8 General Evaluation of the commuter train in Stockholm/Copenhagen/Tallinn (Percents)

Figure 8 notes clearly that in all three cities respondents were quite satisfied with the commuter train traffic. In Tallinn the most used transport mode is passenger car, which reflects to this question. 36.5 percent of the respondents gave neither good nor poor, as commuter trains are not used as commonly in Tallinn than in the other two cities. Together 50 percent of the respondents gave grade quite good or very good for the commuter trains. In Stockholm altogether 51.4 percent of respondents thought commuter rail transport is organized quite well or very well. The emphasis was on “quite good”, almost half of the respondents (48.7 percent) gave this grade. In Copenhagen the same figures were together 62.3 percent. Marks quite poor and very poor were given in under ten percent of cases in Tallinn and Copenhagen, but 16.22 percent in Stockholm. There were no considerable differences between the three cities and but generically respondents were most satisfied with the commuter rail transport in Copenhagen, secondly in Stockholm and thirdly in Tallinn.

5.2 Factors Affecting on Customer Satisfaction and the Actual Implementation

The availability of seats is dependent on the time of the day as peak hours are often more crowded. It can be stated that only fewer than ten respondents from each city marked availability of seats very poor or quite poor at the time of the day and on the route they were travelling. Most satisfied with the availability of empty places were the Estonian respondents with 62.1 percent to quite good or very good, but the differences to the other two cities were only minor. Timetable encounters the passengers' travel needs rather well. Most substantial influence on customer satisfaction was noted in Tallinn and Stockholm, where over 60 percent of respondents stated the factor influences on their satisfaction level quite or very much. Same trend was recognized in Copenhagen, where the percentual coverage was just under 60 percent. Trains' punctuality divided the opinions. According to the results, punctuality was noted as one of the factors influencing most to the overall satisfaction level. 71.3 percent of respondents in Tallinn noted it has quite big or really big impact on customer satisfaction. The figures for Stockholm and Copenhagen were 32.4 percent and 51 percent, respectively. In Stockholm quite high volume of respondents (48.6 percent) stated punctuality affects neither much nor only little to satisfaction, stating they are not satisfied nor unsatisfied with the situation.

In order to compete with other transport modes, travelling by train should be quick and fluent. This factor's importance and influence on customer satisfaction cannot be questioned. All three cities managed rather well: Quite well unfolded the main rank given in all cities. The factor had especially high influence on satisfaction in Stockholm, where quite good / very good was noted by 70.3 percent of respondents. Frequency of trains is one of the main reasons, why commutes are often done by train. In Stockholm and Copenhagen respondents thought this factor has slightly more influence as over 60 percent gave grade quite good or very good. In Tallinn 24.4 percent stated very poor or quite poor and therefore the frequency of trains do not have so great influence on customer satisfaction.

The transfer between means of public transportation affects the satisfaction in all three cities. Only less than ten percent of respondents thought it has minor influence on satisfaction, whereas it was stated as an important factor by more than 50 percent of respondents. Interestingly, over 40 percent of respondents in every city found that shopping possibilities, work place or school are located nearby the routes have considerable (stated quite large or very large) influence on customer satisfaction. Quantity and diversity of destinations was stated having neither large nor small influence by 40.4 percent of the respondents in Copenhagen. Correspondingly, 48 percent ranked the factor having quite large or very large influence. In Stockholm 54 percent gave also positive statements. Respondents in Tallinn (57.1 percent) stated this factor has quite large or very large influence on customer satisfaction. Passenger safety and lack of disturbances were also stated to affect on passenger satisfaction: 64.8 percent of Estonian, 54 percent of the Swedish and 42.3 Danish respondents gave quite large or very large grade, stating the factor's influence cannot be denied. The waiting conditions at the stations seemed to have a considerable influence on customer satisfaction: This was recognized by 15.5 percent of respondents in Tallinn, 2.7 percent in Stockholm and 9.6 percent in Copenhagen. More describing might be that this factor was stated to have some influence by almost 30 percent of respondents in Tallinn, 40.5 percent in Stockholm and 21.2 in Copenhagen. Quite small effect on satisfaction was stated mainly in Copenhagen (23.1 percent) and therefore this factor's influence on customer satisfaction is the smallest.

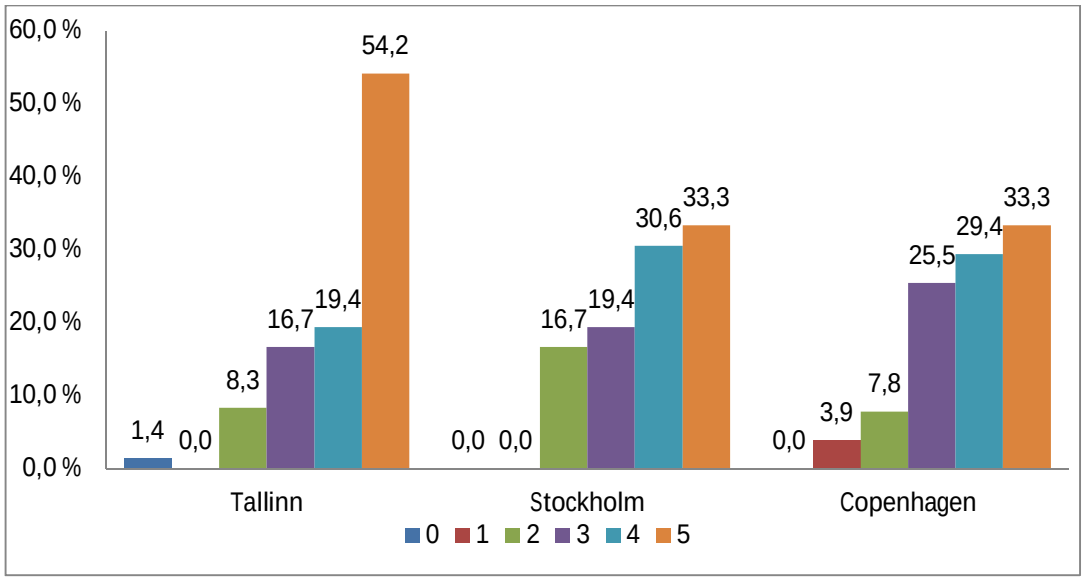


Figure 9 To what extend "Ticket purchasing is easy" influences on your satisfaction level

Figure 9 illustrates the influence of easy ticket purchasing to customer satisfaction. In all three cities the respondents thought this factor was important and effects on customer satisfaction greatly. Over 50 percent of respondents in Tallinn found easy ticket purchasing having very large influence to customer satisfaction. The same trend is seen in all cities as over 60 percent of respondents found it to have quite large or very influence on customer satisfaction.

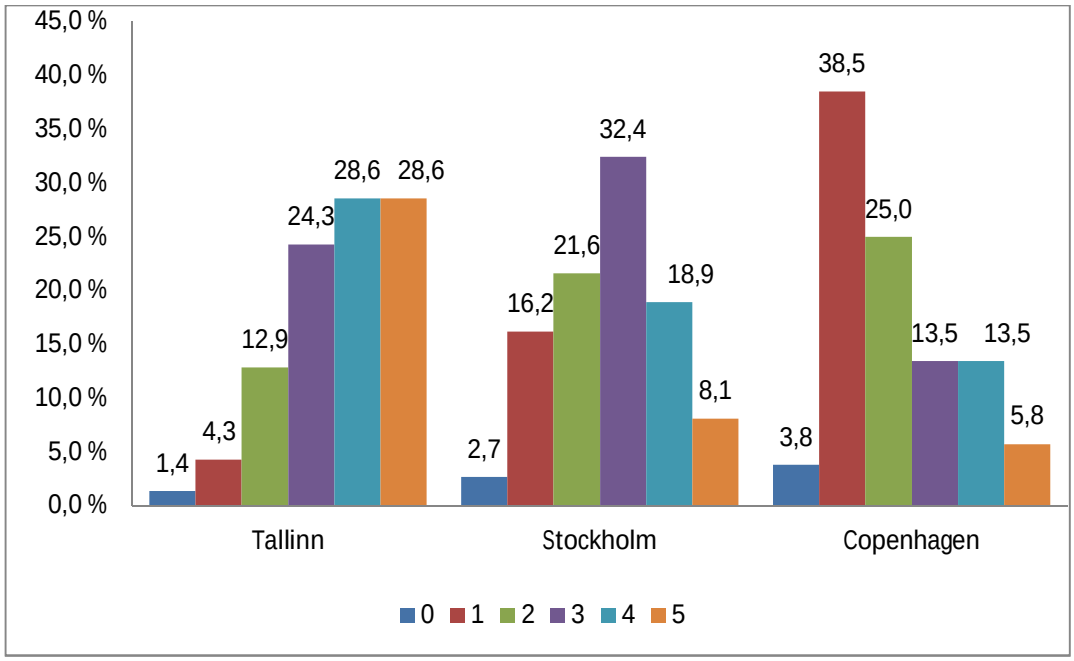


Figure 10 To what extend "Ticket price" influences on your satisfaction level

Respondents' thoughts concerning ticket price and thereof influence on customer satisfaction varies between the cities as presented in Figure 10. In Tallinn respondents regard the ticket price highly impacting to satisfaction (57.2 percent stated quite large or very large), whereas the congruent figure in Copenhagen was 19.3 percent. In Stockholm 27 percent of respondents noted the ticket price has some influence on satisfaction.

Information at the stations and in the trains is well organized; the Estonian respondents considered the factor to have more influence on customer satisfaction than the other counterparts. When ranking the rolling stock's newness to satisfaction level, Swedish respondents stated it had rather large influence with 40.5 percent, secondly important it is in Tallinn with 34.7 percent. In Copenhagen 34.5 percent stated that it has quite poorly or very poorly influence on satisfaction. Although nowadays is rather often noted that passengers are requesting additional services in trains, such as Internet and radio, in this research the statements are divided quite evenly with all alternatives. When comparing the cities this factor was mostly influencing on customer satisfaction level in Estonia.

Respondents had the opportunity to name the three most important factors of the seventeen listed in previous paragraphs that influence the most on customer satisfaction. The most influencing factor was ticket price (Tallinn) and trains' punctuality (Stockholm and Copenhagen). As second ranked punctuality (Tallinn), the timetable meets my travel needs (Stockholm) and seats are available at this route (Copenhagen). As thirdly influencing factor was stated the timetable meets my travel needs (Tallinn) and ticket price (Stockholm and Copenhagen).

The main idea of the fourth question was to find out how the same 17 different features as in previous question are practically realized. Respondents were rather satisfied with the amount of available seats: In Tallinn over 40 percent stated quite many or very many places are available. Same figures for Stockholm and Copenhagen were over 60 percent. Interestingly, passengers were mostly unsatisfied as well in Tallinn, where 18.1 percent stated seats are very poorly or quite poorly available. The timetables encountering with the travel needs were best realized in Tallinn and Stockholm where around 60 percent of respondents were quite or very satisfied. The same trend continued in Copenhagen, where the percentage was around 55. As stated previously, this factor has an influence on customer satisfaction and it is also practically quite well realized in all the cities. Respondents stated the punctuality of trains is in rather good level**.** In Copenhagen 67.2 percent, Tallinn 41.6 percent and in Stockholm 30.3 percent stated the punctuality is taken care of quite or very well. In Tallinn and Stockholm rather many respondents (about 50 percent) stated punctuality is actually realized neither well nor poorly. Travelling was noted quick and fluent in all of the cities. Quite well or very well grade was given the most in Stockholm 69.7 percent. In average over 50 percent of respondents have given positive statement and the only city with very poorly grade (three percent) was Tallinn.

Frequency of trains is practically realized best in Stockholm and Copenhagen, where over 50 percent of respondents thought it deserved either of the two highest ranks (quite well or very well). The factor was noted to be practically neither well nor poorly realized in around 30 percent of all cities' responses. The transfer between means of public transportation was the most fluently realized in

Stockholm where 66.7 percent of respondents ranked the factor high (quite or very well). Percentages for unsatisfied answers remained under ten in Tallinn and Copenhagen; in Stockholm the same figure was 12.1 percent. In Copenhagen 55.9 percent of respondents thought the shopping possibilities are located nearby the routes quite well or very well. The importance of nearby location of school or work place was best carried out in Tallinn, where 60.6 percent of respondents stated factor is quite or very well realized. Quantity and diversity of destinations were practically realized best in Stockholm, where almost 60 percent of respondents gave the rank quite or very well. In Tallinn and Copenhagen the same figures were a bit less than 40 percent. Furthermore, in these two cities the percentage for statements neither well nor poorly was over 40 percent. Based on respondents' remarks, passenger safety is quite well maintained in all the cities. 56.1 percent of Estonian, 36.4 percent of the Swedish and 37.2 of Danish respondents stated it is taken care of quite or very well. The percentages of lower grades were around ten in all three countries. Waiting conditions at the stations were noted to be taken care of rather well: Over 30 percent in Tallinn, 40 percent in Stockholm and 20 percent in Copenhagen noted conditions are quite good. However, the most unsatisfied with the situation where the Danish passengers, as 39.5 percent of respondents noted conditions are rather poor.

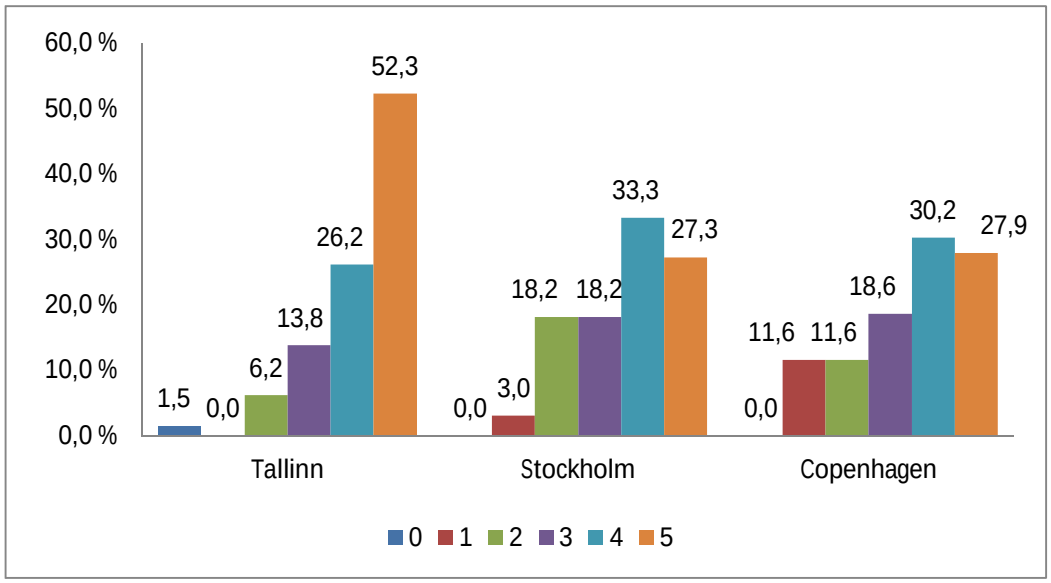


Figure 11 To what extend "Ticket purchasing is easy" is actually realized?

As described in figure 11, ticket purchasing is found to be on a low level only by few respondents in every city. In Tallinn over half of the respondents thought ticket purchasing is organized very well in practice. In Stockholm and Copenhagen ticket purchasing is also found easy (marked quite or very easy). Ticket purchasing is a necessary action before or during the voyage and it should be easily and fluently organized as it influences on customer satisfaction greatly.

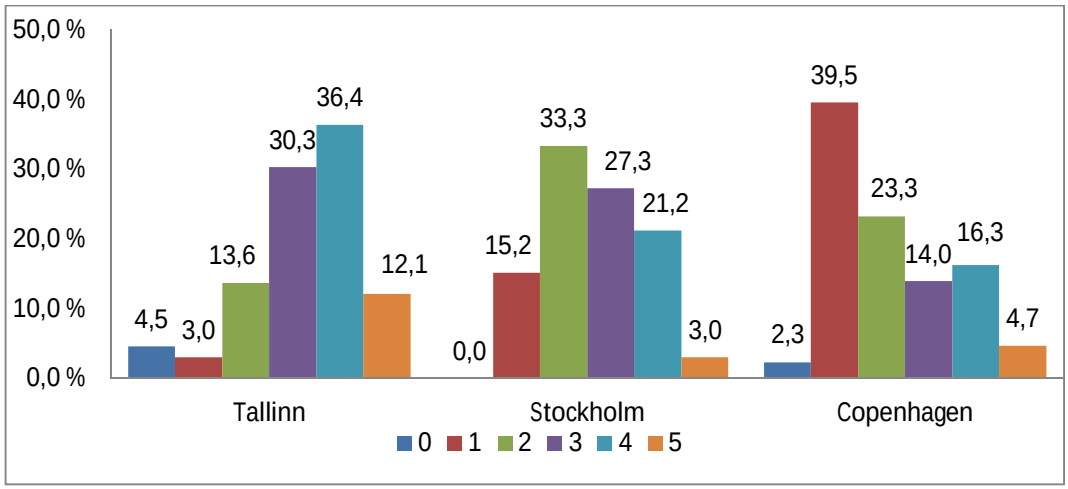


Figure 12 To what extend "Ticket price" is actually realized?

As illustrated in figure 12, there are differences between the ticket price realizations in the three countries. In Tallinn respondents were the most satisfied with the ticket prices, whereas in Copenhagen respondents thought the prices are not on a good level. In Stockholm respondents were not so clearly satisfied or unsatisfied as answers were divided evenly between the alternatives. When comparing how the factor is actually realized and how important it was noted to customer satisfaction, it can be noted the influence of ticket price varies greatly between the cities. Major discrepancies are noted in Copenhagen: Respondents stated the ticket price does not have a great influence on customer satisfaction, but in reality the ticket price is considered to be high and grade very poorly was given by almost 40 percent of respondents.

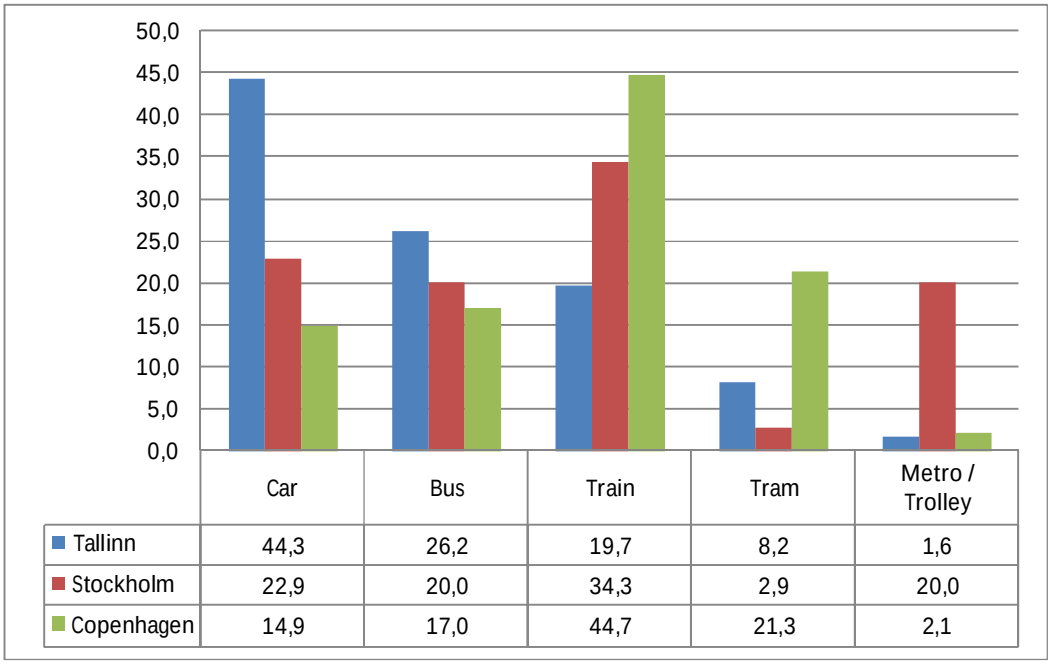
When considering the information's availability at the stations, neither well nor poorly was stated most in Copenhagen (46.5 percent) and in Tallinn (34.4 percent). The best result was noted from Stockholm, where 54.5 percent of

respondents stated information at stations is quite well very well organized. Information in trains follow the same trend and was organized the best in Stockholm, secondly in Tallinn and thirdly in Copenhagen. Rolling stocks' newness was noted to be best actually realized in Stockholm, where 42.4 percent of respondents stated rolling stock is quite or very good. 24.7 percent of Estonians and 14.0 percent of Danish respondents noted the rolling stock is new.

However, factor was ranked neither well nor poorly organized rather often (Tallinn 23.1 percent, Stockholm 33.3 percent and Copenhagen 48.8 percent). The rolling stock was stated to be oldest in Tallinn, where wagons and locomotives were ranked very or quite poor by 32.3 percent of respondents. Despite the old rolling stock, additional services were noted to be available rather similarly in all three cities. Although the statements were divided quite evenly with all alternatives, Danish rolling stock was noted to have the best services by 50 percent.

5.3 Preferred Transport Mode

Transport mode alternatives for this survey were: Car and five public transportation modes (bus, train, tram, trolley and metro). As illustrated in Figure 13, there are discrepancies between the transport modes respondents prefer to use in the three cities.



	Car	Bus	Train	Tram	Metro / Trolley
Tallinn	44,3	26,2	19,7	8,2	1,6
Stockholm	22,9	20,0	34,3	2,9	20,0
Copenhagen	14,9	17,0	44,7	21,3	2,1

Figure 13 Transport mode preferred to use (percents). (Metro and trolley are in the same column as there is no metro in Tallinn, or Trolley in Copenhagen or Stockholm)

In Tallinn most of the respondents (46.3 percent) prefer to use cars as those are comfortable and not tied to schedules. Secondly used transport mode is bus, as it is considered being relatively fast and cheap way to travel. Train is thirdly used transport mode, because it is noted to be suitable to travel to work. However, more lines and higher speed would make it more appealing for the respondents. In Stockholm (34.3 percent) and Copenhagen (44.7 percent) the respondents prefer to use the train. Train is used mainly to travel to work as it is only possible transport mode for some respondents. Trains are mainly in time and the travelling speed is good. Furthermore, the possibility to work during the train trip was also noted an important factor. It also feels environmentally friendly alternative. Secondly the Swedish respondents preferred to use cars and thirdly busses. In

Copenhagen respondents supported secondly the tram and thirdly the bus or metro (both 20 percent). Metro is considered to be an easy way to travel as there are departures every five minutes; on the other hand, it is stated to be crowded during the peak hours.

5.4 Deregulation

Deregulation of the passenger railway market is realized partly or completely in many EU countries including Sweden, Denmark and Estonia. The fact of market being open for several companies to operate besides the national incumbent is not often noticed by the customers (see Figure 14).

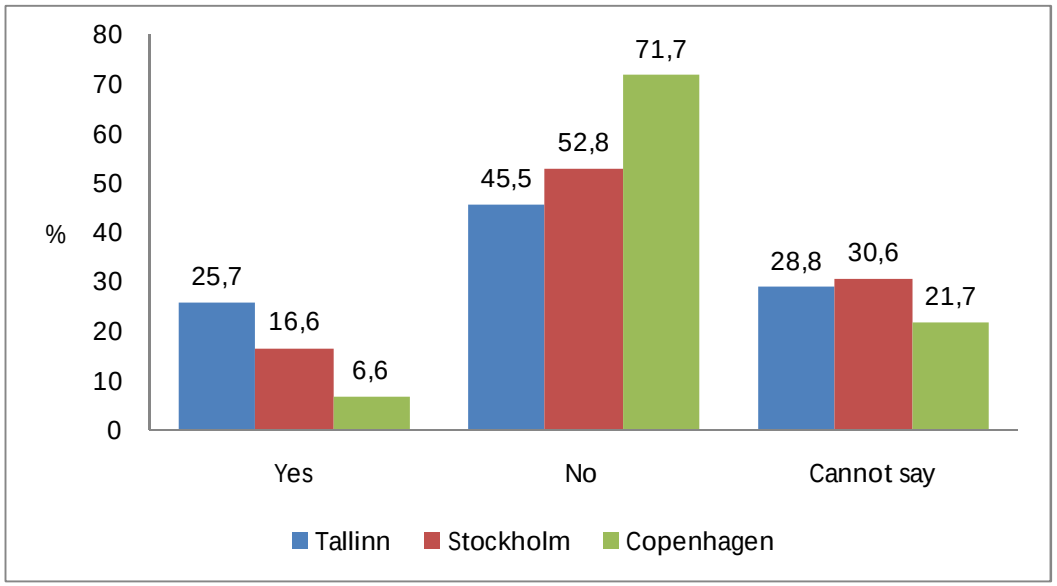


Figure 14 Have you recognized are there several operators providing passenger rail transport services?

As illustrated in Figure 14 majority of respondents in all the three cities do not know, or cannot say whether there are several operators providing passenger railway transport services. The highest rate of people who have noted several operators in the market was found in Tallinn with 25.7 percent. Stockholm with 16.6 percent and Copenhagen with 6.6 percent were lagging bit behind. When the respondents were asked to name operators providing passenger transportation only few answers were received. In Tallinn only one respondent out of 66 could name all the three operators and 17 one or two companies. In Stockholm the same trend

continued, only three people could recall one to three operators. In Copenhagen one person named four operators and one respondent one operator.

The respondents were also asked, how the market situation would change (positively/negatively/cannot say), if new operators would enter the market. Interestingly relatively positive feedback was received. In Tallinn, 47 percent of people answered though new entrants would have a positive effect to the market. Respondents stated that the price of tickets would decline and become more competitive, also more lines would appear and service would improve. Only six percent thought new entrants would be a negative thing. According to these respondents new entrant would most likely be a foreign company, which would damage the economical situation of the country. The rest, 47 percent did not know, how new entrants would change the market. Swedish respondents were the most negative with 11.4 percent. They stated the new entrants would bring various negative effects to the industry for example passengers would choose the cheapest service provider, which could lead to quality deterioration. Share of positive answers was 22.9 percent and following comments were received: More lines and lower ticket price would appear. Majority of 65.7 percent still did not know what would happen if new entrants would enter the market. Respondents in Copenhagen had more positive images than the Swedes as 34.8 percent stated new entrants to have positive effect. Again price declining, better accuracy of trains and better service quality were suggested as improvements. Only 4.3 percent stated negative effects and 60.9 percent answered “cannot say”.

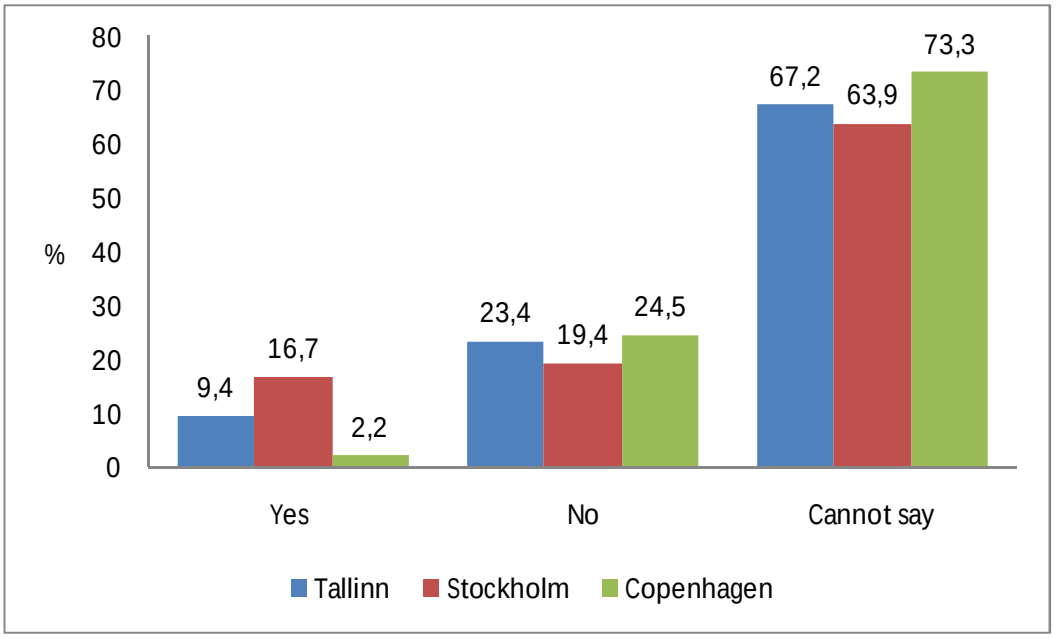


Figure 15 Has the passenger rail deregulation changed the market?

According to Figure 15 recipients in the three cities stated commonly cannot say, when asked if the deregulation has changed the market with the biggest percentages. In Copenhagen 73.3 percent stated cannot say and only 2.2 percent stated the deregulation has changed the market. In Stockholm 16.7 percent of the respondents thought the deregulation has changed the market, where as in Tallinn the same figure is 9.4 percent. Respondents who stated that the deregulation has not changed the market were slightly under or over 20 percent in all three cities. Deregulation has caused following changes according to the recipients: Increased number of operators, also the number of accidents and delays have increased. Some stated that there is more noise, the railway network capacity is maximized and the situation is gone for worse, due to increased cost savings. Despite the fact people in all the three cities did not recall the operators' names, when they received a list of company names they were recognized rather well (see figures 16, 17 and 18).

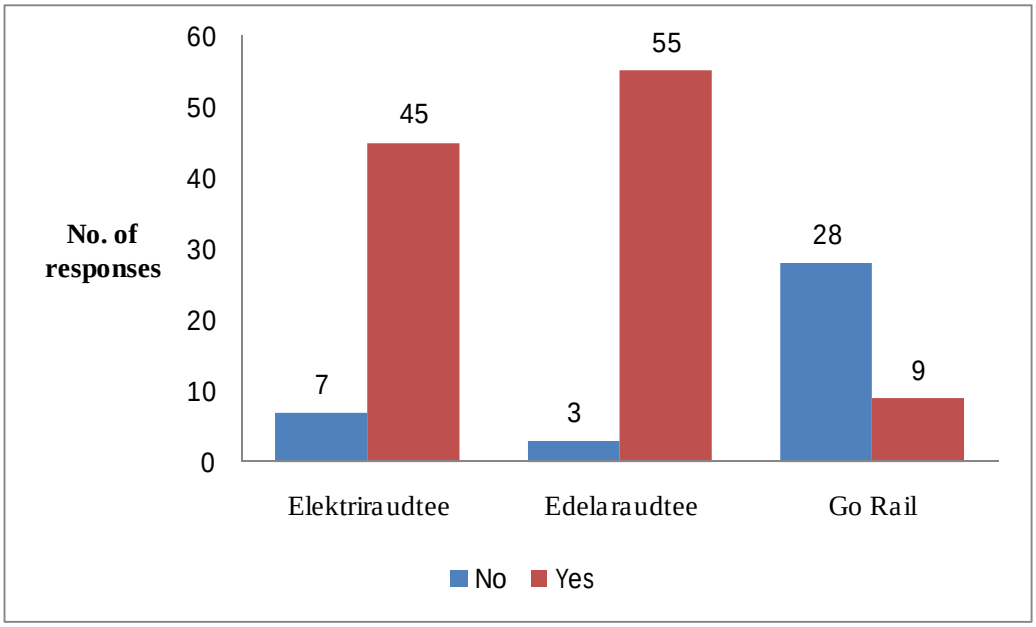


Figure 16 Have you used services offered by the following Estonian operators?

Figure 16 describes the situation in Tallinn. There are three passenger railway operators in Tallinn, which all have different market areas. Elektriraudtee is responsible for Tallinn and Harju county commuter traffic and majority of respondents (86.5 percent) have used the services provided by the company. National long-distance operations are handled by Edelaraudtee and its services have been used almost all the person (94.8 percent) answered to question. GoRail operates international traffic to Moscow and 75.7 percent had used the operators' services. In addition, several respondents did not answer to this question at and can be interpreted that companies were not familiar.

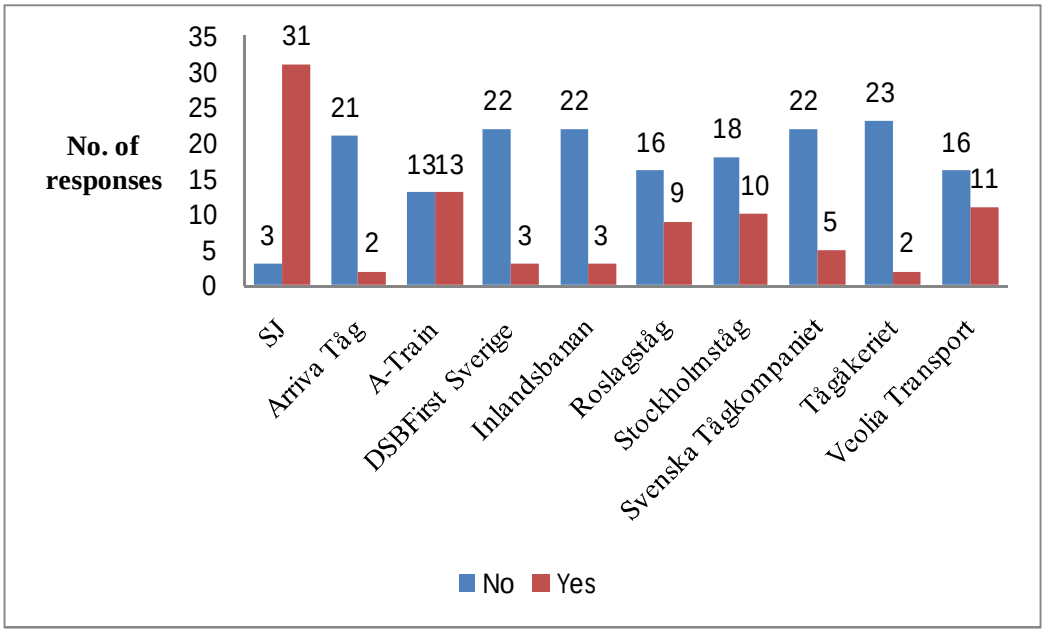


Figure 17 Have you used the services offered by the following Swedish operators?

Figure 17 illustrates the level how well Swedish respondents knew operators in their country. In this survey there was chosen ten operators: Three from Stockholm commuter traffic, six small operators around Sweden and also the national incumbent. National SJ is the best known and 91.2 percent have used the company's services. All of the three companies operating commuter traffic were also quite well known (A-Train, Roslagståg and Stockholmståg). Veolia was also one of the well known companies, due to the fact it operates for example between Stockholm and Malmö. The smaller operators were only used by few of the respondents.

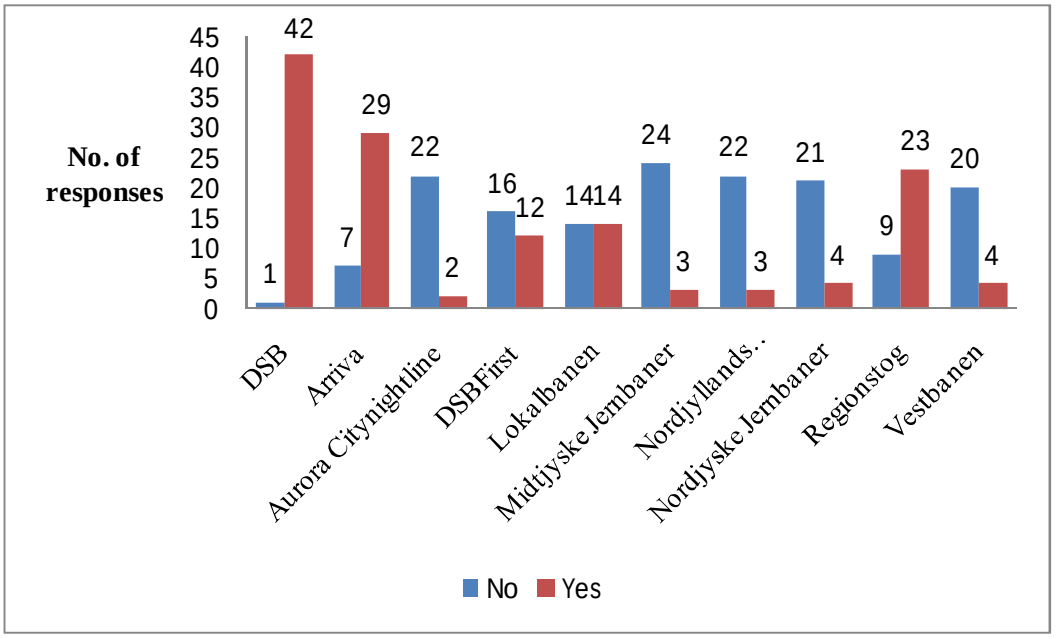


Figure 18 Have you used the services offered by the following Danish operators?

Denmark's situation is illustrated in Figure 18. Ten operators were also listed in Denmark: National incumbent and nine smaller companies operating locally around the country. The same trend appeared in Denmark than in Sweden, the best known and used operator was national DSB and smaller are not so familiar. The commuter traffic in Copenhagen is also totally controlled by DSB (DSB S-tog), therefore there are no other companies operating in the field. Other companies used by the respondents were: Arriva, Regionstog and Lokalbanen, which are operating near the capital.

5.5 Summary and causality

The customer satisfaction survey unfolded both similarities and differences between the three cities. Respondents in all the cities use Internet as the main channel to find information about timetables. The most important factors influencing on the passengers satisfaction level were noted the same: Ticket price, punctuality and how well the line correspond with the travel needs. Altogether respondents were satisfied with commuter trains. In Sweden and Denmark more punctuality is hoped for as in Tallinn the punctuality was regarded to be on good level. Preferred transport mode divided Swedish and Danish on one side and Estonians to the other. Estonians prefer to use cars (44.3 percent), where as

Swedes (34.3 percent) and Danish (44.7 percent) prefer to use trains. Second used mode in Estonia was car and thirdly train. In Sweden secondly used mode was car and thirdly bus and metro (both 20 percent). The Danish preferred the tram secondly and ranked bus third. It can be noted that Danish, who live in Copenhagen prefer to use public transportation modes the most.

Questions concerning deregulation revealed the fact that mainly the respondents were not aware whether several companies offer passenger railway services. Especially difficult was to name to operators, as only few persons in each city were able to specify even few companies. When a list of operator names was given to them, majority of the respondents knew the biggest operators.

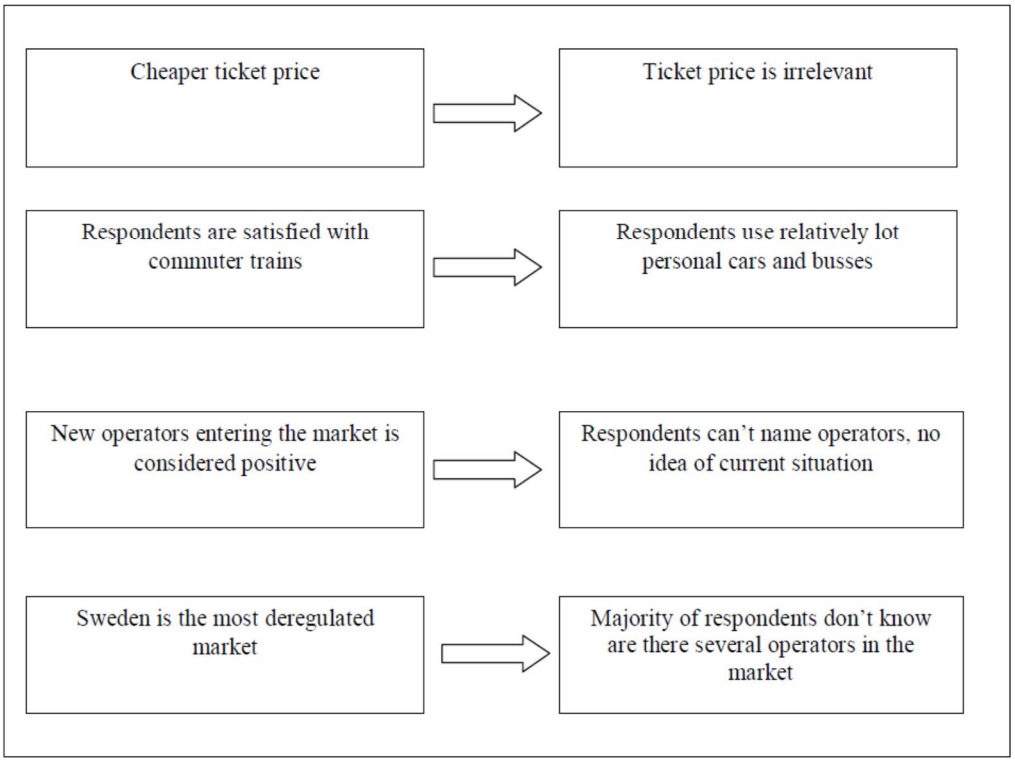


Figure 19 Causality, factors which are not in line with each other

There are some discrepancies when analyzing the respondent's answers. Ticket price is considered important factor affecting to customer satisfaction in Estonia and Sweden. Controversially in Denmark the ticket price was considered not to be important (no matter how the price is people take the train), but when asked the actual realization of ticket price it was really poor. Respondents were mainly

satisfied with commuter trains, in Stockholm and Copenhagen train was preferred transport mode. Can be stated that respondents still use relatively lot of personal cars and busses, although they stated prefer to use the train. In Stockholm busses and cars were used together by 42.9 percent of respondents. In Copenhagen together 31.9 percent of respondents used busses and cars. When the respondents' opinions were asked concerning new operators entering the market, it was seen quite positive and several positives affects were named. Even though the introduction of new operators gathered positive feedback, only few respondents were aware of current situation or could name operators in the passenger railway market. Even in Sweden where the deregulation has occurred at least partly for several years, respondents did not know if there are several operators in the market or could not say if the market has changed.

6. EXPERT INTERVIEWS

The expert interviews for this study were conducted in the three target countries: Estonia, Sweden and Denmark during November and December 2010. More information how the interviews were elaborated is found in sub-chapter 4.3. All the results of the interviews are not presented in this work, due to the large amount received data. Following themes are presented in this study: Advertizing, background of the competitors, local ticket as by-product and maintenance.

6.1 Advertizing

Selling advertizing spaces in transportation vehicles (busses, trucks and rolling stock) is a possibility to earn money for transportation operators. The visibility of advertisements is good as the vehicles move around and the size of advertisements is normally large.

Table 15 Advertizing, organizing

Organizing
Company doesn't sell advertizing places at the moment, but it could be an idea for future.
Customer is responsible, but they ask what operator wants to say.
Handled by two companies (Clear Channel and JCDecaux).
Without the revenue that advertizing gives public transport would become more expensive for the County Council and possibly also for the passengers.
In print, Internet, trains and stations. Company chooses advertisers that have something to do with culture or the environment.
Money received from the advertisements is very small and some campaigns are done together with the companies.
Advertizing in trains is only minimal. It only covers the accrued expenses.
Advertisments in the trains are just a by-product.
Mainly in own traffic systems like trains and busses, Web-pages and Metro (newspaper, free, daily); advertisement is not used as much in private companies.

Based on the expert's interviews advertizing in the companies is done mainly for two reasons. Either to attract more passengers with adverts about own operations, or selling advertizing space to external companies in order to earn money. Advertizing of own operations is done mainly in own traffic systems for example trains, busses, newspapers and Web-pages. One operator only chooses adverts from other companies to their trains that have something to do with culture or environment. Furthermore, media has been interested in some of the new entrants and stories in newspapers work as "free advertisements". Private operators were stated to advertize more than state owned companies. Some operators handle their advertizing campaigns through advertizing companies. Mainly advertizing is done in quite small scale and it is not seen as way of earning profit. Advertizing is stated to be an idea for the future as some companies do not advertize or sell advertizing space for other companies at all. Companies, which advertize, organize it quite similarly irrespectively of the country their operating.

Table 16 Advertizing, information value and other alliances

Information value	**Other alliances**
The only information type is traffic information. No adverts to increase volumes.	Operator is working closely with local festival organisers, companies and tourist offices and offers additional services.
New advertising boards will have adverts and traffic information.	Cooperation with university (students) to organize campaigns.
Provided information offers additional value to passengers.	
You cannot mix advertisment with traffic information.	

Advertisements are often seen as by-products of other operations. It is stated that when advertizing is minimal, only accrued expenses can be covered. One of the experts interviewed stated that without the revenue from the advertisement public transport would become more expensive to the county and possibly for passengers. Many operators stated that they only provide traffic information and advertizing is not done at all to increase passenger volumes. New information system is bought to one company and those will provide both commercials and traffic information. Commercials are needed as those will cover the utilization costs of the new system. Controversial is that some stated that company cannot

mix advertisements with traffic information. Few operators have cooperation with other organizations and perform campaigns together to promote for example festivals. One company had performed large scale campaigns to promote travelling to work by train with the help of university students.

6.2 Background of the competitors

Deregulation of railway passenger market enables new entrants to enter the market. In some countries there are already several operators in the market and new ones appear all the time. In some countries state owned incumbent still have a monopoly position in the railway passenger market. The following Table 17 describes the background of entrants.

Table 17 Background of the competitors, new small companies and old governmental companies

New small companies	Old governmental companies
What can be already seen with the small companies is a lot of movement into the market and out to the market.	Most of them are old monopoly operators so not that many totally new companies are entering the market.
Small companies come as subcontractors: Companies often have short life span and then they go away.	Government owned companies from other countries (Norway, Germany, Denmark and France) are acting in Sweden.
Companies are established via mergers on the grounds of small companies.	This is a new situation in Europe and a chance for big companies (like Deutsche Bahn) to test the market.
Current small private operators might merger together and conquer larger areas.	In few years time, governmental companies are expected to disappear from the markets.
	Old governmental companies are entering various markets.

As described in the Table 17 mainly two kinds of companies enter the railway passenger markets in the three target countries: New small companies and old governmental companies. Small companies often appear as subcontractors. Experts stated there can be seen a lot of movement in and out to the market by small companies. Small companies have often a short life span, they appear to the market, but disappear after a while. Small companies can also merge to form one bigger and more competitive entity. Consortiums of companies are also formed to be able to bid for a certain tenders. Often new entrants in certain market are not totally new operators, but old governmentally owned monopolies. These

companies often enter other countries markets to test them. These statements are based on Danish and Swedish interviews, as there are no new entrants in Estonian market.

Table 18 Background of the competitors, motivation for new market entry

Motivation
Money!
Entering new market.
There is a lot of investment money available so through that way new comers might appear to the markets.
To get tenders.
To enter the passenger rail market.

For all companies can be stated that one motivator to enter new market is money and making profit. Also winning tenders is a way of entering the market. Some operators might have operated before in the freight market but decided also to enter the passenger sector. When a company has been operating in the freight market it is familiar with the country's legislation and already has some of the needed permits, it is stated to be easier to expand the operations to passenger side than start from zero. One operator entered the market to fulfill social responsibility, as the area was lacking public transportation. One expert also stated that investment money is available and that way new comers might appear.

6.3 Local ticket as by-product

Ticket price is a continuous discussion topic among passengers and today there are several different kinds of tickets and pricing models between companies and cities. Passenger traffic is often supported by the state to ensure adequate public transport.

Table 19 Local ticket as by-product: How organized, costs and who pays

How organized	Costs	Who pays
Two tickets together!	Depends on zones.	Passengers and region supports.
Same ticket can be used in several transport modes (metro, train, bus).	Ticket with one day of unlimeted use is supported by region (almost 50%)	
Local transport is included in train tickets.		

When talking about travelling in liberalized market with several operators the competition for passengers is higher and new models for ticketing arise. Some experts interviewed stated the price of ticket to be decided by the company responsible for organizing the traffic, not by the operator who runs the traffic (it depends on the contract type). New innovations are two tickets together, where local ticket is included, when you buy a long-distance ticket. Cost of ticket differs and in some cities passenger can use one kind of ticket in several transport modes for example bus, metro and train. Customer pays the ticket but it would often be more expensive without support from the region. One operator has innovative idea about work ticket that could be bought via company you work and it would be approximately 40 percent cheaper.

6.4 Maintenance

Good quality and availability of maintenance for locomotives and rolling stock is needed to ensure safe and well functioning operations. Nowadays there are several actors providing maintenance services and companies do not have to include it in their own core activities, if not especially wanted.

Table 20 Maintenance, availability and actors

Availability	Actors
Earlier problem, due to the fact governmental operator owned all facilities.	International companies
Today maintenance services are well available.	Big manufactures also maintain/overhaul the rolling stock.
Private companies have either own maintenance halls or those are borrowed from governmental operator.	Before maintenance was done by the same national company that operated the traffic.
	Big state owned companies and private companies: Hong Kong operator MTR and Norwegian state railways maintenance company TBT, together bid for the tender on Stockholm Metro traffic.

Due to experts opinions maintenance is or has been a major concern in many countries. Often the facilities are/have been owned by governmental operator. There has been improvement and the situation was stated to been the most difficult in the beginning of the deregulated time. Nowadays maintenance services are well available and halls can be rented from governmental operator.

Table 21 Maintenance, own maintenance

Own maintenance
Own workshop refurbishes and maintains the rolling stock.
In early stage it was decided to buy also the maintenance.
Vehicles are owned by customer but maintained by the operator.
All operators are maintaining own rolling stock.

There is stated to be differences in organizing maintenance. Some companies have their own facilities to do maintenance and that is stated as an advantage. When a company has old locomotives and rolling stock, own maintenance is a benefit, it is better known how the vehicles are maintained. In the winter time own facilities provide a place to remove ice from the trains. In some companies maintenance is bought from a maintenance company. Actors in the maintenance sector are often big international companies. Also manufactures of locomotives and rolling stock provide maintenance services. Maintenance companies have also bid for tenders together with operators for example in Stockholm the tender for the metro was won by a operator from Hong Kong and maintenance company from Norway.

7. MANAGERIAL IMPLICATIONS

As described earlier in this study, the market entry process for a new railway undertaking can be stated as difficult and time consuming process. In the three target countries the least amount of passenger rail operators are in Estonia, whereas in Sweden the number is the highest. Although, Finland is not included in the study the experiences from other northern countries can be taken account when considering own operations. According to Kivimäki et al. (2010) Helsinki commuter traffic is considered as the first section, which could be deregulated after the current contract ends 31.12.2017. Several factors must be taken into consideration, when a part of market is decided to put under competition, or when a company plans to enter a new market. Cooperation and experience in the industry helps and can make the process shorter according to experts interviewed.

According to results from the expert interviews the background of the new entrants is either small new companies or old governmental actors. Old governmental operators have entered the neighboring countries' markets for example in Sweden and Denmark. Swedish operator SJ has 1.7 percent share in Denmark and Danish DSB has several joint ventures and subsidiaries in Sweden. Small subsidiaries are stated to be a good way of testing the market. Small companies have the tendency to appear to the market, but also disappear quickly. Small companies can form consortiums together to bid over a certain tender or merger to form bigger entities. Also a maintenance company and traffic operating company can form consortium together in order to bid for tenders, for example Norwegian maintenance company and a operator from Hong Kong bid the Stockholm metro tender and won it.

As could be seen from the results of the customer satisfaction survey, the respondents were satisfied with the commuter trains in the three cities, although they could not name the operators. It can be noted, that passengers are more interested of the ticket prices and the fact that trains are run on time, rather than the fact who is the operator of the traffic. Passengers are satisfied regardless of the operator name, if their needs are secured.

When a company is planning railway operations, one of the first challenges is the huge amount of investments, if a company plans to buy the locomotives and rolling stock to themselves. Tendering system offers a possibility to enter certain market without enormous investments as the vehicles are rented from the service provider, also employees normally are transferred to the next company. When a company wins a tender, it can operate the traffic with one contract two to five years, depending on what is being agreed. Furthermore, if the operator has gross cost contract with the public authority, it basically means that the company can concentrate only running the traffic. Net cost contract forces the operator also to participate more as the company income is more dependent on customer volumes. Gross contract is stated to be better for a new entrant, as the income is more steadily. New types of contract with incentives try to increase the operators' role in increasing passenger volumes, which is a good thing. The operators should also be interested to develop the market area they are running and increase the passenger volumes as they also benefit from it.

Good quality and availability of maintenance for locomotives and rolling stock is needed to ensure safe and well functioning operations. Nowadays there are several actors providing maintenance services and companies do not have to include it in their own core activities, if not especially wanted. This has not always been the case, the availability of maintenance and maintenance facilities can be a challenge for new operators. In regulated railway market all operations were under the national incumbent, including maintenance services and facilities (stations and maintenance halls). European Union legislative demands the governmental operators to separate the operations and infrastructure management. Debates were caused when the incumbent still remained the right to run the facilities and the private companies had problems to get the needed services. In some cases the private companies are renting facilities from incumbents. Few companies have their own facilities to do maintenance, which is stated as an advantage, mainly these are small companies or companies with private railway (Denmark). Maintenance can also be bought from a maintenance company. Actors in the maintenance sector are often big international companies. Also manufactures of locomotives and rolling stock provide maintenance services. The biggest

problems in the target countries were stated to be in the beginning of deregulated time, nowadays the situation is noted to be rather good.

Profit making is important to all railway undertakings and advertizing as a method to earn money was raised up from the interviews. When discussing about advertising, two various ways can be recognized: Railway operators can advertize their services in newspapers, train stations or inside the trains, or they can sell advertizing space in their rolling stock. Interestingly, advertizing was not considered important source of income in any of the interviews. Only few companies stated that they advertize to gain more passengers. Private companies were stated to advertize more than governmental operators. Also cooperation with organizers of cultural events and for example universities concerning advertizing campaigns was done by smaller companies. It can be noted that smaller companies are more innovative and they are really committed to have more passengers and do more cooperation with other alliances. Passenger traffic is often subsidized and supported from the state or region with PSO contracts, in order to provide public transportation to areas where it is not commercially profitable otherwise to operate. Some of the persons interviewed said advertizing covers only accrued expenses and some had not even considered to start advertizing or selling advertizing space. Trains have big surfaces outside and the interior of trains are also suitable for hanging for example billboards. In addition trains move around and large volume of changing people travel daily with trains. One could easily think that buying advertisement space from trains would be attractive for companies and the income received more than welcomed.

Public transportation modes should be made more attractive to people, in order to be used more often. Public transport should be available, but it should also have competitive pricing. Single ticket in commuter traffic is mainly used in Estonia and monthly cards are commonly used in Sweden and Denmark. One way of making long-distance travelling with train more appealing is to add local ticket as a by-product. When a customer knows that well functioning transport modes are

available with one ticket (received when the long-distance ticket is bought) in the target city and you don’t have to worry about traffic jams or finding parking spaces, own car can be left at home. There is also increasing trend, where companies encourage their employees to use more public transportation in work related trips. One operator had innovative idea about work ticket, which could be bought via company to be used for traveling to work, and it would be in turn approximately 40 percent cheaper.

8. CONCLUSION

8.1 Summary and main findings

This study has brought up the insights of three passenger railway markets, Sweden, Estonia and Denmark. The current situation in the countries and proceeding of deregulation is covered via literature analyses, empirical part is structured of expert interviews and customer satisfaction survey. The empirical data was gathered via two research methods. Customer satisfaction survey gathered the opinions of passengers' and semi-structured theme interviews confronted the experts' views. The gathered data was qualitative and the research itself is a qualitative case study. Together 168 responses were gathered to the customer satisfaction survey and 18 interviews were conducted. The interviews consisted of seven operators, six labour unions and five governmental authorities.

Railway freight market was deregulated earlier than passenger side and majority of the previous studies are concentrated on freight business. Researches concerning railway passenger market have mainly concentrated on the pioneer countries like the US, UK or Sweden. The selected three countries, Sweden, Estonia and Denmark have not been studied together before. Passenger satisfaction and its affect to public transportation have also grabbed researchers' interest. In the previous studies concerning passenger satisfaction and service quality similar factors were noted than in this study's customer satisfaction survey, for example the importance of ticket pricing and itinerary. Several of the studies made concerning passenger rail market are based on interviews or literature analyses made from previous studies. This study aimed in combining customers and experts standpoints and views.

The deregulation process has proceeded differently in Sweden, Estonia and Denmark. In Sweden the process of deregulating the railway sector started in the end of 1980s, after the new transport policy decision was made in 1988. Result of the policy was separation of infrastructure from the train operations both legally and organizationally. First entrant besides of the national incumbent SJ in the rail

passenger market was introduced 1990 via competitive tendering. First tender was for regional traffic and after the results were positive more operators were introduced to the market. The deregulation has realized in phases during the past 20 years. The railway freight market was opened to competition in July 1st 1996 and rail passenger market was completely opened in October 1st 2010. For Example international traffic, traffic on holidays and weekends had been opened before the complete deregulation of the passenger sector. Today, any railway undertaking with a registered office in EES or Switzerland has the right to operate passenger rail traffic in Sweden.

In Estonia the privatization process of the railways started in 1996 leading to the splitting of the state owned incumbent Eesti Raudtee (ER) to several entities in 1997. Passenger carrier Edelaraudtee was then established and privatized. In 2001 was the second privatization of ER when 66 percent of the company was sold to foreign investors. Privatizations lead to the situation where state only owned short-distance passenger operator Elektriraudtee and part of ER. In 1997 the state acquired ER back to its possession to be able to apply funding from the EU to develop the poor state of railway network. In January 2009 the rail network maintenance and traffic operations were separated through subsidiaries. Denmark has not taken its deregulation process as far as Sweden or Estonia. There are private companies operating in the railways, but the state owned incumbent DSB still have over 90 percent market share. Regional companies with approximately 10 percent owning of private stakeholders are the other companies serving rail passenger transport. In Denmark there is an agreement made with DSB stating only 15 percent of the railway lines can be put under competition. Privately owned rail networks are peculiarity of Denmark, where a private operator can organize the kind of rail passenger transport it wants.

The response from the passengers and experts interviewed concerning the deregulation was mainly positive. Although deregulation was stated as a positive thing among passengers, the respondents mainly could not say or stated no to questions concerning changes caused from deregulation or different operators acting in the market. Even in Stockholm where are several operators only 16.6

percent of respondents stated yes, when they were asked if they recognize are there several operators providing passenger rail transport services. Furthermore, naming the operators acting on the rail passenger market was difficult to the respondents. When a list of company names was presented to the respondents, they recognized the companies and stated to having used their services. Experts interviewed were mainly operators acting in the market of passenger railway services and their opinions were naturally positive. Interviewed labor union representatives were the ones who brought up the negative sides and had mainly been against the deregulation in all the countries. Passengers stated that liberalization will have following effects, when competition increases: Ticket prices will become lower, new lines and more frequency to existing lines might appear.

As cities are growing and demand for residential housing accrues communities grow nearby big cities. This fact increases the volume of people travelling to work in to the city centers from regions outside of it. As there is a limited amount of parking spaces and capacity in the roads there is an increasing demand for public transport. Supporting public transportation is also argued with environmental factors. Fluent and frequent traffic systems are needed to carry large volumes of people and trains are suitable of the task. Developing the infrastructure and investing to trains, locomotives and rolling stock is considered to be very expensive, when for example compared to busses. Financing the large investments often holds the decisions to execute development plans. It can be emphasized that all the three cities researched had good and relatively functioning public transportation systems, but improvements are always needed and desired.

Passengers were asked in every city about their general evaluation concerning the commuter train transport and positive feedback was received. In all three cities respondents were quite satisfied with the commuter train traffic. In Tallinn the mainly utilized transport mode was the passenger car, which reflects by lowering the satisfaction. Commuter trains are not used as commonly in Tallinn than in the other two cities. Also Tallinn is the only city in Estonia, where commuter trains can be found. Furthermore, half of the respondents in Estonia were satisfied to the

commuter trains. In Stockholm little over half of the respondents thought commuter rail transport is organized quite or very well. The most satisfied passengers are found from Copenhagen, where majority of respondents considered commuter train system functioning well. The three most important factors affecting to customer satisfaction were quite similar in all the three countries with minor variations. As the most influencing factor in Tallinn was the ticket price, trains' punctuality was unfolded in Stockholm and Copenhagen. In Tallinn punctuality was ranked second, in Stockholm the timetable meets my travel needs and Copenhagen seats are available at this route, were considered important. As thirdly influencing factors were stated the timetable meets my travel needs in Tallinn and ticket price both in Stockholm and Copenhagen.

There are different approaches how countries have prepared to the market deregulation and confronted the new situation. Depending on the country, the stage of liberalization is different and some have encountered more difficulties than others. In researched countries the liberalization has proceeded at least on some stage from a monopolistic situation with no competition. The fairly new situation has brought challenges at least in the beginning of deregulated times. It can be stated that, if a country is not prepared with adequate measures, difficulties are more likely to appear. When a new company emerges the market, there has been for example lack of maintenance facilities. Some companies have now own facilities for maintenance or they are renting state owned companies' facilities. The situation has stated to be improved from the beginning of deregulation. When operations are handled via tendering regulations are made to ensure the employees transfer to the next company who wins the next tender. The developing market situation has created both challenges and opportunities, some of them are already overcome and for some the solutions are not yet found. In all of the countries the passenger volumes are desired to be increased. Large scale improvements for example City Line in Stockholm, Copenhagen metro, bridge to Germany, Rail Baltica and new trains in Estonia are future possibilities to increase passenger volumes and provide good quality services.

8.2 Limitations and suggestions for further research

Certain limitations should be kept in mind when interpreting the results of this research. Research findings are from three different countries. All the three countries have own characteristics which might affect on end results. Although different actors and organizations from the railway segment (or attached to the sector) were interviewed, cannot be generalized that results would represent the whole industry's opinions. Mainly interviewed professionals were situated in capital regions of the three countries. Only few operators interviewed were located further in the country. If the interviews would have been performed evenly through the country, some other themes might have appeared. In majority of the interviews only one person participated and due to the fact his/her opinions represent the whole company's or organization's standpoints. One person cannot remember all the facts, also personal opinions might rise over the company standpoints. In some companies there would have been more suitable person to interview, but he/her was prevented to participate. Mainly the interviewed persons were in managerial position and only two were women, this might have an effect on the results. Should also be taken into accordance that companies interviewed were actors of the rail passenger transport sector, freight traffic was excluded from this research. Furthermore, would be interesting to repeat the research after few years at least in Sweden to see has some changes realized and how many operators are acting in the market.

The customer satisfaction survey was done in the capitals of the three countries (Stockholm, Tallinn and Copenhagen), which might have an effect on the results. If the survey would have been repeated in other cities, different answers might have appeared for example in some small city there are no commuter trains or the operating frequency is not as high as in capitals. Also persons who conducted the survey in the stations were mainly exchange students from several different countries. They did not have common language with the persons interviewed, if these persons did not speak English. The questionnaires were translated to Estonian and Swedish so, if the person read all the questions and explanations the risk of misunderstandings should have been minimal.

Research's reliability was confirmed by recording all interviews. This way was ensured the availability of information for further re-checking, if something seemed unclear. The interviews of this research were conducted by two persons. Interviewer's way to act might have an impact on the results. Additionally, careful description of the analyzing process increases the reliability. Same kind of questionnaire base for the interviews than in previous researches was used to confirm the validity. The questionnaires used in customer satisfaction survey were saved and the results are in the database if something needs to be re-checked.

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Appendix 1.

HELINÄ Undersökning av kundbelåtenhet

Kod: _____

Vi är ett par studenter från Finland (Villmanstrands tekniska universitet) som gör en studie kring passagerare avseende järnvägstrafiken. Skulle du vara intresserad av att stödja denna studie genom att fylla i det här dokumentet. Som tack för hjälpen får du en Finsk sötsak. Tack för din hjälp!

1. I vilken grad passar de nedan nämnda egenskaperna den här tåglinjen?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

Chaufförens körsätt är angenämt och jämnt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Tågen kör punktligt enligt tidtabellen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Tågen är snygga och städade	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Det är bekvämt att resa (tågens inredning är bra)	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

2. En helhetsbedömning av pendeltågstrafiken i Stockholm?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

En helhetsbedömning av pendeltågstrafiken i Stockholm?	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

3. I vilken grad passar de nedan nämnda egenskaperna på din tillfredsställelse?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

1. Den här tiden på dygnet brukar man kunna få sittplats på linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
2. Linjens tidtabell motsvarar mina resebehov på ett bra sätt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
3. Tågen är i tid	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
4. Resan går snabbt och smidigt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
5. Bra frekvens av tåg	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
6. Anslutningsmöjligheterna till andra kollektivtrafikmedel är bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
7. Finns möjlighet att shoppa i närheten av linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
8. Arbetsplats/skola ligger i närheten av linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
9. Antal och mångfald på destinationer	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
10. Under mina resor brukar det inte förekomma ordningsstörningar	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
11. Förhållandena när man väntar på stationer är bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
12. Att köpa biljett är enkelt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
13. Biljett pris	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
14. Informationen på stationerna är väl organiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

15. Informationen på tågen är väl organiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
16. Järnvägsvagnarna är nya	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
17. Extra tjänster är väl tillgängliga (Internet, radio, etc.)	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

Vänligen ange de tre viktigaste faktorerna: _____

4. I vilken grad är följande funktioner praktiskt realiserade?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

1. Den här tiden på dygnet brukar man kunna få sittplats på linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
2. Linjens tidtabell motsvarar mina resebehov bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
3. Tågen är i tid	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
4. Resan går snabbt och smidigt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
5. Bra frekvens av tåg	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
6. Anslutningsmöjligheterna till andra kollektivtrafikmedel är bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
7. Finns möjlighet att shoppa i närheten av linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
8. Arbetsplats/skola ligger i närheten av linjen	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
9. Kvantitet och mångfald av destinationer	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
10. Under mina resor brukar det inte förekomma ordningsstörningar	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
11. Förhållandena när man väntar på stationer är bra	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
12. Att köpa biljett är enkelt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
13. Biljett pris	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
14. Informationen på stationerna är väl organiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
15. Informationen på tågen är väl organiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
16. Järnvägsvagnarna är nya	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
17. Extra tjänster är väl tillgängliga (Internet, radio)	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

5. Vilket transportsätt du föredrar att använda?

○ Bil ○ Buss ○ Tåg ○ Spårvagn ○ Metro

Vänligen ange varför?

_____

6. Har du märkt om det finns flera operatörer som tillhandahåller transporttjänster?

Nej

Ja, vänligen nämna operatörerna _____

Ingen åsikt

7. (Om du svarade ja) Skiljer följande faktorer mellan de olika operatörerna?

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

Att köpa biljetter är lätt	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Biljettkassan är ren och välorganiserad	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Om det behövs, så finns personlig service tillgänglig	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

8. (Om du svarade ja) Finns det skillnader på linjer där flera operatörer agerar?

Nej

Ja, vilken typ av skillnader? _____

Ingen åsikt

9. Enligt din åsikt, hur skulle det påverka situationen på marknaden om flera operatörer skulle komma in på marknaden?

Positivt, vänligen precisera _____

Negativt, vänligen precisera _____

Ingen åsikt

10. Har avreglering förändrat marknaden?

Nej

Ja, vänligen precisera hur? _____

Ingen åsikt

11. Har du använt transporttjänster från något av följande bolag:

SJ AB	□ Ja □ Nej
Stockholmståg KB	□ Ja □ Nej
A-Train AB (Arlanda Express)	□ Ja □ Nej
Veolia Tr. SV. AB	□ Ja □ Nej
Svenska Tågkompaniet	□ Ja □ Nej
Arriva Tåg AB	□ Ja □ Nej
Roslagståg AB	□ Ja □ Nej
Inlandsbanan AB (IBAB)	□ Ja □ Nej
DSBFirst Sverige AB	□ Ja □ Nej
Tågåkeriet / Tåg AB	□ Ja □ Nej
Ingen åsikt	□

Annat, vänligen precisera: _____

12. I vilken grad beskriver följande påståenden kollektivtrafikservicen i huvudstadsregionen? Bedöm de nedan nämnda påståendena.

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

Information om tågtrafikens tidtabeller och rutter finns väl till hands	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Biljettkontrollörerna beter sig artigt och sakligt	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

13. En helhetsbedömning för kollektivtrafiken i huvudstadsregionen

Mycket dåligt = 1, Ganska dåligt = 2, Medelmåttigt = 3, Ganska bra = 4, Mycket bra = 5, Ingen åsikt = 0

12. En helhetsbedömning för kollektivtrafiken i huvudstadsregionen	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

RESPONDENTENS BAKGRUNDSUPPGIFTER

Hur ofta åker Ni i genomsnitt med denna linje?

Minst fyra dagar i veckan 2-3 dagar i veckan En dag i veckan Mindre ofta

Vilket betalningssätt använde Ni på denna resa?

Periodbiljett laddat på resekortet Värde laddat på resekortet

Engångsbiljett Annat

Kön:

Kvinna Man

Födelseår: _____

Då Ni åker med denna tåglinje, är i allmänhet ...

mer än hälften av sittplatserna lediga några sittplatser lediga

inga sittplatser lediga många resenärer är tvungna att stå under resan

Skulle Ni kunnat använda bilen för denna resa?

Ja Nej

När Ni tänker på denna resa, är den huvudsakligen en ...

arbetsresa skolresa ärende/-uppköpresa fritidsresa

Vad beskriver Er nuvarande huvudsyssla bäst?

Arbetare Tjänsteman I ledande ställning / entreprenör Sturerande/skolelev

Hemmamamma/-pappa eller föräldraledig Pensionär Arbetslös Annat

Varifrån söker ni oftast information om tidtabeller? Välj ett av följande alternativ.

Från tidtabellsboken (eller särtryckt tidtabell) Från internet

Jag ringer trafikrådgivningen Från en papperstidtabell på stationen

Från en elektronisk tidtabellsskärm på stationer

Annanstans, varifrån? _____

Jag söker/behöver inte information om tidtabeller

Var bor Ni?

_____

ROSOR OCH RIS ÅT TÅGBOLAGET

I det följande har Ni möjlighet att berätta Er åsikt om tåglinjen. Har Ni något speciellt positivt att säga om tågbolaget på denna linje och deras service?

_____

Har Ni något speciellt negativt att säga om denna linje och detta tågbolag, vilka förändringar skulle Ni önska på denna linje?

_____

Appendix 2.

HELINÄ Kliendi rahulolu küsimustik Vastates kood:_____

Tere päevast! Me oleme Soome tudengid (Lappeenranta Tehnikaülikoolist) ja me teeme uurimust reisijateveo raudteeliiklusest. Kas Te sooviksite uuringus osaleda täites küsimustiku? See võtab aega ainult mõne minuti. Tänutäheks saate Te Soome maiustust. Tänud aitamise eest!

1. Millises ulatuses järgnevad väited iseloomustavad vastavat raudteeliini?

Väga kehvasti = 1, Üsna kehvasti = 2, Ei hästi ega halvasti = 3, Üsna hästi = 4, Väga hösti = 5, Ei oska öelda = 0

Rongijuhi juhtimisstiil on sujuv ja mugav	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rong püsib täpselt graafikus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rongid on ülerahvastatud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rongi varustus (istmed jne.) on mugavad	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

2. Teie üldhinnang lähiliini rongile Tallinn

Väga kehv = 1, Üsna kehv = 2, Ei hea ega halb = 3, Üsna hea = 4, Väga hea = 5, Ei oska öelda = 0

Teie üldhinnang lähiliini rongile Tallinn osas	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

3. Millises ulatuses mõjutavad Teie rahuolu järgnevad omadused?

Väga kehvasti = 1, Üsna kehvasti = 2, Ei hästi ega halvasti = 3, Üsna hästi = 4, Väga hösti = 5, Ei oska öelda = 0

1. Vabade kohtade olemasolu vastaval liinil sel ajal päeval	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
2. Vastava liini graafik vastab hästi minu reisimise vajadustele	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
3. Rongid püsivad graafikus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
4. Reisimine on kiire ja sujuv	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
5. Rongide sagedus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
6. Ümberistumised ühistranspordi liinide vahel toimivad hästi	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
7. Ostukeskused asuvad liinide läheduses	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
8. Töökoht/kool asub liini läheduses	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
9. Sihtpunktide arv ja mitmekesisus	□ 1 □ 2 □ 3 □ 4 □ 5 □

10. Segajate puudumine / reisijate turvalisus on hästi hallatud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
11. Ootetingimused peatustes on head	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
12. Pileti ostmine on kerge	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
13. Pileti hind	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
14. Informatsioon peatustes on hästi organiseeritud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
15. Informatsioon rongis on hästi organiseeritud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
16. Rongi veerem on uus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
17. Lisateenused on hästi kättesaadavad (internet, raadio)	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

Nimeta palun kolm kõige tähtsamat faktorit:_____

4. Millised ulatuses on järgnevad omadused praktikas realiseerunud?

Väga kehvasti = 1, Üsna kehvasti = 2, Ei hästi ega halvasti = 3, Üsna hästi = 4, Väga hösti = 5, Ei oska öelda = 0

Vastaval liinil sel ajal päeval on vabu kohti	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Vastava liini graafik sobib hästi minu reisimise vajadustega	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rongid on graafikus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Reisimine on kiire ja sujuv	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Rongide sagedus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Ümberistumine ühistranspordi liinide vahel toimib hästi	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Poodlemise võimalused asuvad liini läheduses	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Töökoht / kool on liini läheduses	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Sihtpunktide arvukus ja mitmekesisus	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Puuduvad segajad / reisija tuvalisus on hallatud	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Ootetingimused peatustes on head	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Pileti ostmine on lihtne	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Pileti hind	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

Informatsioon peatustes on hästi organiseeritud	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Informatsioon rongis on hästi organiseeritud	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Veerem on uus	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Lisateenused on hästi kättesaadavad (Internet, raadio)	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

5. Millist transpordi moodust Te eelistate kasutada?

○ Auto ○ Buss ○ Rong ○ Tramm ○ Troll

Palun määratlege miks? _____

6. Olete Te märganud kas raudteetranspordi teenust pakuvad mitmed operaatorid?

○ Ei

○ Jah, palun nimeta operaatorid _____

○ Ei oska öelda

7. (Kui vastus on jah) Kas järgnevad faktorid eristuvad erinevate operaatorite vahel?

Väga kehvasti = 1, Üsna kehvasti = 2, Ei hästi ega halvasti = 3, Üsna hästi = 4, Väga hösti = 5, Ei oska öelda = 0

Pileti ostmine on kerge	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Piletimüügikoht on puhas ja hästi organiseeritud	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0
Vajadusel on individuaalne teenindus kättesaadav	□ 1	□ 2	□ 3	□ 4	□ 5	□ 0

8. (Kui vastus on jah) Kas esineb erinevusi liinide vahel mida opereerivad erinevad operaatorid?

- Ei
- Jah, millist laadi erinevusi? _____
- Ei oska öelda

9. Baseerudes oma arvamusele, kui turule tuleks erinevaid operaatoreid, kuidas see mõjutaks turuolukorda?

- Positiivselt, palun määratlege _____
- Negatiivselt, palun määratege _____
- Ei oska öelda

10. Kas raudteel vabaturu loomine on muutnud turgu?

- Ei
- Jah, kuidas? _____
- Ei oska öelda

11. Kas Te olete kasutanud transporditeenuseid järgneva operaatorfirma poolt:

Elektriraudtee	□ Jah □ Ei
Edelaraudtee	□ Jah □ Ei
Go Rail	□ Jah □ Ei
Ei oska öelda	□

12. Järgnevates küsimustes palun hinnake ühistransporti tervikuna XXX piirkonnas

Väga kehv = 1, Üsna kehv = 2, Ei hea ega halb = 3, Üsna hea = 4, Väga hea = 5, Ei oska öelda = 0

Informatsiooni kättesaadavus ajagraafiku ja liinide kohta on hea	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0
Piletikontrolöride töö on viisakas ja sobilik	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

13. Teie üldhinnang regionaalse ühistranspordi osas

Väga kehv = 1, Üsna kehv = 2, Ei hea ega halb = 3, Üsna hea = 4, Väga hea = 5, Ei oska öelda = 0

Teie üldhinnang regionaalse ühistranspordi osas	□ 1 □ 2 □ 3 □ 4 □ 5 □ 0

Taustainformatsioon

Kui tihti Te keskmiselt reisite vastaval liinil?

○ Vähemalt neli päeva nädalas ○ 2-3 päeva nädalas ○ Üks päev nädalas ○ Harvem

Millist tüüpi piletit Te kasutasite sellel reisil?

○ Perioodi kart ○ Ettemaksu kaart ○ Üksikpiletit ○ Midagi muud

Sugu:

○ Naine ○ Mees

Sünniaasta: _____

Kui Te tavaliselt reisite sellel liininl siis

○ rohkem kui pooled on vabad ○ mõned kohad on vabad ○ vabu kohti ei ole

○ paljud reisijad peavad püsti seistes reisima

Kas Teil on olnud võimalus kasutada autot samal reisil?

○ Jah ○ Ei

Mis on Teie reisi peaeesmärk?

Tööga seonduv Kooli reis Poodlemine / igapäevatoimingud Vaba aeg/Puhkus

Milline järgnevatest kirjeldab Teie ametit kõige paremini?

Tööline Spetsialist / ametnik Juht / ettevõtja Üliõpilane / koolipoiss või -tüdruk

Koduperenaine / emadus- või isaduspuhkusel viibija Pensionär Töötu Muu

Kust Te ostite informatsiooni ajagraafikute kohta? Palun määratle üks järgnevatest.

Trükitud ajagraafik raamatust Internetist Piletimüügipunktidest

Peatustes olevatest pabervoldik ajagraafikutest Elektroonselt infotabloolt

Kusagilt mujalt, palun määratle:_____

Ma ei vaja / otsi informatsiooni ajagraafiku kohta

Elukoht:

_____

TAGASISIDE RAUDTEETRANSPORDI OPERAATORITE KOHTA

Järgnevalt olete Te teretulnud kirjeldama enda sõnadega mida Te arvate raudteetranspordi ja operaatorfirmade kohta. On seal teenuste osas midagi mille osas Te tahaksite operaatoreid tänada?

_____

Kas teenuste osas on midagi erilist mille osas Te ei ole rahul? Kas Te soovite liinide osas näha muudatusi?

_____

Appendix 3.

Participated exchange students from LUT

Adomako, Joshua
Ahi, Mohamadali
Cong, Kan
Gåsman, Elise-Maria
Jusas, Regimantas
Liang, Yi
Kesse, Martin
Molesworth, David
Oladepo, Olalekan
Otulugbu, Alexander
Samajauskaitė, Sonata
Timilsina, Udhyan
Toghyani Rizi, Amir
Vahtila, Ilari

Appendix 4.

CONTACTED COMPANIES AND ORGANIZATION IN SWEDEN

Company	**City**	**Internet page**
A-Train AB	Stockholm	www.arlandaexpress.com
Facket för Service och Kommunikation	Stockholm	www.seko.se
Fackförbundet ST	Stockholm	www.st.org
Roslagståg AB	Stockholm	www.roslagstag.se
Stockholmståg KB	Stockholm	www.stockholmstag.se
Storstockholms Lokaltrafik AB	Stockholm	www.sl.se
Svenska Tågkompaniet AB	Gävle	www.tagkompaniet.se
Svensk Lokförarförening	Stockholm	www.slff.nu
Trafikverket	Borlänge	www.trafikverket.se
Tågåkeriet i Bergslagen AB	Kristinehamn	www.tagakeriet.se

Appendix 5.

CONTACTED COMPANIES AND ORGANIZATION IN ESTONIA

Company	**City**	**Internet page**
City of Tallinn, Urban Planning Department	Tallinn	www.tallinn.ee
GoRail AS	Tallinn	www.gorail.ee
Edelaraudtee AS	Türi	www.edel.ee
Eesti Raudtee AS	Tallinn	www.evr.ee
Eesti Raudteelaste Ametiühing	Tallinn	www.evray.ee
Eesti Vedurimeeste Kutseliit	Tallinn	www.evkl.ee
Ministry of Economic Affairs and Communications, Road and Railways department	Tallinn	www.mkm.ee

Appendix 6.

CONTACTED COMPANIES AND ORGANIZATION IN DENMARK

Company	**City**	**Internetpage**
Arriva	Kastrup	www.arriva.dk
Banedanmark	Copenhagen	www.bane.dk
City of Copenhagen, Technical and Environmental Administration	Copenhagen	www.kk.dk
DSBFirst	Copenhagen	www.dsbfirst.dk
Dansk Jernbaneforbund	Copenhagen	www.djf.dk
DSB S-Tog	Copenhagen	www.dsb.dk/s-tog
Fagligt Fælles Forbud (3F)	Copenhagen	www.3f.dk
HK Trafik & Jernbane	Copenhagen	www.hk.dk
Landsorganisationen i Danmark (LO)	Copenhagen	www.lo.dk
Lokalbanen	Hillerød	http://www.lokalbanen.dk
Midtjyske Jernbaner		www.mjba.dk
Nordjyske Jernbaner	Hjørring	www.njba.dk
Regionstog	Holbæk	www.regionstog.dk
Trafikstyrelsen	Copenhagen	www.trafikstyrelsen.dk

Appendix 7.

09.11.2010

Bästa Mottagare / Företagets namn

EN FORSKNING AV PASSAGERARE JÄRNVÄGSMARKNADEN AVREGLERING I NORRA EUROPA - SAMLA LÄRANDE FÖR FINSKA STATLIGA ORGANISATIONER FÖR ATT STÖDJA PRIVATA FÖRETAG

Uppbyggnaden av den Europeiska passagerare järnvägsmarknaden förändrades den 1 januari 2010 när marknaden för internationell persontrafik var avreglerad. Även om den nationella persontrafiken på järnväg marknaderna ännu inte är öppnad för konkurrens, kan detta ske inom en snar framtid. Flera länder har gått med persontrafik på järnväg avreglering redan tidigare, men Finland är bland de länder som inte har avreglerat marknaden för persontrafik.

Jag är i slutskedet av mina högskolstudier (diplomingenjör) vid Villmanstrands tekniska universitet (Villmanstrand, Finland, www.lut.fi). Min magisteruppsats är en del av den finska Trafikverket projekt (organisation är statliga och leasar järnvägsnätet), vars huvudsakliga syfte är att samla erfarenheter av persontrafik på järnväg marknaden privatisering från tre nordeuropeiska länder, Sverige, Danmark och Estland. Målet med projektet är att förstå hur processen har gått när det gäller länder: Vi är speciellt intresserade av inför utmaningar och deras lösningar samt framtidsutsikter. Dessutom är vi intresserade av hur statliga organisationen kan förbättra sin service gentemot nya aktörer på persontrafik på järnväg marknaden. Forskningen sker genom intervjua företagets representanter i tre länder. Handledare för magisteruppsatsen är professor Olli-Pekka Hilmola från Villmanstrands tekniska universitet, Kouvola forskningscentrum.

Sverige öppnade passagerare järnvägsmarknaden delvis under 2009, Danmark 2002 och Estland 2000-talet. Idag marknaderna har flera nya aktörer, som har vunnit marknadsandelar från statliga bolager. Studien har för avsikt att förstå de speciella egenskaper marknaderna har konfronterats efter privatiseringen. FÖRETAGSNAMN har en stark erfarenhet av den svenska persontrafiken på järnväg marknaden och därmed Ditt bidrag till denna forskning är mycket uppskattat. Intervjun är viktig del av

forskningsprojektet eftersom den ger värdefull information om hur avregleringen av järnvägarna drabbade på marknaderna på skådespelaren nivå. Ditt företags erfarenheter skulle bidra till att samla in viktig information. I gengäld för att delta i forskningen kommer du att få den slutliga rapporten publicerades i den finska Transportstyrelsens serie via e-post.

Intervjuerna kommer att genomföras i Sverige under november 2010. Intervjun tar en till två timmar. Jag skulle uppskatta att få din bekräftelse av intresse via e-post till adressen tiina.poikolainen@lut.fi. Därefter kan vi boka ett möte för en intervju.

Med vänlig hälsning,

Forskningsassistent
Villmanstrands tekniska universitet, Kouvola forskningscentrum
E-post: tiina.poikolainen@lut.fi
Mobil: +358 40 568 1853

EM Milla Laisi
Doktorand
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Mobil: +358 50 380 5808

Olli-Pekka Hilmola
Prof., Villmanstrands tekniska universitet, Kouvola forskningscentrum, Finland, ED
Gäst Professor, Högskolan Skövde, Sverige
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Mobil: +358 40 761 4307

Appendix 8.

09.11.2010

Dear Recipient

A STUDY OF PASSENGER RAIL MARKETS' DEREGULATION IN NORTHERN EUROPE
– GATHERING LEARNING POINTS FOR FINNISH GOVERNMENTAL ORGANISATIONS TO SUPPORT PRIVATE UNDERTAKINGS

The structure of European passenger rail market changed 1st January 2010, when the market for international passenger services was liberalised. Although the national passenger rail markets are not yet opened for competition, this might happen in the near future. Several countries have proceeded with the passenger rail deregulation already earlier; however, Finland is among the countries which have not liberalised the passenger market.

I am in the final stages of my master's studies (M.Sc.) at Lappeenranta University of Technology (Lappeenranta, Finland, www.lut.fi). My master's thesis is a part of the Finnish Transport Agency's project (organisation is governmental and leases railway network), which main intention is to gather experiences of passenger rail market privatisation from three North European countries, Sweden, Denmark and Estonia. Project's objective is to understand how the process has proceeded in the case countries: We are especially interested in confronted challenges and their solutions, as well as future prospects. Furthermore, we are interested how governmental organisation could enhance its service towards new entrants of the passenger rail market. The research is conducted by interviewing the company representatives in the case countries. The academic advisor is Prof., PhD Olli-Pekka Hilmola from Lappeenranta University of Technology, Kouvola Research Unit.

Sweden opened the passenger railway market partially in 2009, Denmark 2002 and Estonia 2000s. Today the markets have several new operators, who have gained market shares from governmental companies. The study's intention is to understand the special characteristics the markets have confronted after the privatisation. You have a strong experience in the Swedish passenger rail market and therefore Your contribution to this research is highly appreciated. The interview is important part of the research project as it

gives valuable information how the railway liberalisation affected on the markets at actor level. Your company's experiences would help to gather genuine information. In return for participating in the research you will receive the final report published in the Finnish Transport Agency's series by e-mail.

The interviews will be conducted in Sweden in November 2010. The interview takes one to two hours. I would appreciate to receive Your confirmation of interest via e-mail to address tiina.poikolainen@lut.fi. Thereafter we can arrange a meeting for an interview.

Sincerely Yours,

Tiina Poikolainen
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Olli-Pekka Hilmola
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Appendix 9.

THE SEMI-STRUCTURED QUESTIONNAIRE / OPERATORS

1. COMPANY INFORMATION

- History
  - Business background before entering passenger rail market
- Organizational chart
- The knowledge concerning issues related to market entry before actually entering the market
- When entered the market → related to market liberalization? (Or so called old player in some other fields)
- Kindly name the company's strengths and weaknesses
- What are the main challenges you are facing?

2. ENTERING THE MARKET & MARKET ENVIRONMENT

- Why your company decided to enter the market?
  - Did the market entry have anything to do with customer orientation?
- What kind of preliminary preparations were made?
- Where you gathered information concerning the market entry?
- Had you heard about the Network Statement?
  - If yes, did you use it?
  - Was it helpful?
  - Any information needed missing?
- Did you have rolling stock? How you organized it?
  - Where you purchased rolling stock and locomotives?
    - new / second-hand / leased
- Where you gathered the personnel?
  - Previous experience in railway operations
  - Qualifications
  - Training
- How you entered the markets? Were certain strategies used?
- Kindly describe the market entry barriers
- What kind of challenges or difficulties you faced when you entered the market? How the challenges were handled?
- What kind of positive matters you faced when you entered the market?
- Do you have collaboration with other passenger operators, especially with governmentally owned companies? International companies?
- What kind of expectations you had concerning the volumes? Have those been fulfilled?
- How you predict the passenger volumes? Can you influence on operated lines and available stations/stops?
- Is it possible to add frequency if demand increases / decreases?
- Has price level changed during the years?

- How invoicing is organized (contract type, gross/net)?
- Do you advertise? If yes, which advertisement types are used?
- Is there difference between commuter and long-distance operations? If yes, what kind of differences? How you see the situation in future?
- Intramodal competition
- Intermodal competition
    - Is the competition mainly among time or costs or both?
- Do you think some improvements are needed? If yes, what kind of improvements?
- Future prospects

- Traction power: have you faced challenges to have electricity contract for other than diesel traction locomotives (if any)?
- Were you aware of the special characteristics of passenger rail market?
    - Surprises?

3. INFRASTRUCTURE

- Kindly describe the passenger rail market in the country
- Railway network charges
- Infrastructure's strengths & weaknesses
- Development ideas

4. COOPERATION WITH TRADE UNIONS

- Are you aware whether your employees belong to certain trade union?
- How actively your company's employees participate in trade unions' actions?
- Kindly name trade unions' positive and negative sides
- Development ideas to the trade unions

5. GOVERNMENTAL BODIES' ACTIONS

- Required documents, certificates etc.
- The role of governmental organizations in safety certificate and operating license + rolling stock approval + capacity allocation
- How easy it was to understand all needed actions?
- How well help was available?
- Kindly define the confronted strengths and weaknesses when dealing with governmental bodies?
- Objectivity / transparency of the passenger rail market
    - functionality of
        - ministry
        - infrastructure
        - market requisite
- Development ideas

6. EUROPEAN UNION

- What kind of challenges or possibilities EU regulations are creating?
- What kind of strengths & weaknesses you have noted in EU’s actions?
- Development ideas

Appendix 10.

THE SEMI-STRUCTURED QUESTIONNAIRE / LABOUR UNIONS

1. BASIC INFORMATION

- History
- Organizational chart
- Basic information about the members (amount, its development etc.)
- Kindly name the labor union's strengths and weaknesses
- What are the main challenges you are facing?
- Kindly describe what kind of services your labor union provides for passenger rail operators' employees
- What are your special characteristics; how you differentiate from other labor unions?
- Who are your main customers?
- Kindly describe your cooperation with the operators
- Kindly describe your cooperation with the governmental bodies. Positive / negative experiences?

2. THE LABOR UNION'S SERVICES

- What are the most / least used services?
- What are the challenges the employees are facing?
- What about the positive sides?

- What have been the most challenging matters when negotiating with the passenger rail operators?

3. MARKET ENVIRONMENT

- How satisfied the passenger rail market's employees are to their working conditions?
- Employees' salary level → are the private operators paying as much as the governmental operator? (vs. situation in Germany in October 2010)
- Are there employees available in the market?
- How the employees' education / training is organized?
- Have you noticed whether employees prefer to work for governmental or private operators?
- How well the operators have organized the rolling stock related issues?

4. DEREGULATION'S INFLUENCES ON PASSENGER RAIL MARKET

- How deregulation has changed the market?
- Based on your experiences, kindly name positive and negative influences
- What have been the main influences on public transport?

- Based on your experiences, how the employees have taken the deregulation and changes in the market?
- Are the operators treating their employees differently after the deregulation? If yes, how?
- Your overall opinion of market deregulation

Appendix 11.

THE SEMI-STRUCTURED QUESTIONNAIRE / AUTHORITIES

1. BACKGROUND INFORMATION

- History & basic information
- Responsibilities
  ➔ Kindly describe how regulations etc. are accomplished
- Strengths, weaknesses, opportunities, threats
- Future challenges & possibilities

2. MARKET DEREGULATION / MARKET ENTRY

General questions

- Kindly describe the progress of deregulation in the passenger rail market
  - What have been the main challenges?
  - What have been the main positive surprises?
- How much you have collaboration with other countries' authorities?

Situation in Denmark/Sweden/Estonia

- Based on your experiences, how the situation in the passenger rail market has proceeded?
- What is the status of passenger rail market compared to other transport modes (bus, car, tram, metro)?
  - Copenhagen/Stockholm/Tallinn commuter traffic / long-distance traffic
  - Intramodal competition
  - Intermodal competition
  - Based on your experience, do operators have good relationships; are they cooperating?
- Future prospects

Danish/Swedish/Estonian passenger rail market: issues related to operators

- Kindly describe the process when an operator enters the passenger rail market
  - How well operators are aware of matters concerning market entry & special characteristics of passenger rail market? (Needed certificates etc.)
  - Is it easy for operators to enter the market?
  - Main challenges
  - Main market entry barriers
- Contract length

- What are the main factors affecting on train ticket prices?
    - According to your information, has the price level changed during the years?
- How passenger rail operators predict the passenger volumes? Are you aware is there any difference between summer / winter season, weekends / weekdays etc.?
- Can railway operators influence on operated lines and available stations/stops?
- Based on your experience, can passenger rail operators add frequency if demand increases / decreases?
- How invoicing is organized (contract type, gross/net)?
- Is there difference between commuter and long-distance operations? If yes, what kind of differences? How you see the situation in future?

3. INTERNATIONAL COOPERATION

- Kindly describe the international cooperation
- Kindly describe interoperability (challenges/positive matters)
- Main projects / future plans
- Overall challenges / positive sides in international cooperation

4. INFRASTRUCTURE

- Kindly describe the passenger rail market in the country
- Railway network charges
- Infrastructure's strengths & weaknesses
- Future & development ideas

5. COOPERATION WITH LABOUR UNIONS

- Are you aware whether the passenger rail companies' employees belong to certain labor unions?
- How actively companies' employees participate in labor unions' actions?
- Kindly name labor unions' positive and negative sides
- Development ideas to the labor unions

6. EUROPEAN UNION

- What kind of challenges or possibilities EU regulations are creating?
- What kind of strengths & weaknesses you have noted in EU's actions?
- Development ideas

Your overall opinion concerning the market deregulation.