Cross-border freight transport between Scania and West Pomerania

Opportunities, challenges and recommended measures

TENTacle WP 2.2

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Abbreviations

BSR	Baltic Sea Region
BSRP	Baltic Sea Region Programme 2014-2020
CNC	Core Network Corridor
FCEV	Fuel Cell Electric Vehicle
GDP	Gross Domestic Product
LBG	Liquefied Biogas
LNG	Liquefied Natural Gas

1. Introduction

TENTacle is a project with partners from 9 different countries in the Baltic Sea Region. TENTacle looks at the TEN-T connections across these regions and how regions can take advantage of the EU transport policies within the framework of the TEN-T core network corridors (CNC). TENTacle covers seven pilot cases representing (1) the corridor node and transit areas (located along a CNC), (2) the corridor catchment areas (located in a close distance to one or a few CNCs) and (3) the corridor void areas (located farther away from the three CNCs).

As one of the seven case studies, this report focuses specifically on the sea connections between Scania and West Pomerania, from the ports of Ystad and Trelleborg in Scania to the port of Swinoujscie in West Pomerania (see Figure 1).

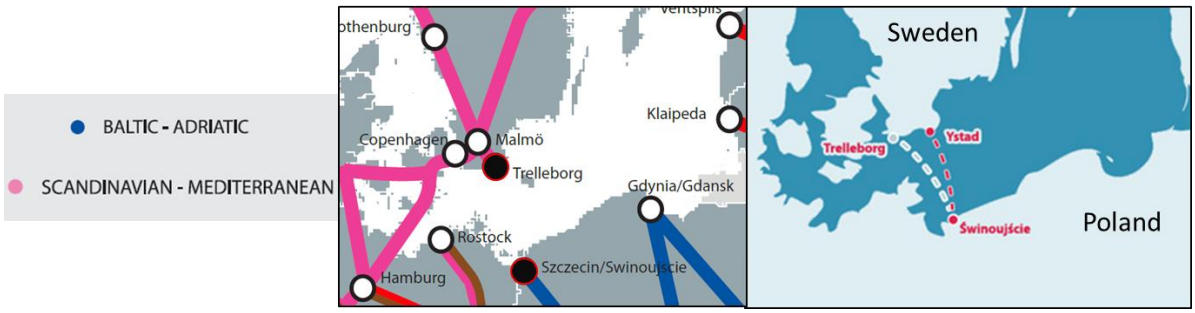

Figure 1 Area of study for project.

Source: European Commission & Unity Line

This particular transport link itself is not part of any existing CNC, although the Baltic-Adriatic corridor, which connects the north of Italy to the north of Poland, ends in Swinoujscie, and the ScanMed (Scandinavian-Mediterranean) corridor, which runs through the region of Scania, also includes Trelleborg. The sea connections between Scania and West Pomerania can thus be seen as an intersection between the two CNCs.

How this transport connection can benefit from the TEN-T network, and what additional opportunities and challenges are faced with regards to this transport connection is the focus of this report.

1.1 Aim of the report

The aim of this report is to describe the possibilities and challenges, as well as identify what measures would be required, to develop the Scanian – West Pomeranian freight transport link. Concerning transport infrastructure and logistic solutions the focus is on Ystad/Trelleborg – Swinoujscie. However, the report covers a vaster geography concerning trade, economic development and transport that affects the Scanian – West Pomeranian link. To describe possibilities and challenges, the following areas were focal points throughout the study and in this report:

- **Commerce**
  Trade development in the transport connection. What are the main markets that are served by this transport connection, and what are the projections for development in the future?
- **Transport logistics**
  Development of transport logistical solutions (how the freight is transported) for the transport connection. What are the main ways that the freight is transported today, both across the sea, and in the ports? How can/will this be developed in the future?
- **Environment**
  How can challenges with regards to reducing the environmental impact of the transport system (with a focus on CO_2 emission) be addressed?

The focus of this study is particularly the Swedish side of the connection, but where relevant, details of the Polish side are included. A similar study focusing on the Polish side of the connection is being performed as part of the TENTacle project.

1.2 Background

This report reflects work done as part of the TENTacle project. The TENTacle project is an Interreg (Baltic Sea Region) funded project which aims to improve stakeholder capacity to reap benefits of the core network corridors implementation for prosperity, sustainable growth and territorial cohesion in the Baltic Sea Region. One of the pilot showcases of the project is the West Pomerania-Scania connection which is the geographic focus of this report. The pilot showcase focuses on freight transport in the North-South direction; how the greening of transport can be implemented, and how to ensure corridor connectivity across the sea. An important part of this pilot is to strengthen stakeholder cooperation for this transport link.

This report will be used as preparation for two stakeholder workshops which will take place in the autumn of 2017. The first will take place in September, gathering Swedish stakeholders covering port representatives, industry representatives, transport companies, freight forwarders and public authorities. The second will bring together similar actors both from Scania and West Pomerania.

The content of this report will be presented and discussed with attendees to build stakeholder capacity and enhance stakeholder cooperation and territorial cohesion. The aim of both workshops is to:

- Create a joint understanding of what is meant by ”sea connection between Trelleborg/Ystad and Swinoujscie” and what place this connection has as part of TEN-T network and other freight transport activities in Poland and Sweden.
- Understand the stake different actors have in this connection, and how they are affected by it.
- Identify synergies and collaboration opportunities.
- Develop recommendations for further cooperation.
- Discuss how the implementation of the corridor impacts this connection.
- Make recommendations to EU on how to improve the performance of the corridor.

This report, as well as reports from the workshops, will provide input to the understanding of the freight corridor connecting Scania to West Pomerania, and what can be done to best take advantage of the implementation of the CNC to support prosperity, sustainable growth and territorial cohesion in the Baltic Sea Region.

1.3 Method

The aim of the study requires an understanding of the present and future situations of freight transport in the transport link between Scania and West Pomerania, but most importantly requires a serious analysis of this information to understand the implications. This analysis is both important and complex. This report builds on the work of several previous projects and reports which look at mapping the freight transport flows and future scenarios in the Scania region. The focus of this report has been to synthesise the main findings from these reports, complement with interviews and then analyse what the findings mean for the development for the Scanian-West Pomeranian freight transport link.

The following was done:

- **Literature review**
  A review of existing literature was made to find relevant information regarding the present and future trade, logistical and environmental challenges in the transport link between Scania and West Pomerania. The sources were from the grey (non-scientific) literature, with a focus on reports published by public authorities and consultants in Sweden, as well as resources from the European Commission and other Executive Agencies of the European Union. Sources were found with the use of search engines, and also through specific identification from those working on the project, and stakeholders that were contacted.
- **Interviews**
  The literature review formed the basis of the preparation of an interview guide, used to interview relevant identified stakeholders covering the public and private sectors including transport companies, trade representations, freight forwarders and port authorities. The interviewees were only from Sweden, given the Swedish focus of this study. A full list of interviewees is included in Appendix I. The interviewees were found based on existing contacts, the literature which was reviewed, as well as targeted searches for representatives from specific fields deemed of importance based on the aims of the study and review of the literature. The interviews were performed over the months of May-June 2017, and complemented where necessary with further literature.
- **Analysis**
  Following the literature review and interviews, analysis was performed in a joint workshop with four representatives from the consultancy company that authored this report (Emeli Adell, Anna Clark, Hannes Englesson, and Kristoffer Levin). During the workshop, the attendees went systematically through the gathered information and discussed the possibilities and challenges in developing the Scanian – West Pomeranian freight transport

link, as well as identified what measures would be required to develop the transport link. This workshop was held in June 2017. Following the workshop, 2 more interviews were made, which gave complementary information to the report and analysis.

- **Workshops**
  Two workshops were held on 11 September 2017 and 11 October 2017 both in Ystad. The first workshop included only Swedish representatives, while the second included Swedish and Polish participants and was held in English. Reports of the workshops are included in appendix. Following the workshops, the draft report was altered to reflect the discussions and input from workshop participants.

The work was led and performed mostly by Trivector, with representatives from Region Skåne involved throughout the project, primarily through a start-up meeting, regular update meetings by phone/email and quality control of the report.

1.4 Target group

This report will be used as a basis for a report to be written by Scanian and Polish partners in the TENTacle project. The primary target group of this report is therefore partners of the TENTacle project, particularly those involved on the pilot showcase studying the West Pomerania-Scania freight transport link.

The secondary target group of the report is the target group of the report drafted by Polish partners to which this report will provide input. This target group is primarily the public authorities in direct connection to this transport link (on local, but especially regional levels) as well as the European Commission. Other target groups include stakeholders of the transport link, although these stakeholders will primarily be communicated with through workshops, rather than through this report.

2. Commerce

2.1 Why is commerce important for this project?

Commerce across national borders drives the international freight transport market. In order to understand freight transport in the transport link between Scania and West Pomerania, it is necessary to look at trade patterns on the European and international levels and the resulting freight flows across the link. This chapter gives an overview of the historical development, situation today and forecasts for trade and the resulting freight transport that is likely to use this connection.

2.2 The transport geography

Freight routes are a part of a complex system and the routes are affected by many different factors, including geography, infrastructure, taxes, etc. It is not possible to provide a comprehensive picture of transport flows between Scania and West Pomerania because this would require an exhaustive knowledge of all the routes the goods take from origin to destination (for example Beijing to Haparanda), and this is not available.

Based on literature and interviews with port representatives, a summary of the main trade routes thought to affect the transport link has been mapped out, as shown in Figure 2. The map shows which transport routes (the narrow lines) affect the connection between Scania and West Pomerania (the thicker line). In other words, the figure maps the geographic hinterland for the ferries[1].

A study carried out by the Swedish Transport Administration in 2006 showed that approximately 70 percent of all trucks using the ferries from Scania to Swinoujscie had Poland as point of origin and destination.[2] The trends show that today there is still a strong market with Poland. However, it is worth to point out that of the trucks heading towards Poland increasingly also have destinations beyond Poland's borders[3].

Interviews with port representatives in Scania give a picture of an increasing volume of longer-distance freight transport, using Poland and the southern Baltic Sea as a transit area. The link serves transport from central and Eastern Europe, the Balkans, Turkey, Russia and China. It is thought that improved standards of Polish infrastructure combined with road user charging for freight in Germany has shifted some of the freight flows towards the east of Europe. This picture was also confirmed by workshop participants: there seems to be a clear trend that freight flows on the link are continuously increasing.

[1] *The map is generalised and does not claim to show a full picture, and the thickness of the lines are not proportional to the transport flows.*

[2] *Trafikverket 2006. Bearbetat av Ramböll 2013.*

[3] *A report will be published by the Swedish Transport Administration with new statistics, which are currently being collected.*

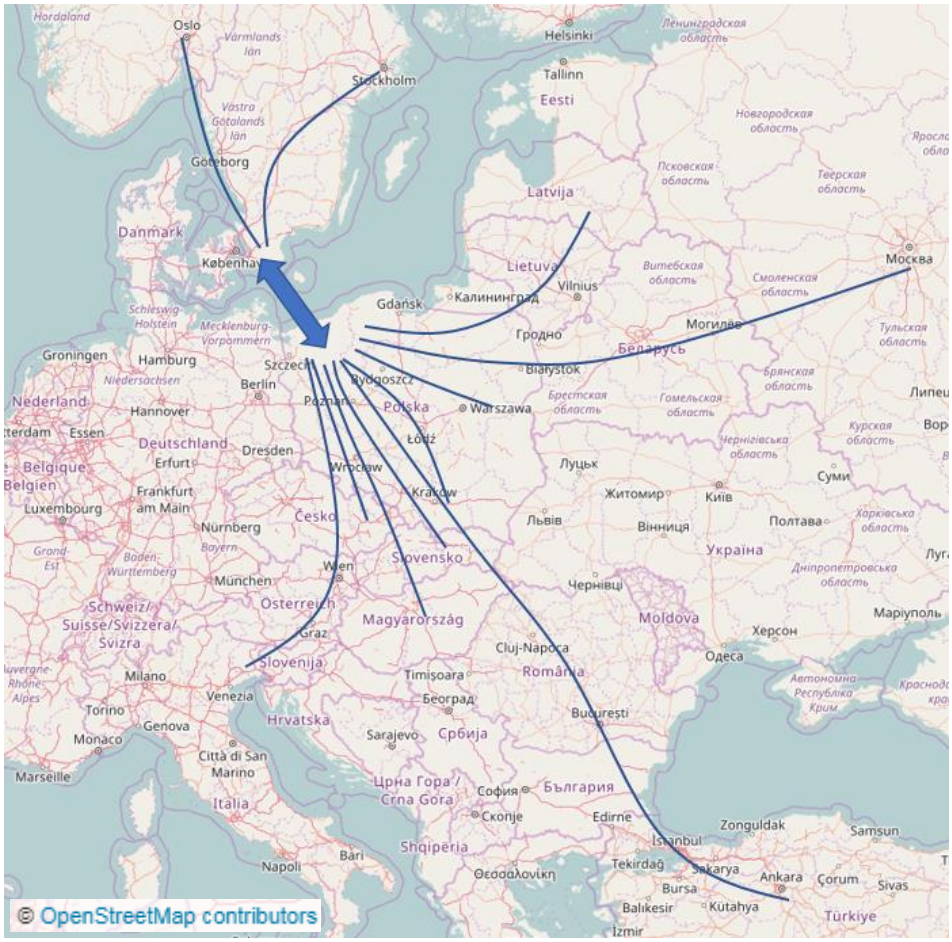

Figure 2 Map of the principle role of the transport connection with respect to European and global transport flows.

Source: own production based on interviews and literature.

2.3 Commerce affecting the link Scania-West Pomerania

2.3.1 Polish and eastern European economic development in relation to the EU

Economic development and commerce are closely intertwined. Increased economic development, indicated with a measure of GDP, has historically been positively correlated with freight volumes[4]. Today this connection between GDP and freight is being questioned (this is discussed more in depth in chapter 5), but it is generally recognised that GDP is still an important indicator to review when

[4] *EEA (2016). Freight Transport Demand.* https://www.eea.europa.eu/data-and-maps/indicators/freight-transport-demand-version-2/assessment-6

studying freight volumes. Looking at changes in GDP are likely to reflect similar changes in freight volumes. We focus on changes in GDP of the countries in the EU, with a focus on Poland and Sweden.

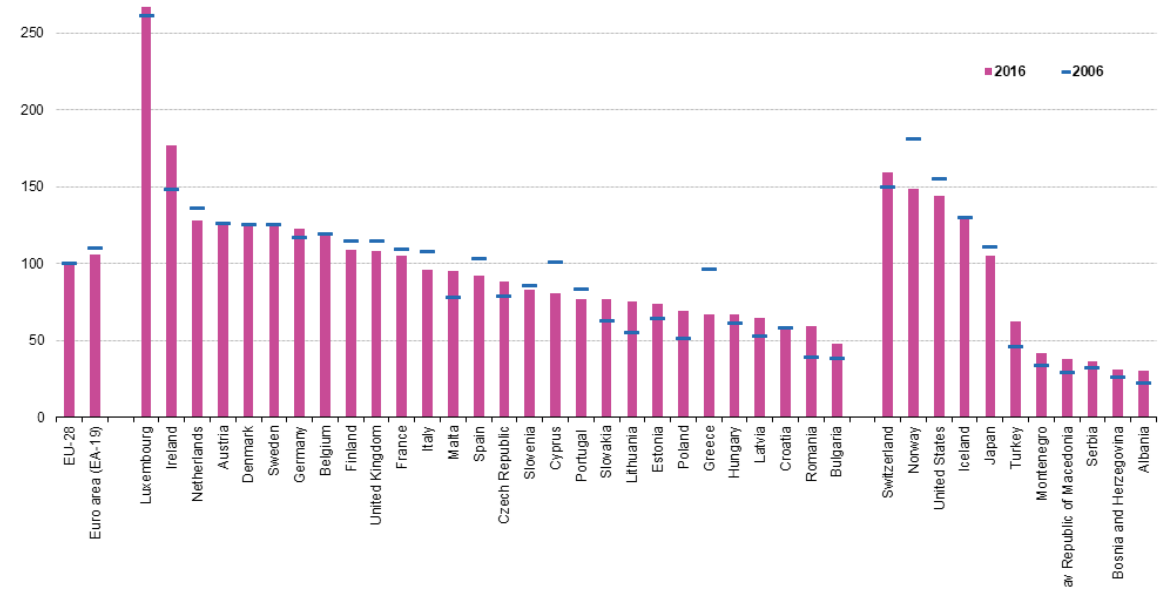

Figure 3. GDP per capita 2006 and 2016.

Source: Eurostat

Looking at the changes in GDP in European countries, we can see a persistent and strong increase for Poland compared to the EU average[5,6] The economies in countries like Poland, the Czech Republic, Slovakia, Hungary, Bulgaria and Romania (for which freight uses the Scanian-West Pomeranian transport link) still have a large growth potential before they reach the same levels of prosperity as western Europe.[7] Poland is especially important due to the fact that it is a large country, the sixth biggest country in EU in population[8], and the tenth biggest economy[9]. IMF World Economic Outlook foresees an overall GDP increase in the emerging and developing countries in Europe, among others Poland, of 3.2% annually or more than 20% increase in the period 2015-2021. In the same period, an annual GDP increase of 1.9% is foreseen for the 28 EU Member States.[10]

2.3.2 EU Commerce with Sweden becoming stronger in Eastern Europe

Developments are noticeable in Sweden's trade exchange, which is increasing faster with eastern than Western Europe, though from a lower level. Over the past ten years, Poland has surpassed both

[5] *Eurostat (2017). National accounts and GDP - Developments in GDP http://ec.europa.eu/eurostat/statistics-explained/index.php/National_accounts_and_GDP#Developments_in_GDP*

[6] *Eurostat (2016). GDP at current market prices, 2005 and 2013–2015 YB16: ec.europa.eu/eurostat/statistics-explained/~*

[7] *Interview with Per Tryding, Chamber of Commerce and Industry of Southern Sweden, 2017-05-31.*

[8] *http://ec.europa.eu/eurostat/tgm/table.do?tab=table&language=en&pcode=tps00001&tableSelection=1&~footnotes=yes&labeling=labels&plugin=1*

[9] *International Monetary Fund, World Economic Outlook Database, October 2016 edition*

[10] *Kyster-Hansen, 2017. Analysis of Potential Development for Strategic Freight Hubs, Scandria 2act.*

Italy and Spain as trade partner with Sweden. At the same time, the Czech Republic, Hungary, Slovakia, Romania, and Ukraine have all surpassed other western European countries in terms of increased trade with Sweden. All of this indicates that trade volumes to Sweden are becoming stronger from Eastern Europe. There is every indication that this trend will continue in the future. The development is visualised in Figure 4 and Figure 5.

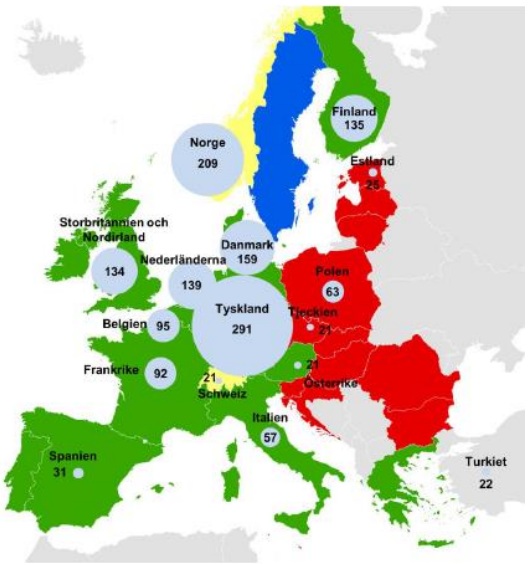

Figure 4. Foreign trade in goods 2013, exceeding SEK 20 billion

Source: SCB

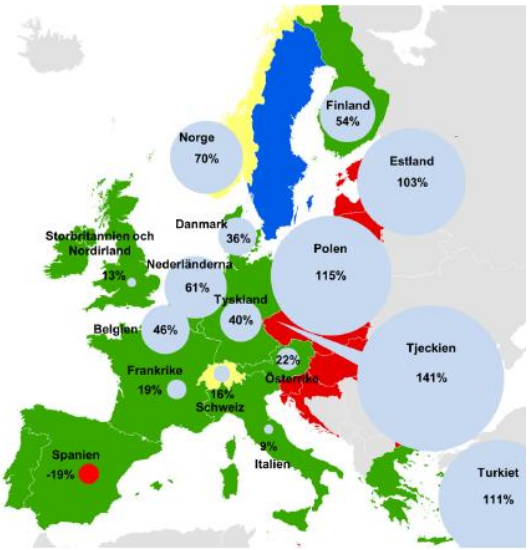

Figure 5. Relative change in the value of foreign trade with goods, exceeding SEK 20 billion, 2003-2013

Source: SCB

The current trend shows a similar increase in trade with Germany as with Poland, which could be an indicator of the western economies recovery after the financial crisis in 2008-2009. What is also important to note, in a comparison between Poland and Germany, is that the total increase in trade with Germany has been larger; trade with Germany increased with 116 billion SEK 2003-2013, while the trade with Poland increased with 75 billion SEK during the same period.[11] So even if the trade with central and Eastern Europe are becoming stronger, countries in Western Europe still maintain a position as the most important trading partners for Sweden.

2.3.3 Goods and trade balance Eastern Europe-Sweden

The trade balance between Sweden and countries in central and eastern Europe are somewhat uneven, with trade of (and freight) flowing mainly to Sweden. The import-export balance in trade with goods between Sweden and south-eastern Europe, including Poland, Czech Republic and the Baltic countries, are 57-43 in weight and 61-39 in value.[12] Studying Swedish import from and export two Poland during the last 20 years however show that trade balance is fluctuating between years and overall are quite even.

Figure 6. Swedish import from and export to Poland 1995-2016. Thousands of tonnes.

Source: SCB

Although there are few studies on the topic, there is an indication that production has been transferred in the past from Sweden to Poland and other central and eastern European countries due to low wages and continues to do so[13]. This is supported by increased trade in consumer products,

[11] *SCB*

[12] *Trafikanalys, Varuflödesundersökningen 2016*

[13] *Lenartsson & Lindholm (2005). Utflyttning av produktion inom den svenska industrin. SCB Rapport.* ***And*** *Interview with Liane Ask, Sveriges åkeriföretag, 2017-06-02*

such as clothes, consumables, electronics etc.[14]. However, trade in this type of goods is about the same in both directions.[15] It can be expected that, with Sweden being an important raw material producer and with a growing consumption market in Poland due to increased economic development, the trade balance is likely to switch in the future.

2.3.4 Trade with China and Russia

China is now the EU's second biggest trading partner behind the United States, and the EU is China's biggest trading partner.[16] Figures on trade between the EU states and China show a continuing increase over the last ten years, see Figure 7. For Sweden, China is the largest trade partner in Asia with 83 billion SEK in 2013 (an increase with 155 % 2003-2013).[17] I comparison, trade with Germany in 2013 was 291 billion SEK (see Figure 4). Different forecasts on economic development (IMD; WEO) show somewhat different figures, but concerning China and other Asian countries there is an almost certain GDP growth to be expected (3,5-6,5 %)[18],[19]. EU-China trade was valued in 2014 to more than $ 600 billion and is expected to reach 1 billion dollars in 2020.[20]

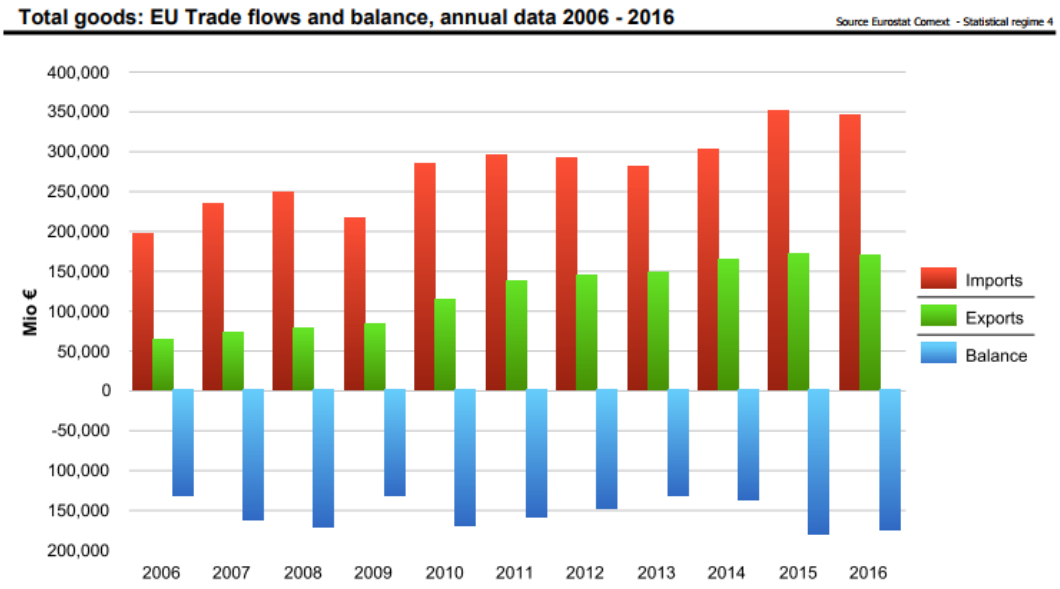

Figure 7. European Union, Trade with China.

Source: Eurostat

[14] *Interviews with Björn Boström, Ystad Hamn, 2017-06-07 and Per Tryding_Sydsvenska handelskammen_2017-05-31*
[15] *SCB*
[16] *http://ec.europa.eu/trade/policy/countries-and-regions/countries/china/*
[17] *Kyster-Hansen 2017. Analysis for strategic potential freight hubs. Scandria 2act.*
[18] *http://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx*
[19] *WEO annual GDP increases 2015-2021*
[20] *http://news.xinhuanet.com/english/2015-03/01/c_134027123.htm*

When it comes to trade with Russia, the picture is somewhat different. EU trade with Russia was increasing until 2011, but has stagnated over recent years, see Figure 8. This is most certainly a result of the current trade restrictions.

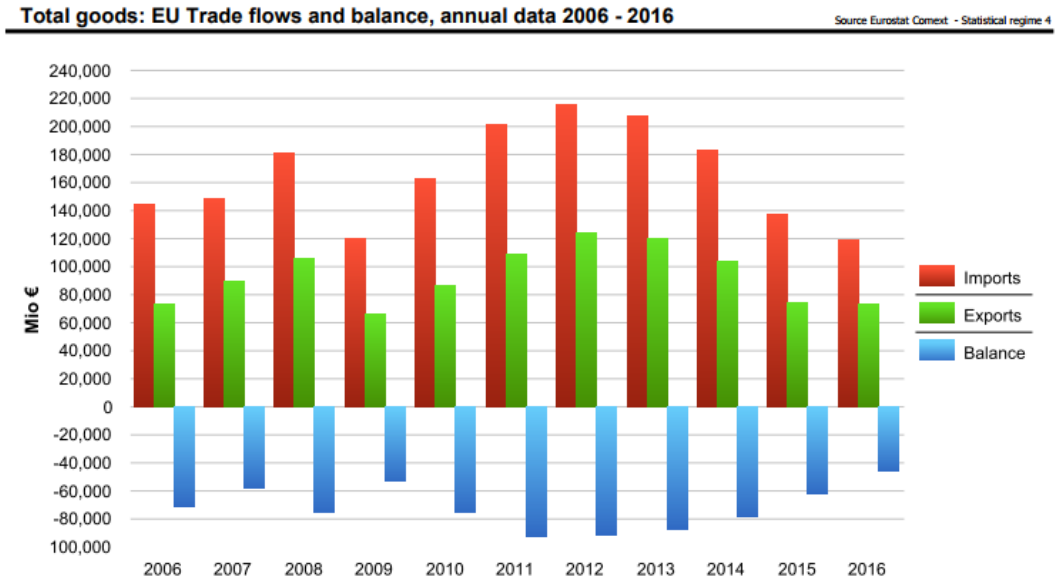

Figure 8. European Union, Trade with Russia.

Source: Eurostat

Forecasts are by their nature uncertain. High levels of uncertainty with regard to trade flows are due to, amongst other things: political uncertainties, lack of dialogue between the EU and countries outside of Europe, trade restrictions and protectionism. Examples of the uncertainties include:

- Trade with Russia is currently affected by trade embargoes. Nevertheless, there is an immense potential for trade with Russia and the other countries in the Eurasian Economic Union (EAEU) – Armenia, Belarus, Kazakhstan and Kyrgyzstan.[21] . Reduced economic growth in Russia may also have a negative effect on countries that have strong links with Russia in terms of trade and energy supply, such as Finland[22].
- Ukraine is another country with a large potential in trading with the EU. The country has worked on a trade agreement with the EU. However, this has been put on hold due to internal problems in the country.
- Turkey is an important transit region for rail transport between China and Europe (see below), but trade with Turkey may be affected by the growing political disagreement with the EU countries.

[21] *For more info see: Kyster-Hansen 2017. Analysis for strategic potential freight hubs. Scandria 2act. P. 64-66.*

[22] *http://gamla.vastranyland.fi/2014-03-25/584826/vaxande-osakerhet-handeln-med-ryssland*

- With regards to trade with China, uncertainties mostly relate to protectionism and strong government intervention in the Chinese economy.

2.4 Trends and forecasts in freight transport affecting the transport link

The previous chapter noted that the economies and the trade that affect the Scanian-West Pomeranian transport link have been growing, and that current forecasts indicate continued strong increase in trade, even though there is some uncertainty. This is also reflected in the development of freight transport.

The strong development of trade between Sweden and Poland (and other central and eastern European countries) is reflected in growth witnessed at the ports. Ystad, as well as the ports of Blekinge, Karlskrona and Karlshamn, which all connect with Poland, have had a strong development (in terms of weights and units) since 2006, see Figure 9. The number of trailers on the ferries between western Poland and Scania have seen a steady increase, only partially affected by the economic decline in 2008-2009.

Two important studies which have tried to identify and forecast freight flows through this link are the Baltic Transport Outlook (BTO) 2030 and the Swedish Transport Administration's forecast. BTO is a macro regional study covering the whole Baltic Sea Region. Both forecasts build their models on assumptions on demography, economic growth, international and national transport policies and infrastructure development.

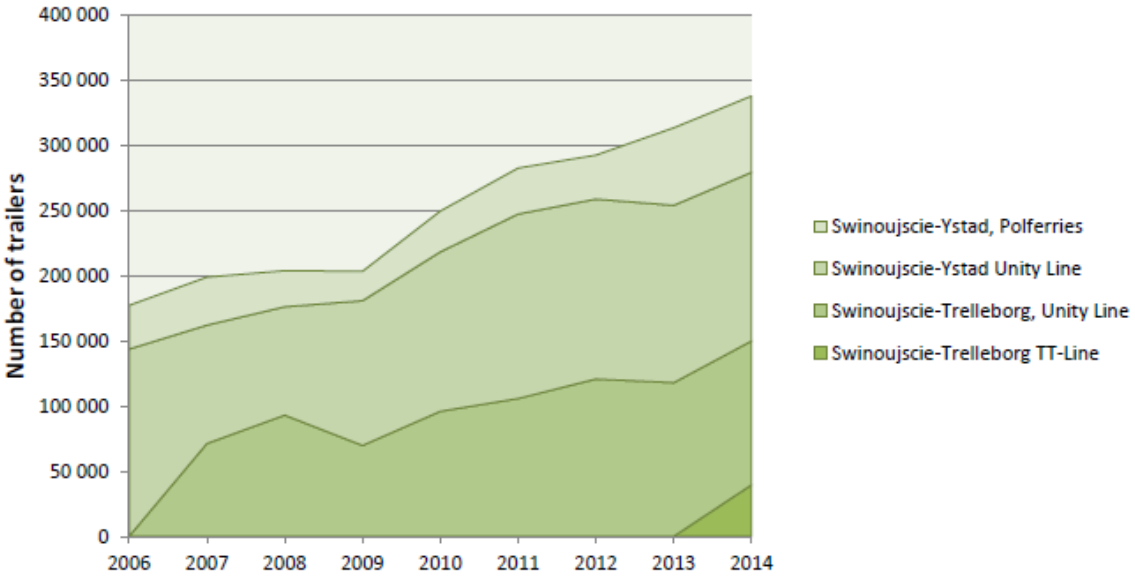

Figure 9. Total number of trailers Western Poland -Scania, 2006-2014

Source: Kyster-Hansen 2017. *Analysis for strategic potential freight hubs. Scandria 2act*, Shippax and Ports of Sweden.

BTO does give not any forecasts on specific links, but shows an expected increase in transport in the Baltic Sea countries. Among the Baltic countries, the rate of freight traffic will increase most significantly in Russia and in the eastern Baltic States. A big increase is also expected in Sweden, due to increased raw material production. Measured in tonnes, the biggest increase will be in Russia and Sweden, see Table 1.

Table 1. Relative change in the value of foreign trade with goods, exceeding SEK 20 billion, 2003-2013

Source: BTO Forecast 2030

Country	Volume 2010, (M. tonnes)	Volume 2030 (M. tonnes)	Volume change, 2010-2030 (M. tonnes)	Volume change, 2010-2030 (%)
Finland	98.4	125.3	26.9	27.4
Estonia	37.1	38.7	1.6	4.4
Latvia	61.5	75.4	13.8	22.5
Lithuania	38.0	44.7	6.8	17.9
Russia	171.6	243.8	72.2	42.0
Poland	48.8	73.0	24.3	49.9
Germany (Baltic Sea)	56.0	68.1	12.1	21.6
Denmark	69.6	86.4	16.8	24.2
Sweden	154.8	201.9	.47.0	30.4
South Norway	21.5	27.5	6	27.9
Total	757.1	984.8	227.5	30.1

The Swedish Transport Administration's forecast, for the period 2014-2040 shows an expected increase of 92 % of freight flows in Ystad and 20 % of freight flows in Trelleborg.[23]

Several operators run railway transport from China to Europe, and believe in a continued increase in freight through this connection. Railway freight transport from China to Europe moves along several routes (see Figure 10). Currently the highest volumes can be found on the new silk route that passes through Turkey (since it is a more established route). However, with increasing demand, it is expected that other routes will be used more.

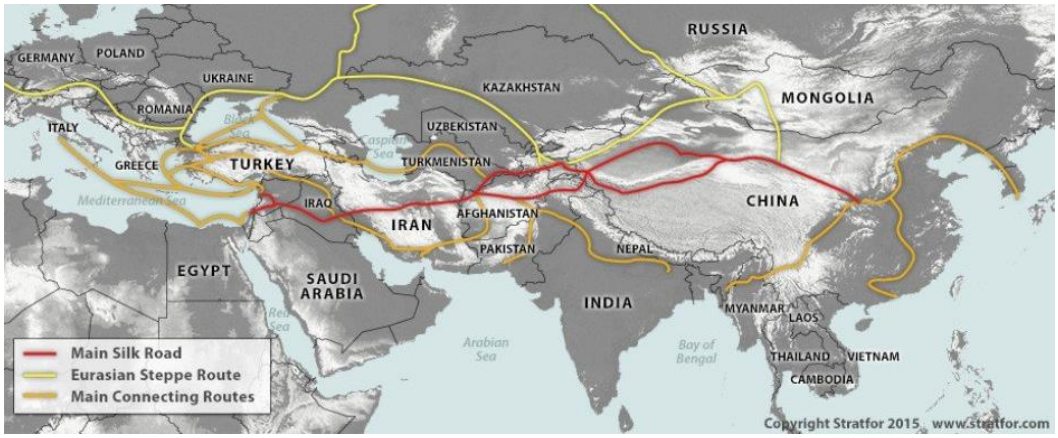

Figure 10 New China Silk Route showing main rail routes between China and Europe.

Source: Business Insider[24]

Exact data on lead times and costs for shipping versus rail freight between China and Europe are not available. An estimate, however, is that shipping takes between 30 and 40 days, depending on how long the goods are stored in the port before shipment.[25] In comparison, rail transport takes 14-20 days.[26]

2.5 Analysis

The findings from the above sections on transport, commerce and economic development, and what they mean for the Scania-West Pomerania link, are summarised in Table 2. An important conclusion is that economic development is, and will remain, strong in Poland, as well as in other eastern and central European countries. These countries are the ones that have the greatest impact on trade flows affecting the Scanian-West Pomeranian transport link and thus, the GDP and trade growth most certainly will result in continued freight flows in this link. Today the connection between economic development and freight is being questioned. It is also important to try and actively break the connection, since it is preferable that economies can grow without increased freight, since freight is

[23] *Prognos för godstransporter 2040. Trafikverkets Basprognoser 2016*

[24] *http://www.businessinsider.com/chinas-new-rail-projects--like-building-a-railway-across-latin-america--will-have-global-implications-2015-5?r=US&IR=T&IR=T*

[25] *http://www.scandinasian.se/importguiden/frakt-kina/*

[26] *http://www.transportochlogistik.se/20161228/2939/godstag-mellan-kina-och-tyskland. And: http://www.jarnvagsnyheter.se/20170210/6000/forsta-godstaget-fran-kina-anlander-till-london*

coupled with negative environmental impacts. In the data presented here, it seems that trade has however been coupled with increased freight transport, and particularly increased road freight transport in the link under question (see also chapter 3). At the same time, an increase in freight transport on the link can be seen as positive since it allows for larger volumes, and the possibility to invest in multi-modal transport solutions that are not warranted in cases with lower freight flows.

Although the overall conclusion is a continued increase in transport, the rate of growth rate may be affected by different factors. Among these can be mentioned competition, new logistics solutions and financial instruments for de-carbonisation.[27] These factors will be developed more in the following chapters, while some of them are mentioned below.

Table 2 Summary of findings, and what they mean for freight transport in the link.

FINDING	WHAT DOES IT MEAN FOR SCANIA-WEST POMERANIA LINK?
Polish and eastern European economic development increasing	More commerce and therefore more freight transport from Poland to Sweden
Continued strong trade flows and Poland – Sweden	Increased freight transport from Poland to Sweden
Commerce with Sweden becoming stronger in eastern Europe	More commerce and therefore more freight transport from Poland to Sweden. Likely more freight flows through existing ports in the link Poland-Sweden
Increase in longer distance freight (Russia / China / Turkey)	More freight transport on the link

2.6 Challenges

The main challenge with respect to trade is the uncertainty of the forecasts. Many factors far beyond the control of stakeholders related to the Ystad/Trelleborg – Swinoujscie transport link can affect trade and transport flows. This is particularly true for freight flows originating from Russia. Continuing protectionism and trade restrictions can dampen economic development and thus also the growth of transports. At the same time, Russia's impact on the Scanian-West Pomeranian transport link is in this context relatively small.

Major global events such as war, depression, natural disasters, lack of natural resources etc. can also affect trade, but this is difficult to predict.

[27] *In the project TransBaltic, different scenarios for the Baltic Sea Region were carried out, about the effects that environmental concern, rivalry etc. can cause om the transport development. For more facts about these scenarios, see http://transbaltic.eu/wp-content/uploads/2012/01/TransBaltic_forecast_and_scenarios_for_BSR%20_Corridor_flows_2030.pdf.*

Another challenge for trade relates to international policy and political priorities that are implemented at national level but which can affect freight transport. For example, road pricing in Germany can impact which route trucks take – avoiding Germany and increasing freight flows through Poland.

Additionally, with continued increase in freight flows through the West Pomeranian – Scanian link, there could be problems of capacity, and existing bottlenecks becoming worse, or new bottlenecks appearing. This will be developed further in chapter 3.

2.7 Possibilities

There is a continued strong development of the economies and trade with Poland, Eastern Europe and China. This means a likely continued increase of freight flows through the transport link between West Pomerania and Scania. This provides possibilities for the ports, and for improvement and greening of the link, as well as economic development in both Sweden and Poland.

3. Transport logistics

3.1 Why is transport logistics important in this project?

Transport logistics is about moving things from point of origin to destination. This chapter focuses on how freight is moved through the transport link connecting West Pomerania to Scania. This is important because *how* the goods are moved impacts the smooth functioning of the freight transport link as well as the environmental impacts of freight transport.

3.2 Transport logistics in the link Scania-West Pomerania

The focus is on the transport possibilities in the three ports, Ystad, Trelleborg and Swinoujscie – what infrastructure is available for transport connections to the ports and what kind of freight is predominantly transported in the connection. The focus is on the current state of the ports as well as possible future developments.

3.2.1 Description of the ports

In all ports covered in this study, the dominant freight transport mode is trailer transport by road, although all three ports also handle railway transport. The trailer transports have been steadily increasing over the past years. On the other hand, railway ferry transport through the ports has been steadily decreasing over the past years (see figures from Ystad, Figure 11).

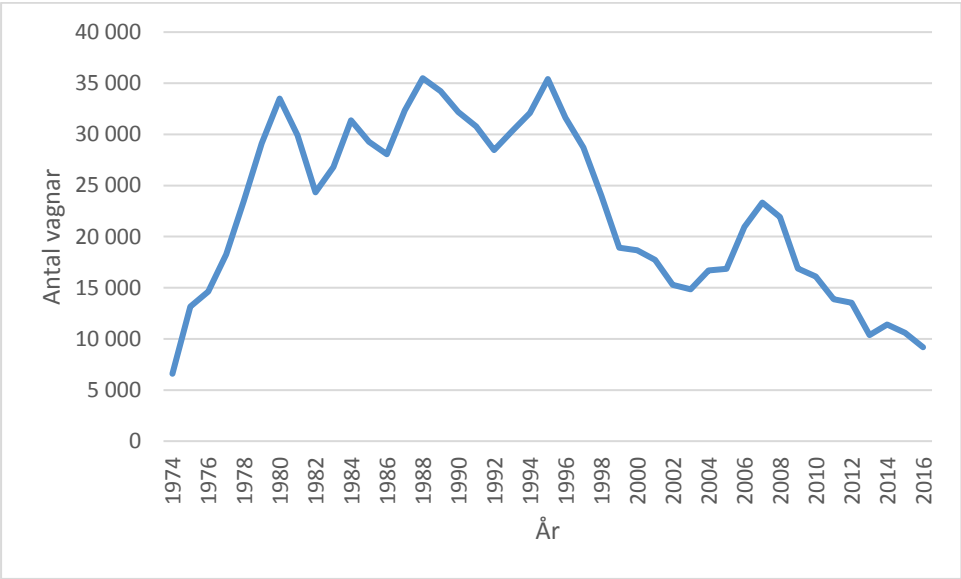

Figure 11 Number of wagons through Ystad port per year.

Source: Ystad port statistics

There are investments planned for all of the ports, and the shipping companies that serve the ports plan to increase the size of their ferries when they buy new stock in order to handle increased capacity. At the same time, there are questions as to whether the new ferries will be railway ferries or not. An example of increasing capacity in future plans is in Ystad port where a new dock will be finished in 2019/2020 in which ferries up to 240m and 9m depth can dock (compared to 170m and 7.2m today)[28].

A combi-terminal allows freight to be loaded from road to rail (and vice versa). This can either be done by lifting and transferring containers or by lifting trailers onto the train carriages. The RoRo ferries (in this case also railway ferries) that operate from the port can carry trailers, train carriages (there are train tracks inside the RoRo ferry) or cassettes. Combi terminals are found in the ports of Trelleborg and Swinoujscie, whereas Ystad port lack the possibility to handle this kind of intermodal transport. The port of Swinoujscie is connected with the Odra river and thus have the possibilities of inland waterways.

A summary of the transport logistic facilities available in the ports is summarised below in Table 3.

Table 3 Overview of logistic solutions available in ports

PORT	COMBI-TERMINAL	ROAD	RAIL	RAILWAY FERRY	INLAND WATERWAY
TRELLEBORG	✓	✓	✓	✓	
YSTAD		✓	✓	✓	
SWINOUJSCIE	✓	✓	✓	✓	✓

3.2.2 Transport connections to ports

An overview of the connections to the ports, and the capacity issues for road and rail are summarised for the Swedish ports in Table 4.

In Swinoujscie, there are road, rail and inland waterway connections directly to the port. There is more information on Swinoujscie available in a report delivered by West Pomerania region to the TENTacle project[29]. It is important to note that the focus for the West Pomeranian stakeholders is primarily on connections to Swinoujscie via waterway (lagoon between Swinoujscie and Szczecin, as well as inland waterway connecting hinterlands via Odra river), and on Szczecin as the main port

[28] *Interview with Björn Boström*

[29] *A set of analyses of transport and logistic functions of the Lower and Central Oder as a part of the core network corridor TEN-T. dr Michał Wolański, dr Bartosz Mazur, Wiktor Mrozowski, Mateusz Pieróg. TENTacle WP 2:2 report August 2017.*

in the region rather than Swinoujscie. More details can be found in the report as well as workshop report available in appendix.

Table 4 Overview connections and capacity issues to Swedish ports

PORT	ROAD	RAIL	INLAND WATERWAY
TRELLEBORG	Capacity problem on motorway E6 connecting to the north of Sweden.	No current problems with capacity in the railway connecting the ferries in Trelleborg.	No inland waterway
		Forecasts of public transport on railway in Skåne causing capacity problems on Trelleborgsbanan and the southern Swedish main trunk railway (Södra stambanan).	
		Capacity problem at the railway yard in Malmö where trainsets are coupled.	
	Capacity problems at ferry berths, when road and railway tracks are crossing.		
YSTAD	Capacity problem on road through the town (Dragongatan).	Capacity problem at the railway yard in Malmö where trainsets are coupled.	No inland waterway
	Level crossing from the main train station in the city cause delays whenever new trains arrive or depart.	Forecasts on public transport on railway in Skåne casing capacity problems on Trelleborgsbanan and the southern Swedish main trunk railway (Södra stambanan).	

3.2.3 Type of goods

There is a large amount of uncertainty as to the types of goods that are transported on this transport link. The port authorities do not collect information on this, and it is difficult to know what is inside a container or trailer. Given that the speed of transport and delivery is neither very fast (i.e. by plane) nor very slow (i.e. by container ship), it is thought that the goods are primarily “middle-class” goods comprising of consumer products including electronics, clothes, etc. This assertion is supported by several of the interviewees.

A couple of trends are noted, that are general trends concerning freight transport and that affect the Scanian-West Pomeranian transport link:

More units, less bulk.

It is a widely recognised and a global trend that more and more goods are transported in units, that is containers, trailers, cassettes, etc. For the maritime and global transport, the trend is symbolised by the container. Container transport has enabled freight transport to be more flexible. One example is

the Maersk concept, offering both big and small transport buyers the possibility to buy transport in different quantities, from a small part of a single container, to several containers.[30] Following this trend, a steady increase in trailers is also noted in Swedish and European freight transport patterns.[31]

The trend towards freighting more cargo in containers or on trailers is shown in the figure below, showing cargo (in weight) in Swedish ports 2003-2013. The graph shows a slight increase of the share of containers. It should also be noted that all cargo cannot be loaded in containers or trailers (for example industrial products as wood, iron ore and oil).[32]

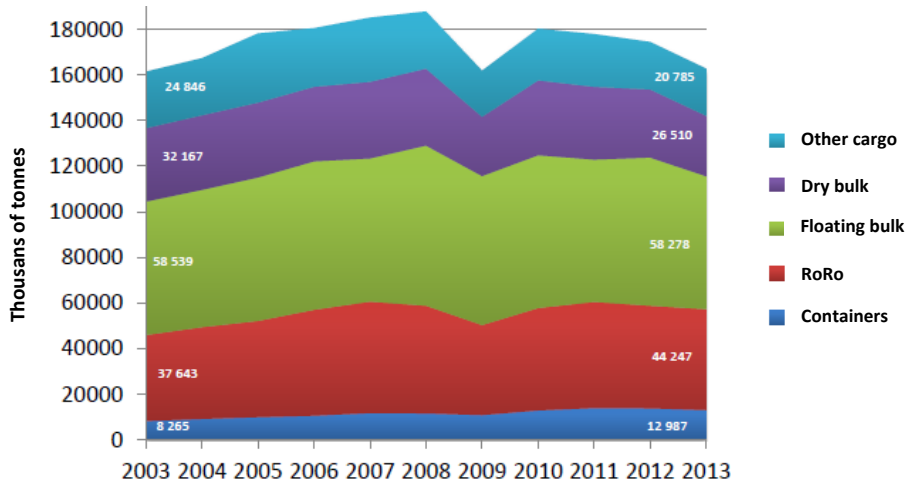

Figure 12. Cargo (thousands of tonnes) in Swedish ports 2003-2013.

Source: Trafikanalys/Ports of Sweden

Looking at Scanian ports, current forecasts show an increase in Roro and container goods, on a bigger scale than bulk (see the Baltic Transport Outlook forecast for Scanian ports in 2030 in Figure 13).[33]

[30] *Interview with Per Tryding, south Swedish chamber of commerce, 2017-05-31*

[31] *For more information see;*
Ramböll 2015. Deskriptiv analys av godsflöden i Skåne.
Trafikanalys. Godstransportflöden -Analys av statistikunderlag Sverige 2012-2014. Rapport. 2016:9.
Sjöfartsverket 2016. Analys av utvecklingspotential för inlands- och justsjöfart i Sverige.

[32] *Trafikanalys. Shipping goods 2016. 2017-05-29.*

[33] *For more information, see Baltic Transport Outlook 2030, https://www.yumpu.com/en/document/view/33902416/executive-report-final-version-baltic-transport-outlook-2030*

Baltic Transport Outlook 2030, Scania coastal region	Containers	Dry Bulk	Liquid Bulk	RoRo trailers	RoRo other	Other traffic	Total
Volume 2010, million tonnes	2,00	5,20	4,20	23,60	0,75	1,20	36,95
Scenario for 2030, million tonnes	4,00	7,40	3,40	44,00	1,50	1,60	61,90
Increase in %	100%	42%	-19%	86%	100%	33%	68%
Scenario for the Macroregion, increases in %	138%	42%	-7%	93%	47%	32%	30%

Figure 13. Sea freight Scenario for 2030 Scania Region ports

Source: Baltic Transport Outlook 2030

Reduction in use of railway ferries

The railway ferries to Trelleborg and Ystad are facing a steady decline, both in total units and in relation to the trailer traffic, see Figure 14. It is important to emphasise that it is primarily traditional rail cargo that are facing a declining trend, while combi-rail transport increases.[34] This trend is more apparent in Trelleborg and Ystad than in general. The cross-border railway traffic, which has previously mainly used the railway ferries, has moved instead to using the Oresund Bridge.[35]

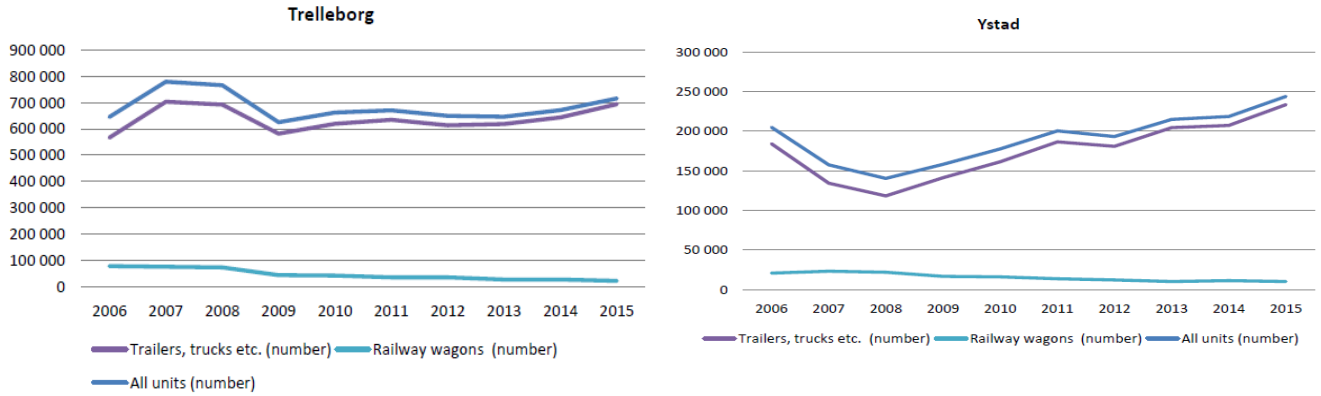

Figure 14. Number of trailers and railway wagons in Ystad and Trelleborg, 2006-2015

Source: Eurostat

Intermodality

Freighting the goods in units means that the goods can be transported intermodally, with one cargo carrier on several different vehicles. It is difficult to estimate the proportion of intermodal transport, since the statistics are divided into different modes of traffic. Therefore, it is not possible to obtain a

[34] *More on this can be read in Trafikanalys: Godstransportflöden -Analys av statistikunderlag Sverige 2012-2014. Rapport 2016:9.*
[35] *Ramböll 2015. Deskriptiv analys av godsflöden i Skåne.*

comprehensive picture of the combinations used in intermodal transport chains. For the transport link Scania-West Pomerania, the most interesting intermodal solution is the combination road-rail. Intermodal terminals can be placed inland (dry ports) or in the ports, lifting trailers onto railway wagons. Currently, these solutions are rarely used in the link.

Lack of drivers

There is a lack of drivers to drive trucks, mainly in Sweden, but also to some extent in Poland. This was brought up by several workshop participants during the Swedish stakeholder workshop.

E-commerce

E-commerce requires a different way of thinking compared to traditional logistics. The types of freight that this sector will provide is yet unknown and it is hard to tell in what way it can affect the transport flows in this connection.[36] However the topic was brought up by several interviewees who believe that e-commerce will also affect transport flows on this link, and thus this topic should be monitored.

3.2.4 Different modes and their relative competitiveness

There is little doubt based on the findings in the literature and expert interviews that road transport is still relatively cheap and flexible, and the low price makes road more competitive over rail. Here we look at why this is the case today covering:

- Differences in wages between countries
- Inefficiency in railway network
- Perceived unreliability of railway network
- Lack of intermodal logistics solutions
- Competition for capacity between passenger and freight transport

In the Scania – West Pomerania link this is compounded by the fact that wages in Poland are low, thus Polish truck drivers who drive in Sweden make rail transport even less competitive compared to road. As seen in the figure below, the medium wage in Sweden is between 2-3 times higher than in the countries in eastern and central Europe that are of importance for the Scania – West Pomerania link and where many of the drivers are located (Poland, but also Hungary, Slovakia, Romania, Bulgaria).[37] For a Swedish haulier with Swedish workers, it is today hard to compete on cross-border market for road transport.[38]

[36] *Ramböll 2015. Deskriptiv analys av godsflöden i Skåne.*
[37] *http://ec.europa.eu/eurostat/statistics-explained/index.php/Wages_and_labour_costs/sv*
[38] *Interview with Liane Ask, Swedish hauliers, 2017-06-02*

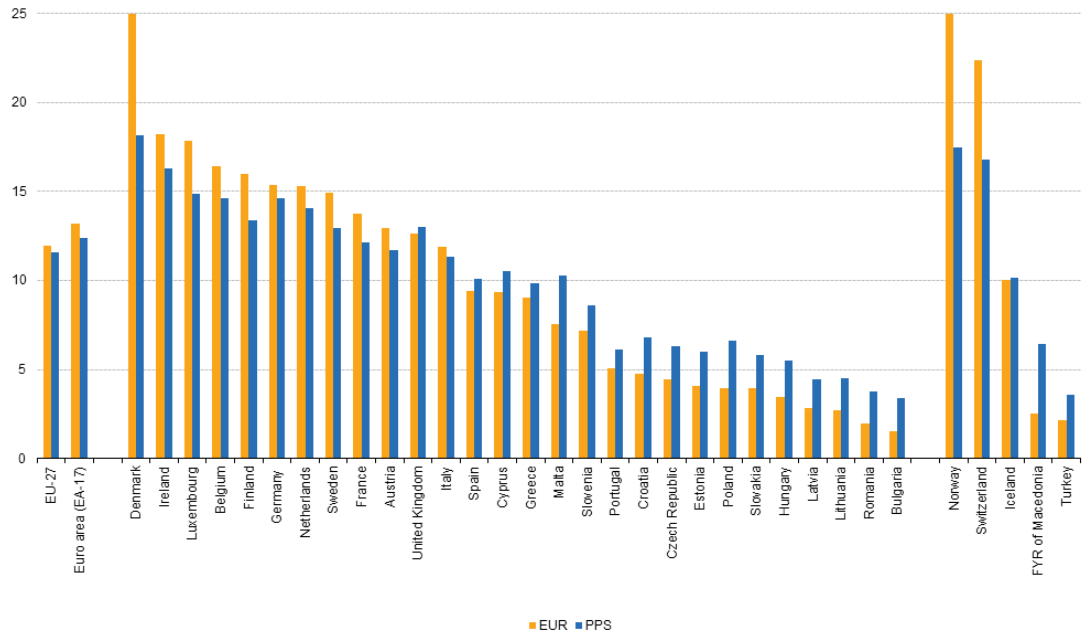

Figure 15. Median wage (gross), all employees (do not include apprentices), 2010. PPS= purchasing power standard.

Source: Eurostat

Additionally, railway transport faces a number of disadvantages. Some of these are specific to the Scania – West Pomerania link. For example, railway logistics is today inefficient in Poland with long lead times, and this reduces the competitivity for rail transport in the country. A relatively small proportion of Polish railroad wagons can be used to transport unit goods, which complicates the shift towards combi-transport. Another limitation is that the maximum load for railways in the Baltic-Adriatic corridor is 22 tonnes, while it is lower in Poland. This means that fully loaded Swedish trains cannot drive from Swinoujscie.[39]

However, findings from literature and interviews also indicate more general issues. A new study carried out by the Swedish Transport Agency (Transportstyrelsen) found that the railway often doesn't meet the demand from transport buyers, even though there is an interest in rail transport due to environmental awareness.[40] The railway is perceived as slower and unreliable. It is difficult to book and monitor freight and hard to get information during disturbances. Railway transport is today best suited for major players who can buy an entire train, while smaller players must wait for enough goods to be gathered from several smaller players before the train can run. It is today impossible to book a "door-to-door" journey for cross-border rail transport.

[39] *https://polcms.secure.europarl.europa.eu/cmsdata/115323/tent-coordinators-2nd-workplan-bac.pdf*
[40] *Fält (2017). Många vill frakta med tåg – men priset avgör valet. Godset, nr.2, 2017.*

In the Scania region, there is a problem that passenger transport is prioritised over freight transport on the railways. There are clear plans and policies to increase passenger transport capacity, but a consideration of the impacts on freight transport are often lacking in the analyses. If railway freight transport is to increase in Scania, more consideration of how this can be done, and how freight transport can be prioritised in certain cases over passenger transport should be considered.

3.3 Analysis

The findings from the above sections on transport logistics, and what they mean for the Scania-West Pomerania link are summarised in Table 3. The findings show that there is a dominance of road freight on the link. Although there is an interest in rail freight (particularly from an environmental point of view), it is difficult to promote rail transport on the link. This is due to a number of factors including relatively cheap road freight and some logistical and technical hurdles (e.g. differing standards, lack of booking possibilities, etc.).

It is difficult to estimate the current volume of combi-transport on the link, but the overall picture is that there is room to improve the use of combi-transport on the link. Again, this lack of exploitation of combi-transport is mainly due to the low cost of road transport, but also due to high transhipment costs for combi-transport.

There are currently weaknesses in the existing infrastructure connecting to the ports for both road and rail. These should be addressed if full advantage is to be taken of the corridor.

Table 5 Summary of findings, and what they mean for freight transport in the link.

FINDING	WHAT DOES IT MEAN FOR SCANIA-WEST POMERANIA LINK?
Ystad does not have a combi-terminal	Difficult to promote rail transport from the port
Swinoujscie has an inland waterway connection	Good opportunity to promote waterway transport
Railway ferry transport decreasing	Problem for promoting rail transport in the link
There are problems with capacity on roads and rail connecting to the ports	Infrastructure improvements are required
Road is more competitive than rail	More road than rail transport
Railway transport is slow and perceived as unreliable & difficult to book	More road than rail transport

Railway transport less suited to smaller players	More road than rail transport
Freight is predominantly transported by trailers/units	Possibility to shift to other modes
Intermodal transport solutions not fully exploited	Possibility to increase intermodality
Lack of truck drivers	Lack of drivers can force new solutions which promote rail / more environmentally friendly solutions
E-commerce is increasing	Uncertain. But changes type and weight of goods

3.4 Challenges

Railway logistics face many challenges, due to speed, reliability and capacity. The railway is historically aimed at the heavy industry like iron ore, timber etc. where the focus is on transporting a large amount of goods, sometimes one single business actor hiring a whole train. The railway is less adapted to smaller quantities. It is a great challenge to adapt the railway to new demands, where the cost of time is the single most competitive business factor. It is also a challenge for the railway logistics sector to adapt to new stock structure and transport solutions.

Wages are a competitive factor. Large differences in wage levels and hard competition between operators that force low wage levels in the sector mean that road transport has very low costs compared with the rail transport. It also means that the social working conditions for truck drivers in many cases are poor. New rules are in progress within the EU to strengthen the rules on daily and weekly leave.

Multi-modal solutions face challenges in the studied connection, as mentioned above, and in general. A study carried out by the Swedish Transport Agency shows that transhipment costs are the biggest obstacle towards intermodal solutions. Estimates of cost distribution for a typical combi-transport with three containers show that terminal costs account for approximately one third of the total cost of transport. In addition, the cost of distribution transport is another third. Together, they represent around two thirds of the cost of transport.[41] The shorter the total distance, the larger the share for terminal cost is. Given current conditions, a distance less than 400-700 km is, generally speaking, the limit within which the truck has a competitive advantage over rail and shipping. Since only three percent of the freight in Sweden is transported more than 500km by truck, there are few

[41] *Nelldal (2013) compared the cost structure of intermodal transport and direct rail and truck transport. Although the exact figures may differ, a rough estimate of differences in the cost structure is given here.*

gains in transferring freight from trucks to other transport types.[42] Another challenge is that multi-modal terminals require a large enough market to be profitable, while the profitability of a multi-modal transport often lies in the distance from the receiver or sender to the terminal. The challenges therefore concern both increasing demand and meeting demand with modern solutions. Strong economic incentives and technology gains will be required to strengthen the competitiveness of intermodal transport and rail versus road.

Infrastructure capacity in the harbours. The connections to the harbours in Scania have low capacity, both for rail and road transport. Trelleborg faces capacity problems at ferry berths, when road and railway tracks are crossing. In Ystad, a level crossing from the main train station in the city cause delays whenever new trains arrive or depart.

Infrastructure capacity on the hinterland connections. The railway freight traffic must share the capacity with public transport. The main Swedish trunk line (Södra Stambanan) will reach its capacity limit in around 2030, according to current forecasts. Even though this line does not have a direct connection with the ports in Trelleborg and Ystad, it is a very important link for rail transport in Sweden. Rail connections from Malmö to Ystad and Trelleborg are also estimated to reach capacity within 10-15 years. The capacity is also low in railway yards; for example in Malmö, where many trainsets are coupled[43].

3.5 Possibilities

The ports in Scania already have a niche that is important to develop. Their role as "bridging ports", is important to strengthen. Because of the type of freight that is moved (trailers, containers, cassettes), there is a possibility for supporting intermodality that would not exist in ports specialising for example in bulk products.

There are possibilities for intermodality that are not fully taken advantage of – the railway ferries, inland waterway in Swinoujscie, as well as the combi-terminals in Trelleborg and Swinoujscie.

The lack of truck drivers can also help to support the introduction of new technical/digital solutions that are more environmental friendly. However, consideration needs to be made as to the impact of these new solutions (e.g. is it better to have autonomous trucks/platooning or railway transport from and environmental point of view?).

There is also a possibility within the framework of the CNC to develop more cooperation between ports, hinterland terminals and industry, creating coherent logistic solutions.

The CNC cooperation also offers an opportunity to gather stakeholders for a better understanding of the opportunities offered by digitalisation. Booking of transport via digital platforms may be important to increase rail competitiveness for cross-border transport.

[42] *Transportstyrelsen 2016. Det intermodala transportsystemet och Transportstyrelsens roll.*

[43] *Scenarioanalys för järnvägen i Skåne; Sammanfattning av SWECOs rapport på uppdrag av Region Skåne*

3.6 Recommended measures

There are several recommended measures based on the logistical solutions at the terminals, mainly based on increasing and maintaining cooperation across stakeholders, and improving the multimodality options for freight transport:

Improve / maintain cooperation by:

- **Maintaining cooperation between stakeholders**. Here the regional authorities have a role to play in bringing together the relevant stakeholders and disseminating information, but the primary cooperation needs to be with the private actors involved.
- **Creating direct cooperation between port authorities**. This is recommended in order to create a coherent response to the development of new solutions, and to take advantage of new technologies (e.g. using same digital platforms or standards).
- **Supporting regulatory framework** such as increased regulatory compliance in the road transport sector, as well as changes to regulatory frameworks that facilitate simplified information and documentation management in rail and shipping.

Improve railway transport by:

- **Reviewing how waiting times can be reduced in Polish railway** transport in order to strengthen the possibilities for both conventional rail and multi-modal transport, focusing on reducing waiting times.
- **Increase axel load** on Polish railways to 25 tonnes[44].

Improve multimodal options by:

- **Introducing a combi-terminal in Ystad**, to support switching between road and rail systems. In the short-term perspective, a simpler type of combi-terminal is proposed that would not require so much land.
- **Propose necessary investments for railway transport and multimodal** solutions in cooperation with port representatives and terminal operators in both Scania and West Pomerania. Use TEN-T funds to study and relieve bottlenecks.
- **Collecting and analysing annual uniform statistics** for the entire Baltic Sea area.
- **Group together different measures into packages** to make it easier to apply for CEF financing.

Use new technology by:

- **Taking advantage of digital solutions** for booking, security and monitoring along the CNC, for rail and multimodal solutions. This can comprise of three different types of

[44] *This recommendation is also included in the Baltic-Adriatic Corridor work plan*

solutions: web and cloud services; information and communication in booking system and including different actors together in the same solutions.

4. Reducing CO_2 emissions

This chapter focuses on how challenges related to the negative environmental impacts of freight transport in the transport link between Ystad/Trelleborg and Swinoujscie can be addressed. The focus is not on all environmental impacts, but solely on CO_2 emissions.

4.1 CO_2 emissions reduction – the context

The European Union has ambitious goals for de-carbonising the transport sector as set out in the Transport White Paper published in 2011[45]. These include a reduction of at least 60% of GHGs by 2050 with respect to 1990 from the transport sector and 20% below their 2008 level by 2030. Additionally, there are specific goals to reduce EU CO_2 emissions from maritime bunker fuels by 40% (if feasible 50%) by 2050; as well as to shift 30% of road freight over 300 km to other modes such as rail or waterborne transport by 2030, and shift more than 50% by 2050.

At the same time, TEN-T policy, which underpins the funding of the TENTacle project focuses on providing a fully functional and EU-wide multimodal 'core network' by 2030, with a high quality and capacity network by 2050 and a corresponding set of information services. Thus, the implementation and development of the infrastructure must go hand-in-hand with a consideration of reducing CO_2 emissions. This is further emphasised in the European Clean Fuel for Transport Package, which includes a directive on the deployment of alternative fuels infrastructure published in 2014[46].

In summary, reduction of CO_2 emissions is a big policy driver at the European level, and studies on CNC infrastructure and freight flows must make a consideration of CO_2 emission reduction. Thus, it is important that the work done in the EU in this topic is highlighted to stakeholders working on the transport link, and that the work being done in this area is also communicated back to European stakeholders.

4.2 Reducing CO_2 emissions in the Scania- West Pomerania transport corridor

There are three ways in which freight transport emissions can be reduced[47]:

1. **Avoid**: avoiding the need for transport;
2. **Shift**: shifting the transport to more sustainable modes; and

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[45] *COM/2011/0144. European Commission White Paper. Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system.*

[46] *COM 2014/94/EU: DIRECTIVE 2014/94/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 October 2014 on the deployment of alternative fuels infrastructure: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0094&from=en*

[47] *Mobilizing Sustainable Transport for Development. Analysis and Policy Recommendations from the United Nations Secretary-General's High-Level Advisory Group on Sustainable Transport. UN policy recommendations 2016*

3. **Improve**: improving the emissions performance of existing transport modes (primarily using cleaner fuels).

A summary of how these three approaches can be applied to the transport link which is the focus of this study is given below in Table 6.

Table 6 – How the "Avoid-Shift-Improve" approach be applied to freight transport in the transport link between Scania and West Pomerania.

WHAT	HOW CAN BE APPLIED?	
AVOID	Since European policy states that "curbing mobility is not an option"[48] and trade continues to grow in this link, it is deemed not possible to reduce the volume of freight traffic for this link. However, the increase in freight traffic can be reduced if the load capacity of vehicles is increased.	✓
SHIFT	Shift from road to rail or sea in connections to the port.	✓
IMPROVE	Decarbonise fuel mix for RoRos crossing the sea link. Support decarbonisation of road transport connecting the port by providing alternative fuel infrastructure at the ports. Strengthen high capacity transport on rail by building longer bypass tracks.	✓

The focus in this case needs to be on shifting freight onto more sustainable transport modes, and improving the performance of the existing transport modes. The present and future plans with respect to "avoid", "shift" and "improve" are given below.

4.2.1 Avoiding transport – increasing loads

Avoiding transport means reducing transport and/or traffic. In the current political climate, it is probably not possible, or desirable, to decrease the volume of freight transport, given the continued increase in trade on the link, but the increase in freight traffic volume can be reduced if the load capacity of vehicles is improved.

However, it should be noted that it would be possible to avoid some freight transport on the link by several means. For example: supporting the alternative sourcing of products (local-sourcing); reducing the need for goods (e.g. in supporting circular economy); specific policies to reduce freight (e.g. economic policies, pricing); bringing production closer to consumers; use of more consolidation centres, etc. Although these measures have been taken up in policy documents, there

[48] *COM/2011/0144. European Commission White Paper. Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system.*

are as yet no concrete plans for implementation. At the same time such measures would be required to reach the sustainability goals which are set out in Scania region's freight transport strategy[49].

4.2.2 Shifting transport to more sustainable modes

Since the transport link itself between Ystad/Trelleborg and Swinoujscie is a sea connection that supports the shift from road (that could go across the road link between Copenhagen and Malmö (ScanMed CNC)), the shift on the link itself is not of interest. However, connecting transport to the ports can benefit from a shift, and here primarily from road to rail transport. Given that Swinoujscie is served by inland waterways, there is also a possibility to shift road freight transport to inland shipping on the Polish side.

Another possibility is to shift road transport freight to coastal shipping routes. However, the environmental benefits are unsure. A new report from the Swedish Maritime Administration shows that the potential of short sea shipping lies in developing loops that connect Swedish inland and coastal ports with other European ports, thus offering an alternative to transit traffic by road or rail. Coastal shipping between Swedish ports is estimated to have less potential. [50] A study of transport solutions from Germany to Stockholm shows that a direct sea link could be competitive compared to land transport, but costs in relation to environmental gain must be considered. If the transport is too fast, it will not reduce the amount of carbon dioxide. It the transport is too slow, the transport time will be a disadvantage.[51] One should have in mind that this is not an entirely new concept. Long-distance RoRo-connections (ferries with only trailers) connect different parts of the Baltic Sea today, for example lines between northern Sweden and Finland to southern Sweden and Poland. Many factors affect the competition between land and sea transport, for example road taxes, infrastructure capacity etc.

4.2.3 Improving the performance of existing modes

There are requirements from the European Union to provide clean fuel infrastructure along the CNC. A summary of the requirements for various fuel types from the Clean Fuel for Transport Package of relevance for this report is given in Table 7. This means that the ports of Trelleborg and Swinoujscie are required to have electricity at shore-side and LNG refuelling points by 2025.

Table 7- Fuel types, requirements and deadlines for clean fuel in European ports

Source: COM 2014/94/EU

WHAT	COVERAGE	WHEN
Electricity at shore-side	Ports of the TEN-T core network and other ports	By end 2025
LNG at maritime ports	Ports of the TEN-T core network	By end 2025

[49] *Region Skåne (2017). Strategi för den hållbara gods- och logistikregionen Skåne.*
[50] *Sjöfartsverket 2017. Analys av utvecklingspotentialen för inlands- och kustsjöfart i Sverige.*
[51] *WSP 2016. Potential till utökad kustsjöfart*

For the different modes of transport, the improvements for fuel types are described below.

RoRo ferries

Today the ferries are diesel powered for crossing, even though electricity is used for in port use (for better air quality in port cities). Trelleborg port will provide LNG refuelling options from 2025. There are currently no plans for the RoRo ferries themselves to be converted[52].

For ferries of the size and range of the RoRo ferries, the primary option is to switch in LNG (or even preferably LBG[53])[54]. There is today no commercially available battery powered electric ferries of this size, with the range required to cross the southern Baltic Sea. Examples of the use of battery electric ferries include the Ampere used in Norway, as well as pilots between Gedser (Denmark) and Rostock (Germany), where the distance and duration is much shorter. There are advances in this field, both from battery powered electric ferries as well as solar powered electric ferries, but to date there is nothing available for this longer distance[55]. Another possibility is to use hybrid electric-diesel solutions, or other hybrid solutions (questionable environmental benefits), or hydrogen, but again the commercial possibilities are today not available. Methanol can also be used, with similar environmental benefits as LNG[56]. Methanol has been used on Stena Line ferries in Sweden connecting Gothenburg with Germany[57].

Road – trucks

The vast majority of trucks are today diesel powered. Some transporters are starting to convert their fleets to alternative fuels, but the market share is still low[58].

For long-distance trucks, the possibilities are much the same as for the RoRo ferries. The main option available today is biodiesel[59]. Other options include LNG/LBG. There are several companies looking at developing fully electric large trucks, although few that are working on long-distance large trucks. There is more promise for electric fuel cells (hydrogen) trucks, and currently several research projects developing this technology[60].
Another area of development is the use of electric roads which allow trucks to use an electric propulsion system without the need for worrying about charging points (and large batteries). Electricity is provided through conductive or inductive charging, through a rail in the road, or with overhead electric cables (like for trains or trams). There are pilot tests underway in Sweden[61].

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[52] *From interviews*
[53] *LNG can also be seen as a stepping-stone towards large scale use of LBG*
[54] *IRENA (International Renewable Energy Agency). Renewable Energy Options for Shipping. Tech Brief, 2015*
[55] *Ianssen, C; Ianssen E & Sandblost, T (2017). Battery/fuel cell fast ferry. Report Naeringslivets NOx Fond.*
[56] *ibid*
[57] *http://www.ship2shore.it/en/shipping/world-s-first-methanol-ferry-at-sea_57422.htm*
[58] *Based on interviews for this transport connection.*
[59] *Note that the definition of biodiesel (an example of biofuel) changes in EU legislation over time, based on sustainability criteria for biofuels, bioliquids and biomass fuels which is being considered by the EC and MS as part of revised Renewable Energy Directive (ongoing procedure).*
[60] *European Commission Report. State of the Art on Alternative Fuels Transport Systems in the European Union (2015).*
[61] *http://www.trafikverket.se/en/startpage/about-us/news/2016/2016-06/first-electric-road-in-sweden-inaugurated/*

Additionally, there is a possibility to increase loads through the use of so-called High Capacity Transport (HCT) whereby longer or heavier vehicles are allowed to drive on the roads. Currently HCT is allowed on certain roads in Sweden but not in other European countries, and focuses on bulk products (e.g. timber in north of Sweden)[62]. A recent Swedish study shows that there are societal benefits of HCT compared to trailers, but that railway still provides higher benefits[63].

Rail

In Sweden, the electricity mix is reasonably ”green” given the predominantly hydro-powered network, and trains are electrified on most of the network[64]. The main exception is for locomotive shunts used in terminals. Today shunts are mainly diesel powered[65], but there exists hybrid-electric, FCEV, LNG/LBG and battery electric alternatives for locomotives[66].

In Poland, the energy mix is still predominantly coal-based. The energy mix needs to be decarbonised. Currently, this is difficult given the political climate in Poland[67].

One way to transport more freight without increasing the number of trains is to increase the train length, both the maximum train length, but also the average. At present, it is usually said that the maximum train length is 630 m in Sweden. There are EU directives that the maximum permissible length of freight trains should be 740 m on the core comprehensive network by 2030 and on the overall network until 2050.[68] The effect of increased maximum train length would be lower transport prices and increased capacity per freight train.[69]

Inland waterway

Today these vessels are predominantly diesel powered.

There is a larger possibility to switch boats on inland waterways to battery electric vehicles, since the weight is much smaller compared to freight ferries. Other options include LNG/LBG and hydrogen fuel cells[70].

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[62] *Adell, E., Khan, J., Hiselius, L., Lund, E., Nelldal, B-L., Pettersson, F., ... Wandel, S. (2016). Systemanalys av införande av HCT på väg i Sverige. Environmental and Energy Systems Studies: Miljö- och energisystem, LTH, Lunds universitet.*

[63] *Trafikanalys (2016). Automatiserad kolonnkörning – en lösning för framtiden? Rapport 2016:22*

[64] *Gustavsson, M., E. Särnholm, P. Stigsson and L. Zetterberg (2011). Energy Scenario for Sweden 2050 Based on Renewable Energy Technologies and Sources., IVL Swedish Environment Institute and WWF Sweden, Göteborg and Stockholm.*

[65] *European Environment Agency (2016). EMEP/EEA air pollutant emission inventory guidebook – 2016. Railways*

[66] *See for example: US DOT, Federal Railroad Administration (2014). Best Practices and Strategies for Improving Rail Energy Efficiency*

[67] *https://www.worldenergy.org/data/resources/country/poland/coal/*

[68] *http://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/en/maps.html*

[69] *See e.g. Sweco 2015. Scenarioanalys för järnvägen i Skåne, Bilaga 1 – Godstrafik.*

[70] *Moriangthem K & Baxter D (2016). Alternative Fuels for Marine and Inland Waterways. An exploratory study. JRC Report for European Commission.*

Other portside vehicles

Other vehicles in the ports include cranes and lifts for containers. These vehicles are generally diesel if free-standing, but electric if fixed[71]. In Trelleborg hybrid cranes and tractors are already used.

Trucks running on battery have been tested and are an upcoming solution. Little research is done on the possibility to change the fuel types for these vehicles so there are few references on this topic.

Summary – fuel types

A summary of the different fuel types available for modes, and requirements of infrastructure from the European Directive COM 2014/94/EU is given in **Table 8**. The European Directive makes requirements on charging infrastructure for different fuel types to support the market development of alternative fuels. The requirements depend on a range of factors. For hydrogen fuel cells, the requirement is for countries which already have hydrogen refuelling points, or which choose to develop the technology, that a sufficient number of hydrogen refuelling points are provided (i.e. a certain coverage is required). Sweden is one of these countries[72]. The directive also requires that all maritime and inland ports and roads of the TEN-T Core Network (i.e. including Trelleborg and Swinoujscie but excluding Ystad) are equipped with LNG refuelling. It also requires providing a sufficient number of CNG refuelling points, to allow Union-wide circulation of CNG. Requirements are also made on a minimum number of electric vehicle recharging points in each European country. Common specifications are defined for each fuel type as well.

Following the discussion of technological developments for different fuel types above, it appears that the most promising fuel types are currently LNG/LBG for all modes as well as biodiesel; and battery electric for inland waterway and shunting locomotives.

[71] *See e.g. https://en.wikipedia.org/wiki/Container_crane*

[72] *https://www.netinform.de/H2/H2Stations/H2Stations.aspx?Continent=EU&StationID=-1*

Table 8 Fuel types for different modes based on the text written in section 4.2.3.

Source: See references above in 4.2.3 and COM 2014/94/EU

MODE	FUEL TYPE	COMMERCIALLY AVAILABLE?	EU DIRECTIVE (Requirement infra at port)
RORO FERRY	LNG/LBG	Today	Required
	FCEV (hydrogen)	Under development	For countries developing tech.
	Battery electric	Some research projects	Required
TRUCKS (long-distance)	LNG/LBG	Today	Required
	Biodiesel	Today	Not required
	FCEV (hydrogen)	Some research projects	For countries developing tech.
	Battery electric	Few research projects	Required
	Electric roads	Small scale research projects	Not mentioned
RAIL (shunting locomotives)	LNG/LBG	Today	Required
	FCEV	Today	For countries developing tech.
	Battery electric	Today	Required
INLAND WATERWAY	LNG/LBG	Today	Required
	FCEV	Today	For countries developing tech.
	Battery electric	Today	Required
OTHER PORTSIDE VEHICLES	LNG/LBG	Little known	Required
	FCEV	Little known	For countries developing tech.
	Battery electric	Few research projects	Required

4.3 Analysis

From the above sections on CO_2 emissions, and what this mean for the Scania-West Pomerania link, the most important conclusions are that:

- Rail needs to be made more competitive compared to road in terms of cost and time spent, and it should not be economically efficient to drive empty trucks.
- LNG (or preferably LBG) for ferries and bio diesel / LNG (LBG) for trucks seem to be the most promising fuels based on current market availability. However there are other options.

- Other fuel types such as FCEV and battery electric are less developed, but could be taken advantage of in research projects.

There are strong policy drivers to support the shift to reduced CO_2 emissions from freight transport in the link, which has also on the European level resulted in requirements for alternative fuel recharging infrastructure. This means that there are many possibilities that can be taken advantage of regarding the TEN-T corridors for this link.

At the same time, there are strong policy drivers on the regional level, although it is more difficult to make requirements at the regional level, since freight transport crosses over borders (e.g. any changes that make it more expensive in a single region are likely to result in transport companies using other routes). Following the Avoid-Shift-Improve paradigm, there are different ways to move forward in greening this particular transport link.

Table 9 Summary of findings, and what they mean for freight transport in the link.

FINDING	WHAT DOES IT MEAN FOR SCANIA-WEST POMERANIA LINK?
There are strong policy drivers to reduce CO_2 emissions	There are funding possibilities to support the policy, which can be taken advantage of.
There are requirements to provide charging infrastructure in CNC ports	There are funding possibilities to support this, and will be fines if not fulfilled.
We should make transport more effective by increasing loads	Fewer trucks driven empty – this is not just about the trucks themselves but different policies from public and private organisations at different levels.
We should shift transport from road to rail and inland waterway	Rail and inland waterway (only on Polish side) need to be made more competitive compared to road.
We should improve transport by improving the share of LNG/LBG but also promote other alternatives	LNG (or preferably LBG) for ferries and bio diesel or LNG /LBG for trucks are the most promising fuels in terms of market availability. Research projects could be used to try other fuels.

4.4 Challenges

There are several challenges that have been identified based on an analysis of the information gathered in this study. Again, these have been classified according to the "Avoid-Shift-Improve" strategy.

Challenges for avoiding freight transport

As has been mentioned above, there is a strong and persistent increase in freight transport that is projected to continue in the future. This makes it difficult to reduce the volume of freight transport, especially since it is politically and economically infeasible to curb the flow of goods.

It is also a challenge to decrease the volume of freight vehicles since this requires the employment of higher load factors for freight vehicles (particularly trucks). This is difficult today since road freight transport is currently very cheap, and there is little incentive for transporters or freight forwarders to work more efficiently in increasing loads of vehicles given the difficulties (and increased cost) in doing so. There also do not exist technical solutions or working processes to enable this.

Other methods to avoid freight transport include a variety of planning and economic measures and incentives. Given the international character of freight transport, it is difficult to implement such measures on a regional level without support on an international level.

Challenges for shifting to different modes

There are challenges in shifting road transport to rail, as summarised below. For more information on the causes, see chapter 3.

- Road transport is too cheap in comparison to rail. Especially low wages in Poland give road transport a major competitive edge.
- The railway is considered slow and unreliable.
- There is currently no combi-terminal in Ystad, thus making it difficult to support intermodal transport in the link between Ystad and Swinoujscie.
- Railway ferry transport is decreasing.
- Railway logistics is today inefficient in Poland. The lead times are very long, and this reduces the competitivity for rail transport in the country.

Challenges for improving existing modes / using cleaner fuels

The main challenge to improving the fuel mix of existing modes is the uncertainty in how these fuels will develop: how many trucks will use biodiesel, FCEV or LNG/LBG in the future? This uncertainty makes it difficult to create workable business models for clean fuel infrastructure. Additionally, there are many actors who are involved in the development and use of clean fuel infrastructure and use, so cooperation models need to be established which do not exist today (e.g.

between both Swedish and Polish partners covering different types of stakeholders who would build and use the infrastructure).

4.5 Possibilities

While there are challenges, there are also possibilities which are created primarily from policies at the European level. One example regards requirements for daily rest for truck drivers. This means that the shipping route is more attractive compared to the land-based route since the daily rest is built into the journey for the drivers. It must be noted however, that with a large roll-out of autonomous freight vehicles in the future, this advantage will be erased (but this is not in the near future).

Another possibility is the requirement for clean fuel infrastructure from the European Union, and the possibility for European projects and financing to support the policy of creating charging infrastructure for cleaner fuels. There are furthermore possibilities to coordinate across countries to provide a coherent clean fuel recharging/refuelling network.

Another possibility is taken advantage of solutions that already exist, for example to drive trains onto the ferries in Ystad and Trelleborg which is currently not fully taken advantage of. In other words, we need to reverse the trends whereby railway ferries are used less and use them more again. This provides a clear benefit for promoting the shift from road to rail transport.

4.6 Recommended measures

To support the reduction of CO_2 emissions in the link from Ystad/Trelleborg to Swinoujscie, we have several recommendations based on the findings in this report:

- All transport modes need to be improved in terms of efficiency:
    - Railway: improve efficiency by allowing longer trains and larger axel load per capacity (and coordinate across borders)
    - Road: allow for HCT, and coordination across borders and continue research of new road transport solutions e.g. platooning, automation
- Empty loads can be reduced by mapping the loads of vehicles, and cooperation with freight forwarders and transporters, which can be another business case for a brokerage service.
- Stakeholders (public and private) should coordinate the implementation of clean fuel infrastructure: both infrastructure providers on both sides of the connection should be involved, as well as the users of the fuel. For example, transport companies could promise to use certain fuel types as long as there is a wide range of appropriate refuelling infrastructure in connection with ports and major roads.

There should be coordination between countries in terms of economic instruments for road transport, in order to make the relative cost of road transport similar in different countries.

5. Conclusions and recommendations

The aim of this report was to describe the possibilities and challenges, as well as identify what measures would be required to develop the Scanian – West Pomeranian freight transport link (with a focus on Ystad/Trelleborg – Swinoujscie). To describe these possibilities and challenges, the report focused on three areas: commerce, transport logistics and reducing CO_2 emissions. This chapter reviews the main findings from the report, what this means for the link, and makes recommendations for further work.

Economic growth and environmental impacts

There are strong policy drivers both to improve the economic performance of the region, and to support the shift to reduced CO_2 emissions from freight transport in the link. These can be seen as opposing policies, but with the right measures and cooperation between stakeholders, a balance can be achieved.

Commerce continues (and is projected to continue) to grow in regions of relevance, and is most likely to result in increased freight transport on the link. The rate of growth is difficult to quantify, and depends on factors that are far beyond the control of the stakeholders involved in the Scania-West Pomerania transport link.

However, to green transport on the link, we cannot accept a constant growth in freight transport. Allowing for commerce and economies to grow while at the same time reducing negative external impacts relating to freight transport serving these economies requires a fine balance. Introducing measures to improve the environmental performance of freight on the link could result in reduced economic performance (e.g. measures increasing costs of road transport could result in hauliers choosing other routes, or increasing costs for end users resulting in reduced purchasing power in the region), while not introducing measures would result in harmful effects on the environment.

To support the greening of the transport while supporting economic competitivity, it is clear that cooperation is required between stakeholders. If one region imposes financial disincentives while another does not, freight transport is likely to find alternative routes. If one actor provides charging infrastructure while another does not, hauliers may not be willing to change their fleets. This cooperation is not only required on the regional level, but also on the international level.

Addressing the modal split

To support the greening of transport in the link, the modal split needs to be addressed. Today, freight transport on the link is dominated by road transport in the form of trucks with trailers or containers / cassettes. As freight volumes have increased on the link over time, the mode share has become increasingly dominated by trucks, with a decrease in rail transport.

From an environmental point of view, this is not a good position, and trends need to be reversed. To reduce CO_2 emissions, rail needs to be made more competitive compared to road. Today, it is difficult to promote rail transport in the link due to a range of infrastructural, logistical and technical barriers. Strengthening the railways requires a comprehensive view of economic incentives, infrastructure investments and technical solutions. It furthermore requires cooperation between stakeholders to create coherent solutions for rail across different regions.

Taking advantage of alternative fuels

There are technological solutions to improve CO_2 emissions from freight, relying primarily on switching to alternative fuels from the predominantly diesel fuels used today. LNG (or preferably LBG) for ferries and bio diesel for trucks are the most promising fuels that should be taken advantage of, but other fuel types such as electricity, and hydrogen could be investigated. Since there are requirements in European legislation regarding recharging points for different fuel types, the ports can take advantage of this to support the greening of the transport link. Since there are significant costs associated with the establishment of refuelling points and renewal of fleets, it is important that stakeholders cooperate to ensure that there is a market and sustainable business models for new fuel types.

5.1 Recommendations

Since stakeholder cooperation is a key ingredient in balancing the fine line between economic growth and environmental protection as well as supporting rail transport and the introduction of alternative fuels, the main recommendations from this report focus on supporting cooperation between stakeholders. At the same time, other recommendations are taken up to tackle hurdles in promoting multimodality in the link (and the greening of transport).

Improve / maintain cooperation by:

- **Maintaining cooperation between stakeholders**. Here the regional authorities have a role to play in bringing together the relevant stakeholders and disseminating information, but the primary cooperation needs to be with the private actors involved.
- **Creating direct cooperation between port authorities**. This is recommended in order to create a coherent response to the development of new solutions, and to take advantage of new technologies (e.g. using same digital platforms or standards).
- **Supporting regulatory framework** such as increased regulatory compliance in the road transport sector, as well as changes to regulatory frameworks that facilitate simplified information and documentation management in rail and shipping.
- **Coordinating the implementation of clean fuel infrastructure**: both infrastructure providers on both sides of the connection should be involved, as well as the users of the fuel. For example, transport companies could promise to use certain fuel types as long as there is a wide range of appropriate refuelling infrastructure in connection with ports and major roads.

Note that all transport modes need to be improved in terms of efficiency. For railway this relates to improving efficiency by allowing longer trains and larger axel load per capacity (and coordinate across borders), and for road allowing for HCT, coordination across borders and continued research of new road transport solutions e.g. platooning, automation.

Improve railway transport by:

- **Reviewing how waiting times can be reduced in Polish railway** transport in order to strengthen the possibilities for both conventional rail and multi-modal transport, focusing on reducing waiting times.
- **Increasing axel load** on Polish railways to 25 tonnes[73], and allow for longer trains and coordinate this across borders.

Improve road transport by:

- **Allowing HCT**, and coordinating across borders
- **Continuing research and development of new road transport solutions** e.g. platooning, automation

Improve multimodal options by:

- **Introducing a combi-terminal in Ystad**, to support switching between road and rail systems. In the short-term perspective, a simpler type of combi-terminal is proposed that would not require so much land.
- **Propose necessary investments for railway transport and multimodal** solutions in cooperation with port representatives and terminal operators in both Scania and West Pomerania. Use TEN-T funds to study and relieve bottlenecks.
- **Collecting and analysing annual uniform statistics** for the entire Baltic Sea area.
- **Group together different measures into packages** to make it easier to apply for CEF financing.

Use new technology by:

- **Taking advantage of digital solutions** for booking, security and monitoring along the CNC, for rail and multimodal solutions. This can comprise of three different types of solutions: web and cloud services; information and communication in booking system and including different actors together in the same solutions.
- **Building alternative fuel infrastructure at the ports**, and taking advantage of EU funds to do so.

[73] *This recommendation is also included in the Baltic-Adriatic Corridor work plan*

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Interview with Björn Boström

Interview with Per Tryding, south Swedish chamber of commerce, 2017-05-31

Interview with Linane Ask, Swedish hauliers, 2017-06-02

Appendices

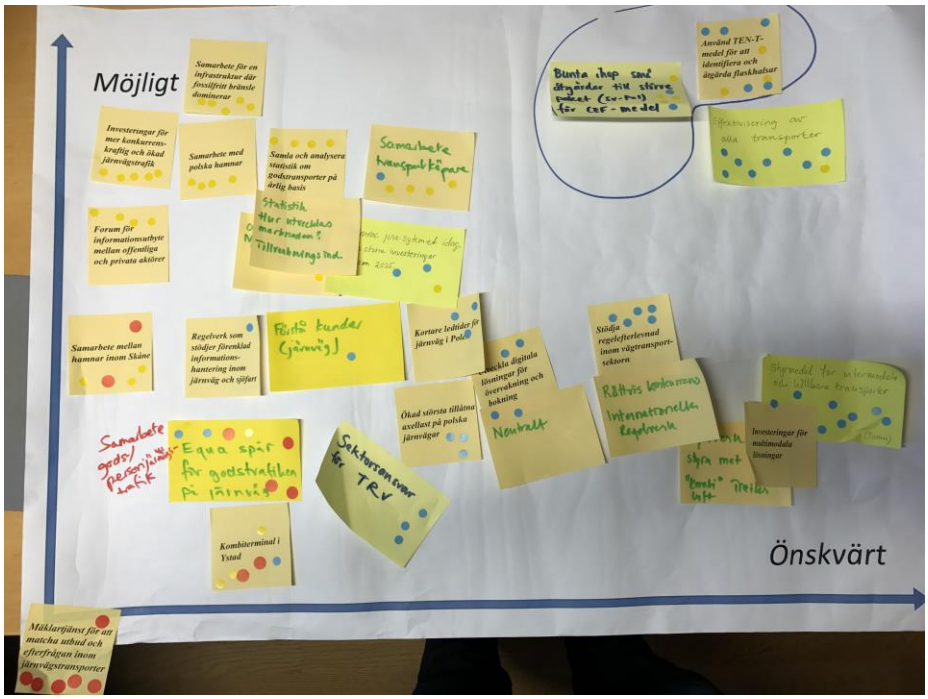
Appendix 1 – Full list of interviewees

Organisation	Branch	Name	Position
Ystad Hamn Logistik AB (Port of Ystad)	Port	Björn Boström	CEO
TT-line	Shipping company	Eva Jönsson	Scandinavian Freight Manager
Sveriges Åkeriföretag (Swedish Hauliers)	Hauliers	Liane Ask	Regional Manager
Invest in Skåne	Public organisation	Lotta Sleight	Business Development Manager
Chamber of Commerce and Industry of Southern Sweden	Trade association	Per Tryding	Vice president
Trelleborgs Hamns AB (Port of Trelleborg)	Port	Torgny Nilsson	
DBSchenker	Freight forwarder	Ulf Söderberg	Brokerage Manager
Green Cargo	Railway operator	Wiktor Rössler	

Appendix 2- Documentation of Workshop 1 with Swedish stakeholders (in Swedish)

Tid: 2017-09-11

Plats: Ystad Saltsjöbaden



Om workshopen[74]

Region Skåne är partner i TENTacle-projektet. Inom projektet arbetar man för att främja och stärka TEN-T nätverkets stomkorridorer genom Östersjöregionen. Projektet löper över tre år och har 23 partner och 65 associerade organisationer i nio länder och medfinansieras av EU:s Interreg-program för Östersjöområdet.

Parterna arbetar tillsammans med att:

- Analysera potentialen med stomnätskorridorer i det lokala, regionala och makroregionala
- perspektivet
- Bidra till att intressenter får en ökad förståelse och kan tillvarata möjligheter med korridoren
- Diskuterar och tar fram nya lösningar för att utveckla transportnoder i perifera regioner
- genom pilotstudier, kunskapsöverföring och erfarenhetsutbyte
- Öka välfärd, tillväxt och sammanhållning i Östersjöregionen genom gränsöverskridande
- samarbete.

Workshopen ingick i ett delprojekt som syftar till att beskriva möjligheter och utmaningar, samt identifiera åtgärdsbehov för att utveckla förbindelsen mellan Skåne och Västpommern. Fokus ligger på godstransporter med tre olika perspektiv: handel, logistik och miljö. Delprojektet drivs gemensamt av Region Skåne och Västpommern, där de båda parterna genomför varsin landspecifik underlagsstudie som ska summeras i en slutrapport.

Innan workshopen ägde rum hade en underlagsrapport tagits fram av Trivector. I arbetet med rapporten hade ett antal intressenter inom gods- och logistikbranschen, samt offentliga företrädare intervjuats. Dessa intressenter var nu också inbjudna till workshopen.

Ytterligare en workshop kommer att hållas den 11:e oktober i Ystad tillsammans med polska aktörer, som uppföljning och nästa steg i arbetet med utveckling av förbindelsen. Ett syfte med workshopen var därför också att identifiera frågeställningar att identifiera frågeställningar och diskussionspunkter för polska aktörer.

Workshopen arrangerades och leddes av Trivector (Anna Clark och Kristoffer Levin), på uppdrag av, och i samarbete med, Region Skåne.

Dokumentation ger en sammanfattande bild av slutsatser och diskussioner på workshopen, samt resultatet av de övningar som genomfördes.

[74] *The workshop report is written in Swedish for the participants. Relevant parts of this document have been taken up in the report to which this WS report is attached as an annex.*

Deltagare

- Torgny Nilsson, Port of Trelleborg
- Eva Jönsson, TT-line
- Mickael Holgersson, Ystad hamn
- Tomas Arvidsson, ÅF /Transportföretagen jvg
- Tomas Johansson, DHL/Transportföretagen syd
- Viktor Rössler, Green Cargo
- Lina Wells, Trafikverket Region syd
- Petra Stelling, Region Skåne
- Nicolas Cronberg, Region Skåne
- Björn Pettersson, Region Skåne
- Anna Clark, Trivector
- Kristoffer Levin, Trivector

Dagordning

Nuläge

Trivector presenterade de viktigaste slutsatserna från underlagsrapporten. Därefter genomfördes en kort övning där deltagarna arbetade med frågan: ***Behövs förbindelsen för ökad integration inom EU och i så fall varför?***

Diskussion

En stor del av diskussionen kom att kretsa kring kvaliteten på järnvägen. Här är några kommentarer kring detta:

- Järnväg handlar inte bara om kombi. Traditionellt vagnslastgods är fortfarande vanligt, även om järnvägsfärjorna minskar.
- Långa ledtider på järnväg är inte hela problemet. Tillförlitlighet är nyckeln.

- Rätt gods på rätt trafikslag. Järnväg kan vara billigare än väg, finns exempel på gods som inte är tidskritiska.
- Ett litet antal trailers i Polen är lyftbara. Polen planerar stor ombyggnad av nätverket till 2035. Här ligger en stor del av problemet.
- Nya färjor kanske inte handlas upp med spår (järnvägsfärjor). Vad händer om 15-20 år när nuvarande färjor har bytts ut?
- Hur betalar man för ledtider? Subventionerade järnvägståg från Kina. Dyrt att transportera med tåg, lägga risken på någon annan.

Dokumentation övning

- Förbindelsen behövs, marknad finns. Ett bevis på detta är att rederierna planerar att köpa in större färjor. Investeringsplaner finns i hamnarna för nya färjelägen som kan ta emot större färjor.
- Robustheten är viktig. Förbindelsen är viktig för att inte vara beroende av få (Danmark). Flera fungerande förbindelser ger mindre sårbarhet.
- Förbindelsen behövs för det ökade handelsutbytet med östra Europa.
- Infrastruktursystemen på järnväg behöver integreras. Det finns mycket att göra avseende ökad kvalitet, enklare bokningsmöjligheter, regelverk mm. Samarbete offentliga/privata aktörer behövs på internationell nivå.
- Vem tar ansvar för hela bilden? Göra något som är bra för andra.

Övning 1 – om åtgärder

Rekommenderade åtgärder från underlagsrapporten hade förtryckts och satts upp på stort papper. Deltagarna delades in i två grupper som turas om att arbeta med ett område (logistik resp. miljö) i taget och kompletterade rapportens åtgärder med andra som de ansåg lämpliga åtgärder. Efteråt fick båda grupperna redovisa vilka åtgärder de hade kompletterat med och kommentera åtgärderna från rapporten.

I nästa steg fick deltagare rösta om åtgärderna på temat önskvärt-möjligt. Alla fick tio röster inom var och en av kategorierna, önskvärt, möjligt och ej önskvärt. Röstningen gjordes genom färgade markörer. Deltagarna fick välja helt fritt och kunde alltså lägga alla sina röster på en åtgärd och sprida ut dem.

Avslutningsvis sattes åtgärderna upp på ett stort papper med en x-y-skala, där x-axeln stod för önskvärt och y-axeln stod för möjligt.

Nedan följer en sammanfattning av redovisning och diskussion samt resultatet av omröstningen.

Diskussion

Åtgärder-komplettering

Om bokningstjänster:

- Webbaserad/molnbaserad

- Info/kommunikation i bokningssystem
- Hamn är en del av ett större system

Chaufförsbrist är trend som det inte pratas så mycket om, kan tvinga fram tekniska lösningar och kanske förändra konkurrensytorna väg-järnväg.

En åtgärd som lyftes fram är att bli bättre på att söka EU-bidrag och att ”bunta ihop” flera mindre åtgärder till större paket för CEF-lösningar.

Enklare kombiterminalslösning föreslås i Ystad, som uppskattningsvis kostar ca 15 Mkr. Bättre att fokusera på ökad intermodalitet än kombiterminal. En större lösning finns i de långsiktiga planerna men är inte möjlig idag på grund av platsbrist. Så länge inte möjligheterna till kombigods i Polen stärks kommer det troligtvis inte vara lönsamt att anlägga en stor kombiterminal i Ystad.

Andra punkter:

- Företag måste tjäna pengar
- Efterfrågan måste matcha utbud.
- Platooning
- Regelverk för nya tekniklösningar
- Samarbete med transportköpare

Önskvärt-möjligt

Tänk industri, inte miljö, tro på överföring framtid bränsle. Inga pengar till styrmedel.

Person versus gods avseende järnvägskapacitet. Det upplevs att persontrafiken ofta prioriteras. Ett exempel är Trelleborgsbanan, där Trafikverket genomförde drift- och underhållsarbete, men informerade rederierna väldigt sent om att banan skulle vara avstängd. Mer samarbete behövs för gods på järnväg.

Mäklartjänst – mycket tveksamt. Ett bra förslag med svårt att genomföra. Osäkert om marknaden vill ha det. Transportköpare har större ansvar att fylla lasten. Svårt att definiera vilka aktörer som man bör ha samarbete med. Man vill inte heller trampa någon annan aktör på tårna.

Regelefterlevnad i vägtransportsektorn

- Polisens ansvar, men inte högt upp på prioriteringslistan, hur påverka?
- Behövs samordning EU - nationellt

Styrmedel – multi-modal lösning

- Premiera de som kör intermodalt
- Vissa andelen multi-modala triangel och kommunicera med transportköpare
- Teknikutveckling, bättre för miljön

Positiva effekter även av ökad lastbilstrafik för ekonomin och för hamnarna (inkomst), inte att förglömma.

Åtgärder	Möjligt	Önskvärt	Ej önskvärt/möjligt
Bunta ihop små åtgärder till större paket (Sverige-Polen) för CEF-medel			
Använd TEN-T-medel för att identifiera och åtgärder			
Effektivisering av alla transporter			
Trimma järnvägssystemet idag. Nya större investeringar bortom 2035.			
Samarbete transportköpare			
Nya (olika) samarbetsformer			
Förstå kunder (järnväg)			
Styrmedel för intermodala och hållbara transporter – investeringar för multimodala lösningar			
Stödja regelefterlevnad inom vägtransportsektorn – (rättvis konkurrens med internationella regelverk)			
Kortare ledtider för järnväg i Polen			
Ökad största tillåtna axellast på polska järnvägar			
Sektorsansvar för trafikverket			
Utveckla digitala lösningar för övervakning och bokning			
Regelverk – styra mot kombitrailers			

Regelverk som stödjer förenklad informationshantering inom järnväg och sjöfart			
Samarbete för en infrastruktur där fossilfritt bränsle dominerar			
Investeringar för mer konkurrenskraftig och ökad järnväg			
Samarbete med polska hamnar			
Forum för informationsutbyte mellan offentliga och privata aktörer			
Samla och analysera statistik om godstransporter på årlig basis			
Kombiterminal i Ystad			
Egna spår för godstrafiken på järnväg			
Samarbete mellan hamnar inom Skåne			
Mäklartjänst för att matcha utbud och efterfrågan inom järnvägstransporter			

Övning 2

Övning 2 hade fokus på samarbete. Betydelsefulla organisationer hade skrivits upp på ett stort papper, dels sådana organisationer som deltagarna representerar samt andra relevanta. Både svenska, polska och från andra länder (ex EU). Privata och offentliga. Deltagarna fick var sitt papper med sin egen organisation utsatt i mitten. De fick sedan dra gröna streck för relationer som upplevs som bra, röda streck för relationer som man vill ska förbättras samt blå streck för sådana som inte finns men man vill ska utvecklas. Resultatet av denna övning redovisas inte i denna dokumentation.

Därefter fortsatte arbetet med att bygga vidare på resultatet av övning 1 – om åtgärder. Här fick deltagarna arbeta vidare i grupper, med de åtgärder som fått bäst poäng i omröstningen. Varje åtgärd arbetades igenom utifrån:

- *Vem tar ansvar för genomförande?*
- *Vilka samarbeten behövs?*
- *Övriga kommentarer*

Dokumentation från detta arbete redovisas nedan.

Diskussion

Samarbeten som kan bli bättre:

- Varuägare/transportköpare. Fungerar ibland men inte alltid.
- Polsk-svenska handelskammaren
- Polska transportörer

Aktörer som har lagts till, eller behöver läggas till:

- Rederierna som hamnarna har som huvudkunder
- Intermodala operatörer ex Green Cargo, Cargo Net, samt terminalägare.

Speditörer, hamnar och rederier har olika roller i logistikkedjan, som ibland går in i varandra. Kan ibland bli konstigt att hitta samarbeten med kundens kunder.

Namn på åtgärd	**Öka trimningen av befintlig infra. System**	**Regelefterlevnad**	**Styrmedel hållbara transportslag**	**TEN-T medel CEF**	**Utöka TENT-T (CNC) till östra Skåne (Ystad)**	**Styrmedel för att öka intermodala transporter – En, för marknaden, attraktiv mix av styrmedel**
Vem tar ansvar?	- Staten genom trafikverket - Landstingen via länsplanen - Kommunen via kommunala vägnätet (kommunala industrispår) - Hamnbolag, även andra motsvarande parter i t.ex. Polen	EU - regeringarna	EU - staten	Region Skåne Trafikverket	(Trafikverket) 2021, 2023 → Revidering av hamnarna/översikten	Riksdag – regering – trafikverket (EU-kommissionen)
Vilka samarbeten behövs?	- Bli överens om prioriteringarna mellan parterna. Staten och trafikverket är viktiga för att få godkänd CEF-ansökan	Landsöverskridande, offentliga och privata aktörer	Transportköparen	Rederier, transportföretag, väg/banhållare, transportköpare, operatörer, regeringen	- Samarbete med Core-hamnarna - Region Skåne	Bättre orsak/verkan riksdag – regering - trafikverket

	- Olika former för finansierings-huvudmän					
Kommentar	Svårt att sjösätta investeringsplaner, till verkstad	Chaufförslöner → teknikutveckling	Beteendepåverkan Långsiktighet	- Gränsöverskridande perspektiv - Processtöd	Effektiviseringar av transportslag	- Kopiera styrmedel som redan godkänts i annat EU-land → eko-bonus á la Österrike - Bättre smörjmedel i systemet

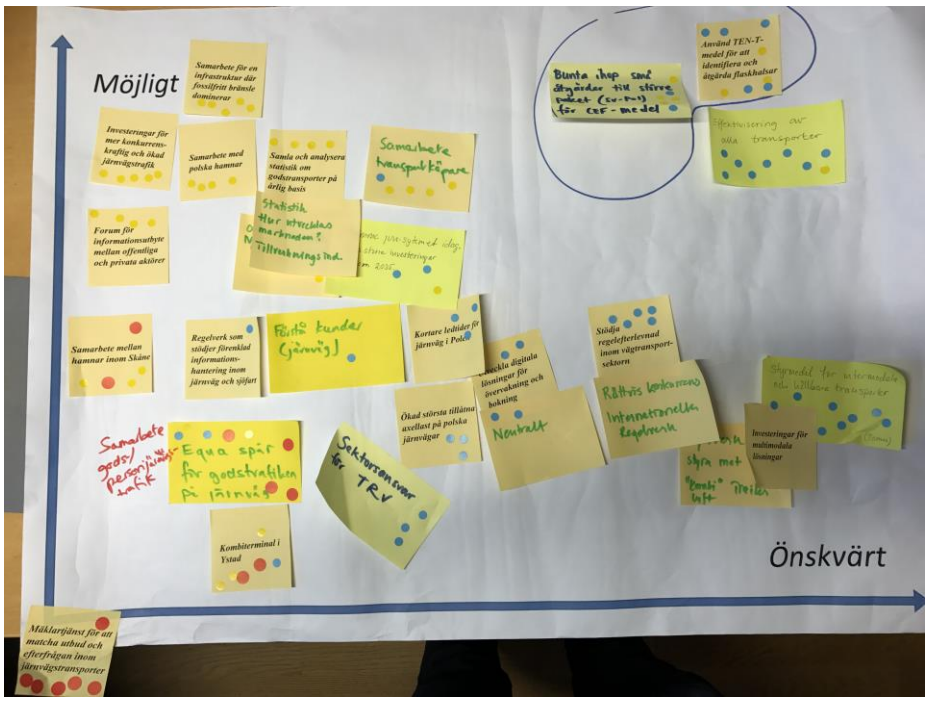
Feedback och medskick till nästa workshop

- Rederier, varuägare saknas. Ett önskemål att få med dessa till nästa workshop.
- Saknar att man börjar med mer fakta. Vad betyder Skånes mål ex. Bra att börja med?
- Polska aktörer, viktigt med bra spridning.

Appendix 2- Documentation of Workshop 2 with Swedish & Polish stakeholders

Time: 2017-10-11

Place: Ystad Saltsjöbaden



About the workshop[75]

This workshop was an interregional workshop within the pilot showcase of West Pomerania/Skåne in the TENTacle project. At the workshop challenges and possibilities were discussed, primarily about developing and greening cross-border transport connection between Scania and West Pomerania. Key stakeholders were invited for participation and their ideas and opinions were discussed during the day. The mix of stakeholders (see participants list below) was crucial for outcomes of the discussions on developing cross-border transport between the regions. Visits were made during the day at the ports of both Ystad and Trelleborg.

TENTacle is working to promote and strengthen the benefits of the TEN-T core network corridors (CNC) crossing the Baltic Sea Region (BSR). It is a three-year project with 23 partners and 65 associated organizations from nine countries, co-financed by the EU-Interreg Baltic Sea Region Programme. Its partners are working together to:

- analyse local, regional and macro regional potentials created by the CNC;
- assist stakeholders to understand and take advantage of the opportunities;
- discuss and come up with new solutions for the development of transport nodes and peripheral regions via pilot showcases, knowledge and experience exchange;
- enhance prosperity, growth and cohesion in the BSR through cross boarder cooperation.

The workshops were led by Anna Clark, Kristoffer Levin and Rebecca Strand at Trivector.

Below, the different workshop exercises are documented. For each exercise a brief comment is being made on purpose and methods. After that results from the exercise and notes from the following discussions are being made.

Agenda:

1. Report on the report from Poland
2. Workshop phase 1
    a. A common perspective
    b. Shortcomings and needs
    c. Identify measures
3. Workshop phase 2 - Future collaborations
4. Workshop phase 3 – Recommendations to the EU

Finally, conclusions from the workshop are listed.

[75] *The workshop report is written in Swedish for the participants. Relevant parts of this document have been taken up in the report to which this WS report is attached as an annex.*

Participants

NAME	ORGANISATION
Björn Peterson	Region Skåne
Emmy Harlid-Westholm	Region Skåne
Jacek Grabowski	Szczecin and Swinoujscie Seaports
Jacek Jasiewicz	Association "Odrą w Świat", Journalist
Lina Wells	TRV
Marta Ciesielska	West Pomerania
Michał Wolański	Wolański sp. z o.o
Mickael Holgersson	Ystad hamn
Nicolas Cronberg	Region Skåne
Paweł Kobiela	Koźle Shipyard
Petra Stelling	Region Skåne
Rafał Czyżyk	Association "Odrą w Świat"
Rudolf Kowalczyk	Koźle Shipyard
Tomas Arvidsson	ÅF transportföretagen jvg
Tomas Johansson	DHL transportföretagen syd
Tommy Halén	Port of Trelleborg
Wiktor Szydarowski	Region Blekinge
Zbigniew Antonowicz	Association "Odrą w Świat"

Report on the report from Poland

About

Report on improving transport and logistics in West Pomeranian region, within the framework that the Polish government have plans to improve navigation conditions on central and lower Oder.

Notes

- There is an aim to increase the share of high value industries along the Oder (not just bulk products), but the navigation conditions need to be improved.
- There are aims to move inland ports to intermodal logistic parks which specialise in modern industrialised goods that are difficult to ship via road / rail as well as to focus on "vanilla goods" (from Asia) which are customised in EU.
- The region near Oder (to the South of Swinoujscie) is currently underdeveloped. There is a great chance for the development of the region, and as part of this missing links to harbours/ports will be established.
- It is important to maximise efficiency of (freight) traffic in the region, and understand where investments should be made. There is a need for cost benefit analyses (CBA) and traffic models for the region.
- Current infrastructure projects included widening/upgrading of S3 road connection through the region which will be completed in the next few years.

For more information see report:

A set of analyses of transport and logistic functions of the Lower and Central Oder as a part of the core network corridor TEN-T. Authors: dr Michał Wolański, dr Bartosz Mazur, Wiktor Mrozowski, Mateusz Pieróg. TENTacle WP 2:2, August 2017.

Workshop phase 1

A common perspective

About

Discussions on the findings from the report carried out in Scania with the questions - Same findings in West Pomerania as in Scania? The group were divided into three groups. Each group worked with the findings in one area; commerce, logistics or environment.

Notes

Commerce

- Not enough knowledge amongst stakeholders in Poland to understand *how* to take advantage of the corridor.

- There are different goals / priorities that drive development and impact the ports and stakeholders.
- Trade flows between Sweden and Poland are still considerably low. Both countries still gear more towards Germany. If we want to connect the Baltic Sea with Odra we will have to move and invest in transhipment points. These kinds of investments are not profitable with the small flows.

Logistics

- Combi terminal in Ystad. Is there land enough?
- EU funding is key, but level of co-funding is a problem in Poland (the level of co-funding has decreased dramatically in CEF for Poland, but the level has been low for Sweden for a long time)
- The first step in Polish infrastructure have been to connect the roads, the second phase will now be the railway system. To increase railway freight transport, large investments to improve railway infrastructure are needed, and other things are prioritised in the region (inland waterway).
- Odra is in the border area with Germany, and agreement with Germany with regards to infrastructure is not always so easy. Support needs to come from both national and EU government, and there also problems with the competition with Rostock.
- The area around Odra is in Natura 2000, so it is not always easy to make infrastructure changes.
- There is an aim for the region to get the Odra as part of the TEN-T inland network.
- There are plans to build charging infrastructure in Szczecin (electric – portside (OPS – onshore power supply)), but it is not implemented yet. There are also discussions about LNG refuelling in the port, but no concrete plans. This needs to be coordinated / connected with inland waterways from Szczecin.
- The operators are important stakeholders. It is important to have the right facilities in port to handle intermodal transport.

Environment

- Possibility with diesel trucks ban in Szczecin. Will this foster transhipment from maritime to inland waterways? Empty trucks in West Pomerania, the aim is to shift these to inland waterways.
- CO2-emissions in the context of EU policy might not be realistic, because most people don´t have knowledge about the possibilities.
- Charging possibilities in the two ports Swinoujscie/Szczecin.
- Everyone agree on the importance of shift to rail, but we still search for solutions.
- Fuels use for transport, three possibilities:
    - LNG
    - Scrubbers
    - Methanol

Shortcomings and needs

About

The participants were setting out shortcomings and need on map of the whole region (see map below). With regards to environment and logistics major, shortcomings and needs were pointed out on post-its, in three categories:

- Nodes or connections
- The whole region
- In a system perspective

After the shortcomings and needs were identified, the participants voted for the most important issues. The votes are represented by the blue dots in the map. In the table, all identified shortcomings and needs are presented with the number of votes for each.

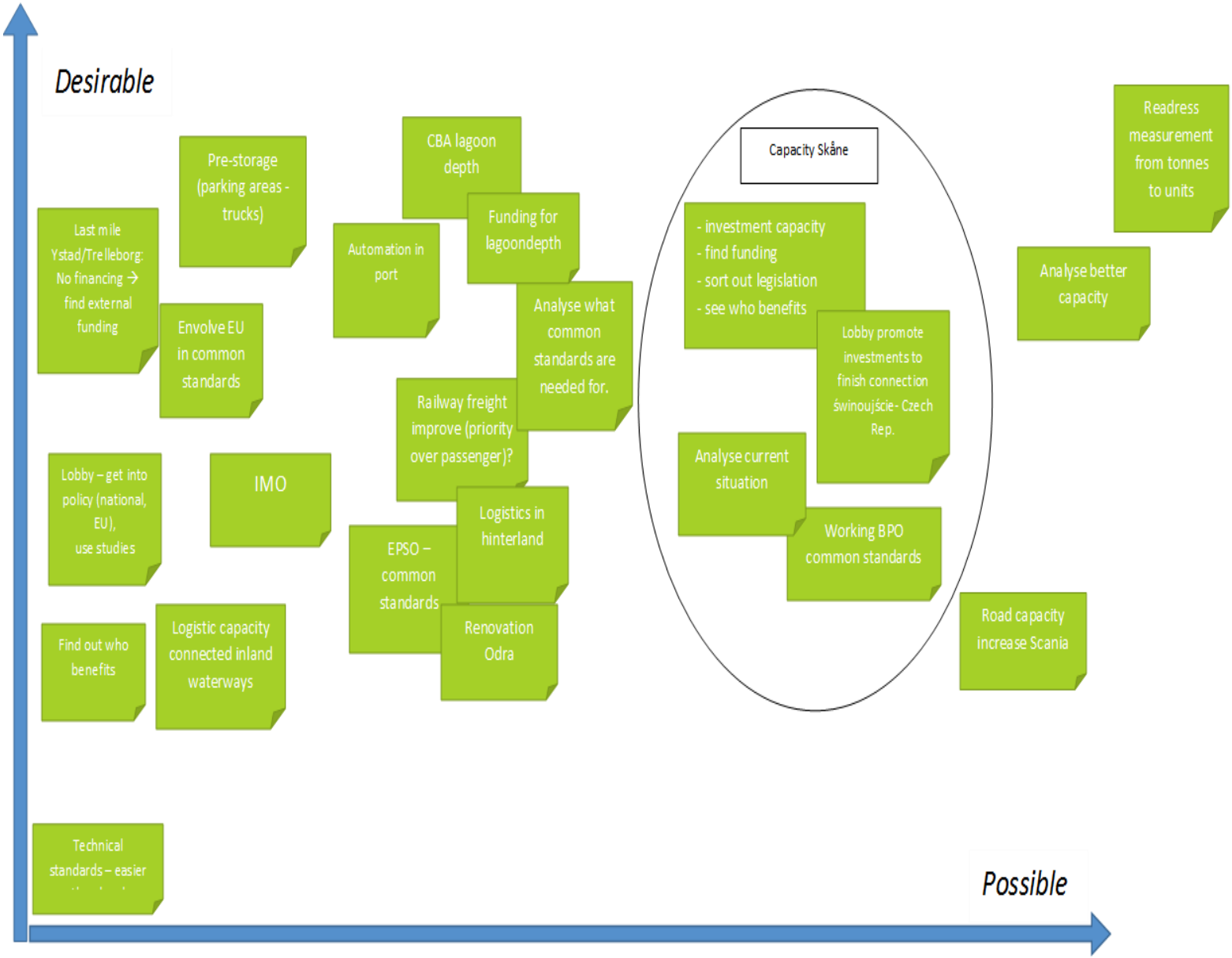
On the map:	Number of votes
Road/rail capacity	●●
Road capacity	●●●●
Last mile Trelleborg	●●●●●●●
Last mile Ystad	●●●
Container terminal	
Cost of new tech	●●●
OPS	●●●●
Depth of the lagoon	●●●●●●●
S3 capacity	●●●●●
Electrified motorways	
A central part: the channel is not deep enough.	●●●●●
Intermodal waterway terminal.	●●●
Post its (not possible to place on a map):	
Monitory system	
It's important to develop the inland waterway, even though the Germans don't share these plans.	●●●●●●●●
Timing	
Economics - cost	●●
Improve the railway infrastructure capacity.	●●●●
Lacking land on polish side. Very limited land use for harbours/ferries because of the location.	
Technology	●●
Lac of lifetable trailers.	
Operator in Poland – PKP.	●●
Common standards.	
Motorway link PL – CR + rail.	●
Lacking capacity on ferries.	
Green organisations don't share the visions for Odra.	●●

Identify measures

In this exercise, the participants got to work on the question - *Which measures are most effective in bridging shortcomings and needs*? The most important issues are chosen from the vote in the last exercise and were divided between the working groups. Every measure were placed a scale of desirable / possible. The result is documented below.

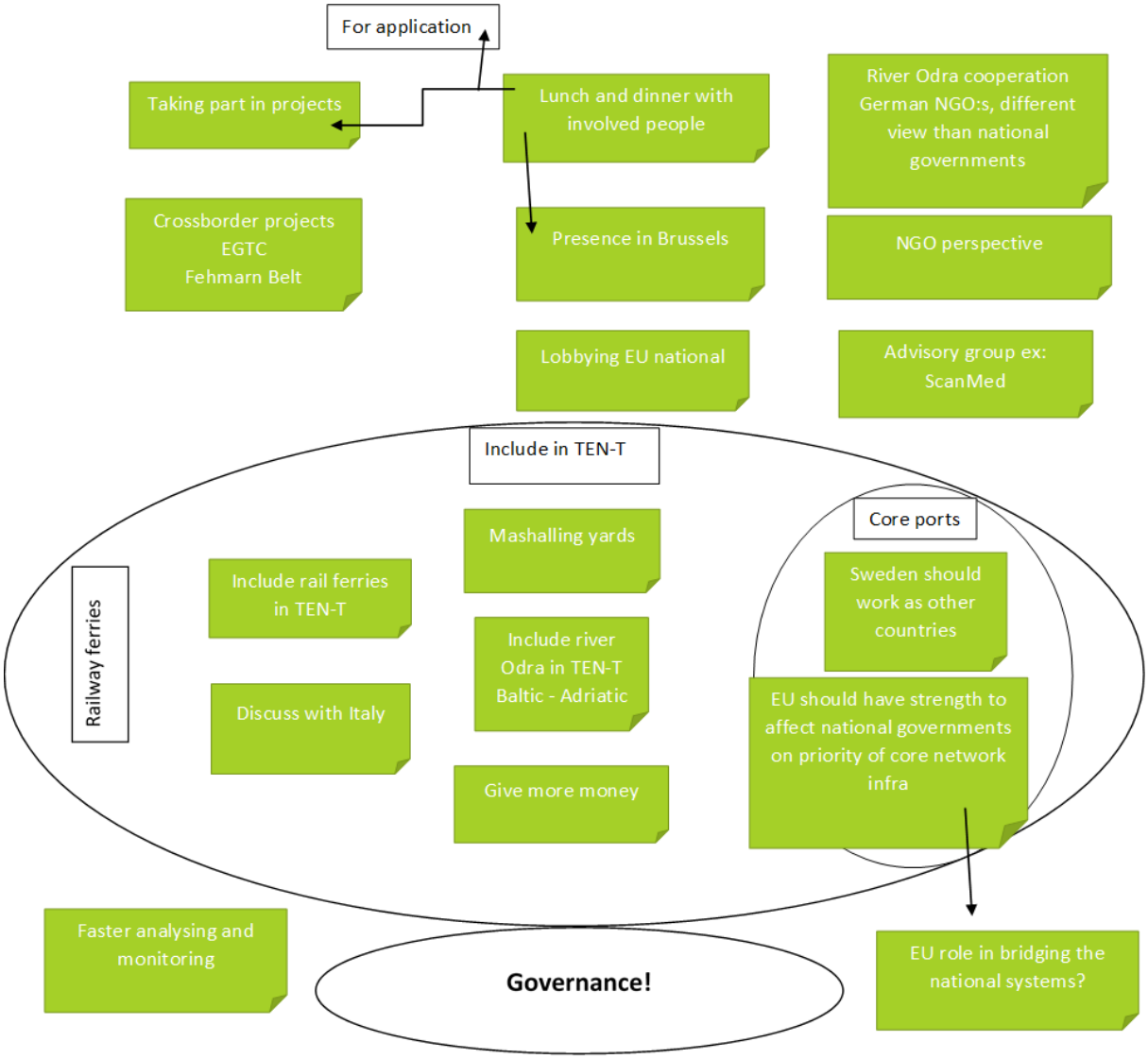
Workshop phase 2 - Future Collaborations

Work on future collaborations. The participants were divided into four groups. Each group selected one action at a time, from the "desirable-possible" list and filled in the template below.


Desirable
Possible
Pre-storage (parking areas - trucks)
CBA lagoon depth
Readdress measurement from tonnes to units
Last mile Ystad/Trelleborg: No financing → find external funding
Automation in port
Funding for lagoondepth
Capacity Skåne
- investment capacity
- find funding
- sort out legislation
- see who benefits
Analyse better capacity
Envolve EU in common standards
Analyse what common standards are needed for.
Lobby promote investments to finish connection świnoujście- Czech Rep.
Railway freight improve (priority over passenger)?
Lobby – get into policy (national, EU), use studies
IMO
Analyse current situation
Logistics in hinterland
EPSO – common standards
Working BPO common standards
Find out who benefits
Logistic capacity connected inland waterways
Renovation Odra
Road capacity increase Scania
Technical standards – easier

Workshop phase 3 – Recommendations to the EU

Type of measure	Lagoon depth Deeping of Szczecin – Swinoujscie	Lagoon depth	Railroad and road capacity in Skåne	Inland waterways	Capacity utilization, maximum speed, bearing cap, % electrified railroads	Rail & road infra in Skåne & Last mile Ystad/Trelleborg
Who is responsible?	-Maritime office in Szczecin -Ministry of maritime affairs and inland transportation	Polish government	- Governmental responsibility -Swedish transport agency -Region Skåne	-Water management -Inland management -Different harbours	-Swedish transport agency -Funding: not governmental	- Swedish transport agency -Regional – no infrastructure - Municipalities for local roads - Harbours
Which collaborations are necessary?	-Port authority/maritime office in Szczecin -Marshall office of West Pomerania -Stakeholder associations of Szczecin and Swinoujscie -German authorities	-Users of transport - Szczecin port -Bordering countries and government in joint venture - Perhaps funded by the EU	-Region Skåne -Local municipalities - Governmental authorities and agencies -EU		-Regional administration of transport = Region Skåne - Collaboration of stakeholders -Green cargo	-EU -Ports of Trelleborg and Ystad -Regions
Comments	-Work in progress. -- Securing founds for long term maintenance. - Beginning of the ODRA waterways revitalisation.		No single authority has the sector responsibility			CBA includes travel time for passengers, social benefits and modal shift.


For application
Taking part in projects
Lunch and dinner with involved people
River Odra cooperation German NGO:s, different view than national governments
Crossborder projects
EGTC
Fehmarn Belt
Presence in Brussels
NGO perspective
Lobbying EU national
Advisory group ex: ScanMed
Include in TEN-T
Core ports
Mashalling yards
Railway ferries
Include rail ferries in TEN-T
Sweden should work as other countries
Include river Odra in TEN-T Baltic - Adriatic
Discuss with Italy
EU should have strength to affect national governments on priority of core network infra
Give more money
Faster analysing and monitoring
Governance!
EU role in bridging the national systems?

Conclusions

1. The findings in West Pomerania are similar to those found in Scania.
2. The main difference in focus is that West Pomerania are focusing a lot of efforts on inland waterway via Odra river.
3. There is a large focus on inland ports / terminals and supporting economic development/ industry in the region.
4. There is a focus on improving connections to Szczecin which is the largest metropole in West Pomerania rather than Swinoujscie (Szczecin 10 X larger than Swinoujscie).
5. There are problems with connecting transport in Swinoujscie (not in terms of capacity, but due to the location of Swinoujscie, and the lagoon), but no priority in improving them.
6. The road transport network has been prioritised over the railway network. Now the inland waterway network is being prioritised.
7. Environment is less of a driving political priority in Poland than in Sweden, and focus is on meeting European requirements and regulations with regards to environment in construction of new infrastructure.
8. Low emission zones (LEZ) for diesel trucks in Szczecin could be a driving force in supporting a shift to railway transport.
9. There is a lot of focus on improving the lagoon for maritime transport, but this is not directly related to the connection between West Pomerania and Scania.
10. There are plans to allow for the use of alternative fuels in Szczecin / Swinoujscie with a focus on scrubbers, ethanol and LNG (focus on reducing sulphur content respecting IMO and EU regulations).