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Shifting freight from road to rail: a market-ready solution in Örebro and the challenges and opportunities related to it

Interreg Baltic Sea Region Project #R032 "Sustainable and Multimodal Transport Actions in the Scandinavian-Adriatic Corridor"

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Activity	3.3 Scandria®Corridor Multimodal Service Offer				
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Output Description (Application Form)

The services developed in A 3.3 (Fostering modal shift) will be compiled in a Scandria@Corridor Multimodal Service Offers. The Scandria@Corridor Multimodal Service Offer will be made assessable for all interested stakeholders. They will be presented in a professional manner (i.e as brochure or web-portal) to national and regional administrations in order to support them in decision-making considering modal shift incentives. The results will also be presented to multimodal service providers, cargo owners or forwarders. Therefore, relevant opportunities will be used, either by direct contact of the partners, via the relevant logistics networks or where appropriate via external events, like logistics fairs. All stakeholders will have access to the relevant results.The intention is to nondiscriminatorily identify business partners, that are interested in running the developed multimodal services. It is intended that at least two services developed by the project will be operated by private service providers in consequence.

Output Schedule

Source	Deadline / Milestone					
	31.10.16	30.04.17	31.10.17	30.04.18	31.10.18	30.04.19
Planned according to work plan						
Expected						

Quality Criteria
(for main outputs only)

The Multimodal Service Offers developed within the Scandria®2Act will target shippers, forwarders, terminals and train operators. The offers will contain information about:

1. possible train paths and/or short sea shipping timetables between Hamburg, Rostock, Oslo and/or Örebro.
2. stakeholders interested to work with accomplishing a model shift for freight transport between these locations.
3. services offered at the terminals in the respective locations.
4. freight volumes which should be of interest for a modal shift.
5. environmental and financial advantages with railroad and/or short sea shipping transport in comparison to road traffic.
6. a practical example case.

The aim of developing these Multimodal Service Offers is to get the private sector to understand the opportunities and advantages of railroad transport/short sea shipping, so that private actors will base on the Multimodal Service Offers and push for a modal shift. Two brochures will inform about the Multimodal Service Offers. The Multimodal Service Offers will be promoted at least at 8 regional logistics network events and distributed by mail to 300 market players.

Additional Quality Criteria
(for all outputs)

- Analysis of potentials of shifting freight from road to rail: a market-ready solution in Örebro and the challenges and opportunities related to it.

- The geographic scope is the Region Örebro County and further along the ScanMed corridor to central Europe

- There are two target groups; private actors within logistics (shippers, transport buyers, forwarders and freight owners) and also local, regional and national decision makers.

- Private actors may use this study for information about transport offers and possible shuttles. Decision makers may use this study for information about modal shift potential and as a foundation of what possibilities there is for environmental friendly transports (rail shuttles) towards central Europe.

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Executive Summary

This study is about shifting freight from road to rail in the Örebro region in Sweden. Örebro is an intermodal hub. Its transport infrastructure is part of the ScanMed corridor, which connects southern with northern Europe to Örebro, and then flows eastwards towards Stockholm and Helsinki. Almost all volumes going to and from northern part of Sweden, Norway, and Stockholm on rail pass through the Örebro region. Örebro is a transit hub for much of the transport going further north (and also southwards from northern Sweden).

This study is done as part of the Scandria®2Act project. The aims of this study were to:

- Propose a market-ready solution to shifting freight from road to rail for freight flows from Örebro to/from Europe that can be implemented by the actors working in the region.
- Identify and describe the challenges and opportunities for creating a viable solution that shifts freight from road to rail.

The aims for this study are within the context of developing the function of Örebro as a connection linking Sweden with Europe, as well as increasing the amount of traffic moving through Örebro, strengthening Örebro as a hub and increasing its competitiveness while at the same time working to reduce environmental impacts from freight transport.

This study was done in parallel to another study performed as part of the TENTacle project, in which the focus was on developing a practical solution to shifting freight flows from road to rail with a focus on flows from Örebro to/from the north of Sweden. This parallel study also focuses on transferability and how to draw general conclusions in the development of a practical solution. The two reports can be read together for increased context and understanding, but there is much overlap between them.

The study ran from April 2018-August 2018, and built on earlier work done by Region Örebro County within the TENTacle and Scandria®2Act projects. To achieve the project objectives, we have worked through material previously collected by Region Örebro County on freight flows in the region. Further interviews and contact with stakeholders has been made to get more detailed or new information and to matchmake rail freight transport operators with companies which are responsible for inbound and outbound freight in the region.

The primary target group for this report is people in regional and national authorities working on supporting the shift of freight transport from road to rail. The second target group is private actors working with rail freight transport in some way (e.g. logistics managers in companies interested in transporting their goods by train, freight forwarding companies, freight train operators, terminal operators, etc.).

The role of the public authority in creating a market-ready solution

The Region of Örebro County had as their aim of the study in proposing a market-ready solution for rail freight transport. This aim is somewhat of a misnomer, since the regional authority neither runs freight services, logistics services nor manages intermodal infrastructure in the region. The authority's role can be in proposing a new service (e.g. train service, dry port, new terminal, etc) but the whether it is market-ready or not depends on whether there are private actors who are willing to offer a solution on market-based conditions. In talking to private actors (train operators, terminal operator, freight forwarding companies) during this assignment, it became clear that offering a "solution" must be done on a case-by-case basis in an agreement between the different private companies, and that the agreement requires commitment that usually takes a long time.

Two things should be highlighted about the role of the public authority in offering a market-ready solution:

1. It is not the role of the public authority to offer a market-ready solution, but to offer the right conditions for private actors to create a market ready solution.
2. It takes a long time to get commitment between private actors in transporting freight by rail.

So the outset of the project can be said to be set on shaky ground, and the ambition of the project to create a market-ready solution too high, given that the project duration was only 4 months (and over the summer period), and given that the organisation tasked with this did not have the possibility to run their own services, and furthermore must work in a fashion that did not skew the competitive advantage of individual economic actors.

It is difficult as a public authority to support the practical shift of freight from road to rail in such a way that does not hamper the competitive advantage of one rail freight operator over another. It is not simply a case of saying "here you go, Green Cargo have services!" but of matching companies purchasing transport with those selling rail freight transport in a fair and transparent way ***so that they together can build a competitive solution***.

To achieve concrete results, namely an actual functioning train service, you would need a long-term commitment, which is not possible within a short-term project. The result in this case is that three rail freight transport operators have identified freight flows that they could run services. They will – together with the companies that generate the freight – be able to look into creating rail freight services that shift freight from road to rail and at the same time save money and reduce the environmental impact of freight transport. To be a market-ready solution requires that the private actors find an arrangement that works for them, and our role in this has been in supporting the contact and matchmaking in a fair and transparent way.

In total, the volume of freight that is under discussion for being shifted from road to rail is at least 200 TEU/week. During the duration of this project one of the companies has signed a deal with a rail operator to transport 17 000 tonne/year that previously was transported by road (from Germany to Örebro via Malmö).

The primary lesson learnt from this project is that it is important to clarify the role of the public authority in supporting the shift of freight from road to rail. A public authority does not have the possibility to run train services, or to collect company-specific data that could be subject to freedom of information requests. Their role is about supporting matchmaking and cooperation between companies that generate freight (importers and exporters to the Örebro region), and those which transport freight (freight forwarders, rail freight operators, etc).

The project will continue to work on a cooperation strategy in the autumn 2018, but it would have been better to start the work with a cooperation strategy including identification of key stakeholders to include, and their roles in supporting the shift of freight transport from road to rail.

A "market-ready solution" that can be implemented by actors in the region

We have identified specific flows that today are transported by road and for which rail operators could provide competitive solutions to transport by rail instead. Three practical proposals are given:

- 60 TEU / week consumer goods from the Czech Republic and Slovenia to Örebro
- 20 TEU/week import from Europe to Örebro

- 70 TEU/week export goods to Europe (France, Italy, Germany and Poland)

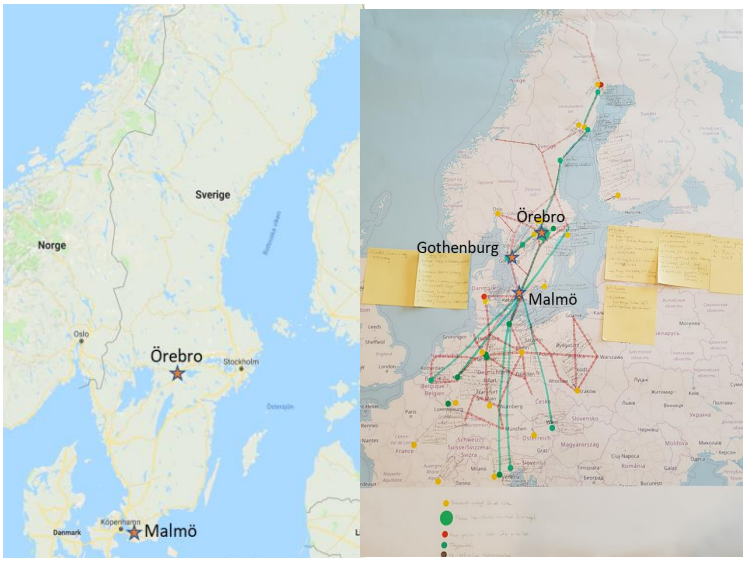
The freight train operators operational in the region have expressed interest in these flows because they can provide services for these based on existing rail freight services.

The "solution" which the regional authority can offer is about how to identify specific freight flows that today are transported by road but can instead be transported by rail: what stakeholders to involve, how to involve them, and what resources and competencies are required to do this.

In short, the solution is the suggestion for certain freight volumes to be transferred from road to rail for a particular route on existing routes that rail operators already run.

This solution follows the same methodology as that described in the TENTacle report "*Strengthening Örebro as an entry / exit hub to the Bothnian corridor: A generalised solution to support regions in shifting freight from road to rail*"

The solution was applied in the case of freight flows from Örebro to/from Europe via Malmö (see figure below). Here flows were identified in this connection and freight train operators were matched with companies so that they together could develop a solution. 3 train operators (out of 8 identified and contacted) offered services to companies. Discussions between them are ongoing at the time of writing.



Location of Örebro and Malmö in Sweden (left) and (right) mapping of freight flows and existing shuttle services of relevance. Source: Google Maps and own production

Market-ready: what is the critical mass of goods required, and how much will it cost?

In order to run a train service on market terms, flows in both directions need to be identified, and the service needs to run several times per week. This is based on information from train operators who we have spoken to. The amount of flows that need to be identified are not set in stone, but are in the range of 50-80 TEU per train. This means that if a new train service were to be opened from Örebro to Europe via Malmö then freight flows of minimum 50 TEU several times per week in both directions need to be identified. This however is the critical mass of freight to run a *new* train service. According to the train operators, what is more likely is that smaller amounts of goods can be transported on existing services which today are not full to capacity. This means that the amount of goods needed to shift from road to rail can actually be quite small, if there is an existing train service which can be used.

The cost is calculated based on an agreement between the freight transporter and the customer with freight. The cost is based on the amount of goods, how far they are transported, what type of goods, what other goods are transported on the same train, whether the train is full on the return trip, etc. This means that the cost is highly specific and variable and decided in agreement between two actors. The cost can be cheaper than transport by road – there are freight trains running today which prove this – but this can only be decided on a case-by-case basis.

Challenges and opportunities for creating a viable solution that shifts freight from road to rail

Several challenges and opportunities for developing a multimodal solution along the ScanMed Corridor were identified. These challenges are based on the practical implementation of a market-ready solution from the point of view of the regional authority that worked on this as part of the Scandria®2Act project. The challenges focus on the difficult role of the public authority in creating the network and collecting and storing the right kind of data as well as updating it regularly. There are many challenges in creating a train solution which stem from the difficulty in identifying large enough freight volumes.

The biggest challenge in this study has been in identifying the role of the regional authority in supporting the introduction of a market-ready solution without skewing the competitive advantage of any of the market actors, and without collecting sensitive company-specific data. Questions such as cost, finding track times, lead times, etc are important but can be solved only by the train operators – a train operator books track times, makes best price offers based on a case-by-case basis, and offers the best solution available for their customers.

Looking forward – what next for Örebro region?

The Örebro region is – and has the potential to be – a intermodal hub for freight transport, given its geographic location at the intersection of several (railway) freight routes. But what next for Örebro? Should there be more warehouses in Örebro? Should Örebro be a dry port to destinations in Europe? Should there be a new timetabled shuttle running southwards from Örebro? Etc.

The key action for Region Örebro County in supporting the role of the region as a multimodal hub needs to be cooperation, and a decision on the role of the regional authority in supporting this activity. The primary lesson learnt from this project is that it is important to clarify the role of the public authority in supporting the shift of freight from road to rail. A public authority does not have the possibility to run train services, or to collect company-specific data that could be subject to freedom of information requests. Their role is about supporting matchmaking and cooperation between companies that generate freight (importers and exporters to the Örebro region), and those which transport freight (freight forwarders, rail freight operators, etc).

The project will continue to work on a cooperation strategy in the autumn 2018, but it would have been better to start the work with a cooperation strategy including identification of key stakeholders to include, and their roles in supporting the shift of freight transport from road to rail. Based on this, decisions regarding more warehouses, dry ports or shuttles can be brought forward. These decisions lie primarily with actors in the private sector, and the role of the public authority needs to be decided based on what the private sector are interested in achieving.

1 Introduction

1.1 Background

The TEN-T core network corridors (CNC) is an instrument of the EU transport policy, aimed to improve mobility, intermodality and interoperability on the major transport axes across Europe. The network should contribute to the attainment of a smooth functioning internal market and the strengthening of economic, social and territorial cohesion in the Union.

The CNC also have as objective to allow the seamless, safe and sustainable mobility of people and goods, ensuring accessibility and connectivity for all regions of the Union, and contributing to further economic growth and competitiveness in a global perspective. Those specific objectives should be achieved by establishing interconnections and interoperability between national transport networks in a resource-efficient and sustainable way. For example, rail interoperability could be enhanced by innovative solutions aimed at improving compatibility between systems, such as on-board equipment and multi-gauge rail tracks.

Shifting freight from road to rail is an important part of the European Transport Policy, based on Transport White Paper published in 2011, as is evidenced in for example the Shift2Rail Joint Undertaking financed by the European Union[1]. This shift from road to rail will be achieved through a conscious effort on intermodal transshipment nodes, increased capacity in rail networks, cooperation with interests along the corridors, and by bridging administrative and infrastructure bottlenecks.

This study is done as part of the Scandria®2Act project, funded by the Interreg programme. This European project follows an initiative of regions located along the Baltic Sea Region stretch of the Scandinavian-Mediterranean CNC working on a harmonised corridor development.

The main objective of the Scandria®2Act project is to foster clean, multimodal transport to increase connectivity and competitiveness of corridor regions while minimising negative environmental impact induced by transport. For this purpose, project partners have developed a joint project approach addressing:

- the deployment of clean fuels,
- the deployment of multimodal transport services and
- the establishment of a multilevel governance mechanism, the Scandria®Alliance.

This study focuses on addressing the main objective of the project with a focus on increasing the share of rail freight transport, and improving the possibilities for increased rail freight transport that both increases the competitivity of the region of focus (Örebro) as well as reduces the negative environmental impacts of freight transport by reducing road freight transport volumes.

1.2 Overview and aim of the study

The aims of the study were to:

- Propose a market-ready solution to shifting freight from road to rail for freight flows from Örebro to/from Europe that can be implemented by the actors working in the region.

[1] https://shift2rail.org/

- Identify and describe the challenges and opportunities for creating a viable solution that shifts freight from road to rail.

The aims for this study are within the context of developing the function of Örebro as a connection linking Sweden with Europe, as well as increasing the amount of train traffic moving through Örebro, strengthening Örebro as a hub and increasing its competitiveness while at the same time working to reduce environmental impacts from freight transport.

This study was done in parallel to another study performed as part of the TENTacle project, in which the focus was on developing a practical solution to shifting freight flows from road to rail with a focus on flows from Örebro to/from the north of Sweden. This parallel study also focuses on transferability and how to draw general conclusion in the development of a practical solution. The two reports can be read together for increased context and understanding, but there is much overlap between them.

The study ran from April 2018-August 2018, and built on earlier work done by Region Örebro County within the TENTacle and Scandria®2Act projects. This is primarily written up in two reports:

- Potential of Örebro area to funnel flows between the northernmost BSR territories and the ScanMed Corridor. TENTacle WP 5.3, Activity 5.3.3
- Scandria®-Coridor Multimodal Service Offer, Potential of Modal Shift. Scandria®2Act project report under Activity 3.3 Fostering modal shift potential

Background materials from these reports was also used as input to this study, particularly input from interviews conducted with approximately 80 companies located in or connected with the Örebro region.

1.3 Target group for this report

There are two target groups for this report. The first is people in regional and national authorities working on supporting the shift of freight transport from road to rail. This covers regional and national authority representatives from Europe (and particularly those located along the CNC rail corridors). The second target group is private actors working with rail freight transport in some way (e.g. logistics managers in companies interested in transporting their goods by train, freight forwarding companies, freight train operators, terminal operators, etc.).

1.4 Method

This study builds on work done in previous studies which is described in detail in the reports mentioned above. The work done in the study as presented here was performed by Trivector Traffic with support from Region Örebro County.

What has been done in this study to fulfil the aims of the report is the following:

- Review of previous work done and data collected (particularly large Excel file with details of freight flows from approx.80 companies with inbound and outbound freight to Örebro region.
- Identification of potential flows that can be shifted from road to rail. This was done through:
    - Detailed analysis of collected data
    - Regular discussions between Trivector and Region Örebro County
- Interview study to collect complementary information from:
    - Companies identified in previous study
    - Freight forwarders

    - Freight train operators
- Matchmaking companies done by email / phone between freight operators and companies with inbound and outbound freight in Örebro region
- Collection of other examples of multimodal transport solutions that provide input to successful challenges and opportunities as well as input to the solution proposed here:
    - Literature review
    - Interviews
- Analysis work regarding the solution proposed here done through internal meetings in Trivector.
- Regular meetings / updates (at least weekly) with Trivector and Region Örebro County to follow the progress of the project

The study has not had a totally linear development, as it has been necessary to spend a lot of time contacting stakeholders, both to get information, and to spread information, in order to create a multimodal solution. More details about what we have done in the study in more detail can be found in chapters 3 and 4.

1.5 Overview of the report

This report is written in 5 chapters:

- **Introduction**

  Introduces the study and sets the aims and scope as well as presents the method used.
- **Present situation**

  This chapter describes background information of relevance to the solution giving a description of Örebro in a freight context. This chapter is written for a target group that do not have background information on Örebro region.
- **Description of the solution**

  This chapter describes the solution proposed in this study. This chapter is meant for both target groups of the report.
- **Challenges and opportunities**

  This chapter focuses on the challenges and opportunities available to support the shift of freight transport from road to rail. A focus is on the Örebro region, and Swedish context, with an eye on other regions in Europe, along the ScanMed corridor.
- **Conclusions and recommendations**

  Short summary of conclusions for both target groups.

2 Present situation

2.1 Örebro region as an intermodal hub

Örebro is the name of a city located in mid-Sweden, to the west of Stockholm, while also the name of a county with the city of Örebro as its capital. This report focuses on the role of the county or region of Örebro as an intermodal freight hub, thus further mentions of “Örebro” refer to “Örebro County” if not stipulated.

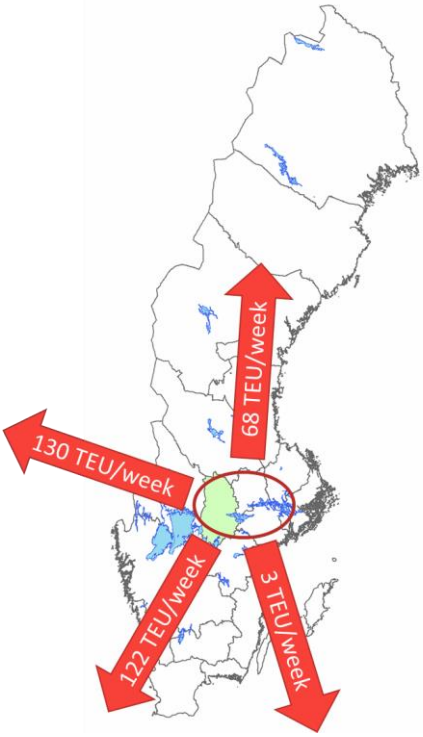
Örebro fills the criteria to function as an intermodal hub. Its transport infrastructure is part of the ScanMed corridor, which connects southern with northern Europe to Örebro, and then flows eastwards towards Stockholm and Helsinki. Almost all volumes going to and from northern part of Sweden, Norway, and Stockholm on rail pass through the Örebro region. This is why Örebro should and does work as a transit hub for much of the transport going further north (and also southwards from northern Sweden).

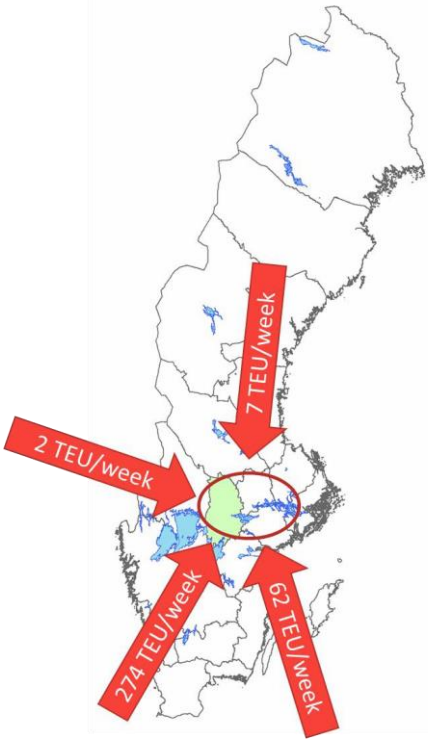
Within a previous Scandria®2Act task, a benchmarking study among several companies along the ScanMed Corridor was carried out to identify which existing intermodal connections from Scandinavia to Central Europe are offered on the market. The study concludes that there are several different rail freight shuttle services to/from central Europe offered via Malmö from Alnabru in Norway as well as to/from Gothenburg, Stockholm, Eskilstuna, Katrineholm etc. There is however no intermodal shuttle service from Örebro southwards. The study considered that the lack of shuttle service was remarkable given the large volume of goods transported through Örebro. There are in fact several freight trains trafficking this route, but no shuttle services available for easy on-line booking.

2.2 Possible modal shift opportunities

Through a market study, carried out for both Scandria®2Act and the parallel project TENTacle, an investigation regarding modal shift opportunities was performed. The study consisted of interviews with companies located in the Örebro region to try and understand their current flows. The market study was performed with the help of a modal shift evaluation model developed to assess the likelihood of company specific goods flows to be transported by rail, based on several criteria. The evaluation gave the following results (also see the figure below):

The calculated flows towards Örebro based on the data were in the range of 274 TEUs/week, while those from Örebro to Central Europe were 122TEUs/week. On a theoretical level, this means that there is a potential for introducing a railway shuttle between the Region Örebro to central Europe 2 times per week, assuming 80 TEUs per train, although the data in itself is not complete, and changes quite often. The market study concludes that there is a great potential for modal shift on the theoretical level, although the practicalities of this were not investigated. This is further investigated in this present study.





2.3 Challenges

The market study identified several obstacles to achieve a modal shift.

- Competition from other modes of transport is a particularly important factor when considering whether railway transport is a preferable option. In this regard, proximity to ports and intermodal terminals are important factors. If the goods being transported is of high volume, and if there are ports in close proximity at both the sending and receiving end, railway transports will have a hard time competing with sea transports. Similarly, if the distance is too short railway as a mode of transport will have a hard time competing with truck transports. The railway's ability to compete with other modes of transport above all comes down to transport time and costs.
- Another factor (also mentioned above) is how difficult the booking procedure is perceived between the different modes. The procedure for booking a railway transport is generally considered more complex than the procedure for booking a truck transport. The differences (in complexity) between booking a railway transport compared to a sea transport however should be similar.
- Unit trains are mostly dedicated to only one client or goods owner and are fixed to the client's operations. Having a restricted time schedule and destination, they are less flexible than an intermodal shuttle train.

- For central warehouses the time schedule is a crucial aspect. The goods often need to be at their new destination within 12 hours.
- A large number of companies with consumer goods cannot gather enough volumes to have their own dedicated unit trains. This means that for them to shift to rail, their goods need to be coordinated with other companies with similar interests.
- Technical incompatibilities exist regarding the types of goods, loading units and wagons that are used to load different types of goods.

3 The solution

This study has focused on finding a market-ready multimodal solution focused on shifting freight from road to rail from Örebro to and from Europe. A market-ready solution means that it needs to ready to be implemented on the market. Upon reviewing the information received from the previous interviews collected, collecting more information from companies, and talking to freight train operators and freight forwarders, **it was clear that there was not enough volume of freight identified to run a new train service, nor to set up a dry port to destinations in Europe**.

What became clear though, is that there are certain freight volumes which today are transported on road, and which could be transported on rail. The "solution" that is offered is a practical market-ready solution which has identified freight flows which today are transported by road and which – according to freight train operators – could fit with existing train services (by adding extra wagons). Within the context of this project, we have identified 200 TEU / week of goods per week with potential to be shifted from road to rail.

It is difficult for an organisation (especially one that is publicly run) to support the practical shift of freight from road to rail in such a way that does not hamper the competitive advantage of one rail freight operator over another. It is not simply a case of saying "here you go, Green Cargo have services!" but of matching companies purchasing transport with those selling rail freight transport in a fair and transparent way so that *they together can build a competitive solution.*

The starting point of this project was set on shaky grounds because the resources were available for Region Örebro County to create the market-ready intermodal solution, but it is neither in their remit nor their interest to themselves run freight transport services. Additionally, to achieve concrete results, namely an actual functioning train service, you would need a long-term commitment, which is not possible within a short-term project.

What has been achieved by the authority is support in matchmaking of companies. The result in this case is that **three rail freight transport operators have identified freight flows that they could run services for – some of these are described below**. They will – together with the companies that generate the freight – be able to look into creating rail freight services that shift freight from road to rail and at the same time save money and reduce the environmental impact of the transport. To be a market-ready solution requires that the private actors find an arrangement that works for them, and our role in this has been in supporting the contact and matchmaking in a fair and transparent way.

In total, the volume of freight that is under discussion for being shifted from road to rail is at least 200 TEU/week. This is for different routes and destinations and only in one direction, so it is no enough to run new train services, but to hitch on to existing train services. During the duration of this project one of the companies has signed a deal with a rail operator to transport 17 000 tonne/year that previously was transported by road (from Germany to Örebro via Malmö).

In order to run a train service on market terms, flows in both directions need to be identified, and the service needs to run several times per week. This is based on information from train operators who we have spoken to. The amount of flows that need to be identified are not set in stone, but are in the range of 50-80 TEU per train. **This means that if a new train service were to be opened from Örebro to Europe via Malmö then freight flows of minimum 50 TEU several times per week in both directions need to be identified.**

At the same time, there are many uncertainties here, and what the required amount of goods would be to run new services is case-specific. It depends on the types of goods, and how they are transported,

as well as whether flows can be transported in both directions. The measure of TEU ("Twenty-foot equivalent unit") gives an idea of volume, but there are restrictions on weight and lengths of trains, and these restrictions are not the same in all countries. Additionally, different types of freight need to be transported on different types of wagons. The aim in this case is to focus on intermodal freight which means the focus is on freight that can be transported in intermodal containers or vehicles.

3.1 Identifying a market-ready solution

The aim was to propose a market-ready solution to shifting freight from road to rail for freight flows from Örebro to/from Europe that can be implemented by the actors working in the region. In short, this can be described as a solution which actually moves freight from road to rail.

There are two ways that this can be done:

- Create a new train service (a shuttle or unit train) that carries freight that was previously carried by road.
- Identify freight flows that today are transported by road that can be carried on *existing* train services

The two solutions work in different ways. A generalised view on how this can be approached is described in the report "*Strengthening Örebro as an entry / exit hub to the Bothnian corridor: A generalised solution to support regions in shifting freight from road to rail*". Below we describe what has been done in this study.

To support the shift from road to rail for freight travelling to/from Örebro to Europe can also be supported by enhancing the intermodal operations available in Örebro, specifically the introduction of a dry port to different destinations in Europe. This is also described below for the case of Örebro.

The next sections of this chapter include: (1) a short description of what is needed to make the practical shift, and why it is not possible to run new train services or create a dry port based on existing data and (2) identification of freight flows, with examples of specific flows that can be shifted from road to rail and (3) lessons learnt from this study.

3.2 What is needed to make the shift from road to rail

Shifting freight from road to rail is about finding the freight volumes. To run a train requires, as stated above, about 50-80 TEU in both directions several times a week. To do this requires the identification of freight flows, and the matching of freight flows with train operators to run new services or to use existing services which have spare capacity.

The data that is needed

Train operators require data on flows including origin and destination, volumes, lead times, type of freight in order to be able to run a service. Companies with import / export flows need to know which train services are available. Train services in Sweden are typically so-called "unit trains", where a single customer buys a whole train from origin to destination. This solution is used widely by the bulk industries (e.g. iron ore, timber). Sometimes, several actors can get together and match their flows to create a unit train, and if there is spare capacity on a train, an operator can add extra wagons for other customers. The details of these unit trains are held by the train operators but are not published. Finding out about these train services means taking direct contact with the freight train operators. Shuttle services are also available – these are services which companies can book transport on (often online) for a particular scheduled service, more comparable to passenger transport services.

The data we had

Data was collected in the autumn of 2017 both on freight flows and existing train operators and known routes.

The data on freight flows was collected by interviewing companies working in the Örebro region. Around 80 companies were included in this data collection activity. The companies were identified primarily through the organisation Business Region Örebro (a publicly-run organisation that supports new and existing businesses in the region). The sample was opportunistic, and was not designed in a way to get a representative picture of freight flows in the region, but rather to begin to collect data that at the outset was completely lacking. The idea of this report was to understand what the potential was for modal shift.

Additionally, it was not always easy to find the right people to talk to within the organisation who had responsibility for freight – either if the wrong person was interviewed in the organisation, or if the organisation did not have control over their transport which was the responsibility of a transport / freight forwarding company.

The data collected provided an overview of freight flows from the companies contacted. The data had gaps, including gaps of details for individual freight flows but also gaps based on data from companies that were not interviewed. The details of train services and train operators operational in the region was also incomplete since freight train operators do not release data on most of the trains they run which are unit trains.

The data was complemented with additional interviews/ email correspondence in the spring 2018, once specific freight flows and operators were identified as being of interest. The best way forward would have – in retrospect – been to start with the freight train operators, to ask them where they had existing capacity, working backwards to identify which companies they should set meetings with. However, since the theoretical potential in previous reports was so large, there was hope for creating altogether new solutions such as a new shuttle service or dry port service to destinations in Europe. Thus the focus at the outset was on collecting more detailed information on the existing flows, trying to plug gaps in data, and seeing how different freight flows could possibly be matched together to get large enough volumes.

Running new train service Örebro-Europe

There needs to be a large enough volume to run new shuttle or unit train services. Today there is a shuttle service from Hallsberg (terminal to the south of Örebro) and Port of Gothenburg, for which information is freely available.

Based on the data collected, it was clear that there were not any large enough flows to run a new train service to Europe via any of the routes (West then sea, East then sea or South then sea or rail). The train operators who we discussed this with made this clear. There are primarily two reasons that sufficient freight volumes were not found:

(1) the opportunistic sampling method used started from companies and not from flows. Other data-collection methods such as roadside interviews or freight surveys would be better methods to identify freight volumes[2]. The method used in this project (and the previous studies) are extremely valuable for building up contacts and a network, but less so for understanding total freight volumes / potential freight volumes.

[2] For example, take a look at Swedish Transport Analysis reports on freight transport statistics: https://www.trafa.se/sidor/kartlaggning-av-godstransporter/ (accessed 2018-09-30)

(2) Freight must be identified in both directions, and through-traffic should also be identified. Focusing only on companies that generate freight in Örebro makes it difficult to get a bigger picture of freight flows, and to identify customers for freight train operators.

Dry port to destinations in Europe

A dry port is a geographical area located inland where goods are handled without direct contact with the sea, but guarantee the same function as a maritime port (e.g. regarding paperwork for different countries to travel abroad). A dry port works best if it is intermodal, and supports several different modes[3].

A dry port supports a shift to rail by supporting intermodal solutions, decreasing handling time at ports, and supporting more efficient multimodal solutions.

Hallsberg terminal, an intermodal terminal located to the south of the city of Örebro already works as a dry port to Gothenburg, with 24 000 containers shipped between Gothenburg and Örebro (Hallsberg) every year.

According to the terminal operator (Logent), it is fully possible to set up a dry port to other destinations in Europe. Hallsberg today is run by a private operator, and creating a dry port to other destinations in Europe requires that there is a business case for this. The business case requires that there are sufficient volumes of freight running from the origin (Hallsberg) to the destination. Given the data collect, sufficient volumes were not identified.

This may however change in the future, particularly when a double-track is built out for the connection Hallsberg-Malmö. This will allow the strengthening of railway connections to the continent, and creates better market conditions for a dry port to European ports.

3.3 Identifying freight flows

The first part of identifying appropriate freight trains flows was to identify which route would be best to focus attention on, based on the data that had been collected. The focus in the Scandria®2Act project is from Örebro towards mainland Europe (and back), so this was the focus of this application.

To develop a new freight shuttle service requires the identification of large flows on specific corridors to make it feasible for train operators to be able to run a service. Travelling to mainland Europe from Örebro, there are two primary routes to take – either (1) westwards to Gothenburg, then by ferry to Europe or (2) southward to Malmö, then either through Denmark by train, or by ferry from Malmö, Helsingborg, Trelleborg or Ystad (these latter two have railway ferries in operation) to other destinations in Europe.

Identification of freight flows

By looking at the known information about freight flows collected from companies with inbound and outbound freight flows in Örebro, potential flows to be shifted from road to rail were identified. The results were displayed on a map and overlaid with existing timetabled rail shuttles (see Figure 2). The map was then used as basis for analysis of where the largest potential is (together with detailed collected data), also including additional information about specific flows that had been collected.

Of the two primary freight corridors from Örebro to mainland Europe, the route to Gothenburg was deemed to be less interesting since there is already a great deal of rail freight on this route, as well as existing timetabled shuttle in operation.

[3] Woxenius et al (2004). The Dry Port Concept – Connecting Seaports with their Hinterland by Rail. ICLSP 2004

Thus the route with most potential was identified as Örebro-Malmö. This is an important route because Malmö opens up many routes in Europe (see Figure 2).

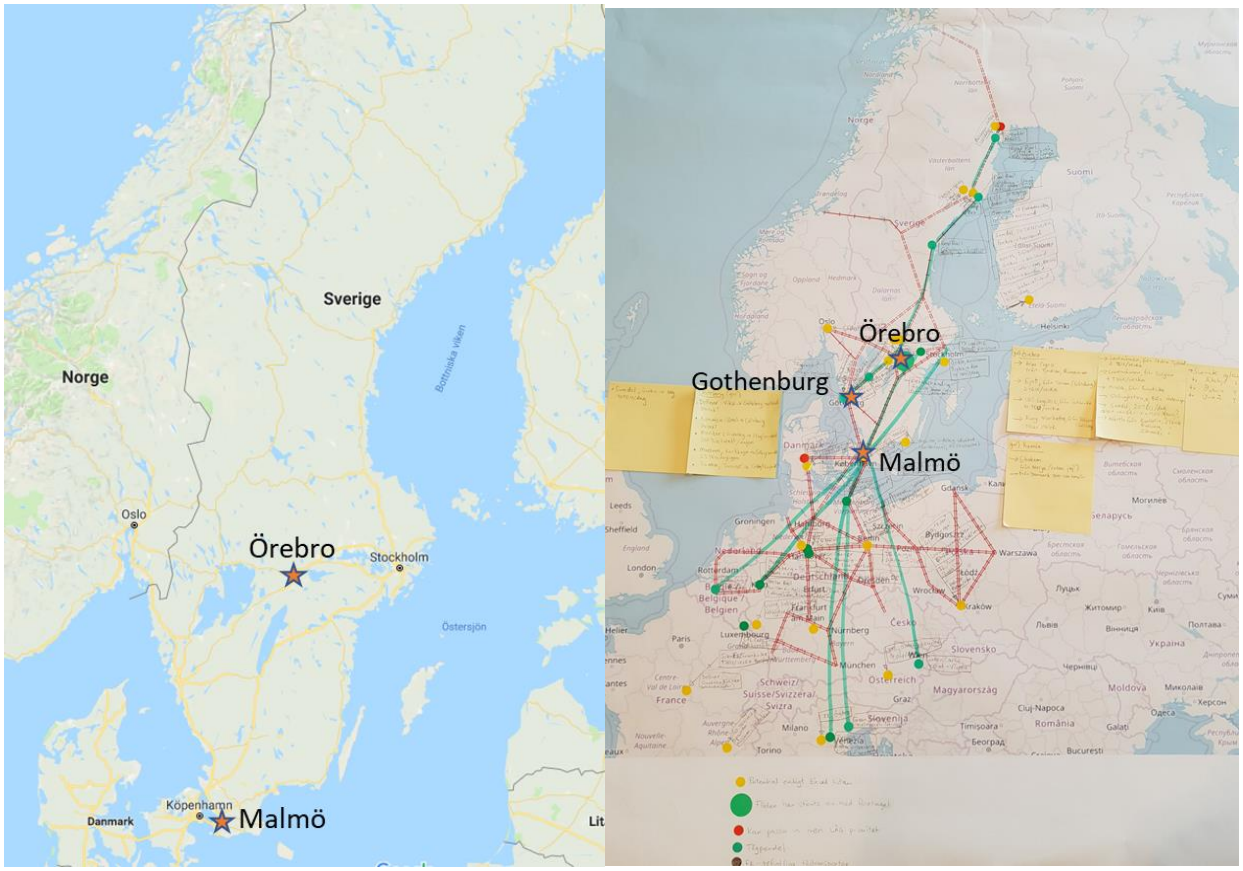


Figure 1 Location of Örebro and Malmö in Sweden (left) and (right) mapping of freight flows and existing shuttle services of relevance. Source: Google Maps and own production

The total freight volumes collected (based on the data available) resulted in the total flows shown below. These flows are the total potential flows identified in the study to shift from road to rail for the Örebro-Malmö based on the data that was collected, although by no means presents the whole picture. The data collected in a previous study was quite patchy, and in many cases incorrect when double-checked with companies with inbound and outbound freight. Details regarding type of goods, origins and destinations, frequency, as well as contact persons were also summarised, but are not included here because these details are sensitive company-specific information. These details are relevant also in identifying what kind of train (if at all) the freight can be shipped on.

Table 1 Overview of the total flows estimated in the connection Örebro-Malmö. These are the total theoretical potential of flows, based on the data collected, but not all of this volume can be transported by train since it depends on the type of freight, lead times, etc.

	Total TEU / week	% in crate	% bulk
Örebro - Malmö	461	88%	3%
Malmö - Örebro	108	38%	0%

Identification of freight train solutions

There are a number of freight train operators in Sweden, most of which can be found via www.tagoperatorerna.se[5], and all relevant freight train operators were contacted to ask about their interest transporting freight on this link based on our overview of freight flows. Freight train operators were also identified in the previous report *Potential of Örebro area to funnel flows between the northernmost BSR territories and the ScanMed Corridor. TENTacle WP 5.3, Activity 5.3.3*.

Several of the operators that were contacted have freight trains running on this link (Örebro-Malmö). Note that they have trains running on this link that are not shuttle trains that anyone can book on. However, many of these trains have capacity to transport more goods, and already follow a specific timetable, so the freight train operators are interested to come in contact with companies who can transport their freight on this link, so they can fill up their trains to capacity, and make a more efficient solution.

When the trains reach Malmö, there are then many trains that run further to many destinations throughout Europe, with a number of different operators.

General comments on freight flows, and some examples

There is a shortage of rail freight from Europe to Sweden. There is quite a large amount of export via train, but there is more of a challenge in filling trains returning to Sweden according to the train operators we have talked to.

This means that the most interesting flows that can be offered a freight train solution are those travelling from Europe – anything over 12 TEU/week in this direction could be of interest. This four-month study builds on existing work done. The previously collected data was added to by requesting complementarity data, and with interviews with companies, but it was not in the remit of this project to identify new companies or flows. The gaps in the collected data we worked with in this study provide a considerable barrier in identifying the flows with largest potential for actual shift. Several companies responded that they did not recognise the previously collected data, or that they could not give specific details about origins, destinations, type of freight because they did not have this information. Without specific data, train operators have difficulty to offer a solution, so much of the theoretical potential flows identified cannot be shifted to rail in practice.

Some examples of identified flows that could be shifted to rail

Example 1: 60 TEU / week consumer goods from the Czech Republic and Slovenia to Örebro

The consumer goods identified work well as container-freight, preferably ISO containers, but could also work as crates on a conventional train. The company itself was positive to train transport, and see no specific barriers in transporting by train. They have no tracks connecting the last mile to their warehouse, so this would most likely be an inter- or multimodal solution, most probably via the combi-terminal in Hallsberg. Two of the train operators have train connections relatively near to the shipment origins in Europe and have expressed interest. This solution looks positive, but the price will be the deciding factor.

Example 2: 20 TEU/week import from Europe to Örebro

[4] English translation: “the train operators” – industry grouping of train operators in Sweden.

[5] English translation: “the train operators” – industry grouping of train operators in Sweden.

Today the freight is transported by road from Helsingborg (south coast of Sweden), after transport by ship. The freight is on crates, and one of the train operators has identified this as interesting given they have trains freighting steel down to Europe that could be filled with these goods on the way back up to Örebro. There are good intermodal connections in Helsingborg, which has a large shunting yard and the possibility to load conventional trains. The company has good connections by motorway connecting to Hallsberg terminal. Thus the solution would have road for the last mile, but replace road freight to rail for the stretch Helsingborg-Hallsberg.

Example 3: 70 TEU/week export goods to Europe (France, Italy, Germany and Poland)

There is also the possibility to support the shift of export goods (from Örebro to Europe), and there are two companies which export to locations which today have already established train routes, so there is the possibility that these can be matched with existing flows. The freight is packages and could use intermodal solutions in ISO containers or trailers. One of the companies also has tracks to their warehouse which means that even conventional trains could work, and one of the companies has communicated an interest to transport by train and have lead-times for which this could work.

Additionally, during the duration of this project one of the companies with which we have been in touch has signed a deal with a rail operator to transport 17 000 tonnes/year that previously was transported by road (from Germany to Örebro via Malmö).

3.4 Lessons learnt

Based on the application of the solution for a specific case, we have several lessons learnt that are important to share with others thinking of replicating the solution. These are summarised below

3.4.1 The role of the regional / public authority

The primary lesson learnt from this project is that it is important to clarify the role of the public authority in supporting the shift of freight from road to rail. A public authority does not have the possibility to run train services, or to collect company-specific data that could be subject to freedom of information requests. Their role is about supporting matchmaking and cooperation between companies that generate freight (importers and exporters to the Örebro region), and those which transport freight (freight forwarders, rail freight operators, etc).

Within the context of the Scandria2Act project, a lot of effort was placed on talking to companies and understanding about their freight flows and their opinions regarding barriers to shifting from road to rail. This data collected will never be complete, and is difficult to share (see also below regarding "data management"). The data that was collected in the autumn of 2017 did not provide enough information to identify flows that could be just switched from road to rail (creating a market-ready solution). It was difficult to use this data since it had many gaps and it would have been easier if freight generating companies and train operators were actively brought together from the beginning, and data collected in a more piecemeal way. For example, several rail freight operators have a specific interest in identifying import flows from Europe to Örebro to fill existing capacity. This could have providing a good starting point to try to identify companies with these types of flows.

The project will continue to work on a cooperation strategy in the autumn 2018, but it would have been better to start the work with a cooperation strategy including identification of key stakeholders to include, and their roles in supporting the shift of freight transport from road to rail.

3.4.2 Long-term thinking & business plan

Getting freight shifted from road to rail requires the involvement of many (often private) stakeholders, and this solution is no different. The solution relies strongly on building network and building trust in the network. A lot of work and resources have gone into building this network which is a valuable resource for Region Örebro County to build on further in future projects, and it is important in order to maintain trust in future work that the information gathered is used, and that contacts and input from stakeholders are taken up and built into future work. There is a risk in this case that this initiative will only be implemented within the framework of a project. Within this project, there has been little consideration of the long-term plan. This both hampers ongoing work, but also makes it difficult to build trustworthy relationships.

Experience can be taken from other projects in this area including work done on urban freight terminals[6], which show that long-term sustainability of a solution can be managed by considering a business model approach from the outset. This does not necessarily mean that a private actor needs to run the service. It means that a clear stakeholder analysis needs to be made as well as an understanding of what *value* different stakeholders get from this solution. Based on the value, revenue streams can be considered, but this also includes the public authority (who have value for the solution and can provide a revenue stream). It would have been desirable in this case, if a more long-term

[6] www.smartset-project.eu

consideration had been made from a more business-orientated mindset, as this can help support the economic sustainability of the solution.

3.4.3 Data management

An important lesson learned in the work done as part of this study is that data management in this field is extremely important and tricky. It is important because shifting freight from road to rail, and identifying multimodal flows relies on an understanding of flows and having the right contact people.

It is tricky for several reasons:

- Data needs to be regularly updated because it quickly becomes out-of-date
- Data is often confidential, so needs to be handled with extreme care:
    - public authorities who are subject to Freedom of Information requests have difficulty managing the data.
    - Data on freight flows cannot be passed to train operators by a third party as it is confidential.
- Data collected on freight flows needs to be anonymised before it is shared between stakeholders
- It is difficult to get the data that is required in the format required (takes a lot of work)
- The structure of the data is important to get something meaningful out of it, and needs to be described clearly.

That it is tricky means that considerable attention needs to be made as to how the database is set up and updated, but also in the consideration of data management processes.

3.4.4 The right competences are key in getting the right data and creating a network

One experience in working in this project is that it is important to have the right competencies to be able to discuss with stakeholders on the right level. This is both about collecting the right kind of data, and also building the right network. The competencies identified are understanding / expertise in the following areas:

- Logistics
- Multimodal freight transport systems
- Business models / business-minded thinking
- Models of cooperation, particularly between public and private sector

4 Challenges and opportunities

It is worth to remember that the organisation tasked with setting up a multimodal market-ready solution in this project was a regional authority. As pointed out before in this report, the role of the public authority is not to run a train service but to support different actors (almost exclusively private) to come together so that they together can find a cost-efficient solution that works for them.

In the case of this project, companies with freight flows have been put in touch with freight train operators based on their mutual interest to see if a competitive solution for rail freight can be offered (see examples in section 3.3).

The biggest challenge in this study has been in identifying the role of the regional authority in supporting the introduction of a market-ready solution without skewing the competitive advantage of any of the market actors, and without collecting sensitive company-specific data. Questions such as cost, finding track times, lead times, etc are important but can be solved only by the train operators – a train operator books track times, makes best price offers based on a case-by-case basis, and offers the best solution available for their customers.

The solution in this case is matchmaking of companies that can together find a competitive solution for transport freight by train. This chapter highlights the challenges and opportunities of this multimodal solution along the ScanMed Corridor, both in the preparation for the solution as well as the actual implementation.

More general opportunities and challenges have been written about in a previous report[7].

4.1 Preparing the train service

In terms of preparing the train service, a lot of effort needs to be done to build a network, collect data about freight transport flows and existing freight train solutions. The challenges and opportunities below relate to this preparation work.

Challenges

The identified challenges include:

Challenge 1: The need for a long-term plan

There needs to be a long-term plan and resources in order to build trust with all relevant stakeholders. Simply contacting many stakeholders and building a network within a single project rather than as a long-term investment can make it difficult to create trust and get the relevant stakeholders engaged at the right level and in the future.

Challenge 2: The need to structure and update data

Collected data needs to be updated continuously. Flows change all of the time, and data quickly become obsolete if not updated.

Challenge 3: It’s difficult to build an overview

There generally lacks an overview of freight flows, and it’s difficult to know where to start: which stakeholders to engage and where to find the right information.

Challenge 4: It’s difficult to identify the right contact people

[7] Scandria®-Coridor Multimodal Service Offer, Potential of Modal Shift. Scandria®2Act project report under Activity 3.3 Fostering modal shift potential

It is difficult both to identify the right companies (with inbound/outbound goods) which are relevant to talk to, and it is furthermore difficult to find the right people to talk to within a company, and on the right level. The amount of time this takes cannot be overestimated. The data that was collected here was more export than import, and one of the train operators stated that they are more interested in import flows to build workable solutions.

Challenge 5: How to anonymise data while keeping information useful

Detailed information on freight flows, types of goods and origin / destination are important to be able to find suitable solutions. But these are data that cannot be shared freely between companies for reasons of competition. How to share the data and with whom are tricky questions that need to be carefully thought through. Data can be anonymised, but then it can lose some of its value.

Challenge 6: The decision about how freight is transported is often difficult to pinpoint

The decision about how freight is transported often lies with freight forwarders rather than freight shippers.

Challenge 7: Finding value for companies in sharing their data

It is important that companies see value in giving their data in order to support the shift from road to rail. Companies do not always see a value in this.

Challenge 8: Who should collect data and build the network

Given that it should be a long-term service, it might be best that it is not performed by a public authority since priorities can change suddenly based on political will / prioritisation. Long-term sustainability might instead be secured by ensuring a sustainable business model for an organisation that is integrally involved in shifting freight transport and can add value to stakeholders who are involved.

Opportunities

There are also several opportunities that have been identified:

Opportunity 1: There is a large interest in shifting freight from road to rail in Örebro

Both in the private and public sector there has been a large willingness to support more rail freight transport, and willingness to work together to achieve this.

Opportunity 2: Cooperation between stakeholders is common

In communications with stakeholders we have learnt that there are in fact several examples when stakeholders have joined forces or discussed with one another to support more rail freight transport. The existing cooperation within the Bothnian Corridor (northern Sweden) is also an example of cooperation on the public authority level to support rail freight transport.

Opportunity 3: There are good examples to follow

An example is in Eskilstuna in Sweden. Here they have people who work on shifting freight from road to rail within the context of a publicly-owned company. More information on this example is given below.

Opportunity 4: CNC and the transeuropean transport network

Using the CNC and TEN-T is an opportunity partly in terms of getting funding, but also in terms of highlighting the role of Örebro as a hub for European rail freight transport, thus marketing the role of Örebro as part of the European rail freight network.

Opportunity 5: Strengthening ties with business is politically attractive

Strengthening ties and cooperation between local businesses and the public authority is seen as positive for a regional authority, so this type of brokerage service helps support that and can therefore can be viewed more positively than environmental solutions.

4.2 Challenges and opportunities in creating a train service

Challenges

In terms of creating a train service for a multimodal solution Örebro-Malmö (onwards to/from Europe), the following challenges have been encountered. We have structured these challenges following those identified in previous report[8].

Challenges regarding how goods are transported

- There need to be large amounts of freight flows which have more or less the same requirements in terms of frequency of delivery, and flows in both directions if a competitive solution can be identified.
- There are relatively many small freight flows from many different freight transport buyers, and coordination of these is a challenge, especially considering the constantly changing freight landscape.
- There is an assumption that train transport only takes large amount of goods at a time (as traditionally, this has been the case in Sweden), so companies quite often write-off the possibility of train transport without understanding how it really works.

Challenges regarding transport infrastructure

- There are capacity problems on the route Hallsberg - Malmö
- Train transport does not work so well in Sweden today, and problems are encountered very often – both for passenger and freight transport. The trains currently have a bad reputation.
- The combi-terminal in Hallsberg (south of Örebro) is not ideally situated for several companies in the region, some are thinking of building a new combi-terminal in the north of the region.

Challenges regarding reliability

- Reliability is the key factor in not wanting to transport by train (see also infrastructure above). When pressed, lead-time is often not the most important factor to those transporting goods, as long as they can rely on the goods arriving as scheduled. However, there is a continued pressure on reducing lead-times diven by several factors including a general societal trend with expectancy of fast deliveries.
- Several companies have had a very bad experience with reliability, and even though they are interested in transporting by train think that the service is just not good enough.

Challenges regarding price

- Transport buyers assume that more rail is more expensive than road.

[8] ibid

- Pricing is unclear. It is difficult to know the approximate price in advance of a solution being provided and this makes it difficult for those buying the transport service to decide whether to put required resources into research for a possible shift to rail

Challenges regarding lack of knowledge

- Most transport buyers only know about their own freight flows, and do not see an easy possibility of combining with others. There is a need to think about rail transport from a larger perspective, and support in how to do this.
- Even if there are a few good examples that are communicated about, mostly the feeling is that rail freight transport is just not good enough.

Opportunities

There are also several possibilities that were encountered in this study:

Opportunity: There is already a lot of rail freight in Örebro

There is already a good deal of freight that is transported by rail through and to/from the Örebro region. This means that there are functioning solutions and infrastructure that can be exploited.

Opportunity: Malmö opens up to Europe

There are many shuttles or other intermodal solutions primarily from Malmö (also Helsingborg and Trelleborg) connecting to Europe.

Opportunity: There is good infrastructure in Örebro

With large combi-terminal and access to track space, this is a good starting point.

Opportunity: Government grant

A new government grant was introduced in 2018 with 389 million SEK (approx. 39 million Euros) available in 2018 and 174 million SEK in 2019 (approx. 17 million Euro). Freight train operators can apply for the grants upon proof of how many tonnekm they have transported by rail. The aim of the grant is to reduce the price of rail freight transport and make it more competitive compared to road freight transport.

Opportunity: There are good examples

There are several good examples of how different stakeholder groups have cooperated or are cooperating in order to shift their freight transport from road to rail. Others can take inspiration from these examples.

Description of Eskilstuna Logistik och Etablering AB

The publicly-owned company *Logistik och etablering AB* was created as a way for the Eskilstuna municipality to work with logistic solutions and the establishment of new logistics companies in their municipality. A number of publicly-owned buildings were transferred to the company when it was established, and this to a great extent finances the organisation. The ownership of the buildings gives a stability to the company's finances today. The primary aim for the organisation is to create employment opportunities in the municipality. Eight people with varying areas of expertise and background today work within the company which runs the intermodal terminal and other logistics and industrial buildings which the municipality owns. The organisation primarily works with supporting companies to establish in the municipality of Eskilstuna, and to create employment opportunities in the

municipality. At the same time, they work in parallel with supporting logistical solutions for companies which establish themselves in the region and with “finding freight flows” by enabling logistics solutions in the municipality. The company works in close cooperation with the intermodal terminal operator but also directly with the terminal’s clients, and their client’s clients. The largest clients are from the Swedish import and export industry. The company passes on contact details and looks for cooperation possibilities, supports in establishment of new logistical actors, and supports in the design of logistical solutions, etc. They do this primarily by advertising the solutions they are working on. They “support the market” by passing on experiences of the possibilities that they are aware of, aimed at, and in cooperation with, different industry and logistical partners. Through their work, they automatically get an overview of the freight flows in the municipality and through cooperation with the intermodal terminal operator and other logistical partners, they can identify opportunities for collaboration which would have been difficult for the companies themselves to identify within their day-to-day operations.

The largest challenge in shifting freight from road to rail is in getting a final commitmen; the classic “chicken & egg” problem. Companies do not want to commit their freight to a rail solution when the solution isn’t running, and freight transport operators do not want to offer a solution until they can find a large and stable freight volume. The costs are too high for single actors to take risks.

Those interviewed at *Logistik och Etablering AB* felt that there is a willingness from the sector to get more freight running on rail (as well as by sea), at the same time as costs for transporting by train increase every year, thus making it progressively harder for train solutions to compete and offer competitively priced solutions to clients. There is less intermodal transport then there was a few years ago, which is surprising given the ambitions in place. There is a need for targeted policy and other measures in order to solve this issue.

In order to get an organisation like this up-and-running, it is important to have the right competence in the organisation and to work towards clear targets. If a intermodal terminal or train solution is put in place, there must always we clients ready to use them. There must be an established need for the service, otherwise it cannot work.

Today there are too many intermodal terminals in the Mälardalen valley. If there are clear policies in place, it is possible to establish more, but it can be difficult. It is – to a great extent – the same freight flows that different terminals are “competing” for, and the only market segment in which there is increased flows is consumer goods. The market rules, and those that offer the smartest/cheapest logistical solution will win. The important thing is that the solution offers value to the clients. If this can be done with a train solution, no matter which route or involved terminal(s), then a shift will occur.

5 Conclusions

This study is about shifting freight from road to rail in the Örebro region in Sweden. Örebro is an intermodal hub. Its transport infrastructure is part of the ScanMed corridor, which connects southern with northern Europe to Örebro, and then flows eastwards towards Stockholm and Helsinki. Almost all volumes going to and from northern part of Sweden, Norway, and Stockholm on rail pass through the Örebro region. Örebro is a transit hub for much of the transport going further north (and also southwards from northern Sweden).

This study is done as part of the Scandria®2Act project. The aims of this study were to:

- Propose a market-ready solution to shifting freight from road to rail for freight flows from Örebro to/from Europe that can be implemented by the actors working in the region.
- Identify and describe the challenges and opportunities for creating a viable solution that shifts freight from road to rail.

The aims for this study are within the context of developing the function of Örebro as a connection linking Sweden with Europe, as well as increasing the amount of traffic moving through Örebro, strengthening Örebro as a hub and increasing its competitiveness while at the same time working to reduce environmental impacts from freight transport.

A market-ready solution that can be implemented by actors in the region

This study has focused on finding a market-ready multimodal solution focused on shifting freight from road to rail from Örebro to and from Europe. A market-ready solution means that it needs to ready to implemented on the market. Upon reviewing the information received from the previous interviews collected, collecting more information from companies, and talking to freight train operators and freight forwarders, **it was clear that there was not enough volume of freight identified to run a new train service, nor to set up a dry port to destinations in Europe**.

What became clear though, is that there are certain freight volumes which today are transported on road, and which could be transported on rail. The “solution” that is offered is a practical market-ready solution which has identified freight flows which today are transported by road and which – according to freight train operators – could fit with existing train services (by adding extra wagons). Within the context of this project, we have identified 200 TEU / week of goods per week with potential to be shifted from road to rail.

This solution is about how to identify specific freight flows that today are transported by road but can instead be transported by rail: what stakeholders to involve, how to involve them, and what resources and competencies are required to do this.

The solution was applied in the case of freight flows from Örebro to/from Europe via Malmö (see figure below). Here flows were identified in this connection and freight train operators were matched with companies so that they together could develop a solution. 3 train operators (out of 8 identified and contacted) offered services to companies. Discussions between them are ongoing at the time of writing.

Figure 2 Location of Örebro and Malmö in Sweden (left) and (right) mapping of freight flows and existing shuttle services of relevance. Source: Google Maps and own production

It is difficult as a public authority to support the practical shift of freight from road to rail in such a way that does not hamper the competitive advantage of one rail freight operator over another. It is not simply a case of saying “here you go, Green Cargo have services!” but of matching companies purchasing transport with those selling rail freight transport in a fair and transparent way ***so that they together can build a competitive solution***.

To achieve concrete results, namely an actual functioning train service, you would need a long-term commitment, which is not possible within a short term project. The result in this case is that three rail freight transport operators have identified freight flows that they could run services. They will – together with the companies that generate the freight – be able to look into creating rail freight services that shift freight from road to rail and at the same time save money and reduce the environmental impact of the transports. To be a market-ready solution requires that the private actors find an arrangement that works for them, and our role in this has been in supporting the contact and matchmaking in a fair and transparent way.

In total, the volume of freight that is under discussion for being shifted from road to rail is XX TEU/week. This project has additionally contributed to successful shifting of freight from road to rail thus far of approx. 450 tonnes per week from Germany to Örebro.

Lessons learnt

Based on the application of the solution for a specific case, we have several lessons learnt that are important to share with others thinking of replicating the solution. These are summarised below

The role of the regional / public authority

The primary lesson learnt from this project is that it is important to clarify the role of the public authority in supporting the shift of freight from road to rail. A public authority does not have the possibility to run train services, or to collect company-specific data that could be subject to freedom of information requests. Their role is about supporting matchmaking and cooperation between companies that generate freight (importers and exporters to the Örebro region), and those which transport freight (freight forwarders, rail freight operators, etc).

Within the context of the Scandria2Act project, a lot of effort was placed on talking to companies and understanding about their freight flows and their opinions regarding barriers to shifting from road to rail. This data collected will never be complete, and is difficult to share (see also below regarding "data management"). The data that was collected in the autumn of 2017 did not provide enough information to identify flows that could be just switched from road to rail (creating a market-ready solution). It was difficult to use this data since it had many gaps and it would have been easier if freight generating companies and train operators were actively brought together from the beginning. For example, rail freight operators are primarily interested in identifying import flows from Europe to Örebro to fill existing capacity, but more data has been collected on export flows.

The project will continue to work on a cooperation strategy in the autumn 2018, but it would have been better to start the work with a cooperation strategy including identification of key stakeholders to include, and their roles in supporting the shift of freight transport from road to rail.

Long-term thinking & business plan

Getting freight shifted from road to rail requires the involvement of many (often private) stakeholders, and this solution is no different. The solution relies strongly on building network and building trust in the network. A lot of work and resources have gone into building this network which is a valuable resource for Region Örebro County to build on further in future projects, and it is important in order to maintain trust in future work that the information gathered is used, and that contacts and input from stakeholders are taken up and built into future work. There is a risk in this case that this initiative will only be implemented within the framework of a project. Within this project, there has been little consideration of the long-term plan. This both hampers ongoing work, but also makes it difficult to build trustworthy relationships.

Experience can be taken from other projects in this area including work done on urban freight terminals[9], which show that long-term sustainability of a solution can be managed by considering a business model approach from the outset. This does not necessarily mean that a private actor needs to run the service. It means that a clear stakeholder analysis needs to be made as well as an understanding of what *value* different stakeholders get from this solution. Based on the value, revenue streams can be considered, but this also includes the public authority (who have value for the solution and can provide a revenue stream). It would have been desirable in this case, if a more long-term consideration had been made from a more business-orientated mindset, as this can help support the economic sustainability of the solution.

Data management

An important lesson learned in the work done as part of this study is that data management in this field is extremely important and tricky. It is important because shifting freight from road to rail, and identifying multimodal flows relies on an understanding of flows and having the right contact people.

It is tricky for several reasons:

[9] www.smartset-project.eu

- Data needs to be regularly updated because it quickly becomes out-of-date
- Data is often confidential, so needs to be handled with extreme care:
    - public authorities who are subject to Freedom of Information requests have difficulty managing the data.
    - Data on freight flows cannot be passed to train operators by a third party as it is confidential.
- Data collected on freight flows needs to be anonymised before it is shared between stakeholders
- It is difficult to get the data that is required in the format required (takes a lot of work)
- The structure of the data is important to get something meaningful out of it, and needs to be described clearly.

That it is tricky means that considerable attention needs to be made as to how the database is set up and updated, but also in the consideration of data management processes.

The right competences are key in getting the right data and creating a network

One experience in working in this project is that it is important to have the right competencies to be able to discuss with stakeholders on the right level. This is both about collecting the right kind of data, and also building the right network. The competencies identified are understanding / expertise in the following areas:

- Logistics
- Multimodal freight transport systems
- Business models / business-minded thinking
- Models of cooperation, particularly between public and private sector

Looking forward – what next for Örebro region?

The Örebro region is – and has the potential to be – a intermodal hub for freight transport, given its geographic location at the intersection of several (railway) freight routes. But what next for Örebro? Should there be more warehouses in Örebro? Should Örebro be a dry port to destinations in Europe? Should there be a new timetabled shuttle running southwards from Örebro? Etc.

The key action for Region Örebro County in supporting the role of the region as a multimodal hub needs to be cooperation, and a decision on the role of the regional authority in supporting this activity. The primary lesson learnt from this project is that it is important to clarify the role of the public authority in supporting the shift of freight from road to rail. A public authority does not have the possibility to run train services, or to collect company-specific data that could be subject to freedom of information requests. Their role is about supporting matchmaking and cooperation between companies that generate freight (importers and exporters to the Örebro region), and those which transport freight (freight forwarders, rail freight operators, etc).

The project will continue to work on a cooperation strategy in the autumn 2018, but it would have been better to start the work with a cooperation strategy including identification of key stakeholders to include, and their roles in supporting the shift of freight transport from road to rail. Based on this, decisions regarding more warehouses, dry ports or shuttles can be brought forward. These decisions lie primarily with actors in the private sector, and the role of the public authority needs to be decided based on what the private sector are interested in achieving.