Strengthening Örebro as an entry / exit hub to the northern Baltic Sea Region corridor:

A generalised solution to support regions in shifting freight from road to rail

TENTacle [WP 5, Activity 3]

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1. Introduction

1.1 Background

EU transport policy and shifting from road to rail

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

The CNC specific objectives include allowing the seamless, safe and sustainable mobility of persons and goods, ensuring accessibility and connectivity for all regions of the Union, and contributing to further economic growth and competitiveness in a global perspective. These 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.

TENTacle

The Baltic Sea Region (BSR) is intersected by three core network corridors: Scan-Med, North Sea-Baltic and Baltic-Adriatic. The implementation of the three core network corridors has a large but untapped potential to stimulate positive effects in the BSR beyond the transport sector and beyond the immediate geographical areas they cross.

Opening it up for a broader group of stakeholders and a wider geographical area requires tackling major capacity challenges. These are, for example, related with a low awareness and deficient understanding of how the CNC implementation can help improve accessibility and connectivity challenges in specific territories. The focus of the TENTacle project is to improve stakeholder capacity to reap benefits of the core network corridors implementation for the prosperity, sustainable growth and territorial cohesion in the BSR.

[1] https://shift2rail.org/

This study is done as part of the TENTacle project, and as such within the background of taking advantage of the CNC implementation, and promoting the shift of freight from road to rail. For this study, the geographic focus has been the region of Örebro, located in Sweden.

1.1 Overview and aim of the study

The aims for this study are within the context of developing the function of the region of Örebro as a connection linking the north of Sweden with Europe, as well as increasing the amount of rail traffic moving through the region. The specific aims of the study were to:

1. Propose a practical solution to shifting freight from road to rail for freight flows from the Örebro region to/from the northeast of Sweden that can be implemented by the actors working in the region.
2. Define what a general solution can be for shifting freight transport from road to rail based on the findings from this study.

The project as a whole is working on increasing the operational / geographic take-up area for the rail freight corridor, strengthening the role of Örebro as an entry/exit hub to a wider geographic area.

This study was done in parallel to another study performed as part of the Scandria®2Act 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 the Örebro region to/from Europe. This parallel study also focuses on challenges and opportunities to developing a practical solution, and the two reports should be read together for increased context and understanding, although there is considerable overlap between the reports.

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:

1. Potential of Örebro area to funnel flows between the northernmost BSR territories and the ScanMed Corridor. TENTacle WP 5.3, Activity 5.3.3
2. 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.

1.2 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.).

1.3 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/from 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 practical solution. More details about what we have done in the study can be found in chapters 3 and 4.

1.4 Overview and reading guidance

This report is written in 5 chapters:

1. **Introduction**
   Introduces the study and sets the aims and scope, as well as introduces the target group and provides and overview of the report and guidance on how to read the document (which sections are of relevance to which target groups)
2. **Present situation**
   This chapter describes background information of relevance to the solution giving a brief description of Örebro in a freight context. This chapter is written for a target group that do not have background information on the region of Örebro.

3. **Description of the solution**
   This chapter describes the solution proposed in this study in a generalised way. This chapter is meant for both target groups of the report, although primarily regional authorities.
4. **Description of practical example**
   This chapter describes the solution application to the case of freight flows from Örebro to and from northeast Sweden that has been used in this study. This chapter is meant for both target groups of the report.
5. **Conclusions**
   Short summary of conclusions for both target groups.

2. Present situation

The region of Örebro 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 today 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).

Today there are several existing railway solutions between the northern parts of Sweden and Norway and the Stockholm Mälar Valley (a rough description of the geographic area between Stockholm and Örebro). There are imbalances of the (rail) freight flows in Sweden, which are mainly caused by disparities between the base industry and consumer goods flows, and the difference in the transport needs of these two markets. Large volumes from the base industry go in a *southwards* direction by rail in open wagons or other wagons designed to transport base products such as timber and iron ore. These wagons then return northwards generally empty or with a low filling ratio.

Modal shift opportunities

Through a market study, carried out as part of the TENTacle project[2], an investigation regarding modal shift opportunities was performed. The study consisted of interviews with companies located in the Örebro region with inbound and outbound freight flows. The aim of the interviews was to understand the current freight flows from companies that generate inbound and outbound freight to the region, and what potential there was for freight to be transported by rail. 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.

A total of 280 different goods flows were collected through the market study. 50 of them were related to the northern parts of the BSR. In the market study it was identified that more than 60 TEUs/week are transported to northern Sweden by truck from the Örebro region, while only 7 TEUs/week are transported the opposite way. Also 60 TEUs/week of transit through Örebro region

[2] *Written up in the report "Potential of Örebro area to funnel flows between the northernmost BSR territories and the ScanMed Corridor".*

to the northernmost parts and 64 TEUs/week of transit through Örebro region from the northernmost parts were identified. All these TEUs by truck have (theoretic) potential to shift from road to rail.

It is important to note that although the data collected through interviews provides a picture of certain freight flows, this data in itself is not complete (not all companies were interviewed, and transit freight flows through the region have not been captured so well with this method, while some of the interviewees themselves provided incomplete or data that was difficult to interpret). 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.

Based on this market analysis, it seems possible to match free capacity in the existing rail solutions going northwards with the identified freight flows that today are transported by road. This could in theory lead to a win-win situation: the companies that today transport goods from the north by road could use a cheaper and more suitable rail solution, while the ones already operating on rail would get a better price.

Challenges

The market study also identified several obstacles to achieving a modal shift.

The most common challenge:

- The most common challenge for shifting to railway transport observed in the interviews was competition from other modes. Of the total number of 72 challenges identified, 28 were in this specific category. Moreover, 64% of the interviewees said that the main reason for not using rail today is because of the lower costs of road transport compared to rail. It is difficult to pinpoint the reason why (and if) railway is more expensive, as it differs from case to case.

Other observed obstacles for modal shift are:

- 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 train.
- For central warehouses, the time schedule is a crucial aspect. The goods often need to be at their destination within 12 hours.
- A large part 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. For example, today many unit trains travelling southward with base industry products use wagon types that are not suitable for intermodal transport. Moreover, consumer goods are more suitable for intermodal transport as the goods owners don't normally have a direct connection to rail, and therefore need to use an intermodal terminal.

This study focuses on bridging the above-mentioned obstacles. Facts have been based on previously conducted interviews and mapping of freight flows with a potential for shift from road to rail. Continued dialogue has aimed at matching freight flows with freight forwarders and operators.

3. Solution description

Based on our experience in this project together with input from interviews with other successful examples in shifting freight from road to rail in Sweden, we describe below a solution that can be applied by an organisation (e.g. regional authority, but also could be local, national authority or publicly-owned company) working in supporting the shift of freight transport from road to rail.

This solution is developed within the context of the TENTacle project. The project's application in Örebro had as its main aim to increase the area serviced (both operationally and geographically) by the corridor running through Örebro through strengthening the role of the Örebro region as a freight transport hub. Additionally, the TENTacle project aimed to provide guidance in terms of practical solutions of how to strengthen the role of Örebro as a freight transport hub. As part of this, one of the focal points is on how to shift freight transport from road to rail passing through or with origin or destination in the Örebro region.

The solution offered here is given within this context, thus is about strengthening the role of the Örebro region as a freight transport hub and at the same time shifting freight transport from road to rail.

3.1. Solution identification

The challenges identified in previous work, and confirmed within this project show that **in order to get freight onto trains requires the identification of freight volumes that are large enough to make a business case for train operators to run services at a competitive price.**

There are two different ways that freight can be shifted from road to rail:

1. A new train service is established for identified freight.
2. Identified freight flows are shifted to *existing* solutions where there is free capacity.

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

The text below introduces discusses the establishment of a new train service or a dry port, and why these solutions were not considered further within this study based on the data / background information that was available. Following this is a description of the solution of matching flows with existing train services which was done within this study.

There is not enough freight to run a new train service Örebro-northern BSR
In order to run a train service a market terms, flows in *both* directions need to be identified, and the service needs to run several times per week[3]. The amount of flows that need to be identified are in the order of 50-80 TEU per train. This means that if a new train service were to be opened from

[3] *This is based on interviews/discussions with freight train operators in Sweden when discussing their interest in running new freight train services.*

Örebro along the northern BSR corridor (up to northeast of Sweden), then freight flows of minimum 50 TEU several times per week in both directions need to be identified.

Based on the data collected, it was clear that there were not any large enough flows to run a new train service northwards connecting to northern BSR. The train operators who we discussed this with made this clear.

Not enough identified flows today for dry port to destinations in Europe
In order to have dry port to a destination in Europe, there needs to be sufficient volumes of freight for the operator of such a port to see a business case in creating it[4].

The Hallsberg terminal located to the south of the city of Örebro already serves as a dry port to Gothenburg. 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.

3.2. The identification of freight flows and "matchmaking" is key

What is clear in considering these solutions is that the identification of large enough freight volumes to make a marketable solution is essential. It is also clear from the data that was collected on freight flows within this project, that there was not one single company with inbound and outbound freight in the region which had enough flows (that today are transported by road) in any direction to create a new train service. Similarly, there were not large enough flows to consider the establishment of a dry port. Matching consumer goods moving northwards with unit trains required matchmaking freight train operators with those companies with freight moving northwards to see if they could together find a solution where their requirements were aligned

That the freight flows were not identified in this project does not mean that the freight flows do not exist. It is fully possible to run a train service if big enough freight flows are identified.

The need for cooperation & bringing stakeholders together

In order to create sufficient volumes to functionally extend the CNCs to the northernmost BSR areas requires:

- The **identification of sufficient freight flows** through **identification of several companies with flows going in the same direction that could be put onto the same train**.
- **Matching companies with inbound/outbound freight with train operators who could run services** (many already do run services, and all of the information is not published).

[4] *The Dry Port Concept-Connecting Seaports with their Hinterland by Rail. Woxenius J et al 2004*

- **That transport companies, infrastructure providers, freight owners, freight forwarders and others talk to each other to understand the individual barriers and how to overcome these.**

Because of this need, we therefore offer below a generalised solution where **the focus is on bringing stakeholders together and matching freight flows with train services**. The "brokerage service" as we call it supports the matching of stakeholders to create the volumes required to be able to run marketable train services. Additionally, it creates an arena whereby stakeholders can identify their own barriers to transport by train, and provide possibilities to solve this with tailored solutions.

3.3. The solution

The solution that we suggest comprises of two steps:

- Create a brokerage service
- Suggest a train service

The train service can be done in two distinct ways: join existing train service or create new train service (see Figure 1). The steps of creating the brokerage service and the train service are described below in more detail, so that those wishing to implement a similar solution will have an idea of what needs to be done.

Essentially 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. This strengthens the role of Örebro as a freight hub linking Europe to the northern BSR corridor, and also strengthens the stakeholder constellations required to create marketable solutions that support the economic competitivity of companies in the region.

A practical example of this solution for the case of application in Region Örebro County is described in the next chapter. Below is a description of the "generalised" solution.

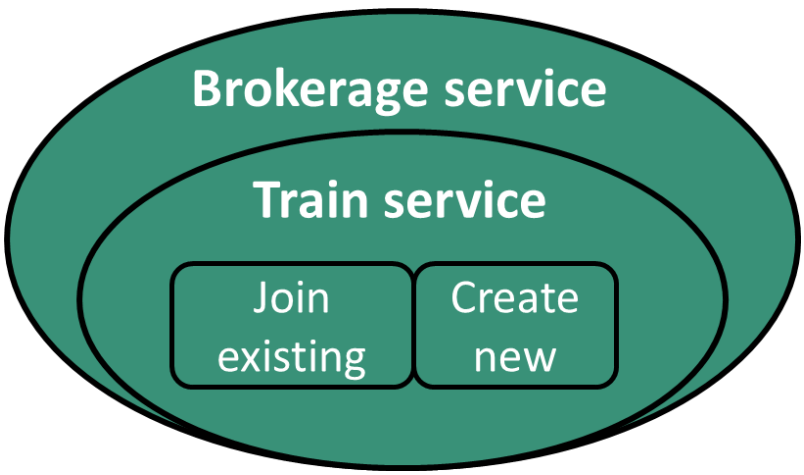

Figure 1 – Overview of the solution in two parts

Source: Own production

3.2. Create a brokerage service

Short description of a brokerage service

The brokerage service is a service that supports contacts between the different stakeholders required to shift freight from road to rail. The service focuses mainly on **identifying and matching** the **freight train solutions** with **freight flows** in and through the region. This means that different (almost exclusively) private actors need to be matched together to match trains with freight. This service should be provided by a neutral part, which could be a public authority as long as they maintain neutrality, but could also be another external organisation. A brokerage service provides a different service compared to e.g. a freight forwarding company or transport company, as the driving force for the brokerage service in this case is to shift freight from road to rail, and support businesses with their logistical solutions in a way that matches the policy goals from the public authority perspective (reduced negative environmental impacts, increased business opportunities in the region, etc). The brokerage service provides a service for a geographical location. This provides a somewhat different starting point and driving force compared to other organisations that provide logistical solutions.

The brokerage service includes both **personnel resource** and a **database** (privately run).

Personnel resource

The personnel resource is likely to be one person working full-time (but could be more than one person working part-time, depending on the size of the region and freight flow volumes). Their role is primarily to build up and maintain relationships with freight actors in the region, and to have an understanding of the freight transport system in the region. It is important that this person has a clear mandate and understanding of their role.

The purpose of this role is to:

- identify and create relationships with relevant stakeholders required to support the shift of freight transport from road to rail (freight transport buyers, freight forwarders, train operators, terminal operators, etc), and
- match stakeholders together by supporting relevant contacts and meetings in a way that supports the industry in the region but does not provide competitive advantage for any one particular actor.

In order to build trust with stakeholders (primarily private actors) requires a long-term position. It is most suitable that this personnel resource works in a regional authority to maintain neutrality between the private actors, but also because there is not clear business case for this role (particularly at the outset). This may change over time.

Database

The database is a tool that supports the personnel resource in their matchmaking activities. Three categories of data need to be collected and stored in the database:

1. **Companies transporting goods (inbound and outbound) with identified freight**

This should include details of the companies including contact details as well as freight flows, e.g. origin and destination, type of goods, lead-time requirements, how it is transported (crate, bulk, etc), total volume, frequency, whether a freight forwarder is used for transport, access to tracks at origin and destination, etc.

2. **Freight train operators interested in running freight services on this connection**

This should include contact details for freight train operators working in the region, or interested to work in the region (e.g. already work in other parts of the country), and should be open to new actors who want to work in the market.

3. **Freight forwarding companies who organise transport along this connection.**

This should include contact details for freight forwarders working on transport in the region – primarily in relation to the freight flows in category 1 above.

Contact details will be stored (email and telephone number). Since this is personal information, regulations following GDPR[5] need to be followed.

Data on freight flows could be subject to freedom of information requests if handled by public authority representatives, and to ensure that sensitive information is not leaked, processes and/or technologies (e.g. blockchain) need to be put in place to ensure that this could not happen. It is also desirable that the database is managed by a private party. Ideally, a private economic actor would be able to create a business case with managing this service, but it is likely that public authority support would be required to support the set-up of the service, perhaps through consultancy assignment.

Stakeholders involved in the brokerage service

The main stakeholders involved in this solution are:

- An organisation that is the driving force that provides
  - Personnel resource to manage the brokerage service
  - Support in creation of database.

  This can be a regional authority, a local authority, publicly owned company, or another organisation that has a driving force to support businesses and support logistics in the region.
- Organisation (private) that can manage the database
- Companies that generate freight (inbound and outbound)
- Freight forwarding companies
- Freight train operators

Brokerage service - step-by-step

In order to set up the brokerage service, a number of steps need to be undertaken, and these are described below.

1. **Define the brokerage service**

[5] *General Data Protection Regulation*

This will be done by the organisations that drives the development of this solution and includes a description of the aim, scope and geographical catchment areas, as well as how the brokerage service will remain as a neutral part. The required personnel resource will also be defined, as well as how to plan / maintain this position over the long-term.

2. Identify which organisation can be in charge of brokerage service

This is both for the personnel resource as well as the database service.

3. Develop business plan for brokerage service to see how it can be maintained over the longterm

Developing a business plan does not need to mean that the brokerage service will be entirely run by a private company, but rather creates a framework as to how the service can be designed to provide value for all stakeholders involved, as well as revenue streams. Creating a business plan helps support the long-term economic sustainability of the service, rather than being an initiative developed within a project that ends once the project-funding runs out. This service does not have to be stand-alone, but could be part of a wider range of services supporting businesses in the region.

4. Define what data needs to be collected by the brokerage service, and how it is stored

A description of the data that needs to be collected needs to be defined, as well as definition of processes for data handling. It is important to collect data the right kind of data about freight flows so that train operators know if they can offer a service for the freight or not. This includes origins and destinations, type of freight, how it is carried, whether there are tracks available for last mile or whether combi-terminal solution would work.

5. Collect data for the brokerage service

This includes list of relevant stakeholders and their contact details, details of freight flows, details of train services etc. It is not always easy to get access to detailed data, and our experience with collecting data showed that it was difficult to get detailed information about freight volumes, since it was not easy to find the right people to talk to, and because those responsible sometimes did not have an idea of transport for the whole length of the logistics chain. There were many gaps in the data that was collected in Örebro region, including on specific origins and destinations, freight volumes, type of freight, and how it was transported today.

6. Maintain the data

Since the data is not static but changing continuously, routines need to be in place to update the data regularly. Details need to be verified and checked at regular intervals.

7. Update the business plan

A business plan is not a static document, but needs to be continuously updated.

3.3. Suggest a train service

This is about matching the data collected on freight flows with a possible train service. Here there are two distinct possibilities which are described separately below:

1. Join existing train service
2. Create new train service

Join existing – short description

To join an existing service means to match freight flows with existing train solutions (either shuttles or unit trains) which should be identified in the "broker database" and with dialogue between the broker and the various stakeholders involved. This needs to be done in the right way to ensure that competitive advantage is not given to individual economic operators because of the data shared / the role of the broker.

Join existing – stakeholders to involve

This service is performed by the broker using the database available. Other stakeholders to involve are:

- Companies that generate freight
- Freight train operators
- Freight forwarders

Join existing – step-by-step

It is important that the communication between companies is done in a transparent way that does not create a competitive advantage for any single economic operator. The step-by-step way to match freight flows onto existing train services is given below in a way that is fair and transparent.

1. **Communicate possible freight flows to all train operators in an anonymised way**

   This requires anonymising data from the database to such an extent that companies (with inbound and outbound freight) cannot be identified. This means that specific locations or identifiable goods need to be removed. This data should be sent to all freight train operators who have expressed an interest, since it is important that no single company is given a competitive advantage over others.

2. **Train operators identify which flows they can offer train services for**

   Based on the details of flows, train operators will be able to identify if the freight flows match existing or planned train services. They then communicate to the broker which flows are of interest. Sometimes it might be several flows grouped together.

3. **Communicate interest to companies and freight forwarders**

   Details of train operators that are interested in providing services for specific flows can be given to the specific companies.
   In some cases, there can be several companies involved. It is first important in this case to make sure that companies are interested in sharing their details with each other and discussing together about a joint solution before they contact the train operators.

It is important that the details of the companies are not given directly to train operators, as this can be viewed as giving competitive advantage to specific train operators.

4. **Transport-purchasing company / freight forwarder contacts train operators directly**

The companies can then contact train operators and continue a dialogue about how to get the service running. This dialogue is run entirely by the private companies.

Create new – short description

To create a new service means to define a new shuttle service[6] or unit train with origin and destination, possibly stops in between and timetable for this, which should be identified in the "broker database" and with dialogue between the broker and the various stakeholders involved. This needs to be done in the right way to ensure that competitive advantage is not given to individual economic operators because of the data shared / the role of the broker.

In the case of flows in the Örebro region to the northeast of Sweden, this means a service from Örebro to Umeå / Luleå or further north.

Create new – stakeholders to involve

This service is performed by the broker using the database available. Other stakeholders to involve are:

- Companies that generate freight
- Freight train operators
- Freight forwarders

In this case, the stakeholders to involve do not include all freight-generating companies at the first step, but only companies that generate a large amount of freight- enough so that approx 1-3 companies can fill at least two thirds of a train. This means in the range of 50-70 TEU several times per week in both directions. There needs to be few large transport purchasers in order for it to be worthwhile and minimise the risk of starting up a new shuttle service.

Create new – step-by-step

It is important that the communication between companies is done in a transparent way that does not create a competitive advantage for any single economic operator. The step-by-step way to match freight flows onto new train services is given below in a way that is fair and transparent.

1. **Communicate possible freight flows to all train operators in an anonymised way**

The data that needs to be communicated is not individual freight flows but an aggregation of freight flows to show the potential for filling a new train (approx. 80 TEU) several times a week in both directions. Thus some analysis needs to be done to match freight flows and practical example of solution.

[6] *what in Swedish is referred to as "pendel" (literal translation "commuter"), but in English is generally referred to as shuttle, but can go by other names such as timetabled freight services or scheduled freight services, etc.*

This requires anonymising data from the database to such an extent that companies (with inbound and outbound freight) cannot be identified. This means that specific locations or identifiable goods need to be removed. This data should be sent to all freight train operators who have expressed an interest, since it is important that no single company is given a competitive advantage over others.

2. Train operators identify which flows they can offer train services for

Based on the details of flows, train operators will be able to identify possible new train services. They then communicate to the broker which flows are of interest. Sometimes it might be several flows grouped together.

3. Communicate interest to companies and freight forwarders

Details of train operators that are interested in providing services for specific flows can be given to the specific companies.

In some cases, there can be several companies involved. It is first important in this case to make sure that companies are interested in sharing their details with each other and discussing together about a joint solution before they contact the train operators.

It is important that the details of the companies are not given directly to train operators, as this can be viewed as giving competitive advantage to specific train operators.

4. Transport-purchasing company / freight forwarder contacts trains operators directly

The companies can then contact train operators and continue a dialogue about how to get the service running. This dialogue is run entirely by the private companies.

4. Description of practical example

This study has focused on a practical example of the solution which has looked at shifting freight from road to rail from Örebro to and from the northeast of Sweden along the northern BSR corridor. The project was about strengthening the role of Örebro as a multimodal hub, and as an entry/exit point to the northern BSR while shifting freight transport from road to rail.

As described in the previous chapter, to increase rail freight traffic through the region, and support Örebro's role as a multi-modal hub requires primarily that private actors work together to bring about workable, market-ready rail freight solutions. Thus the solution here is about creating the right conditions for the private actors to provide the appropriate services. The focus on this solution is about matching freight flows with freight train services, but also about bringing together the stakeholders so that they can together bring about a shift.

The solution as presented here has been implemented by Region Örebro County within the context of the TENTacle project.

5.1. Description of the brokerage service

The main aim for Region Örebro County has been in shifting freight from road to rail that travels to/from and through the region, strengthening the role of Örebro as an intermodal hub, and as an entry/exit point to the Bothnian corridor. Creating a contact network of private companies (within inbound and outbound flows to/from the region, as well as freight forwarders, terminal operators, etc) and understanding as much as possible about existing freight flows and rail solutions was identified as an important part of shifting freight from road to rail in the region. At the outset, therefore, the work done was not described as a "brokerage service", although it is clear in retrospect that this is what has been done.

As a public authority, Region Örebro County cannot favour specific companies, and cannot hamper the competitive advantage of companies working in the region (e.g. rail freight operators). Their primary task is in creating a supportive environment in which the market players can together create workable market solutions for rail freight transport. For this reason, Region Örebro's primary task in this project has been in building up a contact network to match freight flows with freight train operators, and this we refer to in the report as a "brokerage" service.

The brokerage has been done by Region Örebro County. One person has been employed fulltime to work on strengthening the role of Örebro region as a freight transport hub. There has also been support from consultants from WSP and Trivector Traffic. The brokerage service was set up as part of the Scandria®2Act / TENTacle projects, and has been in operation for approximately one year (time of writing: August 2018). During this time, the resource has mainly been used to identify and contact relevant stakeholders especially companies that have inbound and outbound freight which are located within the Örebro region.

The brokerage service has been somewhat ad hoc in nature, testing different ways forward and different contact methods.

The database has primarily been managed by Region Örebro County together with transport consultant companies WSP and Trivector Traffic. On average about 1 person full time has been working on this. Region Örebro County and the consultants supported in the identification of companies and collected information about freight flows through interviews from approximately 80 companies with inbound and outbound freight in the region of Örebro. Region Örebro County collected the original data in the autumn of 2017 and Trivector updated the database through additional interviews, meetings and email contacts.

Trivector also created a contact list for train operators and freight forwarders working in the region. They also collected details of existing shuttle routes and other known freight train routes through internet search and by contacting all of the known freight train operators working in Sweden (8 operators).

The data in this case has been stored in Excel: 1 file for freight flows including company contact details, and 1 file with details of freight flows. Also details of correspondence / input / interviews has been stored on a secure file server, with one file with details for each company contacted.

Stakeholders involved

The main stakeholders involved in this solution are:

- Region Örebro County who coordinate the brokerage service
- The consultants WSP and Trivector who have managed the database
- Companies transporting goods (inbound and outbound) with identified freight flows in the Örebro-Luleå/Umeå connection
- Freight train operators interested in running freight services on this connection
- Freight forwarding companies who organise transport along this connection.

Step-by-step

1. **Identify which organisation can be in charge of brokerage service**

As mentioned above, Region Örebro County have set up this service, but they did not have ambitions to do so from the outset. Within the context of the European project TENTacle, they were interested in supporting the role of Örebro as a multimodal hub and as an entry/exit point to the northern BSR. The work done in creating the "brokerage service" was done within the context of this project, thus the Region Örebro County took the initiative within the context of this project, with themselves as the organisation in charge of the service.

2. **Develop business plan for brokerage service to see how it can be maintained over the longterm**

This has not been done, but is under discussion in Region Örebro County how they can continue working in this field. Work is underway to develop a cooperation strategy with freight actors in the region in order to support the objectives of the TENTacle project, and particularly the shift of freight from road tot rail from Örebro along the Bothnian corridor. Under discussion in this strategy is how to create long-term commitment, so as part of this elements of the business plan will be put in place.

3. Define what data needs to be collected by the brokerage service, and how it is stored

Data on freight flows

The definition of what data was required was done based on knowledge on what information is needed to run a train service. A detailed questionnaire was developed for organisations with inbound and outbound freight flows to/from Örebro. Data was stored in an Excel file, with one row per identified freight flow. The data – which contains details of freight flows from companies – was stored on secure servers. The data was not emailed, but transferred through secure file-sharing services.

Data on existing trains routes

This includes data on shuttles in service as well as knowledge of other trains of relevance run by the train operators. This was found with internet searches, and also direct contact with train operators.

4. Contact database

Three categories of contacts were collected for the brokerage service:

1. Companies transporting goods (inbound and outbound) with identified freight flows in the Örebro-Umeå/Luleå connection
2. Freight train operators interested in running freight services on this connection
3. Freight forwarding companies who organise transport along this connection.

An exhaustive list of categories 2 and 3 were collected, but category 1 only contains a subset. Contact details would be stored (email and telephone number). Since this is personal information, regulations following GDPR[7] were followed. The details are saved in an Excel file.

5. Collect data for the brokerage service

Contact database

Data was collected through existing contact networks, especially through the organisation Business Region Örebro (BRO). The vast majority of contacts made were new contacts.

Data on freight flows

Base data was collected through interviews. Follow-up interviews were made with certain companies. 27 companies were identified with relevant flows on the connection Örebro-Umeå/Luleå. Overview of the collected data was emailed (by consultant) to check validity of data collected to the 27 identified companies.

Data on existing train routes

Data was collected through web search (shuttle routes) as well as discussions with train operators (8 train operators identified, discussions with 5 of them as 3 did not reply). Detailed information was not collected for all existing train routes. This is collected in word files for each train operator and shuttle routes shown on a map.

[7] *General Data Protection Regulation*

6. Maintain the data

The data needs to be regularly updated, and here data was updated when new information came to light (e.g. people changed job or company merged with another, freight flows changed etc). There was however, no systematic process in place to update the data in this case that would be required in future to continue with this solution.

7. Update the business plan

This is under discussion at time of writing (August 2018).

5.2. Description of finding train service

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. Originally the thought was that it would be best to create a new timetabled shuttle train. The focus in the TENTacle project is from Örebro towards northern Sweden and Norway (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. The geographic focus in this case is to northern Sweden and Norway.

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.

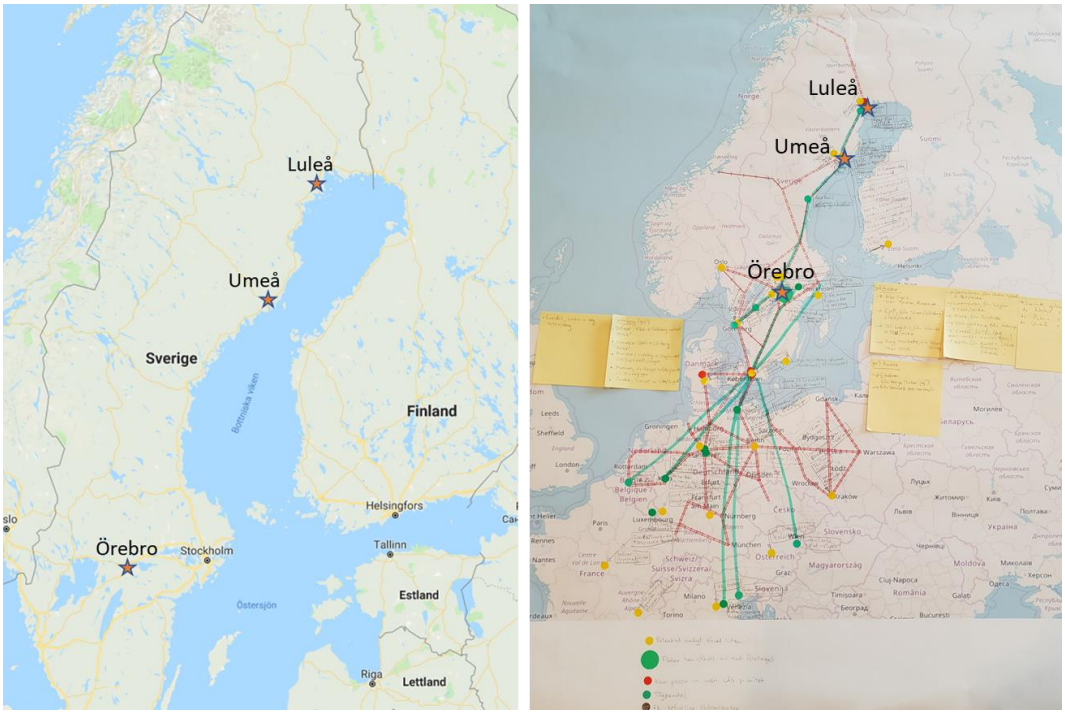

Figure 2 Location of Örebro, Umeå & Luleå with identified freight flows and shuttle routes.

Source: Own production and Google maps

The total freight volumes collected (based on the data available) resulted in the total flows shown below (Table 1). These flows are the total potential flows identified in the study to shift from road to rail for the Örebro-Umeå/Luleå 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 estimated potential freight flows Örebro – Northeast Sweden (includes transit flows via Örebro). The potential includes only the freight that today is transported by road.

Source: Own production – background information collected via interview.

	TOTAL TEU/ WEEK	% IN CRATE	% BULK
ÖREBRO -NE SWEDEN	127	100 %	-
NE SWEDEN - ÖREBRO	91	38 %	8 %

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[9], 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.

Several of the operators that were contacted have freight trains running on this link (Örebro-Umeå/Luleå). 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 coming in contact with companies who can transport their freight on this link.

Join existing – step-by-step

An overview of the contacts that were taken to establish matching between existing services and freight flows is given below in four steps.

1. **Communicate possible freight flows to all train operators in an anonymised way**

   An overview of the collected data for freight flows Örebro-Umeå/Luleå (Table 1**Fehler! Verweisquelle konnte nicht gefunden werden.**) was sent to train operators to ask their interest in running a train service on this link. This was followed by discussion by phone with all operators who expressed an interest in running services on this link (5 companies of 8 – 2 did not reply, and 1 replied negatively). More information (in anonymised form) was then sent to the train operators so they could further identify the interest for offering a service. All train operators must be contacted in order to ensure that the brokerage service remains neutral, and does not give competitive advantage to any one economic operator.

2. **Train operators can identify which flows they can offer train services for**

   The anonymised data on freight flows was analysed by the 5 train operators so they could check if any of their existing services have the capacity to carry more freight within the context of that described. Since the data is anonymised, there is some level of uncertainty here, since exact details on origin, destination, type of goods etc cannot be included. However, the operators can still have an idea about whether it could be interesting for them, and which freight flows they would like to have more information on.

   In this case 3 of 5 operators who had expressed interest identified freight flows that they would like more information on.

   In the cases where the train operators wanted more information, they contacted the broker about which specific freight routes they thought they might be able to offer a service for.

3. **Communicate to companies and freight forwarding companies which train operators are interested, and give them contact details**

[8] *English translation: "the train operators" – industry grouping of train operators in Sweden.*
[9] *English translation: "the train operators" – industry grouping of train operators in Sweden.*

The broker then returned to the companies for which the flows refer and gave them the contact details of the train operator so that they can then move forward and discuss in detail whether there is a possibility to move the freight they have from road to rail.

The contact details of the company (or other information that can identify a company) were never sent to the operators, as this information is confidential. However, contact details of train operators is not confidential information and can be passed freely to the transport-purchasing companies.

4. Company / freight forwarder contacts train operators directly

Following the exchange of information, the transport-purchasing company can contact the train operator directly to discuss details and get quote / price for service. In this case, we have asked the companies and train operators to follow up with us if they come to an agreement, but at the time of writing (August 2018), very little time has passed since the contacts were communicated, so no conclusions on the overall success in the relation Örebro – northest Sweden can be drawn. Region Örebro County plan to follow up on this in the future.

5.3. 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 TENTacle 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.

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. This will be taken up within the cooperation strategy that will be worked on until December 2018.

Experience can be taken from other projects in this area including work done on urban freight terminals[10], 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,

[10] www.smartset-project.eu

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:

- 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 difficulties in 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

Learning from other examples

Below is a description of the company Eskilstuna Logistik och Etablering AB. Eskilstuna is a city in the Stockholm Mälar Valley, and they have worked successfully with multimodal transport and shifting freight from road to rail in their region. It is an important example that can act as inspiration of how to work in this areas as a public authority.

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 combi-terminal and other logistics and industrial buildings which the municipality owns. The organisation mainly works with "finding freight flows" by enabling logistics solutions in the municipality. The company works in close cooperation with the combi-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 combi-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 combi-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 combi-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 it can be considered that there are too many combi-terminals in the Stockholm Mälar Valley, according to those we interviewed. 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. This is within the context of the TENTacle project which looks at strengthening the role of Örebro as a freight transport hub. 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 region should and does work as 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 TENTacle project. The aims of this study were to:

1. Propose a practical solution to shifting freight from road to rail for freight flows from the Örebro region to/from the northeast of Sweden that can be implemented by the actors working in the region.
2. Define what a general solution can be for shifting freight transport from road to rail based on the findings from this study.

The aims for this study are within the context of developing the function of Örebro as a connection hub linking and acting as an entry/exit hub the northern BSR.

A generalisable solution and a practical example

In this study we have proposed a solution to shift freight from road to rail. In a nutshell, the solution can be described as a way to match those who generate freight flows with rail freight transport operators to make the shift happen. It has been applied in the case of rail freight flows in the link between Örebro northwards towards Umeå/Luleå along the Bothnian Corridor.

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**.

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.

In short, the solution comprises of two steps: (1) Create a brokerage service and (2) Suggest a train service. The train service can be developed in two distinct ways: through joining existing train service(s) or creating a new train service. The steps of creating the brokerage service and the train service are described in the report in more detail, so that those wishing to implement a similar solution will have an idea of what needs to be done.

The solution was applied in the case of freight flows from Örebro to/from Umeå/Luleå (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.

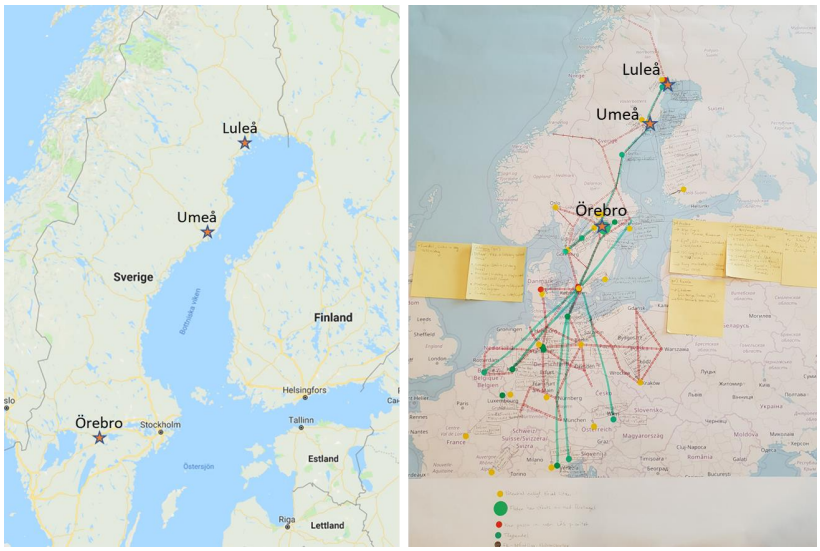

Figure 3 Location of Umeå, Luleå and Örebro in Sweden (left) and (right) mapping of freight flows and existing shuttle services of relevance. Source: Google Maps and own production

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.

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 lessons learnt focus on the solution presented in this report, but also on the role of the public authority in supporting the role of strengthening the region as a freight transport hub. 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 and strengthening the role of the region as a freight transport hub. 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 regional authority can play a role in supporting the establishment of infrastructure (e.g. terminals, dry port), if there is a business case for a company to run these services. Eskilstuna Logistik provides a good way for a public authority to play a role in supporting the growth of business in their territory and logistical services of relevance.

Within the context of the TENTacle 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.

Regarding a general solution, the conclusions from this study are that local conditions need to be taken into consideration very carefully, and that practical applications will differ to adapt to these local conditions. Nevertheless, the study concludes that a general solution is available with regard to *the way* in which a region or municipality works. Ideally the solution would go beyond simply shifting freight from road to rail but instead have as a focus the promotion of local businesses, where possibilities for efficient logistics is one important aspect. By having one or more staff members within the public (regional) organisation (or related organisation) dedicated to handling logistics *and* improving the conditions for local businesses, there would be great possibilities to promote rail transport connected to the region by helping companies to align their needs with each other and together achieve more efficient transport solutions.

The solution offered in this report provides this, but only partially since the focus is only on shifting to rail transport. Ideally the focus would be enlarged to include a wider perspective, encompassing a wider business-minded focus that supports the economic growth as well as smooth-functioning logistics that also follow the public authority's societal-driven goals (including reduced environmental impact from freight).

This provides a way to engage business on their own terms while at the same time support goals of the regional authority such as reduced environmental impact from freight transport.

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. Strengthening the freight transport hub function of the region 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[11], 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, and the work of the region in supporting the freight hub function of their region.

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)

[11] www.smartset-project.eu

- 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