IDENTIFICATION AND BENCHMARKING OF THE LEGAL, ORGANISATIONAL AND FINANCIAL SET UP FOR EXISTING COMBINED TERMINALS IN THE BALTIC SEA REGION – PART 1

Analysis and benchmark of legal, organisational and financial matters of terminal operation in the Baltic Sea Region

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CONTENT

1 INTRODUCTION

1.1 Background

Directive 92/106 (the Combined Transport directive) supplemented by COM (2017) 648 (proposal for amendment of the CT-directive) form the regulatory perspective and base of the COMBINE project. This regulatory base aims at directly incentivising shifts from typical high emission freight transport modes like road freight to lower emission transport modes like e.g. rail, in-land waterways and maritime transport. The objectives are to promote increased use of e.g. trains, ships or barges for the transport of the major leg, in combination with a short road leg (last mile) to be carried by road transport in order to improve sustainable transport and to reduce emissions for the same volumes of freight transported.

The CT-directive and its coming amendment complement other legal instruments already in force that are contributing to shift towards more sustainable modes of transport. Additionally, legal instruments with specific requirements for open, non-discriminatory access to combined terminals, their service facilities and rail-related services are also in force. Moreover, the core services that must be delivered at a combined rail terminal are also regulated by EU law (rail), including public access to the services as well as rates and fees for terminal services provided.

From a market and customer point of view an open and non-discriminatory access to the terminals and the level of rates and fees of the services are of great importance. On the other hand, and seen from the terminal owners and operators' point of view, the legal and commercial conditions for operating the terminal are vital. Thus, the potential for generating turnover and income and to keep expenses under control typically depends on the legal structure (ownership and governance), the organisation required, the financing of investments and the day-to-day operation of the terminals.

Ownership and management of combined terminals, e.g. railway infrastructure, depots, warehouses, and suprastructure, do not follow a comparable or uniform setup within the different EU Member States. Ownership of this type of infrastructure and its associated service facilities across Member States seems all to be rooted in national regulations of the relevant industries, often with a mixture of state and private ownership/management through e.g. transferred ownership, sourcing, partnerships or concessions. In addition to the regulation and ownership of the terminals, the day-to-day management may also be influenced by conflicting interests among the different stakeholders.

The COMBINE project aims among others to describe and assess how an efficient terminal operation facilitates the links between the main leg of the transport and the last mile in the transport chain, where the crucial change of modes of transport takes place.

Thus, "Identification of the legal, organisational and financial set up for existing combi-terminals in the Baltic Sea–area" is identified as a specific task to be carried out within Activity 3.1 of the COMBINE project.

The aim of this task is to add perspectives to the general understanding of barriers to open access to rail service facilities as to e.g. the combined freight terminals, and to the enforcement of rail regulation related hereto.

PART 1 of the report for this specific assignment within A3.1 includes analyses and benchmark of different organisational models of terminal operation based on data compilation on both organisational and operational parameters.

PART 2 of the report includes a survey of the enforcement of the regulatory requirements for open access to terminals, service facilities and to the supply of services herein, based on survey of complaint cases and ex officio investigations dealt with by rail regulatory bodies. See also the COMBINE report "Identification and benchmarking of the legal, organisational and financial set up for existing terminals in the Baltic Sea Region", PART 2, "Survey of open access to rail service facilities and the regulatory enforcement hereof", the Danish Transport, Construction and Housing Authority, 17 June 2020.

This report forms PART 1.

The aim of PART 1 is, by means of case studies, to conduct an assessment of the importance of different legal and organisational governance structures at national and cross-national level. Moreover, the aim is to analyse parameters and criteria, which under specific conditions makes a combined terminal accessible and efficient as a freight transport facility in order to benchmark BSR terminals regarding their suitability for sustainable combined transport in BSR.

Chapter 2 of the report presents the conclusions and recommendations of the most important themes uncovered as part of the analysis of the case studies.

Chapter 3 describes the approach for the assessment of the case studies, the criteria for and methodology behind the selection of terminals for this specific task. Moreover, data sources and data used for the analysis are described.

Chapter 4 presents the terminal benchmark. The spatial distribution of the selected terminals within the geography of the BSR-region is presented. Country-wise terminal profiles for each terminal in the scope of this report is presented. The terminal profiles are standardised in order to allow for as much comparison as possible.

Chapter 5 contains analysis of the data and the themes, that have been uncovered as part of the case studies. A total of seven findings by themes are addressed, and for each are presented takeaways from the case studies, discussions and recommendations.

Please note, that some data has been collected through interviews offering respondents confidentiality. Therefore, the report contains neither the information collected through the interview process on the specific basis for nor the specific sender of the statements, that eventually lead to the recommendations of the report. Supporting basis for statements and the themes raised are however further addressed in the thematic review of Chapter 5. This in order to both back the credibility of the specific statements and to provide context to relevant recommendations connected hereto.

2 CONCLUSIONS AND RECOMMENDATIONS

A total of 19 combined transport terminals across the Baltic Sea Region has been identified and selected for case studies to assess the importance of different organisational, legal and financial conditions. In terms of key criteria such as modes of transport, size and operating model, the selected combined transport terminals are selected by a representative sample of all terminals in the region and as such they cover a wide array of characteristics.

The operational models of the terminals are categorised as one of the following four basic operational models:

1) Fully in-house,
2) Concession,
3) Operating contract, and
4) Rental agreement for commercial operation.

With 42 % each, fully in-house operational models and rental agreements for commercial operation are equally observed. The remaining 16 % are operating contracts, and none of the combined transport terminals in the case studies utilise a concession model.

How organisational and legal setups influence open accessibility is addressed. Open accessibility can be ensured by maintaining both infrastructure ownership and operation in a fully in-house model, which ensures total control and management by the owner and operator. However, many more parameters need to be balanced such as how the operational model affects existing market conditions or what the model requires in terms of internal resources and capabilities within the infrastructure owner organisation.

A Baltic Sea Region-wide strategy on combined transport can help in aligning the different local needs and requirements, while at the same time creating visibility of combined transport opportunities, enabling collaboration and ensuring long-term commitments. A strategy may further provide guidance for the national implementation and allow for facilitation of knowledge sharing and collaboration, including, but not limited to, developing certain standards and guidelines that may help in providing a uniform understanding of contractual matters and help the implementation nationally. One such standard could be a template operating contract or a template concession agreement that addresses the main concerns, requirements and parameters to be balanced.

In order to produce transparent and operational recommendations, the material is divided in seven themes, as follows:

1. Critical mass
2. Network is key: both the infrastructure access and the companies to provide volumes
3. Vertical integration
4. Various degrees of collaboration between owner and operator
5. Stakeholder roles in financial decisions
6. Reliance on railway undertakings as intermodal operator
7. Consolidation of information

For each theme, a summary of the finding and the related recommendation is provided in the following:

Critical mass	
Takeaway from case studies	**Recommendation**
Size matters. There is a certain size and volume required to gain some of the necessary conditions for operational efficiencies, and to decrease exposure to e.g. bottlenecks or shorthandedness during peak hours. In reality, there is a need for a critical mass in terms of activity on the combined transport terminal.	Infrastructure managers and owners do have a part to play in terms of collaborating to consolidate goods for combined transport. Preferably the movement of intermodal goods must come from the industry. Where possible, infrastructure owners and managers should try to incentivise and remove obstacles and bottlenecks for creating critical mass. Public infrastructure owners must be observant of the market demands for combined transport terminals. A critical mass is a precondition to obtain some economies of scale. Too many smaller terminals risk cannibalizing each other or offer prices that are uncompetitive, leading to goods being transported by other means such as road.

Network is key: both the infrastructure access and the companies to provide volumes	
Takeaway from case studies	**Recommendation**
The sizes and extent of the combined transport networks play a vital role. The notion of network does not only relate to the physical infrastructure and route network for accessibility, but also to the commercial network and attraction of clients to provide volume for rail transport.	Public ownership of combined transport terminals should always ensure having all the stakeholders in the combined transport chain in mind. The owners shall investigate when it is desirable to enable collaboration between infrastructure managers, terminal operators, goods suppliers and the surrounding communities, and how these efforts can be facilitated. In cases of public ownership of the infrastructure, the combined transport market relies on the public entities to provide infrastructure that enables growth. This includes, but is not limited to: • Ensure means of access to and from combined transport terminals. • Ensure that combined transport terminals are connected to relevant corridors and perhaps to facilitate collaboration between corridors. • Ensure that goods and freight transport have sufficient priority in the networks.

Vertical integration

Takeaway from case studies	Recommendation
In order to attract volume to amass or sustain critical mass or simply to respond to the demand of their commercial networks, terminal operators are inclined to offer an array of services of interest or in demand by their customers. Several of the terminal operators represented in the case studies are companies that at some point in time have expanded their roles in the combined transport process contributing to vertical integration in the combined transport supply chain.	Current regulation on operating combined freight terminals are extensive and some market players with their daily operation in multiple transport modes perceive the regulation as a grey area, with a mix of rail, road and water rules. To enable more general knowledge and understanding of the rights and obligations, and to enhance a more uniform implementation and enforcement of regulations of different transport modes across the Baltic Sea Region and the European Union countries, a process of review of rules and development of guidance documents could be initiated. This process could pursue and especially address the following aspects: • Multimodality in respect of combined terminals and in especial addressing the interfaces between rail, road and water related regulations. • Simplification of rules. • The interfaces between steps in the combined transport supply chain. To allow for flexibility in local implementation, the resulting outputs may be in the form of standards or guidelines that are non-statutory and not necessarily legally binding.

Various degrees of collaboration between owner and operator

Takeaway from case studies	Recommendation
Differences and idiosyncrasies of each terminal appear to increase the complexity of an already complex stakeholder map involving many different actors along the logistics chain compared to a simpler option of transport by road. Governments, public bodies and terminal operators are aligned on an overall goal of attracting goods. There is, however, a significant difference in which role the entity owning the terminal take part in.	Encourage local governments, public bodies and infrastructure owners to produce and promote a clearly defined and documented strategy or approach to developing combined transport. Ideally this entails long-term commitments that terminal operators and other market players can rely on. Local strategies be aligned around a Baltic Sea Region-wide strategy.

Stakeholder roles in financial decisions

Takeaway from case studies	Recommendation
Financial decisions can come from many different needs such as renewal needs, alleviation of experienced bottlenecks or just increased capacity to anticipate growth. Infrastructure owners will likely have a role to play in larger investment decisions, whenever they require changes to the infrastructure to and from the combined transport terminals.	Dialogue pertaining possibilities and development projects often emerge in collaboration between two or more users of the infrastructure. An infrastructure owner liable for financial investment decisions must ensure some form of anticipation of needs through open dialogue. The collaborative role and enabler may find inspiration in the roles that CLOSER in Sweden or SGKV in Germany have taken. Such stakeholders are able to, with a high credibility, consolidate transport expertise from society (public authorities), industry and even academia in order to develop solutions or help in applying for co-financing, collaborating on Connecting Europe Facility calls among other things.

Reliance on railway undertakings as intermodal operator

Takeaway from case studies	Recommendation
Combined transport terminals in the case studies acknowledge the terminal infrastructure being a part of a combined transport chain. Whenever that chain involves trans-shipment to or from rail infrastructure, the intermodal operator on the main leg is a railway undertaking. In terms of the competitive situation there are some railway undertakings that possess market power in that there are not many alternatives to collaborate with.	No clear recommendation. This is already a focal point of the Independent Rail Regulators' Group. In discussing the organisational and operational setups on benchmark terminals, interpretation of the Herfindahl-Hirschman-index (a measure expressing the overall market concentration level to explain the competitive situation) alone may lead to a conclusion that is insufficiently nuanced. In general, there is a recognition that the competition intensity may be low, however the terminals express satisfaction with their collaboration with the railway undertakings. Railway undertakings do compete with road transport and it is in their interest to be competitive in their pricing and service offerings.

Consolidation of information

Takeaway from case studies	Recommendation
All benchmark terminals have some information available on their websites e.g. terminal capacity, characteristics, price sheets, service standards and terms and conditions. However, the review in this analysis has indicated that the level of information and the accessibility of this information varies greatly from terminal to terminal.	With encouragement from a European authority such as the European Commission, hosting the Rail Facilities Portal, it may be possible to leverage the COMBINE project in the Baltic Sea Region to consolidate knowledge on intermodal transport terminals, what types of equipment, and what type of opportunities that are available to interested goods suppliers.

3 APPROACH TO ASSESSMENT

In order to assess and analyse the governance structures of the existing terminals in the Baltic Sea Region, the following approach for case studies was designed.

1. Identification of a number of legal and organisational criteria in order to obtain an overall understanding of the governance structure for each terminal when addressed and give a first understanding of similarities and differences across the different types of combined terminals in the geography of the BSR. The criteria were also developed with a view to benchmark the various terminals and to categorise the elements that promotes and hinders the operation and use of combined terminals.

2. Based on these criteria, between 15 and 25 representative terminals were in the BSR, providing a broad representation of the mix of local and national terminal structures, with a view to their different size, financing and organisation. Ideally, all identified terminals should be within the TEN-T core network and/or be part of a rail freight corridor according to EU Regulation EU No. 913/2010. The identified terminals should furthermore cover each partner country in the BSR in a balanced way.

3. Assessment of each identified terminal, where a number of pre-agreed cross-cutting characteristics and their inter and intra related connections were described, compared, benchmarked and illustrated with a view to their geography.

These three main steps are further elaborated in the following sections.

3.1 Identification of a number of legal and organisational criteria to differentiate among different types of combined terminals in the geography of the BSR

An inventory of existing and planned combined transport terminals was established as a separate sub-activity of the COMBINE project. This resulted among others in a prototype EU-wide rail service facility portal that aims a making essential operational information on all European rail service facilities readily accessible from a single source through the Rail Facilities Portal.

For the present report a significant amount of data was collected in the early stages of this specific task on benchmark of legal, organisational and financial set up for existing terminals in the BSR-region. In order to ensure data validity and to encompass all activities and sub-activities in the COMBINE project, a joint list of parameters for the use of all benchmarks was established within the COMBINE project as such. As such the COMBINE partners in WP2 and WP3 engaged in an alignment of a parameter list with both basic parameters and advanced parameters, and subsequently the data collection for this specific report was renewed.

With more than 100 basic and advanced parameters on the gross list, many are of interest to this specific assignment under Activity 3.1. However, additional parameters covering organisational, legal

and financial matters were found to be less appropriate for data collection by questionnaires, and more obtainable through interviews with terminal operators.

Subsequently, a joint methodology on terminal selection for detailed benchmark analyses per country was developed within the COMBINE project. The methodology is described in **Figure 3.1** below.

Figure 3.1 – Methodology on terminal selection for detailed benchmark analysis per country

1. Different type/mode of terminal (tri-modal port, bi-modal rail-road, bi-modal inland waterways-road etc.) reflecting the distribution of the types in the complete list of terminals, but at least one sea port terminal & one inland terminal (dry port);
2. Balanced geographical distribution of the selected terminals among the TEN-T Core Network or Comprehensive Network, but at least one terminal located on the Rail Freight Corridor(s) (RFC);
3. Different terminal handling technology, but at least one terminal with horizontal handling technologies as main (or exclusive) transshipment solution or, alternatively, when no one existing can be found, other terminal suitable for horizontal technologies or predestinated for it;
4. Terminals with different operating model (fully in-house, concession, operating contract, rental agreement for commercial operation), but at least one open access terminal and one privately owned, dedicated terminal, if available
5. Different size of the terminals based on the throughput in TEU annually:
    a. Low capacity: < 50.000 TEU/a
    b. Medium capacity: 50.000 – 150.000 TEU/a
    c. High capacity: > 150.000 TEU/a
6. Country- or terminal-specific idiosyncrasies, i.e. local vs. international operators, rail gauge change, logistics chain, reefer chain, DG cargo, project cargo as dominant etc.

Above criteria are not dichotomic and can occur in one case.

Source: Hamburg Hafen Marketing

In continuation hereof, and based on these criteria, a longlist of terminals for the use of the COMBINE project was established. See also **Annex 1.**

3.2 Selection of representative terminals based on agreed upon criteria

For the present report, COMBINE project partners were asked for input on which terminals would be relevant to examine based on the criteria listed in **Figure 3.1** above. At the time of terminal selection in early October 2019, the necessary data was unavailable for the project team of this report to perform purposive sampling based on the agreed upon criteria.

Between three and five terminals per country were identified by the project partners to be selected for further analysis, with the implicit understanding that the number of analysed terminals depended on data collection possibilities in the specific country. Hereafter 19 terminals were chosen for the present report. **Table 3.1** below contains the overview of the 19 identified terminals and their terminal operator.

Table 3.1 – Overview of identified terminals

Country	Terminal	Operator	*
Denmark	Taulov Terminal	DB Cargo	N
	Padborg Terminal	TX Logistik	I
	Taulov Container & Rail Terminal	Fredericia Shipping	I
Germany	Baltic Rail Gate	Baltic Rail Gate GmbH	I
	DUSS Terminal Hamburg	DUSS mbH	N
	Rostock Trimodal	Rostock Trimodal GmbH	L
Sweden	Hallsberg Terminal	Logent AB	I
	Nässjö Terminal	Transab AB	I
	Arken Combiterminal	Sandahlsbolagen AB	L
	Stockholm Årsta	Väte Trafik	I
Poland	Gdansk DCT	Gdansk DCT	I
	Kutno Terminal	PCC Intermodal	L
	Euroterminal Sławków	Euroterminal Slawków Ltd	N
Finland	Cargo Harbour Vuosaari	SteveCo	I
	Kouvola RRT Rail and Road Terminal	Kouvola Cargo Handling	I
Latvia	Noord Natie Ventspils Terminals	NNVT	I
	Railport Riga	DB Schenker LV	N
Lithuania	Vilnius Intermodal Terminal	JSC Lithuanian Railways	L
	Central Klaipėda Terminal	JSC Central Klaipeda terminal	N

Note: Input on selection of representative terminals collected from COMBINE partners
* Terminals reached: I = interview; L = response and limited dialogue; N = no response

3.3 Case study analyses and terminal benchmarking

The in-depth analysis of the benchmark terminals was based on different data sources. Initially, the basic information was provided by mapping of all existing and planned combined transport terminals in the Baltic Sea Region, supplemented with information found on the individual terminals' websites and additional websites on intermodal terminals.

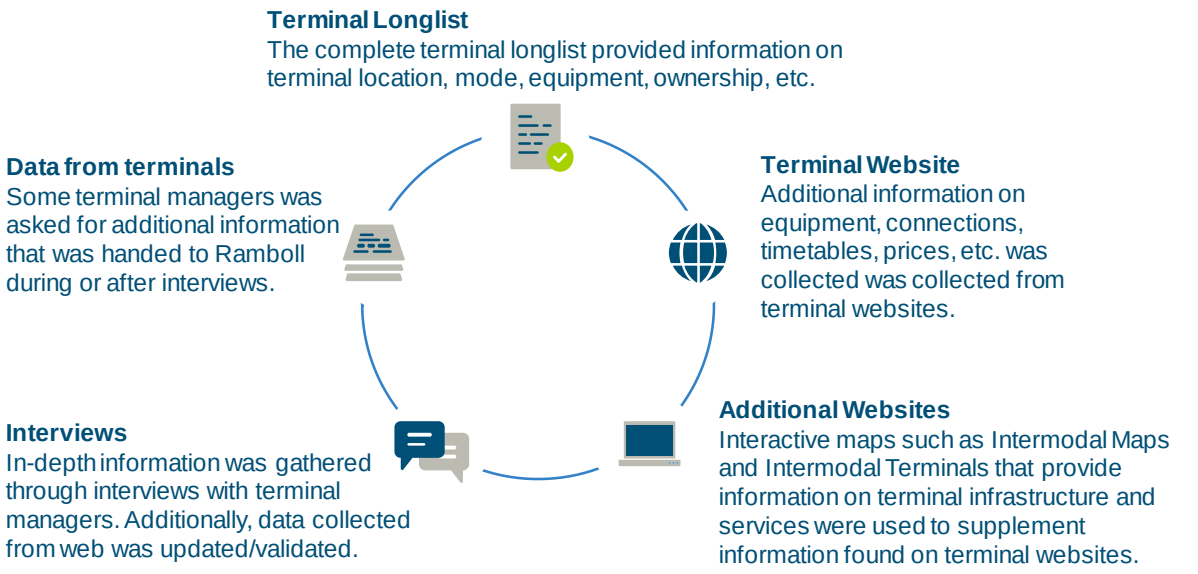
A primary source of information for the case studies are interviews with terminal managers from selected terminals. The interview guide used for this report left room for additional quality assurance and follow up on some of the more technical and quantitative data. See also **Annex 2** for the semi-structured interview guide for the selected benchmark terminals.

The combination of legal, commercial and operational questions in the scope for the present report brought about a risk that singular interviewees might not be able to provide deep insights in all relevant aspects. To mitigate this risk, significant time was spent in order to identify and establish connections with relevant terminal stakeholders. The process also kept in mind that certain questions on

organisation, financial and legal setups might be within areas of sensitive information, especially concerning contractual matters.

Of the localities listed in **Table 3.1** it was only possible to get in touch with representatives of 14 terminal operators. Even so, four interviews have been either postponed or it has not been possible to set up formal interviews due to availability issues or reluctance to participate. Still, a significant amount of data was gathered, and findings have been substantiated through multiple sources. **Figure 3.2** below, illustrates the data used for the analysis.

Figure 3.2 – Data used for the analysis is gathered and validated through multiple sources



Note:
Source:

Following interviews, qualitative data codification and analysis was performed in order to extract significant information and findings across countries and organisations. The terminal selection methodology, as outlined in **Figure 3.1** , by nature seeks to incorporate a wide array of different terminal characteristics, and as such, there will be caveats to comparing two terminals against each other on singular parameters. The qualitative codification and analysis seek to draw out findings to be described in an organized manner and to be elaborated on further, before the report summarises findings and recommendations.

Contradicting information was discussed at case interviews, where primary data was gathered for the analysis. Lastly, additional information has been received by email from some terminal managers.

For each terminal in scope, the reporting contains terminal profiles with cross-cutting characteristics leaning on the parameter list. Additionally, the terminal profiles contain illustrations with a view to geography as well as clarifying descriptions and assessments of legal, organisational and financial characteristics.

Furthermore, this report has continuously sought to accommodate and relate relevant findings to information presented in other reports of the COMBINE project.

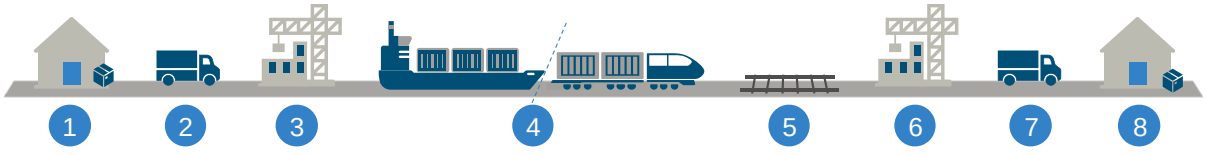
3.3.1 Frameworks and definitions

For the purpose of the project, the COMBINE project partners have selected the following definitions:

- **Multimodal transport/intermodal transport/Combined Transport**: the current definition of the UN/ECE glossary without modifications
    - **Multimodal transport**: Carriage of goods by two or more modes of transport
    - **Intermodal transport**: The movement of goods in one and the same loading unit or road vehicle, which uses successively two or more modes of transport without handling the goods themselves in changing modes
    - **Combined transport**: Intermodal transport where the major part of the European journey is by rail, inland waterways or sea and any initial and/or final legs carried out by road are as short as possible
- **Intermodal Loading Units (ILUs):** containers, swap bodies and semi-trailers suitable for combined transport. This is a mix of current definitions on intermodal transport units and intermodal loading units. Road vehicles are considered, in the context of COMBINE, as ILUs as well
- **Intermodal Terminal**: an installation for transhipment of standardized loading units (containers, swap bodies, semi-trailers) with at least one of the modes served must be rail or inland waterway

With the above definition of combined transport, it is indicated that the CT chain consists of an initial leg of transport, a main leg by rail, inland waterways or sea, and then a final leg of transport. The CT chain can thus consist of multiple steps and multiple stakeholders. **Figure 3.3** below visualises the different steps in the CT chain and assigns each step a number. In the subsequent text below the figure, the actors involved in delivering combined transport are described.

Figure 3.3 – Different actors involved in delivering combined transport



Note: Refer also to COMBINE output 2.1 section 1.1, figure 1 on main stakeholders in the combined transport chain, adapted from Eiband (2014)

Types of actors marked in bold:

1. Cargo at **shipper's** door – the **principal** who defines the framework conditions
2. Via **carriers**, clients deliver loading units to the departure terminal. Clients could be among others: **Road Haulage Companies, Freight forwarders** or **forwarding agents,** and/or **Logistics companies**
3. The combined transport terminal is operated by **terminal operators**, who can be dedicated combined transport operators, railway undertakings (RU's) other forms of local operators. Additionally, the terminal operators may be a different entity than the **terminal owner**
4. The intermodal service provider is either a **barge operator or train operator** depending on, if the mode of transport is rail or waterway. The intermodal service provider will likely have some degree of overlap to the **wagon provider** on rail, where transport is carried out by a **railway undertaking (RU)**, whereas intermodal transport by waterways is undertaken by **shipping companies** or **shipping lines**.
5. **Infrastructure managers** (IMs) put the railway network at the operator's disposal for a fee.
6. Similar actors to step 3
7. Similar actors to step 2. These clients collect loading units at destination terminal. One of the main purposes of combined transport is to ensure that the initial and final legs carried out by road transport are as short as possible
8. Cargo is delivered to consignee.

Some combined transport terminal operators offer terminal-to-terminal transport and buy transport capacity from the railway undertakings or shipping companies. Some combined transport actors offer door-to-door services and thus take care of the both initial and final leg of transport.

See also COMBINE report Output 2. "Overview of the combine transport market in the Baltic Sea Region (BSR)" for discussion of relevant terminology.

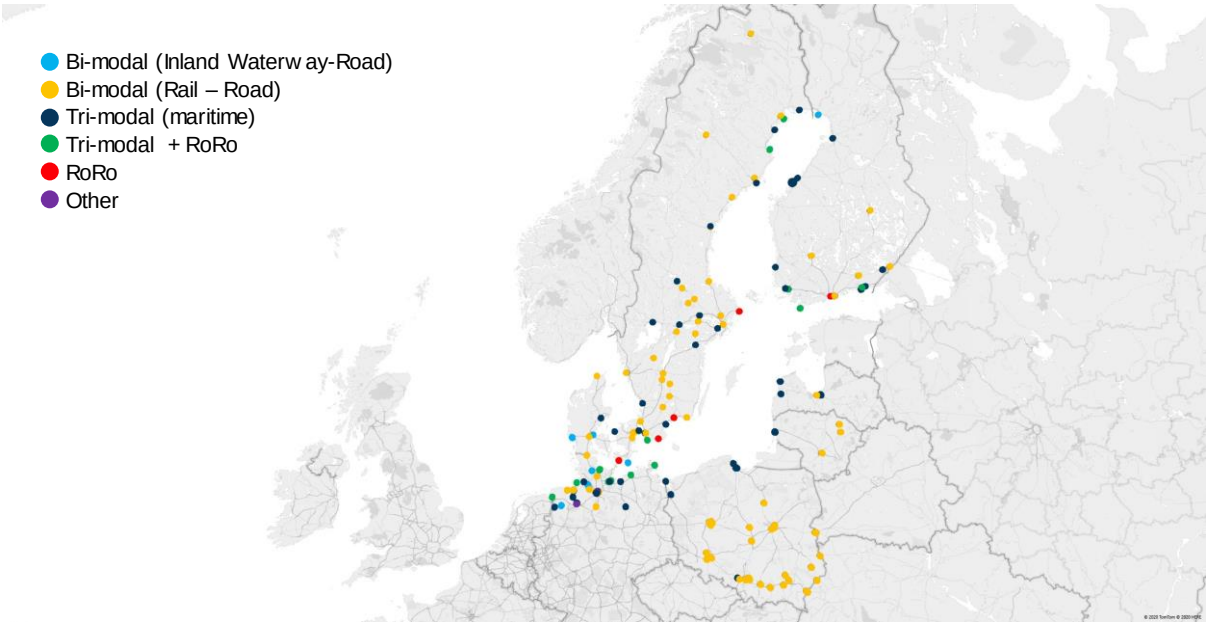
4 TERMINAL BENCHMARK

In the COMBINE project, the respective COMBINE partners in each country have assisted in registering and mapping the combined transport terminals across the Baltic Sea Region.

Figure 4.1 below illustrates the spatial distribution of the terminals selected for the COMBINE project in general. With colour-dimensions, the different modes of transport at each terminal are indicated.

A list of the combined transport terminals provided in the map is available in Annex 1

Figure 4.1 – Map of terminals in the Baltic Sea Region, coloured by mode



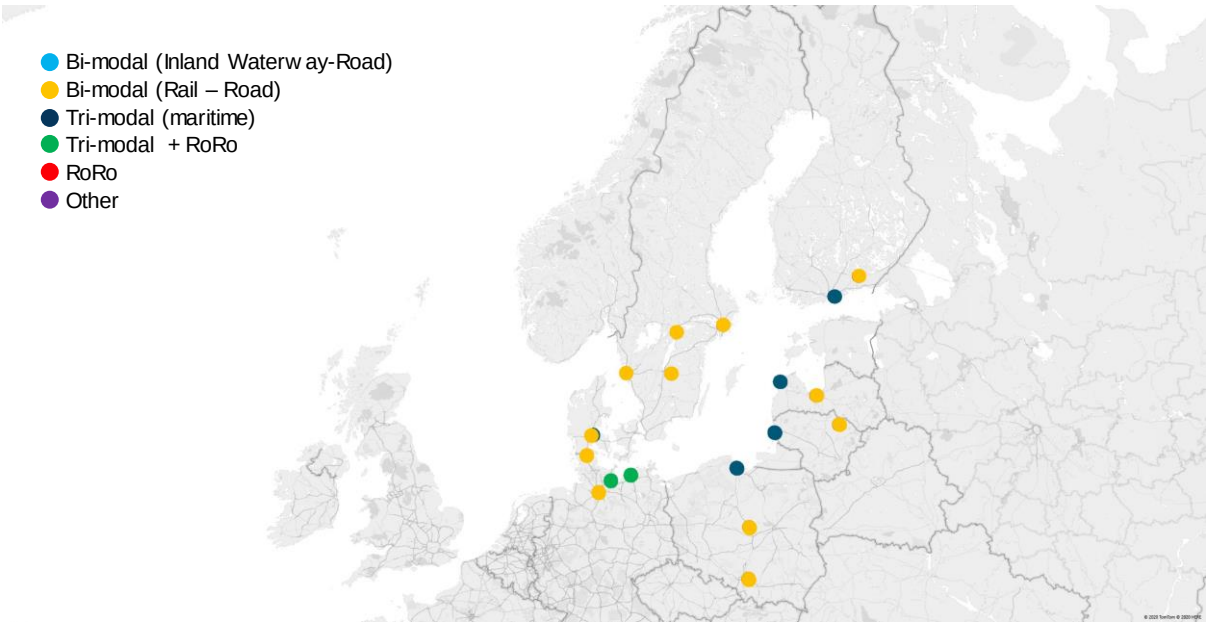
Note: Data indicates that a select few data points may be incorrectly categorized with modes of transport or with missing or incorrect spatial data
Source: COMBINE partners; COMBINE Terminals BSR

A separate report under work package 3, activity 3.1 has collected and analysed a significant number of both basic and advanced parameters for the terminals in **Figure 4.1** in the extent that data has been available. This includes analyses on modes of transport served at the facility, the spatial distribution, the range of services being provided and much more.

This present report, by comparison, focuses on a narrower scope, such as the legal, organisational and financial aspects of combined transport terminals.

As described in section 3, the narrower scope of this report entails an identification and selection of selected combined transport terminals for case studies, and the list of combined transport terminals was provided initially in **Table 3.1** earlier. Below **Figure 4.2** illustrates the identified and selected terminals in a graphically similar way to **Figure 4.1** above.

Figure 4.2 – Map of terminals selected for case studies, coloured by mode



Source: COMBINE partners; COMBINE Terminals BSR

The list of terminals selected for the case studies of the present report is only a subset of the full list of registered terminals. However, the selection of terminals has been carried out with an aim to have the case studies reflect a representative subset of the broader characteristics in the Baltic Sea Region. This means that the majority of selected terminals are bi-modal terminals with rail and road modes of transport, that there is a balanced spatial distribution across the region, that the terminals have different operating models, that they are of different size among other things.

Each of the selected terminals have their own sub-chapter containing a standardised terminal profile with a view to allow for as much comparison as possible. That means that each terminal profile contains an image with a geographical overview followed by 3 tables containing mostly comparable data or relevant particulars of the terminals on contact information, terminal characteristics, and terminal services offered. Finally, each sub-chapter contains additional, legal, organisational and financial characteristics described and elaborated more qualitative way.

Some of these legal, organisational and financial characteristics are summarized in themes that are elaborated further upon in chapter 5.

In the following sections, the selected 19 terminals are described to be used for the terminal benchmark.

4.1 Danish terminals

The Danish CT traffic is 62,000 TEU, mainly transported to or from Italy and Austria. Primarily containers are transported in Denmark.

The highest average terminal areas are in Denmark. Danish terminals have one of the lowest numbers of gentry and mobile cranes. The terminals provide an average utilization factor above 50% and gain their efficiency by shortening storage free time.

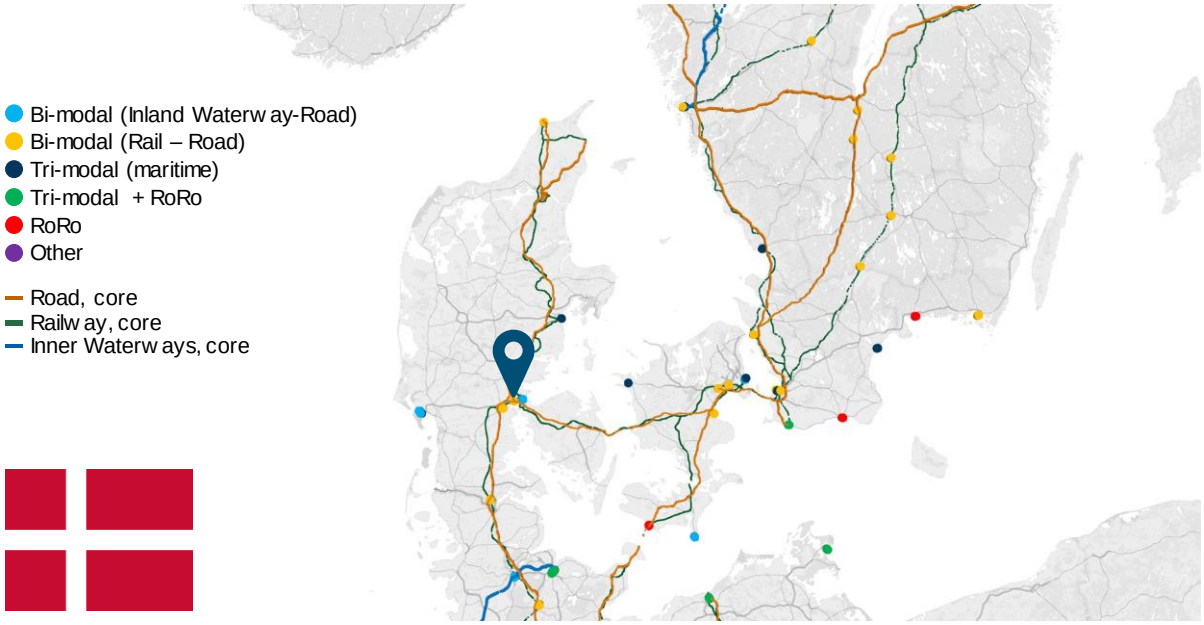
4.1.1 Terminal Taulov, Taulov

Taulov Terminal is an intermodal Rail/road terminal located in Central Denmark right where the North/south and East/west corridors meet. The terminal is located in the Scandinavian – Mediterranean Rail Freight Corridor (RFC3), which provides high accessibility to the European rail freight network between Germany and Sweden.

Additionally, the terminal is situated just 10 kilometres from one of the largest industrial ports in Denmark.

The terminal was initially in operation in 1990 and the last expansion was completed in 2011-2012.

Figure 4.3 – Introduction to and placement of Taulov Terminal



Note:
Source: dk.dbcargo.com; general conditions, price sheets

Table 4.1 – Contact Information, Terminal Taulov

Parameter	Information
Address	Europavej 28, 7000 Frederecia, Denmark
Telephone	+45 88 30 09 73
Fax	+45 33 18 93 53
E-mail	kundeservice@deutschebahn.com
Website	dk.dbcargo.com/
Opening hours	Mon: 05:00-20:00 Tues-Fri: 06:00-20:00

Note: Terminal is open to clients in opening hours, while the terminal may be in operation on all days of the year except on Christmas (December 24)
Source: DBcargo.com; general conditions; price sheets

Table 4.2 – Terminal Characteristics, Terminal Taulov

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	25 % road / 75 % rail
Equipment		
• Cranes	Units	0
• Reach stackers	Units	2
• Forklift	Units	1
Terminal size	M^2	24,000 M^2
Storage type	Types	shunting, depots a.o.
• Yard storage	TEU	900 TEU, 18,180 M^2
• Buffer storage	M^2	100 x 50 meter
Processes	Types	?
Cargo Volume	TEU	52,600 containers (2018) corresponding to approx. 100,000 TEU
Cargo composition	(%cont., %trail., %swaps)	N/A
Maintenance	Standards	N/A
Investment - 10 years	Mil. EUR	9 (66 Mll. DKK)
Employees	FTE	20

Note: The split between Twenty-foot Equivalent Units and Forty-foot Equivalent Units is not available
Source: DBcargo.com; UIRR; TVSyd.dk; Miljøstyrelsen; Ramboll report

Table 4.3 – Terminal Services, Terminal Taulov

Service	Offered	Note
Customs office	?	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	Seveso column 3 since 2013
Container cleaning	?	
Container sealing	?	
Container repair	Yes	
Electric registration	?	

Note:
Source: DBcargo.com; general conditions; price sheets

It should be stated that the operator of the terminal has not been available for interview, data collection and data validation. The terminal profile instead relies on already collected data by the Danish Transport, Construction and Housing Authority and their business partners on earlier occasions and on publicly available information.

4.1.1.1 Legal characteristics:

DB Cargo Scandinavia A/S is the operator of Terminal Taulov. The terminal area and the terminal itself is owned by the Danish infrastructure manager Banedanmark (Rail Net Denmark), who has delegated the operation of the terminal to DB Cargo until 2030 (Ramboll, 2020).

The entity DB Cargo Scandinavia A/S, previously known as DB Schenker Rail Scandinavia and Railion Denmark, is ultimately owned by the German State through its ownership of Deutsche Bahn Aktiengesellschaft and subsequently the DB Cargo Aktiengesellschaft. DB Cargo Scandinavia A/S, is as legal entity, focused on integrating Denmark and Scandinavia in the European rail freight network of DB Cargo. In July 2019 the production company DB Cargo Scandinavia A/S and the sales company DB Cargo Danmark Services merged into one entity.

4.1.1.2 Organisational characteristics:

The operation by DB Cargo Scandinavia A/S is performed with 2 reach stackers, 1 terminal tractor and 2 shunter locomotives.

Typically, between 100 and 150 containers are received and forwarded daily on rail or road.

In 2020, the terminal had 28 full time employees. The operation and manning are distributed across 3 shifts / teams of between 1 and 7 employees depending on the level of activity on the terminal.

The full entity of DB Cargo Scandinavia A/S has a total of approximately 250 employees (head count), of whom roughly 80 % are locomotive drivers and station personnel. DB Cargo Scandinavia A/S also operates a Danish combined transport terminal in Høje Taastrup (approximately 20 kilometres outside Copenhagen) and 12 railports.

Attraction of volumes is something that the operator handles, where the DB Cargo Group has built an extensive rail network over the years. The primary routes of the transport network related to the terminal in Taulov is between Taulov and Høje Taastrup in the East-West and from Aalborg to Hamburg in the North-South.

4.1.1.3 Financial characteristics:

Equipment used by the operator are leased. They are washed and serviced on site by an external supplier (a leasing company).

The terminal has been upgraded by the owner, Banedanmark, since DB Cargo Scandinavia took over operation of the terminal. The latest upgrade took place in 2011 - 2012 and included:

- New storage yard of 5,000 m2
- 450 metres new tracks
- 500 metres new fence
- Access port with selfgate
- New road access

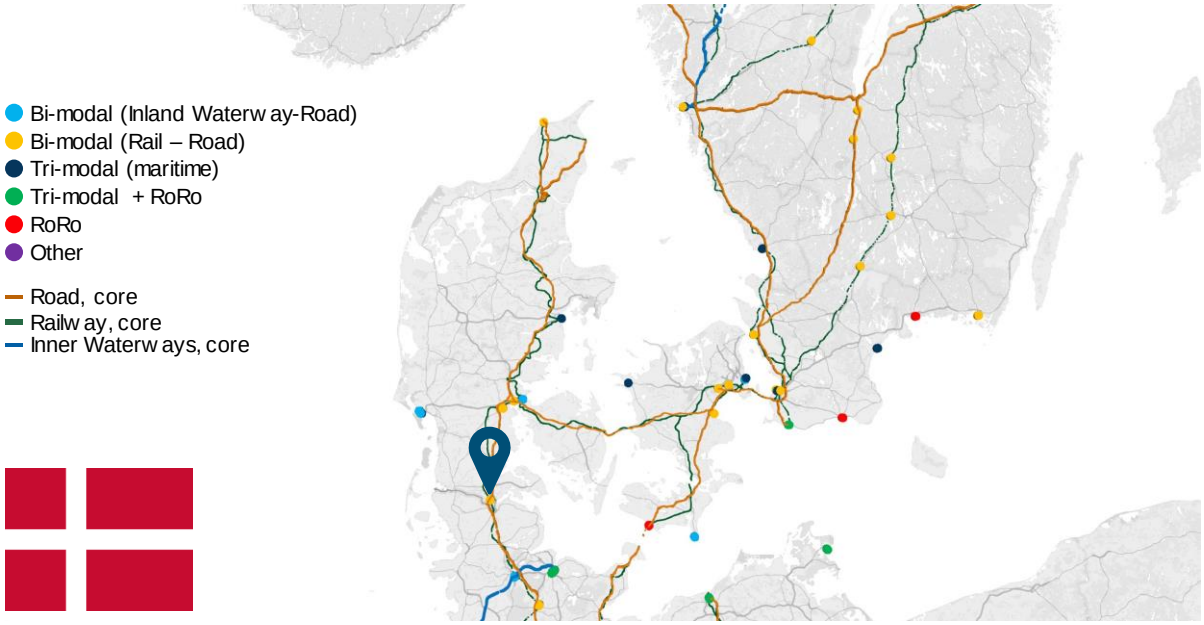
The terminal upgrade resulted in a 50 % increase in terminal capacity. It was paid for with 9 million euro allocated to Banedanmark through the Danish Parliament.

4.1.2 Padborg Terminal, Padborg

The Padborg Terminal is an intermodal terminal located in the South of Denmark close to the German border. The facility is located on the Scandinavian – Mediterranean Rail Freight Corridor (RFC3).

The city of Padborg is located on the border with Germany. Since Denmark joined the European Economic Community in the 1970's, Padborg has built a strong reputation as a transport centre.

Figure 4.4 – Introduction to and placement of Padborg Terminal



Note:
Source:

Table 4.4 – Contact Information, Padborg Terminal

Parameter	Information
Address	Istedvej 11, 6330 Padborg, Denmark
Telephone	+45 7367 0626
Fax	+45 7367 0629
E-mail	terminal-padborg@txlogistik.eu
Website	txlogistik.eu
Opening hours	Mon: 01:00-22:00 Tues: 06:00-22:00 Wed: 06:00-24:00 Thur: 00:00-18:00 Fri: 02:00-22:00 Sat: 08:00-18:00

Note:
Source: TXLogistik.eu; Price sheet and general terms

Table 4.5 – Terminal Characteristics, Padborg Terminal, Padborg

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	
• Reach stackers	Units	2 (incl. NIKRASA)
Terminal size	M^2	25,000
Storage type	Types	
• Yard storage	M^2	
• Buffer storage	M^2	
Processes	Types	
Cargo Volume	TEU	30,000
Cargo composition	(%cont., %trail., %swaps)	x% / Y% / Z%
Maintenance	standards	Defined in contract
Investment - 10 years	Mil. EUR	N/A
Employees	FTE	10

Note:
Source:

Table 4.6 – Terminal Services, Padborg Terminal, Padborg

Service	Offered	Note
Customs office	N/A	
Shunting	No	Must be acquired from 3rd party
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	In terms and conditions
Container cleaning	N/A	
Container sealing	N/A	
Container repair	N/A	
Electric registration	N/A	

Note:
Source:

4.1.2.1 Legal characteristics:

The terminal area is owned by the Danish infrastructure manager Banedanmark (Rail Net Denmark) and operated by TX Logistik A/S. TX Logistik A/S is owned by TX Logistik AG of Germany, and the ultimate owner of TX Logistik A/S as a subsidiary is the Italian state. Since January 2017, TX Logistik AG has been wholly owned by the Mercitalia Group, a subsidiary of Ferrovie delle Stato Italiane.

TX Logistik A/S as a legal entity is a dedicated terminal operator that took over operation of the terminal around 2007. The contractual setup between TX Logistik A/S and Banedanmark is an operating contract, where the operator pays rent for the rights to handle goods on the terminal.

4.1.2.2 Organisational characteristics:

Approximately 10 employees are working at TX Logistik A/S in Padborg including one or more employees who are working with customer service for one of the terminal's key clients. Besides a terminal manager and the CEO, usually five employees are on hand on the terminal to cover administration and operations during opening hours.

Attraction of volume to the terminal is primarily done by the terminal itself.

Structurally, TX Logistik A/S considers itself to have a flat structure, where the 10 employees have multiple roles that they can cover.

The owner of TX Logistik A/S, TX Logistik AG in Germany, is today one of the largest rail freight transport companies in Europe with operation in 11 countries. With a tightly meshed network in the intermodal sector with both continental and maritime traffic, TX Logistik specialises in the integration of the transport chain on the North-South Axis of Europe, and they coordinate goods flows across the entire supply chain from production to destination.

Being ultimately owned by the Italian state, the most significant goods flows are between Padborg and Verona, Italy, 6 times a week.

The rail freight transport company of TX Logistik AG controls the route, and as such has control of the client's goods from point A to B. If the rail freight transport company did not control the route, operation of the terminal would not be of interest.

TX Logistics do not shunt themselves. This service must be acquired from a third party.

4.1.2.3 Financial characteristics:

A number of investments have been made since TX Logistik A/S took over the terminal in 2007, mainly concerning capacity increases and alleviation of bottlenecks, as follows:

- 2011: Improvement of railway tracks
- 2014: Terminal expansion of around 1,000 M3
- 2015: Terminal expansion of around 5,000 M3

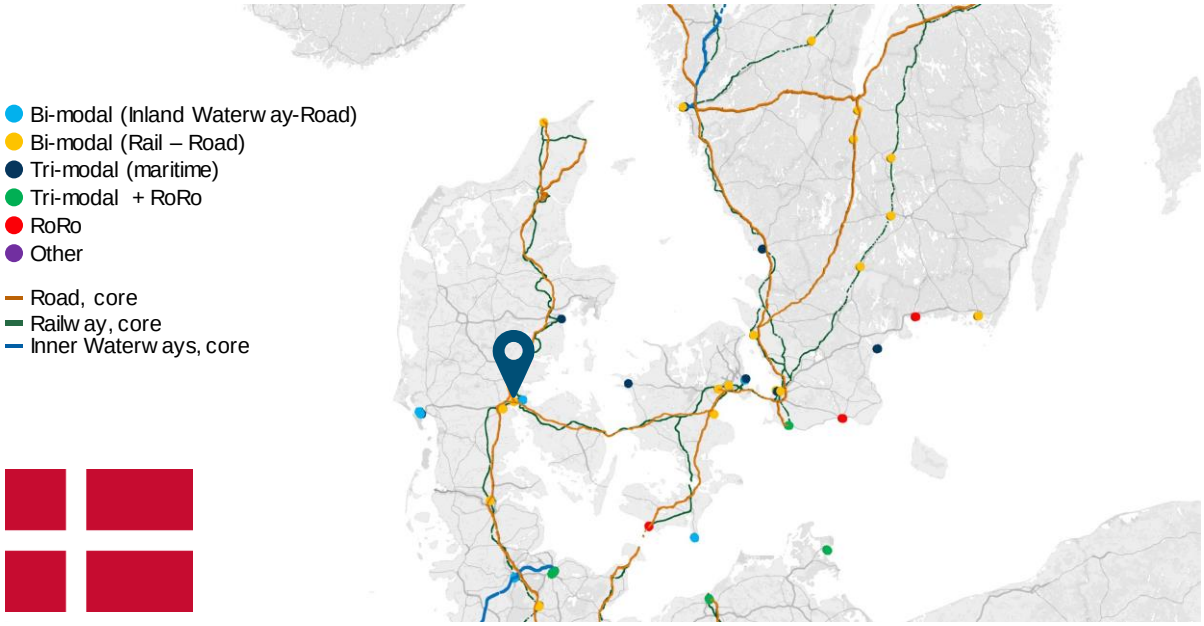
The interviewee did not join TX Logistik A/S in Denmark until 2016 and was unable to elaborate much further. However, financing for the projects was the responsibility of the terminal owner, Banedanmark, through either public funding or through applied co-funding via the EU.

4.1.3 Taulov Container & Rail Terminal, Taulov

The Taulov Container & Rail Terminal is an intermodal terminal located in the central part of Jutland in Denmark, where the primary North-South and East-West traffic flows meet. The facility is located on the Scandinavian – Mediterranean Rail Freight Corridor (RFC3).

In terms of location, the Taulov Container & Rail Terminal is in close proximity to the Taulov Terminal owned by the Danish infrastructure manager Banedanmark, which is operated by DB Cargo.

Figure 4.5 – Introduction to and placement of Taulov Container & Rail Terminal



Note:
Source:

Table 4.7 – Contact Information, Taulov Container & Rail Terminal, Taulov

Parameter	Information
Address	Kongens Kvarter 11, 7000 Fredericia, Denmark
Telephone	+45 76 20 20 30
Fax	+45 76 20 20 21
E-mail	terminal@fredericiashipping.dk
Website	www.fredericiashipping.dk
Opening hours	N/A*

Note: * Terminal services available 24/7
Source: Fredericiashipping.dk

Table 4.8 – Terminal Characteristics, Taulov Container & Rail Terminal, Taulov

Parameter	Unit	Value
Mode composition	(%road, %rail, %water)	N/A
Equipment	Types	
• Cranes	Units	
• Reach stackers	Units	2
Terminal size	M^2	145,000
Storage type	Types	
• Yard storage	M^2	80,000
• Buffer storage	M^2	N/A
Processes	Types	
Cargo volume	TEU	N/A
Cargo composition	(%cont., %trail., %swaps)	N/A
Maintenance	Standards	
Investment - 10 years	Mil. EUR	Between 18 and 26 million
Employees	FTE	Approx. 15

Note:
Source: Fredericia Shipping; Intermodal-map.com

Table 4.9 – Terminal Services, Taulov Container & Rail Terminal, Taulov

Service	Offered	Note
Customs office	Yes	
Empty container storage	No	
Full container storage		
Hazardous material		
Container cleaning		
Container sealing		
Container repair	Yes	
Electric registration		

Note:
Source: Fredericia Shipping; Intermodal-map.com

4.1.3.1 Legal characteristics:

Taulov Container & Rail Terminal is a privately-owned intermodal terminal. It is owned and operating by entities of Fredericia Shipping A/S, with the operator being exactly Fredericia Shipping A/S and the owner FS Taulov ApS. Both entities are owned by FS Logistics A/S and controlling shareholder Mr. Klaus G. Andersen, who is also the managing director.

The terminal operates as an inland port for the port in Fredericia. Fredericia Shipping A/S is headquartered at the Port of Fredericia and has been so since the 1973. The Port is relatively small in a European context, and Fredericia Shipping A/S already took up a large share of that limited area, hence the need for additional capacity outside of the Port.

The Taulov Container & Rail Terminal opened in 2017.

4.1.3.2 Organisational characteristics:

Fredericia Shipping A/S is a significant logistics, agency and terminal operator in Denmark. Fredericia Shipping A/S as a whole, employs about 65 within 4 main business areas, which are:

- Bulk shipping
- Steel
- Container
- Logistics

Around 30 are employed within the division of Terminal Services, which has mainly been at the port of Fredericia. Since establishing Taulov Container & Rail Terminal as an inland port in 2017, approximately 15 terminal employees are working in Taulov.

The interconnectivity between the Port of Fredericia and the Taulov Container & Rail Terminal allows for flexible resource allocation. Combined there is critical mass to man up where it is needed.

Additionally, in the area of the Taulov Container & Rail Terminal area, the owner company FS Logistics ApS has set up a tank area, as well as there also being a trucking company branch of the FS Logistics business, called DKC Transport. This creates additional synergies within the company.

Attraction of goods in volumes to the terminal is related to the logistical solutions provided also by the trucking company DKC transport, and otherwise largely related to the attraction of goods to the port of Fredericia. This includes feeder calls from Unifeeder, MSC, CMA, Team Lines and Green Feeder that enables the ship lines to reach ports in the Baltic Sea Region, in the Benelux, the UK and even further.

4.1.3.3 Financial characteristics:

The investment in Taulov Container & Rail Terminal is a rather new one with the terminal opening in 2017. The private company of FS Logistics A/S has invested between 150 and 200 million Danish Kroner (roughly 18 to 26 million Euro) with no help from public funding. This includes equipment such as two reach stackers with added lifting capacity.

4.2 Finnish terminals

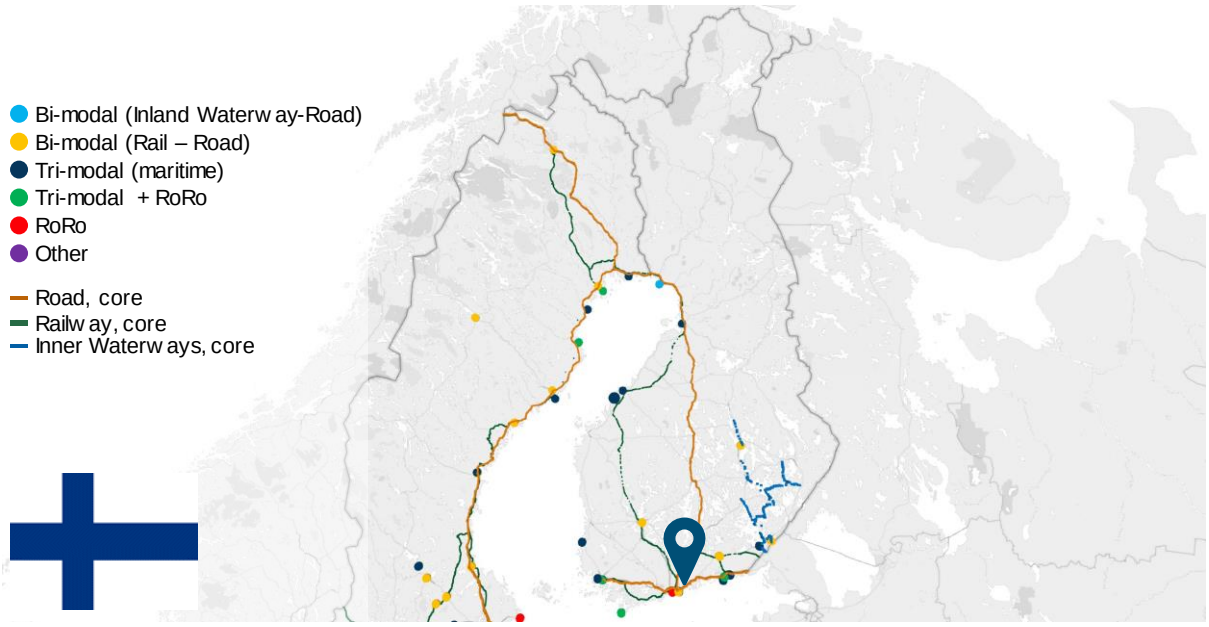
Finland is a major contributor to the total share of the BSR countries in European unaccompanied domestic traffic, in terms of TEU and tonnes. The Finnish CT traffic is 39,000 TEU, mainly transported to or from Netherland and France. The traffic development in Finland is stable.

One of the smallest average terminal areas are in Finland. With four terminals Finland is one of the countries with fewest CT terminals. Finnish terminals have one of the highest average number of mobile cranes.

4.2.1 Cargo Harbour Vuosaari, Helsinki

Vuosaari Harbour is located in the Vuosaari neighbourhood of Eastern Helsinki with great connections for RoRo traffic due to its immediate connection to the Ring III road for the road network. And in terms of rail freight, the harbour quays and terminals are connected to the main railway line in Kerava. It is located near all major population and logistic distribution centers in the Greater Helsinki Area, but efficiently aside of the city traffic itself being approximately 20 kilometres East of Helsinki City Centre.

Figure 4.6 – Introduction to and placement of Cargo Harbour Vuosaari



Note:
Source:

Table 4.10 – Contact Information, Cargo Harbour Vuosaari, Helsinki

Parameter	Information
Address	Gatehouse, Komentosilta 1
Telephone	+358 5 23 231
FAX	
E-mail	Steveco.sales@steveco.fi
Website	www.steveco.fi
Opening hours	Weekdays: 06:00-23:00 Sat: 06:00-14:30

Note:
Source: SteveCo.Fi

Table 4.11 – Terminal Characteristics, Cargo Harbour Vuosaari, Helsinki

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	N/A
Equipment	Types	
• Cranes	Units	5
• Reach stackers	Units	2
Terminal size	M^2	N/A
Storage type	Types	Open yard, warehouses
• Yard storage	M^2	N/A
• Buffer storage	M^2	
Processes	Types	
Cargo Volume	TEU	250,000
Cargo composition	(%cont., %trail., %swaps)	60 % roro, 40 % container vessels (in terms of cargo tonnage)
Maintenance	standards	
Investment - 10 years	Mil. EUR	N/A
Employees	FTE	

Note:
Source: SteveCo; UIRR; Railfacilitiesportal

Table 4.12 – Terminal Services, Cargo Harbour Vuosaari, Helsinki

Service	Offered	Note
Customs office	Yes	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	?	
Container sealing	?	
Container repair	?	
Electric registration	?	

Note:
Source: SteveCo; Port of Helsinki website

4.2.1.1 Legal characteristics:

Cargo Harbour Vuosaari is owned by the Port of Helsinki and ultimately the City of Helsinki. The Port of Helsinki has cargo traffic via four harbours Katajanokka, South and West Harbours, and then the Viosaari, the latter being the prime cargo hub.

The Cargo Harbour Vuosaari is a part of the port of Helsinki, which is owned by the city of Helsinki and operated by Port of Helsinki Ltd. However, services at the Cargo terminal is left to private operators, while Port of Helsinki, operates the passenger services. This leaves a plethora of individual companies providing services on the Vuosaari terminal. Specifically, 18 different operators are present at the terminal. Among others are FinnSteve and SteveCo are providing cargo handling, container terminal operations, depot services, warehousing and more.

4.2.1.2 Organisational characteristics:

The Cargo Harbour Vuosaari is a part of the port of Helsinki, which is owned by the city of Helsinki and operated by Port of Helsinki Ltd. However, services at the Cargo terminal is left to private operators, while Port of Helsinki, operates the passenger services. This leaves a plethora of individual companies providing services on the Vuosaari terminal.

Specifically, 18 different operators are present at the terminal. Among others are SteveCo are providing cargo handling, container terminal operations, depot services, warehousing and more.

SteveCo Oy brands themselves as is the leading port operator in Finland with around 700 employees. Annually SteveCo are stevedoring 12 million tonnes across while also providing forwarding and transport services, customs clearance services as well as warehousing services. A full-service logistics company specialised in logistics services in Finland.

4.2.1.3 Financial characteristics:

Vuosaari Port of Helsinki is a relatively newer operation started in 2008.

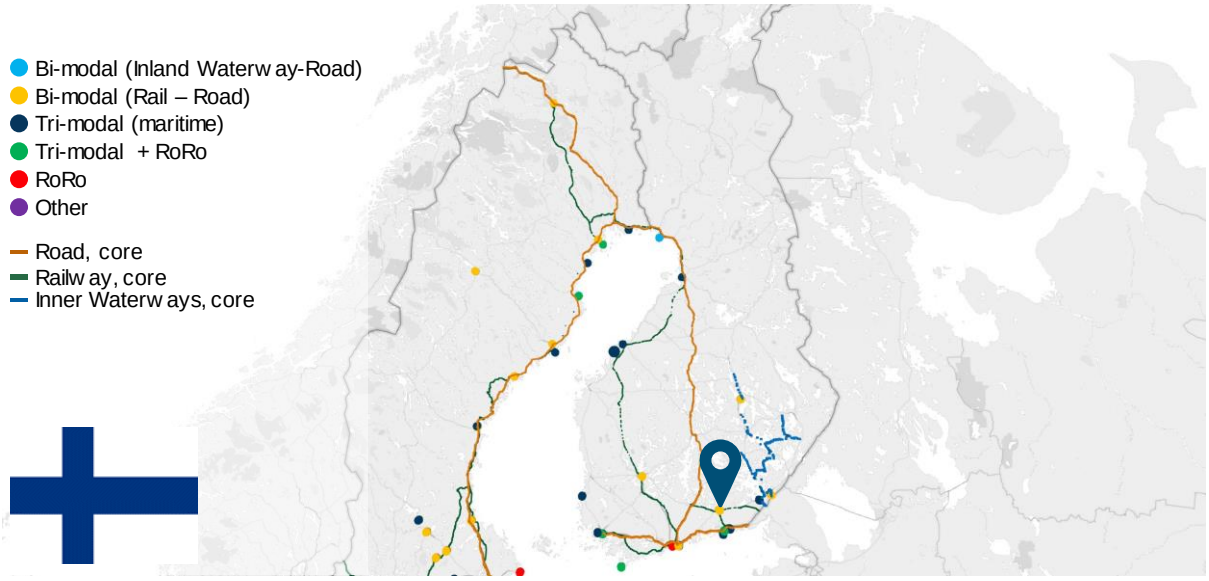
Historically, Helsinki Port has owned the infrastructure such as roads, berths, networks and railway tracks. However, the port does not own the terminal equipment. The port operators either own the loading equipment, cranes and other terminal equipment or are leasing it elsewhere.

4.2.2 Kouvola RRT Rail and Road Terminal, Kouvola

Kouvola RRT is a new infrastructure project to support the Silk way from Europe to Asia. It is currently under construction and is expected to be finished in 2023. According to the plan, an intermodal area is being built as the first stage of the project, and later logistics and business areas will follow to serve the needs of industrial operators.

Kouvola RRT will be the only rail and road terminal in the EU's core transport network and will operate on an open access principle.

Figure 4.7 – Introduction to and placement of Kouvola RRT Rail and Road Terminal



Note:
Source:

Table 4.13 – Contact Information, Kouvola RRT Rail and Road Terminal, Kouvola

Parameter	Information
Address	Ampumaradantie 10, 45200 Kouvola, Finland
Telephone	+358 40 489 9215
FAX	
E-mail	
Website	cargohandling.fi
Opening hours	

Source: Kouvola.Fi

Table 4.14 – Terminal Characteristics, Kouvola RRT Rail and Road Terminal, Kouvola

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	1
• Reach stackers	Units	0
Terminal size	M^2	480,000 m^2
Storage type	Types	
• Yard storage	M^2	
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	N/A
Cargo composition	(%cont., %trail., %swaps)	x% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	expected 20 to 25

Note:
Source: Kouvola.Fi; Intermodal-map.com

Table 4.15 – Terminal Services, Kouvola RRT Rail and Road Terminal, Kouvola

Service	Offered	Note
Customs office	?	
Empty container storage	?	
Full container storage	?	
Hazardous material	?	
Container cleaning	?	
Container sealing	?	
Container repair	?	
Electric registration	?	

Note:
Source:

4.2.2.1 Legal characteristics:

The Kouvola RRT project is implemented as a joint venture between the City of Kouvola and the State of Finland. It is a product of the envisioned train connection between Xi'an in China and Kouvola in Finland through Khorgos in Kazakhstan. A memorandum of understanding between the City of Kouvola and the cities of Kaluga, Khorgos, and Xi'an was signed in 2016, the first container train from China arrived in 2017, and the construction is expected to be completed by the end of 2022.

The project took its point of departure in EU Regulation 1315/2013 on the development of the trans-European transport network, in which Kouvola RRT was established as the only rail and road terminal location on the Finnish part of the core TEN-T network.

4.2.2.2 Organisational characteristics:

The City of Kouvola is planning to establish an administrative or terminal company to administer the Kouvola Rail Road Terminal. The tasks of an administrative company include the development, marketing and sales of the intermodal route according to the collaborative model to be agreed upon, development of infrastructure, administration and maintenance, the organisation of freight handling services and the development of safety and environmental solutions.

It is currently undecided if it will be a neutral public ownership or a shared ownership with the rail or terminal operator.

The operator will be Kouvola Cargo Handling Oy in collaboration with UnyTrade Oy. Cargo Handling is in charge of operative activities in Kouvola. Other notable collaboration partners include the Kazakh railway company KTZ Express and Chinese company Xi'an International Port Multimodal Transportation.

The Finnish state and the Ministry of Transport and Communications of Finland is involved to promote rail traffic by contributing to the realisation and funding of the railway infrastructure necessary for what will eventually become the first and only rail road terminal in Finland

4.2.2.3 Financial characteristics:

A development project partly funded by the European Union was launched in February 2016 by the city of Kouvala in anticipation of domestic and international transport.

The Kouvala Rail Road Terminal is expected to cost a total of approximately 41 million euro, financed by the city, the state government and the European Union:

- The City of Kouvola invests 28 million Euro, which amounts to approximately 10 per cent of the City's investments between 2015 and 2022
- The Finnish state is financing the project with 4.4 million euros in what is essentially an 85/15 split between state and city
- The European Union is funding the project with 9 million euro through the Connecting Europe Facility (CEF) with 1.7 million euro allocated to planning and development and the remaining 7.8 million for the project itself.

4.3 German terminals

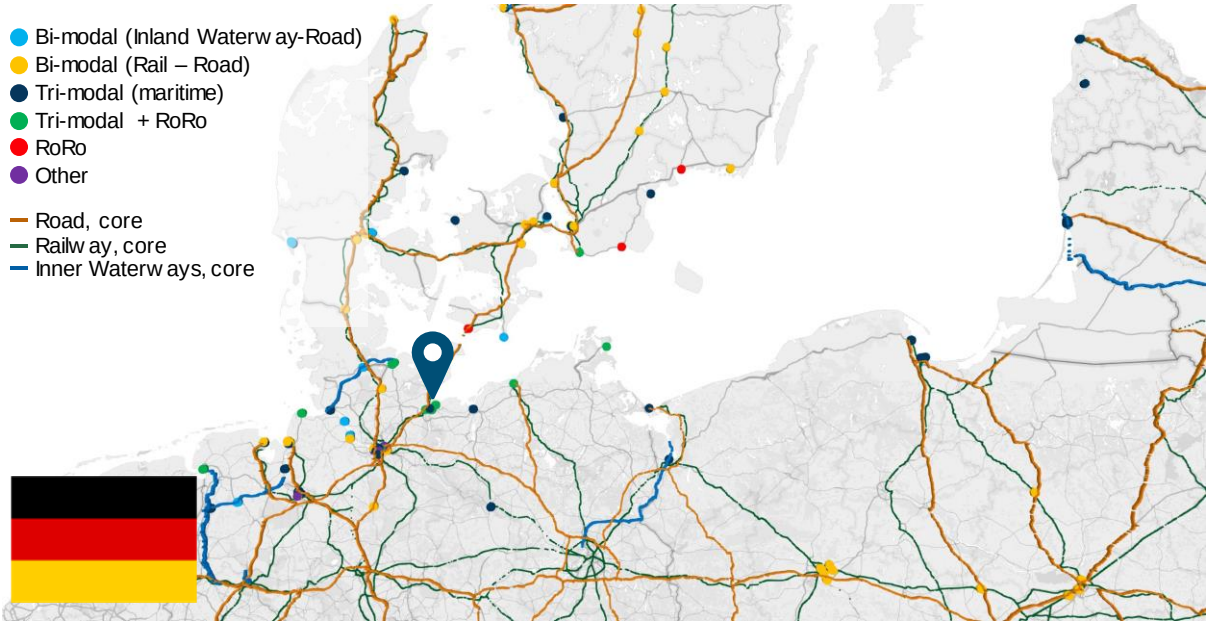
Germany is one of the most important exporting countries heavily coined by road transport. 99% of the internal BSR CT traffic is connecting Germany.

Germany has the largest amount of CT terminals and mobile cranes. Terminals in Germany provide an average utilization factor above 50%. German terminals gain their efficiency by shortening storage free time.

4.3.1 Baltic Rail Gate, Lübeck

Baltic Rail Gate is located in northern Germany with a sea access to the Baltic Sea and connecting to the German rail network. It supports RoRo freight and intermodal freight and repackaging via their two large cranes spanning 6 tracks of 1.2 km in length.

Figure 4.8 – Introduction to and placement of Baltic Rail Gate



Note:
Source:

Table 4.16 – Contact Information, Baltic Rail Gate

Parameter	Information
Address	Skandinavienkai 11, 23570 Lübeck-Travemünde
Telephone	+49 45 02 88 97 0
FAX	+49 45 02 88 97 11
E-mail	info@baltic-rail-gate.de
Website	www.baltic-rail-gate.de
Opening hours	Mon: 8:30-19:00 Tues-Sat: 06:30-21:30 Sun: 06:30-14:00

Note:
Source: Baltic-Rail-Gate.de; UIRR

Table 4.17 – Terminal Characteristics, Baltic Rail Gate

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	2
• Reach stackers	Units	
Terminal size	M^2	650,000
Storage type	Types	
• Yard storage	M^2	
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	110,000 units
Cargo composition	(%cont., %trail., %swaps)	N/A
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	23

Note:
Source: Baltic-Rail-Gate.de; UIRR

Table 4.18 – Terminal Services, Baltic Rail Gate

Service	Offered	Note
Customs office	Yes	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	Request	
Container sealing	Request	
Container repair	Request	
Electric registration	Yes	

Note:
Source: Baltic-Rail-Gate.de; UIRR

4.3.1.1 Legal characteristics:

The port docks in Lübeck-Travemünde is owned and operated by Lübecker Hafen-Gesellschaft mbH, (LHG), which claims to be the largest port operator on the Baltic.

The Baltic Rail gate terminal is operated by Baltic Rail Gate GmbH, which is a subsidiary to Lübecker Hafen-Gesellschaft mbH. The City of Lübeck controls 62.5% of the shares, and the remaining shares are owned by Deutsche Bank. Thus, the organisation is run and controlled by the local city government.

Baltic Rail Gate operates on the Skandinavienkai owned by LHG.

4.3.1.2 Organisational characteristics:

Organisation on the terminal is not described in detail, other than having 23 employees at Baltic Rail gate.

Skandinavienkai in the Port of Lübeck is a central logistics hub that is able to connect continental Europe with the Baltic region. Scandinavia, Finland, Russia and the Baltic are interlinked here with Europe's major economic centres and conurbations.

Lübeck has combiterminal relations hinterland with Kombiverkehr (Duisburg, Hamburg, Karlsruhe, Köln, Ludwigshafen), ECL (Ludwigshafen, Verona) and HUPAC (Novara).

Additionally, combiterminal relations in the Baltic Sea with Green Cargo (Stockholm-Årsta, Gothenburg) and Cargonet (Oslo).

4.3.1.3 Financial characteristics:

A 2020 project is set to extend the Baltic Rail Gate terminal in order to extend tracks from 612 meters today to accommodate 750 metres freight trains including locomotives.

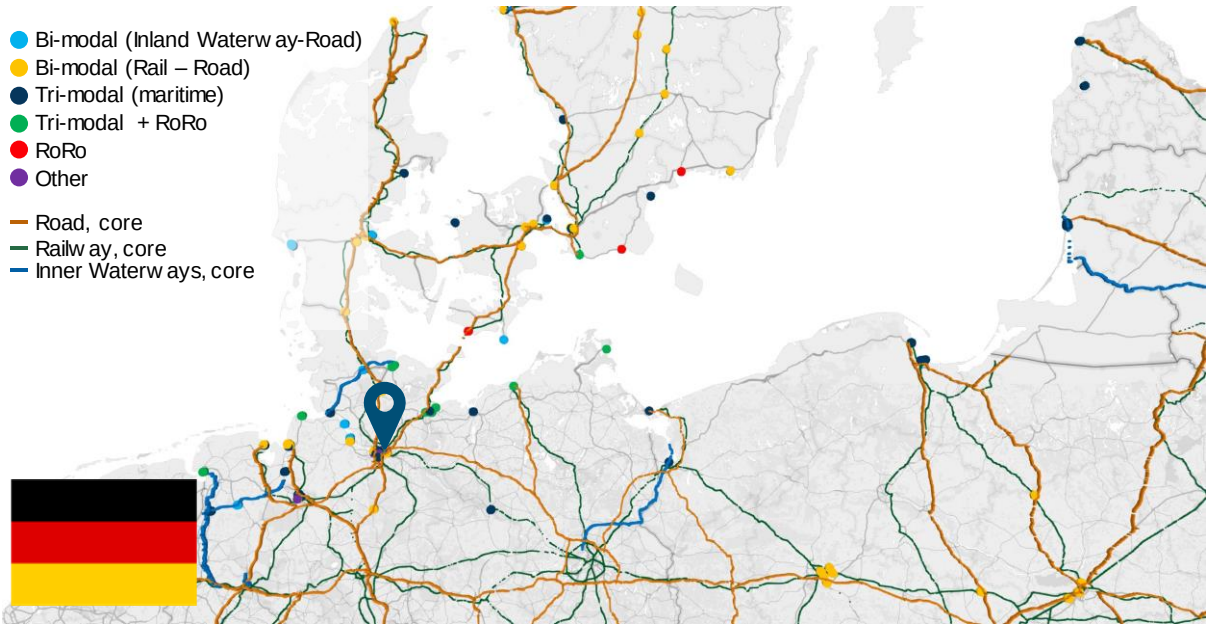
The investment level of such a project has not been disclosed. The roles are expected to be clearly defined with the port owner LHG being the owner of the terminal operator as well.

4.3.2 DUSS Terminal Hamburg, Hamburg

An important transshipment terminal connecting Europe to Scandinavia. With direct train connectivity to the main connection between Hamburg and Berlin and immediate access to the German road network with highway A1.

DUSS Terminal Hamburg-Billwerder with 7 gantry cranes is one of the largest terminals in the Baltic Sea Region.

Figure 4.9 – Introduction to and placement of DUSS Terminal Hamburg



Note:
Source:

Table 4.19 – Contact Information, DUSS Terminal Hamburg, Hamburg

Parameter	Information
Address	Halskestr 67, Hamburg
Telephone	+49 40 39 18 64 64
FAX	+49 69 26 54 95 64
E-mail	duss-hamburg-terminalleitung@deutschebahn.com
Website	
Opening hours	00:00-00:00

Note:
Source: Deutschebahn.com; UIRR; Railfacilitiesportal

Table 4.20 – Terminal Characteristics, DUSS Terminal Hamburg, Hamburg

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	7
• Reach stackers	Units	0
Terminal size	M^2	
Storage type	Types	
• Yard storage	M^2	1,026 TEUs (Unstacked)
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: Deutschebahn.com; UIRR; Railfacilitiesportal

Table 4.21 – Terminal Services, DUSS Terminal Hamburg, Hamburg

Service	Offered	Note
Customs office	Yes	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning		
Container sealing		
Container repair		
Electric registration		

Note:
Source: Deutschebahn.com; UIRR; Railfacilitiesportal

4.3.2.1 Legal characteristics:

The Deutsche Umschlaggesellschaft Schiene-Straße (DUSS) terminal Hamburg is majority owned by DB Netz with 75% of the shareholdings who is ultimately owned by Deutsche Bahn. DB Netz is a subsidiary to Deutsche Bahn responsible for managing and operating the rail infrastructure in Germany.

A further 12.5% of the shares are owned by DB Mobility Logistics, which similar to DB Netz is a subsidiary to Deutsche Bahn, however, responsible for the logistics services provided by Deutsche Bahn.

The remaining 12.5% of shares are owned by the intermodal logistics company Kombiverkehr who is also owned by DB Cargo and Deutsche Bahn Aktiengesellschaft.

4.3.2.2 Organisational characteristics:

Operations are conducted by DUSS mbH who are owned by DB Netz. Deutsche Umschlaggesellschaft Schiene-Straße (DUSS) literally translates to German Rail-Road Handling Company.

Hamburg-Billwerder is one of 23 branches of the DUSS organisation, which has a total of approximately 600 employees.

The Hamburg-Billwerder terminal is a major hub with direct connections to the rest of Germany, Denmark, Italy, Hungary and the Czech Republic provided by Kombiverkehr, TX Logistik, EGIM Eurogate, Contargo and many others.

4.3.2.3 Financial characteristics:

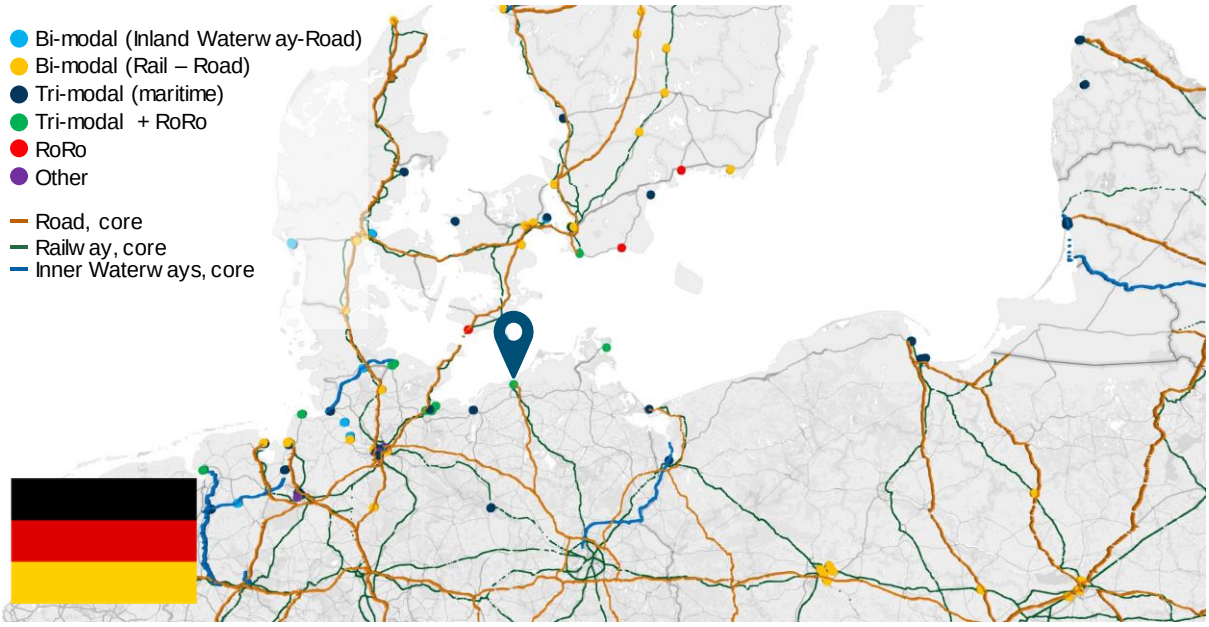
The Hamburg-Billwerder terminal is currently undergoing a modernisation of the terminal. The seven gantry cranes at the terminal have been in use since they went into operation in 1993, and five out of seven will be renewed between 2019 and 2021.

18 million euros from federal funds are to be invested into the renewal programme. And the work is planned in close coordination with the involved parties (DUSS and other Deutsche Bahn entities).

4.3.3 Rostock Trimodal, Rostock

Rostock Trimodal is located with access to the Baltic Sea. It has daily shuttle trains running to Italy, Czech Republic, and Romania supporting RoRo to Scandinavia via ship / ferry. Additionally, it has direct access to the Germany autobahn network.

Figure 4.10 – Introduction to and placement of Rostock Trimodal



Note:
Source:

Table 4.22 – Contact Information, Rostock Trimodal, Rostock

Parameter	Information
Address	Am Skandinavienkai 7, 18147 Rostock
Telephone	+49 381 6662 200
FAX	
E-mail	rtm@portofrostock.de
Website	euroports.de/terminals/rostock-trimodal-gmbh
Opening hours	

Note:
Source:

Table 4.23 – Terminal Characteristics, Rostock Trimodal, Rostock

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	2
• Reach stackers	Units	3
Terminal size	M^2	78,450 m^2
Storage type	Types	
• Yard storage	M^2	
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	130,000 capacity
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: Portofrostock.de; UIRR; Intermodal-map.com; Euroports.de

Table 4.24 – Terminal Services, Rostock Trimodal, Rostock

Service	Offered	Note
Customs office	No	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	No	
Container sealing	No	
Container repair	Yes	
Electric registration	No	

Note:
Source: Portofrostock.de; UIRR; Intermodal-map.com; Euroports.de

4.3.3.1 Legal characteristics:

Rostock Trimodal GmbH is a Joint venture between EUROPORTS Germany, Kombiverkehr and Rostock Port GmbH.

EUROPORTS ultimately owned by Monaco Resources which is a private global company specializing in natural resources sector.

Kombiverkehr is ultimately owned by Deutsche Bahn and the German state.

Rostock Port GmbH is owned by the Bundesland Mecklenburg-Vorpommern and the Hanseatic City of Rostock.

4.3.3.2 Organisational characteristics:

As a part of the EUROPORTS Group, Rostock Trimodal is connected to 26 terminals in Europe and Asia. This results in regular shuttle trains to and from Italy, the Czech Republic, Romania and within Germany. A total of 29 trains are dispatched each week.

The cargo is transported to and from Scandinavia on RoRo ships and ferries.

4.3.3.3 Financial characteristics:

No data available.

4.4 Latvian terminals

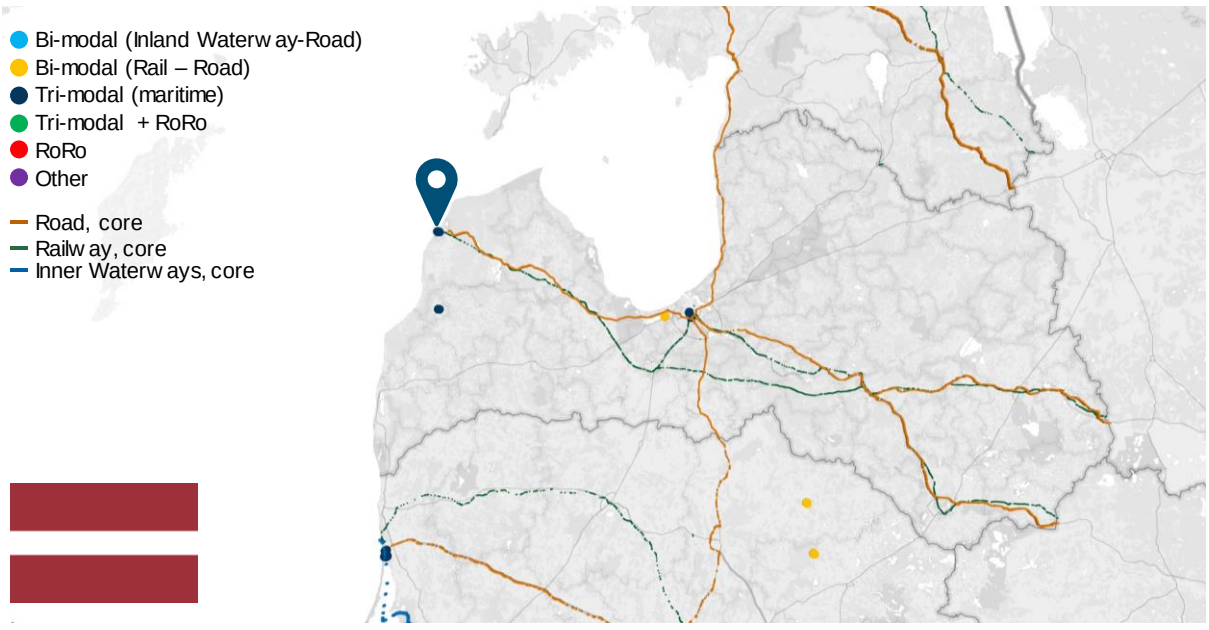
The Latvian CT traffic is 54,000 TEU, mainly transported from CIS. The prominence of short-sea-shipping of goods over deep sea shipping is particularly pronounced in Latvia.

Latvia has one of the smallest numbers of CT terminals, with six terminals.

4.4.1 Noord Natie Ventspils Terminal, Ventspils

The terminal is located with direct access to the Baltic Sea, while it is integrated to the European road network via the E22 highway. Additionally, the terminal also offers rail connectivity.

Figure 4.11 – Introduction to and placement of Noord Natie Ventspils Terminal



Note:
Source:

Table 4.25 – Contact Information, Noord Natie Ventspils Terminal, Ventspils

Parameter	Information
Address	Plosta iela 7, VEntspils
Telephone	+371 63 607 300
FAX	+371 63 607 301
E-mail	nnvt@nnvt.lv
Website	www.nnvt.lv
Opening hours	

Note:
Source: NNVT.LV; Intermodal-map.com

Table 4.26 – Terminal Characteristics, Noord Natie Ventspils Terminal, Ventspils

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	1
• Reach stackers	Units	2
Terminal size	M^2	300,000
Storage type	Types	
• Yard storage	M^2	182,000 (5,200 covered)
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	150,000
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: NNVT.LV; Intermodal-map.com

Table 4.27 – Terminal Services, Noord Natie Ventspils Terminal, Ventspils

Service	Offered	Note
Customs office	Yes	
Empty container storage	?	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	Yes	
Container sealing	?	
Container repair	Yes	
Electric registration	?	

Note:
Source: NNVT.LV; Intermodal-map.com

4.4.1.1 Legal characteristics:

The area in Ventspils belongs to the state, has been given to the freeport authority. The role of the freeport authority remains to be owning the peers and the land.

Noord Natie Ventspils Terminals (NNVT) are the operators. They have a rental agreement and are responsible for attracting cargo and stevedoring. As a private company, NNVT have a long-term rent agreement.

NNVT is a subsidiary of several different private shareholders such as the Dutch PSA Hesse Noord Natie n.v. which is ultimately owned by the Singaporean PSA group. PSA Hesse Noord Natie is a leading stevedoring and logistics company from the Port of Antwerp. Another shareholder is JSC Ventbunkers, a leading petroleum product transshipment company dealing with diesel fuel and fuel oil.

Our data suggest that no one shareholder is a controlling owner of the terminal operator, but JSC Ventbunkers held 30.99 % of the shares in 2014 and Noord Natie (PSA Hesse) held 28.92 %.

4.4.1.2 Organisational characteristics:

Noord Natie Ventspils Terminal employs more than 100 employees working with office, general cargo, dispatcher services, ferry and RoRo cargo.

Some specialists such as electricians deal with electrics, mobile cranes etc.; unskilled labour will never drive the reach stacker or the mobile crane.

Ownership in PSA Hesse Noord Natie provides Noord Natie Ventspils Terminal with a network and close cooperation with a number of cargo forwarders as well as cooperation with ferry operators Stena Line and Atlantic Ro-Ro Carrier Inc.

4.4.1.3 Financial characteristics:

Last 2-3 years, the shareholders have chosen to invest in equipment, which can be used for bulk cargo, and in 2019 they specifically posted 1 million euro into maintenance and renewal of lifting machinery.

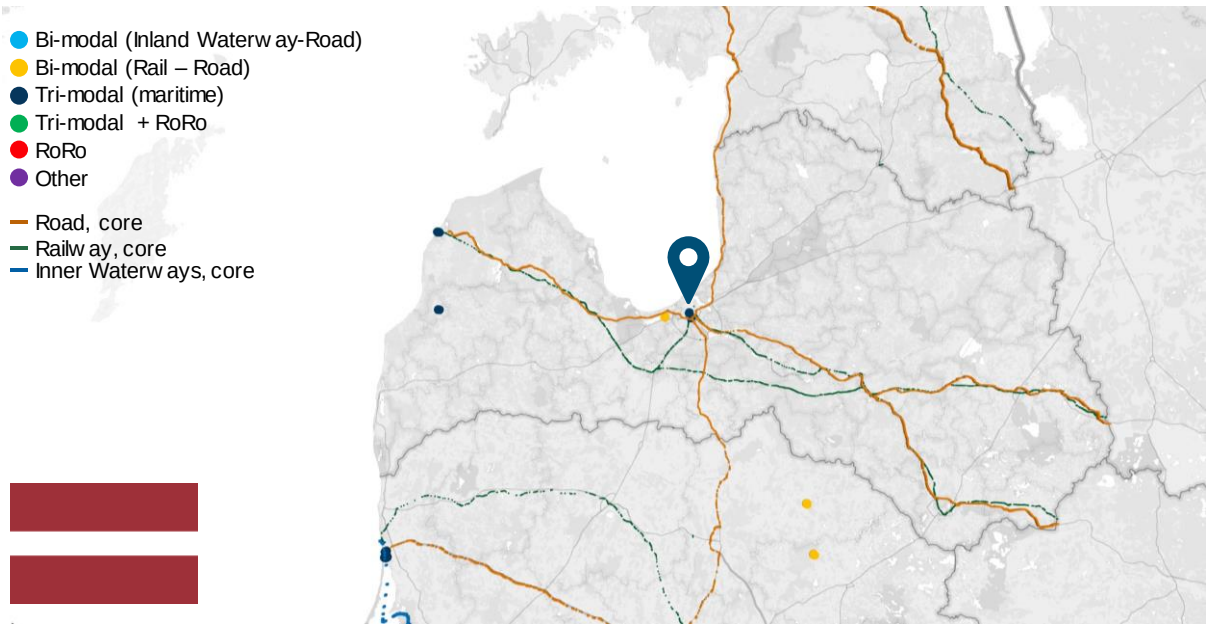
The interview provided a subjective point of view that, as a privately owned terminal operator, it is recognized that the shareholders are interested in a return on their investment. However as an employee, there is also a clear direction from the management, that the owners are interested in making big investments to push for growth in the terminal.

In the last 5-6 years the terminal area has expanded from 16.9 hectare to now more than 30.

4.4.2 Railport Riga, Riga

Railport Riga is an intermodal terminal connecting road and rail services. The terminal is located in the Latvian capital Riga, next to the Baltic Sea. The terminal is located in the North Sea - Baltic Rail Freight Corridor (RFC8), which provides high accessibility between Central and East Europe.

Figure 4.12 – Introduction to and placement of Railport Riga



Note:
Source:

Table 4.28 – Contact Information, Railport Riga

Parameter	Information
Address	Biksēres iela 6, Rīga, LV-1073, Letland
Telephone	+371 67800104
FAX	
E-mail	lv.sm.sales@dbschenker.com
Website	www.dbschenker.com/lv-en
Opening hours	00:00-23:00

Note:
Source: DB Schenker Latvia; Intermodal-maps.com; Intermodal-terminals.eu; Deutschebahn.com

Table 4.29 – Terminal Characteristics, Railport Riga

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	1
• Reach stackers	Units	
Terminal size	M^2	180,000
Storage type	Types	
• Yard storage	M^2	20,000
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: DB Schenker Latvia; Intermodal-maps.com; Intermodal-terminals.eu; Deutschebahn.com

Table 4.30 – Terminal Services, Railport Riga

Service	Offered	Note
Customs office	Yes	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning		
Container sealing		
Container repair		
Electric registration		

Note:
Source: DB Schenker Latvia; Intermodal-maps.com; Intermodal-terminals.eu; Deutschebahn.com

4.4.2.1 Legal characteristics:

Railport Riga is owned and operated by DB Schenker, which is one of the leading globally integrated logistics service providers. DB Schenker Latvia is owned by Deutsche Bahn AG. Deutsche Bahn AG is a joint-stock company with the Federal republic of Germany as the only shareholder.

4.4.2.2 Organisational characteristics:

Railport Riga has an area of 18 ha located inland. The railway infrastructure consists of 2 diesel shunting locomotives and 3 km long railway tracks. Up to 130 wagons can simultaneously be located at the territory of the terminal. The main business areas of Railport Riga relates to containers and logistics.

DB Schenker Latvia has a growing number of employees and went from employing 102 people in 2014 to 141 in 2018.

4.4.2.3 Financial characteristics:

DB Schenker Latvia was incorporated in 1996. The company had an operating revenue of 32 million USD in 2018 and a net income of approx. 0.5 million USD.

4.5 Lithuanian terminals

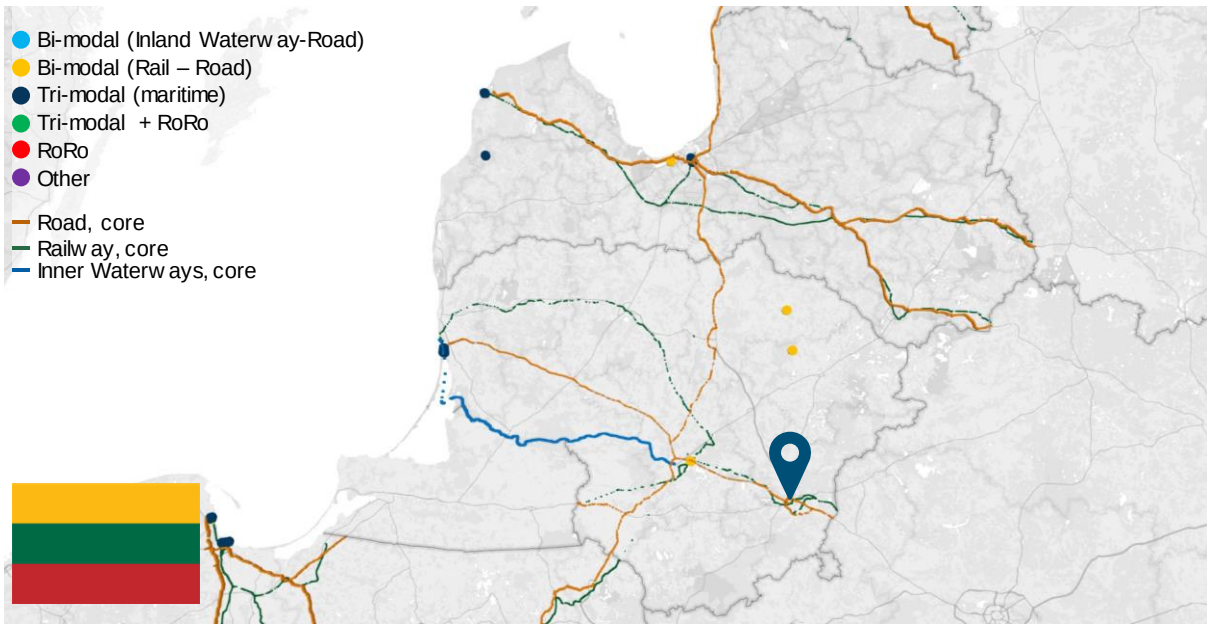
The Lithuanian CT traffic is 300 TEU, mainly transported to or from Italy.

Lithuania has six CT terminals, and the lowest average storage throughout of approx. 30,000 TEU per year. Lithuanian terminals have the smallest average storage and terminal areas.

4.5.1 Vilnius Intermodal Terminal, Vilnius

An inland rail and road connected terminal in Vilnius. It has direct access to one of the main train lines in Lithuania and is connected via road to the southern ring road of Vilnius.

Figure 4.13 – Introduction to and placement of Vilnius Intermodal Terminals



Note:
Source:

Table 4.31 – Contact Information, Vilnius Intermodal Terminals

Parameter	Information
Address	Baltosios Vokės Sodų g., Vilnius 14108, Litauen
Telephone	+370 (5) 202 1202
FAX	
E-mail	intermodalcenter@litrail.lt
Website	www.intermodalcenter.lt
Opening hours	07:00 – 16:00

Note:
Source: Intermodal-terminals.eu; Intermodal-map.com; Litrail.lt

Table 4.32 – Terminal Characteristics, Vilnius Intermodal Terminals

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	1
• Reach stackers	Units	1
Terminal size	M^2	500,000
Storage type	Types	
• Yard storage	M^2	
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	100,000
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: Intermodal-terminals.eu; Intermodal-map.com; Litrail.lt

Table 4.33 – Terminal Services, Vilnius Intermodal Terminals

Service	Offered	Note
Customs office	Yes	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	?	
Container cleaning	?	
Container sealing	?	
Container repair	Yes	
Electric registration	?	

Note:
Source: Intermodal-terminals.eu; Intermodal-map.com; Litrail.lt

4.5.1.1 Legal characteristics:

The Vilnius Intermodal Terminal project was initially carried out to smoothen cooperation of various modes of transportation and ensure Lithuania's integration into the European Union's transportation network.

JSC Lithuanian Railways built stage 1 in 2014 with intermodal container terminal and all necessary infrastructure in an area of 9 hectares near Vilnius.

The development of the surrounding territory of the terminal is left to private investors. However, the land is leased for periods of 99 years, with a clause that the property must be used for transport and logistic operations for at least the first 3 years of the lease. In the same period, it is not allowed to sub-let the land at a higher price than the initial rent, except inflation adjustments.

Stage 3 envisions a public logistics centre with an area of 300 hectares.

4.5.1.2 Organisational characteristics:

The container terminal services provided at the Vilnius Intermodal Terminal are provided by the Lithuanian Railway Infrastructure (AB „Lietuvos geležinkelių infrastruktūra“) by means of, among others, a gantry crane.

4.5.1.3 Financial characteristics:

The construction of the terminal was carried out by the Lithuanian Railways with supporting funds from the EU Cohesion Fund. However, the Lithuanian Railways owns 49% of the shares, while the City of Vilnius owns 51%. The organisation is subsequently a majority owned public organisation.

The total investment was believed to be 107 million Lithuanian litas corresponding to what is now approximately 32 million euro.

4.5.2 Central Klaipėda Terminal, Klaipėda

The terminal is located with access to the Baltic Sea and connects ship, rail and road transportation in an integrated terminal. The terminal is located in the North Sea - Baltic Rail Freight Corridor (RFC8), which provides high accessibility between Central and East Europe.

Figure 4.14 – Introduction to and placement of Central Klaipèda Terminal

Note:
Source:

Table 4.34 – Contact Information, Central Klaipèda Terminal

Parameter	Information
Address	Minijos g. 180, 93269 Klaipeda, LITHUANIA
Telephone	+370 46 300 956
FAX	+370 46 300 957
E-mail	info@terminalas.lt
Website	www.terminalas.lt
Opening hours	00:00-00:00

Note:
Source: Terminalas.lt; KTgrupe.lt; Intermodal-terminals.eu; Intermodal-map.com

Table 4.35 – Terminal Characteristics, Central Klaipèda Terminal

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	15 / (5 cranes and 2 mobil cranes)
• Reach stackers	Units	
Terminal size	M^2	320,000
Storage type	Types	
• Yard storage	M^2	4,000 (Warehouse) 18,000 TEU
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	600,000
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: Terminalas.lt; KTgrupe.lt; Intermodal-terminals.eu; Intermodal-map.com

Table 4.36 – Terminal Services, Central Klaipèda Terminal

Service	Offered	Note
Customs office	Yes	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	No	
Container cleaning		
Container sealing		
Container repair	Yes	
Electric registration	?	

Note:
Source: Terminalas.lt; KTgrupe.lt; Intermodal-terminals.eu; Intermodal-map.com

4.5.2.1 Legal characteristics:

Central Klaipeda is owned by two shareholders. 40% of the company is owned by UAB Klaipedos Juru Kroviniu Kompanija Bega and 60% by UAB Koncernas Achemos Grupe, the last one being the ultimate

owner. Koncernas Achemos Grupe was established in Lithuania in 2001 and unites over 50 companies operating in different European countries. UAB Koncernas Achemos Grupe is a privately held stock company, owned by the Lithuanian government.

4.5.2.2 Organisational characteristics:

Central Klaipeda Terminal offers conjunctions of different transportation types; ship, train and truck. The Terminal employs 8 people which is ¼ of the employees the terminal had in 2010.

UAB Koncernas Achemos Grupe owns different companies that operates within the port:

- UAB Euroga is the largest ship‘s agency and freight forwarding company in the port
- UAB Krovinių terminalas handles petroleum storage and production
- AB KLASCO is the biggest cargo company in the port. The company handles storage and cargo of general products, dry bulk, liquid and ro-ro, as well as tugboat and logistic services.

4.5.2.3 Financial characteristics:

The Terminal had a revenue of EUR 3.4 million in 2019.

In 2018 the company invested EUR 740,000 in development of the railway. The Terminal has signed a contract with State Enterprise Klaipėda State Seaport authority for lengthening the quay for an amount of EUR 4 million in 2020.

4.6 Polish terminals

Poland is a major contributor to the total share of European unaccompanied domestic traffic within the BSR countries. The Polish CT traffic is 220,000 TEU, mainly transported to or from Slovenia and Austria. Mainly containers are transported in Poland.

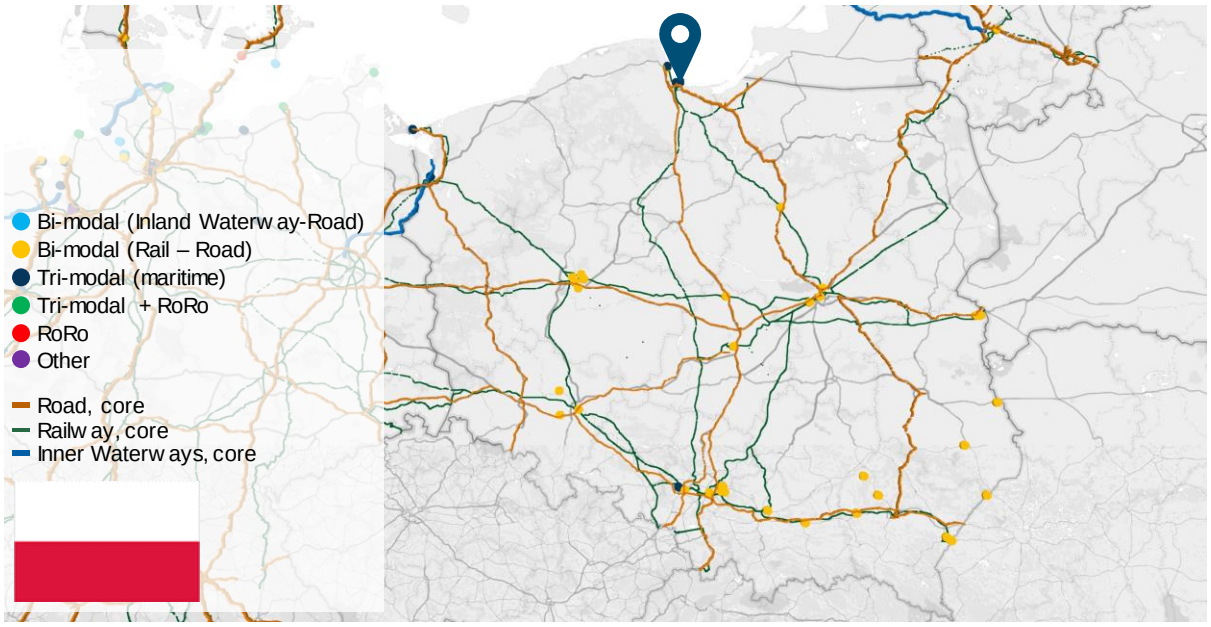
There are 30 CT terminals located in Poland. Poland has one of the highest average number of gantry cranes.

4.6.1 DCT Gdansk, Gdansk

The DCT Gdansk serves as a major freight hub in Poland, with direct access to road and rail services, combined with its immediate proximity to the port, which allows for access to the Baltic Sea.

DCT Gdansk is one of the larger intermodal points in the Baltic Sea with significant capacity.

Figure 4.15 – Introduction to and placement of DCT Gdansk



Note:
Source:

Table 4.37 – Contact Information, DCT Gdansk

Parameter	Information
Address	ul. Kontenerowa 7, 80-601 Gdańsk, POLAND
Telephone	+48 58 737 7185
FAX	+48 58 737 6350
E-mail	postbox@dctgdansk.com
Website	dctgdansk.com
Opening hours	00:00-23:59

Note:
Source: DCTGdansk.pl; Intermodal-maps.com; UIRR; Railfacilitiesportal

Table 4.38 – Terminal Characteristics, DCT Gdansk

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	17 / (2 40t cranes) / 11
• Reach stackers	Units	40
Terminal size	M^2	750,000
Storage type	Types	
• Yard storage	M^2	64,000 TEU
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	3,250,000
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note: 14 STS cranes and 3 RMG cranes = 17 - 40 RTG cranes = reach stackers as they perform a similar job
Source: DCTGdansk.pl; Intermodal-maps.com; UIRR; Railfacilitiesportal

Table 4.39 – Terminal Services, DCT Gdansk

Service	Offered	Note
Customs office	Yes	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	?	
Container sealing	?	
Container repair	?	
Electric registration	?	

Note:
Source: DCTGdansk.pl; Intermodal-maps.com; UIRR; Railfacilitiesportal

4.6.1.1 Legal characteristics:

Deepwater Container Terminal (DCT) Gdansk is located in the Port of Gdansk, which is operated by the Gdansk Seaport Authority, which is then owned by the Polish government.

The Deepwater Container Terminal is operated by DCT Gdansk SA, which is a joint stock company.

In 2019 PSA international, the Polish Development Fund (PFR), and IFM Global Infrastructure Fund acquired DCT Gdansk. PSA is a Singaporean investment fund of the Port of Singapore Authorities.

4.6.1.2 Organisational characteristics:

The DCT Gdansk terminal employs 1,000 persons. Of those, approximately 10 % are in management and administration, 70 % are in the operations department, while the remainder are allocated to primarily maintenance and IT.

A fast development, as described below, entails that DCT Gdansk are in close contact with the Port Authority to make sure that both area owner and terminal operators are aligned on the development and what the next investment(s) likely will be.

4.6.1.3 Financial characteristics:

DCT Gdansk has seen significant growth since being established in 2007. Since then there has been a constant development with numerous investments.

A specific expansion project brought in an external consulting engineering firm to pre-design the terminal taking into account the needs for a specified number of goods per hour, and DCT Gdansk utilized the resulting models to establish what kinds of equipment in what parts of the terminals must be used to reach this number.

A general remark is that DCT Gdansk are utilising data to forecast growth and customer needs, and then also using this data in their decision making. All investment decisions are based on financial or capacity constraints. This was the culture with the previous owner, an investment fund, where the objective was to invest for the purpose of having a large margin.

The Port Authority also holds weight in the recommendations of the analyses.

4.6.1.4 Other

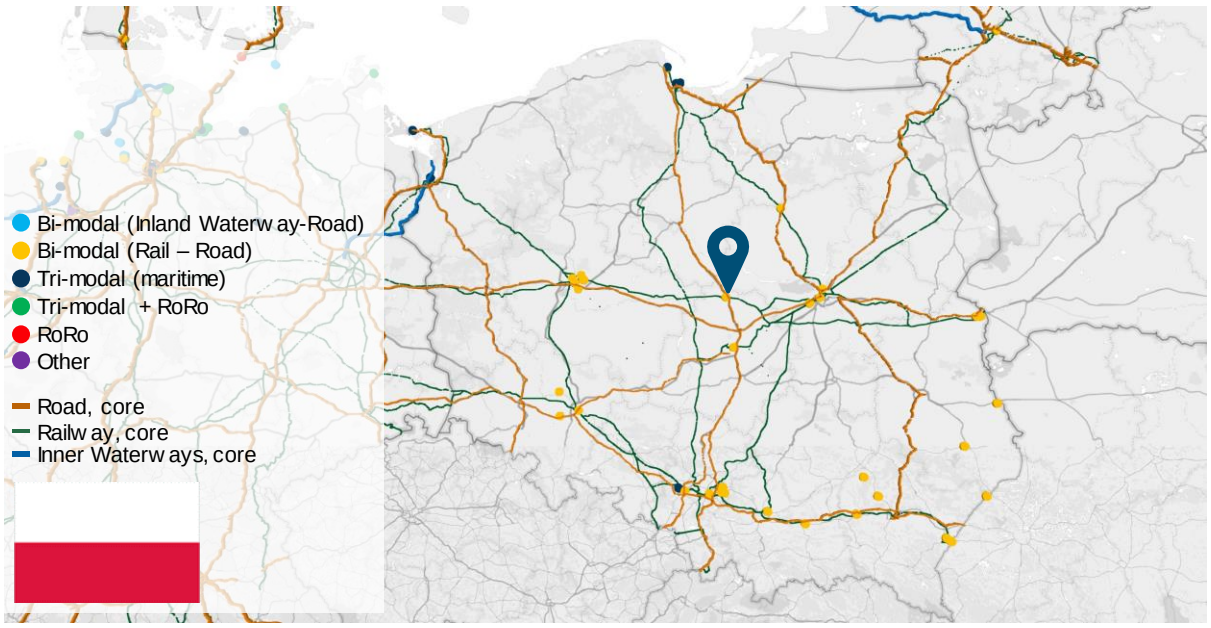
Along with the acquisition in 2019, the new investor group, PSA International, announced a new investment plan aiming to double the annual capacity of the terminal to 100 million tonnes. The expansion would include the following: Building 19 km of operational quays, 8.5 km of breakwaters and the building of nine terminals, four turning areas and three approach fairways. The terminals are expected to be used for containers, passengers, offshore operations, LNG operations and shipbuilding.

4.6.2 PCC Kutno Terminal, Kutno

PPC Kutno is an inland terminal combining rail, road and inland shipping services.

The Terminal is located directly on the railway line E-20, connecting Berlin with Warsaw and Moscow and further near to the main railway line north-south on the Baltic-Adriatic Corridor and close to national Polish roads and motorways.

Figure 4.16 – Introduction to and placement of PCC Kutno Terminal



Note:
Source:

Table 4.40 – Contact Information, PCC Kutno Terminal

Parameter	Information
Address	ul. Intermodalna 5, 99-300 Kutno, POLAND
Telephone	+48 24 361 77 06
FAX	+48 24 361 77 10
E-mail	terminal.kutno@pcc.eu
Website	pccintermodal.pl
Opening hours	06:00-22:00

Note:
Source: PCCintermodal.pl; PCC.eu; Intermodal-map.com; Rail facilities portal

Table 4.41 – Terminal Characteristics, PCC Kutno Terminal

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	2
• Reach stackers	Units	6
Terminal size	M^2	80,000
Storage type	Types	
• Yard storage	M^2	4,000 TEU
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	Capacity of 250,000
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: PCCintermodal.pl; PCC.eu; Intermodal-map.com; Railfacilitiesportal

Table 4.42 – Terminal Services, PCC Kutno Terminal

Service	Offered	Note
Customs office	Yes	They provide port document support
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	?	
Container cleaning	Yes	
Container sealing	?	
Container repair	Yes	
Electric registration	?	

Note:
Source: PCCintermodal.pl; PCC.eu; Intermodal-map.com; Railfacilitiesportal

4.6.2.1 Legal characteristics:

PPC Group owns 69.52% of PCC Intermodal, who operates the terminal, which means that the control is German. A further 13.94% is held by Hupac ltd., a Swiss company, while the remaining stock is free floating.

PCC Intermodal is part of the PCC SE Group, which is headquartered in Duisburg, Germany. PCC SE is a holding company with a portfolio of 81 entities across Chemicals, Energy and Logistics sectors in Europe, the US, Thailand, Malaysia and Ghana.

In 2019 the company has operated almost 290 thousand TEU, generating turnover of over 94mEUR.

PCC Kutno Terminal and all other PCC Intermodal terminals are open and public for any rail provided interested in using its' facilities.

4.6.2.2 Organisational characteristics:

PCC Intermodal SA in Poland organises regular intermodal connections between the following places:

- Inland terminals in Poland: Kutno, Brzeg Dolny, Gliwice, Kolbuszowa and Poznań
- Inland terminals in Europe: Frankfurt an der Oder and Duisburg in Germany, Genk in Belgium and Brest in Belarus
- Main sea ports: Hamburg, Bremerhaven, Antwerp, Rotterdam, Gdańsk & Gdynia

PCC Intermodal employs 300 people in Poland, of which 60 are employed in Kutno. Those 60 are primarily a mix of customs agents and supporters, logistics coordinators, handling and transshipment equipment operators, and drivers, as PCC have their own locomotives for shunting.

PCC Intermodal are SQAS (Safety & Quality Assessment for Sustainability) approved and have a history of focusing on safety with the companys origin with PCC SE and the Chemicals and Energy sectors.

4.6.2.3 Financial characteristics:

The terminal was operational in 2011. By 2014, the terminal had been expanded to cover double the original operating surface.

The annual handling capacity was significantly expanded in 2015 to 250,000 TEU, which was a 150 % increase. The expansion comprised of two additional gantry cranes.

All PCC terminals are built and modernised by PCC Intermodal with the support of EU Funds

4.6.3 Euroterminal Sławków, Sławków

Inland Polish terminal connecting road and rail.

Figure 4.17 – Introduction to and placement of Euroterminal Sławków

Note:
Source:

Table 4.43 – Contact Information, Euroterminal Sławków

Parameter	Information
Address	1, Groniec Str., 41-260 Sławków, POLAND
Telephone	+48 32/714 24 00
FAX	+48 32/714 24 04
E-mail	info@euterminal.pl
Website	euroterminal.pl
Opening hours	00:00-23:59

Note:
Source: Euroterminal.pl; Intermodal-map.com; Rail facilities portal

Table 4.44 – Terminal Characteristics, Euroterminal Sławków

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	2
• Reach stackers	Units	2
Terminal size	M^2	44,000
Storage type	Types	
• Yard storage	M^2	3,500 TEU
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	284,810
Cargo composition	(%cont., %trail., %swaps)	% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: Euroterminal.pl; Intermodal-map.com; Railfacilitiesportal

Table 4.45 – Terminal Services, Euroterminal Sławków

Service	Offered	Note
Customs office	Yes	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	?	
Container sealing	?	
Container repair	Yes	
Electric registration	?	

Note:
Source: Euroterminal.pl; Intermodal-map.com; Railfacilitiesportal

4.6.3.1 Legal characteristics:

The shareholders of Euroterminal Sławków are CZH SA, PKP Cargo SA and PKP LHS Sp. z o.o

PKP Group is the owner entity of both the PKP entities - PKP Cargo, the largest railway freight carrier in Poland and the second largest in the European Union, and PKP Linia Hutnicza Szerokotorowa (LHS), responsible for the broad-gauge railway line between Ukraine and Poland.

The global ultimate owner of the terminal is the government of Poland.

CZH SA is a commercial and investment company operating in trade, logistics and real estate management.

4.6.3.2 Organisational characteristics:

With PKP LHS as one of the owners, Euroterminal Sławków has a direct connection to Ukriane via broad gauge railway line. Additionally, the terminal has permanent intermodal connections to the Polish Baltic ports as well as to Italy and in Germany.

Euroterminal Sławków provide comprehensive forwarding and transport services in Poland and abroad with the use of rail and road transport in the “door to door” system.

The legal entity of Euroterminal Sławków had 97 employees in 2018

4.6.3.3 Financial characteristics:

No data available.

4.7 Swedish terminals

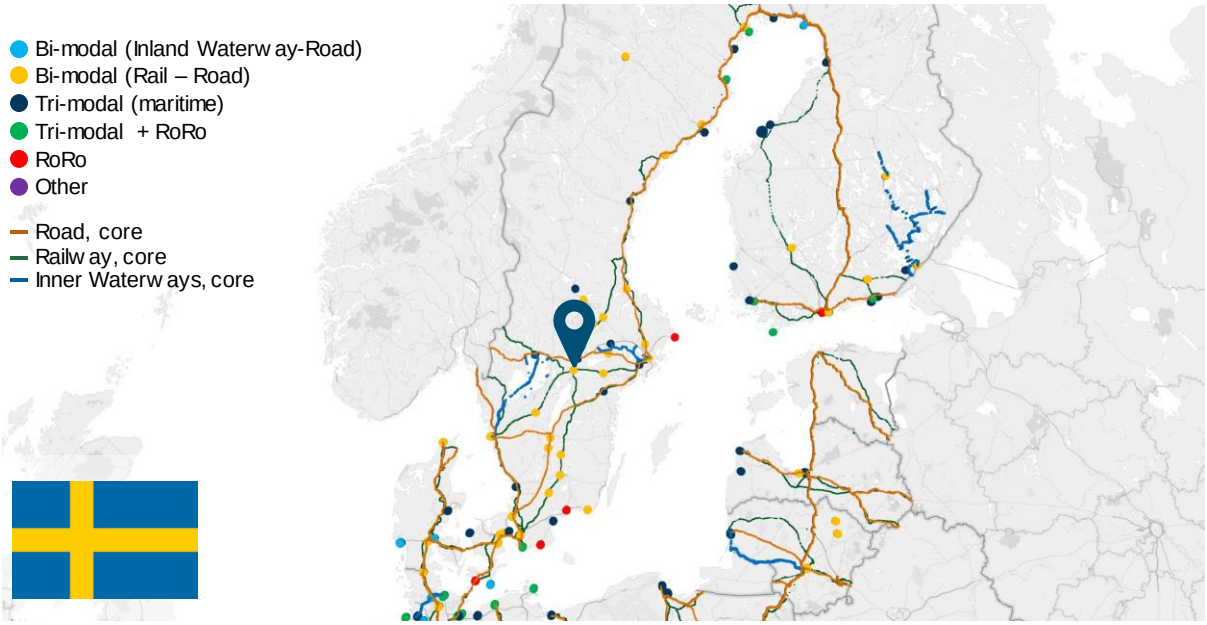
Sweden is a major contributor to the total share of the BSR countries in European unaccompanied domestic traffic, in terms of TEU and tonnes. The Swedish CT traffic is 276,000 TEU, mainly transported to or from Netherland and Italy. Most Swedish consignments are based on the use of semi-trailers.

With 32 terminals, Sweden has one of the largest amounts of CT terminals. Swedish terminals have a large average utilisation factor, located above 50%. Swedish terminals have one of the lowest average number of gantry cranes and one of smallest average terminal areas.

4.7.1 Hallsberg Terminal, Hallsberg

The Hallsbergs Terminal is branded as a multifunctional hub in the middle of the Nordic region, close to Sweden's demographic centre and within a radius of 20 miles to over 50 % of the country's population.

Figure 4.18 – Introduction to and placement of Hallsberg Terminal



Note:
Source:

Table 4.46 – Contact Information, Hallsberg Terminal

Parameter	Information
Address	20, 694 91 Hallsberg, Sweden
Telephone	+46 582 124 50
FAX	
E-mail	info@logent.se
Website	www.logent.se
Opening hours	

Note:
Source: Logent; Intermodal-map.com

Table 4.47 – Terminal Characteristics, Hallsberg Terminal

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	
• Reach stackers	Units	3
Terminal size	M^2	200,000
Storage type	Types	
• Yard storage	M^2	17,000 heated warehouse 4,000 tent warehouse
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	35,000
Cargo composition	(%cont., %trail., %swaps)	N/A
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: Logent; Intermodal-map.com

Table 4.48 – Terminal Services, Hallsberg Terminal

Service	Offered	Note
Customs office	?	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	?	
Container sealing	?	
Container repair	?	
Electric registration	?	

Note:
Source: Logent; Intermodal-map.com; UIRR

4.7.1.1 Legal characteristics:

The owner of Hallsberg Terminal are the Municipality of Hallsberg & Green Cargo.

Operation of the terminal has been handed over to a private logistics company Logent AS. Logent provides services and industry solutions in their defined service areas of Logistics, Staffing, Port & Hub and Competence. Logent do not own the warehouse nor the terminal, they only operate it.

The agreement between Logent and the property owner is a long-running contract, which in its current version expires in 2027, if it is not renewed.

4.7.1.2 Organisational characteristics:

On a long-term contract, Logent is operating the terminal as if it was the owner itself in working closely together with current and potential clients and maintaining a good relationship with the community in Hallsberg and the Örebro business region network.

In general, Hallsbergsterminalen has an easy access to rail and road connections to all major ports and cities in Sweden and Norway. It is, however, important to note that the terminal serves as an inland port to Gothenburg Port with daily direct container shuttles to and from the port.

The size of the combined transport handling is roughly 45,000 TEU yearly, and Logent has approximately 25 employees on the Hallsberg Terminal. The employees are employed at both the terminal and at the warehouse in order for Logent to utilize the resources available to them. This also allows for the teams to accommodate peak load periods.

4.7.1.3 Financial characteristics:

The operator prefers a longer contract with the owner to both accommodate long contracts with its own clients, while also making the owner more willing to invest and to take risks. In the setup today, the owner will take care of investments of a smaller scale such as light and fencing.

Most investments are done by the operator Logent An example was a recent expansion of the terminal area to allow for more space to park trailers, where there was once just grass fields.

Terminal equipment such as a third reach stacker was also the responsibility of the operator.

4.7.1.4 Other

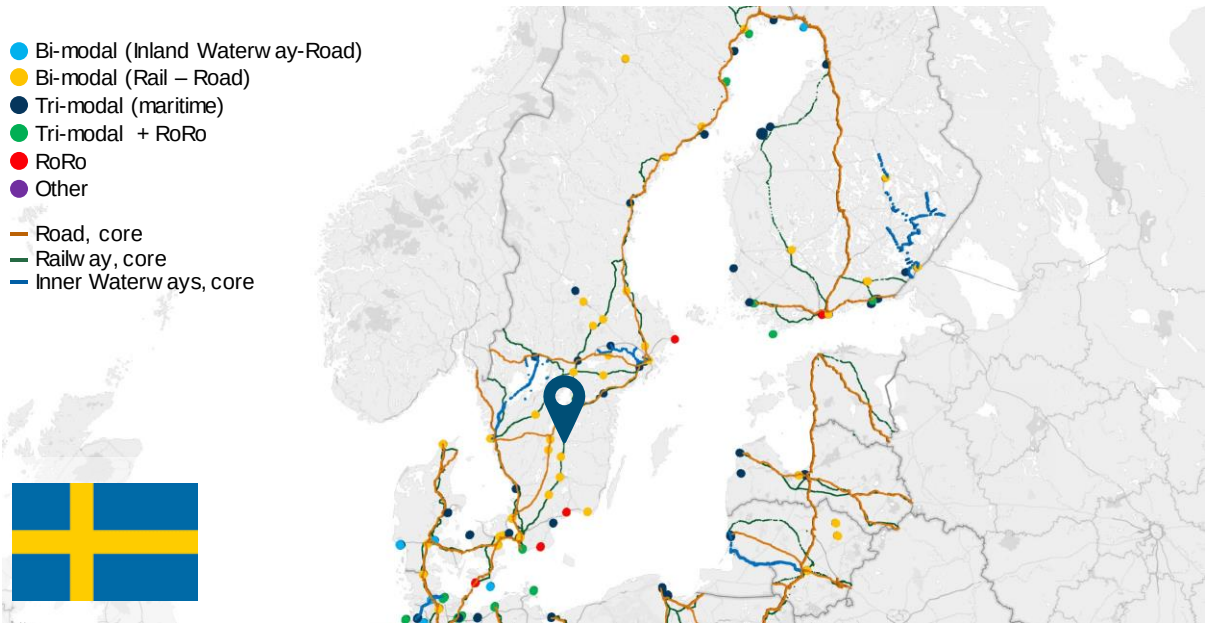
The interview also brought in a good discussion around safety measures and brought forward a point that the educational infrastructure was good at Hallsbergsterminalen too, as the operator has good access to trained personnel through Örebro University.

4.7.2 Nässjö Terminal, Nässjö

Inland terminal combining rail and road services.

The strategic location in Sweden and the Nordic countries means that Nässjö Terminal can reach 70 percent of Sweden's population within four hours.

Figure 4.19 – Introduction to and placement of Nässjö Terminal



Note:
Source:

Table 4.49 – Contact Information, Nässjö Terminal

Parameter	Information
Address	Terminalgatan, Gamlarps industriområde, 57134 Nässjö, SWEDEN
Telephone	+46 (0) 709 161034
FAX	
E-mail	mattias.ostergren@transab.se
Website	www.transab.se
Opening hours	06:00-23:00

Note:
Source: Transab; Intermodal-map.com; Railfacilitiesportal

Table 4.50 – Terminal Characteristics, Nässjö Terminal

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	
• Reach stackers	Units	3
Terminal size	M^2	
Storage type	Types	
• Yard storage	M^2	
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	60,000
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: Transab; Intermodal-map.com; Railfacilitiesportal

Table 4.51 – Terminal Services, Nässjö Terminal

Service	Offered	Note
Customs office	?	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	Yes	
Container sealing	?	
Container repair	Yes	
Electric registration	?	

Note:
Source: Transab; Intermodal-map.com; Railfacilitiesportal

4.7.2.1 Legal characteristics:

Nässjö terminal was originally owned by the Municipality of Nässjö and Cargo Net, however it was bought by Jernhusen in 2011. Jernhusen owns the real estate related to the Swedish railway infrastructure, i.e. train depots and cargo terminals.

With Jernhusen as an owner, Nässjö Kombiterminal AB is operating the terminal today. Nässjö Kombiterminal AB is a part of Transab, a larger logistics company with own trucking central.

Nässjö Kombiterminal AB has a renting agreement with Jernhusen. As such Jernhusen have the infrastructure liability. Jernhusens approach is a more commercially driven, active ownership than a traditional infrastructure manager, and they are in close dialogue with the operator of both Nässjö terminal and the four other terminals that Jernhusen owns and rents out.

4.7.2.2 Organisational characteristics:

Nässjö Kombiterminal AB operates the terminal on a long-term agreement as if it was their own. The terminal currently employs approximately 10 employees.

The culture on the terminal is that everyone can cover for each other both with the reach stackers and in the office, and to be considerate to the fragility of a relatively small team. Work environment, safety and responsibility are emphasized as important values.

Nässjö Terminal has trains to and from Duisburg (Samskip Van Dieren), Port of Gothenburg (CFL) and Umeå and Luleå (Real Rail) a long with a wide variety of smaller shipments to Swedish terminals and ports through Green Cargo.

Additionally, Nässjö Kombiterminal AB has a sister subsidiary to Transab who can offer transport on the last leg with trucks.

4.7.2.3 Financial characteristics:

A project going on in the summer of 2020 on improving the efficiency of the connection between the terminal infrastructure and the publicly owned infrastructure is brought forward as a case. The operator initially pitched a 50 million Swedish kroner investment (approximately 5 million euro), however after some dialogue a 10-15 million Swedish kroner investment (1.0–1.5 million euro) was decided, with Jernhusen and the Swedish government taking the lion's share of the investment.

The terminal has received funding from EU in the development of the terminal.

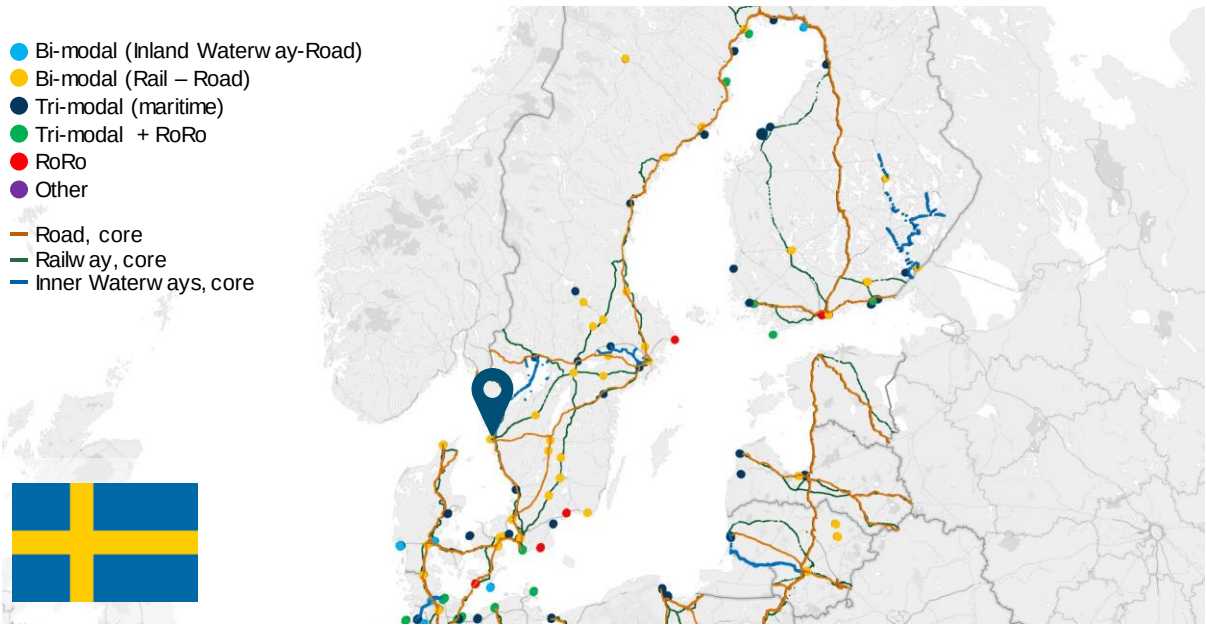
4.7.3 Arken Combi, Gothenburg

Arken Combi, also known as Göteborg Kombiterminal, is a combined road, ship and rail terminal located near Gothenburg with access to the Baltic sea and only a short crossing from the North Sea.

The port of Gothenburg already considers itself a hub for intermodal transport. In 2018, the proportion of goods entering or exiting by rail was 59 percent, and the expectations for 2019 were that an even higher percentage would enter or exit by rai.

The terminal in question, Arken Combi Terminal, was only recently established in 2017, when operations were due to commence with Sandahlsbolagen as operator. Phase two of the construction has taken place to make the terminal fully operational by 2020. The reasoning behind the new construction was to decrease truck traffic significantly in central Gothenburg by moving the combined transport terminal at Gothenburg Central Station to the outer ports of Hisingen, which is west of the previous location. The new location further has a strong connection with railways.

Figure 4.20 – Introduction to and placement of Arken Combi



Note:
Source:

Table 4.52 – Contact Information, Arken Combi, Gothenburg

Parameter	Information
Address	Nordatlanten, 418 34 Gothenburg, SWEDEN
Telephone	+46 031-52 68 23
FAX	
E-mail	goteborgkombi@sandahlsbolagen.se
Website	www.sandsahls.com
Opening hours	

Note:
Source: Port of Gothenburg website; Sandahlsbolagen website

Table 4.53 – Terminal Characteristics, Arken Combi, Gothenburg

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	1
• Reach stackers	Units	
Terminal size	M^2	65,000
Storage type	Types	
• Yard storage	M^2	
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: Port of Gothenburg website; Sandahlsbolagen website; UIRR

Table 4.54 – Terminal Services, Arken Combi, Gothenburg

Service	Offered	Note
Customs office	No	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	No	
Container sealing	N/A	
Container repair	No	
Electric registration	Yes	

Note:
Source: Port of Gothenburg website; Sandahlsbolagen website; UIRR

4.7.3.1 Legal characteristics:

Gothenburg Port Authority and the Port of Gothenburg AB, the owner of the terminal land, has signed an agreement with Sandahlsbolagen Sweden AB to operate the new intermodal terminal.

This operating contract has been in place since 2017 and has a duration of 5 years.

Sandahlsbolagen is a group of companies with activities in transport and in construction. One of the companies in this group is Sandahls Goods & Parcel, who operates 4 combined transport terminals across Sweden, in Luleå, Umeå, Sundsvall and then Gothenburg.

4.7.3.2 Organisational characteristics:

The whole of Sandahlsbolagen employs about 700 people, however only around 10 people are employed on the terminal. This has been the case since operation commenced in 2017, and it will remain so until the port is fully operational in 2020.

With the completion of the construction, loading will take place using cranes instead of trucks and the entire terminal will be electrified and controlled by signals.

On a normal day the terminal receives 12 trains and 200 trucks, to which the terminal currently offers:

- Reefer plugs
- Hazardous goods
- Strip & stuff
- Trailer lift
- Empty depot
- Storage
- On-line booking
- Distribution

70% of the freight passing through the terminal is expected to be related to the port of Gothenburg, to Volvo, the Swedish car manufacturer headquartered in Gothenburg, or other companies in the Arendal industrial park or nearby.

4.7.3.3 Financial characteristics:

The construction of the Arken Combi terminal in Gothenburg has been divided into two phases. Phase one was finalised in 2017, as operation commenced, but a phase two is expected to be complete by 2020.

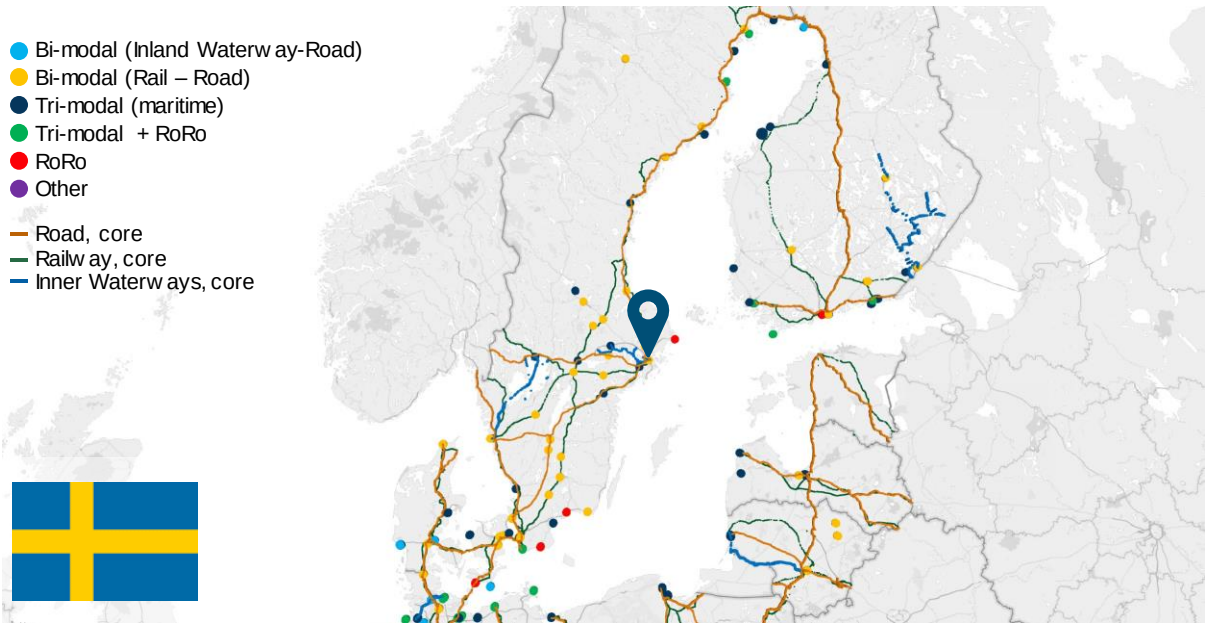
Since the construction of Arken Combi Terminal, the Port of Gothenburg has invested in another terminal, the Svea Terminal, a cross-docking terminal adjacent to RoRo and container terminals.

4.7.4 Stockholm Årsta Terminal, Stockholm

Stockholm Årsta Terminal is an intermodel terminal located on Sweden's east-coast and connects Swedish northern and southern traffic.

The facility is located in the northern part of the Scandinavian – Mediterranean Rail Freight Corridor (RFC3) and connects the Finnish terminals to the corridor with the Baltic Sea.

Figure 4.21 – Introduction to and placement of Stockholm Årsta Terminal



Note:
Source:

Table 4.55 – Contact Information, Stockholm Årsta Terminal

Parameter	Information
Address	Transportvägen 10, 11743 Stockholm, SWEDEN
Telephone	+46 073-577 25 91
FAX	
E-mail	exp.arsta@va-te.se
Website	va-te.se
Opening hours	00:50-20:00

Note:
Source: VÄTE.se; Jernhusen; Intermodal-map.com

Table 4.56 – Terminal Characteristics, Stockholm Årsta Terminal

Parameter	Unit	Value
Mode composition	(%road, %Rail, %water)	?% / ?% / ?%
Equipment	Types	
• Cranes	Units	2
• Reach stackers	Units	2
Terminal size	M^2	107,000
Storage type	Types	
• Yard storage	M^2	
• Buffer storage	M^2	
Processes	Types	
Cargo volume	TEU	75,000
Cargo composition	(%cont., %trail., %swaps)	X% / Y% / Z%
Maintenance	standards	
Investment - 10 years	Mil. EUR	
Employees	FTE	

Note:
Source: VÄTE.se; Jernhusen; Intermodal-map.com

Table 4.57 – Terminal Services, Stockholm Årsta Terminal

Service	Offered	Note
Customs office	Yes	
Empty container storage	Yes	
Full container storage	Yes	
Hazardous material	Yes	
Container cleaning	No	
Container sealing	No	
Container repair	No	
Electric registration	?	

Note:
Source: VÄTE.se; Jernhusen; Intermodal-map.com

4.7.4.1 Legal characteristics:

Stockholm Årsta Terminal is owned by the Swedish state-owned company Jernhusen. Operations at the terminal has been tendered out, and since early 2017 the company Väte Trafik has held the operating contract with Jernhusen.

Prior to this, the terminal saw many changes in operation, having three new operators in the span of five years. Logent Port & Terminals was the operator between 2012 and 2014, which saw Carrier Transport taking over operations until the end of 2016.

4.7.4.2 Organisational characteristics:

Large Swedish companies as ICA, Ky loch Frysexpressen and GW-bulk have significant distribution needs that to some extent are handled by the combi-terminal.

4.7.4.3 Financial characteristics:

In 2014, Jernhusen AB finished an expansion of Årsta intermodal terminal that almost doubled the annual terminal capacity to 120,000 units. Jernhusen AB invested SEK 400,000,000 in the project that ran from 2012 to 2014. The expansion included equipment such as two cranes for container and trailer lift, a modern gate and perimeter security. Financial liability for this has lied with Jernhusen.

5 ANALYSIS

The following sections elaborate further on the collected data and themes that have been uncovered as part of the case studies.

A total of seven findings by themes are addressed in the subsequent section 5.2[1]:

1. Critical mass
2. Network is key: both the infrastructure access and the companies to provide volumes
3. Vertical integration
4. Various degrees of collaboration between owner and operator
5. Stakeholder roles in financial decisions
6. Reliance on railway undertakings as intermodal operator
7. Consolidation of information

These themes are presented in a generalized and anonymized manner for a number of reasons:

- To reduce potential interviewee bias, and in order not to just relay the spoken information word-by-word.
- To allow interviewees to be anonymous in sharing perspectives and insights that the COMBINE project otherwise might not be able to learn about.
- To take interesting findings and substantiate them further in order to produce transparent and operational recommendations.

The following section summarises some of the more quantitative parameters of the case studies. A thematic and more qualitative summary follows in section 5.2. The final section, 5.3, contains a discussion of the most attractive parameters for ensuring the accessibility of terminals.

As mentioned earlier, further analysis on the distribution of the different modes and on operating models, has been carried out in the COMBINE project Activity 3.1 authored by the University of Gdansk. Additional data has been collected and validated in that process, and has been unavailable for this specific report, and as such there might be discrepancies in the data, but these are expected to be minor.

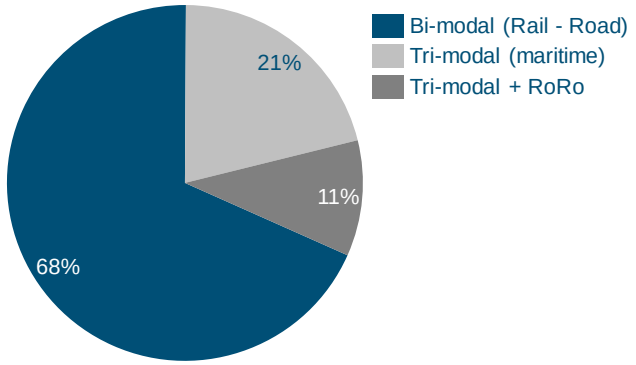
5.1 Summary

5.1.1 Modes/Facility types

The modes of the selected terminals in this report is presented in **Figure 5.1**. As the figure displays the highest percentage of the terminals were bi-modal with modes Rail and Road.

[1] Customer satisfaction was initially a theme to be addressed as a separate theme, but customer satisfaction surveys have not been available or shared with the COMBINE project team.

Figure 5.1 – Distribution of modes for selected terminals

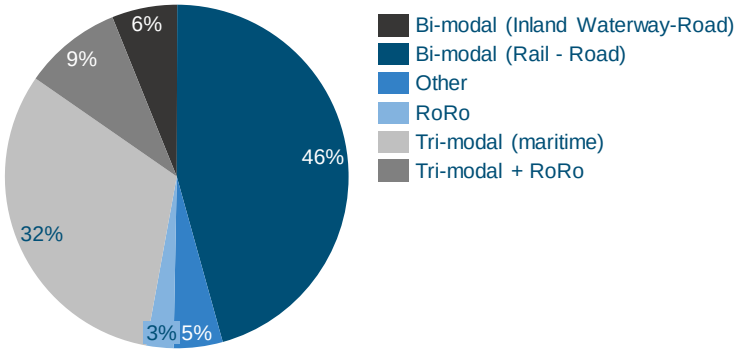


Note: Sample/population size = 19
Source: COMBINE Terminals BSR

In **Figure 5.5** below the distribution for a larger and more exhaustive list of terminals is presented. The terminals selected for this report was meant to be representative of this list, both by modes of transport, size, operating model and other parameters listed in section 3.1.

As shown, the three most frequent modes are represented with similar distributions with bi-modal rail-road being the most frequent mode, tri-modal maritime the second most frequent, and tri-modal with RoRo the third most frequent.

Figure 5.2 – Distribution of modes for all registered terminals



Note: Sample/population size = 195
Source: COMBINE Terminals BSR

It should be noted that the distribution in **Figure 5.1** represents only 19 terminals, which is a relatively small sample size. Small sample sizes are more prone to show extreme results and trends based on these terminals must be handled carefully and investigated further.

5.1.2 Operating models

A primary objective of this report is to map and investigate ownership an operating models of intermodal terminal infrastructure and its associated service facilities across the Baltic Sea Region. Ownership of this type of infrastructure and its associated service facilities seems to be rooted in national regulations of the relevant industries, often with a mixture of state and private ownership/management through e.g. transferred ownership, sourcing, partnerships or concessions.

Ownership is particularly interesting because of the interface with public infrastructure, as the land where the intermodal terminals are located typically are right in the centre of a Port Authority area or just next to the railway infrastructure.

In those interfaces, agreements around ownership of equipment, repair and maintenance of equipment and terminal area, access and security measures etc. are subject of negotiation between the entity owning the property, and the one operating it.

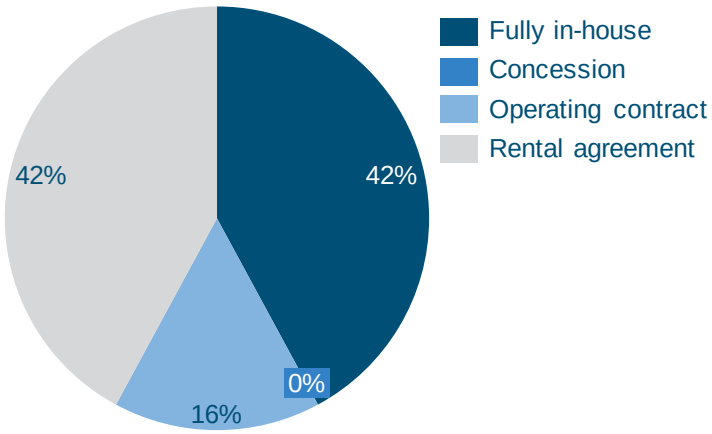
No publicly available real estate databases contain data on ownership of the land and infrastructure elements in the Baltic Sea Region.

The four basic operational models that this project distinguishes between are the following:

1. Fully in-house,
2. Concession,
3. Operating contract, and
4. Rental agreement for commercial operation.

In the selected combined transport terminals, the frequency of each operational model is presented in **Figure 5.3** below.

Figure 5.3 – Distribution of operating models in the case studies



Source: Case studies

Although the above figure is based on a small sample size, it appears that “fully in-house” models is one of the preferred options. Case studies suggests two primary reasons for this being preferential:

- It allows the owner and operator to maintain active control of the activities occurring at the intermodal terminal, either total control or an in-house model with some control through a joint venture with dedicated ports or intermodal companies. For private and non-publicly accessible terminal infrastructure, this control aspects can be leveraged to offer a stronger end-to-end solution to its customers
- Fully in-house models are also prevalent in markets where there might be less competition, and where it has not (yet) been possible to attract a private terminal operator, in which case the state-owned terminal manager carries out the job themselves

Interestingly, no concession contracts are utilized as operating models in the case studies. Concession contracts appears to be the least utilized type of contract in general.

Operating contracts are the third most utilized type of contract in the case studies. These are more prevalent in Sweden, where the infrastructure manager Jernhusen has managed to tender out the operation to interested intermodal terminal operators.

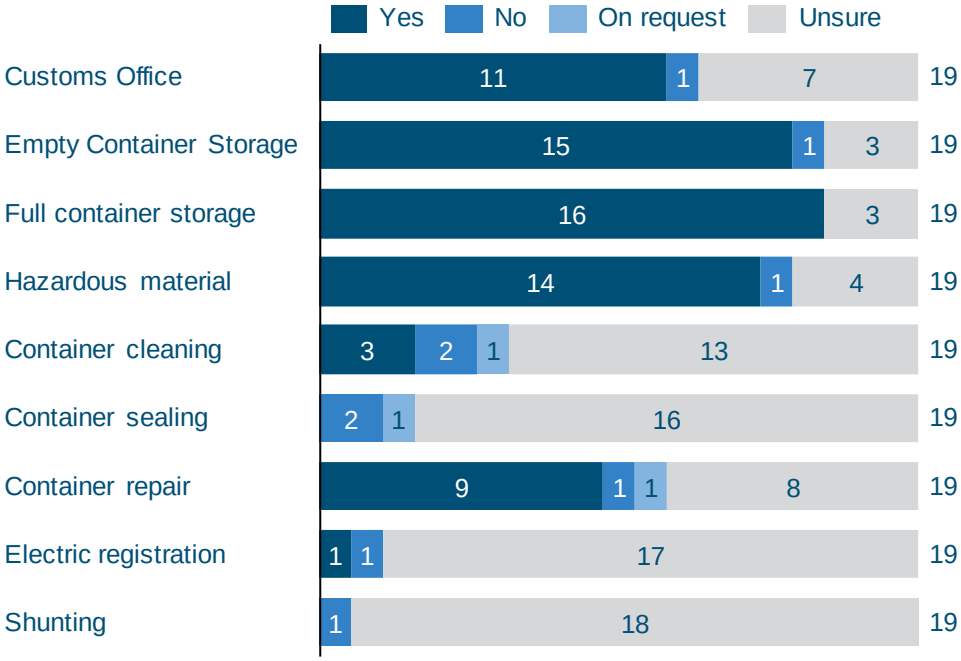
Lastly, rental agreements appear to be one of the preferred method of allowing a combined transport terminal operator to operate a terminal while the owner maintains ownership. This model is typically found in situations where a public owner such as a Port Authority rent out a terminal area, while still being able to ensure that it is publicly accessible.

5.1.3 Services offered

Data on the number of services offered at the specific terminals selected for this report is based on terminal operators’ public available price sheets. See also **Figure 5.4** below.

The extent of these indicate the availability of the specific terminal. One thing is the availability of the given services, and another aspect is the availability of price sheets describing these services.

Figure 5.4 – Distribution of services offered by selected terminals



Source: Case studies

Figure 5.4 shows that container storage is a quite common service offered. Inability to store goods temporarily or even for a longer period of time may be an obstacle to secure more activity on the terminal, as carriers have to optimise their routes and avoid time spent without moving any goods.

Progressing to more advanced and value-adding services, it becomes much more unclear to which extent the services can be provided. A primary reason for this is that different types of goods require different types of value-add services. Container cleaning and repair will likely be more relevant to containers that are transhipped rather than containers that are passing through as Roll-on Roll-off transport.

Shunting service is included in the overview due to information given by a specific terminal operator not being able to provide that service, and the terminal hence is reliant on the railway undertaking to perform the shunting on the terminal premises.

5.2 Findings by themes

As mentioned in the introduction to this chapter, a total of seven themes are addressed in the following:

1. Critical mass
2. Network is key: both the infrastructure access and the companies to provide volumes
3. Vertical integration
4. Various degrees of collaboration between owner and operator
5. Stakeholder roles in financial decisions
6. Reliance on railway undertakings as intermodal operator
7. Consolidation of information

Each theme has its own subsection with a brief description of the takeaway from the case studies, discussion on the implications of the finding, and then a recommendation going forward. Specific cases may be emphasized to underline specific arguments or add nuances to the discussion, and these will be clearly visible.

5.2.1 Critical mass

Takeaway from case studies

Size matters. There is a certain size and volume required to gain some of the necessary conditions for operational efficiencies, and to decrease exposure to e.g. bottlenecks or shorthandedness during peak hours. In reality there is a need for a critical mass in terms of activity on the combined transport terminal.

The critical mass can be obtained in many ways. Firstly, the terminal operators from the case studies emphasize the importance and relevance of their sales and marketing efforts in collaborating with customers in attracting goods to the terminal to have higher throughput. The amount of throughput on terminals can also be increased to some extent if terminal operators have large-scale access to the wider network of combined transport terminals. It is common for terminal operators with operation in multiple locations to leverage this internal network within its own company and organisation, while others rely on routes to and from external partners.

Another lever to gain critical mass is by utilizing specialised facilities, e.g. warehouses, which both adds value to clients and allow for the terminal operator to distribute resources more efficiently. The offering of value-adding services is discussed further in section 5.2.3.

Discussion

The primary competitive parameter for a goods terminal is its location in a strategic content. Usually the demand for terminals has derived organically from the general transport flows within a country or region with various actors having their own reasons for locating a terminal exactly where they are today. If they are owned by the state or a public body, other criteria have often been used in the decision regarding location e.g. aspiration for regional development or supporting employment opportunities, compared to

decision making from a private market player, who would tend take commercially based decisions on the current opportunities and strategic forecasts related to business opportunities.

Case: Competitive situation in Vuosaari, Helsinki

Some hubs have an advantageous strategic position that allows for them to attract significant volume with geographically or infrastructure-wise advantages within its country. One of such is Vuosaari Harbour in Helsinki, Finland. With its size and throughput, the Port can accommodate multiple terminal operators and create a competitive environment that aims at benefitting the shippers and end consumers by allowing those competitors to compete on price.

The accommodation of multiple operators in ports is certainly not specific to Vuosaari, however specific to Vuosaari in Helsinki is that the three current terminal operators compete only on operational parameters. The agreements between the port authority and the terminal operators state that the rent for storage is just passed on to the port, which effectively reduces the priced services to transshipment of goods from one mode of transport to another.

Theory on hubs-and-spokes explain some of the market forces behind the characteristic. In order to efficiently utilize the major freight corridors, a hubs-and-spokes system can be put in place in order to ensure the adequate volumes for the long-haul routes to be efficient and profitable.

A hubs-and-spokes system relies on the principal that smaller bulks of freight, which roughly are departing and arriving in the same area, are collected and aggregated in order to allow all the freight to be shipped on one single shipment from the departure region to the destination region. In doing so, lots of individual handling and processing can be saved as well as efficiencies of only having to run one large train or container carrier as opposed to multiple small journeys across regions. However, in order to aggregate and compile the goods, the shipments of each good must be conducted from the individual departure addresses to the regional hub, and the same must be done for final delivery up on arrival to the destination hub. These activities will by nature increase complexity and operational costs for the transport.

Thus, handling costs and time spent is incurred in the aggregation process, and for a hubs-and-spokes system to be competitive; placement of the regional hubs, the accessibility for locals to the regional hub and the interconnectedness of regional hubs must be optimal. This is to ensure that the added complexities of the hubs-and-spokes system does not become less attractive than the added cost of single goods freight across regions.

In order to achieve such operational efficiencies, where a hubs-and-spokes system becomes an attractive alternative to single goods freight, it will be key to locate the regional hubs with direct access to the major freight corridors. In doing so, reliable and direct access across countries to other hubs will be established, which is ideal for long-haul shipping. Furthermore, ensuring that the regional hubs are located at a central position within their regions ensures that the aggregation of and delivery of the

freight to the hub is on average as efficient as possible. This location should be identified as the centre of the prioritised freight flows of the region. Thereby taking into consideration if some major cities within the region are responsible for the majority of the overall freight flow.

Only a few places already have a significantly dense population in the Baltic Sea Region. The lower population density of the Baltic Sea Region makes the case for a hubs-and-spokes system even more compelling from an operational efficiency standpoint. Since individual cities have less traction to fully sustain terminals with volumes that exceed the critical mass on their own, aggregating trade flows from multiple cities in a single hub can be the way to achieve the desired critical mass. However, the difficulty of a hubs-and-spokes system in less populated areas is if the distances to and from the hub become so great that the detour of the shipment becomes insurmountable to recoup through the operations efficiencies and saving of the hubs-and-spokes system. Thus, an establishment of regional hubs must be done with respect to the expected aggregate freight flows, which can be realized from neighbouring cities, taking the competitive landscape of other routes of transport into consideration.

Case: Jernhusen on critical mass

Jernhusen, the Swedish owner of real estate related to the Swedish railway infrastructure, has been on some journey since taking over ownership of the railway cargo terminals approximately ten years ago. Today they own less terminals than before, and this is the result of a strategic decision, that to develop intermodal terminals, Jernhusen prefers to have some that are bigger, where they can focus their investments in technology and compete against road traffic.

To have a lot of smaller terminals may be beneficial to a select few customers, but for Jernhusen it is not their preferred setup. In ballpark figures, 20,000 units is considered a minimum of volume for a small terminal. Jernhusen is more interested in terminals that can reach at least 70,000 units per year, as this will be a threshold, where the operator will be looking at a need for gantry cranes and other technological investments. As a public infrastructure manager, they have refused to help in developing new terminals if the business case and the client base was deemed insufficient.

Jernhusen in Sweden, as mentioned above, and Bane NOR in Norway, are examples of infrastructure owners, who have gradually adopted a more commercial mind-set about the issue of creating and sustaining critical mass of activity on combined transport terminals. Both are increasingly aware that their national economies and networks cannot sustain too many smaller terminals, and that there is a significant risk of being unprofitable, if critical mass cannot be obtained.

CargoNet, the Norwegian state-owned network operator, was previously involved in operation of combined transport terminals. They still do so in Norway, but they have withdrawn from operating terminals in Sweden due to these activities not being profitable enough.

Recommendation

Infrastructure managers and owners do have a part to play in terms of collaborating to consolidate goods for combined transport. But, preferably the movement of intermodal goods must come from the industry. Infrastructure owners and managers should try to incentivise where possible and remove obstacles and bottlenecks for creating critical mass.

Public infrastructure owners must be observant of the market demands for combined transport terminals. A critical mass is a precondition to obtain some economies of scale. Too many smaller terminals risk cannibalizing each other and offer prices that are uncompetitive, leading to goods being transported by other means such as road.

5.2.2 Network is key: both the infrastructure access and the companies to provide volumes

Takeaway from case studies

The sizes and extent of the combined transport networks play a vital role. And the word network does not only relate to the physical infrastructure and route network for accessibility, but also the commercial network and attraction of clients to provide volume for rail transport.

In intermodal transport, where the transport chains have a number of trans-shipments between modes, i.e. between rail and road, the cost of haulage must be lower for a significant distance for the intermodal solution to be competitive to the solution, which only utilizes road transport and thus has no trans-shipment. The relationship between cost and distance in intermodal transport is illustrated in **Figure 5.5** below.

Additionally, the handling costs for the combined transport terminals must be kept low to ensure the competitive price. Typically, the handling costs are kept low from the terminal operator operating efficiently with e.g. economies of scale as hinted to in the prior section on critical mass. Higher volumes of goods and units increase the utilization of equipment and lower the price per lift.The higher volumes are often attracted from a commercial network of numerous shippers with transport needs that the combined transport terminal and intermodal transport chain can deliver.

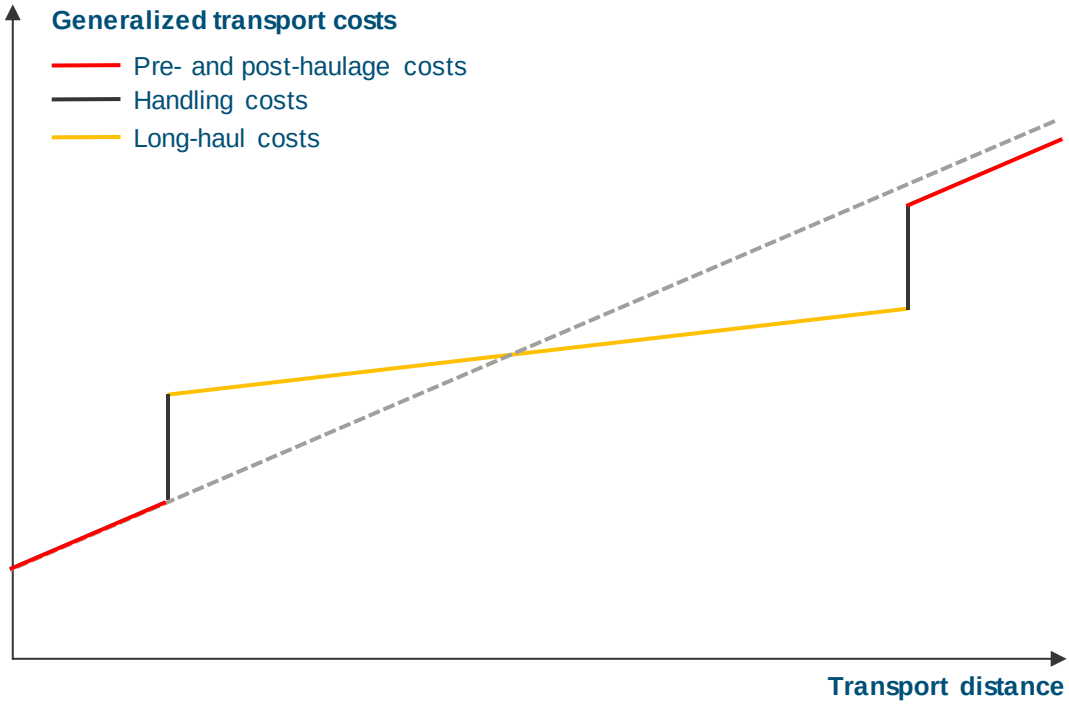
The sales effort and the commercial networking of the combined transport terminal operator and its strategic partners is emphasised as one of the most important responsibilities of an operator to ensure efficiency of operation.

Discussion

A simplified view of the costs over distance is provided in **Figure 5.5**. Typically, the cost components of that journey include, but are not necessarily limited to:

- Line haul (per kilometer)
  - Infrastructure charge (per kilometer)
  - Extra infrastructure charge (lump sum for e.g. a bridge)
  - Handling costs at the terminal(s) (lump sum)
  - Access fee at the terminal(s) (lump sum)
  - Subsidy (e.g. environmental grant per kilometer)
- First and Last Mile transportation
  - Road charge (per kilometer)
  - Infrastructure charge (per kilometer, e.g. Maut)
  - Infrastructure charge (lump sum for e.g. a bridge)
  - Extra rest charges
- Margin for the operator(s)

Figure 5.5 – Relationship between cost and distance in intermodal transport



Source:

All these cost components eventually add up, and thus the line haul per kilometre on the main leg must be lower than the pre- and post-haulage costs in the first and last mile transportation. The report resulting from COMBINE Activity 4.1 on innovative last mile solutions to strengthen combined transport provides a more thorough explanation of solutions within that pre- and post-haulage space.

For freight rail to be competitive relative to road freight, the total cost of transport must outweigh the lack of flexibility and adaptability of a rail supply chain relative to a road supply chain. The main attributes for ideal cargo for rail freight are high volume, container/pallet size units, and steady frequency of supply with medium to low time urgency. However, aside from understanding what type of goods suited for rail freight the network must be attractive for companies to use in their supply chain setup in order to attract the desired volumes. In order to achieve such attractiveness of the rail freight network, three main points must be addressed:

1. Integration and automation of terminals and network
2. Free access for all operators to all terminals
3. Reliability of supply.

1) Automation of gates, yards and cranes in the terminals can provide significant handling costs savings making the intermodal supply chain much more attractive. This is due to the total cost of transport compared to road freight is highly dependent on the handling costs associated with changing mode of transport as illustrated in figure 5.5.

2) Ensuring that all potential customers are granted access to all terminals on the network is key in enhancing the overall competitiveness of freight rail. By increasing the number of points of access to the network as well as and eliminating the monopoly like behavior, more direct lines of transport will be available for the intermodal alternative to direct road transportation.

3) Reliability of supply. Alongside the automation of terminal and automation of rail services and signaling systems is needed. By enhancing the information sharing across modes of transport, boarders and shipping companies, the transparency of the supply chain is increased. This will long term allow for better planning and optimal usage of the network, allowing for more timely deliveries. Short term it will help identify potential delays earlier in the shipping process, and subsequently, allow for a more resilient supply chain as contingency supplies can be initiated earlier in the process.

Currently, European countries are in the process of rolling out the new signaling system ERTMS which will allow for a single integrated system to be used across boarder which will significantly decrease the complexities associated with cross boarder rail freight shipping. Furthermore, it is expected that ERTMS will provide higher operational efficiencies on the network, allowing for more trains to run on the rail networks, while simultaneously reducing the number of delays.

Case: Freight villages and port centric operations

In the UK, consumer goods are increasingly being manufactured and sourced from abroad. This trend has resulted in logistics and distribution centres being located strategically in ports as opposed to inland, from where they deliver the goods to end customers. A port centric setup can remove an unnecessary step from port to own warehouse and reduce cost of the transport chain, while maybe also exploiting other benefits such as shared utilisation of equipment and better control of stock. As a result, major UK retailers such as Tesco and ASDA build dedicated port side facilities, which in their cases are especially attractive at ports that can accommodate the large container ships coming arriving from the Far East.

The Kouvola RRT in Finland currently under construction begins with the terminal area and will subsequently follow up with logistics and business areas to facilitate logistics centres and what may eventually become a freight village.

Source: (Lambert Smith Hampton, 2011)

As is well described in COMBINE Output 2.1 by SGKV and UIRR – overview of the combined transport market in the BSR – countries within the region differ greatly. Countries like Sweden and Germany can sustain internal goods flows on rail over larger distances. However, a lot of goods flows are also routed to other countries, mainly outside of the BSR. The current main goods flows are North-South along the Scandinavian-Mediterranean corridor with Sweden and Finland especially with some extent of raw material production from foresting and mining that can help provide the large volumes needed for rail freight.

The access to the TEN-T corridors, both Scan-Med and others, and beyond, needs to be communicated and visualised further. The Baltic Sea Region provides opportunities to reach

- the North Sea (Iceland, Greenland etc. through Hamburg, Aarhus and more) to the North West
- the Mediterranean Sea (North Africa, Balkan peninsula through Italy) to the South
- the CIS region, Russia, and ultimately Asia to the East (through Sweden and Finland or through Poland, Lithuania, Latvia, and Estonia)

The combined transport chains need to be connected to the corridors; otherwise the Baltic Sea Region will not reap the benefits of developing those corridors. This includes establishing the last mile to the terminals to ensure that they are on the corridor, and that they are accessible. Opportunities and flexibilities will attract freight forwarders, railway undertakings and their collaboration partners.

Case study interviews imply that there are needs for framework conditions such as a strategy that can convince shippers, logistics companies and other relevant stakeholders to increase the use of combined transport, since they are mainly doing business as usual and thinking about obtaining lower cost and low complexity.

Recommendation

Public ownership of combined transport terminals should always ensure having all the stakeholders in the combined transport chain in mind. The owners shall investigate when it is desirable to enable collaboration between infrastructure managers, terminal operators, goods suppliers and the surrounding communities, and how these efforts can be facilitated.

In cases of public ownership of the infrastructure, the combined transport market relies on the public entities to provide infrastructure that enables growth. This includes but is not limited to:

- Ensure means of access to and from combined transport terminals.
- Ensure that combined transport terminals are connected to relevant corridors and perhaps to facilitate collaboration between corridors.
- Ensure that goods and freight transport have sufficient priority in the networks.

5.2.3 Vertical integration

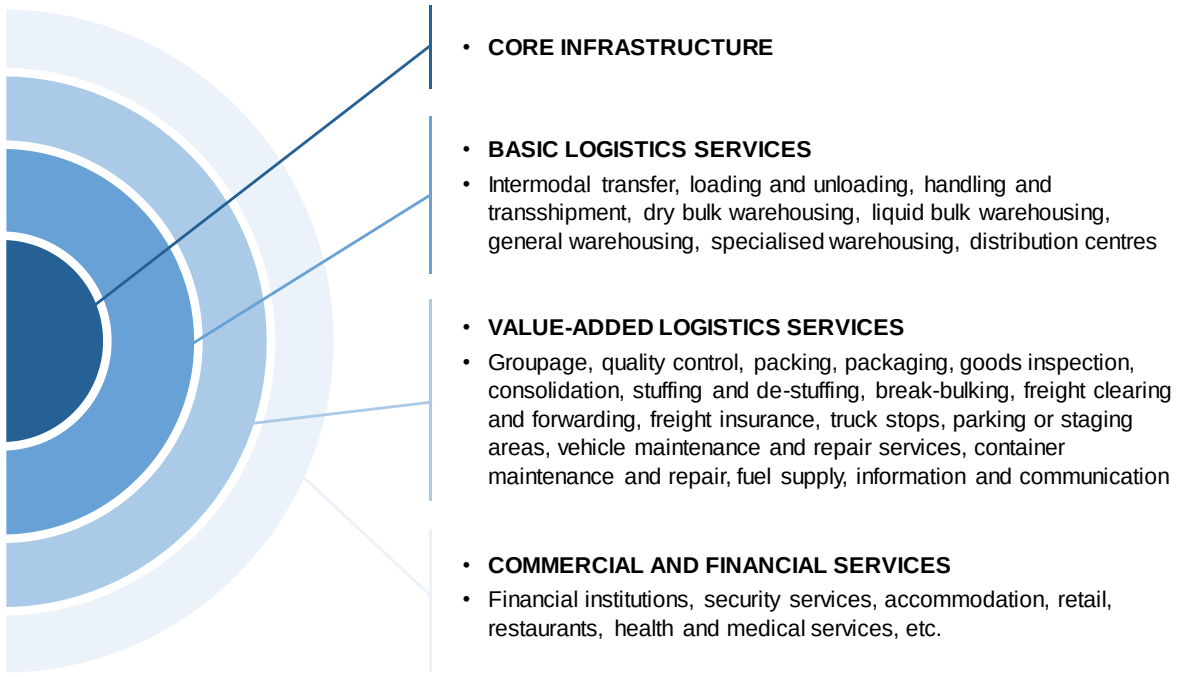
Takeaway from case studies

In order to attract volume to amass or sustain critical mass or to just respond to the demand of their commercial networks, terminal operators are inclined to offer an array of services of interest or in demand by their customers. Several of the terminal operators covered by the case studies are companies that at some point in time have expanded their roles in the combined transport process contributing to vertical integration in the combined transport supply chain.

More than ten years ago, the services offered at typical combined transport terminals were limited compared to the offered value-adding logistics services of today. Most of these combined transport terminal service offerings are closely related to the services generally carried out by logistics companies, and the various mixes of services cause a less clear-cut distinction between the different actors in the transport chain. Simply put, the roles are no longer as distinctly different as they were earlier.

Figure 5.6 below illustrates the logistics services that build on the supply of core infrastructure, comprising of basic logistics services, more value-adding logistics services and then additional commercial services. Illustratively, the services are further and further away from the core service.

Figure 5.6 – Value-adding logistics services around the core infrastructure



Source: Adapted from (de Villiers, Mackay, & Serafino, 2013)

The vertical integration underlines the efforts that the terminals have taken to improve client retention and eventually share of the transport market.

By expanding their span of the supply-chain, they become increasingly important for existing customers, while gaining competitiveness relative to other terminals. This is attributed to their ability to provide a one-stop-shop for customers with a demand for freight transport. This is an important competitive parameter, because competition without vertical integration becomes a matter of pure horizontal competition, where the competitiveness of a port is equal to its geographic attractiveness for the customer. It is subsequently in an effort to grow beyond such a stalemate competitive position in the market that terminals are increasingly integrating vertically. However, the geographical location of a terminal is still a competitive parameter of very high importance.

Discussion

A trend towards vertical integration is changing the roles of operators in the supply chain. The vertical integration of the cargo handling is taking place in from all sides. It is not only terminal operators who are integrating vertically in order to increase their competitiveness. Other parts of the value chain are also integrating terminal operations into their services, enabling e.g. freight forwarders to take more control of the end-to-end transport chain to offer less transaction costs and higher service to the principal.

Currently, one of the most ambitious vertical integration programs by a terminal operator is conducted by APM Terminals, who are not one of the terminal operators selected for this case study. APM Terminals are interesting, however, as they are targeting a fully integrated container logistics service, door-to-door, comparable to that of parcel shipping at the CEP providers e.g. FedEx by 2024. The project is carried out in conjunction with APM Group which extends the reach of the supply-chain beyond the terminal logistics, to also cover operations of the transport modes between terminals. Additionally, APM Group is actively pursuing a fully digitized paper-trail for all container related movement via their platform TradeLens. This integration of terminal logistics, physical shipping of goods and full document management, is – according to APM Group – the closest thing to a fully integrated door-to-door container service currently on the market.

On a smaller scale and more related to the case studies within this report, an example is Fredericia Shipping who runs the port of Fredericia. Initially a shipper, they have since expanded their portfolio of services to cover shipping, logistics, agency and terminal services and this added value-adding services on top of their basic logistics services cf. **Figure 5.6**. The recent establishment of Taulov Container & Rail Terminal allows Fredericia Shipping as an operator to more efficiently plan and administer operations on land with their operations at sea, and address limitations to space on their port facilities. The investment in inland facilities have also made it possible for them to add a dedicated area for tanking and fuel storage.

Figure 5.7 below describes the different degrees of vertical integration for the terminal operators from the case studies and the terminal profiles in section 4.

Figure 5.7 – Degrees of vertical integration for terminal operators

	Carrier	Freight forwarder	**Terminal operator**	Intermodal operator	Infrastructure Manager
DB Cargo Scandinavia		Original core operation	Carried out by self or related entity	Carried out by self or related entity	Carried out by self or related entity
TX Logistik		Original core operation	Carried out by self or related entity		
Fredericia Shipping		Original core operation	Carried out by self or related entity	Carried out by self or related entity	
Baltic Rail Gate GmbH			Original core operation		Carried out by self or related entity
DUSS mbH		Carried out by self or related entity	Original core operation	Carried out by self or related entity	Carried out by self or related entity
Rostock Trimodal GmbH			Original core operation	Carried out by self or related entity	Carried out by self or related entity
Logent AB		Original core operation	Carried out by self or related entity		
Transab AB	Original core operation	Carried out by self or related entity	Carried out by self or related entity		
Sandahlsbolagen AB		Original core operation	Carried out by self or related entity		
Väte Trafik	Original core operation	Carried out by self or related entity	Carried out by self or related entity		
Gdansk DCT			Original core operation		
PCC Intermodal		Carried out by self or related entity	Original core operation		
Euroterminal Slawków Ltd			Original core operation	Carried out by self or related entity	
SteveCo			Original core operation		
Kouvola Cargo Handling			Original core operation		Carried out by self or related entity
NNVT			Carried out by self or related entity		Carried out by self or related entity
DB Schenker LV		Original core operation	Carried out by self or related entity	Carried out by self or related entity	Carried out by self or related entity
JSC Lithuanian Railways			Carried out by self or related entity		Original core operation
JSC Central Klaipeda terminal			Original core operation	Carried out by self or related entity	Carried out by self or related entity

Note: Related entity is an when the (ultimate) owner of the terminal operator is an owner or shareholder in that entity, however it does not necessarily mean that the terminal operating entity is not working as a stand-alone entity
Source: Accumulation of terminal profiles

The case studies have uncovered very different ways of operation spanning from almost the entire combined transport chain and into dedicated stevedoring and terminal operation.

It is important to note that EU regulation requires the terminal operating companies to be separate legal entities ensure equal access and fair treatment. Based on the case studies, these requirements are met by the terminal operators in **Figure 5.7** at least when it comes to those terminals that are governed by the EU rail legislation. Specifically, terminal operator entities are kept separate, i.e. DB Cargo Scandinavia A/S in Denmark is merely a “production company” whereas the local sales company lies within DB Cargo Danmark Services A/S. Both are ultimately owned by Deutsche Bahn and the German state, which is why they are marked as being infrastructure manager (with infrastructure in Germany) and with both DB Cargo AG and Kombiverkehr as related intermodal operators.

The before mentioned EU regulation requiring the terminal operating companies to be separate legal entities is getting increasingly difficult to observe and regulate, when market players have an integrated service offering across the full supply chain.

The extent of complaints concerning organisational and decision-making independency is mapped by the thorough analysis on the survey of open access to rail service facilities and the regulatory enforcement hereof conducted by the Danish Transport, Construction and Housing Authority under Activity 3.1 (PART 2 report). While the organisational and decision-making independence is not the bulk of the cases dealt with by rail regulatory bodies within the Baltic Sea Region, it does pose an issue to be aware of going forward.

Recommendation

Current regulation on operating combined freight terminals are extensive and some market players with their daily operation in multiple transport modes perceive the rules as a grey area mix of rail, road and water rules.

To enable more general knowledge and understanding of the rights and obligations, and to enhance a more uniform implementation and enforcement of regulations of different transport modes across the Baltic Sea Region and the European Union countries, a process of review of rules and development of guidance documents could be initiated. This process could pursue and especially address the following aspects:

- Multimodality in respect of combined terminals and in especial addressing the interfaces between rail, road and water related regulations.
- Simplification of rules.
- The interfaces between steps in the combined transport supply chain.

To allow for flexibility in local implementation the resulting outputs may be in the form of standards or guidelines that are non-statutory and not necessarily legally binding.

5.2.4 Various degrees of collaboration between owner and operator

Takeaway from case studies

Differences and idiosyncrasies of each terminal appear to increase the complexity of an already complex stakeholder map involving many different actors along the logistics chain compared to a simpler option of transport by road.

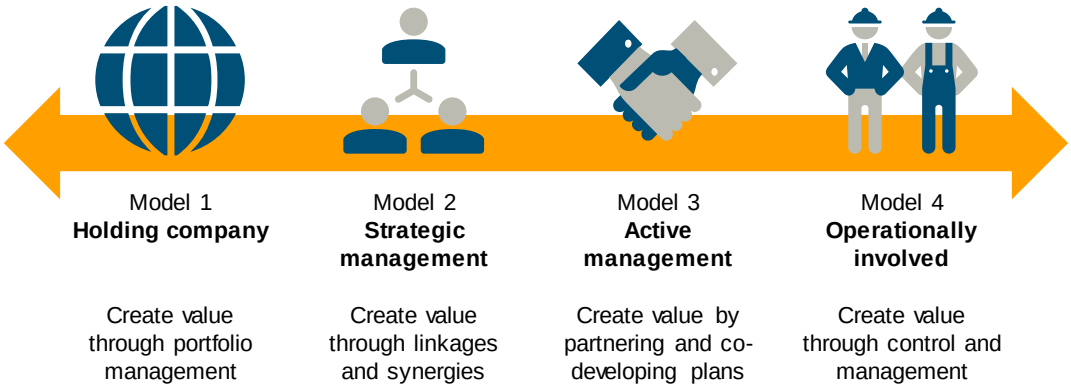
The image of the different levels of vertical integration in **Figure 5.7** in the section before this one adds a point that the terminal operations in general is a part of a bigger combined transport chain.

Governments, public bodies and terminal operators are aligned on an overall goal of attracting goods. This is experienced in every single country in the Baltic Sea Region. There is, however, a significant difference in which role the entity owning the terminal take part in.

Discussion

Most companies can be placed along a continuum from relatively minimal engagement with the business by the owner or corporate management. Consider **Figure 5.8** below on four different levels of engagement with the operation. Each have their own set of motivations, pros and cons, and resource requirements.

Figure 5.8 – Degrees of collaboration in different models of management



Note: Generic corporate management models
Source: Ramboll

In the more extreme case with DCT Gdansk, private equity ownership has historically been a driver for growth on both the top line and the bottom line. Obviously other factors have played a significant part in the growth journey, but the ownership has implemented a way of making financial decisions based on numbers and growth expectations.

Case: Bane NOR's terminal concept in Norway

Bane NOR was requested by the Norwegian government to take over ownership of the combined transport terminals with a view to tender out the terminal services at a later point in time. In that context they developed Bane NOR's terminal concept where they among other things objectives for the terminals and their own success criteria, so that they themselves and the relevant industry stakeholders had a reference point and a vision for the ownership going forward.

The terminal concept committed to the vision for combined transport in Norway as well as provide a clear description of required terminal services and products and the requirements for a service supplier on a publicly owned combined transport terminal, effectively matching expectations with the market in advance and providing the basis for future collaboration.

Based on the limited available input collected in the case studies of this report, the operational model based on rental agreement for commercial operation appears to be the model with the least active ownership and least amount of collaboration between owner and operator. By definition, the ownership function of the terminal is separated from the operational sphere here, and the operator is governed by national legislation, e.g. concerning the transport modes in question. This model differs from an operating contract in that the latter typically includes an explicit order to operate and manage one or more assets to provide the supply of a service, e.g. the transshipment of goods. The dialogue between owners and operators appears to have the owners closer to the operational aspects with a higher degree of active ownership and a higher degree of control of operational incentives.

A more active ownership as is the case with Bane NORs terminal concept in Norway and with Jernhusen's approach in Sweden appears to also be appreciated, when terminal operators realise that the infrastructure owner can be a collaborative partner rather than solely a passive landlord. Provided of course that the infrastructure owner has the resources to take on a more active role.

Recommendation

Encourage local governments, public bodies and infrastructure owners to produce and promote a clearly defined and documented strategy or approach to developing combined transport. Ideally this entails long-term commitments that terminal operators and other market players can rely on.

Local strategies be aligned around a Baltic Sea Region-wide strategy.

5.2.5 Stakeholder roles in financial decisions

Takeaway from case studies

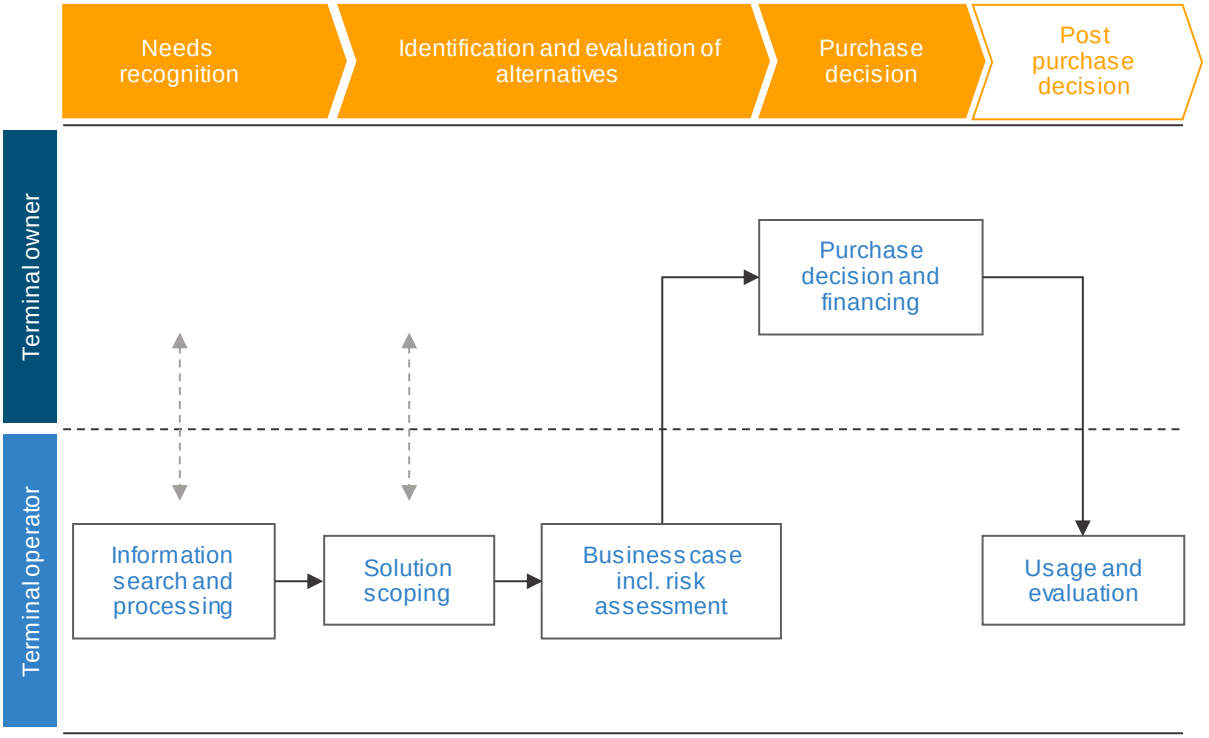
Financial decisions can include many aspects, but in this context, it must be regarded as investments of a certain size. Such financial decisions can come from many different needs such as renewal needs, alleviation of experienced bottlenecks or just increased capacity to anticipate growth.

Infrastructure owners will likely have a role to play in larger investment decisions, whenever they require changes to the infrastructure to and from the combined transport terminals.

Discussion

Privately owned terminals are not receiving subsidies and are not open to other operators and competition to the same degree as publicly owned terminals. In terms of financial decisions, private ownership often drives a shorter lead time from idea to execution. Larger financial investments into publicly owned terminals may have a longer lead time from initial ask until the project is executed, due to political considerations on funding.

Figure 5.9 – Generic swim lane chart of financial investment decision



Source: Interviews; Ramboll adaptation

Either way the financial investment decision takes a similar course in both public and private investment decision with various degrees of other stakeholders depending on the project type and size.

Upon recognizing a need, i.e. a capacity constraint or an opportunity to improve operational efficiency, the stakeholder with the need will have to search and process information in order to identify solutions that will meet the recognized need.

In such a case, swim lanes perfectly illustrate the division between owner and operator, and there is bound to be some transaction cost in the form of knowledge loss in the interfaces between those two primary stakeholders.

Figure 5.9 contains two double-headed grey arrows that indicate interfaces in the swim lanes, where large differences in the stakeholder roles may occur:

- Needs recognition, information search and processing: In extension of the discussion on various degrees of collaboration between owner and operator in the prior section, the case studies indicate that already in the information search phase, activities are carried out with an increasingly commercial perspective in cases, where both owner and operator are private entities, or when they are related entities. When no such relationship exists, or when one party takes on a more passive role, the interactions between owner and operator becomes more transactional as opposed to relational.
- Solution scoping: Similarly, a more transactional relationship may occur as different solutions are identified and evaluated. Greater alignment on opportunities and limitations is achieved with early involvement of stakeholders and agreement of the recognized needs, which is often more easily obtained in situations of closer collaboration between owner and operator. This further enables the solution scoping process to involve external expertise to e.g. design optimised solutions based on best practice layouts and capacity models among other things.

Following the solution scoping is typically a business case development and a decision process. In this regard, a significant difference in public versus private ownership is that public infrastructure owners generally are less fixed on obtaining high returns and short payback time. A longer payback time for investments in infrastructure is considered very valuable and shows long-term commitment.

Case: Antwerpen Combinant

Combinant (Combined Terminal Antwerp) is an open access rail terminal for intermodal transportation, located in the port of Antwerp. Along with European and Flemish funding, it was founded as a joint venture between chemical production company BASF, combined transport operator HUPAC and then Hoyer who is a major liquid goods carrier and logistics company. The combination of goods volumes, intermodal capabilities and commercial networks ensures that the Combinant owners can move 150,000 trucks from road to rail transport each year, and Combinant is open to all carriers, rail operators and traction providers, accessible from both Belgium and the Netherlands.

Source: Combinant web page

Recommendation

Dialogue pertaining possibilities and development projects often emerge in collaboration between two or more users of the infrastructure. An infrastructure owner liable for financial investment decisions must ensure some form of anticipation of needs through open dialogue.

The collaborative role and enabler may find inspiration in the roles that CLOSER in Sweden or SGKV in Germany have taken. Such stakeholders can, with a high credibility, consolidate transport expertise from society (public authorities), industry and even academia in order to develop solutions or help in applying for finance, collaborate on Connecting Europe Facility calls among other things.

5.2.6 Reliance on railway undertakings as intermodal operator

Takeaway from case studies

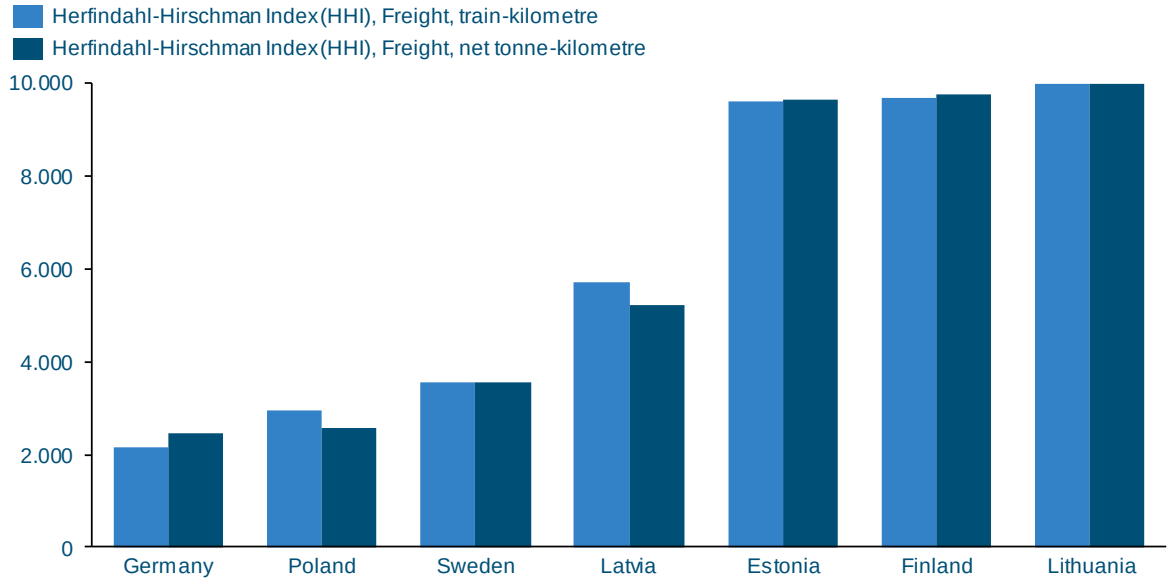
Combined transport terminals in the case studies acknowledge the terminal infrastructure being a part of a combined transport chain. Whenever that chain involves trans-shipment to or from rail infrastructure, the intermodal operator on the main leg is a railway undertaking. Both parties depend on the other being able to carry out their part of the job in the transport chain, the terminal operator to carry out the transshipment from one mode to another, and the railway undertakings to move the goods to the next part of the chain. In terms of the competitive situation, there are some railway undertakings who have market power in that there are not many alternatives to collaborate with. This is especially the case in countries, where the goods flows are not too voluminous, and thus there are few if any newer market entrants to try and capture market shares.

Discussion

IRG-Rail, the Independent Regulators' Group on Rail, assess the Herfindahl-Hirschman-index (HHI) on how competitive the national freight railway markets are in several European countries, where data is available. The data is expressed in **Figure 5.10** below for available Baltic Sea Region countries.

The HHI expresses the overall market concentration level to provide a measure explaining some extent of the competitive situation. The HHI is calculated by summing the squares of the individual market shares of all the firms in the market. The HHI gives proportionally greater weight to the market shares of the larger firms.

Figure 5.10 – Overview of HHI levels in 2018 in national freight railway markets



Note: Only for available Baltic Sea Region countries; Data for Denmark is not available
Source: IRG-Rail 8th market monitoring report (March 2020)

No country has an HHI level below 1,500 which suggests that very few freight railway markets in Europe can be described as unconcentrated and competitive, i.e. the competition intensity in the market can in general be described as low. Of the available BSR countries, Germany, Poland and Sweden have the most competitive markets for national railway freight, and these are also the countries with the largest amount of cargo and goods flows.

In general terms, openings of the freight markets have introduced competition to the markets, but the numbers indicate that historical incumbents have strong market positions, especially in railway freight markets where there is less market to gain from potential new entrants.

On the notion of potential new entrants, the regulatory bodies of IRG have also provided a view of the competitive situation in their national freight markets. This one also reflects the split in the figure above, with Germany, Poland and Sweden viewing entry barriers to be low and the competitive situation to be healthy. In the other end of the spectrum, Latvia, Estonia, Finland and Lithuania consider the entry barriers to be high and the competitive situation to be restricted.

The report mentions two different types of barriers to market entry, yet some barriers may fall into both:

- **Structural barriers** concerning basic industry conditions such as demand and cost structure in the market
- **Strategic barriers** created by incumbent firms in order to maximise own gains, maintain market shares and deter market entry

In discussing the organisational and operational setups on benchmark terminals, interpretation of the Herfindahl-Hirschman-index alone may lead to a conclusion that is insufficiently nuanced. In general, there is a recognition that the competition intensity may be low, however the terminals express satisfaction with their collaboration with the railway undertakings. Railway undertakings do compete with road transport and it is in their interest be competitive in their pricing and service offering.

In terms of monopoly-like behaviour from terminal owners and operators, they often share the characteristics of shippers or logistics companies having limited alternatives to a specific terminal, if this terminal is situated near an end-market or end-consumer. In the Baltic Sea Region, shippers usually have road transport as an alternative, but there are instances, where terminal facilities are required to reach an end-market. In this case, the European regulatory instruments are put in place to ensure non-discriminatory prices and access to the terminal as required.

For a company or a group of companies to exercise monopoly power, they ought to have no real competition and subsequently be able to set prices freely without any impact on their competitiveness relative to other companies. To be in such a situation as a company it would have to face a 100% market share of the market it is serving combined with no real possibility of new entrants or substitute products for your services. An HHI score of 10,000 indicates a market share of 100%, which is the case in Lithuania and Luxemburg. However, the freight rail market, faces multiple substitute services: Trucking, shipping air transport, etc. depending on what specific route is needed. Thus, freight railways will never be a pure monopoly given the availability of the latter mentioned substitute products. However, given the market concentrations illustrated in figure 5.5 it is evident that the national markets

are highly consolidated, with only 2 countries scoring below 2,500 making their classification "moderately concentrated" as opposed to "highly concentrated" for the remaining countries.

This relatively high level of concentration makes it easier for operators to collude and potentially engage in cartel behaviour, which makes it necessary to investigate and monitor if any monopoly-like behaviour is taking place. Monopoly-like behaviour can take many forms: 1) prices in excess of a competitive market price, 2) denied access for competitors to the marketplace / assets controlled by the monopoly operator, and 3) collusion between competitors in regard to placement of operations and the subsequent potential for cannibalization.

1) Monopolies price their products at the profit optimizing price as opposed to their marginal cost of production which is legal within the EU. However, since no freight rail market, except Luxemburg and Lithuania, are perfect monopolies, price competition will take place unless some sort of collusion takes place. Thus, to reach the profit maximizing price companies will have to collude on the price. This is strictly prohibited under the European Treaty of Function article 101. Other theoretical policy measures to regulate pricing in low competition markets include: inflation indexed price capping, rate of return regulations (assessing on a firm-by-firm basis what an a reasonable profit would be compared to its capital base, and if the actual returns are excessive, a one-off tax may be imposed), and structural reforms to increase competition levels within the market, e.g. break up a monopoly, reduce barriers to entry.

2) Due to the high competitive importance of the geographic location of a terminal or freight corridor, controlling the access to such a given asset can be highly lucrative. This combined with the latter mentioned vertical integration of the supply chain e.g. rail operators integrating into terminal operators, the access control to assets becomes even more valuable, since the credible threat of denying a competitor access can alter the competitive position significantly. Thus, from a regulatory perspective ensuring free competition for the access to such critical infrastructure assets is important for enabling an actual competitive market.

3) While collusion of operation placement to ensure regional monopolies is a problem, collusion to avoid operational cannibalization can indirectly be in the interest of regulators, given that an efficient rail transport system is desired. Thus, while it is important to ensure that no collusion is happening between parties which leads to monopoly competition, regulators should drive decision regarding operation placement with respect to an optimal interconnected system. The conflict of interest between regulators and investors regarding operation placement might arise when regulators want national trade flows to be optimized as opposed to a private investor who might have other sub-national objectives for the placement of operation. Thus, balancing the private interest of firstly serving their own vertically integrated supply-chain with the public interest of creating a network that improves the overall competitiveness of the rail freight sector is of a paramount importance.

In a monopoly setting a private company would set prices in order to maximize profit. As noted earlier this is not the case.

Recommendation

No clear recommendation. This is already a focal point of the Independent Rail Regulators' Group.

5.2.7 Consolidation of information

Takeaway from case studies

All benchmark terminals have some information available on their websites e.g. terminal capacity, characteristics, price sheets, service standards and terms and conditions. However, the review in this analysis has indicated that the level of information and the accessibility of this information varies greatly from terminal to terminal.

However, financial statements, real-time information or customer satisfaction reports are not found on any of the terminals' websites.

To some extent these indications support a theme from the benchmark interviews that more open communication can help in attracting additional volume to the railways or inland waterways. Or that the lack of transparency to some degree is an obstacle in the competition against simple and transparent road transport.

Discussion

As a principle, when relevant information is available, it would create value by being accessible to the clients or to the public. This would be the case with more statistic data on terminal capacity, relations and stakeholders as is the scope for this Activity 3.1. But without the basic data in place, it is difficult to see how the intermodal logistics providers would be able to build on that foundation and add additional information on train arrivals and other characteristics.

Everyone seems to agree that more open access to information is needed, the question is to share the information in a transparent way – this is the case for all of EU not specifically BSR. Currently there are different sources available with different information on the specific terminals.

SGKV have maintained intermodal-maps.com, and KombiConsult has been maintaining the Intermodal-terminals.eu website. To some extent those two databases contain conflicting information. Additionally, UIRR holds a database of their members, which may contain other data of newer or older origin.

All of these, when compared to the information collected for the inventory list in this project, shows that there is a slight disparity of information in even the infrastructure elements that are not changing on a daily basis.

The Rail Facilities Portal, the successor of the Railfreightlocations.eu portal, published by the European Commission may be the one portal to unify them all:

- https://railfacilitiesportal.eu/
- https://www.intermodal-terminals.eu/database
- https://www.intermodal-map.com/
- https://www.uirr.com/en/our-members/european-ct-terminals.html

Some next steps will be in terms of level of digitalization and enhancing knowledge of when trains arrive, sharing information on e.g. a specific wagon for the shipper. Currently they don't know when the trains arrive, and they cannot plan accordingly. The market would be keen to develop planning tools to identify how to load a container on the train a more efficient way, investigate possibilities for increased standardisation of unites, and develop ways of keeping better track of which containers need to be distributed at specific times.

One of the purposes of the COMBINE project is to increase transparency, and a lack of transparency may be apparent in the pricing on terminals. All terminal operators in the benchmark study are keen on establishing a partnership with their clients rather than a one-off transaction. There may be a comparability issue on the pricing parameters.

Terminals are allowed to publish their prices on their own websites, and they can publish it on the European portal mentioned earlier. If it was possible to consolidate all the pricing data with the terminal technical specifications, contact information and more, the Rail Facilities Portal could become a one-stop-shop to really drive transparency and visibility on intermodal transport.

Recommendation

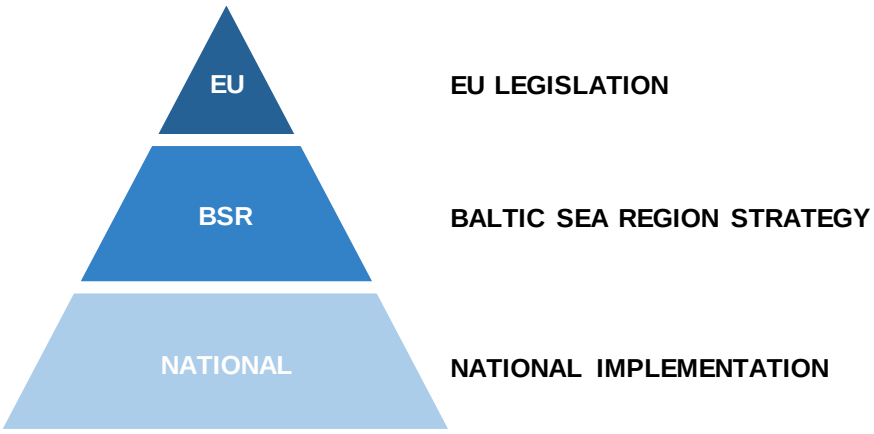
With encouragement from a European authority such as the European Commission, hosting the Rail Facilities Portal, it may be possible to leverage the COMBINE project in the Baltic Sea Region to consolidate knowledge on intermodal transport terminals, what types of equipment, and what type of opportunities that are available to interested goods suppliers.

5.3 Discussion of most attractive parameters for open accessibility

The aim of PART 1 has been to, by means of case studies, to conduct an assessment of the importance of different legal and organisational governance structures, at national and cross-national level. Moreover, the aim has been to analyse parameters and criteria, which under specific conditions makes a combined terminal accessible and efficient as a freight transport facility. A main question in this regard is how far the organisational and legal setup influences open accessibility of the terminal, and which parameters from this perspective are the most favourable ones.

Figure 5.11 below illustrates a hierarchy of the levers that can be utilised in order to ensure this accessibility. In the very top of the hierarchy is the European Union legislation. Accessibility is already a requirement in the EU legislation and with recent reading and revision of the regulatory base and the Combined Transport directive, this report considers the EU legislation to be fixed and the framework conditions to be set for the foreseeable future.

Figure 5.11 – Hierarchy of levers for ensuring accessibility



On a slightly lower level and within the areas defined by the EU legislation are more regional levers that take into account the goods flows and interconnectivity in the Baltic Sea Region and beyond.

In line with the recommendation concerning collaboration between owner and operator, this report recommends a Baltic Sea Region-wide strategy that may help in determining where in the networks accessibility is necessary, and which points in the network may sustain critical mass – or which points may grow to sustain that in the future. The strategy must promote a clearly defined and documented strategy or approach to developing combined transport and contain long-term commitments that terminal operators and other market players can rely on.

Development of a Baltic Sea Region-wide strategy will require inputs from the national level on goods flows, connections and development opportunities. This is addressed below in the lowest of the three levels in **Figure 5.11** concerning the national implementation. The Baltic Sea Region-wide strategy can help in aligning the different local needs and requirements while at the same time creating visibility of combined transport opportunities, enabling collaboration and ensuring long-term commitments.

The national implementation can take into account takeaways from the case studies in this report concerning the different operating models. Specifically, that the contractual obligations are some of the most efficient levers to ensure and incentivise accessibility as well as providing measures to ensure that accessibility requirements or any requirements that may be needed at a national or local level.

These requirements will likely be unique to the specific infrastructure manager and the requirements may evolve over time. Usually this will entail balancing a number of different factors including but not limited to:

- How will the operational model affect the existing market conditions and market players?
- What are the investments needs in the short and in the long term?
- What does the model demand in terms of internal resources and capabilities within the infrastructure owner organisation?
- How complex is the contract management?

On the last bullet, it may be noted that if an infrastructure owner chooses to pursue an ownership model closer to an operating contract rather than a rental agreement in order to achieve a higher degree of active ownership and a higher degree of control of operational incentives, it will entail a stronger emphasis on contractual obligations. Moreover the activities regarding composing and following up on specific contractual obligations, will require contract management capabilities as well as knowledge of the terminal operation, which may be limited within the organisation of the infrastructure owner as of today.

To ascertain and ensure the accessibility on terminal infrastructure, an infrastructure manager may maintain both ownership and operation to ensure total control and management. However, an operational contract may provide sufficient control to create value as an infrastructure manager through portfolio management.

In the light of the recommendation from the section on vertical integration above, certain standards and guidelines may help in providing a uniform understanding of contractual matters and help the implementation nationally. One such standard could be a template operating contract or a template concession agreement that addresses the main concerns and requirements as alluded to earlier. A standardized operating contract may further enable stronger possibilities of attracting interested international operators, if they are already familiar with legal and organisational setup from another country.

A Baltic Sea Region-wide strategy may provide guidance for the national implementation and allow for facilitation of knowledge sharing and collaboration by addressing focal points such as digitalisation and innovation. It will, however, also be a tool to acknowledge and describe some of the significant differences that each BSR country experiences in terms of population density and goods flows potentials. By addressing these differences measures can be taken to develop the Baltic Sea Region as a whole in the strategy period.

6 LISTS OF TABLES AND FIGURES

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Annex 1 – Longlist of terminals

Country	NUTS 2	Terminal Name
DE	DE -Bremen	Bremen - Roland
DE	DE -Bremen	Bremerhaven Addicks + Kreye Containerservice
DE	DE -Bremen	Bremerhaven MSC Gate
DE	DE -Bremen	Bremerhaven NTB
DE	DE -Bremen	Container Terminal Bremerhaven
DE	DE -Bremen	Containerdepot Griepe
DE	DE -Bremen	Hansakai
DE	DE -Bremen	Rail Terminal Bremerhaven RTB
DE	DE -Bremen	Remain Container Depot Bremen
DE	DE -Hamburg	Container Terminal Burchardkai -CTB
DE	DE -Hamburg	Container Terminal Tollerort -CTT
DE	DE -Hamburg	Cotac Depot Hamburg
DE	DE -Hamburg	CST Hamburg
DE	DE -Hamburg	DUSS-Terminal Hamburg-Billwerder
DE	DE -Hamburg	Ernst Logistik Depot
DE	DE -Hamburg	EUROGATE Container Terminal Hamburg -CTH
DE	DE -Hamburg	Hamburg Altenwerder CTA
DE	DE -Hamburg	Hamburg BUSS Hansa Terminal
DE	DE -Hamburg	Hamburg Dradenau
DE	DE -Hamburg	Hamburg Eurokombi
DE	DE -Hamburg	Hamburg O'Swaldkai
DE	DE -Hamburg	Hamburg Süd-West-Terminal
DE	DE -Hamburg	Hamburg Wallmann
DE	DE -Hamburg	Remain Container-Depot Hamburg
DE	DE -Hamburg	Wilhelmsburger Container Service Depot
DE	DE -Lower Saxony	Brake J. MÜLLER BBT
DE	DE -Lower Saxony	Container Terminal Wilhelmshaven -CTW
DE	DE -Lower Saxony	c-Port cargo & industrie am küstenkanal
DE	DE -Lower Saxony	Cuxhaven
DE	DE -Lower Saxony	Dörpen
DE	DE -Lower Saxony	Elbe Port Wittenberge
DE	DE -Lower Saxony	Emden
DE	DE -Lower Saxony	Industriebahnhof Stade-Brunshausen
DE	DE -Lower Saxony	NORDFROST Seehafen-Terminal
DE	DE -Lower Saxony	Rail Terminal Wilhelmshaven
DE	DE -Lower Saxony	Soltau Logistic Center
DE	DE -Lower Saxony	Stade BUSS Terminal
DE	DE -Mecklenburg Western-Pomerania	Rostock Trimodal RTM
DE	DE -Mecklenburg Western-Pomerania	Sassnitz Sea -BUSS
DE	DE -Mecklenburg Western-Pomerania	Seehafen Wismar
DE	DE -Schleswig Holstein	Baltic Rail Gate
DE	DE -Schleswig Holstein	Brunsbüttel Ports
DE	DE -Schleswig Holstein	Cargo-Terminal Lehmann -CTL
DE	DE -Schleswig Holstein	Glückstadt
DE	DE -Schleswig Holstein	Kiel Ostuferhafen -KombiPort
DE	DE -Schleswig Holstein	Kiel Schwedenkai
DE	DE -Schleswig Holstein	Lehmannkai 2
DE	DE -Schleswig Holstein	Lübeck Nordlandkai
DE	DE -Schleswig Holstein	Rendsburg
DE	DE -Schleswig Holstein	Schlutup Lübeck
DE	DE -Schleswig Holstein	Seelandkai Lübeck

Country	NUTS 2	Terminal Name
DE	DE -Schleswig Holstein	Terminal Neumünster
DK	DK - Hovedstaden	Copenhagen Port
DK	DK - Hovedstaden	DFDS Seaways Terminal Copenhagen
DK	DK - Hovedstaden	Høje Taastrup Combiterminal
DK	DK - Hovedstaden	Railport Glostrup
DK	DK - Midtjylland	APM Terminal Aarhus
DK	DK - Nordjylland	Hirtshals Terminal
DK	DK - Sjælland	Kalundborg Container Terminal
DK	DK - Sjælland	RoRo Terminal Gedser
DK	DK - Sjælland	RoRo Terminal Koge
DK	DK - Sjælland	Rødby RoRo Terminal
DK	DK - Syddanmark	DFDS Seaways Scandic Terminal Esbjerg
DK	DK - Syddanmark	Frederica Shipping
DK	DK - Syddanmark	Jutlandia Terminal Esbjerg
DK	DK - Syddanmark	Kolding
DK	DK - Syddanmark	Port of Esbjerg
DK	DK - Syddanmark	Ro-Ro Terminal Fredericia
DK	DK - Syddanmark	Sydhavn Combi Terminal Esbjerg
DK	DK - Syddanmark	Terminal Padborg
DK	DK - Syddanmark	Terminal Taulov
FI	FI - Länsi-Suomi	Port of Naantali
FI	FI - Länsi-Suomi	Rauma Container Terminal
FI	FI - Länsi-Suomi	Tampere Rail Terminal
FI	FI - Pohjois- ja Itä-Suomi	Container Terminal Port of Kokkola
FI	FI - Pohjois- ja Itä-Suomi	Hietanen RoRo Terminal
FI	FI - Pohjois- ja Itä-Suomi	Port of Jakobstad/Pietarsaari
FI	FI - Pohjois- ja Itä-Suomi	Port of Kemi
FI	FI - Pohjois- ja Itä-Suomi	Port of Kuopio
FI	FI - Pohjois- ja Itä-Suomi	Port of Oulu - Oritkari satama
FI	FI -Etelä-Suomi	Cargo East Terminal -CET- Kouvola
FI	FI -Etelä-Suomi	Kouvola Land Transport Terminal
FI	FI -Etelä-Suomi	Kouvola RRT Rail and Road Terminal
FI	FI -Etelä-Suomi	Mustola Multimodal Terminal
FI	FI -Etelä-Suomi	Port of Jakobstad/Pietarsaari
FI	FI -Etelä-Suomi	Turku - RoRo/LoLo
FI	FI -Etelä-Suomi	Turku Container Terminal -TCT
FI	FI -Helsinki-Uusimaa	Bertschi Helsinki
FI	FI -Helsinki-Uusimaa	Hamina Terminal - Kotka
FI	FI -Helsinki-Uusimaa	Helsinki-Pasila
FI	FI -Helsinki-Uusimaa	Mussalo Terminal - Kotka
FI	FI -Helsinki-Uusimaa	Vuosaari Terminal - Helsinki
FI	FI -Åland	Oy Hangö Stevedoring Ab - Western harbour
FI	FI -Åland	Pelkola Terminal
LT	LT - Lietuva	JSC Central Klaipeda Terminal
LT	LT - Lietuva	Kaunas Intermodal Terminal
LT	LT - Lietuva	Klaipėda Container Terminal
LT	LT - Lietuva	LKAB "Klaipėdos Smeltė"
LT	LT - Lietuva	Sestokai Draugystė / Šeštokai Railway Station
LT	LT - Lietuva	Vilnius Intermodal Terminal
LV	LV - Latvija	Noord Natie Ventspils Terminals
LV	LV - Latvija	Port of Ventspils
LV	LV - Latvija	Railport Riga
LV	LV - Latvija	Riga Commercial Port

Country	NUTS 2	Terminal Name
LV	LV - Latvija	SIA Baltic Container Terminal
LV	LV - Latvija	Steveco Logisticsin Terminal
LV	LV - Latvija	Ventplac
PL	PL - Dolnośląskie	Brzeg Dolny Terminal
PL	PL - Dolnośląskie	Katy Wroclawskie Rail Terminal
PL	PL - Dolnośląskie	Terminal Kontenerowy Wroclaw
PL	PL - Dolnośląskie	Terminal Przeladunkowy Zaborze
PL	PL - Łódzkie	Kutno
PL	PL - Łódzkie	Lódź Olechów
PL	PL - Lubelskie	LAUDE SMART INTERMODAL S.A. - Zamosc
PL	PL - Lubelskie	Terminal Dorohusk
PL	PL - Lubelskie	Terminal Malaszewicze
PL	PL - Małopolskie	Brzeski Terminal Kontenerowy
PL	PL - Małopolskie	Kraków Krezeslawice
PL	PL - Mazowieckie	Mlawa
PL	PL - Mazowieckie	Terminal Kontenerowy Warsaw - Pruszków
PL	PL - Mazowieckie	Warszawa
PL	PL - Mazowieckie	Warszawa Glowna Toworowa
PL	PL - Podkarpackie	Debica Terminal
PL	PL - Podkarpackie	PCC Kolbuszowa Terminal
PL	PL - Podkarpackie	Terminal Medyka
PL	PL - Podkarpackie	Terminal Werchrata/Rawa
PL	PL - Podkarpackie	Terminal Wola-Baranowska
PL	PL - Podkarpackie	Terminal Zurawica
PL	PL - Pomorskie	Deepwater Container Terminal Gdansk - DCT
PL	PL - Pomorskie	Gdanski Terminal Konterowy -GTK
PL	PL - Pomorskie	Gdynia
PL	PL - Pomorskie	Gdynia BCT
PL	PL - Pomorskie	Gdynia Container Terminal GCT
PL	PL - Pomorskie	Kobylnica
PL	PL - Śląskie	EuroTerminal Slawków
PL	PL - Śląskie	Gliwice
PL	PL - Śląskie	Gliwice Terminal PCC
PL	PL - Śląskie	Sosnowiec Poludniowy
PL	PL - Śląskie	Terminal Dabrowa Górnicza
PL	PL - Śląskie	Terminal Slawkow - DB Spedkol
PL	PL - Wielkopolskie	CLIP Intermodal Container Terminal -Clip 2
PL	PL - Wielkopolskie	CLIP Intermodal Container Terminal -Clip 6
PL	PL - Wielkopolskie	Poznan Franowo
PL	PL - Wielkopolskie	Poznan Garbary
PL	PL - Wielkopolskie	Terminal Gadki/Poznan
PL	PL - Zachodniopomorskie	Container Terminal Swinoujscie
PL	PL - Zachodniopomorskie	Szczecin Port Centralny
SV	SV - Mellersta Norrland	Sundsvall
SV	SV - Mellersta Norrland	Sundsvall Logistikpark
SV	SV - Mellersta Norrland	Örnsköldsvik
SV	SV - Norra Mellansverige	Borlänge CombiTerminal
SV	SV - Norra Mellansverige	Insjöterminalen
SV	SV - Norra Mellansverige	Karlstad Intermodal
SV	SV - Småland med öarna	Alvesta kombiterminal
SV	SV - Småland med öarna	Intermodal Terminal Älmhult
SV	SV - Småland med öarna	Jönköping-Torsvik Kombiterminal
SV	SV - Småland med öarna	Nässjö Railport

Country	NUTS 2	Terminal Name
SV	SV - Småland med öarna	Stockaryd
SV	SV - Småland med öarna	Vaggeryd Kombiterminal
SV	SV - Stockholm	Container Terminal Port of Södertälje
SV	SV - Stockholm	Kapellskär Hamn RoRo Terminal
SV	SV - Stockholm	Stockholm Rosersberg
SV	SV - Stockholm	Stockholm Årsta Kombiterminal
SV	SV - Sydsverige	Helsingborg Railport
SV	SV - Sydsverige	Karlhamns Hamn490
SV	SV - Sydsverige	Karlskrona Terminal
SV	SV - Sydsverige	Malmö Port
SV	SV - Sydsverige	Malmö Kombiterminal
SV	SV - Sydsverige	Port of Ystad
SV	SV - Sydsverige	Port of Åhus Container Terminal
SV	SV - Sydsverige	Trelleborg Kombi
SV	SV - Västsverige	Arken Norra - Gothenburg
SV	SV - Västsverige	Göteborg Hamn-APM Terminal
SV	SV - Västsverige	Halmstad Hamn Terminal
SV	SV - Västsverige	Port of Varberg
SV	SV - Västsverige	Skaraborg Intermodal Terminal
SV	SV - Östra Mellansverige	Avesta
SV	SV - Östra Mellansverige	Eskilstuna Kombiterminal
SV	SV - Östra Mellansverige	Fagersta
SV	SV - Östra Mellansverige	Gävle Intermodal Terminal
SV	SV - Östra Mellansverige	Hallsberg Terminal
SV	SV - Östra Mellansverige	Katrineholm Rail Point -Southern/Northern Terminal
SV	SV - Östra Mellansverige	Pampus Terminal - Port of Norrköping
SV	SV - Östra Mellansverige	Västerås Intermodal Terminal
SV	SV - Östra Mellansverige	Örebro Terminal
SV	SV - Övre Norrland	Kiruna Cargo -for Arctic Rail Express
SV	SV - Övre Norrland	Luleå Kombiterminal
SV	SV - Övre Norrland	Port of Kalix
SV	SV - Övre Norrland	Port of Luleå
SV	SV - Övre Norrland	Port of Piteå
SV	SV - Övre Norrland	Port of Skellefteå
SV	SV - Övre Norrland	Port of Umeå
SV	SV - Övre Norrland	Skellefteå Terminal
SV	SV - Övre Norrland	Storuman
SV	SV - Övre Norrland	Umeå Combi Terminal

Annex 2 – Semi-structured interview guide for benchmark terminals

October 2019

Terminal equipment (verification of input from inventory list, data to be collected)

Subjects to be covered: Equipment (cranes, reach stackers, etc.), size of terminal, storage conditions (yard storage, buffer storage areas, etc.), cargo volume (units/TEU), cargo composition (% container vs trailer vs swaps), Processes (RS-handling, shunting, crane-handling), maintenance standard

1. What modes of transport do you support in the terminal, and which transshipment techniques do you use?
2. What type of intermodal transport units (ITUs) do you get through the terminal?
3. What main equipment and technologies do you use in operations? Is any equipment not in use and if so, why not?
4. What equipment/parts of the terminal infrastructure are especially important to your customers?
5. What equipment could be used to improve operations at the terminal, and are you planning to acquire new equipment in the future? (Any capacity constraints?)

Organisation and operating model

Subjects to be covered: Number of employees, ownership of land, infrastructure, buildings, service facilities of the terminals (who owns what), type for ownership: State owned company, other type of authority, OPP, privately owned

6. Describe the organisational structure of the terminal.
7. How is the terminal owned and managed and how is the agreement between owner and manager?
8. How many employees are working at the terminal?
9. Have there been any changes in the way the terminal has been operated over time? If so, how has the terminal previously been owned and managed?
10. How do you perceive the benefits and limitations of the way the terminal is owned and managed today?

Revenue and cost

11. How do you attract additional volume to your terminal? Which stakeholders play a part in this, and how do you cooperate with them?
12. What are your main transport connections? [Where do your transport units come from and where do they go? (Both geographically and in terms of company, if any one company is that influential)]
13. If we asked you to give us ball park figures in percentages, would you be able to tell how much of your business is simply handling, and how much is other services?

14. Has there been a shift in this mix of services in recent years, and do you expect it to remain/shift further in the near future? (Where do you see the biggest potential to increase terminal revenue?)
15. What are your main cost drivers at the terminal?
16. Have you made any investments in the terminal within the last 10 years (e.g. in increased capacity, automation, customer-related etc.) – or maybe you are planning investments currently – and how did you progress with such a project in terms of financing, planning etc.? (Who are the stakeholders?)

Laws and regulations

17. How are you supported or restricted by current laws and regulations?
18. How do you ensure compliance with laws and regulations on combined transport, terminals, and rail freight?
    i. Related to the 2012/34/EU Directive, how do you ensure to deliver non-discriminatory prices and access to the terminal as required?
    ii. Related to the phrasing in the 2012/34/EU Directive that allows the terminal operator to charge for supply of services equal to the cost of providing it plus a reasonable profit. Are you required to provide documentation of the cost you incur?
19. Do you expect any future changes in laws and regulations that will impact terminal operations?

Customers and market position

20. What are the key differentiators for the terminal? Why do customers choose your terminal exactly?
21. What are the main criteria that customers are looking for when selecting a combined terminal to use? (E.g. price, location, modes of transport supported, quality, equipment, etc.)
22. How would you rate your relative position across these criteria compared to other main competitors on a scale from 1-5?
    (1= Very weak and 5= Very strong)
23. How are you planning on maintaining or improving your market position in the future? What are the perceived threats and opportunities to your strategic ambitions?

Terminal specific questions

24. Placeholder for questions that might occur during research on the individual terminals

Additionally, ask for:

- Access to customer satisfaction surveys