

# Transport Market Study for the Scandinavian Mediterranean RFC

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## EXECUTIVE SUMMARY

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## CONTENTS

<b>CONTENTS .....</b>	<b>3</b>
<b>LIST OF FIGURES AND TABLES .....</b>	<b>4</b>
<b>GLOSSARY .....</b>	<b>5</b>
<b>ABBREVIATIONS .....</b>	<b>6</b>
<b>1 INTRODUCTION .....</b>	<b>7</b>
<b>2 OBJECTIVES OF THE TMS .....</b>	<b>7</b>
<b>3 CATCHMENT AREA.....</b>	<b>8</b>
<b>4 ANALYSIS OF CURRENT FREIGHT TRANSPORT MARKET.....</b>	<b>10</b>
4.1 CURRENT FREIGHT TRANSPORT DEMAND IN THE CORRIDOR AREA .....	10
4.2 ANALYSIS OF CORRIDOR-RELATED RAIL FREIGHT SERVICES.....	14
4.3 CRITERIA FOR MODAL CHOICE .....	16
<b>5 EVALUATION OF FUTURE TRANSPORT MARKET DEVELOPMENT .....</b>	<b>19</b>
5.1 PESTL ANALYSIS.....	19
5.2 FORECAST OF FUTURE TRANSPORT VOLUMES .....	21
5.3 FUTURE REQUIREMENTS TO TECHNICAL PARAMETERS.....	23
5.4 IDENTIFICATION OF LONG-TERM TRENDS LIKELY TO IMPACT INTERNATIONAL RAIL FREIGHT.....	25
<b>6 CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>26</b>
6.1 SWOT ANALYSIS .....	26
6.2 RECOMMENDATIONS .....	31
6.3 CONCLUSIONS.....	34
<b>BIBLIOGRAPHY .....</b>	<b>35</b>

## LIST OF FIGURES AND TABLES

Figure 1: Catchment area of ScanMed RFC.....	9
Figure 2: Corridor trains on major O/D relations (both directions, 2012) .....	15
Figure 3: Rating of the importance of transport criteria.....	17
Figure 4: Relevance of quality criteria.....	18
Figure 5: Projected O/D relations for corridor train traffic in 2017 .....	22
Figure 6: Stakeholder assessment of ScanMed RFC traffic by 2017 .....	22
Figure 7: Rating of importance of technical parameters .....	23
Figure 8: Enhancement measures suggested by stakeholders .....	33
Table 1: Rail freight transport matrix for 2012 (1.000 net tons).....	10
Table 2: Road freight transport matrix for 2012 (1.000t) .....	11
Table 3: Short-sea shipping matrix for 2012 (1.000t) .....	12
Table 4: SWOT analysis.....	30

## GLOSSARY

Additional train	is a train that by definition ends or starts within the corridor area, crosses at least one corridor border and enters/exits the corridor area.
Ad-hoc traffic	refers to optional and exceptional trains that need to be registered a certain number of days in advance during the running timetable.
Block train	is a train whose wagons are all loaded and unloaded at the same origin and destination.
Catchment area	is for the purpose of this Transport Market Study (TMS) on ScanMed RFC the area surrounding the preliminary route of ScanMed RFC. The exact definition of the catchment area is based on NUTS-3 regions.
Combined traffic	refers to a transport chain involving multiple modes of transport as well as transfer sites, such as sea ports, inland ports and terminals.
Corridor borders	are all those national borders of the Corridor countries that are part of the commonly agreed TMS Catchment Area of ScanMed RFC.
Corridor train	is any freight train that has its origin <u>and</u> destination within the catchment area and crosses at least one corridor border.
Corridor-related train	is any corridor or additional train.
Preliminary route	refers to the route used as reference for defining the catchment area of the study.
ScanMed RFC countries	are the six countries Norway, Sweden, Denmark, Germany, Austria and Italy, crossed by ScanMed RFC.
Short-sea shipping	means short distance cargo shipment over sea, i.e. without crossing an ocean.
Single wagonload train	is a type of rail freight train operated as part of the European single wagonload system. It may consist of different wagon groups, which may be for different customers and may have different origins and destinations.
NUTS	means " <i>Nomenclature des unités territoriales statistiques</i> " and refers to the classification system dividing the economic regions of the European Union.
Timetable traffic	refers to long-term and regularly recurring traffic, generally registered to the infrastructure company several months in advance.

## ABBREVIATIONS

ERTMS	European Rail Traffic Management System
EU	European Union
GDP	Gross Domestic Product
IBM	IBM Global Business Services
IM	Infrastructure Manager
IMF	International Monetary Fund
IWW	Inland Waterways
Lo/Lo	Load-on/Load-off
MoS	Motorways of the Sea
NUTS	Nomenclature des unités territoriales statistiques
O/D	Origin/Destination
OECD	Organisation for Economic Cooperation and Development
PESTL	Political, economic, social, technical, logistical
RoLa	Rollende Landstraße = “Rolling Road”
Ro/Ro	Roll-On/Roll-Off
ScanMed RFC	Scandinavian Mediterranean Rail Freight Corridor
TEN-T	Trans-European Transport Network
TMS	Transport Market Study

## 1 Introduction

With the aim of creating a European network for competitive rail freight, the EU Regulation (EU) No 913/2010 introduces a package of measures to be implemented on nine initial rail freight corridors. The corridor “Stockholm - Malmö - Copenhagen - Hamburg - Innsbruck - Verona - Palermo”, then designated as Rail Freight Corridor 3 (RFC 3), is one of them. Annex 2 of Regulation (EU) No 1316/2013 extends RFC 3 to Oslo, Trelleborg, Livorno, La Spezia, Ancona, Bari, Taranto and Augusta and renamed RFC 3 into the “Scandinavian Mediterranean” Rail Freight Corridor, hereafter referred to as ScanMed RFC. The Corridor corresponding to the former RFC 3 is due to go into operation by 10 November 2015 and the extensions three years later, at the latest, i.e. by 10 November 2018. As an essential part of the implementation plan for the freight corridor a Transport Market Study (TMS) has to be carried out according to Article 9.3 of the Regulation.

## 2 Objectives of the TMS

The main objective of the TMS is to provide the Infrastructure Managers in ScanMed RFC with a detailed analysis of the freight market development and future customer demand on the corridor. As a part of the implementation plan for the ScanMed RFC it supports the definition of a corridor offer, tailored to meet the expectations of customers. In order to achieve these goals the study focuses on the following major issues:

- Analysis and evaluation of the present transport market situation covering all transport modes
- Forecast of transport market developments based on an analysis of socio-economic trends
- Analysis of strengths, weaknesses, opportunities and threats of rail freight traffic on the corridor
- Recommendations for operational and organisational improvements of rail freight traffic
- Support of the definition of parameters for corridor capacity

To obtain an insider’s view of the specific interests, opinions and development trends of stakeholders operating within the corridor, 57 personal interviews using an extensive questionnaire and 79 web-based surveys were carried out in the corridor countries. These interviews with the stakeholders, including railway operators, terminal and port operators, road carriers and shipping companies, forwarders and logistics providers, authorities as well as shippers, helped to

- understand the customers’ requirements and future market demand
- analyse the criteria for choice of the transport mode and define the main parameters for the attractiveness of the different modes
- evaluate the future transport market development
- define measures and recommendations to facilitate rail freight traffic, and
- amend, verify and consolidate statistical data and information

### 3 Catchment area

The catchment area was defined taking into account the extensions introduced in Annex 2 of Regulation (EU) No 1316/2013 and consists of the NUTS 2 or NUTS 3 regions surrounding a reference routing derived from the Corridor “nodes”, as listed in Annex 2 of Regulation (EU) No 1316/2013.

Based on the reference routing the following border crossings have been identified within ScanMed RFC:

Norway - Sweden:	Kornsjø
Sweden - Denmark:	Malmö / Kastrup, Peberholm
Denmark - Germany:	Padborg / Flensburg
Germany - Austria:	Kiefersfelden / Kufstein
Austria - Italy:	Brenner/Brennero





**Figure 1: Catchment area of ScanMed RFC**

## 4 Analysis of current freight transport market

Eurostat, the ETISPLUS database as well as national and regional statistic sources were used for information collection of a general, i.e. non-specifically corridor-related nature (s. paragraph 4.1.). Corridor traffic (s. paragraph 4.2) was assessed using train data information delivered by the IMs involved in the ScanMed RFC. The base year used for data delivery was 2012.

### 4.1 Current freight transport demand in the corridor area

In order to get a complete picture of the current freight transport demand along this important north-south corridor, all relevant transport modes were analysed on a country-to-country basis.

#### *Rail freight traffic*

The analysis of freight transport volumes on a country-to-country level shows that overall rail transport volumes between the countries involved in ScanMed RFC increased by more than 25% in the last decade and are currently estimated at approx. 58 million tons per year.

Loading country	Unloading country						Total	Share (loading)
	Norway	Sweden	Denmark	Germany	Austria	Italy		
Norway		1.738	1	26	0	16	1.781	3,1%
Sweden	342		118	2.497	168	398	3.523	6,1%
Denmark	1	39		84	n/a	693	817	1,4%
Germany	85	2.346	631		8.370	16.652	28.084	48,4%
Austria	12	135	n/a	7.083		3.256	10.486	18,1%
Italy	31	242	503	10.968	1.541		13.285	22,9%
Total	471	4.500	1.253	20.658	10.079	21.015	57.976	100%
Share (unloading)	0,8%	7,8%	2,2%	35,6%	17,4%	36,2%	100%	

**Table 1: Rail freight transport matrix for 2012 (1.000 net tons)<sup>1</sup>**

As a major import and export country, Germany accounts for 48% of shipped tonnage (loading) and 36% of received tonnage (unloading). Italy accounts for 23% of shipped and 36% of received tonnage, followed by Austria (18% of shipped and 17% of received tonnage). In comparison to this, the Scandinavian corridor countries' proportional share is rather small.

<sup>1</sup> Source : own compilation based on Eurostat, iron ore traffic on Malmabanan not included

### **Road freight traffic**

In 2012 the volume of road traffic between the corridor countries was slightly below the level of 2003 and can be estimated at nearly 90 million tons per year.

Loading country	Unloading country						Total	Share (loading)
	Norway	Sweden	Denmark	Germany	Austria	Italy		
Norway		3.767	539	290	n/a	n/a	4.596	5,2%
Sweden	4.168		1.299	1.173	108	92	6.840	7,7%
Denmark	714	1.681		5.279	0	122	7.796	8,7%
Germany	375	1.350	5.839		18.020	9.538	35.122	39,4%
Austria	31	44	45	14.277		6.131	20.528	23,0%
Italy	n/a	n/a	110	10.470	3.733		14.313	16,0%
<b>Total</b>	<b>5.288</b>	<b>6.842</b>	<b>7.832</b>	<b>31.489</b>	<b>21.861</b>	<b>15.883</b>	<b>89.195</b>	<b>100%</b>
<b>Share (unloading)</b>	<b>5,9%</b>	<b>7,7%</b>	<b>8,8%</b>	<b>35,3%</b>	<b>24,5%</b>	<b>17,8%</b>	<b>100%</b>	

**Table 2: Road freight transport matrix for 2012 (1.000t)<sup>2</sup>**

Major origins and destinations are:

- Germany (40% of shipped / 35% of received tonnage)
- Austria (23% of shipped / 25% of received tonnage)
- Italy (16% of shipped / 18% of received tonnage)

72% of the total transport volume is transported between neighbouring countries.

The international road freight traffic to and from the catchment area of ScanMed RFC in Italy was analysed in more detail, determining export and import volumes from the NUTS 3 regions to every ScanMed RFC country with special emphasis on relevant ports and terminals.

### **Short-sea shipping**

Regarding overall traffic from and to Scandinavia it has to be noted that short-sea shipping currently has the highest share of the overall transported tonnage since it provides the most economical alternative for bulk cargo in large quantities and for containers. The total market volume amounted to 84,6 million tons.

<sup>2</sup> Source : own compilation based on Eurostat 01/14

Shipping country	Receiving country					Total	Share (shipping)
	Norway	Sweden	Denmark	Germany	Italy		
Norway		5.553	5.466	14.979	335	26.333	31,1%
Sweden	2.137		6.116	12.805	173	21.231	25,1%
Denmark	2.054	7.965		5.916	84	16.019	18,9%
Germany	2.381	11.137	5.409		889	19.816	23,4%
Italy	263	133	241	600		1.237	1,5%
<b>Total</b>	<b>6.835</b>	<b>24.788</b>	<b>17.232</b>	<b>34.300</b>	<b>1.481</b>	<b>84.636</b>	<b>100%</b>
<b>Share (receiving)</b>	<b>8,1%</b>	<b>29,3%</b>	<b>20,4%</b>	<b>40,5%</b>	<b>1,7%</b>	<b>100%</b>	

**Table 3: Short-sea shipping matrix for 2012 (1.000t)<sup>3</sup>**

In 2012, trade relations with the highest volumes were as follows:

- Sweden – Germany 23,9 million tons
- Norway – Germany 17,4 million tons
- Sweden – Denmark 14,1 million tons

### **Port traffic**

The current traffic volumes of the various Scandinavian, German and Italian ports within the catchment area of ScanMed RFC have been analysed.

The traffic volumes of the Norwegian ports within the catchment area account for 12,4% of the overall volume handled by Norwegian ports. The highest volumes are shipped from and to the Grenland terminals at Skien, Porsgrunn, Bamble (total of 10,3 million tons) and from/to the port of Oslo (5,4 million tons).

Among the Swedish ports within the catchment area the port of Göteborg is the outstanding source and destination with a total traffic volume of 41,1 million tons in 2012. 38% of this volume is shipped from and to ScanMed RFC countries.

The Port of Hamburg is one of the major gateways served by trans-ocean services as well as short-sea services from all around the world. This results in a total traffic volume of 113,5 million tons, of which 10% are shipped from and to ScanMed RFC countries. Hinterland traffic by rail from Hamburg to international destinations amounts to approximately 3,6 million tons. Hinterland rail traffic from and to ScanMed RFC countries is dominated by Austria (approx. 712.000t, 20% of international hinterland rail traffic) and Italy (approx. 433.000t, 12% of international hinterland rail traffic). Lübeck, the largest Ger-

<sup>3</sup> Source: Eurostat 12/2013

man port on the Baltic Sea offers especially ferry and Ro/Ro-connections. It also offers special services for paper (2,9 million tons in 2013) and manufactured car transport (76.000 units in 2013), as well as containers (100.000 TEU in 2013)<sup>4</sup>. The third German port within the catchment area is Kiel, which handled 4,2 million tons of cargo in 2012. The share of goods shipped from and to ScanMed RFC countries is 41%.

Due to the widespread catchment area of ScanMed RFC in Italy, a variety of ports are to be considered, which have different functionality regarding commodity structure, type of services as well as connections offered. Transports from and to ScanMed RFC countries by sea have a very low share in total shipping volumes of these ports (below 1% of total traffic of each port). Within the catchment area of ScanMed RFC, Taranto is the port with the largest volumes (35 million tons in 2012). Today Gioia Tauro is mainly a container handling port (2,7 million TEU in 2012<sup>5</sup>). With this overall volume Gioia Tauro is among the TOP 15 European container ports.<sup>6</sup> The port of Livorno is one of the largest ports in Italy, with a total transport volume of 27,4 million tons in 2012. A huge share of the traffic is Ro/Ro traffic (9,8 million tons<sup>7</sup>). Container traffic has a significant share with nearly 550.000 TEU handled in 2012.<sup>8</sup> Due to the different facilities and loading areas it can handle a wide range of commodities. One speciality of the port is the handling of new cars (356.000 cars in 2012<sup>9</sup>). The port of La Spezia is situated approx. 100 km north of Livorno. The total transport volume shipped by sea from and to La Spezia (15,4 million tons) is lower than the volume of Livorno. However, the port handles more containers than Livorno (1,25 million TEU in 2012<sup>10</sup>) and is the third largest container port in Italy (after Gioia Tauro and Genova).

### ***Modal split***

The overall share of transports by rail in all countries, apart from Italy, lies below the share of road and short-sea shipping. Rail generally has a low modal split regarding transports between the Scandinavian ScanMed RFC countries (between 0% and 15%). Regarding border-crossing land transport from and to Germany, Italy and Austria rail has a higher market share (between 32% and 36%). Short-sea shipping accounts for the highest share in all three Scandinavian countries.

The trade lanes with the highest share of rail are:

- Denmark – Italy (68%)
- Sweden – Austria (67%)
- Sweden – Italy (62%)

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<sup>4</sup> Source: LHG website

<sup>5</sup> Source: Gioia Tauro Port Authority 2013

<sup>6</sup> Source: Nottebohm 2012

<sup>7</sup> Source: Assoport 2012a

<sup>8</sup> Source: Port of Livorno 2012a

<sup>9</sup> Source: Ibid.

<sup>10</sup> Source: Assoport 2012a

- Germany – Italy (56%)

These percentages show the high attractiveness of rail on the transalpine connections and on long distances.

### ***Commodity structure***

For rail freight it can generally be concluded that crude and manufactured minerals together with building materials account for the highest share (24%) regarding overall transported tonnage between ScanMed RFC countries. Further analysis shows that nearly 70% of this share is transported between Germany and Italy and vice versa. The second important category consists of machinery and transport equipment with a share of 21% of overall transported tonnage by rail between ScanMed RFC countries. This market segment is mainly determined by the automotive and manufacturing industry. Major transport relations are Germany – Austria, Sweden – Germany and Germany – Italy. The third important category comprises agricultural and forestry products. Strongest transport relations in terms of transported freight volumes within this category are Germany - Italy, Germany - Austria, Austria - Italy and Sweden - Norway. Germany plays a major role as an export country, a fact that is mirrored in the data presented on the recent developments of rail and road freight transport sector earlier in this report.

The commodity structure of road freight evidently represents the entire spectrum of commodity types. The respective shares for the proportionately largest categories are: 21% for agricultural products and woods, 15% for foods, 12% for mining products and non-metallic minerals, 12% for chemicals and refined petroleum products.

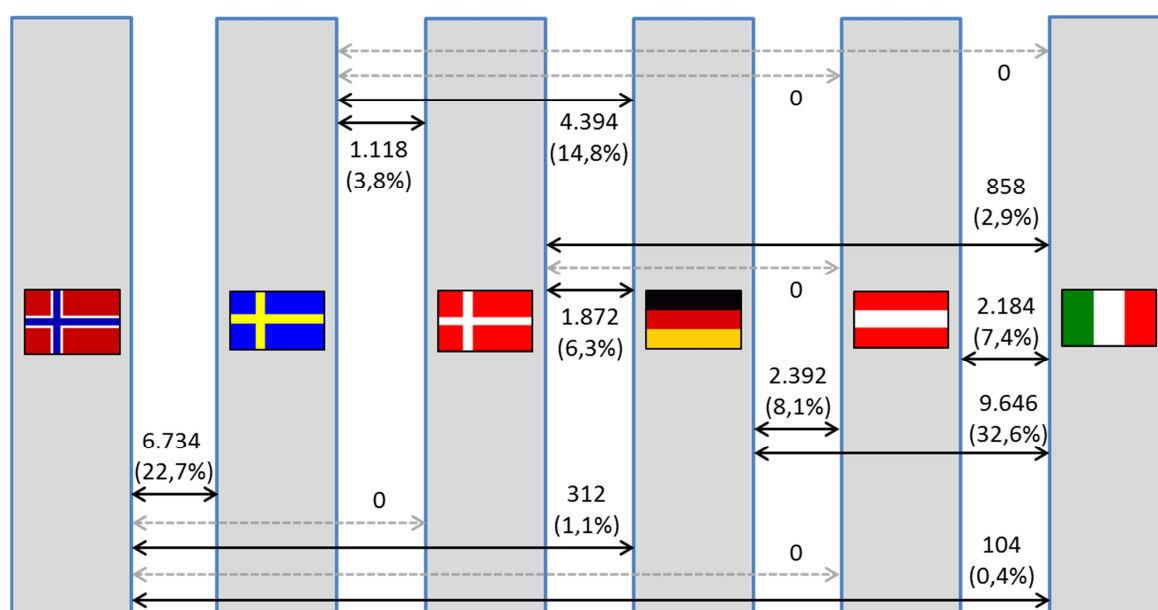
## **4.2 Analysis of corridor-related rail freight services**

This chapter focuses exclusively on the analysis of rail freight traffic in the corridor area, covering corridor trains, which by definition start and end in the corridor area and cross minimum one corridor border, and the so called "additional" trains, i.e. trains that start/end in the corridor area, cross minimum one corridor border and enter/exit the corridor area.

In total approximately 29.600 corridor trains were operated in the ScanMed RFC in 2012. The O/D relations with the highest number of corridor trains are:

- Germany – Italy (9.646 trains per year, both directions)
- Norway – Sweden (6.734 trains per year, both directions)
- Sweden – Germany (4.394 trains per year, both directions)

The figure below gives an overview of the O/D relations in the ScanMed RFC.



**Figure 2: Corridor trains on major O/D relations (both directions, 2012)<sup>11</sup>**

The high number of corridor trains between Sweden and Norway derives from the fact that the catchment area covers the main industrial centres in the southern and central parts of Sweden (e.g. Göteborg, Stockholm, Malmö). In addition to that, there are only two other cross-border rail connections between Sweden and Norway outside the catchment area. Currently, only very few corridor trains operate along the entire corridor distance (i.e. between Norway and Italy). Nevertheless, more than half of the corridor trains cross more than one border. This is mainly attributed to the high number of trains running between Germany and Italy. The number of corridor trains between Germany and Austria is relatively low compared to the overall rail-based tonnage transported between Germany and Austria. This is due to the fact that only a small fraction of the Austrian territory is covered by the ScanMed RFC catchment area.

Corridor train traffic can be divided into the three major types of rail freight production systems as follows:

- Single wagonload - 38,2%
- Block trains - 25,8%
- Intermodal trains - 36,0%

The highest number of single wagonload trains (4.212) was operated between Sweden and Germany. The main O/D relation for block trains is Norway - Sweden (3.926 trains). The majority of intermodal trains (6.084) were operated between Italy and Germany.

About 17.200 additional trains were operated on the corridor in 2012. Most of the additional trains run on the following relations (both directions):

<sup>11</sup> source: own compilation based on data provided by IM's

- Germany – Italy (12.428 trains)
- Denmark – Italy (1.898 trains)
- Sweden – Germany (1.638 trains)

National (domestic) and passenger trains were not part of the detailed analysis. But the share of corridor-related traffic in total rail traffic, including passenger trains, in major corridor sections was analysed, using train data provided by the Infrastructure Managers.

### 4.3 Criteria for modal choice

The choice of transport mode is driven by a company's desire to remain competitive by serving their customers both effectively and efficiently. According to international studies and results of the stakeholder interviews, the major criteria, which strongly influence the choice of mode, could be grouped into the three categories:

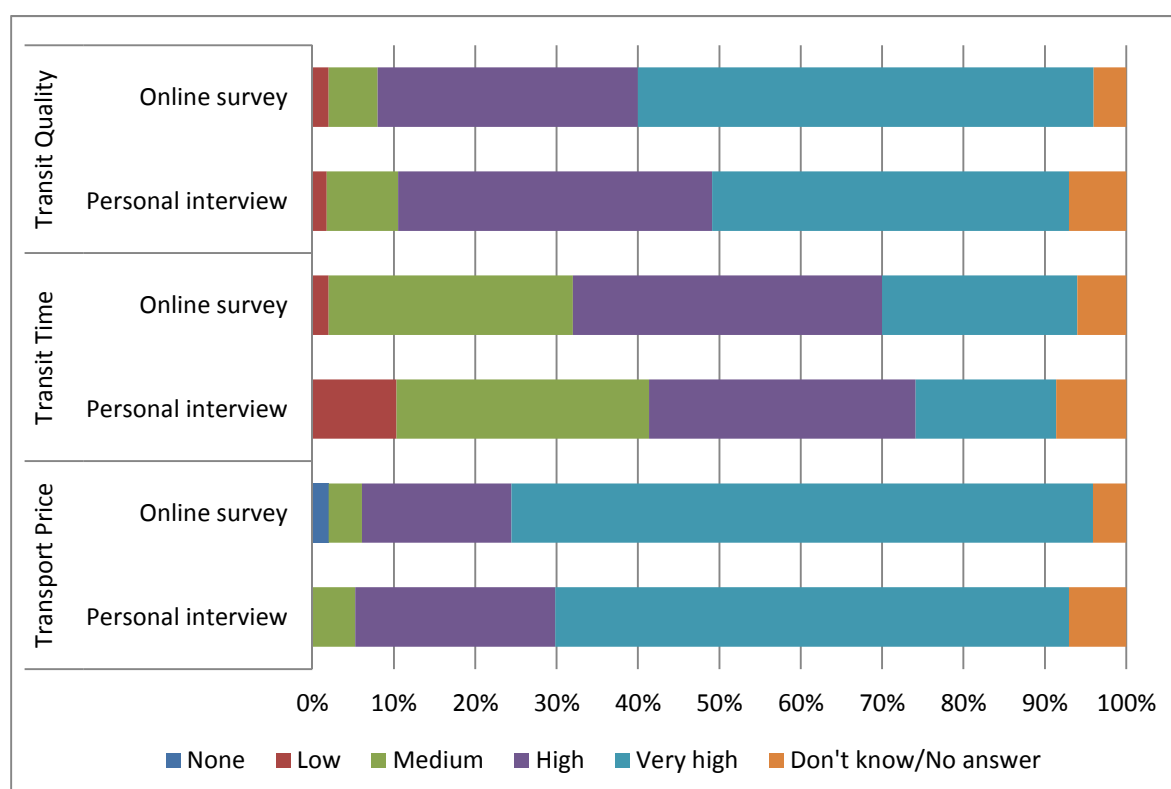
- transport cost
- transport time
- transport quality, including factors like reliability, punctuality, safety & security and travel information

Based on interview results rail scores medium on time and costs, but has an advantage in terms of predictability/punctuality and a disadvantage in terms of adaptation/flexibility. This was mirrored in reports by the stakeholders, who stated that ad-hoc train services (as opposed to timetable traffic) offer the necessary flexibility for customers, although today the proportion of ad-hoc traffic is reportedly low. Most stakeholders either assumed stagnation in ad-hoc traffic levels or at best a moderate increase. This could therefore be a response of rail to enhance its attractiveness to customers in terms of one central aspect to transport quality, i.e. flexible adaptation to customer needs.

Regarding the interview results on choice of transport mode, price emerged as the most prominent mode-determining factor. However, further issues such as type of cargo (time sensitive or not) and transport route (and hence available alternative modes) must be taken into the equation as well, when considering a mode's competitiveness.

Stakeholders were asked to rate the relevance of market-related criteria (price, time, quality) for the choice of transport mode they take into consideration, when deciding how to transport goods.

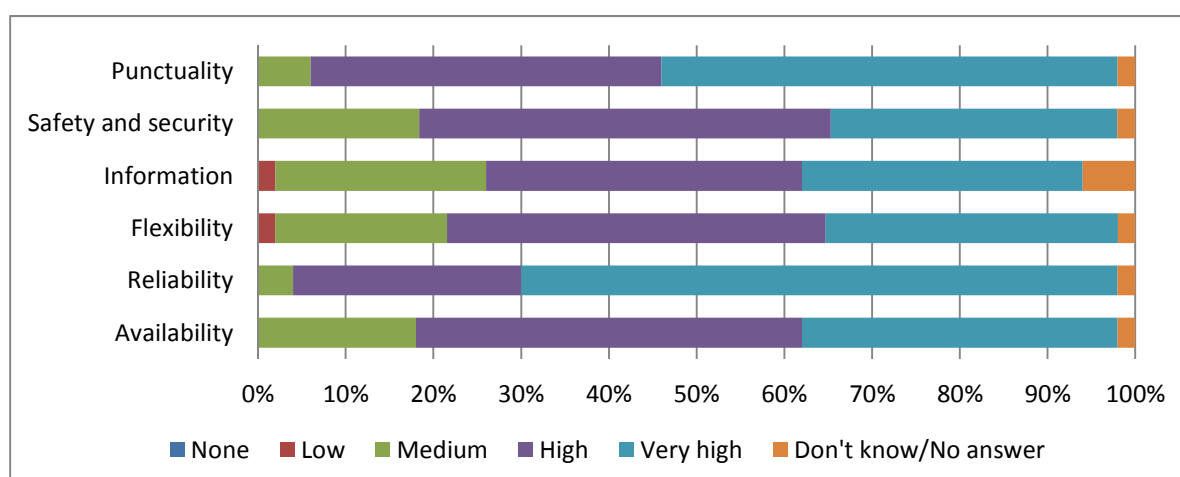




**Figure 3: Rating of the importance of transport criteria**

The interview results showed that both response groups rated the three transport criteria quality, time and price very similarly. Transport price received the most “high” and “very high” ratings from both. This finding is in line with the common credo that, to both the final customer and the operator “price is all that matters” and thus is the determining factor in mode choice (before further factors are considered). This is further underlined, when the transport criteria are presented by commodity group.

Transport quality was rated equally as important, with the majority of responses deeming these criteria “high” or “very high” in equal terms. Transit time received the most “medium” ratings, with stakeholders clarifying that very often not the total travel time but the reliability for goods to arrive at the pre-arranged time is crucial. With regards to terminology, “punctuality” refers to the arrival of freight (trains) at exactly the scheduled time and “reliability” refers to the ability of freight services to consistently perform the functions required and under the conditions agreed upon. From this distinction it becomes clear that punctuality is one of the functions freight services are required to meet, should they wish to be perceived as reliable by customers. Consequently the quality parameters listed in the figure below are all intertwined to some degree, with reliability forming an umbrella term.



**Figure 4: Relevance of quality criteria<sup>12</sup>**

As the above graph shows, all quality criteria received around three quarters or more “high” and “very high” ratings, especially reliability and punctuality were deemed paramount by both operators and customers. These findings were closely mirrored by the ratings given by online respondents. The consistently high relevance attributed to these criteria also illustrates that it is the mix of all of these factors that determines the successful operation of rail freight. Consequently no single attribute can be regarded in isolation, when considering improvements to the system as a whole.

It emerged in stakeholder interviews that railway as transport mode is of common use depending on goods transported and distances covered, but faces challenges for the next future. "Railway mode is less flexible than road but when it works in the right way is really efficient" is one of the assertions collected during personal interviews trying to summarise the role of railway service in freight transport.

Transportation costs still remain the main issue in the global market and, as a result of the survey, railway together with short-sea shipping is the cheapest way to move goods on long distances. Both transport modes are strong in the transportation of mass goods and are in some cases in competition with each other often due to the lack of access to the railway network. Their integration would surely lead to a more efficient trip chain and to strengthen the role of each mode in their respective area of influence.

Travel time does not appear to be a peculiar quality of railway mode. Nonetheless, time is not generally considered to be a key issue in the current global market especially for those good categories that mainly interest railway mode. On the other hand, railway could really grab position in the "time competition" due to the improvements in the node management and in the communication and cooperation among infrastructure companies, terminals, ports, shippers and other stakeholders.

<sup>12</sup> Personal interviews

The flexibility and ability to adapt to customer requirements remains highly important. Its implementation is highly complex in the railway sector as it requires a strong relationship between Infrastructure Manager and railway operators whose "time to market" are different and of different nature.

## 5 Evaluation of future transport market development

The evaluation of future freight traffic development is based on the comprehensive analysis of the current market situation. Both traffic forecast and long-term trends derive their basic information and input from a PESTL analysis and are complemented by stakeholder interview results.

### 5.1 PESTL analysis

Factors influencing rail freight in ScanMed RFC can be divided into five categories: political, economic social, technological and logistical (abbreviated to PESTL). These factors have been analysed accordingly.

As a result barriers and opportunities, influencing future traffic in ScanMed RFC, were identified.

#### *Political analysis*

- EU Directives have largely been translated into national law.
- For transport modes other than rail, road pricing models as a financial disincentive for road freight transportation are widely known and debated concepts not without controversy. Austria has implemented a comprehensive charging system whilst in Denmark support for this approach has been lacking.
- ScanMed RFC countries undertake measures to promote longer trucks (Germany and Sweden), and encourage the shift of freight from road and rail onto either inland waterways or short-sea shipping.
- Generally the ScanMed RFC countries have been very successfully implementing EU policies on rail freight traffic. The railway liberalisation index provided by IBM and Humboldt University of Berlin shows that all ScanMed RFC countries have made significant progress since 2007. Four of the six ScanMed RFC countries have an index of 800 or higher which indicates an advanced liberalisation of the railway market, demonstrating that there is a significant impact of EU-driven liberalisation in national legislation.

#### *Economic analysis*

- Overall the economic development within the ScanMed RFC countries has been positive, showing a recovery from the economic crisis from 2009 up to 2012.
- Out of all ScanMed RFC countries Norway was hit the least by this crisis with a GDP decrease of -1,6% in 2009 compared to the previous year and therefore recovered quickest too.
- All other ScanMed RFC countries experienced an average GDP decrease ranging between -5,0% and -5,7%, except for Austria where it was less pronounced with -3,8%.

- A generally positive development in foreign trade can be observed. The ScanMed RFC countries play a rather significant role for trade with each other. At least one ScanMed RFC country is usually among the top-3 trade partners of the other respective ScanMed RFC countries.
- Germany plays a major role as import and export partner to all other ScanMed RFC countries and the Scandinavian countries have strong trade connections with each other.
- Italy's top-3 import and export partners are Germany, France and China.
- The GDP forecasts available expect a positive development in the near future (i.e. up to 2017) in all corridor countries, with higher growth rates in the northern part of the corridor.

### ***Social analysis***

- Unemployment levels increased significantly after 2008/2009 as a result of the economic crisis and started to decrease again in 2012.
- The average income shows an overall rise, though the in-work at-risk poverty rate has been increasing in all ScanMed RFC countries.

### ***Technical and organisational analysis***

- Diversity across the ScanMed RFC countries in terms of infrastructure quality and standards exist.
- Technical bottlenecks regarding the different signalling and electrification systems are present and require costly solutions (e.g. multi-system locomotives or locomotive changes at border crossings).
- No restrictions regarding loading and track gauges exist, but the corner height of semi-trailers and swap bodies poses a problem south of Bologna, where lower corner heights are required than along the rest of ScanMed RFC. They necessitate either the use of special – and more expensive – pocket waggons or the transfer from rail to road.
- Capacity problems at some terminals affect the efficiency of intermodal freight transportation and the freight transport chain. To mitigate this, several development projects in all ScanMed RFC countries are underway<sup>13</sup>.

### ***Logistical analysis***

- Overall good logistical conditions and a good terminal infrastructure network along ScanMed RFC prevail. Each country provides several ports and terminals as well as interconnections for intermodal transportation.
- Despite RoLa initiatives for road freight traffic, the Brenner remains a bottleneck, especially for rail freight. The Brenner Base Tunnel – to be in place by 2026<sup>14</sup> – promises an improvement to the situation and is therefore of long-term relevance for the development of ScanMed RFC.

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<sup>13</sup> some of them are: Oslo Alnabru Terminal; upgrade of container terminal in Stockholm port; extension of MegaHub Lehrte; new terminal for combined transport in the port of Ancona

<sup>14</sup> according to ÖBB

## 5.2 Forecast of future transport volumes

The traffic forecast is based on findings of the analysis of the current situation and the PESTL analysis, with the socio-economic development being the decisive factor. It also takes into account the results of the stakeholder interviews. The forecast covers the short-term period up to 2017.

For rail freight traffic development on a country-to-country level the highest growth rates are forecasted for rail freight exports from Norway and Sweden. There will only be a moderate increase of rail freight traffic from Denmark, Germany and Austria. Exports by rail from Italy show only a relatively low increase. There will be no significant changes in the country-to-country relations within the short-term forecast period. In 2017, the highest rail freight volumes will be transported between Germany and Italy.

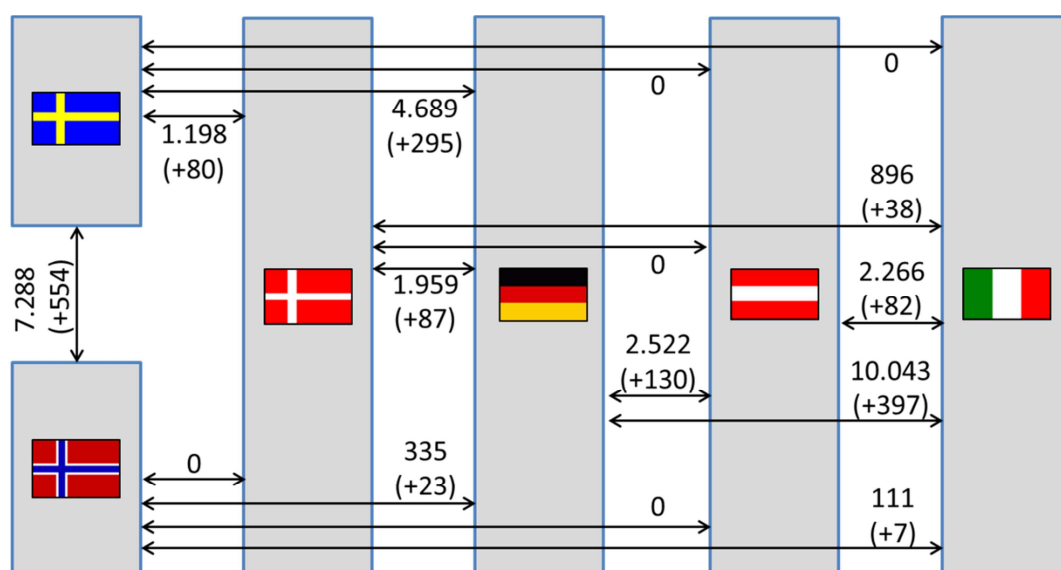
For the majority of the country-to-country relations, rail freight traffic is increasing faster than road transport. Relatively low increases will occur in road freight transports to and from Denmark and Italy. Up to 2017 the highest road freight volumes will be transported between Germany and Austria/Italy.

In the short-sea shipping sector the highest growth rates are expected for exports from Norway and Sweden. Only an insignificant increase in short-sea transportations to and from Italy is projected. Also in 2017 the biggest short-sea shipping volumes will be transported between Germany and the Scandinavian countries.

Only insignificant changes in the overall modal split of freight transport between the corridor countries are expected by 2017. The share of total rail freight transport between the corridor countries slightly decreases while short-sea shipping remains the dominant transport mode between the Scandinavian countries.

Forecasts on corridor-related rail freight traffic are based on growth rates for overall rail freight traffic between corridor countries. As the forecast of rail freight traffic in ScanMed RFC refers to numbers of trains (not freight volumes), it must be noted that such a projection always bears uncertainties. Based on the development of transport demand (by quantities of goods), the extrapolated number of trains required may deviate from the actual number of trains that will operate by 2017. The definite number of trains resulting from any new trade relation is consequently very hard to accurately predict in traffic models. This point was also emphasised by train and terminal operators in the personal interviews.

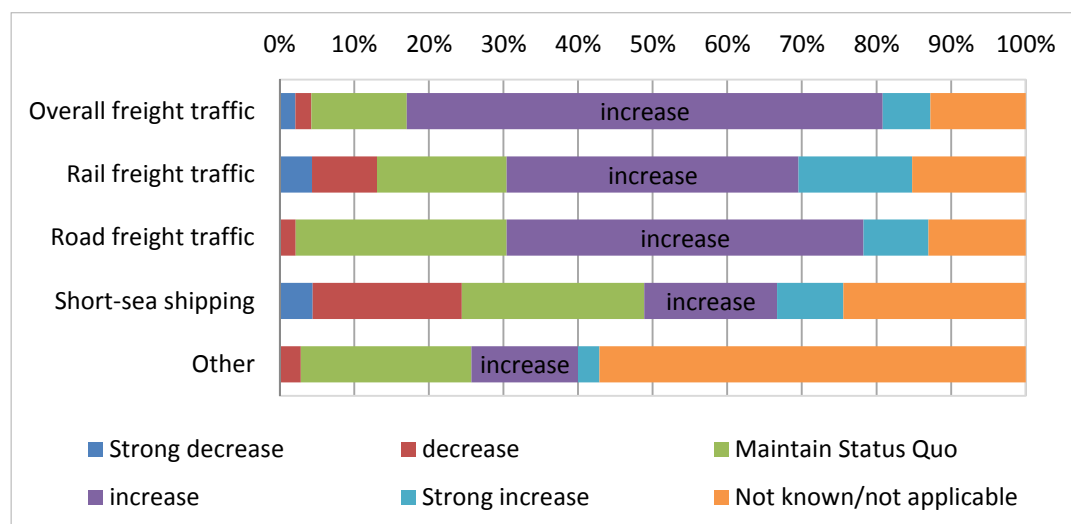
The number of corridor trains will increase by 5,7% (1.695 trains) over the forecast period. Thus, a total number of 31.309 corridor trains are expected to operate in 2017. For corridor train traffic the highest growth rates are observed between the Scandinavian countries. Germany - Italy remains the major O/D relation in ScanMed RFC. The following figure shows the major O/D relations in 2017.



**Figure 5: Projected O/D relations for corridor train traffic in 2017**

In 2017 the total number of expected additional trains along the corridor will amount to 18.048. This suggests an increase by 5,2 % (888 trains), similar to the predicted growth in corridor train traffic.

Findings from stakeholder interviews support this optimistic short-term outlook. Encouragingly more than 60% of the stakeholders expect a rise in their involvement in corridor-related services in both the immediate as well as the more distant future. The following figure illustrates stakeholder expectations of the transport market development in the ScanMed RFC.



**Figure 6: Stakeholder assessment of ScanMed RFC traffic by 2017<sup>15</sup>**

With regard to market developments in the corridor area, the main findings of the interviews in the corridor countries are summarised below.

<sup>15</sup> Online survey

**Norway:** Generally demand will increase. The Nordic countries and Eastern Europe are seen as growing markets. A doubling of volumes in the corridor for freight transported by road and rail is foreseen.

**Sweden:** According to major stakeholders, their current freight transport volumes are expected to double in the short-term, similarly to the view of the Norwegian stakeholders.

**Denmark:** Generally growth is expected, however, how high this will be depends largely on the industry sector (e.g. pulp/paper production has been decreasing lately). Nevertheless, stakeholder estimations of between 1% growth p.a. (and 10-15% over the entire time-period) suggest a stable outlook.

**Germany:** Overall, stakeholders foresee growth, however, its rate differed greatly between individual responses ranging between 2% p.a. and 20% p.a.. Only a minority predicts stagnation (in part due to Italy's long-lasting recession) or a moderate rise for their company's involvement.

**Italy:** Most stakeholders expect a recovery with the aim for a low/slight increase in growth. The more optimistic answers foresee 8% growth for business in the time-period and a fivefold increase in transported tonnage (however for road and rail together).

### 5.3 Future requirements to technical parameters

The interviews revealed that most of the stakeholders see enhanced technical parameters as an important factor to improve the competitiveness of rail freight transport. Especially longer and heavier trains can contribute to the reduction of specific costs per ton of transported cargo. Stakeholders also stressed the importance of harmonised parameters along the entire corridor.

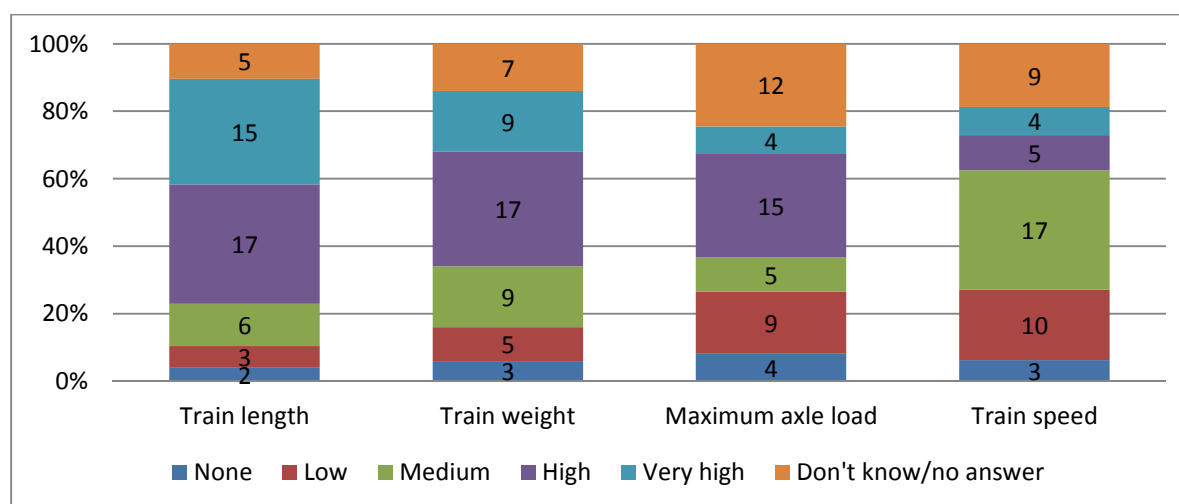


Figure 7: Rating of importance of technical parameters<sup>16</sup>

<sup>16</sup> Personal interviews; absolute number of mentions (n) has been added for each of the rating categories

Ratings for the influence of technical parameters for rail freight in the corridor were similar for stakeholders across all countries. **Train length** emerged as the parameter with the highest relevance ratings for its influence on rail freight traffic. In general terms stakeholders perceived longer trains to increase productivity and reduce costs consequently boosting rail's competitiveness. However, an adequate adaptation of the infrastructure (e.g. extended sidings) would initially create costs and here – stakeholders felt that – political willingness to back the financing and planning of network extensions was lacking. It also emerged in the interviews that no corridor-wide standard for train length currently exists. At present, the maximum permitted train length along the preliminary route varies between 480m (Southern Italy) and 850m (Denmark). Stakeholders commented that a unified maximum train length of 740m would be a realistic target for train operation along the corridor. Overlong trains (850-1000m) were deemed unrealistic by stakeholders.

An increase in **train weight** was considered desirable, as this too is a price-determining factor. However, train weight is not solely dependent on the cargo's weight and certain routes/sections can only support lower weights (e.g. Kiel channel and the Brenner Pass constitute weight-related bottlenecks). In sum, however, train weight was not deemed particularly relevant for combined traffic and extensive D4 standard coverage was felt to be sufficient by stakeholders.

No need was voiced by stakeholders to alter the **axle load** of 22.5t, as this is already the maximum and, though closely related to length and weight, it is of little relevance to combined traffic.

With regards to **maximum speed** the stakeholders stressed that the average travel speed is more important than maximum speed and that the last mile is very often the determining factor with regards to reliable overall travel times. Though 120-140km/h would be technically possible in Germany it was felt by stakeholders that a constant maximum speed of 100-120km/h would be both sufficient and less costly. Reported travel speeds for Italy were a lot lower (as low as 50km/h in one instance) and this highlights stakeholders' opinions that freight trains' speed has not been sufficiently harmonised to date.

With regards to the influence of longer and/or heavier trains on transport volumes stakeholders commonly stated that enhancing these parameters would render rail-based freight transport more efficient, allow for competitive pricing due to higher transport volumes and hence lower units costs. However the network infrastructure was deemed the main hindering factor to enable longer and heavier trains. Here, it was felt by stakeholders, a long-term solution to international bottlenecks presently dampening train lengths and weights ought to be sought.



## 5.4 Identification of long-term trends likely to impact international rail freight

Studies projecting both economic and freight traffic development trends expect an overall positive economic development, increased integration of European markets and thereby growing transport demand in the coming years. This is assumed despite the economic crisis of 2008/2009, from which most European countries, especially the ScanMed RFC countries, have been recovering fairly well.

This expected growth is supported by the following assumptions<sup>17</sup>:

- a growing worldwide network of production, logistics and transport
- a growing degree of labour division both within the EU member states and worldwide
- an increase of goods' volumes on site and transported around the globe
- an increase of international trade will influence volumes of long-distance hinterland traffic
- a possible goods' structure effect for rail freight traffic

Rail freight might especially be able to benefit from this growth as long-distance hinterland transportation (>300km) will increase. Rail freight will, however, have to become more efficient and benefit more from interoperability and inter-modality investments, in order not to lose possible growth to other transport modes. Seamless door-to-door transport chains are necessary for freight customers and these depend on:

- the production costs on the mainline run
- railway infrastructure
- interoperability in Europe
- transparent information politics for customers
- safety and security measures along the route

Overall, a further growth of transport volumes and transport performance along the corridor is to be expected also in the long term. Stakeholder interviews and the current market studies regarding the economic and transport-related development within the EU and in the ScanMed RFC countries tend to confirm this assumption. Despite this positive trend, a major change of modal split in favour of rail is not likely to occur by 2030. Rail traffic development along ScanMed RFC will be positively affected by two major infrastructure projects: the implementation of the Brenner Base tunnel and the realisation of the Fixed Fehmarn belt link. The related traffic forecasts indicate that – in the best case scenario – both the overall market situation and the positive effects of these investments could lead to a doubling of freight transport volumes by 2030. The resulting cost and time savings as well as improvements to operational

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<sup>17</sup> comp. König/Hecht 2012

stability will strengthen the competitive situation of rail transport. However, these investments alone will not lead to a major change of modal split in favour of rail.

From the current point of view, intermodal transport will contribute more to any additional rail volumes than wagonload traffic. Although the technical network conditions on the corridor are generally already suitable for intermodal transport, an upgrade of the loading gauge on Italian line sections south of Verona for transport of semi-trailers on conventional pocket wagons might support the development of intermodal transport.

The share of hinterland traffic from and to the major sea ports in Italy and Germany is currently very low and the growth potential appears limited in comparison to other rail freight corridors (e. g. Rhine-Alpine and North Sea Baltic corridors). However, an attractive ScanMed RFC could support the development of hinterland services from the Italian ports to southern Germany.

## **6 Conclusions and recommendations**

### **6.1 SWOT analysis**

The SWOT analysis was applied as an analytical tool to identify strengths and weaknesses for the development of rail freight traffic in ScanMed RFC. The possible opportunities and threats are derived from these strengths and weaknesses and assessed according to their influence on rail freight developments.

For the means of this study, four categories have been identified and assessed by SWOT analysis technique:

- Institutional elements are understood to be external factors, such as EU regulations, safety standards, and organisational frameworks in the ScanMed RFC countries.
- Economic elements refer to overall economic developments in the EU as well as per ScanMed RFC country, per transport mode and per type of good.
- Organisational elements represent the internal dimension that can be influenced by the IMs themselves (while the institutional elements influence the overall market development and its functions). These include cross-country cooperation, information policies and other general factors.
- Technical and infrastructural elements include issues such as ERTMS deployment status along ScanMed RFC as well as bottlenecks.

	Strengths	Weaknesses	Opportunities	Threats
<b>Institutional</b>	<ul style="list-style-type: none"> <li>High safety standards and safety record (compared to road transport)</li> </ul>	<ul style="list-style-type: none"> <li>Slow process of an EU-wide implementation of homogenous technical and safety regulations and rules in all member states</li> <li>Slow process of harmonisation of national legislation based on requirements by EU-Legislation due to generally time-consuming decision-making processes in national politics</li> </ul>	<p>Deriving from the railway market:</p> <ul style="list-style-type: none"> <li>Significant market impact of EU-driven railway liberalisation in national legislation</li> <li>Efforts for implementation of a Single European Safety Certificate with the pending 4th railway package</li> <li>Ongoing implementation of ScanMed RFC as well as the establishment of an RFC Network</li> </ul> <p>Deriving from the road market:</p> <ul style="list-style-type: none"> <li>Further development of road pricing systems as well as rising fuel costs</li> <li>EU policy makers generally prefer rail above road freight for future freight transport policy and try to facilitate better intermodal logistics solutions, but also support MoS and IWW</li> </ul>	<p>Deriving from the railway market:</p> <ul style="list-style-type: none"> <li>Tightening of environmental regulations concerning movement of dangerous goods in urban areas and storage of dangerous goods in terminals</li> <li>Stricter regulations on noise and pollution</li> </ul> <p>Deriving from road &amp; short-sea shipping:</p> <ul style="list-style-type: none"> <li>Promotion of so-called Giga-liner, e.g. in Germany and Sweden</li> <li>Promotion of Motorways of the Sea to cover future freight transport needs</li> </ul>
<b>Economic</b>	<ul style="list-style-type: none"> <li>Extensive and sustainable trade relations between the corridor countries</li> <li>Germany covers the role of major import and export partner to all other ScanMed RFC countries</li> </ul>	<ul style="list-style-type: none"> <li>Major O/D relations either domestic or with immediate neighbouring country, practically no end-to-end trains operated in ScanMed RFC</li> <li>Modal share of rail is lower</li> </ul>	<ul style="list-style-type: none"> <li>Positive GDP development in the corridor countries in the short-term forecast period and optimistic long-term perspectives</li> <li>ScanMed RFC includes countries with above EU-15</li> </ul>	<ul style="list-style-type: none"> <li>Decrease of production in sectors using/producing rail-affine products (e.g. pulp/paper/wood/steel)</li> <li>High level of modal share for road and short-sea shipping and hence fierce</li> </ul>

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> <li>Germany – Italy via Austria is the trade lane with the highest volume in container traffic in Europe</li> <li>Rail is the preferred transport mode for certain commodities, i.e. heavy, bulky, time insensitive.</li> </ul>	<p>than road in almost all O/D relations in ScanMed RFC</p> <ul style="list-style-type: none"> <li>Stagnation in modal share of rail in the forecast period despite increase both in terms of volumes and number of trains</li> <li>Road is still the preferred option for the majority of goods between Germany and Italy along the corridor</li> <li>High costs of infrastructure improvements (e.g. additional capacity, sidings)</li> </ul>	<p>or Eurozone average economic development (Germany, Scandinavian countries)</p> <ul style="list-style-type: none"> <li>Assessment by the stakeholders of a high involvement in the corridor-related services</li> <li>Intermodal traffic will continue to grow at a higher rate than conventional wagonload traffic</li> <li>Increasing road user charges (e.g. in Germany) and congestion on roads might limit attractiveness of road transport</li> <li>Higher energy efficiency of rail transport (compared to road) will support development of more environmentally friendly supply chains</li> </ul>	<p>competition in certain O/D relations on ScanMed RFC</p> <ul style="list-style-type: none"> <li>Competitiveness of rail depends on the “last-mile-price”</li> <li>Further decline of SWL in Europe might lead to reduction of corridor-related single wagonload services</li> <li>Wagonload traffic (block trains and single wagonload) will have a major share in traffic along the corridor, but the growth potential might be limited and will be behind intermodal transport</li> <li>Rail transport costs cannot be significantly decreased to provide a cost-effective alternative to direct road transport.</li> <li>Rising costs for infrastructure use due to enforcement of higher technical standards<sup>18</sup></li> <li>Possible implementation of</li> </ul>

<sup>18</sup> if a higher share of upgrade and maintenance costs for rail infrastructure is to be covered by RU's. e.g. for ERTMS, Brenner Base tunnel, Fixed Fehmarnbelt link) due to lack of public funding

Strengths	Weaknesses	Opportunities	Threats
<b>Organisational</b> <ul style="list-style-type: none"> <li>▪ Ongoing harmonisation of processes (e.g. C-OSS; elimination of waiting times at borders, etc.)</li> <li>▪ Establishment of C-OSS as a single point of contact</li> <li>▪ Ongoing efforts for establishing a RFC –wide network</li> <li>▪ Yearly evaluation of the corridor performance and yearly survey with the stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>▪ Insufficient information flows and communication processes between RU and IMs</li> <li>▪ Lack of flexibility in terms of changes to allocated train paths</li> <li>▪ Necessity to adapt PCS to the Corridor requirements</li> <li>▪ Heterogeneous price systems between the corridor countries</li> <li>▪ Process of harmonization difficult for integration of international feeder and outflow paths (e.g. construction of feeder and outflow paths follow national rules)</li> <li>▪ Limited attractiveness of PaPs and C-OSS, if terminal capacity or connecting feeder paths need to be booked or arranged using national systems</li> <li>▪ Quality of service (i.e. train punctuality and path avail-</li> </ul>	<ul style="list-style-type: none"> <li>▪ Better framework conditions for cooperation along the corridor for all stakeholders involved</li> <li>▪ Restrictions to freight transport by road on public holidays and at weekends.</li> <li>▪ Tax advantages for HGV used in combined transport work in favour of rail</li> <li>▪ Improvement of information processes for customers mirroring the development in the road sector</li> <li>▪ Improvements in network access for Authorised Applicants Railway Undertakings (e.g. C-OSS as a one single point of contact for requesting and allocating PaPs)</li> <li>▪ Changed customer behaviour (: customers require a personalized communication and have individual requirements) creates the fa-</li> </ul>	<p>mega-trucks in the EU might strengthen economic advantage of road transport</p> <ul style="list-style-type: none"> <li>▪ Shortages of train drivers experienced at current transport levels (e.g. in Sweden, Germany)</li> </ul>

Strengths		Weaknesses	Opportunities	Threats
		ability) hampers the development of attractive transport solutions for freight customers	favourable premises for an increased customer orientation. etc.	
<b>Infrastructural /Technical</b>	<ul style="list-style-type: none"> <li>Technical network conditions on the corridor are generally already matching most of the technical requirements, incl. intermodal transport</li> <li>Transparent construction of PaPs with standard technical parameters (e.g. axle load, loading gauge)</li> <li>Ongoing major projects (Brenner Base tunnel, Fehmarnbelt, ERTMS) will increase the capacity of the corridor and support future traffic growth</li> </ul>	<ul style="list-style-type: none"> <li>Limited line capacity on heavily utilised sections, priority given to passenger transport</li> <li>Different roll-out stages of ERTMS along the Corridor</li> <li>Missing ERTMS synchronization</li> <li>Further harmonisation necessary regarding train lengths</li> <li>No measures yet to synchronise train paths and terminal slots</li> <li>Changes of locomotive and/or driver at border crossings increase transport time</li> </ul>	<ul style="list-style-type: none"> <li>Establishment of strategic development plans to increase capacities of intermodal terminals along the corridor</li> <li>Upgrade of the loading gauge on Italian line sections south of Verona</li> <li>Strengthening of the competitive position of Italian ports and using their attractive location in the international overseas transport network</li> <li>Improvement of terminal and train operation concepts for integration of single wagonload and intermodal transport</li> </ul>	<ul style="list-style-type: none"> <li>Insufficient terminal investment and operational strategies combined with lack of financing</li> <li>Problems to generate economic utilisation of trains due to scattered terminal investment strategies and lack of cooperation.</li> <li>Limited intermodal capacity of terminals in Germany, Austria and Italy</li> <li>Continuing decline of private railway sidings due to high costs and lack of financing</li> <li>Technical barriers (loading gauge and permitted axle loads) for shifting semi-trailer transport to rail</li> <li>Seasonal closure of transalpine line sections, especially due to severe weather conditions might affect attractiveness of rail transport</li> </ul>

**Table 4: SWOT analysis**

## 6.2 Recommendations

### *Institutional*

Overall, the IMs cannot drive the implementation process concerning the institutional reform steps on a national level alone, but they can push for a coordinated process across all ScanMed RFC countries in order to maximise the strengths, which the liberalisation brings to freight traffic growth.

The IMs should therefore actively encourage a harmonised approach to overcome the different levels of implementation and harmonisation on the corridor. This concerns:

- the EU-wide implementation of homogenous technical and safety regulations and rules in all member states and
- the slow process of harmonisation of national legislation based on requirements by EU-Legislation due to generally time-consuming decision-making processes in national politics.

### *Economical*

From an economic point of view, the IMs should closely monitor the future economic developments and the effects on ScanMed RFC. They need to clearly communicate the need for investments in order to fulfil EU-wide and national policies on moving freight from road to rail. As overall costs have a huge impact on the competitiveness of rail freight the IMs should strive for an efficient infrastructure pricing regime keeping rail freight competitive.

### *Organisational*

#### *(a) Corridor capacity offer*

The current distribution of corridor trains clearly shows that the majority of corridor trains are not crossing more than 2 corridor borders. On some of the cross-border sections (Malmö-Copenhagen-Hamburg, Verona-Innsbruck-Munich) a higher number of trains exists as indicated in the number of corridor trains before and after these sections. This is likely to have its origins in the existing production system, where SWL traffic at the border stations/yards is being consolidated into international trains, but also in the change of national to international train numbers (and vice versa) at these stations. But it is also an indication that the demand for long pre-arranged train paths is rather low, as the RUs try to keep the PaPs as short as possible in order to be able to react in a more flexible manner in the pre- and post-trip in the respective country's hinterland.

This observation is also seconded by an indication from the stakeholders that they need a higher flexibility and availability, meaning to be able to have train path booking as flexible as possible (on a short notice, to be able to react to market requirements or changes), which in turn should be as highly available as possible (capacity-wise). The long lead times (i.e. booking required 9-12 months in advance) from ordering to utilising a train path shifts the economic risk entirely to the railway operators.

Therefore, within the next couple of years the necessity to offer pre-arranged paths along the corridor from a market point of view, corresponding to Regulation (EU) No 913/2010 (offer internationally coor-

minated pre-arranged train paths 11 months in advance) across more than 2 borders is quite negligible at the moment. The market forecast doesn't predict a dramatically increase over the next 5 years.

It can be expected that in the future RUs might go for pre-arranged train paths at sections across borders where capacity restraints exist (bottlenecks, no diversionary routes available) in order to secure relevant capacity for its own traffic and to gain a competitive advantage.

Thus, it is predicted that rather short PaPs across the borders will be requested in the future (mirroring the current development at certain sections). These should be closely monitored by the IMs in order to provide enough capacity at these sections so that PaPs would not be seen as capacity destructive on a section where not much margin of manoeuvre is available.

This should be kept in mind by the IMs when offering PaPs in the near future.

### ***(b) Enhancement of international train path management***

The establishment of a C-OSS along the whole ScanMed RFC should be realised as soon as possible in order to be able to offer a single contact point for all RUs and applicants along the corridor as well as providing a seamless and comprehensive corridor management.

The IMs should foster cross-border harmonisation and establishment of information standards according to the TAF/TSI regulation along ScanMed RFC.

The train path management should also include the continuous conduction of regular stakeholder interviews or stakeholder conferences along the corridor, using the information to enhance the services of the C-OSS and to ensure the attractiveness and utilisation of the offered PaPs.

These organisational improvements should include:

- Integration of corridor and non-corridor development steps on infrastructure capacity by the IMs (harmonisation of infrastructure development across the network of individual IMs in connection with the corridor itself)
- Provision of tracking and tracing information on trains based on real-time data to provide up-to-date Information on performance of trains (delays, position)
- Flexible (on a short notice) train path management to be able to react to market developments on a national as well as international level (C-OSS)
- Advance information on maintenance, repair and construction works along ScanMed RFC
- Development of an organisational and contractual framework between railway undertakings, IMs and terminal operators to react on severe weather conditions, especially if one transalpine crossing is blocked.

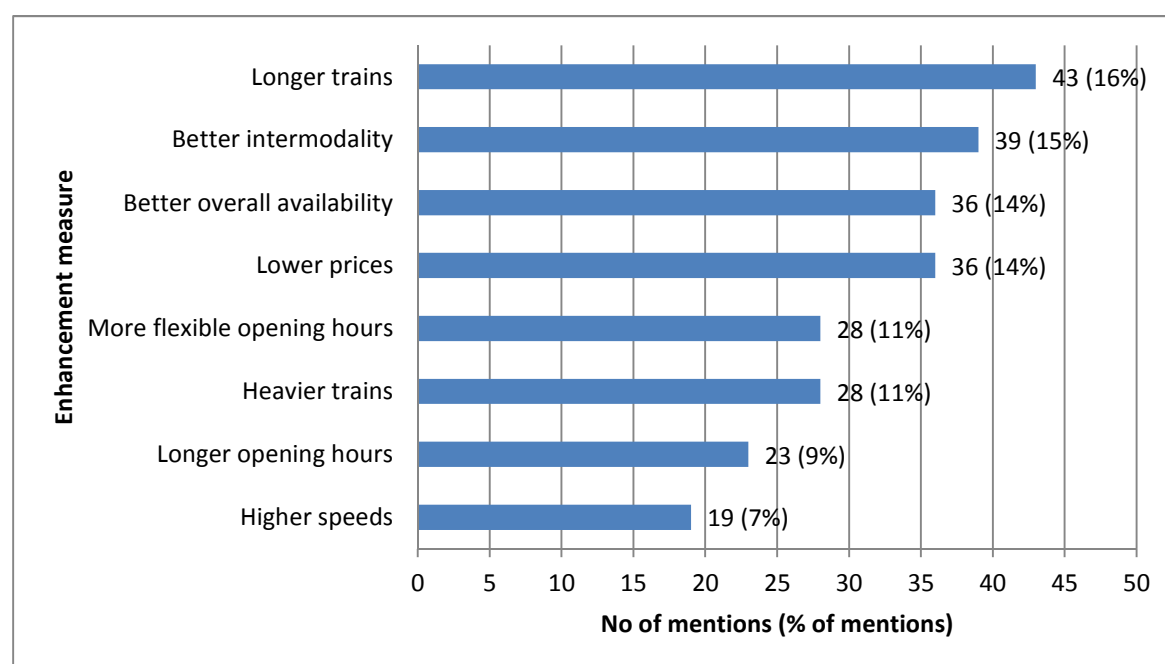


### ***Infrastructural/technical/logistical***

Concerning the improvements for railway and terminal infrastructure along ScanMed RFC it is recommended that the IMs strive for the standardisation of technical parameters of network / terminals, e.g. train length (740m trains), 22,5 t axle load together with the extension of sidings along the Corridor (with the aim of handling a minimum train length of 740 m along the corridor<sup>19</sup>) and upgrading of loading gauges to transport semi-trailers along the whole corridor. The harmonisation of signalling and train control systems with the establishment of ERTMS needs to be pushed and enforced. Within the terminals the extension of storage capacity in coordination/cooperation with the terminal operators should be focused on together with the enhancement of terminal capacities incl. 7 days/24 hours operation, where necessary.

### ***Improvement measures suggested by Stakeholders***

From the stakeholders point of view the following measures were deemed necessary to improve and enhance rail freight traffic along the corridor in order to be able to increase their involvement in rail freight services:



**Figure 8: Enhancement measures suggested by stakeholders<sup>20</sup>**

This clearly shows that there is a broad range of improvements the stakeholders would like to see. Longer trains emerges as a central issue among the mentioned enhancement measures, followed by required improvements of inter-modality in the corridor.

<sup>19</sup> Longer sidings on certain sections also possible where market development warrants this

<sup>20</sup> Personal interviews

### 6.3 Conclusions

The following elements will likely have the strongest effect on the demand of (rail) freight transport in the near future (facilitators):

1. Development of Gross Domestic Product (GDP) in the countries along the corridor
2. Decrease of barriers in international trade and transport along the corridor
3. The further development of combined transport in freight traffic along the corridor
4. The further harmonisation of costs, reliability and availability of rail freight transport along the corridor
5. Effects of liberalisation on the competitiveness of rail freight transport along the corridor

In order to fully take advantage of those developments the following factors are deemed necessary (from the IMs' perspective) to facilitate growth in the short-term period until 2017:

1. Cost-effective harmonisation of network-related train parameters (train length, train weight)
2. Harmonisation of information processes (e.g. constant monitoring and evaluation of requested international train paths)
3. Harmonisation of pricing regime along the corridor (transparent and reliable)
4. Establishing a C-OSS along ScanMed RFC (comprehensive corridor management)
5. Harmonisation of infrastructure capacity in terms of providing additional storage and siding capacity in close coordination with the terminal operators (especially concerning storage capacity)
6. Providing flexible and reliable services towards the clients (RU) and ultimately the customers (shippers)
7. Enhancing the service portfolio to ease network access for all corridor network users (e.g. train handling and shunting services on shunting yards)

One of the major factors that will improve the market share of rail freight in the future will be the price of the services including total cost of use, followed by factors like reliability and flexibility of the services. Added to that are service information for clients and customers and service orientation towards the customers (shippers).

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