

Cefic Report

Intermodal Transport Network Development



June 2014



TABLE OF CONTENTS

Table of contents	1
Executive Summary	2
Background and Objectives.....	4
Scope.....	5
Intermodal flows of the Chemical Industry.....	6
Current and expected Barriers.....	17
Recommendations how to increase the intermodal share.....	21

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This document is intended for information only and sets out a report on Intermodal Transport Network Development. The information contained in this report is provided in good faith and , while it is accurate as far as the authors are aware, no representations or warranties are made with regard to its completeness. It is not intended to be a comprehensive report to all the detailed aspects of intermodal Transport Network Development. No responsibility will be assumed by Cefic in relation to the information contained in this report.

Executive Summary

The goal of the European Union to shift 30 % of road transport to intermodal means is considered very ambitious. The chemical industry has a strong commitment to contribute to achieving this goal. For that reason Cefic initiated an issue team to evaluate options of further increasing the usage of intermodal transport and to highlight those aspects in need of improvement to enable such modal shift.

Due to the lack of data on current and potential future intermodal transport flows of the chemical industry, a survey was undertaken to help identify the main chemical transport corridors and volumes, as well as bottlenecks and barriers. Thirteen major chemical companies and fifteen logistics service providers took part in the survey.

The survey has shown that, while the chemical industry has intermodal traffic all over Europe, the main current flows run between the Benelux, Germany and Northern Italy. When comparing the intermodal flows to the total transport flows of the chemical industry, it becomes evident that the main transport corridors already have a high share of intermodal transport today. The participants in the survey from the chemical industry have identified in total about 1.4 million tons that might be shifted towards intermodal transport solutions (increase by 17 %), if the necessary conditions would be met.

The participants in the survey were asked for the main reasons for not using intermodal transport. The following issues have been identified as the top 5 obstacles that hinder a more extensive use of intermodal solutions:

- Costs not competitive in comparison to road transport;
- Missing intermodal connections, especially for France, Spain and Eastern Europe;
- Insufficient frequency or capacity of intermodal connections leading to longer transport times in comparison to road transport;
- Last mile solutions insufficient or missing;
- Insufficient or missing terminal infrastructure.

In the current state of intermodal transport in Europe, further shifts to intermodal transports will be difficult. To reach the required modal shift the following measures should be taken by the different stakeholders involved in intermodal transport:

- **Policy and regulations:** In order to enable an increase in cross-border intermodal transport, more international harmonization at technical, legal and organisational level is needed (interoperability). Public funding should be restricted to the development of intermodal infrastructure, creating equal market conditions for every transport mode and preventing distortion of competition.

- **Railway companies and infrastructure managers** need to develop a more holistic and international view of the intermodal market, with a more transparent and comparable set of services securing high reliability and competitive prices.
- **Intermodal operators and logistics service providers** need to optimise the transparency of intermodal solutions to their customers and increase collaboration among each other to enable new intermodal connections that are necessary to further push intermodal transport.
- **Chemical companies** need to take a more active role in evaluating the most sustainable and efficient mode of transport for each corridor and define expectations and objectives to their respective service providers. Their willingness to increase the share of intermodal transport should be demonstrated by actively supporting the development of intermodal alternatives.

The Transport Whitepaper “Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system” is highlighting the importance of developing a ‘core network’ of strategic corridors which is capable of “carrying large and consolidated volumes of freight [...] with high efficiency and low emissions, thanks to the extensive use of more efficient modes in multimodal combinations”.

One of the most prominent targets in this context is the EU’s ambition to shift 30% of road freight over 300 km to other modes such as rail or waterborne transport by 2030, and more than 50% by 2050. The goal is to facilitate this by efficient and green freight corridors. To meet this goal the EU has recognized that this will require the development of appropriate infrastructure, concluding that development efforts “should focus on the completion of missing links – mainly cross-border sections and bottlenecks/bypasses – and the upgrading of existing infrastructure and development of multimodal terminals at sea and river ports”.

At the same time, chemical companies have to a large extent already captured current intermodal transport opportunities, finding it difficult to further increase modal shift without jeopardizing service levels, being either constrained by lack of capacities, lack of sufficiently developed routes, lack of reliability, lack of services at competitive rates or a combination thereof.

In order to support the EU’s ambitious plan and enable even greater use of intermodal transport options, Cefic established an Issue Team “European Intermodal Transport Network Development” with the following objectives:

- To provide a macro-economic assessment of the chemical industry’s intermodal transport needs on key strategic corridors in the current situation and on a time horizon up to 2020;
- To highlight current and expected capacity bottlenecks and needs for investment in intermodal transport infrastructure (tracks and terminals) and ICT;
- To highlight the chemical industry’s intentions to further increase the share of intermodal transport in its macro-economic transport mode mix, provided that sufficient capacity, availability and reliability of intermodal services at a competitive cost is available.

The Issue Team was composed of representatives from the chemical industry and the logistics industry (see list of members in annex). SGKV (Studiengesellschaft fuer den Kombinierten Verkehr e.V., Germany) assisted in the development of this report.

This report highlights current and expected intermodal flows of the chemical industry throughout Europe and the main current and expected barriers for using more intermodal transport, from the point of view of the major chemical companies in Europe and their logistics service providers. It also aims to identify the possibilities and required conditions to increase the intermodal share of transports, so that the targets of the European Transport White Paper can be reached.

The scope of the current report is as follows:

- Intermodal transport from and to European destinations (EU27). This includes both intra-European transport as well as container traffic to and from deep-sea ocean ports on key strategic corridors;
- Intermodal transport combining all modes of transport (road, rail, inland waterways and short-sea shipping). Containers, swap-bodies and trailers are considered in the analysis.
- Special focus was put on the specific safety and security requirements of the transport of dangerous goods.
- The main focus is on the chemical industry's requirements, acknowledging that any policy measures or actions of service providers will be taken on the basis of total intermodal transport demand, i.e. including demand from other industry sectors.

INTERMODAL FLOWS OF THE CHEMICAL INDUSTRY

One of the objectives of this report is to provide up-to-date data on current and expected intermodal flows of the chemical industry, in order to allow to identify the main transport corridors, and to identify the required improvements in infrastructure and services for a sustainable intermodal market.

Due to the lack of data on intermodal transport flows of the chemical industry, the issue team decided to undertake a survey that would help identify the main transport corridors and volumes, as well as bottlenecks and barriers. Thirteen major chemical companies and fifteen logistics service providers took part in the survey (see list below).

CHEMICAL INDUSTRY	LOGISTICS SERVICE PROVIDERS
Evonik	HAESAERTS INTERMODAL
Dow Chemical	Gcatrans
Bayer MaterialScience	Bertschi AG
BASF	Interbulk group
Solvay	LKW WALTER
SABIC Polymers	DB Schenker BTT GmbH
ExxonMobil Chemical	Bay Logistik GmbH + Co.KG
INEOS	Kube&Kubenz
Shell Chemicals	Alfred Talke GmbH & Co KG
Lyondellbasell	Europea de Contenedores, S.A.
Mapei	h. Freund GmbH
ARKEMA	Nijhof-Wassink
Borealis	VOTG Tanktainer GmbH
	Marenzana spa
	EWALS intermodal nv

Figure 1: Participants of the survey

How the survey was performed

Participants of the chemical industry were asked to indicate **their ten most significant transport connections** in terms of volume, including their respective intermodal share on these connections. Additionally, both the chemical companies and the logistics service providers were asked to identify potential intermodal connections, which are at this moment not offered by the transport industry but which may be subject to intermodal shifts of chemical goods if the basic conditions to use these intermodal connections were improved (transit times, terminal availability, costs etc.).

Basis for the analysis of intermodal flows of the chemical industry were 23 main chemical clusters identified by Cefic. These clusters were offered to the participants as reference to identify their main current and future product flows between and within countries.

Main current intermodal flows of the chemical companies

The overall intermodal transport volume of the 13 chemical companies participating in the survey adds up to 8.2 million tons, which is 16% of the total transport volumes of these companies (52 million tons). The 52 million tonnes of total transport volumes of these 13 chemical companies are estimated to represent about 20 % of the overall transport volume of all chemical companies in Europe.

The results of the survey show that the most used intermodal transport combination is “road-rail” (72 %). Short-sea-shipping represents 27%, mainly related to transport from/to the clusters in Great Britain and Iberia. Intermodal inland waterway transport is currently very little used (1%).

The survey has shown that, while the chemical industry has connections all over Europe, the main current intermodal flows run between the Benelux countries (with significant volumes to and from Antwerp as a main hub for the chemical industry), Germany, Northern Italy and Great Britain. These main chemical flows and directions basically coincide with the main total intermodal flows, as identified, for example, by the annual reports of UIRR.¹

Since the flows to and from Great Britain are by definition intermodal (because of the need for cross-Channel transport) these flows are not further considered in this report.

The survey participants of the chemical industry were also asked to name their **ten most important connections** (all modes of transport) and the respective share of intermodal transport for each connection. These connections were used to model the main transport flows of the chemical industry, in order to provide a representative image of the current transport market for the chemical industry and to identify the potential of further shifting volumes to intermodal transport on these connections.

Comparing intermodal flows with the total volumes of the chemical industry (see figure 2 and 3), it becomes evident that the main transport corridors between Benelux, Germany and Northern Italy already have a high share of intermodal volumes today. For example, the average share of intermodal volumes of chemical goods originating from Germany is 56 %, from Benelux 54 % and from Italy 63 % (see figure 4a). France, on the other hand, has an average of only 15 % of intermodal volumes.

¹For further reference on the main transport flows: <http://uirr.com/en/media-centre/annual-reports/annual-reports/mediacentre/516-annual-report-2011.html>

Main INTERMODAL Flows of the Chemical Industry (2011)*

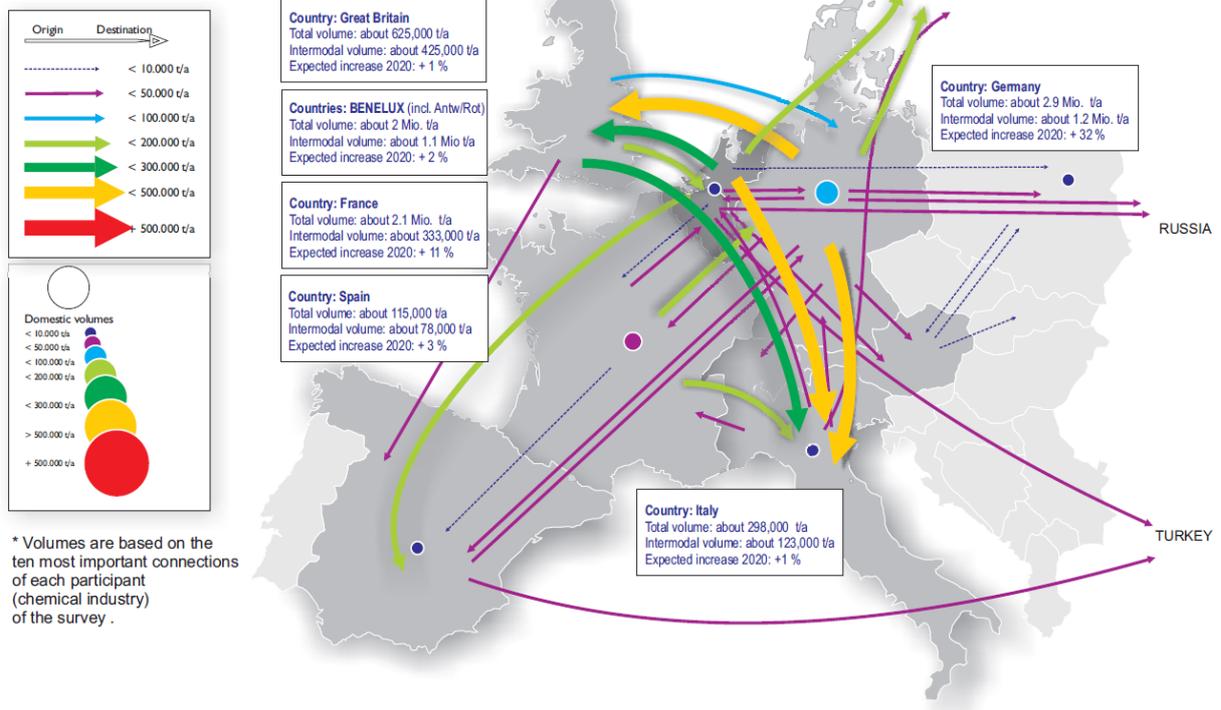


Figure 2: Main intermodal transport flows of the chemical industry participants in the survey

Main TOTAL flows (all transport modes) of the chemical industry (2011)*

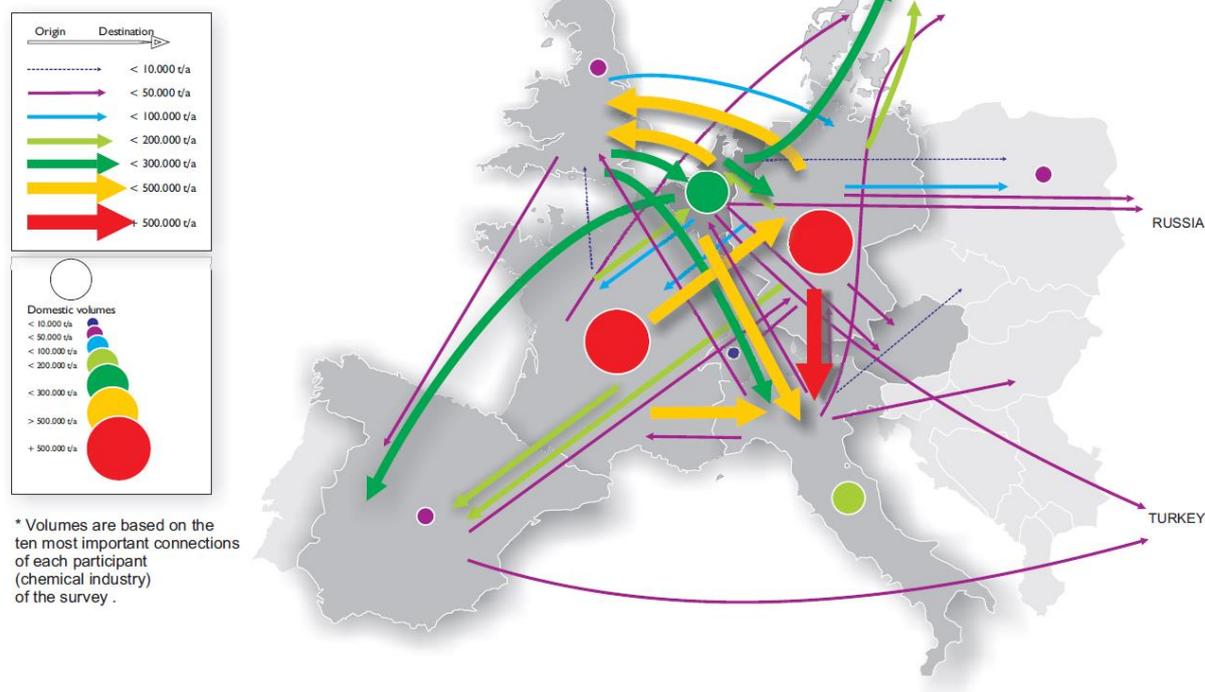


Figure 3: Main total transport flows of the chemical industry participants in this survey

Origin	Total Volumes ² 2011 (1000 t/a)	Total Intermodal Volumes 2011 (1000 t/a)	Avg. Intermodal Share (%)	Potential Intermodal Volumes 2020 (1000 t/a)	Potential Intermodal Increase (%)
FRANCE	2.094,8	333,2	15	371,2	11
GERMANY	2.884,6	1.195,6	56	1.502,8	32
GB	624,9	424,5	69	426,9	1
ITALY	298,0	122,8	63	124,5	1
BENELUX	2.020,2	1.116,5	54	1.149,1	2
POLAND	70,0	9,5	11	9,5	0
SPAIN	114,1	77,8	63	81,6	3

Figure 4a: Transport volumes and expected increases by country of origin of the chemical industry participants in the survey on their ten main connections

² “Total volumes” and “total intermodal volumes” are based on the ten main connections given by the participants of the survey and do not represent the overall total transport flows of the European chemical transport market

Figure 4b shows the main destinations of the countries with the biggest transport volumes for the chemical industry (France, Germany, Great Britain, Italy and the Benelux). The top 5 connections for each of these countries give an overview of the total volumes transported between the origin and destination country, as well as the pro rata intermodal volumes between the two countries respectively. It becomes evident that significant transport volumes are transported in the domestic markets, especially in France, Germany and Italy. While some of those volumes may well be over a distance of 300 kilometres, the pro rata share of intermodal transport is very low in all domestic markets.

For Spain there were only three connections reported mentioned in the survey. In order to guarantee the anonymity of the responses, this country is not included in the top 5 connections of figure 4b. However, due to the high overall pro rata share of intermodal volumes, Spain needs to be considered as an important part of the intermodal market for the chemical industry.

Destination	Total Volumes 2011 (1000 t/a)	Intermodal Volumes 2011 (1000 t/a)	Intermodal Share (%)	Potential Intermodal Volumes 2020 (1000 t/a)	Potential Intermodal Increase (%)
FRANCE: Top 5 Connections					
France (domestic)	1.038	25,5	2	31,5	24
Italy	398,4	140,4	35	144,3	3
Germany	309	115,5	37	138,3	20
Benelux	190	37,6	20	40,5	8
Spain	105	14,3	14	16,5	16
GERMANY: Top 5 Connections					
Germany (domestic)	1.301	63,3	5	93,1	47
Italy	518,6	437,9	84	523,1	19
Great Britain	376	325,1	86	370,9	14
Scandinavia	150	107,5	72	185,6	73
Benelux	136	29.390	22	44	50
GREAT BRITAIN: Top 5 Connections					
Great Britain (domestic)	67	0	0	0	0
Benelux	263	145,3	55	145,2	0
Italy	214,9	202,2	94	202,2	0
Germany	58	55	95	58	4
Spain	22	22	100	22	0
ITALY: Top 5 Connections					
Italy (domestic)	133	2,7	2	2,7	0
Benelux	48	41,9	87	41,9	0
France	37	14,9	40	16,6	8
Germany	21	20,8	99	20,8	0
Scandinavia	18	17,1	95	17,1	0
BENELUX: Top 5 Connections					
Benelux (domestic)	241	3,4	1	3,4	0
Italy	458,4	419,8	92	444,2	6
Great Britain	432,7	300,4	69	304,1	1
Spain	275,4	120,3	44	121,5	1
Scandinavia	203,7	127,4	63	129,5	2

Figure 4b: Major intermodal flows of the chemical industry participants in the survey

Looking at the most important countries in terms of total and intermodal transport flows, **Germany** has the biggest volumes of chemical transports both with current volumes and expected volumes on the main corridors by 2020. Considering the existing connections, total intermodal flows from and within Germany are predicted to have the strongest potential for the increase of intermodal share with an estimate of about 32 % until 2020. Germany holds a key position for intermodal transport flows of the chemical industry due to its geographical position and big production capacities within the country. Domestic intermodal volumes are expected to increase by 47 %, while intermodal connections to Scandinavia may also increase significantly until 2020. Also, for outbound transports from Germany towards Benelux and Poland, intermodal volumes are expected to go up by 50 % according to the results of the survey. The total transport volumes from Germany to Italy, which today already have an intermodal share of 84 % and may be considered the most important intermodal corridor for the German chemical industry, are expected to increase by another 19 % until 2020.

**Comparison: Total and intermodal volumes
Region: Germany (2011)***

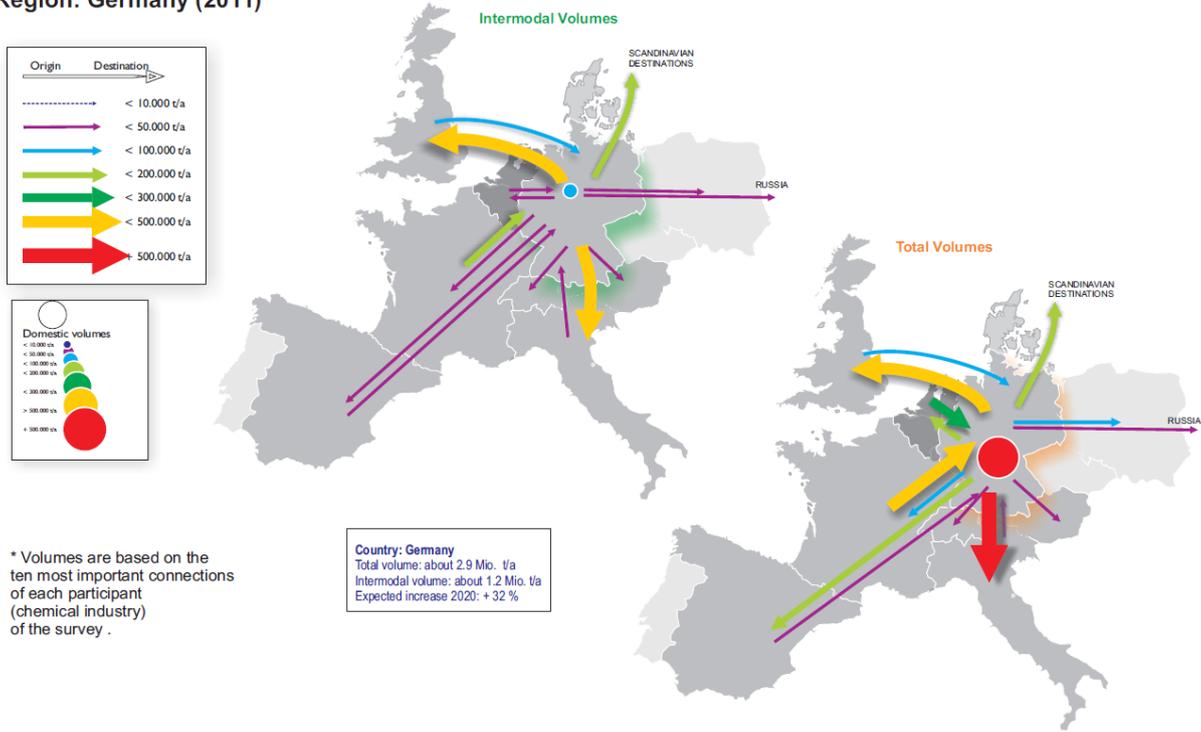


Figure 5: Comparison of total and intermodal volumes - **Germany**

In the Benelux, the second strongest intermodal market, only about 2 % increase is expected until 2020. The main potentials for Benelux are connections to Germany and France. Most of the intermodal volumes of the chemical industry originate from Antwerp.

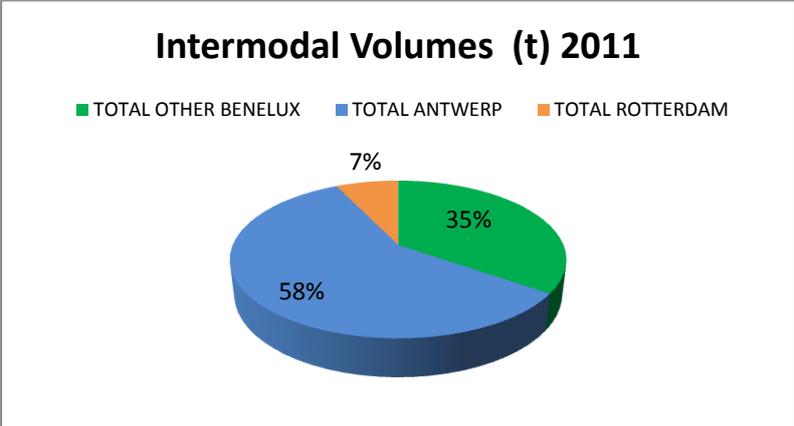


Figure 6: Share of intermodal volumes in Benelux by origin

Comparison: Total and intermodal volumes
Region: BENELUX (2011)*

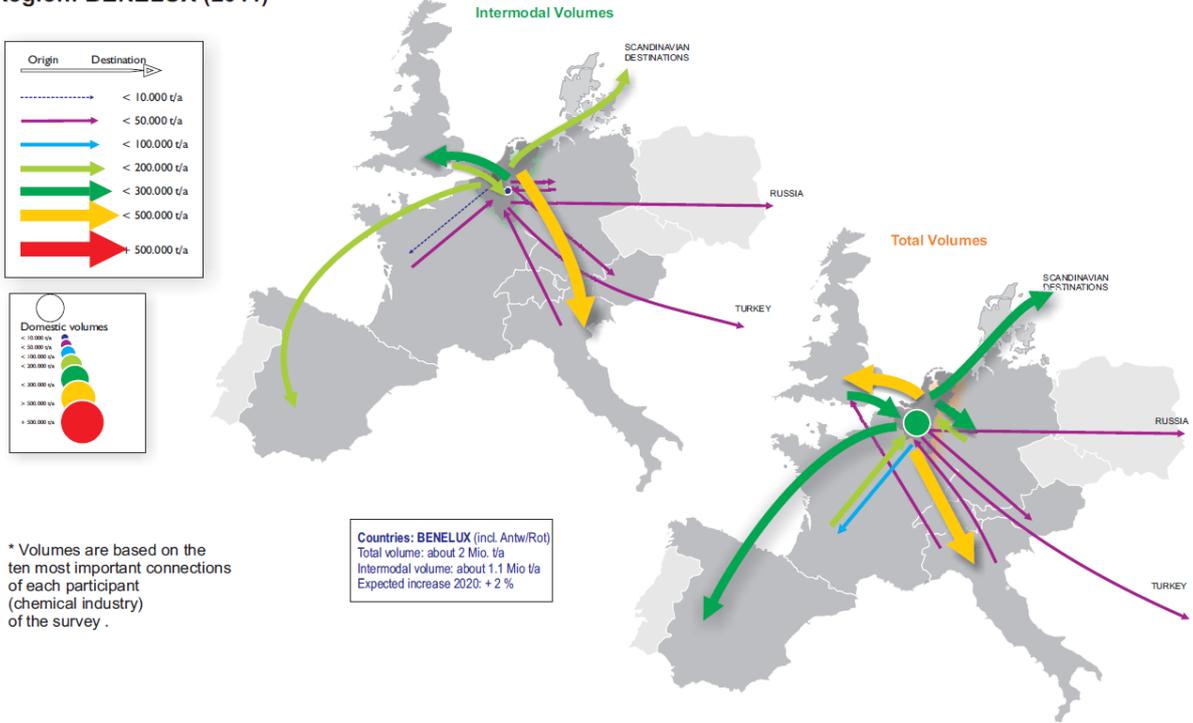


Figure 7: Comparison of total and intermodal volumes - Benelux

It appears that **France** (both as country of destination, origin and for transit transports) is a strong potential market, considering that the chemical industry has substantial transport flows to, from and via this country by road. However, the current intermodal volumes are rather low. Also, due to different problems of the French intermodal market (missing connections, missing terminal capacities or locations etc.), many transports via France to and from Spain are limited to road transport and short-sea-shipping, while it may be expected that there is a potential for moving cargo to road/rail intermodal solutions. The main potentials for shifting further intermodal volumes along the corridors seem to be between France and Germany (20 %) as well as on the domestic intermodal market of France. These volumes might raise the intermodal share of France by 11 %.

Chances for **Spain** to increase the share of intermodal transport are considered low by the issue team members, with a total growth potential of only 3 % until 2020.

**Comparison: Total and intermodal volumes
Region: France / Spain (2011)***

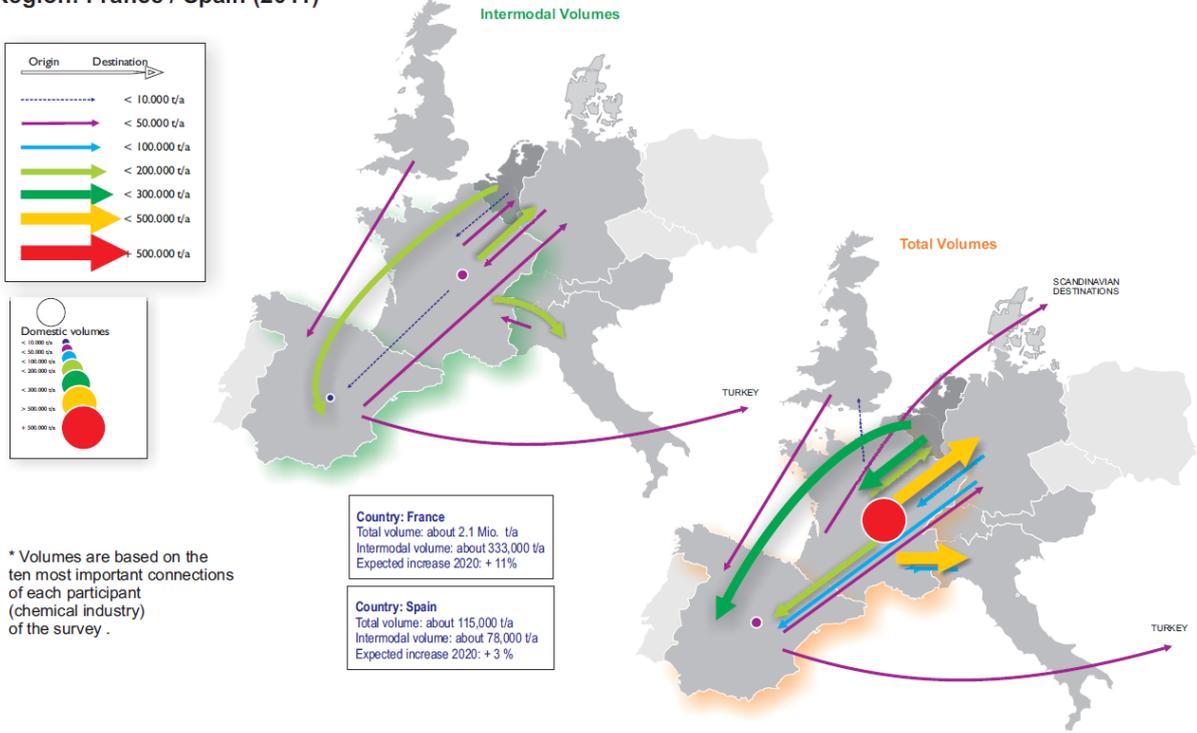


Figure 8: Comparison of total and intermodal volumes – France and Spain

The intermodal volumes to **Italy** underline the important position of Northern Italy as a hub in the transport flows of the chemical industry. Comparing ingoing and outgoing intermodal transports, the intermodal share of incoming volumes is significantly higher than the volumes emanating from Italy to the rest of Europe. The potential for intermodal shift is considered weak with an increase of about 1 % until 2020.

**Comparison: Total and intermodal volumes
Region: Italy (2011)***

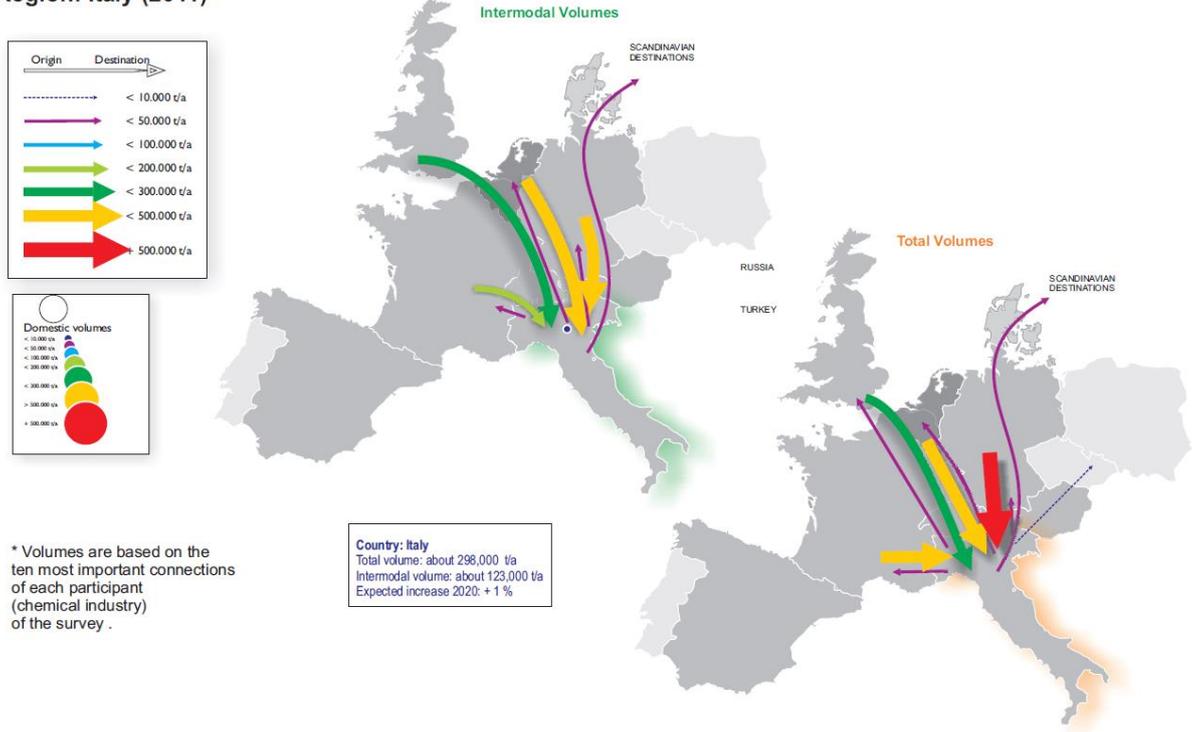


Figure 9: Comparison of total and intermodal volumes – Italy

Further potential growth in intermodal volumes

In addition to the potential increases along the existing main flows of chemical volumes that were discussed before (see figure 4a), participants of the survey were also asked to identify new potential corridors for intermodal transports that are not in use today but may be interesting for intermodal shifts in the future. As for these new intermodal connections that are currently not offered on the market and can only be performed by road, the chemical industry sees potential for volumes to be shifted to and from France and to and from the CEE countries, especially Russia and the South-East of Europe.

Including already existing connections, participants from the chemical industry see most of the growth potential in France, Germany, Benelux, Italy and Spain (see figure 10). Also Russia and Turkey are seen as a growing market.

The participants of the survey from the chemical industry have identified in total about **1.4 million tons** that may be shifted towards intermodal transport solutions, if the requirements would be met. Those include a better developed international infrastructure, a transparent intermodal market, and competitive cost structures and service levels.

Considering the current intermodal volume of 8.2 million tons per year, this would allow an increase of about 17 per cent. Those predictions underline the willingness of the chemical industry to actively support intermodal transport as a sustainable transport solution for the future.

Logistics service providers see new potential for more intermodal transport in CEE countries. France is also seen as a market for new intermodal solutions. Some connections especially to Russia were also named.

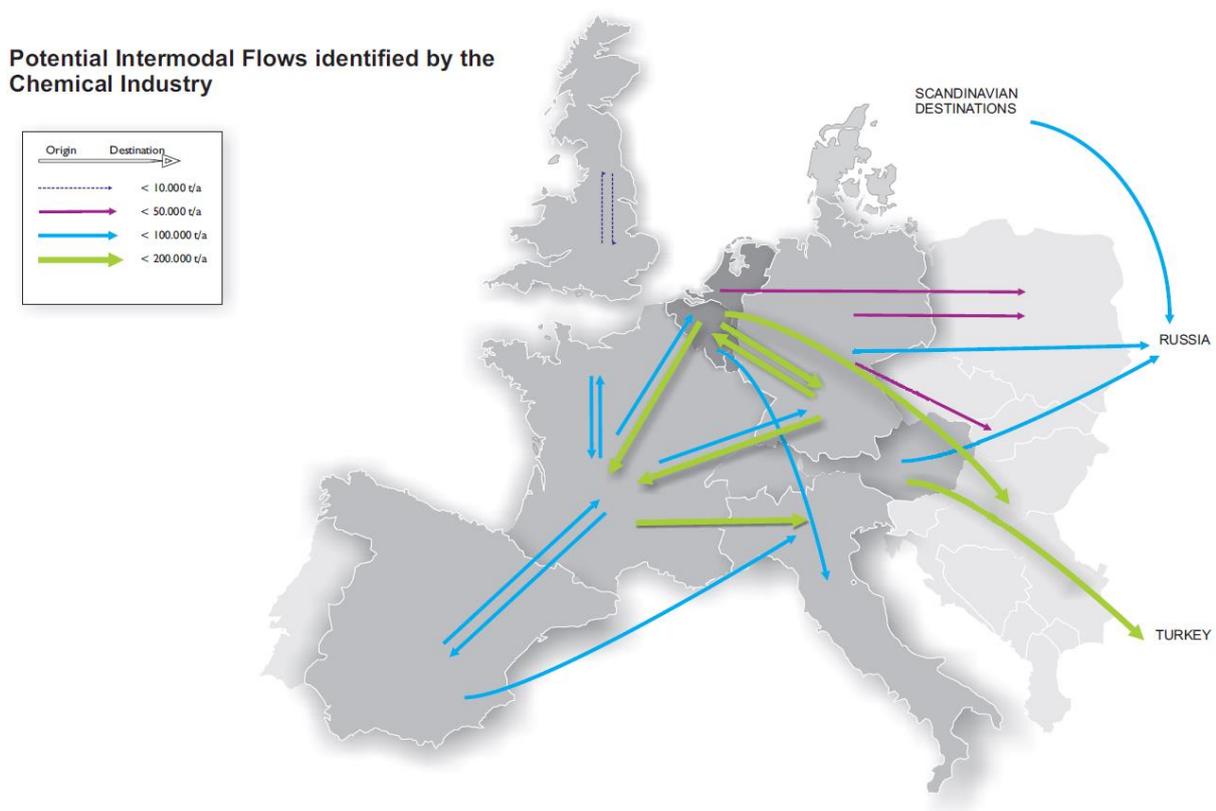


Figure 10: Further potentials to shift intermodal volumes (currently transported by road)

European White Paper objective of 30 % intermodal transport shift

In the survey both the representatives of the chemical industry and the logistics service providers were asked to evaluate the goal of the European Union to shift 30 % of road transport (more than 300 km) from road to intermodal services. Almost a quarter of all participants of the survey considered it possible to reach that goal (42 % of the chemical industry but only 7 % of the service providers). 21 % of the logistics service providers and 25 % of the chemical industry evaluating it as rather impossible. Overall, there is a positive view on the general goal of significantly increasing intermodal transport. The majority of the chemical companies and the logistics service providers think that a further increase of intermodal solutions for current and future transport flows can be achieved, though considerable effort is necessary to better meet the chemical industry requirements for sustainable intermodal transport in Europe as a true and efficient alternative to road transport.

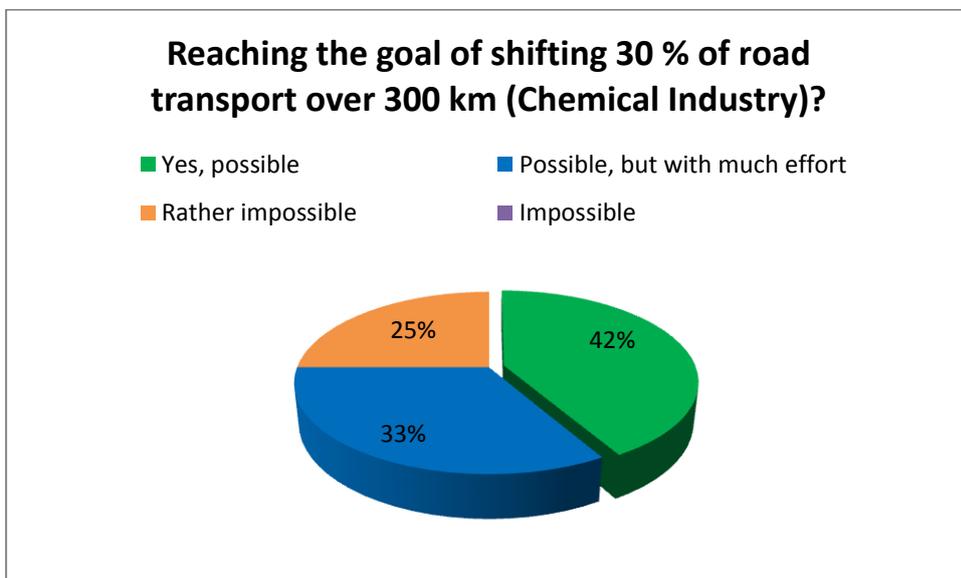


Figure 11: Evaluation of the goal of the Transport White Paper (chemical industry)

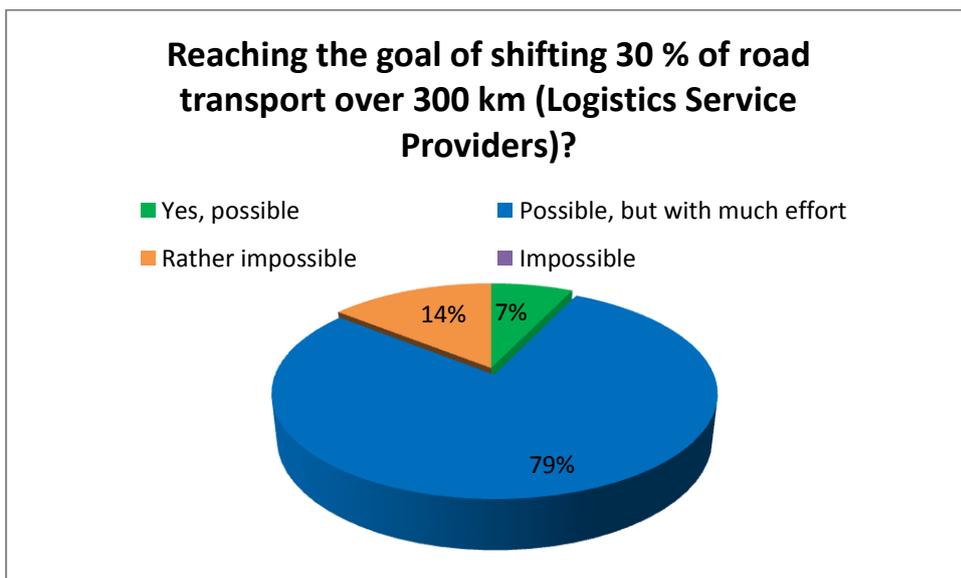


Figure 12: Evaluation of the goal of the Transport White Paper (logistics service providers)

Obstacles of intermodal transport

In the survey, participants were asked for the main reasons for not using intermodal transport. Figure 13 identifies the main obstacles that prevent companies from using intermodal transport more frequently. The ranking goes from 1 (very low) to 5 (very high). The values given are average values, both for the chemical industry and logistics service providers.

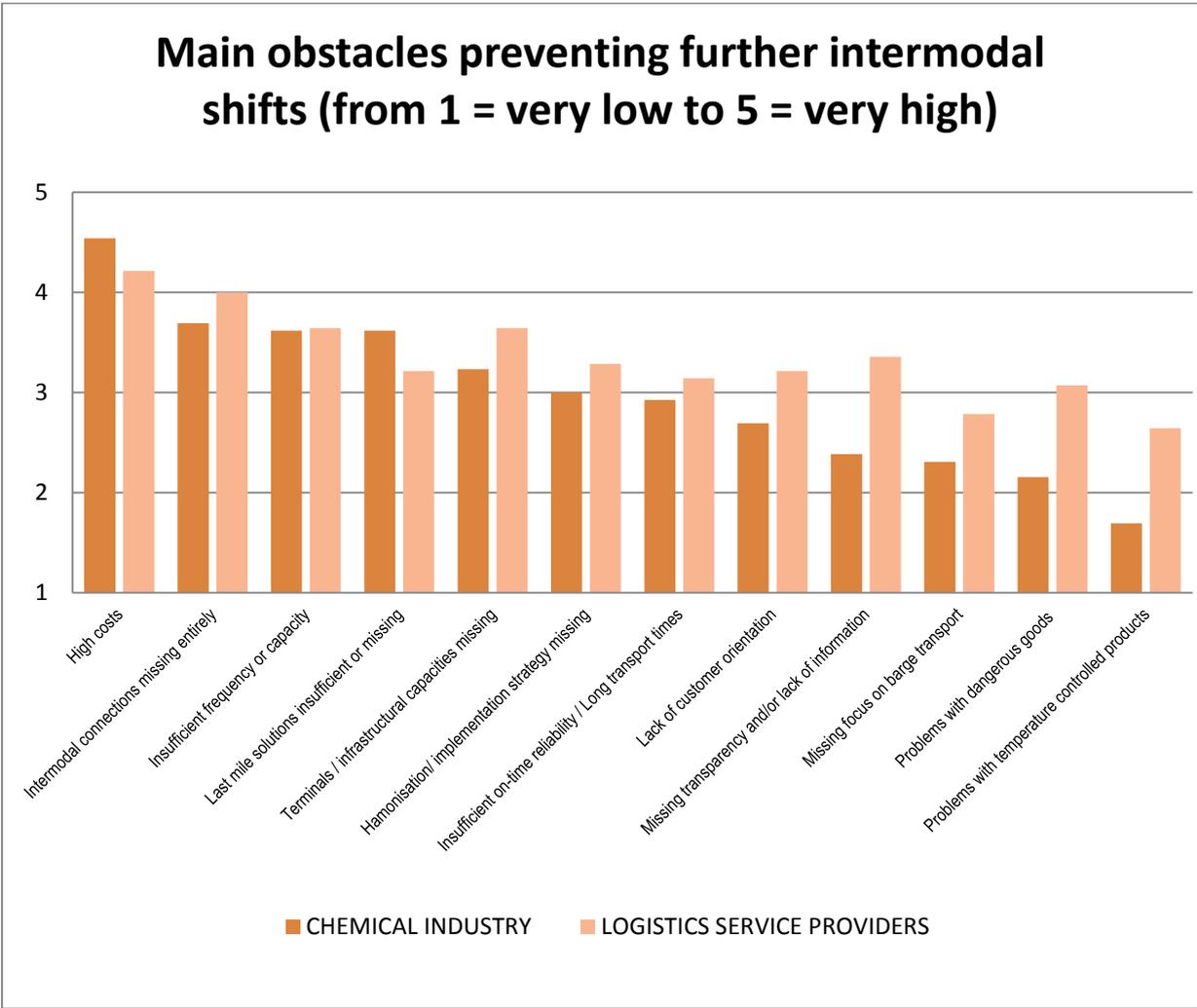


Figure 13: Ranking of obstacles preventing further intermodal shifts

The following issues have been identified as the top 5 obstacles that hinder a more extensive use of intermodal solutions:

1. **High costs:** The cost structure of intermodal transport, when compared to road transport, is the main and most important reason that prevents further shifts from road to intermodal solutions. The chemical industry rates the lack of competitive costs with an average 4.5 out of 5, logistics service providers with 4.2 out of 5.
2. **Intermodal connections missing entirely:** The need for more intermodal connections is evident to the chemical industry (scoring of 4.0) and the logistics service providers (scoring of 3.7). France and Spain were identified as the main countries that show a severe lack of sufficient intermodal connections, especially by train. In particular connections between Benelux (especially Rotterdam) and France are currently missing.
3. **Insufficient frequency or capacity of intermodal connections:** Connections that are already in existence but are insufficient in terms of frequency and capacity, are seen as the third most important obstacle, rated with 3.6 by both parties. The survey has shown a direct growth potential as it comes to already existing, highly frequented corridors, especially with Northern Italy and Southern France. Also South-Eastern Europe (particularly Bulgaria, Romania, Slovakia, Czech Republic, Ukraine and Russia) was identified as having insufficient frequency and/or capacity. Germany as the main intermodal market offers a growth potential of about 32 %.
4. **Last mile (on-carriage trucking) solutions insufficient or missing:** Last-mile solutions that secure an efficient transport via road were ranked with an average of 3.4, indicating necessary improvement in this service sector of intermodal transport. The last leg of intermodal transport is a very complex field when it comes to quality, safety and costs. Availability of the right partner for the transport on the last leg may be especially difficult. In particular problems exist with hazardous or temperature sensitive cargo. Examples are missing cleaning stations and heating/cooling of the loading unit.
5. **Insufficient or missing terminal infrastructure:** The fifth obstacle to using more intermodal solutions is the lack of terminal infrastructure. The average ranking is 3.4 out of 5, with service providers having a stronger interest in this point (3.6) than the chemical industry (3.2). The terminal infrastructure is considered to be at its limit and further capacities need to be created to make more intermodal transports possible. Insufficient terminal capacities result in long waiting times and can result in late deliveries. Major terminals along the axes between Benelux / Germany and Northern Italy will need more capacity in the future to deal with additional volumes. Missing terminals are also needed to further develop the intermodal market to the CEE states and Russia. Most answers given indicate that CEE countries have in general a low infrastructure quality that prohibits further intermodal shifts in those directions. Some terminals that were seen as “best-in-class” by some participants were seen as “problematic” by others, sometimes for different reasons (e.g. best in class concerning efficiency but problematic concerning the overall capacity). Capacity restraints were named especially at Marseille, Le Havre, Gevrey Chambertin, Normandy, Cologne Eifeltor, St. Petersburg and the North of Italy. In Germany, terminals are in general considered to be too small or too far away from customer sites.

Other obstacles

In addition to the TOP 5 ranked obstacles, other requirements need to be addressed if shifts of greater volumes from road transport to intermodal transport are to become reality.

A consistent implementation strategy at national and EU level to realize more cross border transport. The rail transport market today is considered to be dominated by national interests preventing the further development of cross-border operations. A cross-border approach for developing intermodal transport solutions and further harmonization in technical and legal matters are needed to further develop cross-border intermodal transport.

Insufficient on-time reliability / long transport times. On-time reliability of intermodal services is considered crucial to the success of intermodal transport. To be competitive on-time reliability must be comparable to road transport. Where this is not the case a shift from intermodal to pure road transport might take place.

A lack of customer orientation resulting in missing transparency and lack of information.

There is a need for a more reliable and open information exchange, e.g. on delay times of trains etc. The availability of detailed status information of the transport would lead to a higher acceptance of intermodal alternatives.

Missing focus on barge transport: The low share of intermodal barge transport indicates that both service providers and the chemical industry focus more on rail transport for intermodal solutions at this moment. In the current situation the chemical industry relies more on rail and short-sea-shipping intermodal combinations, while intermodal barge transports are limited to dedicated solutions for specific single transport chains or to connection with deep sea ports.

The chemical industry has a strong interest in shifting volumes to sustainable intermodal transport. The goal of the European Union to shift 30 % of transport from road to intermodal can only be achieved with a combined effort of all parties involved. Given the market situation for intermodal transport in Europe, significant further intermodal shifts will not be possible in the current environment. For that reason measures from different parties (policy makers and regulators, railway companies and infrastructure managers, intermodal operators, logistics service providers and chemical companies) are necessary to reach this goal. The development of a single, Europe-wide intermodal market must be the main target of all actions of the different parties.

Policy and regulations

In order to enable an increase in cross-border intermodal transport, more international harmonization at technical, legal and organisational level is needed (inter-operability). Public funding should be restricted to the development of intermodal infrastructure, creating equal market conditions for every transport mode and preventing distortion of competition.

In order to improve market conditions a harmonization of the different national markets is necessary at technical, legal and organisational level to secure interoperability. This is the only way to support an open, competitive and transparent European intermodal market. A successful shifting of volumes towards intermodal solutions requires a more transparent, international market that is also competitive to road transport. In the current situation, the national rail companies (rail operators and infrastructure managers) still play a key role in the intermodal market. To achieve a significant shift to intermodal transport, there is a need of a more transparent, customer-oriented approach.

The following issues will need to be addressed to create a more open and competitive intermodal market:

- **Open intermodal market:** Further liberalisation of the railway market in practice to enable more competition between the railway companies, so that the market becomes more customer-oriented.
- **EU-wide technical rail standards:** Create a unified legal framework for intermodal transport within the EU. Consistent technical parameters (e.g. gauges, train lengths, total train weight, weight of wagons, security, noise, etc.) are needed throughout Europe, as well as a standardized certification of railway rolling-stock for cross-border acceptance resulting in complete interoperability of services.
- **Harmonised dangerous goods regulations:** Regulations for the handling and storage of dangerous goods need to be harmonised throughout Europe (e.g. a standardized minimum storage time allowance of at least 48 hours). Also, dangerous goods regulations for short sea transports need to be further harmonised with ADR.
- **Harmonized customs regulations:** The documentation procedures and main regulations for transporting goods need to be further harmonised, so that a more reliable planning of the logistics supply chain is possible. This especially applies to non-EU neighbours. Today, short sea transports are in many cases still handled the same way as deep sea shipments. Introduction of paperless systems should be supported.
- **Better connection of ports:** Sea ports are the backbone of international transport and especially suitable for intermodal hinterland transport strategies. Current actions to increase

the connectivity of ports, like the TEN-T approach, investments in rail infrastructure, etc. need to be enforced to raise additional capacity and more competitive services.

- **Strategies to increase utilisation of intermodal transport:** Strategies to increase the efficiency of intermodal transport needs to be further explored, e.g. the possibility of heavier and longer trains. In this context, authorized weights of up to 48 tons for intermodal road transport need to be considered.
- **Improvement of the reliability of waterways:** In order to utilize barge solutions, proper maintenance and development of the existing infrastructure is needed, as well as the realisation of missing infrastructure, along with sufficient funding.

Railway companies / infrastructure managers

To attract additional market potential, railway companies, infrastructure managers and terminal operators will need to develop a more holistic and international view of the intermodal market, with a more transparent and comparable set of services securing high reliability and competitive prices.

Technically, terminal handling and efficiency would benefit from a certain degree of standardisation for the terminal design. Some terminals are too small or have other disadvantages that require adaption of logistics processes. If terminal modules follow the same standard, they may become “interchangeable”, which may be helpful when planning a network of intermodal terminals, so that intermodal volumes may be buffered or allocated between different terminals to use their capacity and services more efficiently.

In addition to policy and regulatory/administrative actions to harmonize the technical and organisational requirements of a European intermodal market, both railway companies and infrastructure managers need to develop methods to facilitate cross-border intermodal transport, e.g. more IT-solutions for tracking and tracing of intermodal loading units with open standards for data exchange or more flexible logistical concepts in cross-border transports. Also, more efficient logistics systems, such as hub-and-spoke-system terminal network strategies, need further development for the rail sector in order to increase competitiveness to road transport.

Intermodal solutions need to be further developed to become more efficient. Longer trains, more advanced logistical strategies with intermodal focus or more capacity (loading units, vehicles) need to be tested and evaluated to make the intermodal system more competitive. Strategies to increase the efficiency and attractiveness of intermodal transport need to be further explored, e.g. higher departure frequencies or confirmed access for freight trains (adequate slots).

Also, more investment and further development of infrastructure (i.e. terminals, wagons, tracks) is needed, especially in France, Spain and South-East European countries.

Intermodal operators and logistics service providers

Intermodal operators and logistics service providers need to optimise the transparency of intermodal solutions to their customers and increase collaboration among each other to enable new intermodal connections that are necessary to further push intermodal transport.

To increase the share of intermodal transports, intermodal operators and logistics service providers are required to optimise the transparency of intermodal solutions to their customers, so that the

choice of the appropriate transport mode is made easier. Increased collaboration among service providers to enable new intermodal connections, as well as between the logistics companies and their customers, may help develop networks that have a better market position towards the supply side.

IT solutions that provide real time information about the status of shipments during the entire transport chain will prove inevitable in the further development of reliable, flexible and competitive intermodal transport solutions.

Chemical companies

Chemical companies have always been supportive of intermodal transport, favouring intermodal transport options over “all road” where available and feasible.

In order to support the further development of intermodal transport solutions, chemical producers should take a more proactive role in strategic planning meetings. Such meetings should serve the purpose of giving logistics service providers and in particular intermodal operators more visibility of their intermodal transport demand, in particular when it comes to strategic network planning of particular lines. Intermodal operators generally do not have direct (contractual) relationships with chemical companies and are therefore lacking visibility of both potential demand and expectations.

Chemical companies, their logistics service providers and intermodal operators should come together at round table meetings, jointly exploring opportunities for further modal shift, concentrating their dialogue on the further development of key strategic corridors where logistics service providers and intermodal operators are bundling demand of multiple chemical companies and shippers from other industries.

This report in itself should also serve as a contribution to the further development of our European intermodal transport network, giving logistics service providers and intermodal operators better visibility of the chemical industries expectations, having highlighted where developments would be appreciated, both in terms of service levels but also capacities, highlighting those corridors where the chemical industry does expect growth respectively is willing to shift more transport volumes from road to intermodal solutions.

Annex 1 MEMBERS OF THE INTERMODAL ISSUE TEAM

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