



Grant Agreement Number: 723265

Project acronym: **Clusters 2.0**

Project full title: Clusters 2.0 - Open network of hyper connected logistics clusters towards Physical Internet

## D.3.5

### Rail Freight Operators Service Mapping

**Due delivery date: 22/11/2018**

**Actual delivery date: 22/11/2018**

Organization name of lead participant for this deliverable: UIC

Project co-funded by the European Commission within Horizon 2020		
Dissemination level		
PU	Public	
PP	Restricted to other programme participants	
RE	Restricted to a group specified by the consortium	
CO	Confidential, only for members of the consortium	



Project funded by the European Union's Horizon 2020 Research and Innovation Programme (2014 – 2020)

## Document Control Sheet

Deliverable number:	3.5
Deliverable responsible:	UIC
Work package:	1
Editor:	Eric GUENTHER

Author(s) – in alphabetical order		
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Document Revision History			
Version	Date	Modifications Introduced	
0.1	08/08/2018	First internal draft	
0.2	2/10/2018	Peer review version	
0.3		Integration of comments of peer-review	

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## Abbreviations and Acronyms

<b>Acronym</b>	<b>Definition</b>
WP	Work Package
KPI	Key Performance Indicator
CT	Combined Transport
TEU	Twenty-foot Equivalent Unit
RFC	Rail Freight Corridor
GDP	Gross Domestic Product
DIOMIS	Developing Infrastructure & Operating Models for Intermodal Shift

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## Executive Summary

The WP3 aims to establish logistics clusters integration into a high performing synchromodal transportation network on a EU scale. WP3 addresses the shift towards low emission transport modes and consolidated freight management between logistics clusters following a demand driven approach. WP 3 will achieve this by means of:

- A framework for inter cluster cooperation along intermodal transport chains
- Create network visibility across clusters on freight streams
- Establish a dynamic transaction platform for collaboration resulting in cargo pooling and optimising asset usage
- Developing added value services of enhanced collaboration across logistics clusters
- Establish new roles and governance models for smart logistics clusters including all stakeholders

WP 3 is linked to Symbiotic Network of Logistic Clusters Living Lab providing requirements, implementing and testing the CNI and establishing the transfer of the CNI concept to other clusters within and outside Clusters 2.0 scope.

In this WP3, the task 3.4 is about the transport services data from the Rail Freight Operators. It is proposed to organise the work around three work streams:

Provision of volume data (origins/destinations) of intermodal transport for and between the countries covered by this WP.

Provision of the list of key rail freight operators in the countries covered by this WP.

Mapping of existing services provided by the main operators for the countries under investigation.

The above will provide a deliverable that will provide a comprehensive data set of the main combined transport trade lanes and what they represent in terms of volume. The analysis will also enable the mapping of rail services between the trade lanes under investigation thus providing a comprehensive overview of the capacity on offer in terms of goods and combined transport services.

## 1. Introduction: the combined transport as a major element of the European freight market

Combined transport represents an important cornerstone of the European freight market. According to the European Council Directive 92/106/EEC combined transport (CT) is defined as follows:

Combined transport means the transport of goods between Member States where the lorry, trailer, semi-trailer, with or without tractor unit, swap body or container of 20 feet or more uses the road on the initial or final leg of the journey and, on the other leg, rail or inland waterway or maritime services where this section exceeds 100 km as the crow flies and make the initial or final road transport leg of the journey; between the point where the goods are loaded and the nearest suitable rail loading station for the initial leg, and between the nearest suitable rail unloading station and the point where the goods are unloaded for the final leg, or within a radius not exceeding 150 km as the crow flies from the inland waterway port or seaport of loading or unloading.

This document will focus on rail/road combined transport activities in Europe. Based on tonne-kilometres rail transport in Europe has a share of about 18% in total freight traffic – as Figure 1 shows. There is a slight increase of rail share in modal split within the last five years (2009 to 2014). Nevertheless, over a period of ten years there is nearly no development in rail transport.

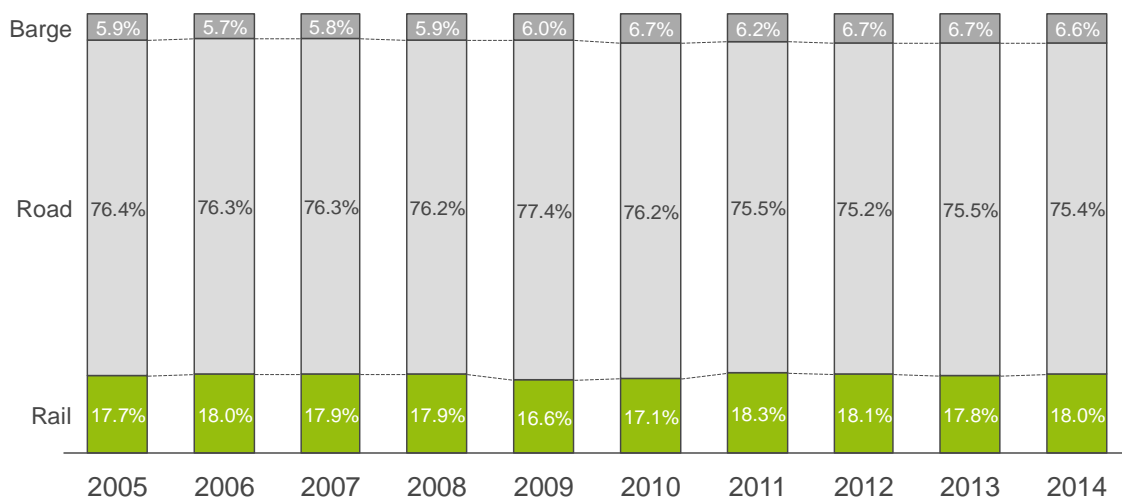


Figure 1 : Development of rail share in modal split of European freight transport (in tkm, EU-28)

Source: Eurostat (2016), BSL Transportation analysis.

Particularly in Central European countries, due to their character as major transit regions, rail has a larger share in modal split; e.g. Switzerland or Austria have a respective rail share of more than 40% of the inland freight transport. But also in North-Eastern Europe the rail transport has a share of more than a quarter of total transport activities, as shown in Figure 2. As the share is measured in tonne-kilometres, the nature of cargo transported also affects the statistics. This is, for example, the case in Finland or Eastern European countries where traditionally a lot of heavy bulk cargo is transported by rail.

Compared to 2012 especially Spain, Denmark and Slovenia could noticeably increase the rail share, while in Croatia rail transportation lost market share.

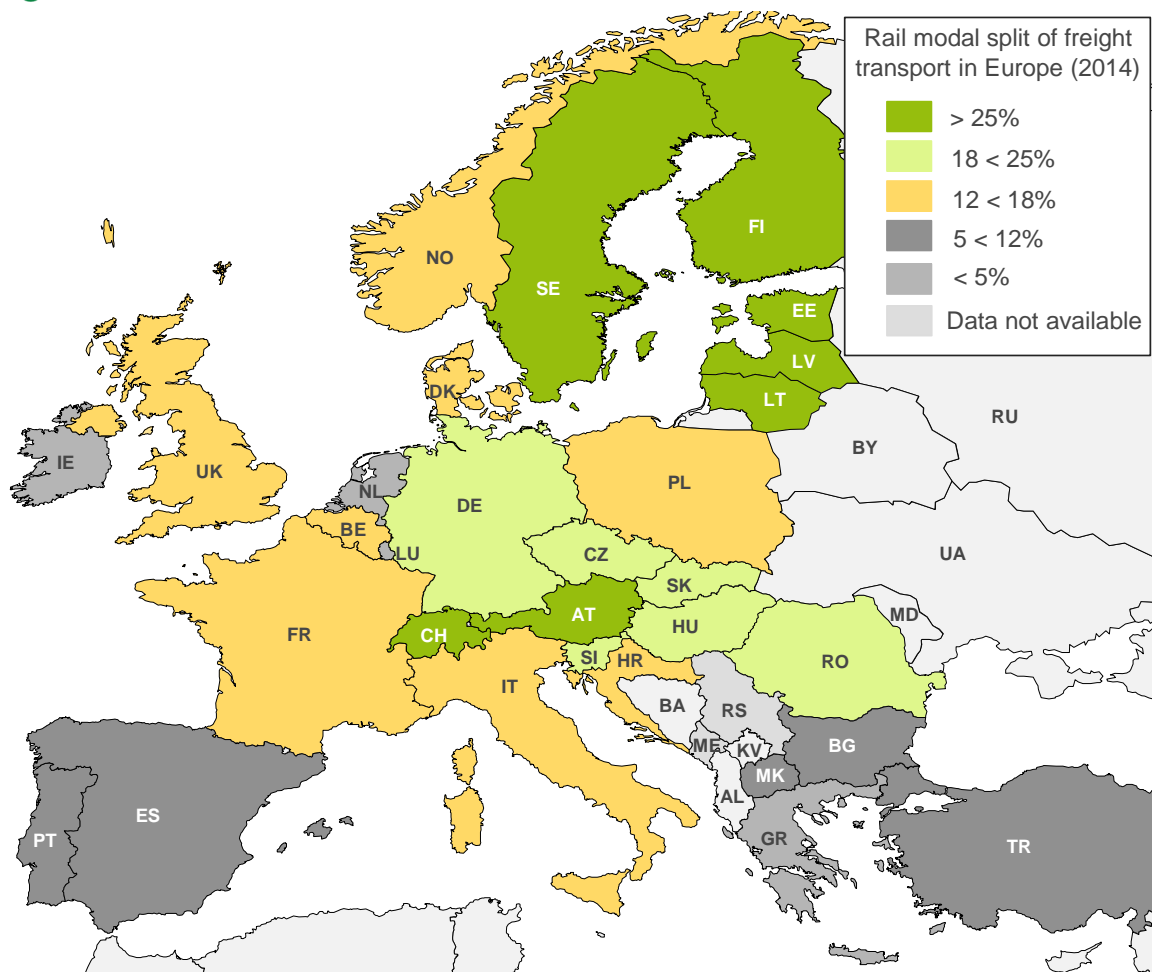


Figure 2 : Rail modal split of freight transport in Europe (% in total inland freight tkm) in 2014  
Source: Eurostat (2016), BSL Transportation analysis.

## 2. Market structure and key elements of combined transport

Basically, combined transport can be differentiated based on:

- the form of transport offered,
- the geographical scope, and
- the focus of the transport chain.

The basic segmentation in the form of transport offered focused on whether the combined rail/road transport is carried out accompanied (with a truck driver) or unaccompanied (without a truck driver) during the rail transport of the loading unit. Both unaccompanied as well as accompanied combined transport can be distinguished applying a strictly territorial principle related to the geographical scope of the transport of a CT loading unit. These market segments differentiates whether domestic or international (“cross-border”) CT services are carried out.

It has to be considered, that for specific cases there could be an inaccuracy, as the primary origin or final destination of the goods are not necessarily the specific countries taken into account. For instance, “domestic” goods could arrive from or be forwarded to another country, by road pre- or post-carriage or in case of gateway services, without knowledge of



the CT provider. In international transport the goods transported could also originate from or go to a third country with the pre- or on-carriage. Lastly, the combined transport market can also be segmented based on the focus of the transport chain, i.e. continental or maritime:

Continental CT concerns both cargo originating from or being destined for locations within Europe. Maritime CT involves trans-continental cargo routed over a seaport to or from an inland destination. Whereas Continental CT uses particularly domestic freight containers, 45' non-ISO containers, swap bodies and semi-trailers, equipment used in Maritime CT are almost exclusively standard ISO containers (8' wide, 8'6" high, 20', 40' or 45' long). There are also differences in the scope of logistical services: Continental CT are mainly terminal-to-terminal services but also more and more pre- and post-haulage on road. Maritime CT on the other hand usually are port-to-door services including supplementary logistics services such as pre- or on-carriage by road, customs clearance or empty depot services.

### **3. The European rail/road combined transport market – facts and figures**

#### **3.1 Methodology and approach**

This deliverable provides an overview of combined transport in Europe in regards to

- the actual volume of overall combined transport volumes,
- the development of market structures,
- the use of market technologies and
- the estimation of future developments.

All relevant market players in Europe were asked for specific data about their companies and its CT activities in terms of volumes, geographical scope and a market assessment. The participants represent Combined Transport-activities in more than 30 European countries from Portugal to Russia and from Norway to Turkey.

The figures are focussed on the reference year 2015 and are evaluated and shown anonymously. All figures for combined transport are based on the above CT definition and focus on rail/road-services.

The presentation of an overall market overview certainly represents a challenge due to the facts that

- there is no existing database of the European combined transport market at present,
- data compilation, counting methodology and definitions differ among the stakeholders.

In order to master the challenge and to provide a solid methodology, this document is based on different complementary sources which also include a plausibility check:

- desk research involving the most relevant data sets and statistics for the different market segments,
- a comprehensive data base from a questionnaire for all relevant market players,
- a matching with UIRR-database,
- additional checks, bilateral discussions and adjustments in case of implausibility.

In 2015 for instance a couple of substantial CT operators change their approach and

classification to measure volumes. On the one hand the revised methodologies should lead to improved data quality and reduced double counts of CT activities (especially between CT operators and railway undertakings and in case of different providers for bidirectional cross-national transports). On the other hand the volumes of previous years are not fully comparable to current figures of 2015.

In total data volumes of more than 100 operators with combined transport activities in approximately 30 European countries are included in this report.

Based on this procedure coherence in terms of market volumes and market development is ensured. Changes within the market by new foundations, changes of names, mergers and acquisitions as well as closures of businesses were also taken into account within the report.

### 3.2 Combined rail/road transport volumes

The total volume of combined transport in Europe, including unaccompanied and accompanied CT, adds up to 21.0m TEU in 2015. Compared to 2013, the total CT volume recorded a slight increase of +1% (see Figure 3).

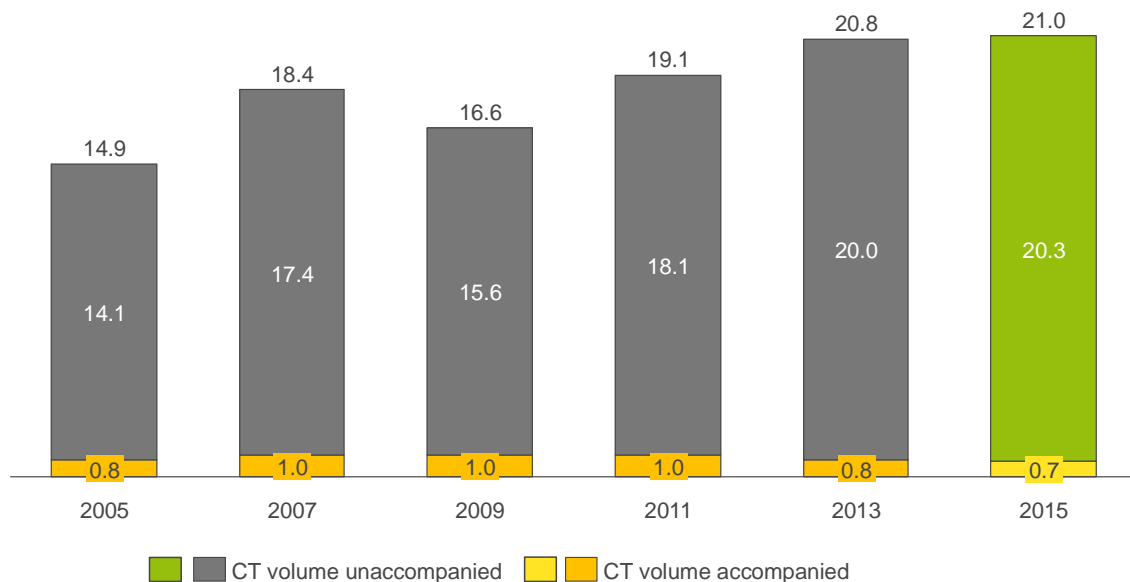


Figure 3 Development of total CT volumes 2005 to 2015 [in million TEU]

Source: BSL Transportation analysis, UIRR.

Based on the total CT tonnage transported, the increase amounts to approx. +8.5% from 2013 to 2015 and is therefore considerably higher than the growth in TEU. The positive development of the overall CT market is the same for both measurements in TEU and in tonnes. However, the stronger growth of tonnes in contrast to TEU indicates a trend towards transporting heavier shipments than some years ago. The following table depicts the total CT market development from 2005 to 2015.

Table 1 Development of total CT volumes 2005 to 2015 [in million tonnes]

Segment	2005	2007	2009	2011	2013	2015
CT volume unaccompanied	145.5	181.5	164.6	191.8	203.0	218.0
CT volume accompanied	10.2	13.6	15.1	14.9	10.8	13.0
<b>Total</b>	<b>155.7</b>	<b>195.1</b>	<b>179.7</b>	<b>206.7</b>	<b>213.8</b>	<b>231.0</b>

Source: BSL Transportation analysis, UIRR.

The total CT market increase is mainly driven by volumes of the unaccompanied segment, while the accompanied CT volume increased in tonnage and is approaching the level of 2011. In 2015, the unaccompanied CT segment's market share amounts to approx. 94% of the total CT market.

Consequently, nearly 90% of the CT providers offer unaccompanied CT services, while only 1% is focused on accompanied CT and approx. 10% provide both unaccompanied and accompanied CT services.

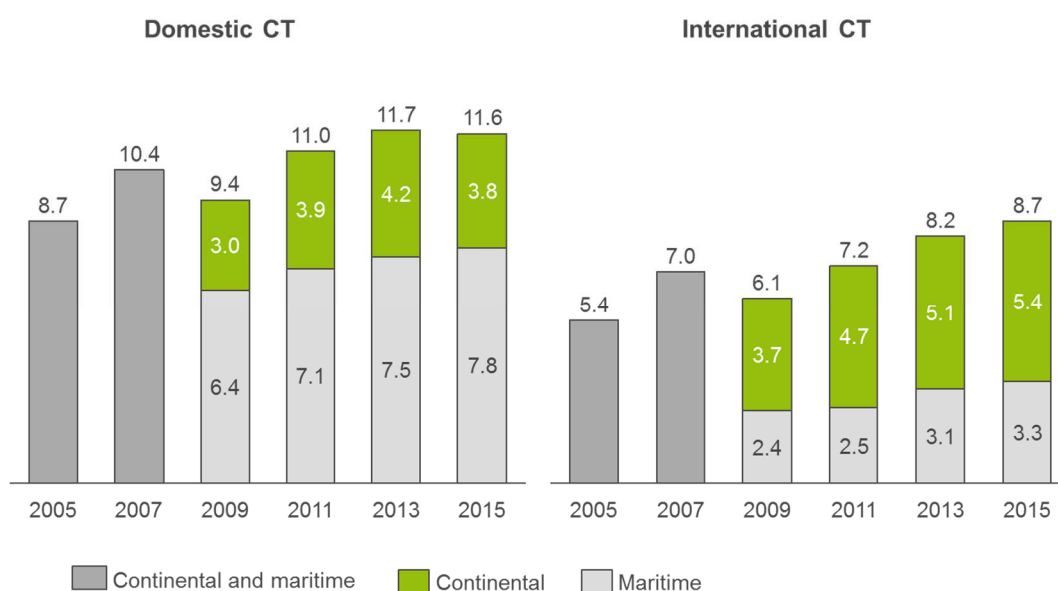
### Unaccompanied combined transport

The continuous growth of unaccompanied combined transport since the downturn in volumes due to the global economic crisis in 2009 has continued in the past two years. However, the volume increase in the CT market is lower than some years ago and the development of combined transport matches the average of the overall rail freight trend.

The market segment of international combined transport is still the main driver for this development with an increase of about 6% (see Figure 4). Although there is a slight decrease of -1% compared to 2013 unaccompanied domestic CT continues to be the biggest market segment of CT with 11.6m TEU transported in 2015.

In cross-border CT, maritime and continental transportation grew nearly parallel by +7% and +5% respectively.

Figure 4 Development of domestic and international unaccompanied CT 2005 to 2015 [in million TEU]

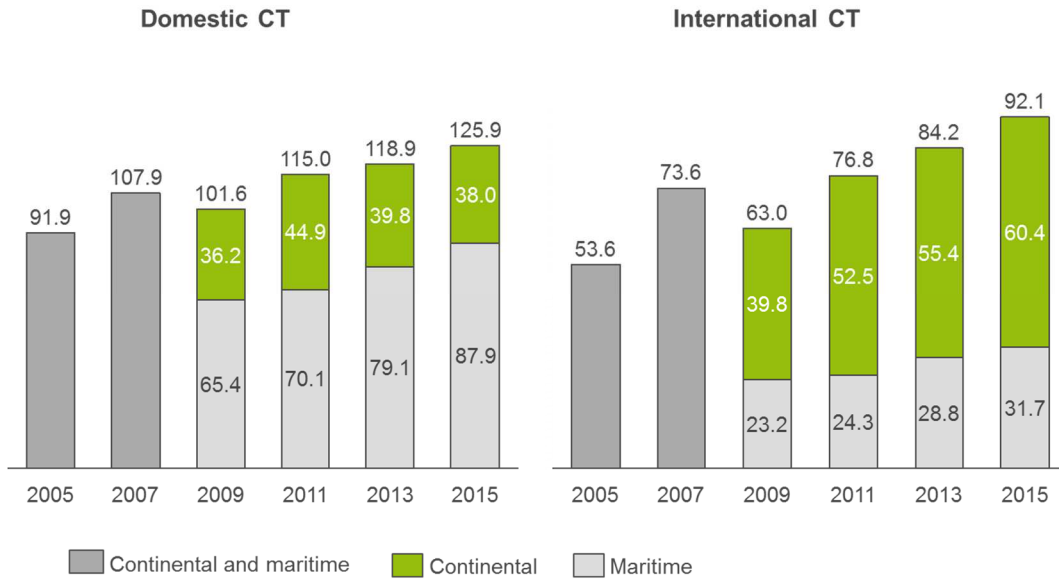


Source: BSL Transportation analysis, UIRR.

Figure 4 Development of domestic and international unaccompanied CT 2005 to 2015 [in million TEU]

The volume increase in the market development in tonnes is considerably higher for both the domestic and the international unaccompanied CT market from 2013 to 2015 (see Figure 5). Consequently, the average loading units have become heavier in the past two years.

Figure 5 Development of domestic and international unaccompanied CT 2005 to 2015 [in million tonnes]



Source: BSL Transportation analysis, UIRR.

Figure 5 Development of domestic and international unaccompanied CT 2005 to 2015 [in million tonnes]

In domestic unaccompanied CT, the TOP 10 countries account for more than 85% of the total European domestic market. Table 2 shows the domestic unaccompanied CT of European countries for 2015 and 2013.

Table 2 Development of domestic unaccompanied CT per country [in TEU and tonnes]

Unaccompanied domestic CT by countries						
Country	TEU			Tonnes		
	2013	2015	Development (2013-2015)	2013	2015	Development (2013-2015)
Austria	370,205	400,993	8%	3,593,138	4,409,791	23%
Belgium	294,261	202,718	-31%	2,177,167	1,273,904	-41%
Bosnia and Herzegovina	-	1,401		-	14,015	
Bulgaria	-	32,834		-	330,059	
Croatia	24,651	40,231	63%	332,254	269,633	-19%
Czech Republic	484,500	499,843	3%	5,215,181	5,379,001	3%
Denmark	-	287		-	2,837	
Finland	10,400	10,717	3%	125,000	128,813	3%
France	631,086	663,419	5%	5,716,155	6,245,535	9%
Germany	4,007,646	3,334,870	-17%	37,139,367	35,629,640	-4%
Greece	-	4,122		-	51,525	
Hungary	46,438	3,109	-93%	462,840	41,362	-91%
Ireland	-	25,982		-	311,790	
Italy	1,609,472	1,554,882	-3%	12,921,434	12,318,072	-5%
Latvia	-	589		-	1,300	
Netherlands	366,836	326,639	-11%	3,544,381	3,958,563	12%
Norway	386,859	322,815	-17%	3,712,541	3,172,657	-15%
Poland	464,938	719,079	55%	4,117,769	5,913,613	44%
Portugal	214,471	290,731	36%	2,117,525	2,896,420	37%
Romania	256,127	262,407	2%	3,087,754	3,163,094	2%
Russia	-	32		-	136	
Serbia	-	13,892		-	138,922	
Slovakia	55,832	54,112	-3%	473,892	482,377	2%
Slovenia	66,734	66,836	0%	507,979	508,756	0%
Spain	490,064	503,697	3%	4,750,169	5,194,814	9%
Sweden	425,900	438,906	3%	4,498,145	4,635,490	3%
Switzerland	342,546	351,000	2%	4,324,165	4,430,744	2%
United Kingdom	1,121,120	1,446,514	29%	19,171,147	24,955,867	30%

Note: Figures for Poland partially include transit. Some deviations of 2015 to 2013 figures also due to modified statistics or changes in methodology of CT providers.

Source: BSL Transportation analysis, UIRR.

Just as in the past 4 years Germany continues to be the largest domestic CT market in terms of transport volume, followed by Italy and the United Kingdom which also have important domestic CT markets. However, both Germany and Italy has faced decreasing domestic CT markets in the past two years. Besides several reasons like railway strikes and infrastructure bottlenecks it must be pointed out, that the volumes of relevant central European players have changed due to modified approaches of measure volumes (see chapter 0).

Whereas the domestic CT market declined slightly between 2013 and 2015, the segment of international CT grew by +6%. The most relevant trade lanes still are the corridors from the North Range seaports to Italy and also trade relations on the East-West-axis keep increasing.

Table 3 provides an overview of the major trade relations in international unaccompanied CT and their volume in TEU and tonnes. The figures given for each trade relation cover the total volume transported in both directions.

Table 3 Major European trade lanes in international unaccompanied CT [in million TEU and tonnes]

Trade lane		TEU			Tonnes		
		2013	2015	Development	2013	2015	Development
Germany	Italy	1,344,827	1,300,386	-3%	15,792,121	17,012,547	8%
Germany	Netherlands	550,647	667,378	21%	5,632,196	6,215,813	10%
Germany	Czech Republic	700,053	659,792	-6%	6,257,721	6,000,182	-4%
Belgium	Italy	682,452	448,653	-34%	7,925,357	5,643,471	-29%
Czech Republic	Slovakia	292,719	316,845	8%	2,568,714	2,927,300	14%
Germany	Austria	349,912	268,860	-23%	3,603,502	3,090,075	-14%
Slovakia	Slovenia	156,023	258,921	66%	1,043,331	1,887,370	81%
Germany	Hungary	167,328	241,296	44%	1,820,804	2,322,884	28%
Czech Republic	Poland	199,994	231,041	16%	1,771,949	2,020,219	14%
France	Italy	201,080	194,123	-3%	2,335,242	2,371,238	2%
Sweden	Germany	151,339	193,878	28%	1,639,185	2,067,542	26%
Hungary	Slovenia	166,823	179,215	7%	1,692,925	1,597,440	-6%
Luxemburg	France	119,264	178,766	50%	1,715,404	2,281,597	33%
Germany	Spain	136,212	174,381	28%	1,855,066	2,312,509	25%
Netherlands	Italy	298,696	168,572	-44%	3,169,014	1,924,664	-39%
Germany	Poland	245,248	160,475	-35%	2,178,846	1,274,739	-41%
Germany	Switzerland	164,057	148,188	-10%	1,633,675	1,871,791	15%
Belgium	France	124,266	131,878	6%	900,216	1,128,225	25%
Belgium	Germany	182,251	54,567	-70%	1,842,848	560,402	-70%

Source: BSL Transportation analysis, UIRR<sup>1</sup>.

Although the positive overall development of the international unaccompanied CT market is also reflected in the top European trade lanes there are some notable specific shifts, such as the ongoing positive development on the international trade relations in particular between Eastern European countries (see above).

The full O-D-matrix with all trade lanes in international unaccompanied CT in Europe (in TEU and tonnes) is provided as an annex.

The domestic and international market segments shows some similarities regarding the structure of loading unit (see **Fehler! Verweisquelle konnte nicht gefunden werden.**). In both segments between 48% and 55% of the intermodal loading units used are twenty- and forty-foot equivalent units.

In international services, however, the share of semitrailers continues much higher than in domestic combined transport.

## 4. Combined transport market assessment and outlook

The expected average growth rate for 2014 and 2015 was approx. +4% p.a.. These forecasts were based on the statements of CT providers who had participated in the 2014 survey. Based on TEU the prognoses was too optimistic for the entire European CT-market, while the development of tonne-volume widely meets the expectations (see Table 4).

<sup>1</sup> Complete Origin-Destination-Matrix TEU/ Tonnes can be found in the Annexes

Table 4 Expected and real market development in combined transport 2013 to 2015

Market development	2015 to 2013	
	TEU-based	Tonne-based
Forecast of stakeholders	+ 8.1% p.a.	
Actual figures	+ 1.1%	+ 8.0%

Source: BSL Transportation analysis.

Anyhow, the development differs between CT operators and countries. The outlook for the current and the upcoming years, given by the market participants in 2016 is still very optimistic (see Figure 6). In order to determine the average growth expectations for the market, the company-specific expectations were weighted with the individual CT volumes.

How do you expect your company's total combined rail/ road transport volume to develop (in %)?

Development in %  
versus prior year



Source: BSL Transportation analysis.

Figure 6 Average expected volume growth of the total combined transport market for the next years

Companies' individual forecasts of expected growth rates are completely different. They range from -20% to more than 100% p.a.

The overall DIOMIS forecast for the years 2018, which focuses on unaccompanied combined transport based on gross tonnes, seems to be a bit too optimistic. Based on the expected growth rates of the survey participants the volume of European CT transport will be about 245 m tonnes in 2018 (see Figure 7).

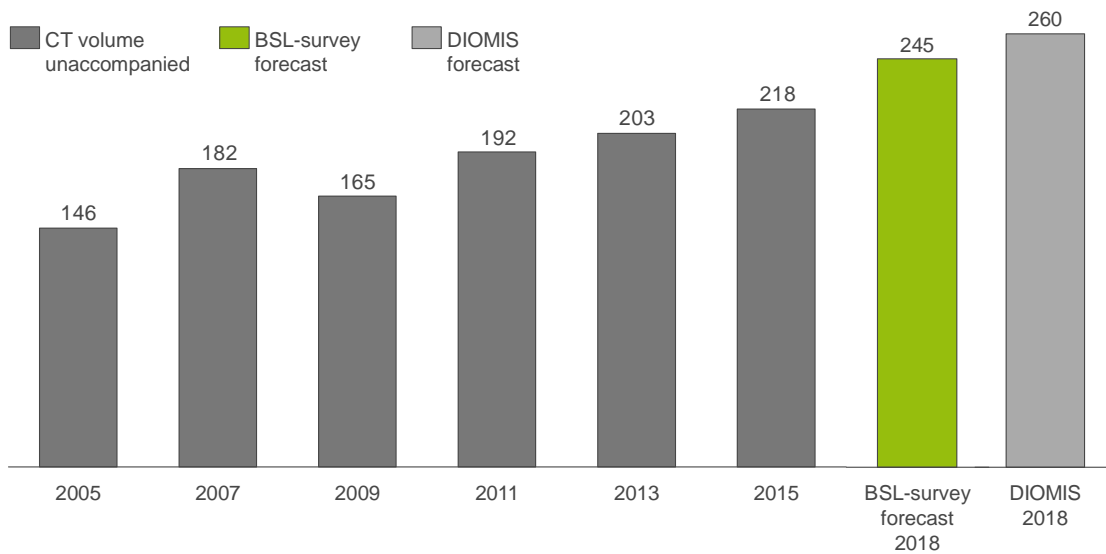
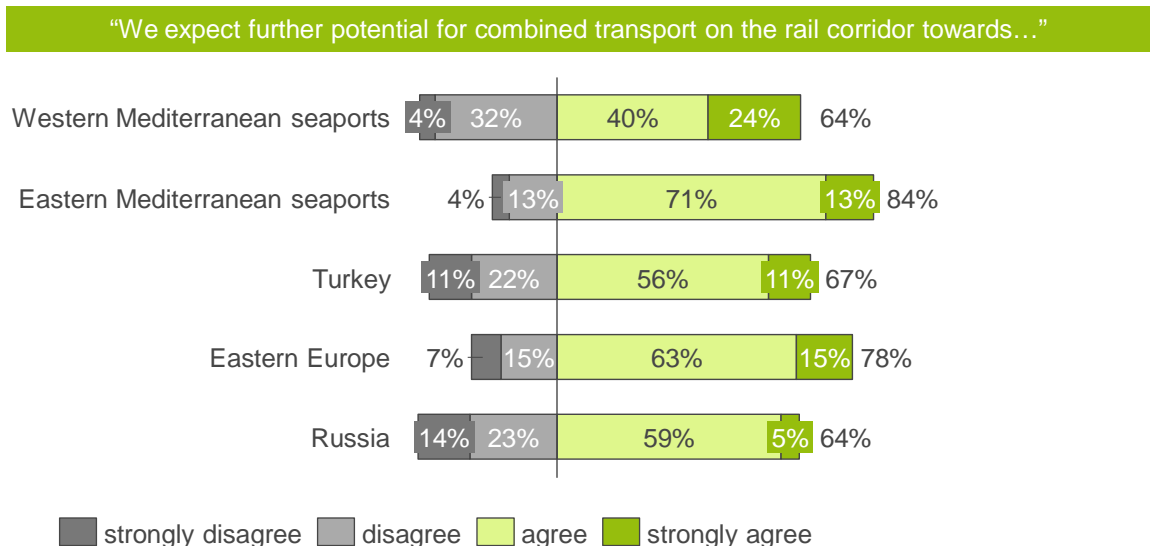


Figure 7 Past development (2005 to 2015) and forecast of total unaccompanied CT volumes [in million tonnes]

Source: DIOMIS, BSL Transportation analysis.

Regarding the geographical focus of future CT growth the survey participants expect further market potential particularly on the rail corridor towards Eastern Mediterranean Seaports and Eastern Europe. For the Western Mediterranean seaports slightly lower growth perspectives are anticipated, which may probably result from a certain market saturation perceived in this geographical region. Although the future potential for CT attributed to Turkey and Russia are still predominantly positive, the assessment of survey participants is more controversial than for the other regions due to the current political situation.



Source: BSL Transportation analysis.

Figure 8 Expected further geographical market potential for combined transport



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In spite of several challenges for the future CT-market like

- use of trucks above 40 tonnes in weight and 18.75 metres in length,
- general cost pressure,
- rail network as well as terminal capacity restrictions, and
- political and/ or economic uncertainty market stakeholders' outlook is quite positive – for both development towards Eastern Europe/ Eastern Mediterranean seaports and the overall Combined Transport in Europe.



**UIC Origins Destinations Matrix Tonnes**

FROM	TO	Austria	Belarus	Belgium	Bosnia and Herzegovina	Bulgaria	CIS	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Hungary	India	Italy via AT	Italy via CH	Italy	Latvia	Lithuania	Luxembourg	Macedonia	Netherlands	Norway	Poland	Portugal	Romania	Russia	Serbia	Slovenia	Spain	Sweden	Switzerland	Turkey	Ukraine	United Kingdom	Other Europe	China	Other World	Total		
Austria																																											
Belarus																																											
Belgium	133.50																																										
Bosnia and Herzegovina																																											
Bulgaria				1.06																																							
CIS																				594.70					0.01		0.13																
Croatia				8.22																																							
Czech Republic	117.90			6.83																																							
Denmark	28.88																																										
Estonia						15.84																																					
Finland	59.66					0.07																																					
France				486.47																																							
Germany	1010.10	7.78	111.49		0.94	2.41	7.02	2274.20	152.92	0.04		45.73	696.62		40.30	1502.92	1252.25	1236.27	11655.20		0.06	89.14	5784.08	37.29	680.67	9.93	45.38	80.83	6.53	48.23	258.83	1197.37	2067.54	863.53	106.52								
Greece				2.21				62.16																																			
Hungary	169.66							10.07																																			
Iceland				0.00																																							
Italy via AT																																											
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Total	307.24	8.63	329.40	1.84	13.74	15.84	19.64	120.86	201.64	20.84	15.04	310.64	2726.64	1082.64	7.04	230.64	2162.64	2118.64	10188.64	64.64	109.14	2476.64	37.29	680.67	9.93	45.38	80.83	6.53	48.23	258.83	1197.37	2067.54	863.53	106.52									



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