Final report of Working Step 1

Desk research on statistical data

EUSALP AG4 Activity “Infrastructure for combined transport (terminals)”

Preparatory study and dialogue events with strategic implementation partners to investigate and optimise multi-modal logistic chains

September 2019

Content:

The project is co-financed by the European Regional Development Fund

0. Executive summary

LINKS carried out on behalf of EUSALP a preparatory study to investigate the possibility of action to optimise multi-modal logistic chains in the Alpine region with particular focus on the flows of empty containers due to imbalances in trade in the area.

The present report concerns the first working step of the study and the results of the desk research to obtain the general picture about intermodal flows and empty intermodal units flows.

The data collected showed increasing maritime and inland containerised flows and aggregate imbalances, with continental scope for maritime flows and with national scope for inland flows. Data from EUROSTAT indicate that much of railway traffic concerning the EUSALP countries is actually intermodal and that there is still potential for shift from road to rail or, where possible, to inland waterways.

Data for a number of ports belonging to the Northern European range, to the Tyrrhenian range and to the Northern Adriatic in general showed increases in containerised traffic. Important exceptions are Hamburg and Bremen as well as Livorno whose containerised traffic is stable.

The study found a general lack of detailed data on intermodal flows at regional level and no availability about flows of empty intermodal units in both public statistics and planning documents.

The work included working on four study areas (Novara and west of Lombardy, Basel and Freiburg, Tyrol, Veneto) and asking the intermodal terminals in each about data on containerised flows and possible issues with empty intermodal units. Availability of data from terminals was different by study areas: in some case there was a good feedback, in other issues with confidentiality resulted in no data supplied at all. What is noteworthy is that none of the terminals that replied, with the only exception of Hall in Tirol, indicated flows/space for empty intermodal units as an issue.

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1. Introduction and structure of the report

Introduction

LINKS carried out on behalf of EUSALP a preparatory study to investigate the possibility of action to optimise multi-modal logistic chains in the Alpine region with particular focus on the flows of empty containers due to imbalances in trade in the area.

The project was carried out in four step

Working step 1: Desk research

Working step 2: evaluation of solutions in empty container management

Working step 3: dialogue events with strategic partners

Working step 4: identification of a concrete implementation initiative relevant for EUSALP

The present report concerns Working Step 1 and the results of the research to obtain the general picture about intermodal flows and empty intermodal units flows.

Structure of the report

There report proceeds narrowing the focus of the data reported. Chapter 2 discussed unitised flows with global and European scopes. Much unitised flows are hinterland flows in and out of ports therefore chapter 3 is dedicated to the data of the ports that are most relevant to the EUSALP area: those of the Northern range, of the Tyrrhenian Sea and of the North Adriatic Sea. Chapter 4 reports on the data available at national and regional levels for the case study areas (detailed therein) and for the terminals that provided information on unitised flows and possible issues with empty intermodal units. Overall, the study found a general lack of information on unitised flows when considering scopes that smaller than whole Countries and this is discussed in the introduction to Chapter 4.

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2. The outlook in terms of unitised flows and empty boxes

Introduction

Intermodal flows are typically separated in maritime flows and continental flows -as detailed in the report on Working Steps 2 and 3. Maritime flows have experienced sustained growth for decades and they are rather well documents in available statistics, at least in aggregate terms. European continental intermodal flows are much less well documented and form a limited but growing share of European inland flows.

Maritime flows

Maritime containerised flows are continuing to grow over the years, as shown in Figure 1, for the whole of world traffic. They are forecast to grow further as all world maritime trade (UNCTAD, 2018).

They are however characterised by strong trade imbalances, such those between Asia and Europe (with much more trade going towards Europe) and between Asia and North America (with much more trade going towards North America) as shown in Figure 2 for the containerised flows between Northern Europe/Mediterranean – East Asia. Rodrigue (2019) indicates that empty containers in maritime traffic amount to 10% of existing containers and 20.5% of port handlings.

Focusing on Europe and on the port ranges investigated further in this report, Figure 3 and Figure 4, show the sustained increase experienced over the years.

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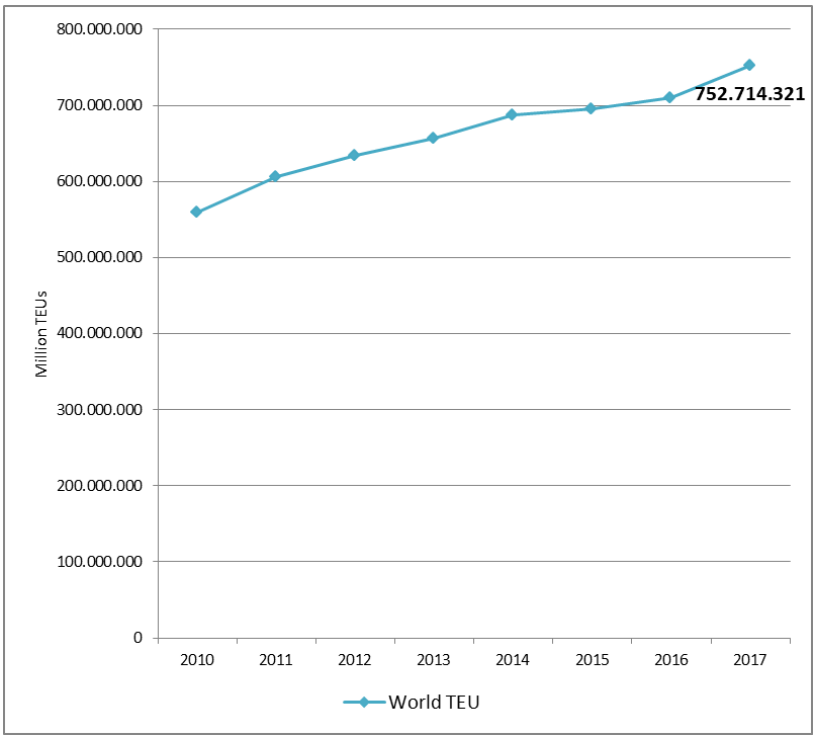

Figure 1: TEUs carried by maritime vessels across the world (elaboration on UNCTAD 2018 data)

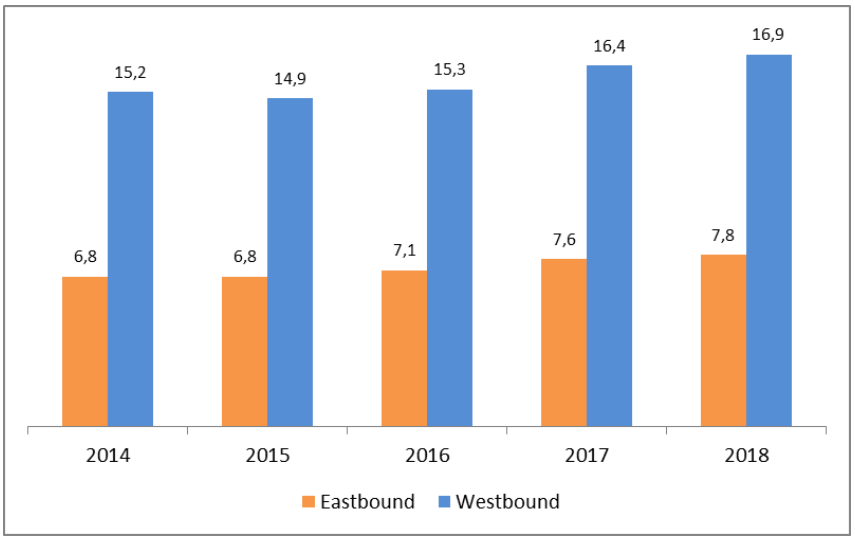

Figure 2: Volume of containerized flows (in TEU) on between Northern Europe/Mediterranean – East Asia (elaboration on UNCTAD 2018 data)

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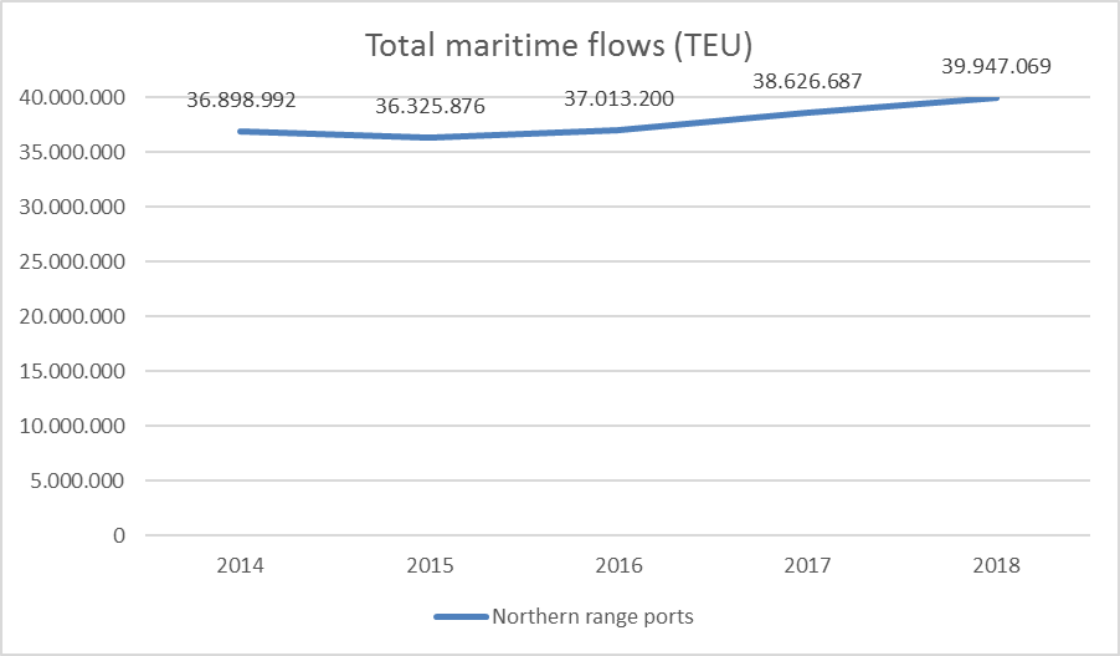

Figure 3: TEUs handled at the following Northern range ports Lubeck, Rostock, Hamburg, Bremen, Rotterdam, Antwerp (elaboration on various data sources). The figures include gateway and transshipment flows.

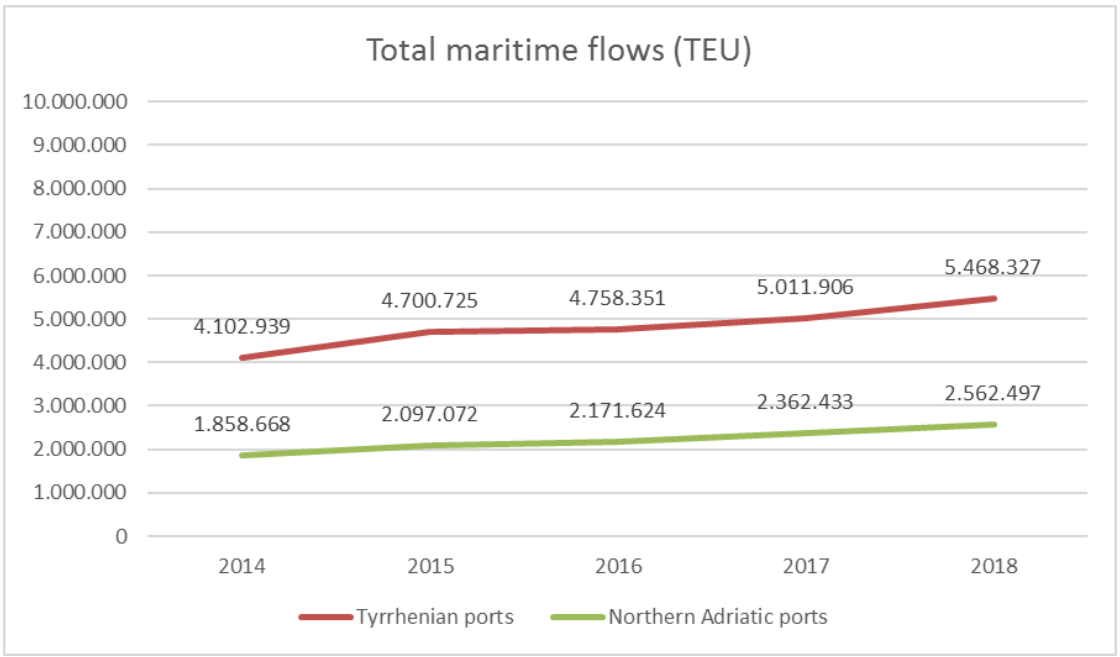

Figure 4: TEUs through the ports of the Tyrrhenian range (Savona, Genova, Spezia, Livorno) and Northern Adriatic range (Ravenna, Venezia, Trieste, Koper) considered in this report (elaboration on data by the port authorities). The figures include gateway and transshipment flows.

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European continental flows

European continental containerised flows are also growing and recovering after two drops of volumes in 2009 and 2012 as depicted in Figure 5. In fact, Figure 5 captures both the continental containerised traffic and the traffic travelling between seaports and their inland destinations or from the inland origins to the seaports. Further data on European unitised transport reported by the main combined transport companies and listed in Table 1 indicate that the EUSALP area is part of some of the major European container trade lanes and of three of the top five in 2015 and 2017 (Germany-Italy, Belgium-Italy, Italy-Netherlands).

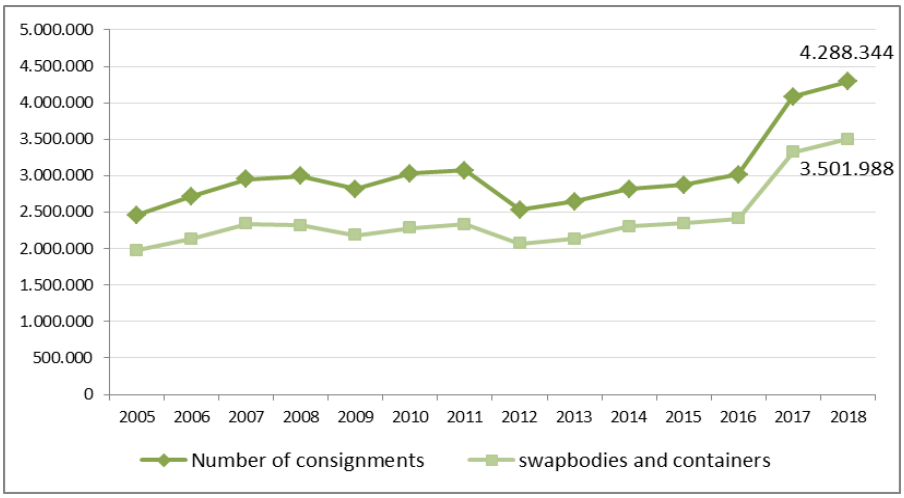

Figure 5: Evolution of flows of container and swap bodies and of consignment carried out by UIRR associated companies, thus capturing the majority of European unitized flows (elaboration on UIRR 2019 data)

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Trade lane	TEU			Tonnes		
	2015	2017	change	2015	2017	change
Germany - Italy	1.488.080	1.553.328	4.4%	19.501.043	19.915.267	2.1%
Czech Republic - Germany	659.792	756.729	14.7%	6.000.182	7.649.439	27.5%
Belgium - Italy	580.173	714.694	23.2%	7.401.498	9.156.448	23.7%
Germany - Netherlands	667.378	581.379	-12.9%	6.215.813	6.686.219	7.6%
Italy - Netherlands	288.632	458.025	58.7%	3.394.024	6.118.486	80.3%
Austria - Germany	268.860	358.729	33.4%	3.603.502	3.896.851	8.1%
Slovakia - Slovenia	258.921	319.922	23.6%	1.887.370	2.552.178	35.2%
Germany - Sweden	193.878	256.745	32.4%	2.067.542	2.813.600	36.1%
France - Italy	194.123	247.682	27.6%	2.371.238	3.259.281	37.5%
Hungary - Slovenia	179.215	217.777	21.5%	1.597.440	2.122.831	32.9%
Germany - Spain	174.381	214.299	22.9%	2.312.509	2.567.637	11.0%
Germany - Hungary	241.296	209.436	-13.2%	2.322.884	2.321.643	-0.1%
France - Luxemburg	178.766	205.037	14.7%	2.281.597	3.127.385	37.1%
Germany - Switzerland	148.188	168.742	13.9%	1.871.791	1.662.626	-11.2%
Germany - Poland	160.475	161.026	0.3%	1.274.739	1.284.398	0.8%
Belgium - France	131.878	152.626	15.7%	1.128.225	1.299.600	15.2%
Belgium - Spain	104.198	143.817	38.0%	1.432.094	1.891.514	32.1%
Austria - Italy	31.088	136.509	>100%	327.574	1.568.315	>100%
Czech Republic - Netherlands	80.865	116.105	43.6%	481.528	802.261	66.6%
Russia - Slovakia	58.984	102.090	73.1%	210.543	689.465	>100%

Table 1: Top 20 trade lanes of intermodal transport in 2017 and 2015. Source UIRR/UIC 2019

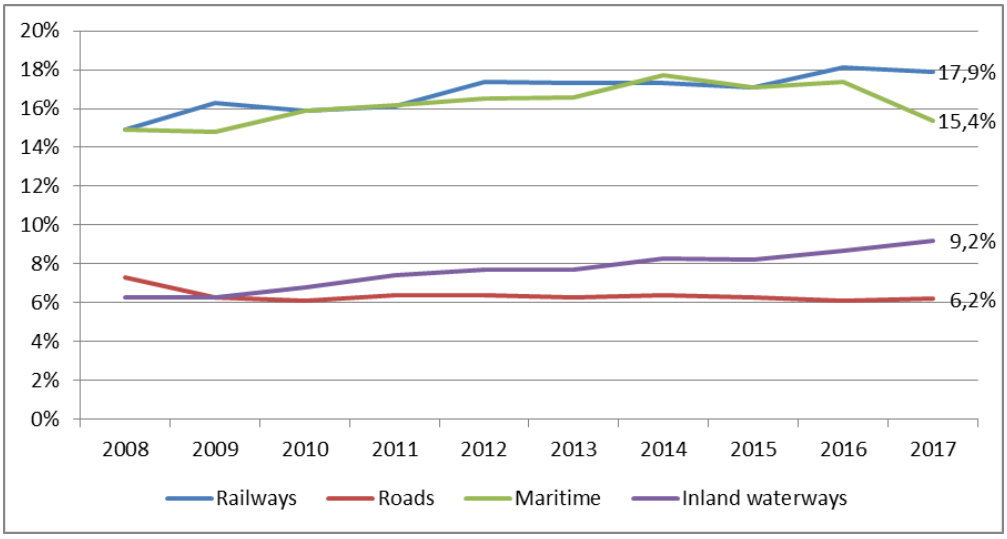

Figure 6: Percentage of containerized flows by mode in the EU28 (elaboration on EUROSTAT data)

Figure 6 shows that the percentage of tonne km of goods transported by road in the whole of the UE28 in Intermodal Transport Units is stable over time, the percentage referred to inland

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waterways is markedly increasing over the years and the percentage pertaining to rail is steadily increasing. The trend shown for maritime transport includes deep sea transport and short sea shipping and indicates a decrease in 2017 after several years of marked increase. The corresponding aggregate trends in absolute terms are showing general increases in tonne-km transported.

Unitised rail freight transport in tonne-km concerns important shares of the total rail tonne-km transported in the EUSALP countries as shown in Figure 7. The much less important shares shown for road transport shown in Figure 8 should be read considering that the road leg of intermodal transport is normally much shorter that the rail one. A larger percentage shows for Germany very likely both to account for the large number of tonne-km in absolute terms and for the transport to and from ports. Data for Italy, where the importance of transport to and from ports would be interesting to monitor, are not currently available on the EUROSTAT database. In parallel information on Alpine freight traffic highlight (EC, FoT, 2019) indicate a that overall flow reached a new record level in 2018 with growth in tonnes to be ascribed especially to road and a smaller growth pertaining to rail. The same data also show that unaccompanied combined transport recorded a strong growth with respect to the previous year against an overall reduction of rail freight volumes across the Alps.

Figure 9 shows the percentage of the tonne-km by inland waterway that are in intermodal transport unit. The comparatively low, though increasing, percentages shown should be the result of the use of inland waterways mainly for bulk freight and of the low speed at which goods may be transported (and on occasions of the limits to waterway transport due to water levels).

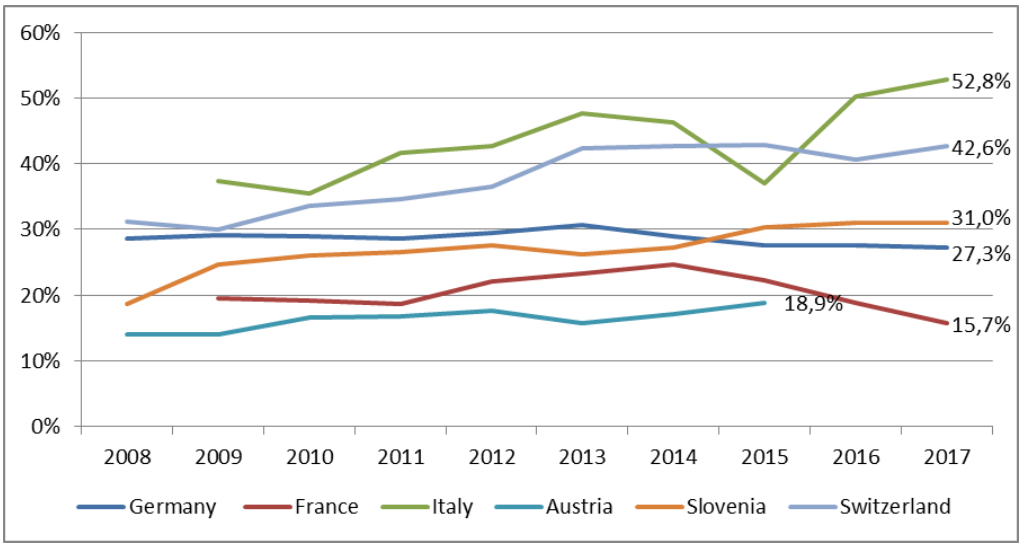

Figure 7: Percentage of unitized tonne-km by rail in the EUSALP countries (elaboration on EUROSTAT data)

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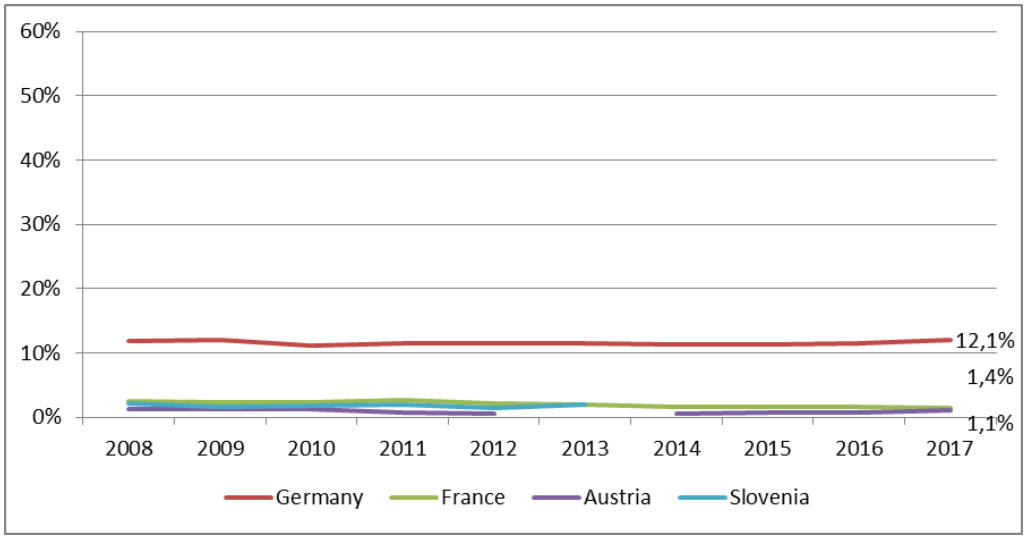

Figure 8: Percentage of unitized tonne-km by road in the EUSALP countries for which such data are available (elaboration on EUROSTAT data)

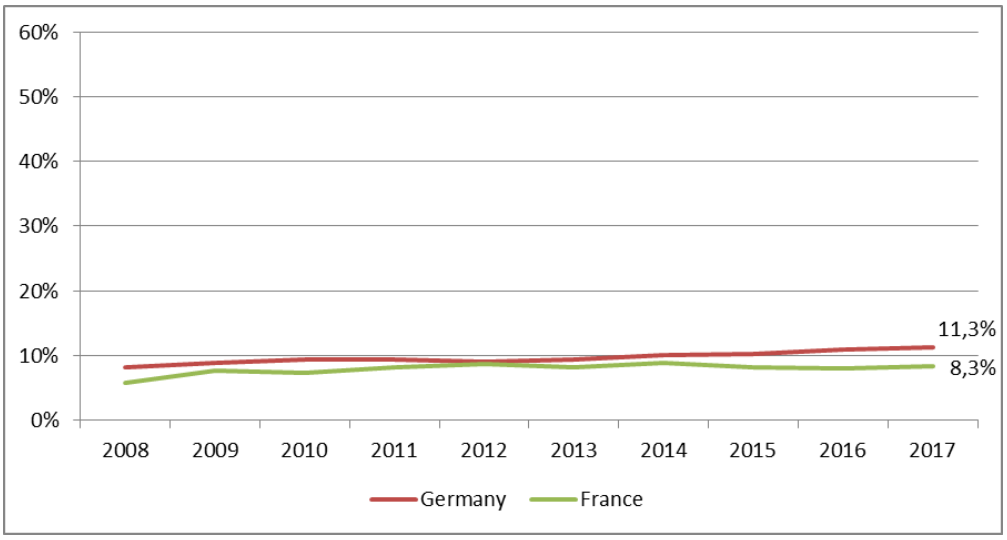

Figure 9: Percentage of unitized tonne-km by inland waterways in Germany and France (elaboration on EUROSTAT data)

EUROSTAT calculates a modal shift potential for long distance road freight in containers by considering the road transport over distances of more than 300 km. The results for the EUSALP countries for which this indicator is available are reported in Figure 10 (in tonne-km) and in Figure 11 (in tonne). The values of the indicators are striking since they indicate that about a fifth of the

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unitised tonne-km by road in Austria could qualify for rail transport whereas about half of the of the tonne-km in France and even more in Slovenia could be shifted to rail or inland waterways (in France). More than the actual figures (that are also aggregate over areas well beyond the EUSALP macro-region) the important point here is that there is room for much modal shift still, whereas rail lines, inland waterways and terminals are already often at capacity. Therefore work towards making facilities more efficient is in the interest of operators that wish to capture the additional revenues from the potential modal split beside being in the interest of public authorities which pursue a more sustainable use of the transport system.

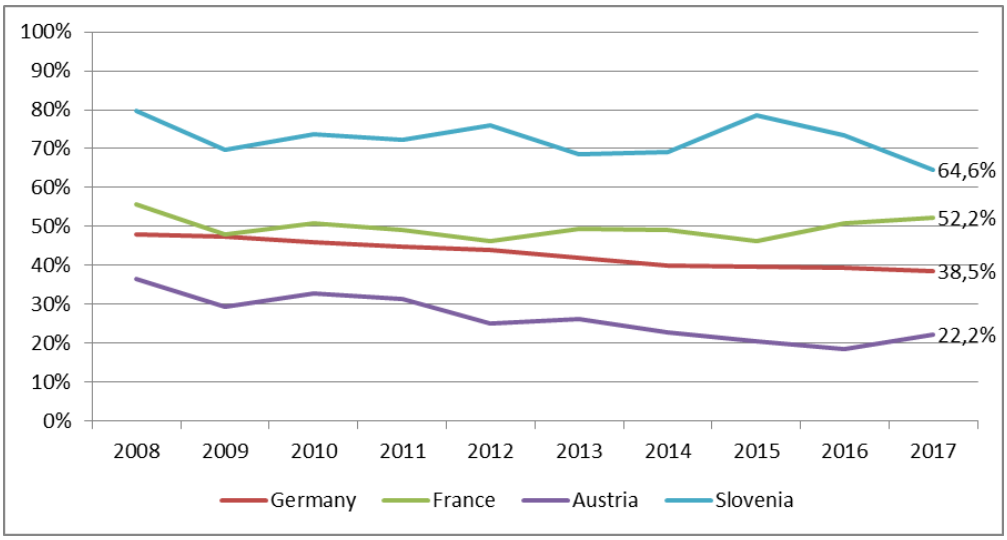

Figure 10: Modal shift potential of long-distance road freight in containers - tonne –km (elaboration on EUROSTAT data)

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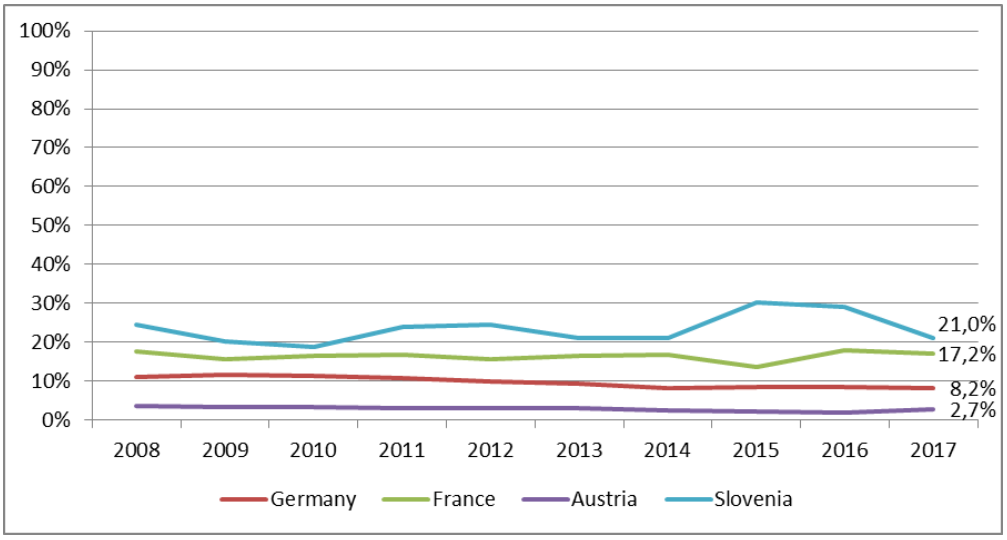

Figure 11: Modal shift potential of long-distance road freight in containers - tonne (elaboration on EUROSTAT data)

EUROSTAT also distributes statistics on loaded and empty vehicles travelling by different modes. The data are very sparse since they are available only for few countries and some intermodal transport units. For instance, for rail there is no information on empty containers and swap bodies. Information on empty unaccompanied semitrailers indicate that low percentages of empty semitrailers travel by train: about 8% in Switzerland in 2017 and 10% in Germany following increasing trends over the recent years.

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3. The port ranges

The present section reports the data collected on the ports of three different ranges, most interesting for the EUSALP region:

The Northern range ports of:

- Lubeck
- Rostock
- Hamburg
- Bremen
- Rotterdam
- Antwerp

The Tyrrhenian ports of:

- Savona
- Genova
- Spezia
- Livorno

The Northern Adriatic ports of:

- Ravenna
- Venezia
- Trieste
- Koper

Data collected for each port are listed and depicted in a dedicated section.

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Northern Range ports

Antwerp

Port: ANTWERP

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	1.310.262	1.559.698	1.567.611	1.549.059	1.622.389
Full	7.667.476	8.094.140	8.469.730	8.901.823	9.478.019
Total	8.977.738	9.653.838	10.037.341	10.450.883	11.100.408

Transhipment flows (TEU)

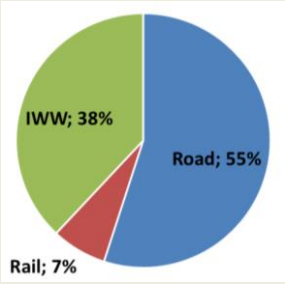
	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Landside modal split for container transport

	2014
Road	55%
Railway	7%
IWW	38%



Direct intermodal train connections

Manheim, Kehl, Weil am Rhein, Karlsruhe,Stuttgart, Frankfurt, Gernsheim, Dortmund, Koln, Dusseldorf, Duisburg, Leipzig, Worms, Mainz, Ludwigshafen, Genk, Gent, Amsterdam, Njimegen, Venlo, Utrecht, Rotterdam, Waalwijk, Moerdijk, Lovosice, Linz, Wels, Wien, Budapest, Basel, Frenkendorf, Aarau, Birsfelden, Stara Zagora, Verona, Candiolo, Busto Arsizio, Trieste, Gallarate, Bratislava, Curtici, Pruszkow

Forecasts (TEU) n/a

Table 2: Traffic data for the port of Antwerp (source: Port Authority/website of the port)

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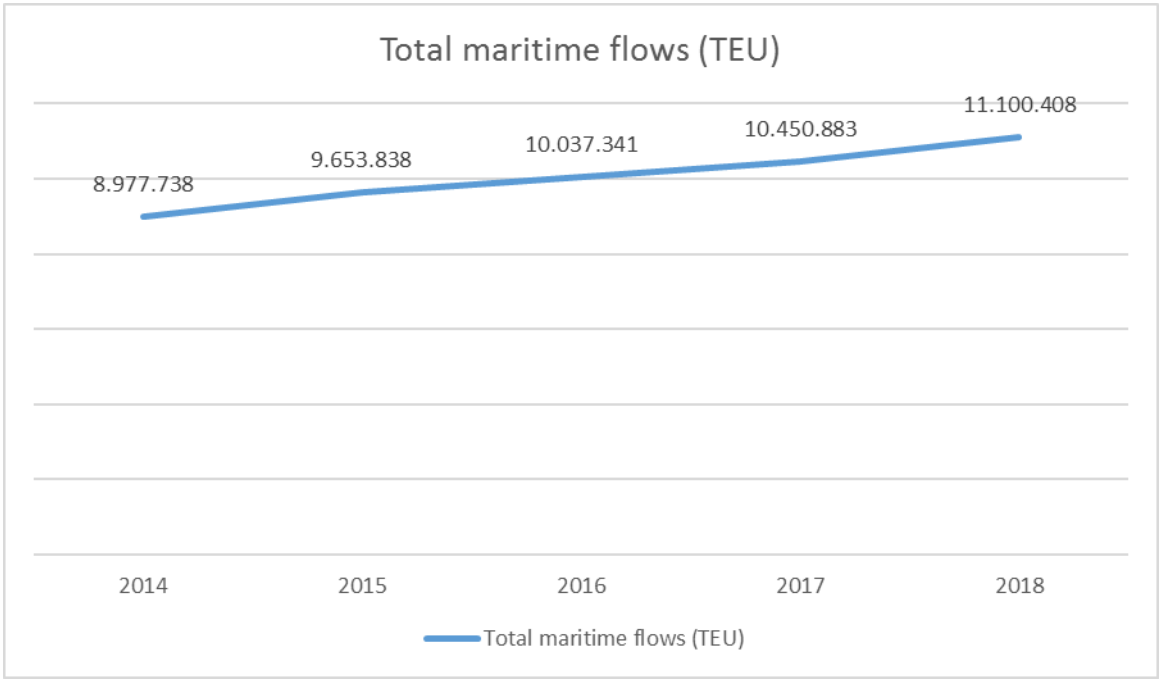

Figure 12: Containerized flows at the port of Antwerp (elaboration on Port Authority data)

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Rotterdam

Port: ROTTERDAM

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	2.416.579	2.423.668	2.425.585	2.573.015	2.757.172
Full	9.888.297	9.810.867	9.959.583	11.161.319	11.755.488
Total	12.304.876	12.234.535	12.385.168	13.734.334	14.512.660

Transhipment flows (TEU)

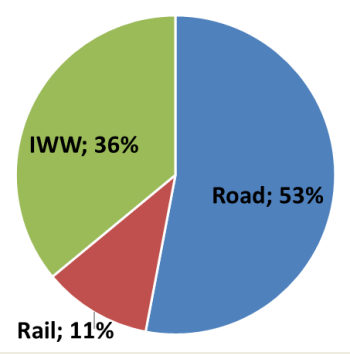
	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Landside modal split for container transport

	2014
Road	53%
Railway	11%
IWW	36%



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Direct intermodal train connections: Euroterminal Emmen-Coevorden-Hardenberg, Hutchison Ports Venlo, Rhein Ruhr Terminal (Home Terminal), Duisburg Intermodal Terminal (DIT), DUSS-Terminal Duisburg-Ruhrort Hafen, Hutchison Ports Duisburg, Düsseldorfer Container-Hafen (DCH), ETK Euro Terminal Kehl GmbH, CTS Container Terminal, DUSS-Terminal Kornwestheim, KTL Kombi-Terminal Ludwigshafen, Terminal Mainz – Frankenbach, Contargo Mannheim, DUSS-Terminal München-Riem, Contargo Neuss (Tilsiter Strasse), Tricon Container Terminal Nürnberg, DP World Stuttgart, Contargo Wörth, Rail Terminal Eindhoven, Am Zehnhoff-Söns Multimodal Terminal Trier GmbH, DUSS-Terminal Basel - Weil am Rhein, Swissterminal AG Niederglatt, Linz Service - Containerterminal Linz, Rail Terminal Prague - Uhrineves (Metrans), Busto Arsizio (Gallarate), Verona Quadrante Europa, Terminali Brescia Scalo, Milano Segrate, TIMO, Terminal Container Melzo, Lille Dourges Container Terminal (LDCT), Rail Cargo Terminal-BILK ZRt, Lyon Terminal (T1), Rail Service Center Rotterdam B.V., Wolfurt CCT, Lyon-Vénissieux (Naviland Cargo), Marseille Canet, Swissterminal AG Frenkendorf, Wien Süd CCT, Main Hub, Basel Wolf (SBB CT), Terminal Ceska Trebova, Contargo Frankfurt West, Rhein Ruhr Terminal (Gateway West), Barcelona Europe South Terminal, Strasbourg Terminal Nord, Toulouse Fenouillet, Naviland Cargo, Eurofos, Med Europe Terminal (Intramar), Fos 2 XL, Arnal-Progeco, Eurogateway CIM, Railport Brabant, CLIP Container Terminal, Halkali Gümrüklü Ambarlar, APM Terminals Rotterdam B.V. (APMT), Hutchison Ports ECT Euromax, Hutchison Ports ECT Delta

Forecasts (TEU) n/a

Table 3: Traffic data for the port of Rotterdam (source: Port Authority/website of the port)

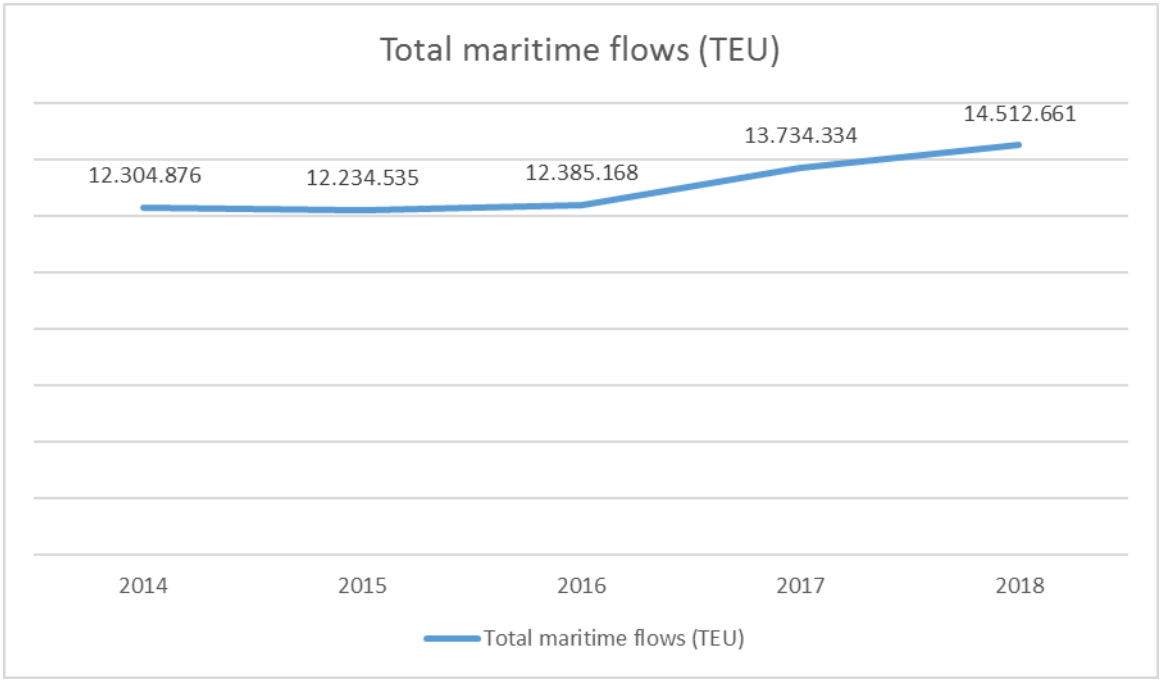

Figure 13: Containerized flows at the port of Rotterdam (elaboration on Port Authority data)

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Lubeck

Port: LUBECK

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	43.033	37.767	35.471	34.388	31.861
Full	111.084	112.236	132.879	124.545	131.098
Total	154.117	150.003	168.350	158.933	162.959

Transhipment flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Landside modal split for container transport

n/a

Direct intermodal train connections

Lübeck-Travemünde and Duisburg-Hohenbudberg (six departures per week in each direction)
Lübeck and Verona (5 departures per week in each direction)
Lübeck-Bettembourg
Lübeck and Venice, two to six weekly trains

Forecasts (TEU)

n/a

Table 4: Traffic data for the port of Lubeck (source: Eurostat, website of the port)

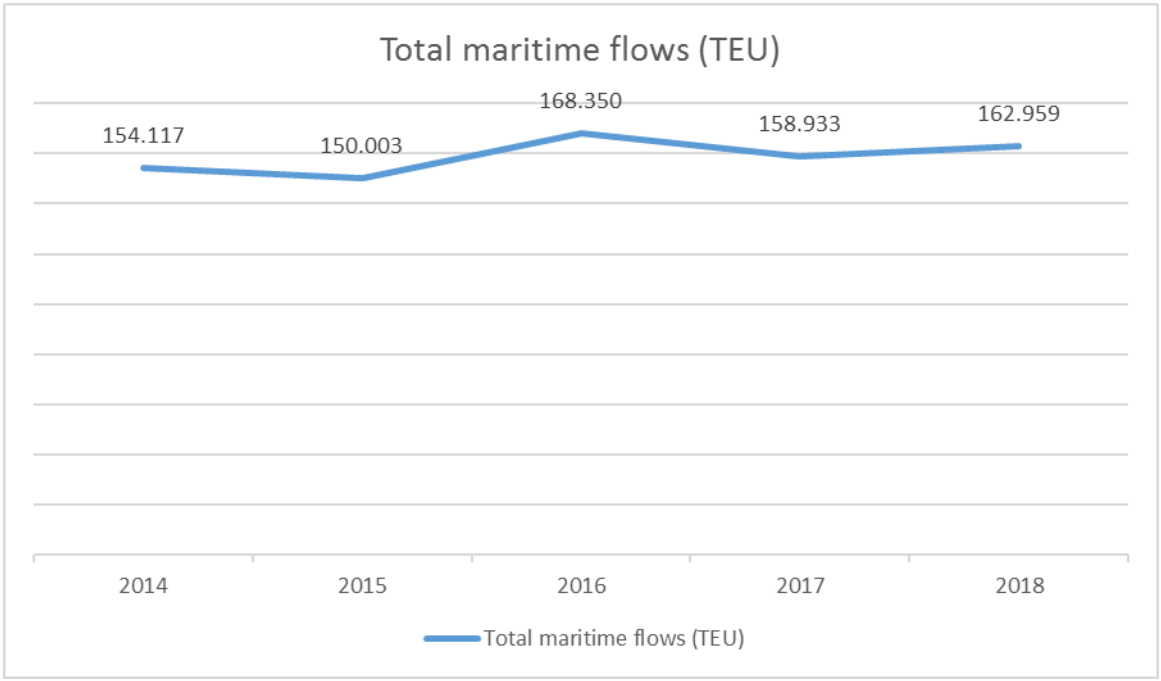

Figure 14: Containerized flows at the port of Lubeck (elaboration on Eurostat data)

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Rostock

Port: ROSTOCK

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	643	661	1.004	404	599
Full	140	31	968	3.741	2.291
Total	783	692	1.972	4.145	2.890

Transhipment flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Landside modal split for container transport

n/a

Direct intermodal train connections

Verona (14 trains/w), Cervignano (3 trains/w),Treviso, (2 trains/w), Hamburg (3 trains/w), Karlsruhe (3 trains/w), Wuppertal (3 trains/w), Halle/Schkopau (2 trains/w), Brno (6 trains/w), Lovosice (2 trains/w), Curtici (1 trains/w).

Forecasts (TEU)

n/a

Table 5: Traffic data for the port of Rostock (source: Eurostat, website of the port)

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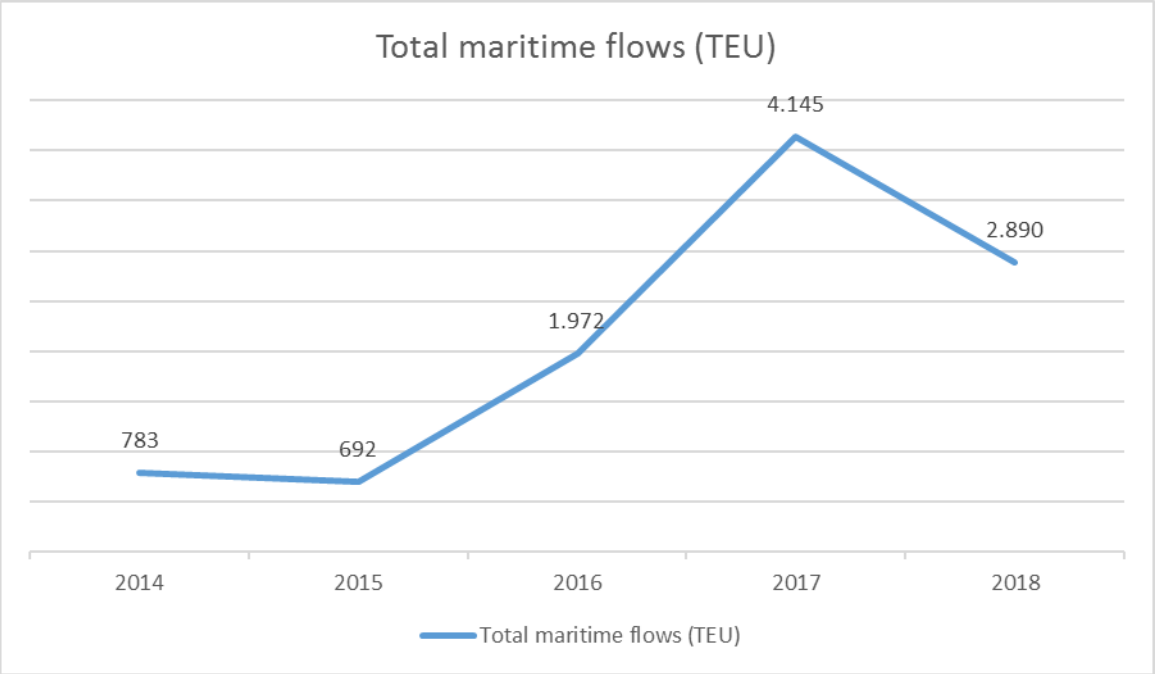

Figure 15: Containerized flows at the port of Rostock (elaboration on Eurostat data)

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Hamburg

Port: HAMBURG

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	1.270.000	1.290.000	1.280.000	1.190.000	
Full	8.460.000	7.530.000	7.630.000	7.630.000	
Total	9.730.000	8.820.000	8.910.000	8.820.000	8.726.000

Transhipment flows (TEU)

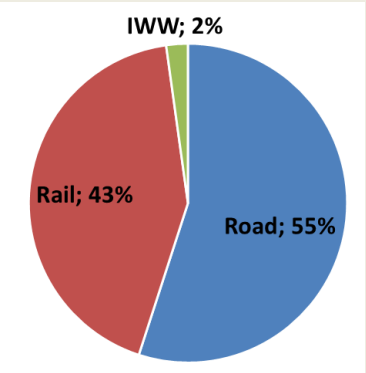
	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	3.270.000	3.320.000	3.200.000	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	5.550.000	5.590.000	5.620.000	-

Landside modal split for container transport

	2018
Road	55%
Railway	42,8%
IWW	2,2%



Direct intermodal train connections: Enns, Krems, Linz, Salzburg, Wals, Wien, Wolfurt, Brno, Ceská Trebová, Lovosice, Melník, Ostrava, Plzen, Praha, Prerov, Ustí nad Labem,Zlin, Lyon, Marseille, Mouguerre,Fredericia,Budapest, Busto Arsizio, Milano, Trieste, Verona, Brzeg Dolny, Dabrowa Górnicza, Gadki, Gliwice, Katy Wroclawskie, Kolbuszowa, Kutno, Malaszewicze, Poznan, Pruszkow, Wroclaw, Bratislava, Dunajská Streda, Kosice, Zilina, Ljubljana, Arad, Basel, Aschaffenburg, Augsburg, Bamberg, Beiseförth, Berlin, Bönen, Bremen, Bremerhaven, Burghausen, Dortmund Dresden, Duisburg, Erfurt, Forst, Frankfurt am Main, Frankfurt/Oder, Glauchau, Göttingen

The project is co-financed by the European Regional Development Fund

Forecasts (TEU)

	2030
Hinterland	10.100.000
Transhipment	6.300.000
Total	16.400.000

Table 6: Traffic data for the port of Hamburg (source: Port Authority/website of the port)

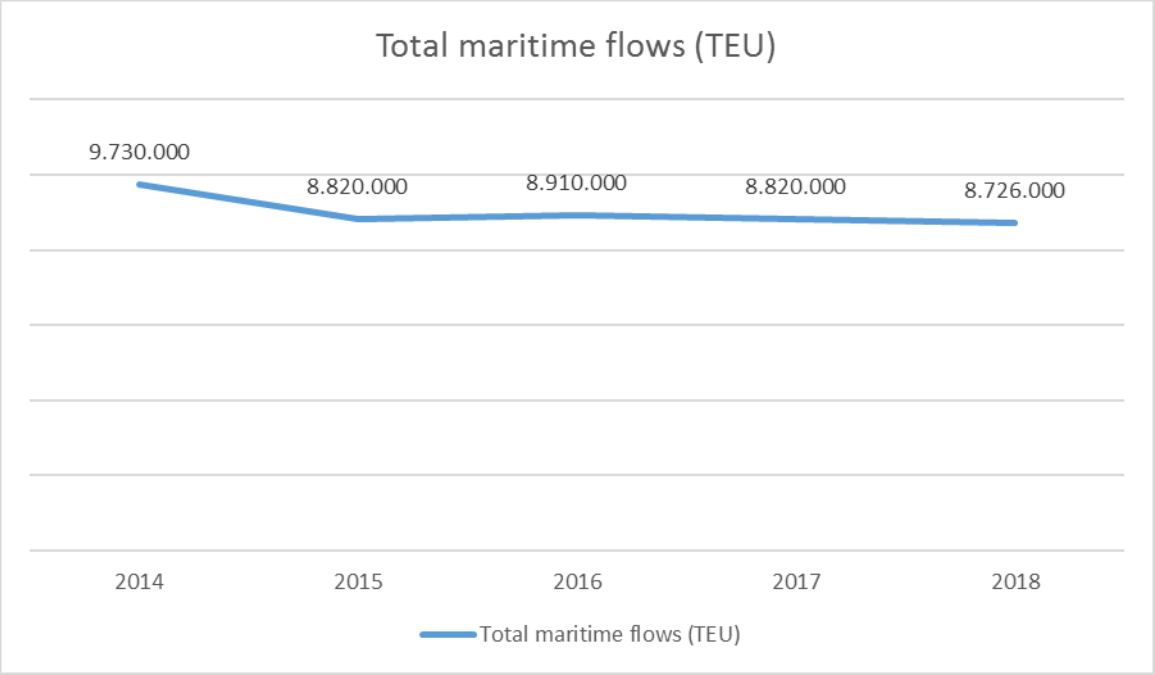


Figure 16: Containerized flows at the port of Hamburg (elaboration on Port Authority data)

Bremen

Port: BREMEN

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	771.975	730.078	772.920	857.850	729.453
Full	4.959.503	4.736.730	4.737.449	4.600.542	4.712.699
Total	5.731.478	5.466.808	5.510.369	5.458.392	5.442.152

Transhipment flows (TEU)

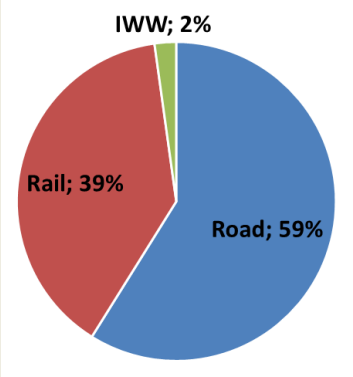
	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Landside modal split for container transport

	2014
Road	59%
Railway	39%
IWW	2%



Direct intermodal train connections

Munich, Ulm, Mannheim, Kornwestheim, Nuremberg, Linz, Vienna, Wolfurt, Melnik, Salzburg, Graz, Budapest

Forecasts (TEU)

n/a

Table 7: Traffic data for the port of Bremen (source: Port Authority/website of the port)

The project is co-financed by the European Regional Development Fund

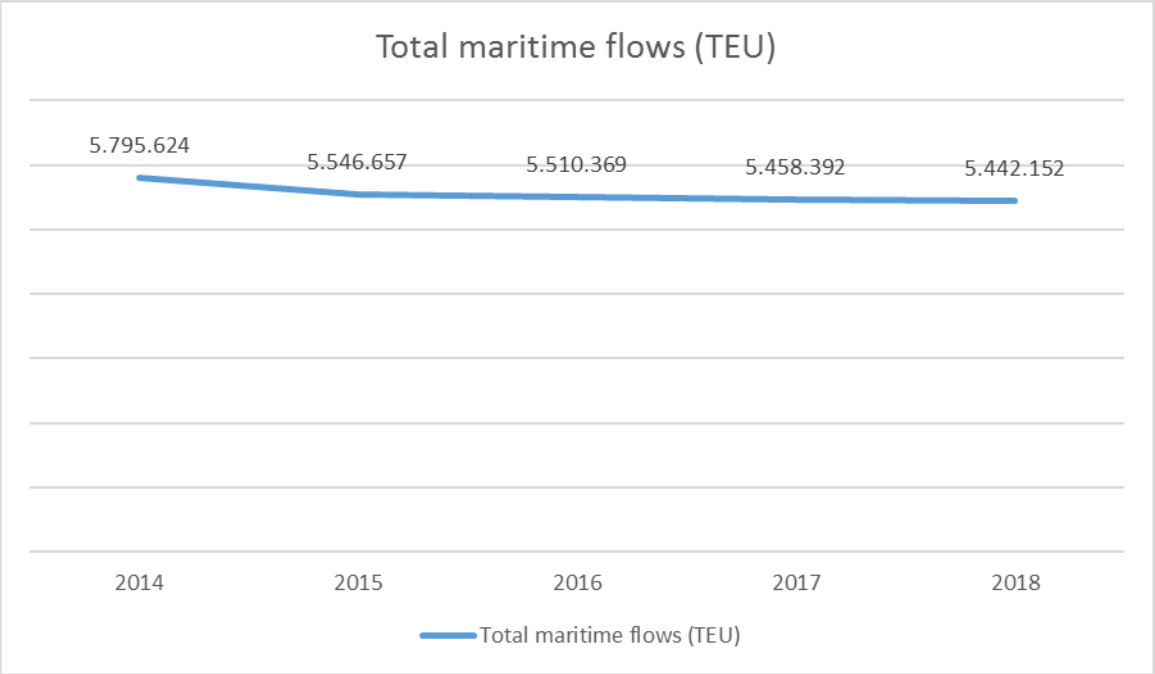


Figure 17: Containerized flows at the port of Bremen (elaboration on Port Authority data)

The project is co-financed by the European Regional Development Fund

Tyrrhenian ports

Savona

Port: SAVONA

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	90.823	98.033	54.594	44.057	65.266

Transhipment flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Landside modal split for container transport

n/a

Direct intermodal train connections

n/a

Forecasts (TEU)

n/a

Table 8: Traffic data for the port of Savona (source: Port Authority/website of the port)

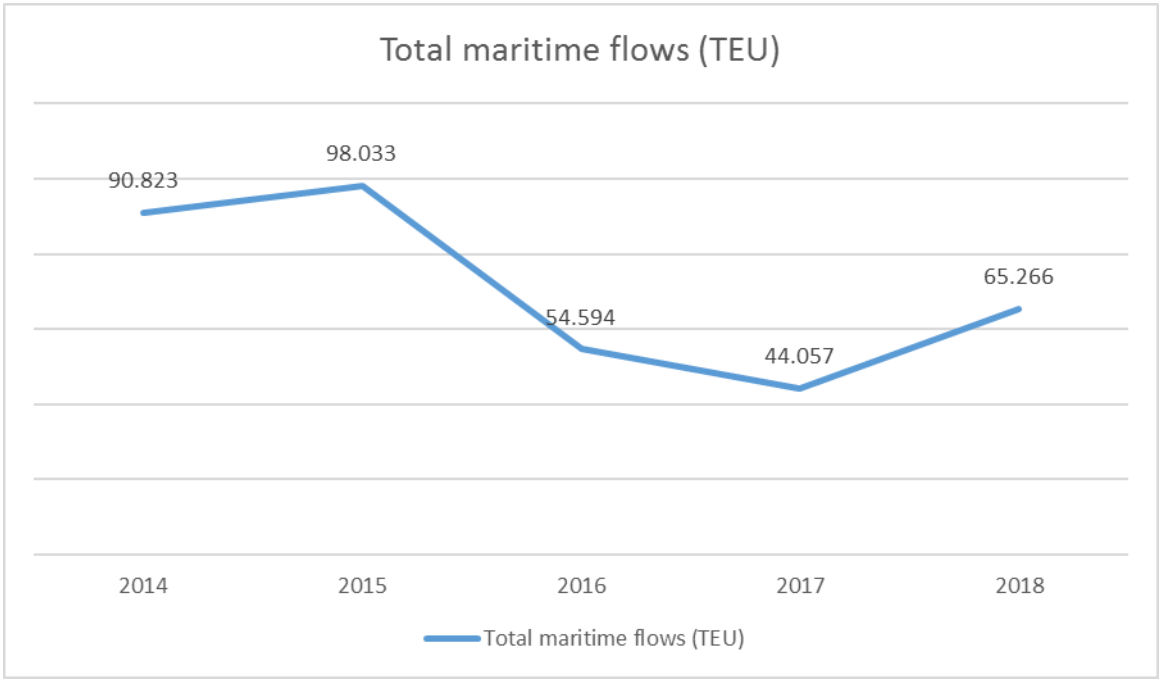


Figure 18: Containerized flows at the port of Savona (elaboration on Port Authority data)

The project is co-financed by the European Regional Development Fund

Genova

Port: GENOVA

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	458.617	508.149	502.593	557.449	564.209
Full	1.714.327	1.734.753	1.795.324	2.064.738	2.044.929
Total	2.172.944	2.242.902	2.297.917	2.622.187	2.609.138

Transhipment flows (TEU)

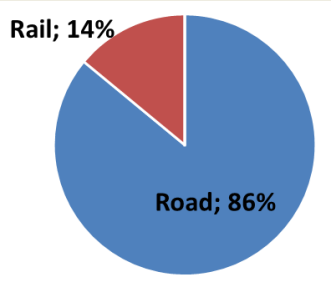
	2014	2015	2016	2017	2018
Empty	-	4.300	4.117	8.347	11.348
Full	-	190.397	194.308	361.233	323.206
Total	210.158	194.697	198.425	369.580	334.554

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	503.849	498.476	549.102	552.861
Full	-	1.544.356	1.601.016	1.703.505	1.721.723
Total	1.962.786	2.048.205	2.099.492	2.252.607	2.274.584

Landside modal split for container transport

	2018
Road	86%
Railway	14%
IWW	0%



Direct intermodal train connections

The main destinations of the trains are: Alessandria, Brescia, Dinazzano, Domodossola, Melzo, Milano, Padova, Rivalta Scrivia, Robilante, Rubiera, Savona, Sestri Ponente, Tarvisio, Trecate, Vicenza, Villanova, Vittuone

Forecasts (TEU)

It is expected that the container traffic for 2020 can reach around 3 million TEU

Table 9: Traffic data for the port of Genoa (source: Port Authority/website of the port)

The project is co-financed by the European Regional Development Fund

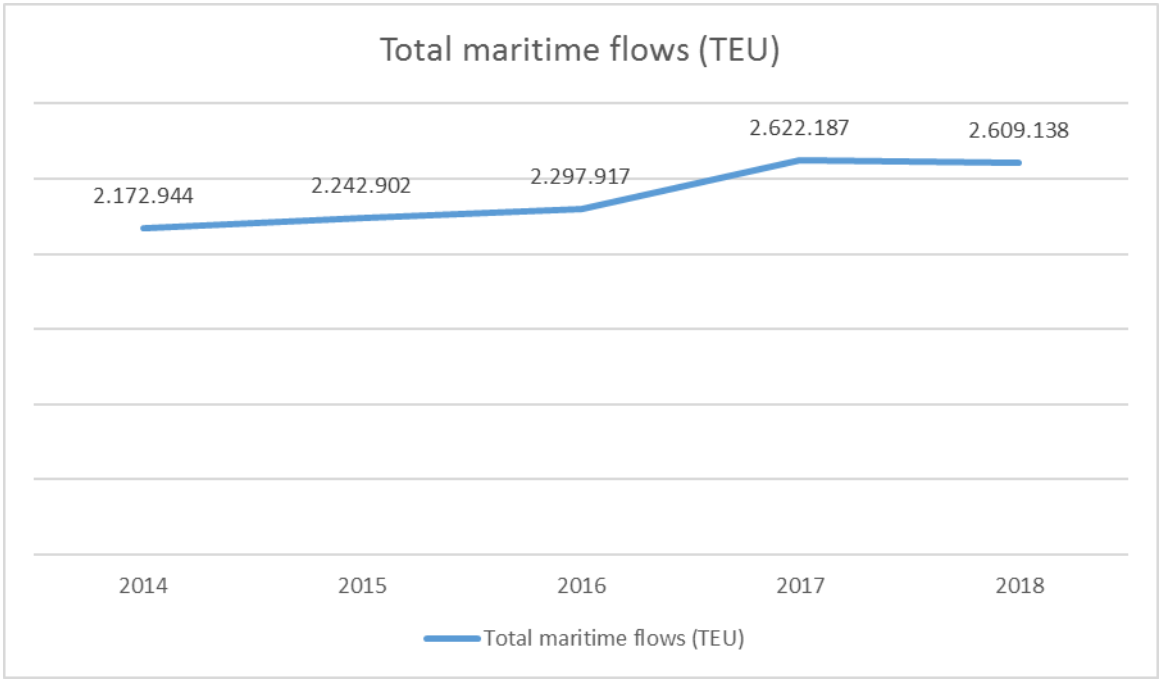


Figure 19: Containerized flows at the port of Genoa (elaboration on Port Authority data)

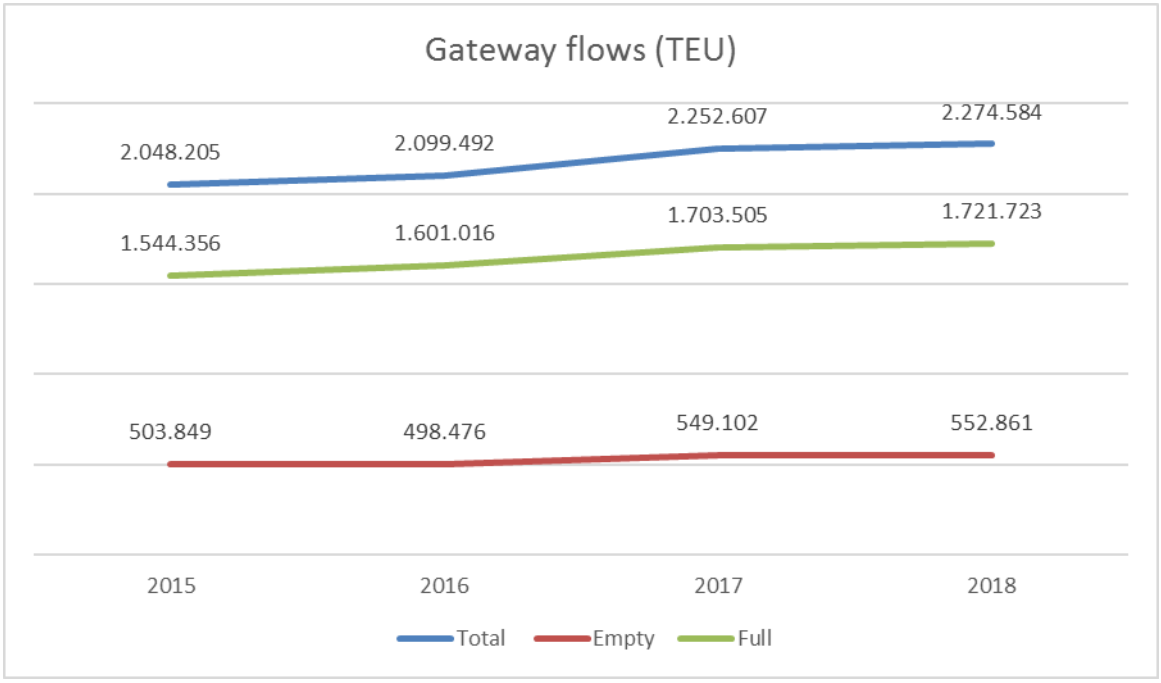


Figure 20: Containerized flows at the port of Genoa, with details of gateway flows and full/empty containers (elaboration on Port Authority data)

The project is co-financed by the European Regional Development Fund

La Spezia

Port: LA SPEZIA

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	214.255	214.587	92.690	92.776	167.083
Full	1.047.447	1.364.329	1.512.675	1.518.801	1.878.816
Total	1.261.702	1.578.916	1.605.365	1.611.577	2.045.899

Transhipment flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Landside modal split for container transport

n/a

Direct intermodal train connections

Interporto di Padova, Dinazzano, Interporto di Bologna, Melzo, Milano Smistamento, Rubiera, Vittuone Arluno, Rho, Interporto di Verona, Modena, Brescia, Arquata Scrivia, Venezia, Interporto di Prato

Forecasts (TEU)

n/a

Table 10: Traffic data for the port of La Spezia (source: Port Authority/website of the port)

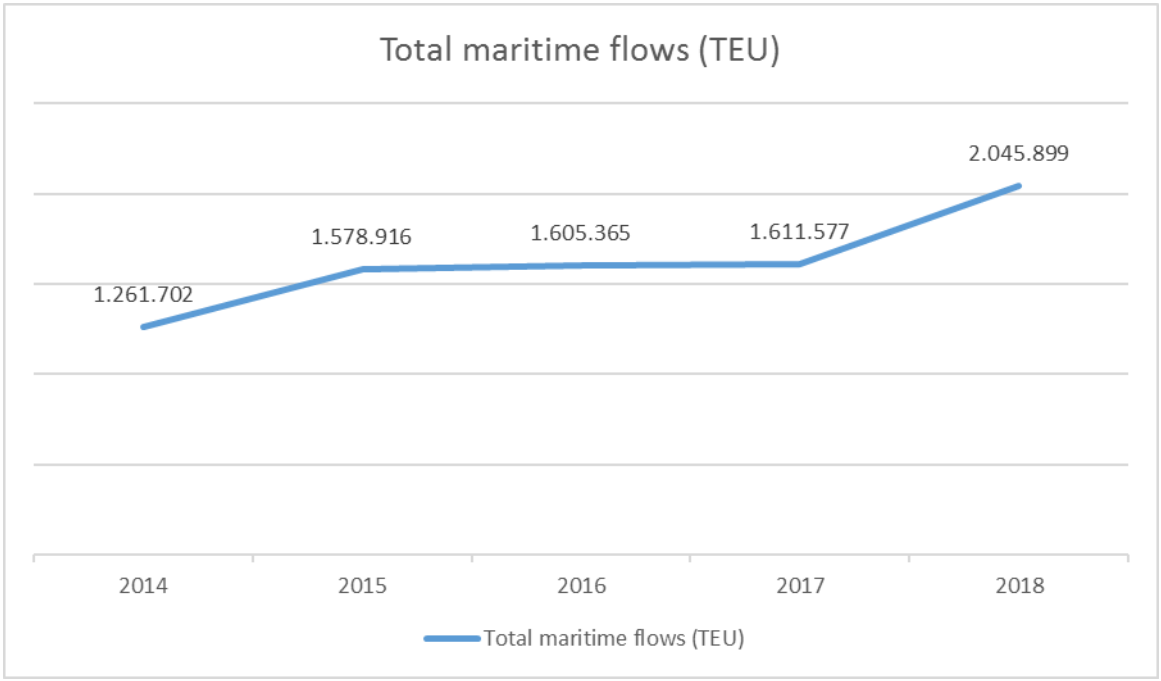


Figure 21: Containerized flows at the port of La Spezia (elaboration on Port Authority data)

The project is co-financed by the European Regional Development Fund

Livorno

Port: LIVORNO

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	135.968	-	-	168.608	158.218
Full	441.502	-	-	565.927	589.806
Total	577.470	780.874	800.475	734.085	748.024

Transhipment flows (TEU)

	2014	2015	2016	2017	2018
Empty	9.254	-	-	34.273	26.984
Full	48.712	-	-	135.868	127.319
Total	57.966	196.474	240.286	170.141	154.303

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	126.714	151.409	135.611	133.885	131.234
Full	392.790	432.991	424.578	430.059	462.487
Total	519.504	584.400	560.189	563.944	593.721

Landside modal split for container transport

n/a

Direct intermodal train connections

Bologna, Dinazzano, Padova

Forecasts (TEU)

n/a

Table 11: Traffic data for the port of Livorno (source: Port Authority/website of the port)

The project is co-financed by the European Regional Development Fund

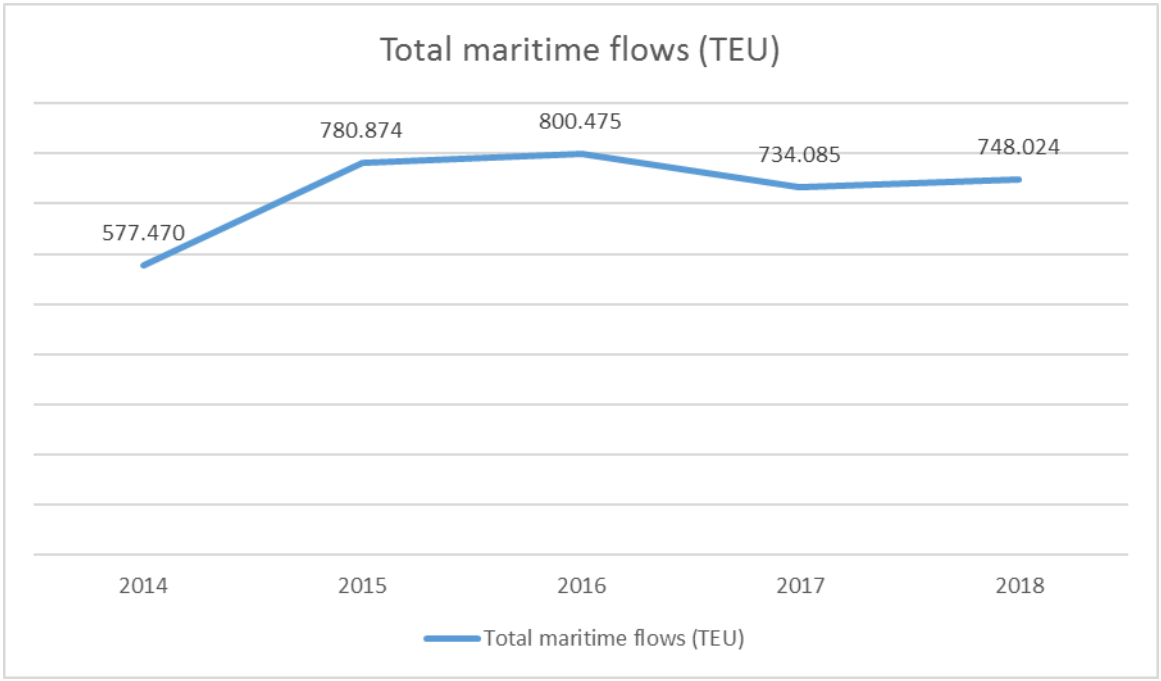


Figure 22: Containerized flows at the port of Livorno (elaboration on Port Authority data)

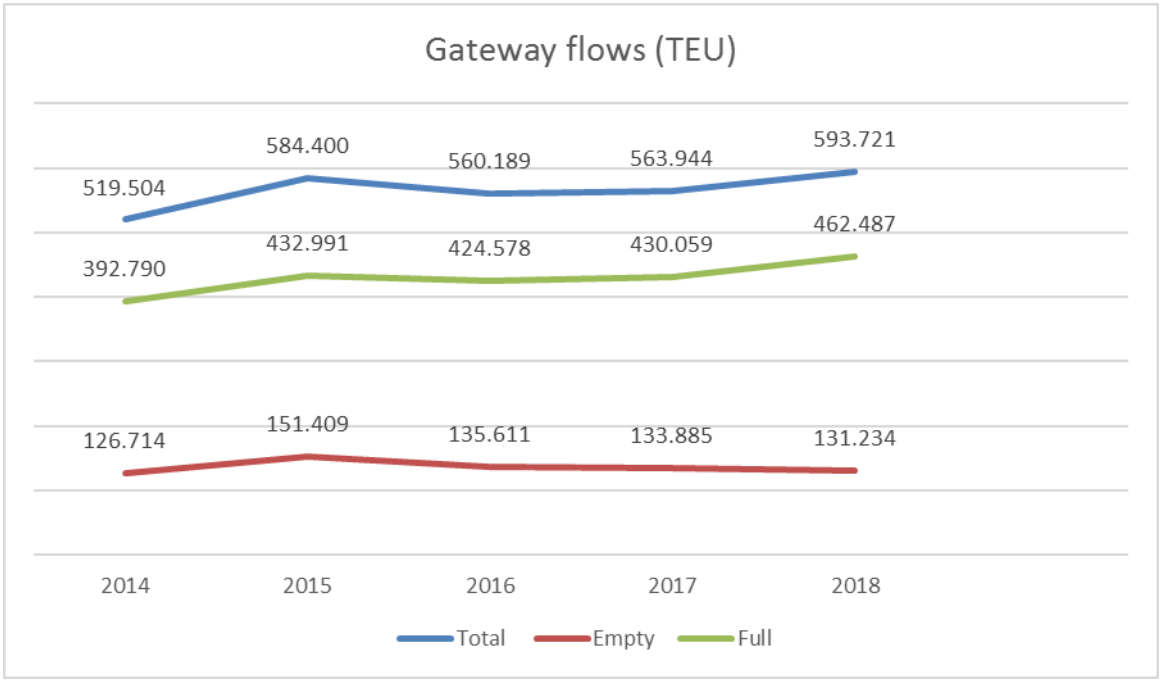


Figure 23: Containerized flows at the port of Livorno, with details of gateway flows and full/empty containers (elaboration on Port Authority data)

Northern Adriatic ports

Ravenna

Port: RAVENNA

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	57.174	72.115	58.949	54.910	52.357
Full	165.374	172.698	175.562	168.459	163.963
Total	222.548	244.813	234.511	223.369	216.320

Transhipment flows (TEU)

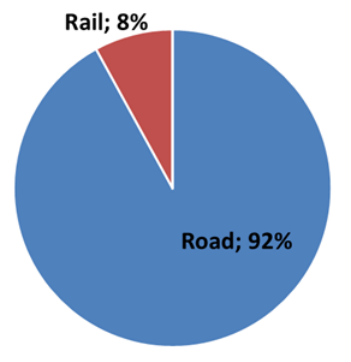
	2014	2015	2016	2017	2018
Empty	165	752	32	293	2
Full	4.760	4.955	3.403	1.307	1.243
Total	4.925	5.707	3.435	1.600	1.245

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	57.009	71.363	58.917	54.617	52.355
Full	160.614	167.743	172.159	167.152	162.720
Total	217.623	239.106	231.076	221.769	215.075

Landside modal split for container transport

	2018
Road	92%
Railway	8%
IWW	0%



Direct intermodal train connections: Melzo (6 trains/week); Dinazzano (4 trains/week)

Forecasts (TEU) n/a

Table 12: Traffic data for the port of Ravenna (source: Port Authority/website of the port)

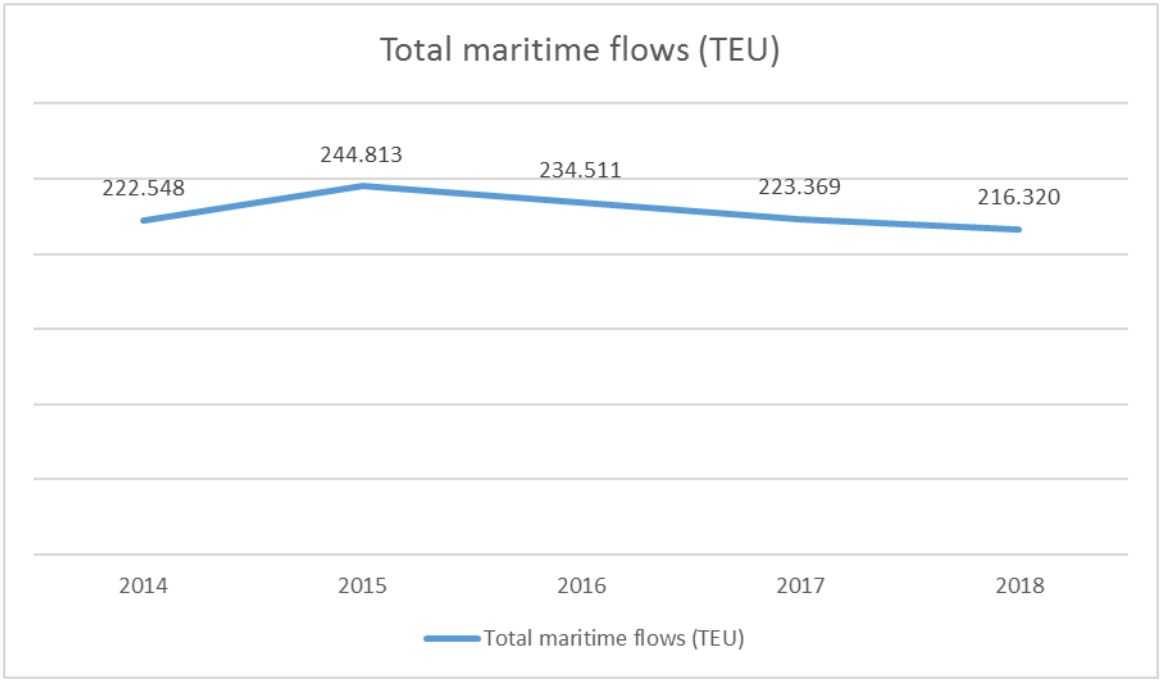


Figure 24: Containerized flows at the port of Ravenna (elaboration on Port Authority data)

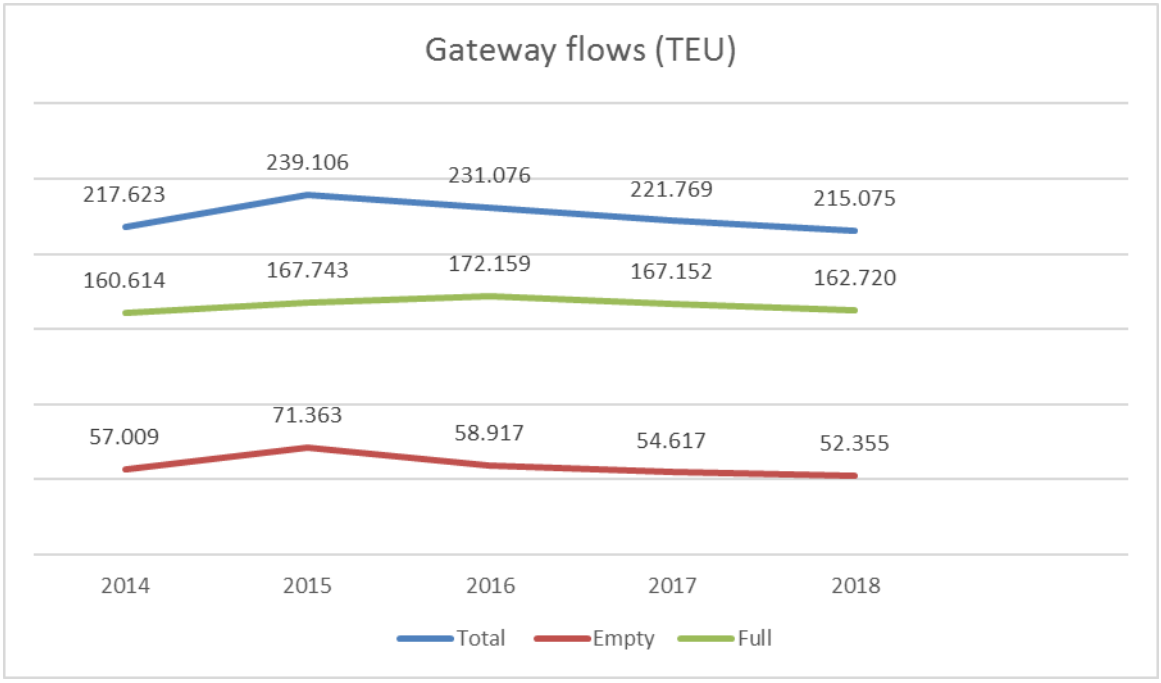


Figure 25: Containerized flows at the port of Ravenna, with details of gateway flows and full/empty containers (elaboration on Port Authority data)

The project is co-financed by the European Regional Development Fund

Venezia

Port: VENEZIA

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	143.022	203.554	202.157	204.862	213.450
Full	313.046	356.747	403.718	406.521	418.800
Total	456.068	560.301	605.875	611.383	632.250

Transhipment flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	143.022	203.554	202.157	204.862	213.450
Full	313.046	356.747	403.718	406.521	418.800
Total	456.068	560.301	605.875	611.383	632.250

Landside modal split for container transport

n/a

Direct intermodal train connections

Frankfurt, Verona, Ospitaletto (BS)

Forecasts (TEU)

n/a

Table 13: Traffic data for the port of Venezia (source: Port Authority/website of the port)

The project is co-financed by the European Regional Development Fund

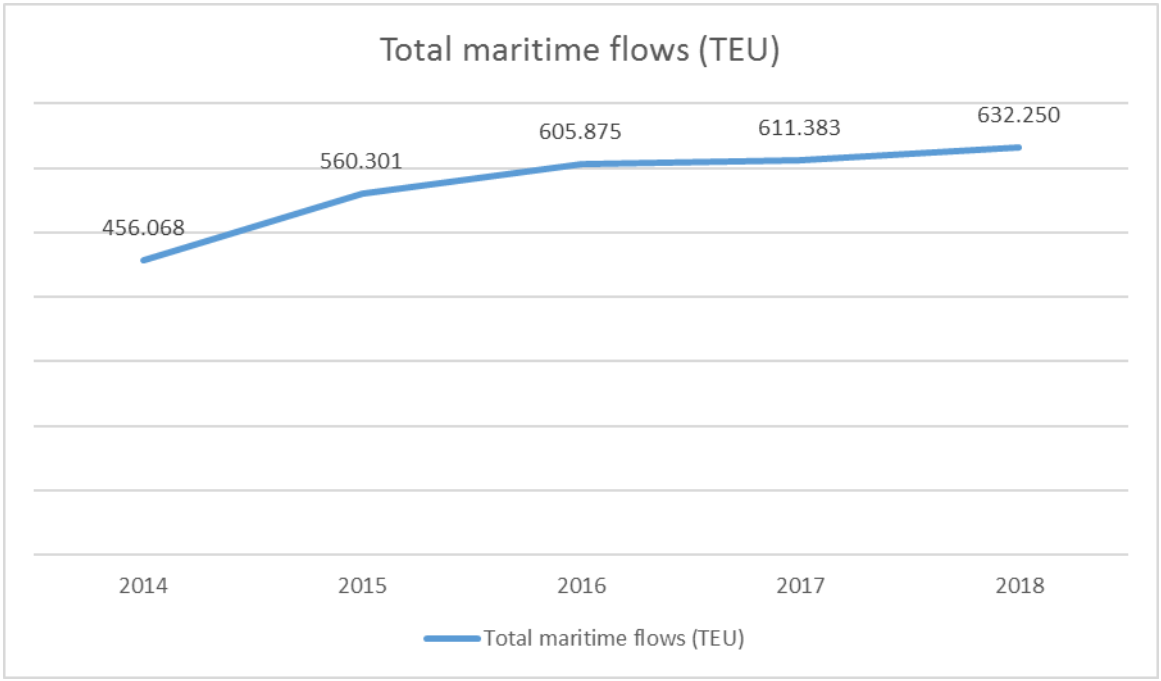


Figure 26: Containerized flows at the port of Venezia (elaboration on Port Authority data)

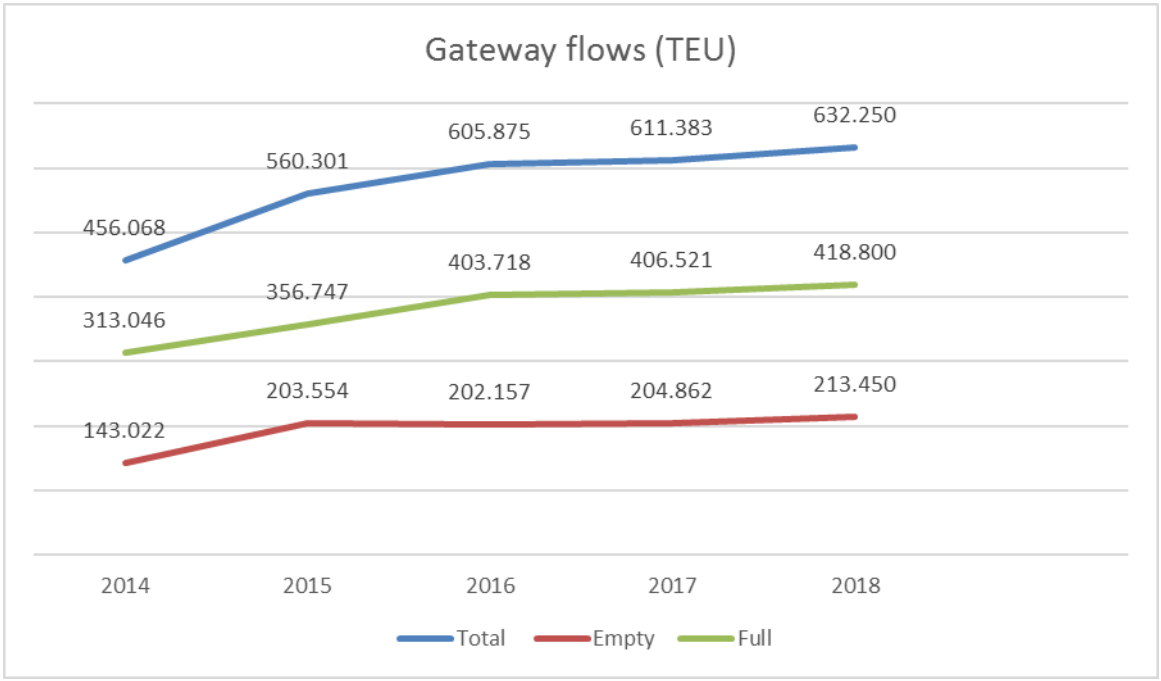


Figure 27: Containerized flows at the port of Venezia, with details of gateway flows and full/empty containers (elaboration on Port Authority data)

Trieste

Port: TRIESTE

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	76.497	90.733	49.378	68.574	67.096
Full	429.522	410.489	437.084	547.579	658.330
Total	506.019	501.222	486.462	616.153	725.426

Transhipment flows (TEU)

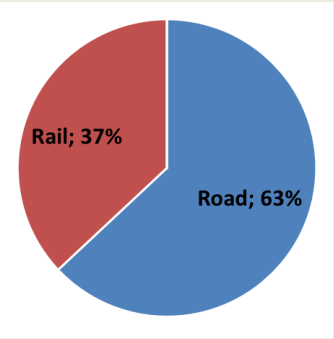
	2014	2015	2016	2017	2018
Empty		104	0	2.443	6.000
Full		204.310	211.612	264.673	285.341
Total		204.414	211.612	267.116	291.341

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty		90.629	49.378	66.131	61.096
Full		206.179	225.472	282.906	372.989
Total		296.808	274.850	349.037	434.085

Landside modal split for container transport

	2018
Road	63%
Railway	37%
IWW	0%



Direct intermodal train connections

ITALY: Cremona, Milano, Novara, Sona, Melzo, Brescia, Fernetti
HUNGARY: Budapest
GERMANY: München, Köln, Ludwigshafen, Karlsruhe, Burghausen, Krefeld-Uerdingen, Krefeld, Weiden, Giengen, Kiel, Hengersberg
AUSTRIA: Wels, Villach, Salzburg, Schwechat, Graz, Ried, Lambach, Leoben, Fürnitz
LUXEMBOURG: Bettembourg
CZECH REPUBLIC: Ostrava, Paskov
SLOVAKIA: Dunajska Streda
SWITZERLAND: Muttenz
BELGIUM: Genk, Zeebrugge

Statistics of trains by country (2018)

Country	Number of trains	TEU
GERMANY	2.945	83.965
ITALY	2.774	9.354
AUSTRIA	1.683	48.036
HUNGARY	860	58.137
CZECH REPUBLIC	605	20.161
LUXEMBOURG	590	384
SLOVAKIA	265	17.568
BELGIUM	5	10
SWITZERLAND	5	0
TOTAL	**9.732**	**237.615**

Forecasts (TEU)

It is expected that the container traffic (TEU) of the Port of Trieste will grow approximately 8-10%

Table 14: Traffic data for the port of Trieste (source: Port Authority/website of the port)

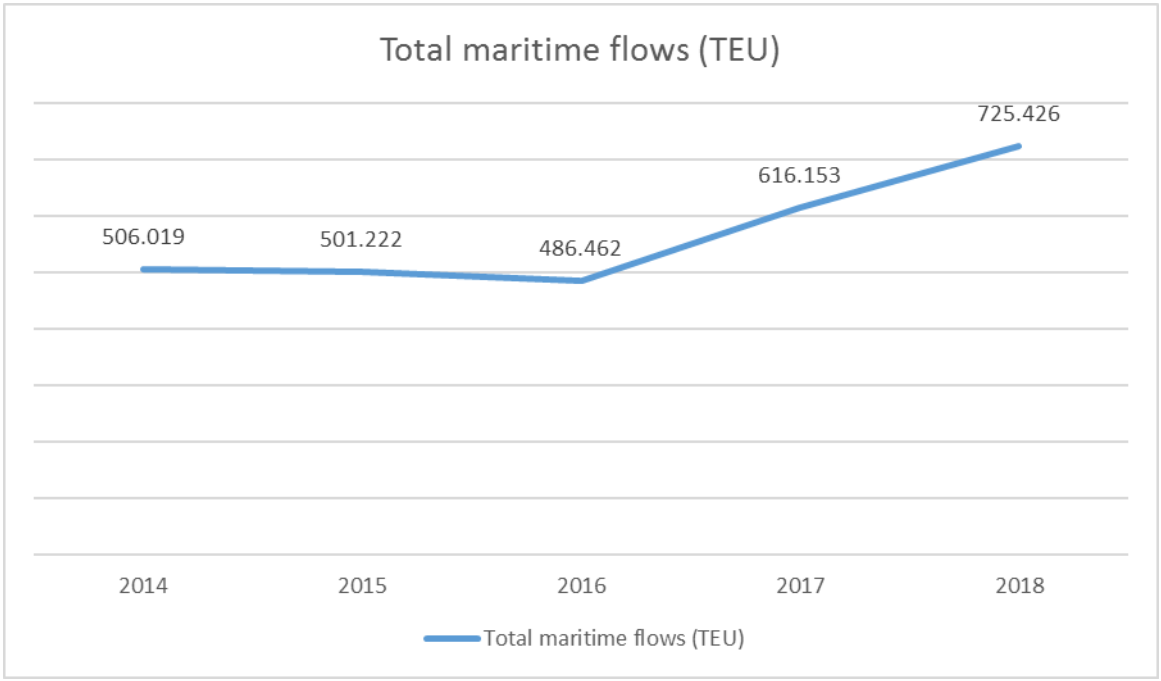


Figure 28: Containerized flows at the port of Trieste (elaboration on Port Authority data)

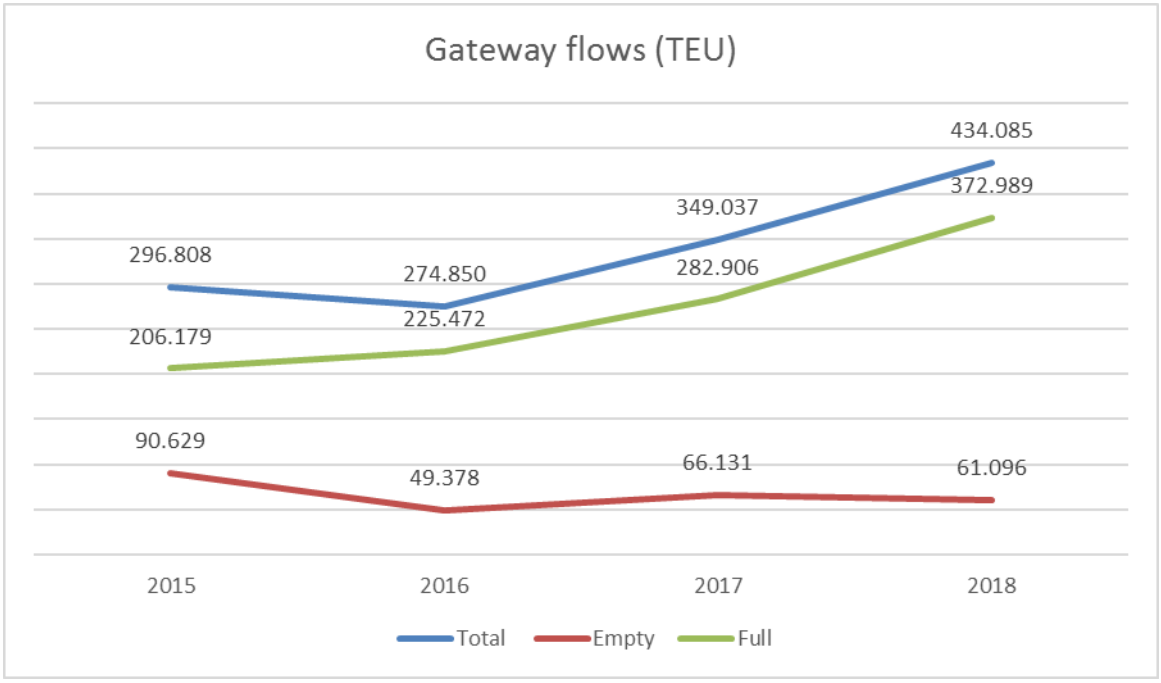


Figure 29: Containerized flows at the port of Trieste, with details of gateway flows and full/empty containers (elaboration on Port Authority data)

Koper

Port: KOPER

Total maritime flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	674.033	790.736	844.776	911.528	988.501

Transhipment flows (TEU)

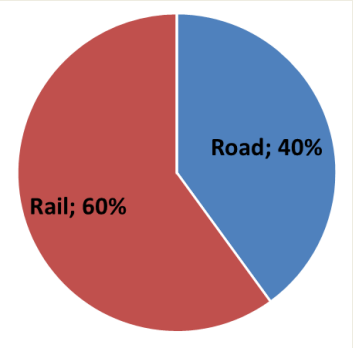
	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Gateway flows (TEU)

	2014	2015	2016	2017	2018
Empty	-	-	-	-	-
Full	-	-	-	-	-
Total	-	-	-	-	-

Landside modal split for container transport

	2018
Road	40%
Railway	60%
IWW	0%



Direct intermodal train connections

Munich, Melnik, Graz, Enns, Salzburg, Villach, Vienna, Wolfurt, Ybbs, Krems, Linz, Budapest, Dunajska Streda, Bratislava, Žilina, Dobra u Fridku Mystku, Ostrava, Paskov, Wroclaw, Maribor, Sofia, Arad, Padova, Novi Sad, Ljubljana, Beograd, Zagreb

Forecasts (TEU) > 1 million TEUs (2020)

Table 15: Traffic data for the port of Koper (source: Port Authority/website of the port)

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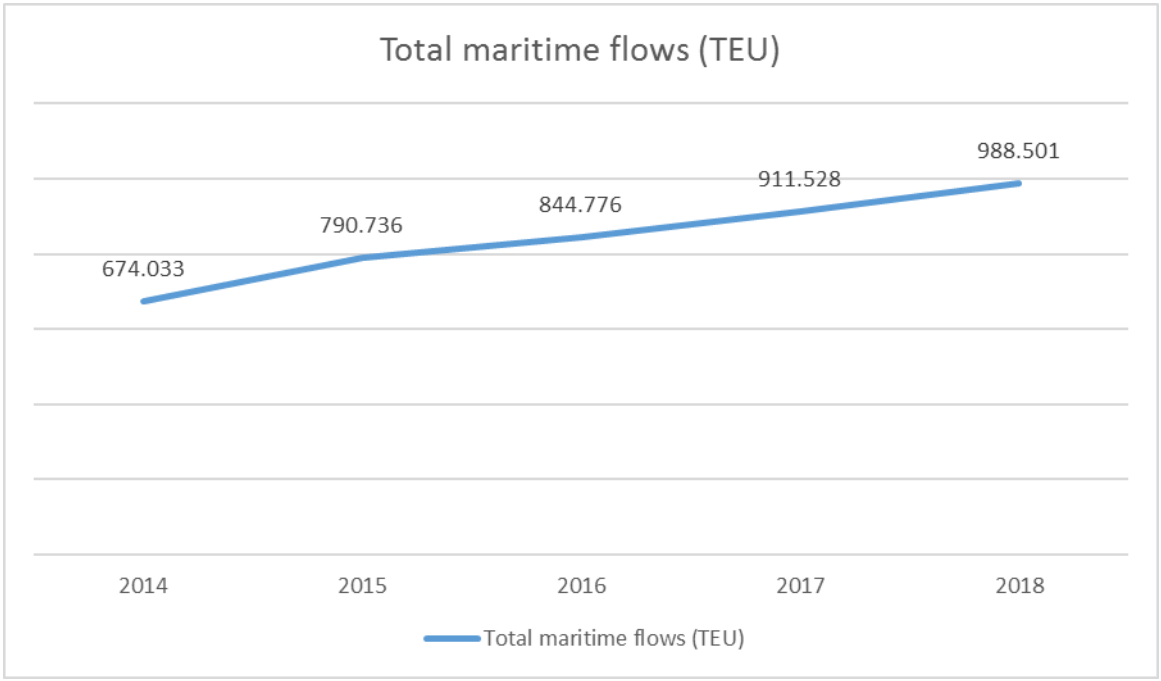

Figure 30: Containerized flows at the port of Koper (elaboration on Port Authority data)

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4. The case study areas and the intermodal terminals

Introduction

The present section reports on the data collected to characterise the case study area, used especially as input information to the dialogue events carried out as working step 3. The case study areas are those depicted in Figure 31.

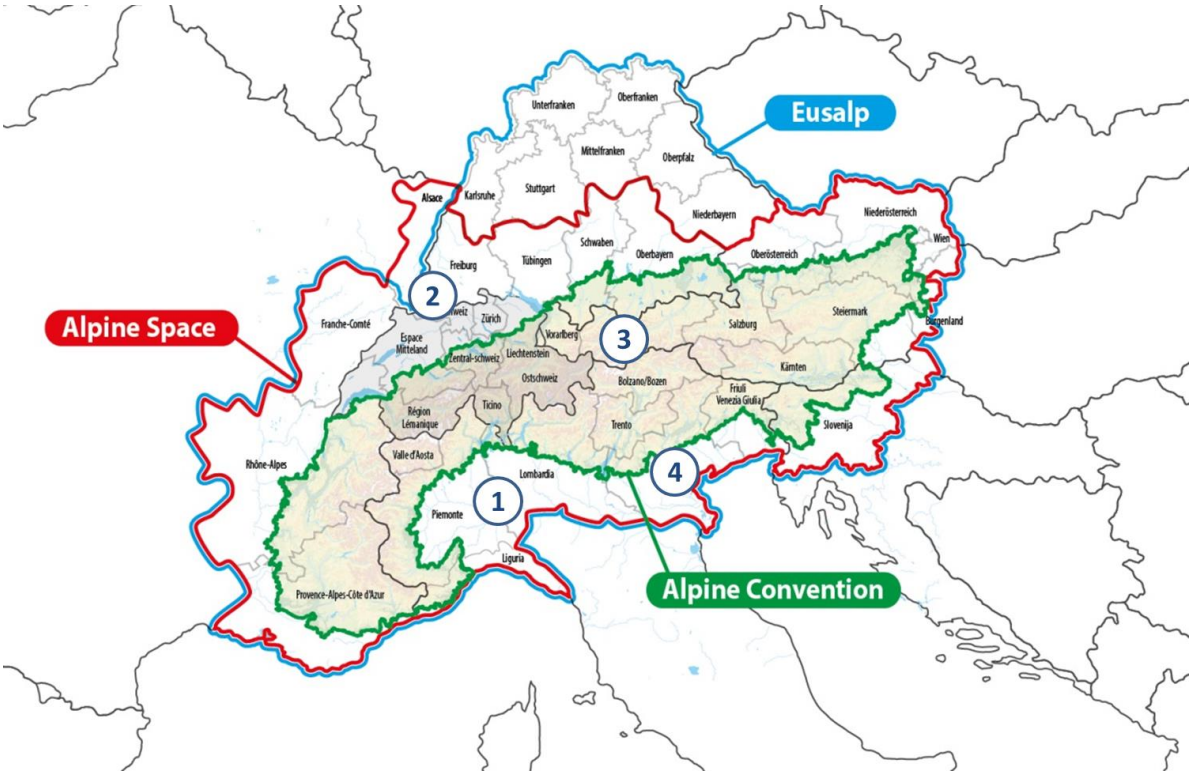

Figure 31: The EUSALP area and the case study locations: 1) Novara and west Lombardy; 2) Basel and Frieburg; 3) Tyrol; 4) Veneto (Verona/Padova)

The work on intermodal flows in the case study areas revealed altogether lacking of data, so much so that is only possible to quantify the number of intermodal consignments between different Countries and to identify the quantity of goods traveling between different regions, on different modes of transport (road, rail, inland waterways).

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The database used as reference are those of:

- UIRR[1]: national data on intermodal number of consignments, from which we can highlight the imbalances between incoming and outgoing flows (and therefore the possible need for empty vehicles in addition or the presence of vehicles traveling empty);
- LINKS[2] (internal database): tons of goods travelling between regions (NUTS2) considering the prevailing mode of transport. These OD matrices were developed as part of international projects and have been re-worked in order to highlight the modal split and the flows between the case study areas and the neighbouring countries.

The work to locate useful information extended to several national and regional plans among which the following:

- The regional transport plan of Veneto (approval phase);
- The regional mobility and transport plan of Piedmont (approved in 2018);
- The regional program of mobility and transport of Lombary (approved in 2016);
- Meeting of the Lombardy Regional Council 11/6/2018, n. 12 (Ferrobonus);
- Deliberation of the Piedmont Regional Council 22/6/2018, n. 16-7073 (Ferrobonus);
- Documents of the General States of the logistics for the development of transport infrastructures and logistics in the north-west of Italy;
- The overall Traffic Plan for Austria (Gesamtverkehrsplan für Österreich):
- The plan of expansion of rail network for (step to 2035) of Swiss Federal Railways;
- Economic framework of freight transport - Study comparing the modes of transport in the logistics process in Germany, 2008;
- The 2030 Federal Transport Infrastructure Plan of Germany (2016).

Also in those plans there was a lack of quantitative information relative to intermodality: the theme is not explicitly analysed or discussed and no data are available, both at a national and regional level. Intermodality is generally mentioned only with reference to strategic objectives (often referred to the national level) aimed at increasing the quantity of freight transported by rail.

The Veneto transport plan, for example, intends to fill the gap of infrastructure that penalizes the region and the North-East of Italy in its transalpine relations with Europe, developing the logistics system that concentrates on freight terminal and ports of the Upper Adriatic and wants to ensure

[1] UIRR - International Union for Road-Rail combined transport
[2] This is LINKS internal database of flows , developed as part of international projects starting 2015-2018

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that regional commercial relations with the rest of the world, Europe and Italy, take place with greater respect for the environment, through a rebalancing between road and rail.

Piedmont and Lombardy have allocated funds (Ferrobonus) to balance the gap between road and rail traffic, encouraging operators to transfer at least part of the goods transported from road to rail.

The Traffic Plan for Austria with the target network at 2025 set the path for the expansion and maintenance of the railway infrastructure in Austria. It aims at increasing route capacity by 30 % and developing new rail axes, so that 40% of goods may be transported by rail. The plan also foresees the construction or modernisation of freight terminals.

By 2035 the Swiss railways are planning to expand the railway network which should lead to an increase in the speed of services and in the number of tracks available for freight transport.

The Federal Transport Infrastructure Plan of Germany estimate that the share of combined transport in the volume will go up at 2030 from 21% (2016) to 31% and in the performance from 35 % to 43 %, so that in 2030 one third of the volume of goods carried and almost half of the transport performance of the railway will be handled in combined services.

The following sections report the data available relying on the UIRR and LINSK database mentioned above and on the data supplied by the terminals that participated actively to the data collection exercise carried out in spring 2019 for the present project.

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The Basel and Freiburg area

Overview for Switzerland and the Basel area

Data on road-rail combined transport, although referred to the whole of Switzerland, deliver an interesting picture also considering that Basel is the entry point to Switzerland for much freight flow from the North. Figure 32 shows the number of consignments per year to Switzerland by intermodal transport (in the case highlighted also considering the rolling motorway). Most exchanges are generally balanced; one important exception is the exchange between Germany and Switzerland –the most important trade lane concerning Switzerland- where imports exceed by almost 60%. Note that other flows at least in part likely to cross Germany to reach Switzerland (those with Belgium and the Netherlands, and the minor ones with Denmark) are balanced. The other trade lane showing a marked imbalance is that between Switzerland and Italy, where exports from Switzerland are twice the imports, touch the exchanges with Italy are much less significant than those with other Countries.

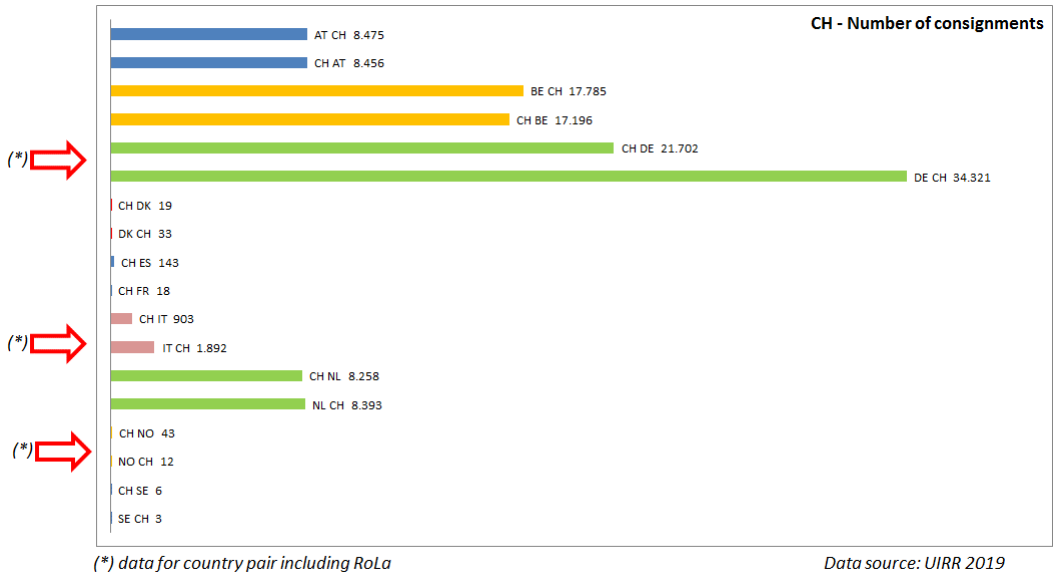

Figure 32: CH Road-rail combined transport – number of consignments (elaboration on UIRR 2019 data)

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Regional data on flows

Regional data for the area of Basel (from the LINKS database), indicate a general increase of the imports from 2010 to 2015 considering all modes together. Looking separately at each transport mode, the tonnes of goods traveling by road decrease from 2010 to 2015 (especially the export ones), whereas the quantity of goods by rail remained stable and there is an increase in the tonnes carried by inland waterways (IWW), as shown in Figure 33. As a result, the change of modal split over the years is reported in Figure 34, which shows that the growth in transport by IWW transport resulted in a significant reduction of the share of goods by road (from 83% in 2010 to 50% in 2015).

Looking at the exchanges of goods between the area of Basel and the neighbouring Countries, it is possible to highlight the following:

- transport takes place mainly by road (90%), with a small IWW quota for incoming flows (Figure 35);
- as well as with the rest of Switzerland, Basel exchanges freight by road especially with Germany and France, with incoming and outgoing flows generally balanced (Figure 36);
- Germany is the neighbouring Country with which the Basel area exchanges the most relevant freight flows (Figure 37);
- Germany is also the only nation that exchanges freight with Switzerland via inland waterways (Figure 38).

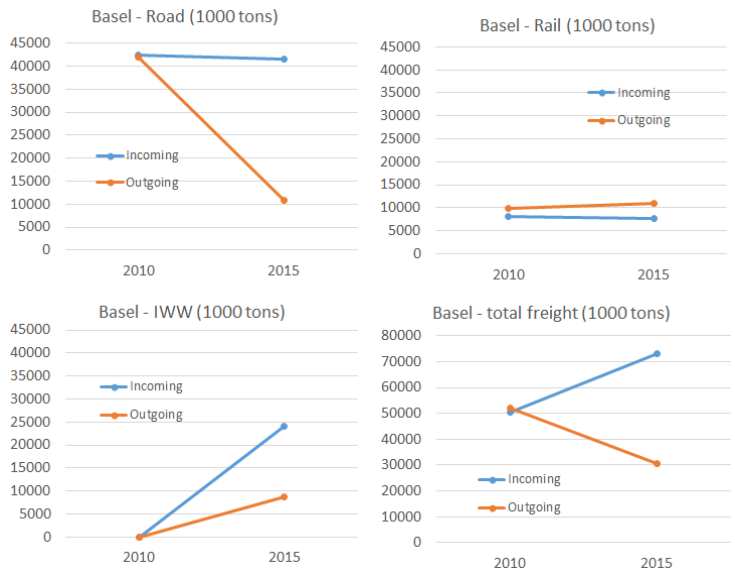

Figure 33: Basel transport by mode and total (tons 2010 and 2015; LINKS elaboration on own database)

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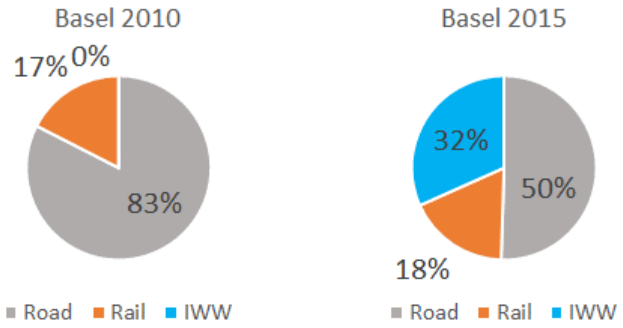

Figure 34: Basel modal split (tons 2010 and 2015; LINKS elaboration on own database)

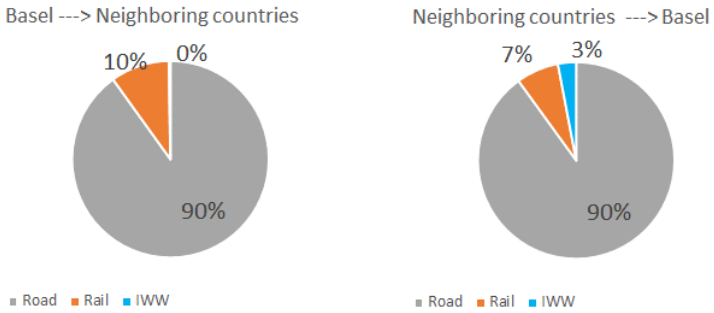

Figure 35: Basel modal split of transport with neighboring countries (tons 2015; LINKS elaboration on own database)

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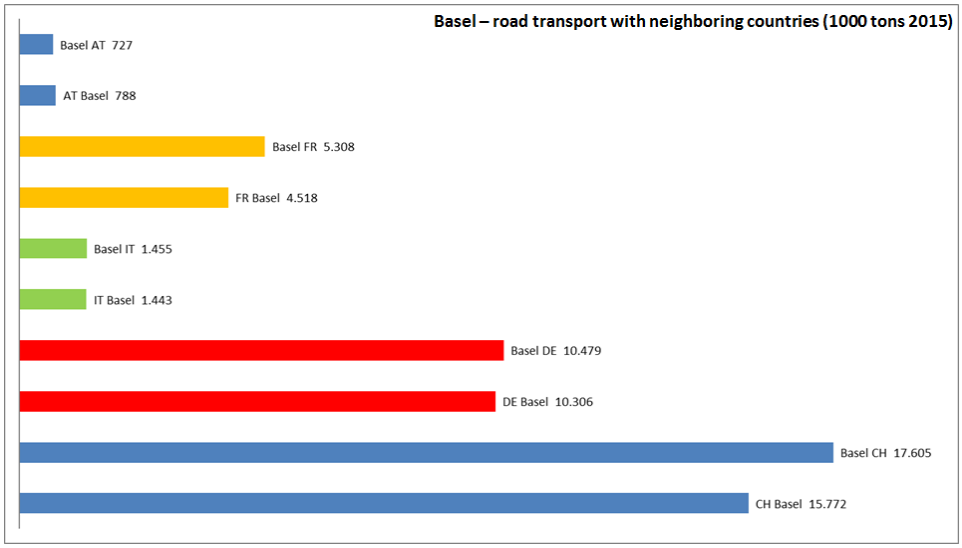

Figure 36: Basel road transport with neighboring countries (tons 2015; LINKS elaboration on own database)

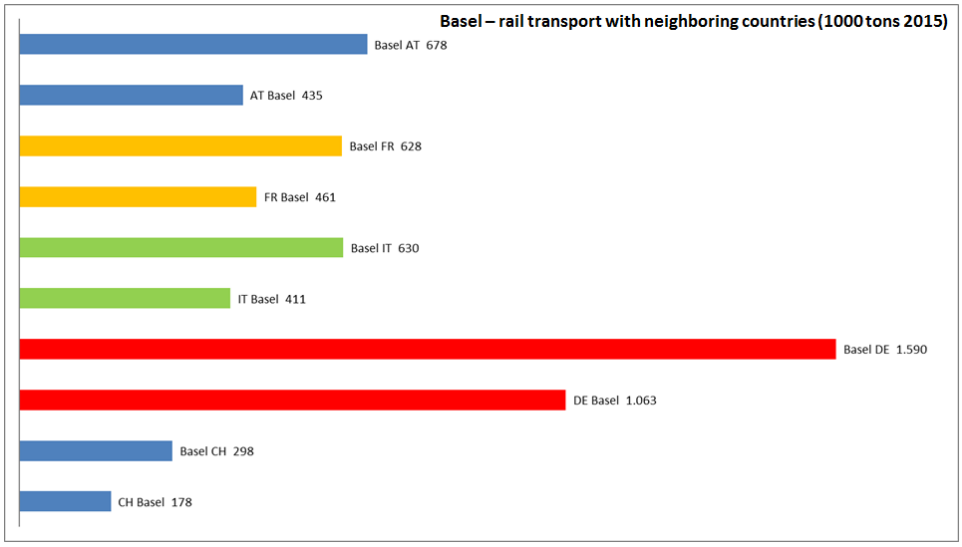

Figure 37: Basel rail transport with neighboring countries (tons 2015; LINKS elaboration on own database)

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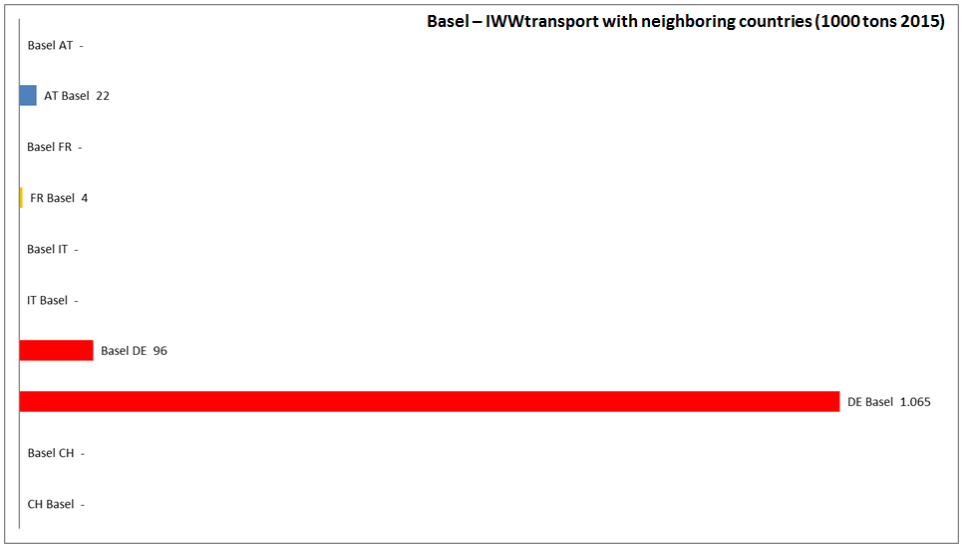

Figure 38: Basel IWW transport with neighboring countries (tons 2015; LINKS elaboration on own database)

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Overview for Germany and the Freiburg area

Yearly data for intermodal consignment in and out of Germany (Figure 39) show a general balance of flows, with the major exceptions concerning the EUSALP area of the flows exchanged with Switzerland, as noted already in the previous paragraph, and of the flows with Italy the latter are the most important flows exchanged by Germany with a foreign Country characterised by the fact that southbound flows are larger than the northbound ones by more than 100.000 units. An imbalance of some 15 % consignment occurs also on the Germany-Austria trade lane. There are also other case of imbalances although of much smaller magnitude and not referred to the EUSALP area.

(*) data for country pair including RoLa *Data source: UIRR 2019*

Figure 39: Germany: road-rail combined transport – number of consignments (elaboration on UIRR 2019 data)

Regional data on freight flows for Germany and the Freiburg area

The dataset of regional freight flows for 2010 and 2015, reveal a reduction over the years of flows by transport all modes, with the exception of imports by road. The data on the freight flows are depicted in Figure 40 whereas Figure 41 shows the modal split, which is stable over the years.

With reference to the trade of goods with neighbouring Countries, Figure 42 to Figure 45 allow us to notice the following points :

- freight transport occurs mainly by road (84% outgoing, 88% incoming), with the IWW quota that exceeds the rail quota (Figure 42);

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- the Freiburg exchanges freight by road mostly with the rest of Germany as well as with Switzerland, and incoming and outgoing flows of freight are almost completely in balance (Figure 43);
- Germany and Poland area the country most involved in railway freight flows arriving or departing from the Freiburg area (Figure 44);
- The Netherlands, Belgium and Germany exchange freight with Freiburg via inland waterways (Figure 45) and the flows exchanged with Belgium and with the rest of Germany are not balanced.

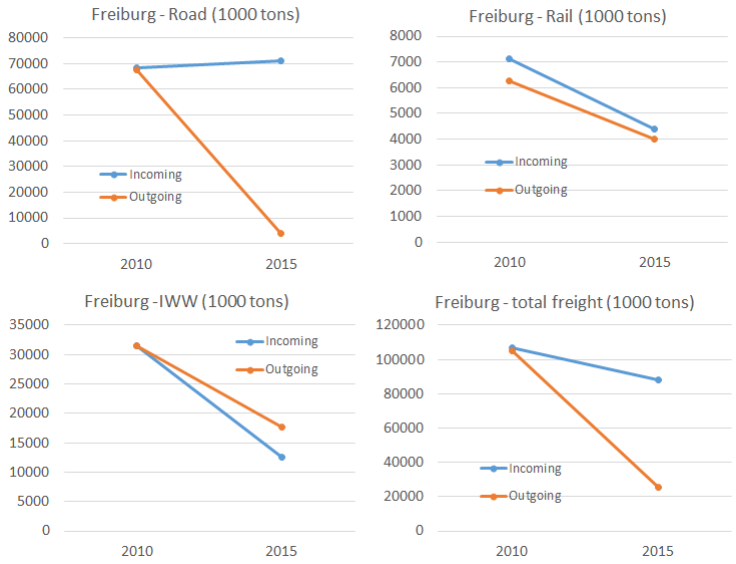

Figure 40: Freiburg transport by mode and total (tons 2010 and 2015; LINKS elaboration on own database)

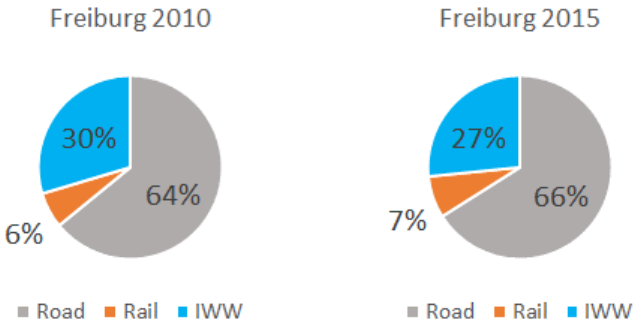

Figure 41: Freiburg modal split (tons 2010 and 2015; LINKS elaboration on own database)

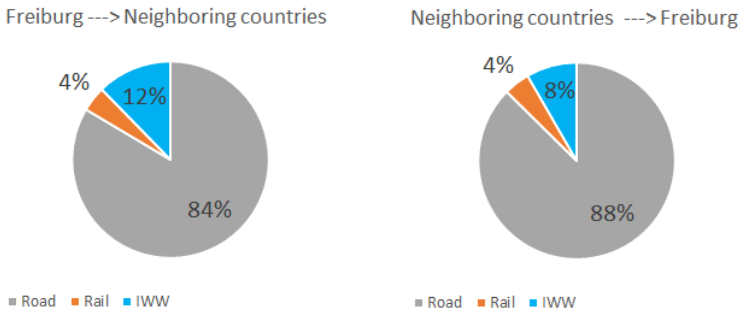

Figure 42: Freiburg modal split of transport with neighboring countries (tons 2015; LINKS elaboration on own database)

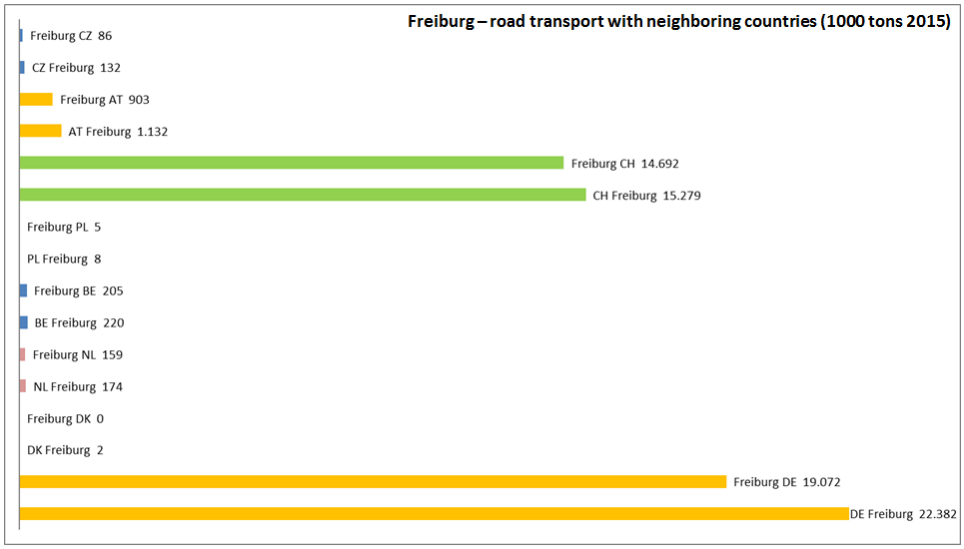

Figure 43: Freiburg road transport with neighboring countries (tons 2015; LINKS elaboration on own database)

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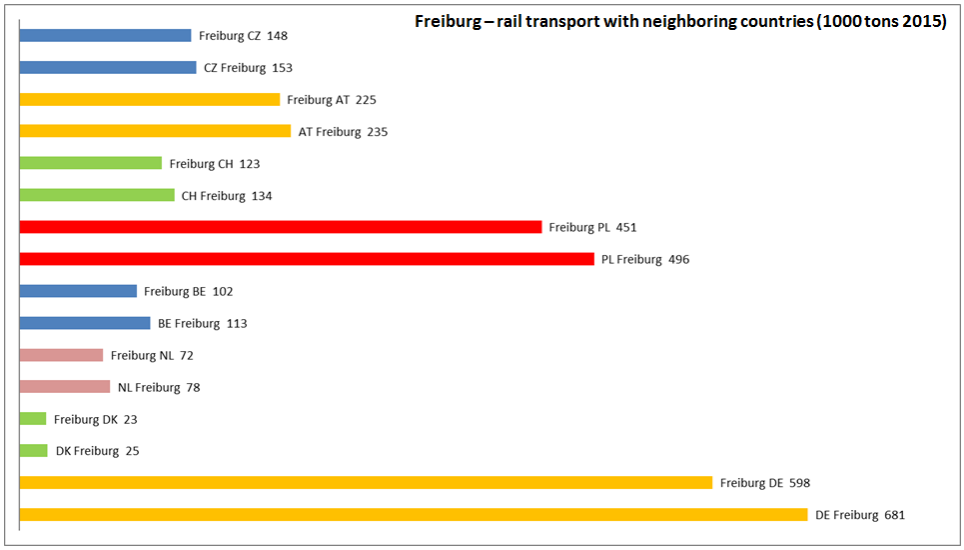

Figure 44: Freiburg rail transport with neighboring countries (tons 2015; LINKS elaboration on own database)

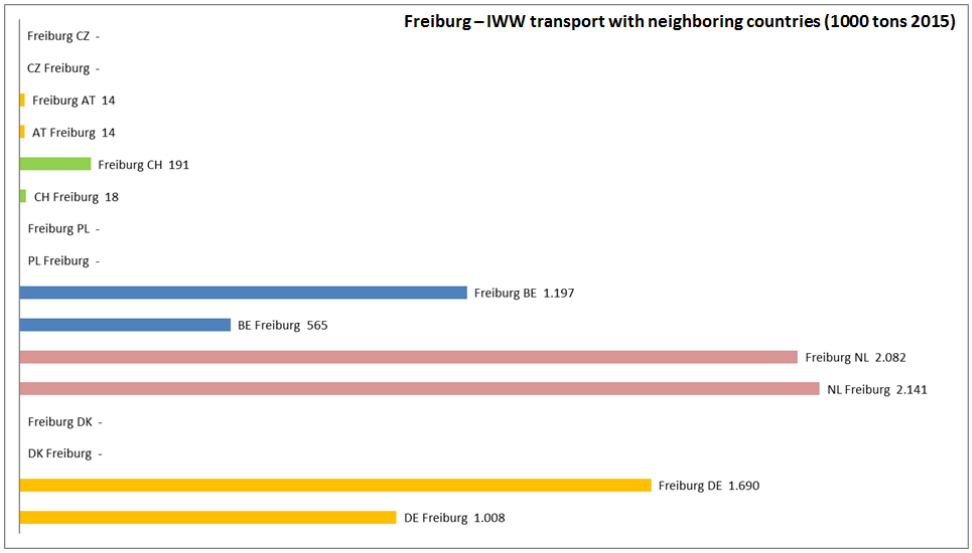

Figure 45: Freiburg IWW transport with neighboring countries (tons 2015; LINKS elaboration on own database)

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The terminals in the area

Figure 46 and Table 16 indicate the terminals of the case study area that were considered when looking for traffic data.

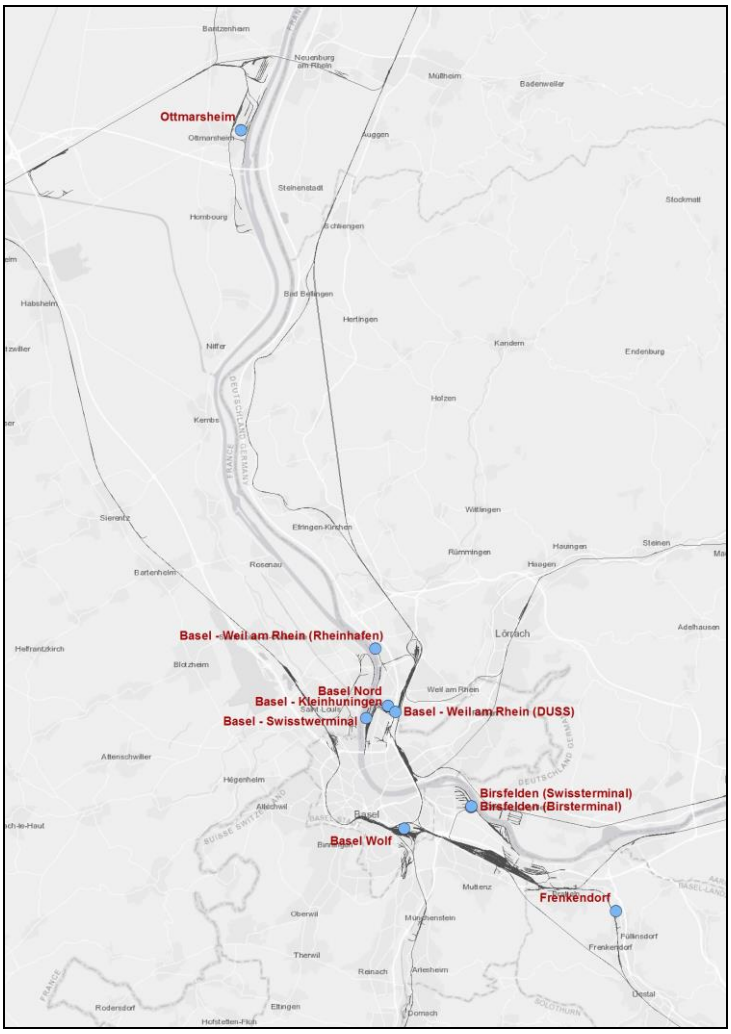

Figure 46: Terminals considered within the Basel-Freiburg study area

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Name	State	Operator	Modes	ITUs handled	Address
Basel - Kleinhüningen	CH	Contargo AG	Road, Rail, Barge	Containers	Grenzstraße 149 4019 Basel SWITZERLAND
Basel - Swissterminal	CH	Swissterminal AG	Road, Rail, Barge	Containers	Westquaistrasse 12 4019 Basel SWITZERLAND
Basel - Weil am Rhein (DUSS)	DE	DUSS	Road, Rail	Containers, swap bodies, semitrailers	Am Umschlagbahnhof 1 79576 Weil am Rhein Germany
Basel - Weil am Rhein (Rheinhafen)	DE	Rheinhafengesellschaft Weil am Rhein mbH	Road, Rail, Barge	Containers	Alte Straße 111 79576 Weil am Rhein Germany
Basel Nord	CH	SBB Cargo	Road, Rail	Containers, swap bodies, semitrailers	Grenzstrasse 149 4019 Basel SWITZERLAND
Basel Wolf	CH	Hupac/SBB	Road, Rail	Containers, swap bodies, semitrailers	St. Jakob-Straße 200 4052 Basel Switzerland
Birsfelden (Birsterminal)	CH	Birsterminal AG	Road, Rail, Barge	Containers	Hafenstrasse 54 4127 Birsfelden SWITZERLAND
Birsfelden (Swissterminal)	CH	Swissterminal AG (Birsfelden)	Road, Rail, Barge	Containers	Hafenstrasse 14 4127 Birsfelden SWITZERLAND
Frenkendorf	CH	Swissterminal AG (Frenkendorf)	Road, Rail	Containers	Flachsackerstrasse 7 4402 Frenkendorf SWITZERLAND
Ottmarsheim	FR	Contargo Sàrl Ottmarsheim	Road, Rail, Barge	Containers	Zone Portuaire 68490 Ottmarsheim France

Table 16: Terminals considered within the Basel-Freiburg study area

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Intermodal flows at terminals

Unfortunately traffic information was requested in most cases to no avail, and during the dialogue event organised in the area it was clarified that due to competition issues, data are confidential.

The only terminal for which data are available is Rheinhafen in Weil am Rhein, as reported in Table 17.

Terminal: **WEIL AM RHEIN (Rheinhafen)**			
Modes: Road, Rail, IWW			
ADR: 1.4S/1.4G/1.3G/2/3/4/5/6.1/8/9			
Total flows (TEUs or ITUs or crane moves) 37.500 TEUs			
Modal split for container transport Truck / train / barge			
Number of trucks per week: 100-150 ca per day			
Direct intermodal train connections Rail access: 2 p. Week Rotterdam, daily Hamburg/ Bremerhaven			
Container transport Maritime 90% Continental 10%			
Number of containers/year	25.000	% containers/year	100%
of which tank containers	650	of which % of tank containers	3%
Number of swap bodies/year	0	% of swap bodies/year	0%
Number of semitrailers/year	0	% semitrailers/year	0%
Forecasts n/a			
Capacity of yard for empties: Currently around 1.300 TEUs			
Additional yards of empties near the terminal: Basel (CH), Ottmarsheim (F)			
Tariff/provisions for empties: Individual tariffs			
Flow of empty containers per week: On average 80			
Shortage / Excess / balance of empty containers: Depending on water levels on Rhine. No data, managed by shipping lines			
Methods used to manage empty containers: no method employed directly by the terminal			

Table 17: Flows and connections for the WEIL AM RHEIN (Rheinhafen) terminal (data source for flows terminal manager, ref year 2018, data source for connections: Contargo, ref year 2019)

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Tyrol

Overview

Figure 47 illustrated the exchanges between Austria and other countries that occur by road-rail combined transport. Many flows are not in balance for instance those with Germany, Hungary, Italy, Netherlands and Slovenia. Germany, Italy and Slovenia are concerned with the largest combined transport exchanges with Austria and imbalances are of different magnitude and direction. With the data available it is not possible to refine further the analysis: some of the imbalances may occur in terms of consignments but not in terms of intermodal units that operators redirect on other trade lanes.

Figure 47: AT Road-rail combined transport – number of consignments (UIRR 2019)

Regional data on flows

The overall modal spit of Tyrol, as recorded in 2010 saw a quarter of the tonnes goods transported by rail and three quarters by road (Figure 49) with the share of rail markedly increased in the years. Overall freight travelling in and out of Tyrol decreased by all modes between between 2010 and 2015, as shown in Figure 48.

Regarding the trade of goods with neighbouring counties, it is possible to highlight the following:

- transport takes place mainly by road (circa 90%, Figure 50);

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- Tyrol exchanges by road especially with Germany and Italy, with a general balance between incoming and outgoing tons (Figure 51);
- Germany is the country exchanging the largest railway freight flows with Tyrol (Figure 52).

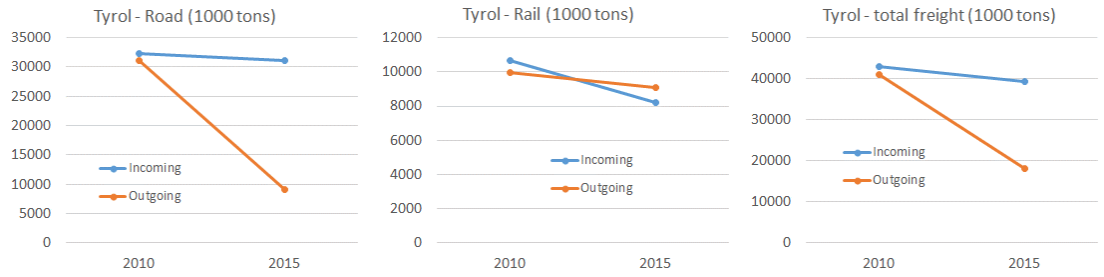

Figure 48: Tyrol transport by mode and total (tons 2010 and 2015; LINKS elaboration on own database)

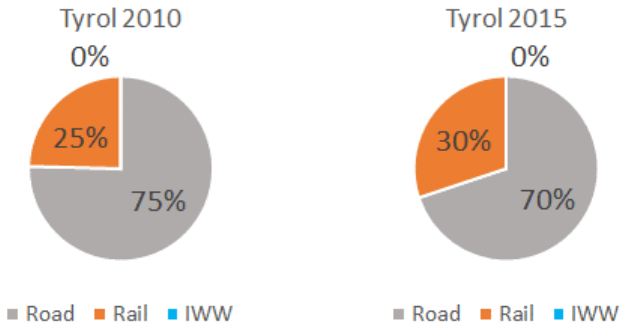

Figure 49: Tyrol modal split (tons 2010 and 2015; LINKS elaboration on own database)

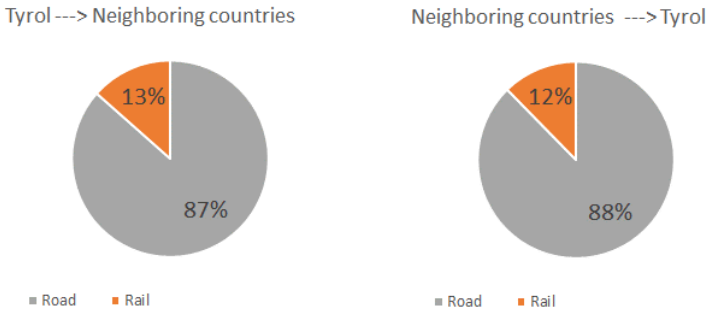

Figure 50: Tyrol modal split of transport with neighboring countries (tons 2015; LINKS elaboration on own database)

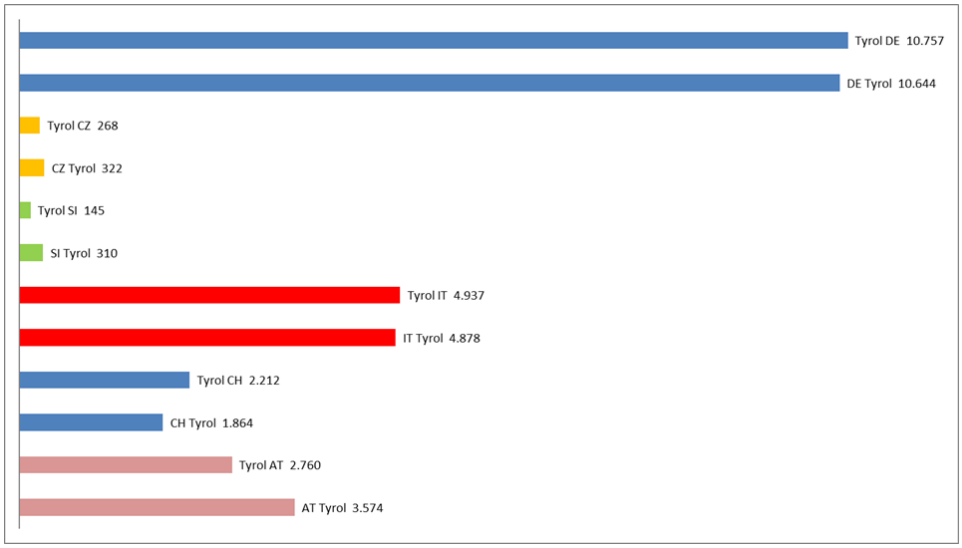

Figure 51: Tyrol road transport with neighboring countries (tons 2015; LINKS elaboration on own database)

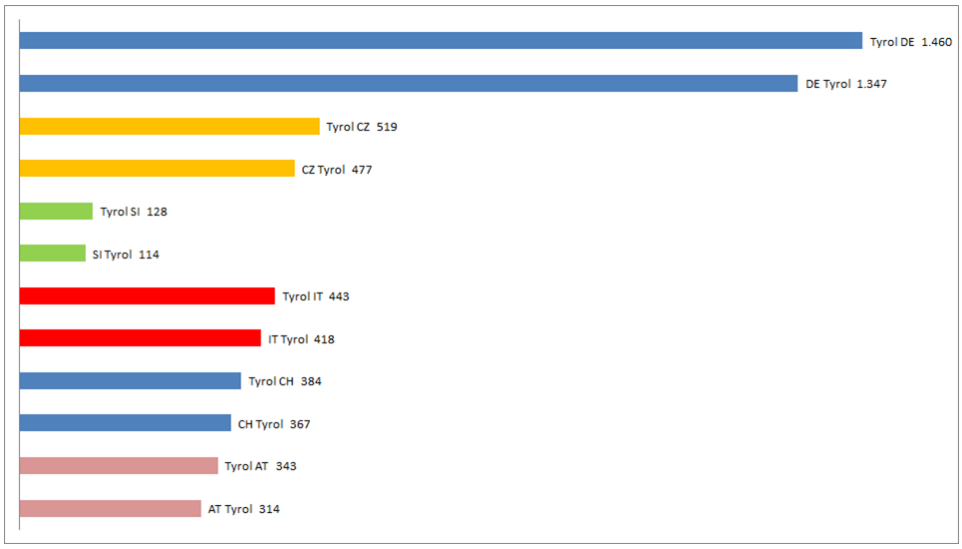

Figure 52: Tyrol rail transport with neighboring countries (tons 2015; LINKS elaboration on own database)

The terminals in the area

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The only relevant intermodal terminal in the area is Hall in Tirol. The other terminals (Worgl CCT and Brennersee) only have rolling motorway facilities that are out of the scope of this study.

Name	State	Operator	Modes	ITUs handled	Address
Hall i. T. CCT	A	Tiroler Strasse-Schiene-Umschlaggesellschaft mbH	Road, Rail	Container Swap Body Semitrailer	Löfflerweg 35 6060 Hall in Tirol Austria

Table 18: The only intermodal terminal considered within the Tyrol study area

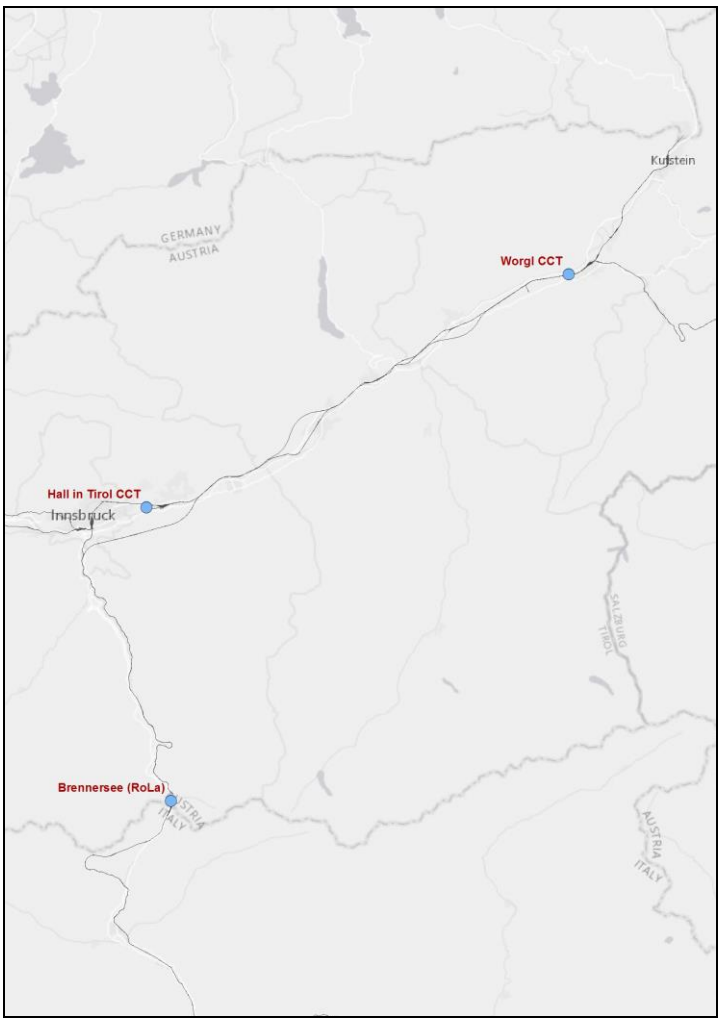

Figure 53: Terminals in the Tyrol study area. The only one considered here is Hall in Tirol since the other ones are only for the rolling motorway.

Intermodal flows at terminals

Terminal: **HALL in TIROL**			
Modes: Road, Rail, IWW			
ADR: All, except 1 + 7			
Total flows (TEUs or ITUs or crane moves) 40.000 ITUs			
Modal split for container transport n/a			
Number of trucks per week: 660			
Direct intermodal train connections			
Wels	Rail Cargo Operator - Austria GmbH	n/a	
Wien	Rail Cargo Operator - Austria GmbH	n/a	
Verona	TX Logistik AG	6 trains	
Herne	TX Logistik AG	6 trains	4 AxC 2 AxD
Kassel	TX Logistik AG	5 trains	4 AxB 1 AxD
Wolfurt	Rail Cargo Operator - Austria GmbH	n/a	
Bludenz	Rail Cargo Operator - Austria GmbH	n/a	
Container transport Maritime 3% Continental 97%			

Number of containers/year	5.000	% containers/year	12%
of which tank containers	5.000	of which % of tank containers	100%
Number of swap bodies/year	33.000	% of swap bodies/year	83%
Number of semitrailers/year	2.000	% semitrailers/year	5%

Forecasts n/a
Capacity of yard for empties: 100 TEU
Additional yards of empties near the terminal: No
Tariff/provisions for empties: Arrival day / shipping day are free
Flow of empty containers per week: 5
Shortage / Excess / balance of empty containers: If maritime more import less export. Extra empty container maritime, continental also
Methods used to manage empty containers: They are sent to another depot (Salzburg)

Table 19: Flows and connections for the Hall in Tirol terminal (data source for flows terminal manager, ref year 2018, data source for connections: railway.tools, ref. year 2019)

The data for the only relevant terminal in the Tirol area were supplied by the terminal manager and are reported in Table 19. A particular relevant remark is the need of sending empty containers elsewhere due to the local lack of space.

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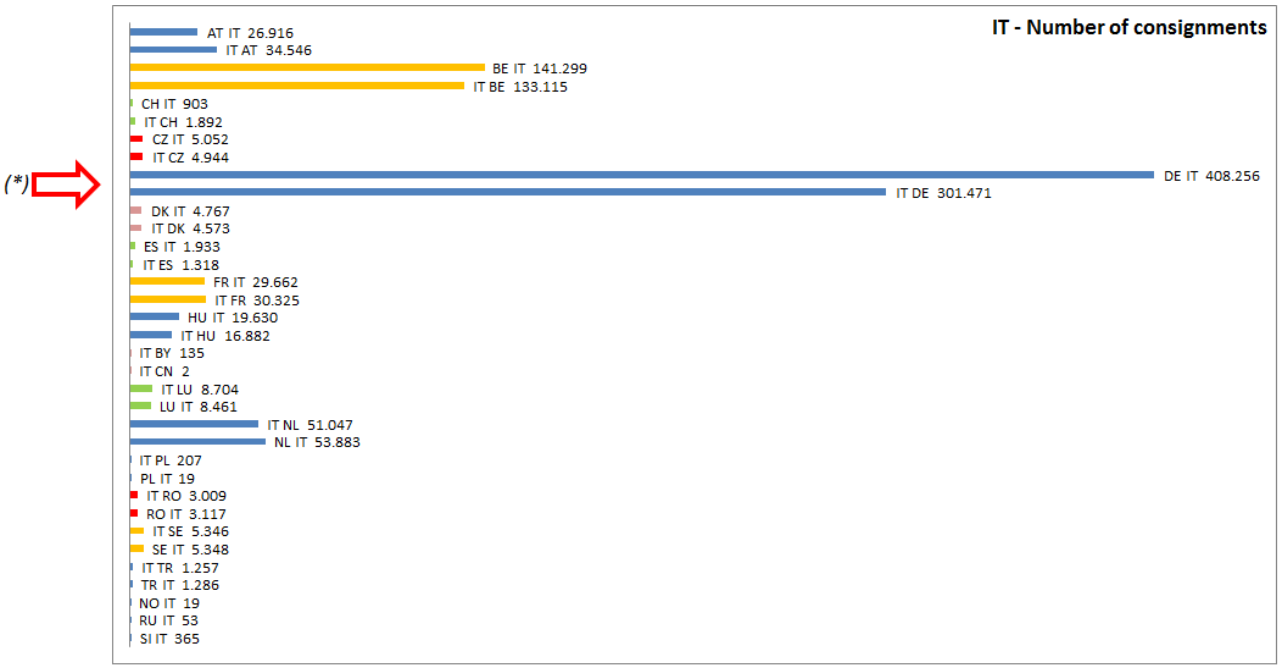
Novara/west Lombardy and Veneto study areas

Overview

The overview for the Novara west Lombardy and for the Veneto study area is reported in a single section since national data such as those in Figure 54 are common.

The several road rail combined transport lanes with Italy at either end are generally balanced with the notable exception of the exchanges with Germany, which are by far the most significant in absolute terms and are unbalanced for more than 100.000 shipment per year (Figure 54).



(*) data for country pair including RoLa *Data source: UIRR 2019*

Figure 54: IT road-rail combined transport – number of consignments (UIRR 2019)

Regional data on intermodal flows

From 2010 to 2015 Piedmont, Lombardy and Veneto registered all a reduction in the tonnes of freight , with the exception of the outgoing flows by road (Figure 55).

Road is by far the most used mode for freight transport with Veneto showing the smaller road split, when considering also maritime transport (Figure 56), which is proportionally much larger when maritime transport is not considered.

Figure 55: Transport by mode and total. Piedmont, Lombardy and Veneto (tons 2010 and 2015; LINKS elaboration on own database)

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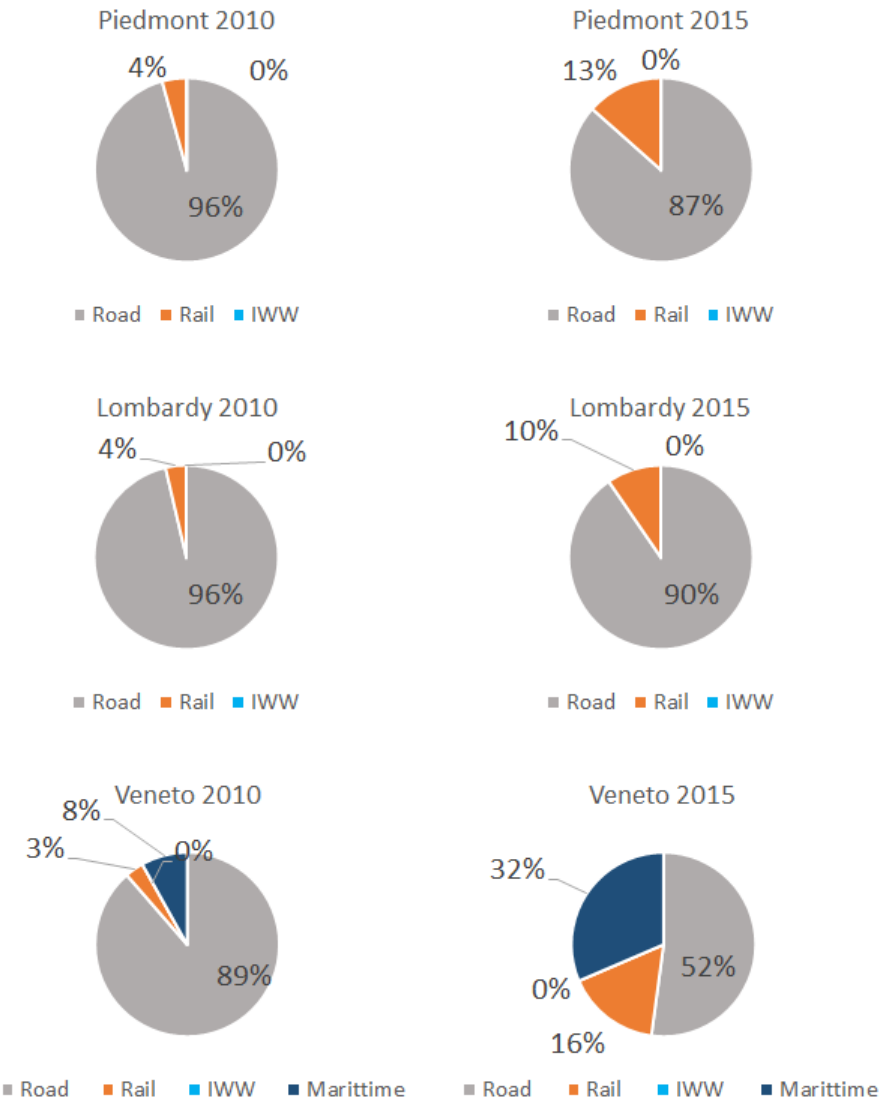

Figure 56: Modal split. Piedmont, Lombardy and Veneto (tons 2010 and 2015; LINKS elaboration on own database)

Figure 57 shows the modal split of trade with neighbouring countries, stressing again the very large share of road transport, when considering tonnes moved.

Figure 58, Figure 59 and Figure 60 describe the road exchanges between Piedmont, Lombardy, Veneto respectively and the neighbouring countries or the rest of Italy. In all cases the largest quantities of goods are exchanged within Italy, and only in a few cases the flows in either direction are not balanced (Piedmont-France, Lombardy-rest of Italy and, to a smaller extent Veneto-rest of

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Italy). The imbalances shows are to be taken as general indications since they refer to flows of all goods, not necessarily to goods that are or could be transported in intermodal transport units.

Figure 61, Figure 62 and Figure 63 depict the rail exchanges in tonnes respectively of Piedmont, Lombardy and Veneto, allowing to note that the largest quantities of goods exchanged by rail are to or from international locations. Lombardy is somewhat an exception with tonnes exchanged with Italy being comparable to those with Switzerland. In all cases, except for the trade between Veneto and the rest of Italy, the flows are unbalanced.

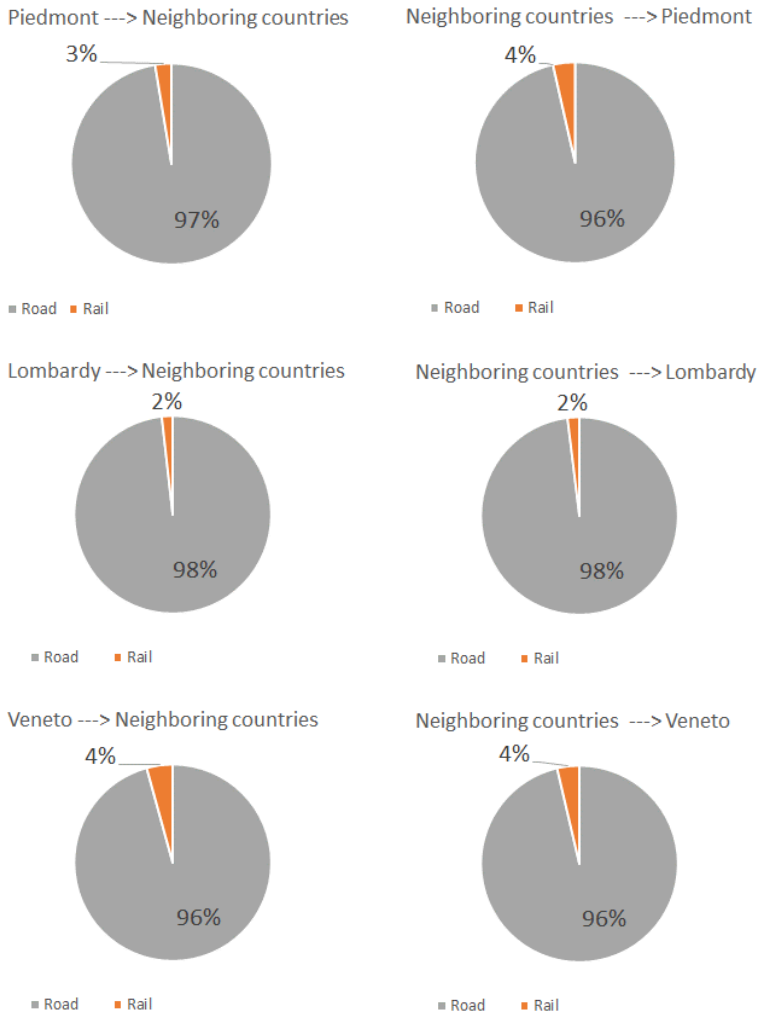

Figure 57: modal split with neighboring countries. Piedmont, Lombardy and Veneto (tons 2015; LINKS elaboration on own database)

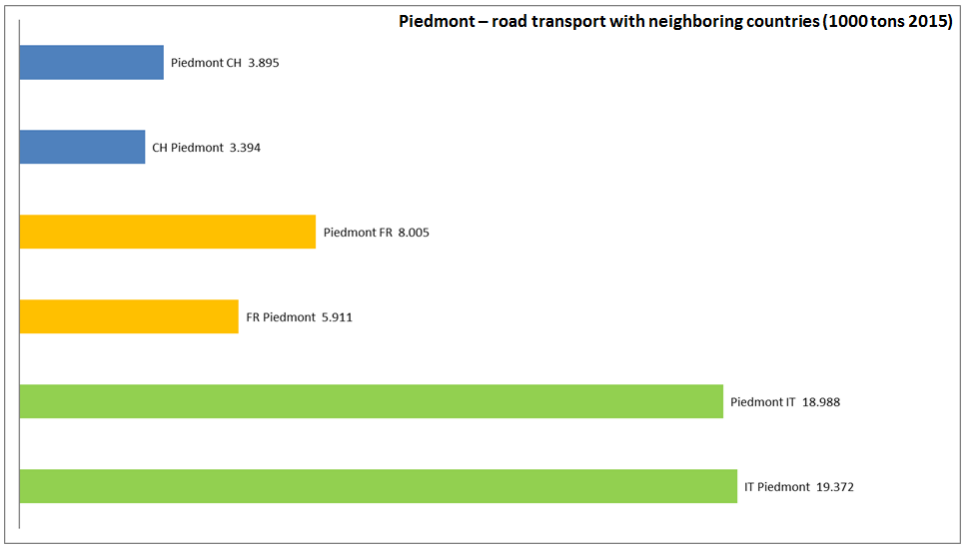

Figure 58: Piedmont road transport with neighboring countries (tons 2015; LINKS elaboration on own database)

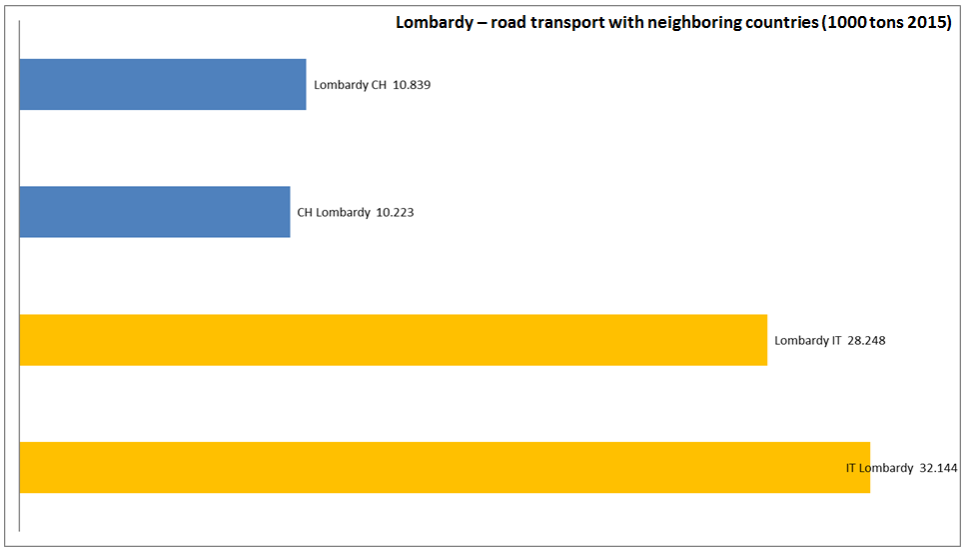

Figure 59: Lombardy road transport with neighboring countries (tons 2015; LINKS elaboration on own database)

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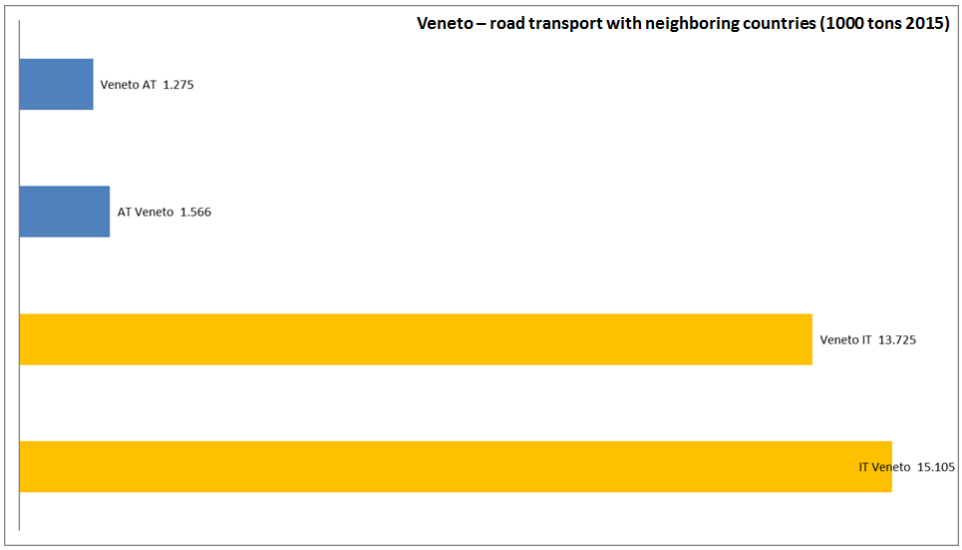

Figure 60: Veneto road transport with neighboring countries (tons 2015; LINKS elaboration on own database)

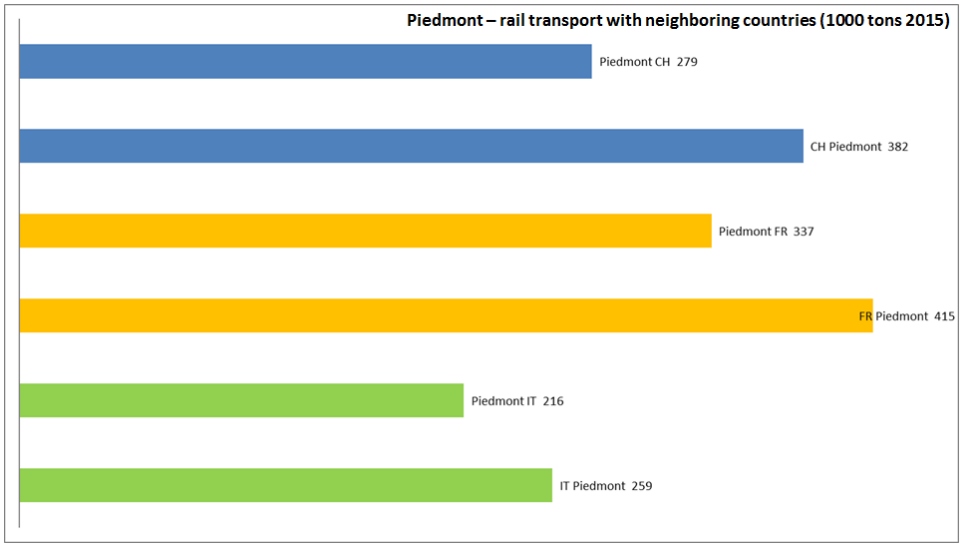

Figure 61: Piedmont rail transport with neighboring countries (tons 2015; LINKS elaboration on own database)

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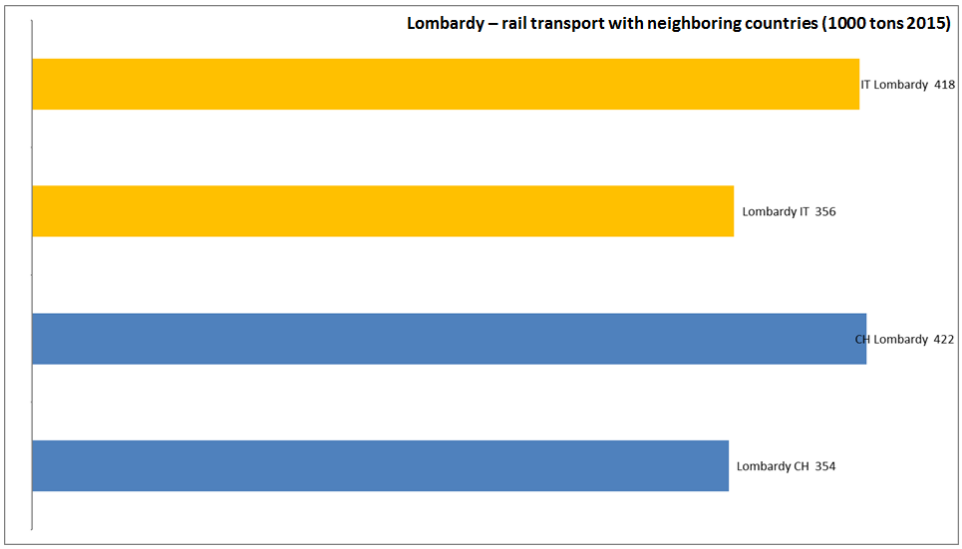

Figure 62: Lombardy rail transport with neighboring countries (tons 2015; LINKS elaboration on own database)

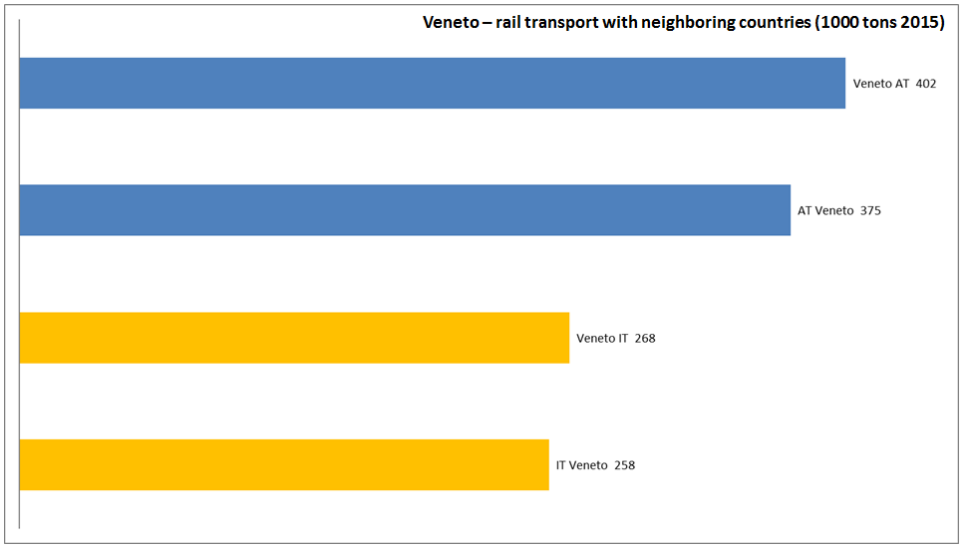

Figure 63: Veneto rail transport with neighboring countries (tons 2015; LINKS elaboration on own database)

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The terminals in the Novara/west of Lombardy area

Table 20 and Figure 64 report the terminal considered in the Novara/west of Lombardy study area.

Name	State	Operator	Modes	ITUs handled	Address
Novara CIM	IT	Eurogateway S.r.l. (Novara CIM)	Road, Rail	Container Swap Body	Interporto CIM V. Carlo Panseri 100 28100 Novara Italy
Mortara	IT	T.I.Mo. Srl - Terminal Intermodale di Mortara	Road, Rail	Container	Via XI Settembre 27036 Mortara Italy
Arluno	IT	Gruppo Spinelli (Arluno)	Road, Rail	Container	Via Don Luigi Sturzo 13 20010 Arluno Italy
Busto Arsizio - Gallarate	IT	Termi SpA (HUPAC)	Road, Rail	Container Swap Body Semitrailer	Via Dogana 8/10 21052 Busto Arsizio Italy
Beura-Cardezza	IT	Schenker Italiana S.p.A.	Road, Rail	Container Semitrailer	Località Scalo Ferroviario Domo II 28040 Beura-Cardezza Italy

Table 20: Terminals considered within the Novara study area

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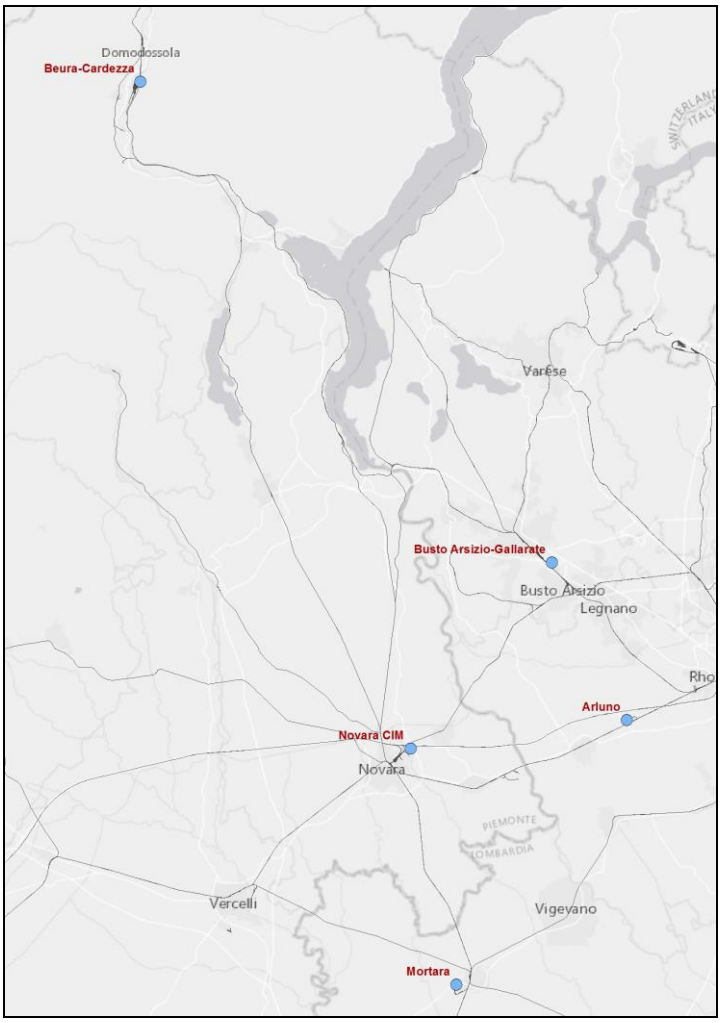

Figure 64: Terminals considered within the Novara and west of Lombardy study area

Intermodal flows at terminals for the Novara/west of Lombardy case study

Data available for the Novara/west of Lombardy study area cover only two of the terminals listed in the previous section (see Table 21 and Table 22). In neither case empty intermodal units and corresponding flows and storage space were reported as a problem.

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Terminal: **DOMODOSSOLA**

Modes: Road, Rail

ADR: 2-3-4-5-6-8-9 but there must be no stop

Total flows (TEUs or ITUs or crane moves)

47.000 ca ITUs

Modal split for container transport n/a

Number of trucks per week: 1.050 ca

Direct intermodal train connections

Zeebrugge	Move Intermodal NV	N.A.	
	Hupac Intermodal SA	6 trains	5 AxC 1 AxD
Antwerpen	Move Intermodal NV	N.A.	
Genk	Move Intermodal NV	N.A.	
Geleen	Hupac Intermodal SA	N.A.	
Kaldenkirchen	CargoBeamer intermodal operations GmbH	5 trains	4 AxB 1 AxD
Rostock	Hangartner Terminal AG	N.A.	
Karlsruhe	Hangartner Terminal AG	N.A.	
Weil am Rhein	Hangartner Terminal AG	N.A.	

Container transport

Maritime 0%
Continental 100%

Number of containers/year	2.000 ca	% containers/year	5%
of which tank containers	0	of which % of tank containers	0%
Number of swap bodies/year	4.800 ca	% of swap bodies/year	15%
Number of semitrailers/year	40.200 ca	% semitrailers/year	80%

Forecasts n/a

Capacity of yard for empties: 30 ITUs 30' stackable

Additional yards of empties near the terminal: No

Tariff/provisions for empties: 45€ handling

Flow of empty containers per week: 45

Shortage / Excess / balance of empty containers: not present

Methods used to manage empty containers: n/a

Table 21: Flows and connections for the Domodossola terminal (data source for flows terminal manager, ref year 2018, data source for connections: railway.tools, ref year 2019)

Terminal: **MORTARA**

Modes: Road, Rail

ADR: In principle, all of them

Total flows (TEUs or ITUs or crane moves)
53.013 ITUs

Modal split for container transport n/a

Number of trucks per week: 150 ca per day

Direct intermodal train connections

Gent	Shuttlewise B.V.	5 trains	3 AxC 1 AxD 1 AxE
Krefeld	Shuttlewise B.V.	5 trains	4 AxC 1 AxD
Rotterdam	Shuttlewise B.V.	5 trains	4 AxC 1 AxD
Duisburg	Samskip Van Dieren Multimodal BV	5 trains	4 AxC 1 AxD

Container transport
Maritime 0%
Continental 100%

Number of containers/year	42.054	% containers/year	79%
of which tank containers	27.000 ca	of which % of tank containers	60-70%
Number of swap bodies/year	9.928	% of swap bodies/year	19%
Number of semitrailers/year	1.031	% semitrailers/year	2%

Forecasts n/a

Capacity of yard for empties: space can be variable since they use part of the handling area, 100 units ca

Additional yards of empties near the terminal: No

Tariff/provisions for empties: some free days, then parking fees based on length and stackability

Flow of empty containers per week: n/a

Shortage / Excess / balance of empty containers: not present

Methods used to manage empty containers: n/a

Table 22: Flows and connections for the Mortara terminal (data source for flows terminal manager, ref year 2018, data source for connections: railway.tools, ref year 2019)

The terminals in the Veneto study area

Name	State	Operator	Modes	ITUs handled	Address
Verona	IT	Terminali Italia S.r.l. (Verona Quadrante Europa)	Road, Rail	Container Swap Body Semitrailer	Via Sommacampagna 32 37137 Verona Italy
Padova Container Service terminal	IT	Padova Container Service Srl	Road, Rail	Container	Corso Spagna, 14/D 35127 Padova Italy
Padova Interporto Terminal	IT	Nord Est Terminal_Padova Interporto	Road, Rail	Container	Corso Stati Uniti 18 Padua Industrial Zone 35127 Padova Italy

Table 23: Terminals considered within the Veneto study area

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Figure 65: Terminals considered within the Verona/Padua/Venice study area

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Intermodal flows at terminals for the Veneto case study

Terminal: **VERONA**			
Modes: Road, Rail			
ADR: All except radioactive and explosive			
Total flows (TEUs or ITUs or crane moves) 345.850 ca ITUs			
Modal split for container transport n/a			
Number of trucks per week: 1.200-1.300 per day			
Direct intermodal train connections			
Antwerpen	Hupac Intermodal SA	5 trains	4 AxC 1 AxD
Rotterdam	Hupac Intermodal SA	6 trains	AxC
Geleen	Mercitalia Intermodal S.p.A.	N.A.	
Herne	TX Logistik AG	6 trains	4 AxC 2 AxD
Wuppertal	Winner Spedition GmbH & Co. KG	N.A.	
Koln	Kombiverkehr Deutsche Gesellschaft	12 trains	3 AxB 6 AxC 3 AxD
	TX Logistik AG	17 trains	9 AxB 6 AxC 1 AxD
Ludwigshafen	Kombiverkehr Deutsche Gesellschaft	8 trains	7 AxB 1 AxC
Bremen	PANEUROPA Transport GmbH	N.A.	
	TERRATRANS Internationale Spedition GmbH	N.A.	
Hannover	Arcese Trasporti S.p.A.	N.A.	
	Kombiverkehr Deutsche Gesellschaft für kombinierten Güterverkehr GmbH & Co. KG	5 trains	3 Axb 1 AxC 1 AxD
	TX Logistik AG	5 trains	4 AxB 1 AxC
Kassel	TX Logistik AG	5 trains	4 AxB 1 AxC
Hamburg	Kombiverkehr Deutsche Gesellschaft	5 trains	4 AxC 1 AxD
	PANEUROPA Transport GmbH	N.A.	
	TERRATRANS Internationale Spedition GmbH	N.A.	
Kiel	Kombiverkehr Deutsche Gesellschaft	3 trains	1 AxB 2 AxC
	LKW WALTER Internationale Transportorganisation	N.A.	
Padborg	TX Logistik AG	6 trains	1 AxB 4 AxC 1 AxD
Goteborg	TX Logistik AG	1 train	AxD
Lubeck-Travemunde	European Cargo Logistics GmbH (ECL)	8 trains	1 AxB 7 AxC
	TX Logistik AG	8 trains	1 AxB 6 AxC 1 AxD
Lubeck	TX Logistik AG	2 trains	1 AxB 1 AxC
Rostock	Hangartner Terminal AG	N.A.	
	TX Logistik AG	4 trains	AxB
Leipzig	TX Logistik AG	4 trains	AxC

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Nurnberg	Kombiverkehr Deutsche Gesellschaft	5 trains	4 AxB 1 AxC
Munchen	Kombiverkehr Deutsche Gesellschaft	12 trains	9 AxB 2 AxC 1 AxD
Hall in Tirol	TX Logistik AG	6 trains	
Bari	Mercitalia Intermodal S.p.A.	N.A.	

Container transport
Maritime 3%
Continental 97%

Number of containers/year	20.140	% containers/year	6%
of which tank containers	n/a	of which % of tank containers	n/a
Number of swap bodies/year	144.228	% of swap bodies/year	43%
Number of semitrailers/year	168.329	% semitrailers/year	51%

Forecasts n/a

Capacity of yard for empties: 100 ca

Additional yards of empties near the terminal: Small area of Verona Terminal where they also do repairs

Tariff/provisions for empties: 33,20€ for handling, the seafarer can stay 20 days

Flow of empty containers per week: 10-15 per day

Shortage / Excess / balance of empty containers: not present

Methods used to manage empty containers: n/a

Table 24: Flows and connections for the Verona terminal (data source for flows terminal manager, ref year 2018, data source for connections: railway.tools, ref year 2019)

Terminal: **PADOVA**

Modes: Road, Rail

ADR: All those traveling by rail except 1, 6.2 and 7

Total flows (TEUs or ITUs or crane moves)
292.000 TEUs

Modal split for container transport
Truck / train / barge

Number of trucks per week: 500 per day

Direct intermodal train connections

Genova	OCEANOGATE Italia S.p.A. (OCG)	N.A.	
	Logtainer S.r.l.	N.A.	
La Spezia	OCEANOGATE Italia S.p.A. (OCG)	N.A.	
	Logtainer S.r.l.	N.A.	
Bentivoglio	General Transport Service S.p.A. (GTS)	3 trains	
Livorno	OCEANOGATE Italia S.p.A. (OCG)	N.A.	
	Logtainer S.r.l.	N.A.	
Bari	General Transport Service S.p.A. (GTS)	3 trains	2 AxB 1 AxC

Container transport
Maritime 91%
Continental 9%

Number of containers/year	175.000	% containers/year	
of which tank containers	250	of which % of tank containers	
Number of swap bodies/year	500	% of swap bodies/year	
Number of semitrailers/year		% semitrailers/year	

Forecasts

Capacity of yard for empties: There are no empty areas, they put them in the squares depending on the occurrence, 4 empty spaces for each full. The total capacity is 10,000 containers

Additional yards of empties near the terminal:

Tariff/provisions for empties: 30 free days but leasing companies begin to pay when they enter. For larger customers, they provide a free TEU fleet to simplify

Flow of empty containers per week: 175

Shortage / Excess / balance of empty containers: not present

Methods used to manage empty containers: n/a

Table 25: Flows and connections for the Padova terminal (data source for flows terminal manager, ref year 2018, data source for connections: railway.tools, ref year 2019)

5. References

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