

D.4.1.1 Common methodology for potential traffic flow analysis

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Introduction

The methodology for the potential traffic flow analysis is part of the work package 4 – Enhancing freight traffic flows and connections between the Adriatic ports.

The main objective of the WP4 is to foster the traffic flows and the connectivity between the Adriatic ports involved in CHARGE, to contribute to the competitiveness of territories served by the maritime links.

This methodology is part of the project CHARGE (Capitalization and Harmonization of the Adriatic Region Gate of Europe) which capitalizes the collected results of IPA CBC Programme 2007-2013 CARICA project and other projects like ADRIATICMOS, INTERMODADRIA and EASYCONNECTING from IPA and ADB Multiplatform form South-East Europe with the development of freight transports in the Adriatic area and connectivity to the other EU member states as an objective.

The overall objective of project CHARGE is to foster traffic flows and sustainable connection among the Adriatic ports involved, and to contribute to the competitiveness of territories served by the maritime links with a common approach while simultaneously increase the perceived value of shared intermodal solutions. CHARGE fosters the connectivity between the Adriatic regions and improves decision-making process coordination at CB level in maritime transport for joint strategies implementation and infrastructural investments, with specific attention to Adriatic Motorways of the Sea improvement between Italy and Croatia. CHARGE aims to upgrade intermodal services on the maritime links between the two shores of the

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Adriatic Sea to improve traffic flows efficiency and environmental sustainability and resolve critical bottlenecks.

The common approach should lead to the enhancement of Adriatic freight transport, taking into consideration the lessons learned within the 2007-2013 CARICA project. Within the project CHARGE a common methodology for potential traffic flow analysis will be used by all partners for the analysis and definition of the respective outputs. On base of this methodology each partner should perform the analysis for the area of its responsibility, and develop the individual report based on same criteria. The methodology should include a common index for the final analysis of each partner and it should be approved by all partners. Also, the methodology should generate strategic report on future scenarios of traffic flows between IT-HR ports in line with the EUSAIR action plan.

CHARGE project activity 4.1 Joint market analysis to assess traffic potential market between Adriatic Ports includes the following segments:

- Elaborating and proposing the common methodology for potential traffic flow analysis for the collection and elaboration of ferry and containers traffic data including areas of origins and destinations of the traffic and typology of the freight.
- Analysis on potential market flows of involved ports, where each involved port collects data and elaborates the analysis on the basis of the agreed methodology.

Comprehensive report on the future scenarios of traffic flows between Italian-Croatian ports with the creation of the strategic document highlighting the potential developments of traffic flows between Italian and Croatian ports in line with the reports for the each partner and EUSAIR action plan.

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1. METHODOLOGY

Methods to be used for the traffic flow analysis are:

- Method of compilation: researchers can use scientific papers and studies, predictions and recommendations;
- Method of description: in order to define the main characteristics of the port and port area, sailing routes, intermodal (maritime, road, railway) infrastructure and operation;
- Method of comparison: in order to make certain conclusions and estimations;
- Statistical method: to give insights in certain operation and facts through the interpretation of statistical data;
- Inductive method: In order to give certain conclusions from the given facts, figures and predictions;
- Field research analysis, if applicable.

The statistical data for this report can be acquired from many sources, including, but not limited to:

- Official statistical sources such as countries Bureau of statistic and Eurostat;
- Official business reports and Annual reports from analyzed ports, motorways and railways companies, and other stakeholders;
- Scientific papers and articles.

This methodology should include several chapters:

- Introduction;
- Defining the main characteristics of the port and port area;

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- Port traffic statistics
 - Freight traffic statistics
 - Vessel traffic statistics
 - Other related data
- Overview and analysis of the existing traffic flows between Italian-Croatian ports;
- Analysis on potential market flows and projection of future traffic flows between Italian-Croatian ports;
- Potential undesirable effects and points of congestion;
- Conclusion.

2. DEFINING THE MAIN CHARACTERISTICS OF THE PORT AND PORT AREA

As the main object of the study is to determine the traffic flows between the Adriatic ports, with the focus on ferry and container traffic data, it is therefore necessary to determine the main characteristics of the each port involved in order to examine the competitiveness of territories by analyzing the infrastructural solutions served by the existing maritime links. The report should include the data on:

- geographical location (position, distance between port and respective metropolitan areas, road and rail transport corridors etc.),
- current markets (gravitational area) and port hinterland ,
- port infrastructure, facilities and related processes (rail and road infrastructure and their flow capacities, technical specifications, related terminals, port mechanization and equipment, berth characteristics and draft restrictions etc.)
- intermodal nodes and characteristics,
- models of port management (for the respective terminals and services),
- port concessionaires and stakeholders (when performing port activities).

3. PORT TRAFFIC STATISTICS

The first part of the WP4 activity deliverable, named 4.1.1 Common methodology for potential traffic flow analysis, is the elaboration of the overall traffic in the port of the involved project partner, also featuring the analysis of the traffic segmentation in the respective port based on the statistical data and performance indicators. The essential input, when analyzing the traffic flows, is the traffic statistics of each individual port. The results should indicate the competitive advantage or disadvantage of each port involved, due to the current state and statistical data on both passenger and freight transport. The data will be used as a guideline in the projection of the future port performance but also for the future scenarios of traffic flows. Also, the comparison of the Italian and Croatian port performances in the Adriatic should support the future decision-making process in the adoption of infrastructure investment decisions and should indicate discrepancies in performing the port business processes. The analysis should especially focus on the general data on ferry and container transport. The report should include (reference year should be 2017 and historical data preview for at least 5 years):

4.1 Freight traffic statistics

- Vehicle traffic (cars, trucks, and - where applicable - buses and trailers)
 - loaded/unloaded per month/year
 - loaded/unloaded per port of destination/origin
 - loaded/unloaded for domestic/international in line
 - loaded/unloaded other domestic/international.
- Container traffic

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- loaded/unloaded per month/year
 - loaded/unloaded per port of destination/origin
 - loaded/unloaded for domestic/international in line.
- Other cargo traffic (domestic/international; loaded/unloaded)
- general cargo
 - liquid cargo
 - dangerous cargo
 - other cargo.
- Passenger traffic
- arrivals/departures per month/year
 - arrivals/departures per port of embarkation/disembarkation
 - arrivals/departures for domestic in line
 - arrivals/departures for international in line
 - arrivals/departures for cruise ship
 - arrivals/departures for other passenger traffic (domestic/international/seasonal).

4.2 Vessel traffic statistics

- All vessels traffic
- arrivals/departures per type, size, domestic, international
 - arrivals/departures per month/year, average daily distribution of arrivals/departures.
- Ferry (passenger/RO-RO) vessel traffic
- number of arrivals/departures per month/year
 - number or arrivals/departures for domestic in line

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- number of arrivals/departures for international in line
- number of arrivals/departures for cruise ship
- number of arrivals/departures for other domestic/international & seasonal.
- Container ship traffic
 - number of arrivals/departures per month/year
 - number of arrivals/departures for domestic/international.
- Other ship traffic (arrivals/departure for domestic/international; small ship traffic).

4.3 Other related data

- Intensity of traffic flows on main maritime routes on approach to port;
- Available measures of surveillance and management of vessel traffic, VTMIS (Vessel Traffic Management Information System);
- Average waiting time in port and at anchorage (or duration of stay of ships at berth or anchor), if applicable;
- Environmental incentivizes.

Each partner should collect the relevant data from their internal databases, but also with the use of official statistical sources such as the national Bureau of statistic and Eurostat, official business reports and annual reports from the analyzed ports and other stakeholders. Also, the data from relevant academic papers and articles are acceptable.

The scope of the proposed and required data categories are not limited, so that the respective partners may include additional data, even different from those suggested and listed above, provided that the data are related to the main objective of the methodology.

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4. OVERVIEW AND ANALYSIS OF THE EXISTING TRAFFIC FLOWS BETWEEN ITALIAN-CROATIAN PORTS

The second part of the activity deliverable, named 4.1.1 Common methodology for potential traffic flow analysis, is the review and analysis of the existing maritime links in the Adriatic, with the focus on the Italian-Croatian traffic flows. The study is limited to the port area and the gravitational area of the port, which has direct impact on traffic flows and potential points of congestion. According to this methodology each involved partner should determine, for the port of their responsibility, the existing traffic flows based on the analysis of general port statistics and trade exchange between individual ports when performing business activities in the segment of ferry and container freight traffic. The traffic flows between Italian-Croatian ports with the focus on ferry and container traffic should be presented and analyzed in detail. The data should include:

- existing traffic flows of individual port,
- current traffic flows between Italian-Croatian ports (statistical data - maritime links, ferry and container traffic flows, freight segmentation, destination and origin of cargo, typology of the freight, historical data preview for at least 5 years, number of arrivals and departures on the respective routes, intensity of the traffic flows, characteristics of the common vessels in exploitation on the respective traffic flows, average vessel transit times, average vessels speed, average waiting time on anchorage, average time in port for cargo loading / unloading, availability of the other entities involved when performing port activities and their working hours – tugs, pilots, stevedores, line-handlers etc., price competitiveness, infrastructural restrictions, intermodal (rail, road) connections and restrictions etc.).

5. ANALYSIS ON POTENTIAL MARKET FLOWS AND PROJECTION OF FUTURE TRAFFIC FLOWS BETWEEN ITALIAN-CROATIAN PORTS

As a supporting objective of the deliverable D 4.1.1, in this part of the methodology the partner ports should determine the potential future market flows between Italian-Croatian ports for each individual port, based on the analysis of the statistical data and market demand. Also, the current and historic cargo flow should be examined and evaluated to determine their profitability and the actual transport need.

In order to assess potential market for Adriatic ports traffic flows, it is desirable to elaborate the general data of maritime, road and rail flows between Italy and Croatia, which would enable to determine the potential customers of maritime services of individual partner ports (for example: cross border road traffic could be analyzed, i.e. collected data on land-departure/arrival points of the vehicles' journey or the countries issuing their license plates; depending on what is available). Also, International trade statistics might be taken into consideration as well, not only the trade concerning Italy and Croatia, but their neighbors and others whose trade may reflect on transport across the Adriatic.

Only concise overview is required for this deliverable (D 4.1.2) while the extensive analysis should be performed in the following deliverable (D4.1.3).

6. POTENTIAL UNDESIRABLE EFFECTS AND POINTS OF CONGESTION

As already indicated, the objective of this methodology is to determine the potential traffic flows of the involved ports, with the focus on the Italian-Croatian freight exchange, but the additional objective of elimination of the points of congestion and undesirable effects is indirectly imposed as the output and the tool for the efficient freight transport on the selected traffic flows as indicated in the CHARGE project description. The partner ports are asked to indicate:

- current and potential (etc. due to expected growth) points of congestion (deficiency) of the port infrastructure and related port area,
- define possible solutions in the elimination of those locations.

7. CONCLUSION

This chapter should summarize all the results and conclusions gathered from the previous sections. The general conclusion should intent to demonstrate the current state of the analyzed port, statistical data on throughput of freight with the focus on ferry and container traffic data as well as the current traffic flows between Italian-Croatian ports and future projections. The comment on the points of congestion should be also integrated in the report.