Analysis of transport needs - Case B

Deliverable D9.1 - Final – 2020-03-30

Advanced, Efficient and Green Intermodal Systems

http://aegis.autonomous-ship.org/

This project has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement N° 859992.

Document information

Title	D9.1: Analysis of transport needs – case B
Classification	Confidential

Editors and main contributors	Company
Kristoffer Kloch (KK)	DFDS A/S
Mads Bentzen Billesø (MBB)	DFDS A/S
Matt Ellis (ME)	DFDS A/S
Harilaos N. Psaraftis (HNP)	DTU
Martina Reche Vilanova (MRV)	DTU
Thalis Zis (TZ)	DTU

Rev.	Who	Date	Comment
0.1	KK	19/03/2021	Comments from Alte Minsaas (SINTEF Ocean) taken on board
Final	KK	30/03/2021	Comments from Odd Erik Mørkrid (SINTEF Ocean) taken onboard

Table of Contents

Executive Summary

This document is AEGIS deliverable D9.1, Analysis of Transport Needs - Case B, and is the first deliverable in Work Package 9 of the project. The objective of this deliverable is to perform an analysis of the current transport situation of the AEGIS partner DFDS in the inland waterway area between Rotterdam, Ghent and Zeebrugge. To do this, two separate datasets were used: the first detailing the inflows and outflows of cargo to the mentioned three ports; and the second detailing the shuttle service currently operated by DFDS going out of Ghent.

The deliverable reflects on the difference between trailer transportation (known as RoRo) and container transportation (known as LoLo) as well as the difference between using barges of inland waterways and trucks on roads. These reflections are the foundation on which the subsequent analysis is carried out. The EU supports the development of inland waterway transportation in order to reduce road congestion and offer more environmentally friendly transportation networks. At the same time, however, the market share of inland waterways transportation has dropped over the past years. Maritime transportation is in general much slower than road or rail, but instead offers lower transportation costs and more environmentally friendly transportation. In continuation of this, LoLo vessels tend to sail faster than RoRo vessels, with the latter also transporting more “empty air” than the LoLo vessels, resulting in shipment prices based on occupied space (per lane meter) instead of the standardized TEU. However, RoRo vessels do have several advantages when it comes to intra-EU services, as they require less space in ports and less operational infrastructure when compared to the LoLo vessel. This not only speaks to autonomous transportation, but also to the option of creating dynamic routes. Using a LoLo vessel, local loading/unloading points would have to invest in a significantly higher amount of port infrastructure when compared to the RoRo vessel, which needs little more than a hard pier and a ramp.

Analysing the DFDS needs, as specified by the deliverable, the port of Rotterdam was found to have the highest inflow of RoRo goods, which supports the argument of using this port as a distribution hub for the inland waterways. At the same time, Ghent and Zeebrugge also have an inflow of RoRo goods, which may support the argument for creating a roundtrip RoRo barge between all three ports. The goods coming into Rotterdam are fairly equally distributed throughout the course of the inland waterways going from Rotterdam towards Belgium. From the current service operated by DFDS, the cargo was found to be primarily LoLo goods going from Ghent to either Zeebrugge or Antwerp, with the latter giving the option of further distribution to Rotterdam and smaller ports in the inland waterway depending on the demand and needs of the customers. The customers on this route are also distributed fairly equally throughout the region.

Lastly, the report mentions the expected increase in road congestion around the Dutch and Belgian regions resulting in both more transportation hours lost waiting and more road accidents. There is therefore not only a present political motive to move goods unto the inland waterways, but supposedly also an economic and safety aspect over time.

In conclusion, from the initial reflections and subsequent analysis, it is found that there indeed is a viable possibility of using green, autonomous RoRo barges to further distribute wheeled cargo on the inland waterways.