Detailing and Validation of Use Case B

Deliverable D9.4 – Version Final – 2023-05-31

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	D9.4 Detailing and Validation of Use Case B
Classification	Confidential

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Rev.	Who	Date	Comment
0.1	JNK	2023.04.15	First version
0.2	JNK+KK	2023.05.11	Second version (with updates)
0.3	HN	2023.05.16	Reviewed by SO
0.4	JNK+KK	2023.05.30	Updated after review
Final	OEM	2023.05.31	Final revision to be submitted to EC

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Executive Summary

This report, titled "Deliverable 9.4: Detailing and Validation of Use Case B," is part of the AEGIS project's work package 9. It focuses on the use case of connecting traffic to ports in the Netherlands, France and Belgium, specifically in the regions of Rotterdam-Ghent and Paris-Ghent. The purpose of the report is to develop concrete examples that validate the technical and economic proposals put forth in the project's work packages, with the aim of finding applicable scenarios for the conversion from road to short sea shipping solutions.

To validate the use cases, the report utilizes a time-economic model developed in a previous deliverable (AEGIS, 2021 [1]). The model incorporates threshold economics, which determine when a short sea shipping solution becomes cost-competitive with road transportation, and also considers transfer times from end-to-end, including the last mile. Additionally, a comprehensive dataset on European trucking activities is used to estimate potential gross volumes for the specific use cases.

The report covers scenarios relevant to both current and future operations of short sea shipping in the regions, suggesting increased activities in existing routes and the opening of new routes as infrastructure allows. The selected regions of Belgium, the Netherlands, and France offer a wide range of opportunities.

The report also discusses the potential conversion of goods from trucking to short sea shipping. Certain goods, such as high-value or time-sensitive products, may not be suitable for such a conversion due to transportation time or cost considerations. The report applies a methodology for identifying goods that can be shifted from trucking to short sea shipping, considering the time-value of goods and the relative switching costs.

A description and analysis of each region are provided, including economics, transport setup time, and estimation of emission reductions. The report concludes with the validation of the use cases.

To develop an economic and time model for the scenarios, internal and external data are utilized. The report converts goods volumes between different cargo units, such as containers and trailers, to calculate the costs of different transport options.

The report presents the findings of the economic and time calculations for the Rotterdam-Ghent and Paris-Ghent scenarios. It demonstrates that short sea shipping solutions can compete economically with direct linehauls, particularly with the anticipated low costs of new barge solutions. The report also highlights the emission reductions associated with short sea shipping compared to linehaul transportation.

Finally, the report concludes by conducting sensitivity analyses, uncovering the high susceptibility of the Ghent-Rotterdam scenario to variations in €/km prices for linehauls, which could potentially lead to unfavorable outcomes for the given situation. On the other hand, the Paris-Ghent scenario demonstrated lower sensitivity attributed to its longer distance and the cost-effectiveness of the barge solution, which played a significant role in covering the majority of the distance along this route.