

# Logistics analysis tool final test version

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**Advanced, Efficient and Green Intermodal Systems**

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



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## Executive Summary

This report is the documentation of deliverable *D2.4: Logistics Analysis tool final test version* and is a revision of the *D2.1: Logistics Analysis tool initial version*, which both are deliverables for *task 2.1: Logistics analysis tool*. The report provides a user manual and documents the functionality of the Logistics Analysis (LA) tool and how it can be used to assess the use cases in AEGIS.

The main objective with *task 2.1* is to further develop the ship transport cost tools used by SINTEF Ocean in design of new ship transport systems to also include terminal operations and cargo handling as well as transshipments and storage capacities. The resulting tool enables fast iterations over different logistic system designs to find optimal ship sizes and frequencies, both with respect to logistics properties as well as CAPEX, OPEX and emissions. The tool will be used in the use cases (WP 8, 9 and 10) for initial designs and design reiterations. The use cases will in turn be used to validate the tool.

The logistics analysis tool enables the user to configure and analyse one or more logistics scenarios that results in cargo flows from producers to consumers via terminals. It provides decision support to users in the form of estimated quantitative key performance indicators (KPIs) for cost, environment, logistical performance, and societal costs. Although not all AEGIS KPIs can be estimated or calculated by the tool, a list of what the tool can produce is provided.

The results from the LA tool simulations are linked to KPIs from both the AUTOSHIP and AEGIS projects. The primary focus of the tool is also to calculate costs-related elements, also including supporting infrastructure such as RCC for ships and on terminals. Profit estimates cannot be produced as future business models are unknown. However, the tool provides estimates for the transported cargo volume per analysed ship, from origin to destination in maritime and inland waterways transportation networks, which, along with the cost estimates, can be used to calculate profits when the business models are known.

The logistics analysis tool also allows the user to perform a bottleneck analysis of both the waterborne transport and on terminal operations for iterative optimization of the cargo flow from producers to consumers via terminals, based on accumulated cargo flows, terminal inventory and required moves to storage on terminals.

The test version of the tool, that this report documents, is now ready to be applied to the AEGIS use-cases for use-case analysis. Successful application of the tool on the use cases will on short term depend on a baseline definition of the transport system specification as well as ship models, and long term on iterative design optimization including relevant use-case stakeholders within the AEGIS project.