

Validated concepts for onboard cargo handling for small port cargo stowage

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Executive Summary

The EU supports the development of short sea and inland waterway transportation to reduce road congestion and offer more environmentally friendly transportation networks.

This document is the AEGIS deliverable D3.1, *“Validated concepts for onboard cargo handling for small port cargo stowage.”* This is the first deliverable in Work Package 3 of the project. The objective of this deliverable is to present possible onboard cargo handling systems for scenarios defined for the use cases A, B and C.

The process of loading and discharging merchant vessels has remained similar for many decades, even centuries. It has always been a labour-intensive activity. The current way of working is a flexible method to haul anything to anywhere and it has given shipping lines the freedom to search for the best possible routes and cargoes.

Only recently, we have seen automatisisation of cargo loading starting to gain more footprint. This has happened mostly in deep sea shipping (DSS). Thanks to automatisisation, vast ocean-going vessels carrying tens of thousands of containers or hundreds of thousands of tonnes of bulk material, between continents, are able to load themselves with the help of only a few persons. The sustainability of these “continental” operations has improved thanks to optimizing the time and energy usage.

Looking at the entire supply chain, it is noticeable that emission per transported kilometertonne is lowest during the DSS phase. However, as the big ocean-going vessels are not designed to sail to small national harbours, the choice has been, in many cases, to use very small transportation units (i.e. trucks) to haul the cargo to its final destination, thus leading to exponential growth of emissions per unit.

To cut down the emissions on the final stretch on the route of sea cargo, the EU is looking for a solution that would enable cargo transportation in larger units closer to, or even, all the way to final destinations. For this purpose, MacGregor – together with the AEGIS partners – is developing solutions where cargo units would be transported closer to their final destination on smaller coastal vessels and inland barges to replace last mile road transportation. Autonomy, automation and data flow are the main themes for our development work. We aim to enhance the visibility of remote cargo operations as well as distribution of real-time status information to stakeholders in the supply chain.

The AEGIS consortium has already drafted technical solutions that are possible and also economically viable. We in AEGIS are working very hard together to overcome any obstacles to more sustainable shipping!