

The Exploitation of the MOSES Project Outcomes on Supply Chain Optimisation

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Abstract : Ports play a decisive role in the EU's external and internal trade, as about 74% of imports and exports and 37% of exchanges go through ports. Although ports, especially Deep Sea Shipping (DSS) ports, are integral nodes within multimodal logistic flows, Short Sea Shipping (SSS) and inland waterways are not so well integrated. The automated vessels and supply chain optimisations for sustainable shortsea shipping (MOSES) project aims to enhance the short sea shipping component of the European supply chain by addressing the vulnerabilities and strains related to the operation of large containerships. The MOSES concept can be shortly described as a large containership (mother-vessel) approaching a DSS port (or a large container terminal). Upon her arrival, a combined intelligent mega-system consisting of the MOSES Autonomous tugboat swarm for manoeuvring and the MOSES adapted AutoMoor system. Then, container handling processes are ready to start moving containers to their destination via hinterland connections (trucks and/or rail) or to be shipped to destinations near small ports (on the mainland or island). For the first case, containers are stored in a dedicated port area (Storage area), waiting to be moved via trucks and/or rail. For the second case, containers are stacked by existing port equipment near-dedicated berths of the DSS port. They then are loaded on the MOSES Innovative Feeder Vessel, equipped with the MOSES Robotic Container-Handling System that provides (semi-) autonomous (un) feeding of the feeder. The Robotic Container-Handling System is remotely monitored through a Shore Control Centre. When the MOSES innovative Feeder vessel approaches the small port, where her docking is achieved without tugboats, she automatically unloads the containers using the Robotic Container-Handling System on the quay or directly on trucks. As a result, ports with minimal or no available infrastructure may be effectively integrated with the container supply chain. Then, the MOSES innovative feeder vessel continues her voyage to the next small port, or she returns to the DSS port. MOSES exploitation activity mainly aims to exploit research outcomes beyond the project, facilitate utilisation of the pilot results by others, and continue the pilot service after the project ends. By the mid-lifetime of the project, the exploitation plan introduces the reader to the MOSES project and its key exploitable results. It provides a plan for delivering the MOSES innovations to the market as part of the overall exploitation plan.

Keywords : automated vessels, exploitation, shortsea shipping, supply chain

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