SEAMLESS

SAFE, EFFICIENT AND AUTONOMOUS:
MULTIMODAL LIBRARY OF EUROPEAN SHORTSEA
AND INLAND SOLUTIONS

First year project results

The SEAMLESS Project is about to embark on its second year of implementation, and the first 12 months have been marked by numerous accomplishments. Dive into this newsletter to explore the strides made by the consortium and gain insights into the upcoming milestones. Stay in the know by following SEAMLESS on LinkedIn and Twitter!

Redesigning Logistics

WP2 - A central element of the project is the SEAMLESS use cases, which either represent commercially viable scenarios for the demonstrations or feasibility analyses of the concepts that are developed within the project. In the first year of the work package a conceptual frame and baseline for the use cases landscape to evaluate the success of the project at a later stage was set up. The proposed definition of the status quo and requirements for each of the demonstration use cases was supported by two workshops hosted in Bergen and Duisburg. A third workshop was carried out in Athens, to shape the transferability use cases that are intended to provide means to measure the applicability of the project's solutions across the European short sea and inland waterway network. A public report that states the specifics of the various use cases, identified challenges as well as initially proposed transport concepts will be available very soon. Based on the findings of the current state-of-the-art, the teams have started to work on reference processes for logistics operations as well as administrational procedures that consider latest technical developments and standardization efforts. Ultimately, these reference procedures feed into a concept of operations, which illustrates how the various SEAMLESS building blocks interact and fit into a redesigned logistics environment. A first draft that is intended to guide further stages of development is already available and has been jointly discussed with other work packages within a workshop in Trondheim, Norway. Lastly, the team has kicked off an analysis of existing gaps and challenges within the current regulatory framework for highly automated and autonomous operations, which will provide recommendations for policy makers.

Enabling Autonomous port operations

WP3 - Many vivid discussions have taken place among project participants. Within WP3, the technical work package, partners have collaboratively developed the work breakdown structure, initiating efforts toward a successful demonstration. Most notably, we have recently observed the commencement of initial laboratory tests for the digital twin environment designed for the autonomous docking of Inland Waterway (IWW) barges.

Activating Autonomous fleet operations

WP4 - One of the most prominent and market-disruptive outcomes of SEAMLESS will be the development of Remote Operation Centres (ROCs) for MASS (Maritime Autonomous Surface Ships) that will enable the one remote operator safely overviewing and controlling a small fleet of vessels. It is expected that this technological feat will concretely contribute towards establishing an attractive business model for autonomous ships in SSS and IWT. Since the results of this Task will be attained at later stages of SEMALESS, the Consortium is currently actively engaged in activities that support it. They include the development of a prototyping framework which will evaluate conceptual ship designs based on the area of operation, the payload capacity, the type of fuel, etc. and, the development of a fault-tolerant and COLREG-compliant GNC scheme for SSS and IWT operation. Furthermore, SEAMLESS will also develop a simplified risk-based approval for autonomous ships, which will be kicked off in January 2024. So do not forget to subscribe to the SEAMLESS newsletter for more exciting news related to autonomous navigation in Europe!

Digitalising logistics operations

WP5 - The first year in the development of this signified the carrying out of an initial study on what was expected from the ModalNET platform and what were the initial starting points to develop the final solution. Regular meetings were held with several partners of the project, particularly with MacGregor, Kongsberg, AWAKE.IA, NTUA and SINTEF to try and define what the specifications or capabilities of each system are, and to carry out the architecture and design of ModalNET towards establishing the ModalNET specifications, systems architecture and design of a cyber-secure communication. During the months after the summer, the capabilities of each platform, that will provide and receive information from ModalNET, were clarified and the ConOps (Concept of Operations) of the SEAMLESS project became clearer. During the final months of the year, the bulk of the required work has been carried out, and many particularities related to Architecture and Design were shared with the rest of the partners.

Evaluating impact and developing sustainability driven business models

WP6 - Upon completing the first year of SEAMLESS, the focus of this technical package was to identify and develop the project's Key Performance Indicators (KPIs). The process entailed following a structured methodological approach that would lead to pinpointing measurable, easy-to-follow, and comprehensive KPIs, so that the main outcomes (i.e., the Building Blocks) of the project can be evaluated on a multidisciplinary basis, thus maximising the pan-European impact of SEAMLESS. The approach is presented in Figure 1. The consolidated list of the SEAMLESS KPIs is expected to be finalised by the end of 2023.

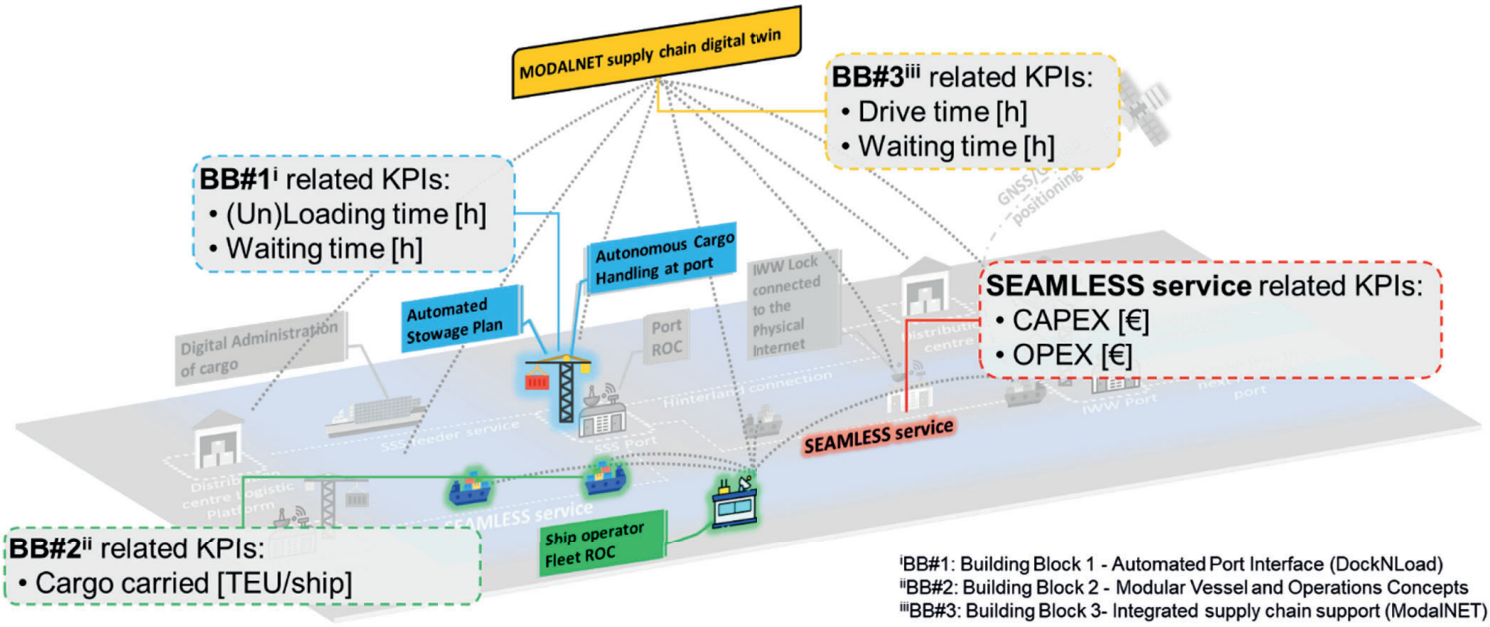

Figure 1: Correlation of SEAMLESS KPIs with Building Blocks

Apart from that, in the next few years, this work package will also present the SEAMLESS business models which will highlight a disruptive business case approach compared to the maritime status quo for SSS and IWT in Europe while simultaneously developing an innovative framework for assessing the environmental and societal impact of new technological solution in the waterborne domain. So, stay tuned from more exciting news to come in 2024 for the SEAMLESS project!

High-Impact Dissemination, Communication and Exploitation

WP8 – High-Impact Dissemination, Communication and Exploitation started at the beginning of SEAMLESS and runs throughout the whole project, feeding from the results of previous work packages, and providing support to exploitation of project results through highly focused communication and dissemination activities.

Up until M12, SEAMLESS has established the foundation for initiating exploitation management. Initial steps have been taken to identify stakeholders and understand market dynamics, involving communication and establishing connections with maritime stakeholders. This endeavour has led to the release of the eco-system innovation (D8.3). All channels, materials, and tools supporting the DC&E strategy have been successfully delivered and are actively utilized to disseminate news and raise awareness about the project. Want to discover more? Take a look at the SEAMLESS website!

SEAMLESS at the Transport Research Arena 2024

Transport Research Arena (TRA), the foremost European transport event that covers all transport modes and all aspects of mobility, will take place next year in Dublin, Ireland, from 15-18 April 2024. The event will bring together researchers, policy makers and industry representatives to get together and contribute to the discussion on how research and innovation can reshape the transport and mobility system. In this scenario, the SEAMLESS project will be presented with the support of the paper "The SEAMLESS Approach to Enabling Fully Automated Waterborne Freight Feeder Loop Services", realized by NTUA – the project coordinator – and SINTEF. In addition, SEAMLESS will be showcased at the ALICE and WATERBORNE TECHNOLOGY PLATFORM booths!

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