

HaFoLa – Addressing the research needs in port logistics with appropriate research infrastructure

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Continuous integration of global trade flows and the ever shorter lifecycles of technological innovations manifest themselves through different areas of logistics. Ports belong to the crystallization points of these developments as the adoption of new technologies immediately affects the performance of logistics processes at the port. Ongoing endeavors throughout the world indicate the vibrancy of port research. In order to conduct meaningful research and convince stakeholders of the usefulness of new ideas for their application environments, it is often essential to include the actual application partner into the early stages of the development process. Because the technical feasibility of an idea has not been proven yet, possible risk-averse application partners remain reluctant to engage in promising research.

A port research lab, as dedicated research infrastructure, provides a safe space to develop innovations in an undisturbed manner and, thus, addresses the problem effectively. With the help of such a multifaceted lab, the degree of involvement and, thus, the risk exposure of application partners can be minimized.

The technical development does not have to take place at the port premises and disturb productive processes there. Instead, the research takes place in a realistic setting in the laboratory and can be supported with information on the processes and constraints to be considered. Moreover, experimental settings and environmental conditions in the lab can be controlled and reproduced up to a very high degree.

This work describes the design and setup of HaFoLa, a port research lab in Duisburg, Germany, reflecting the major research needs in the realms of port and logistics research - especially against the background of an increasing degree of increased automation onboard the vessels and ashore.

Keywords: Port research; Transshipment; Automation; Digitalization; Logistics;

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