State-of-the-art sustainable energy efficiency technologies roadmap for waterborne transport towards the fit-for-55 guidance compliance

Project 101192661 - FLEETfor55

Executive Summary of Deliverable D6.1 - Digital platform architecture

Atlantec Enterprise Solutions GmbH

Thomas Koch – Managing Director – AES

Andreas Roppelt – Software Development Engineer – AES

Arjith Praison – Software Development Engineer – AES

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Executive Summary

Deliverable 6.1 presents the Digital Platform Architecture designed to support the holistic assessment and selection of the most promising combinations of Energy Efficiency Technologies (EETs) for both newbuild and retrofit vessel projects. The proposed architecture follows a modular and extensible approach, comprising a set of interoperable clients and services that can be expanded over time to accommodate additional functionalities, analytical tools, and user requirements as the platform evolves. At the core of the architecture lies a Unified Reference Model, which provides a common semantic and structural framework for managing heterogeneous data originating from multiple engineering tools, simulation environments, and external information systems. This unified data representation facilitates seamless interoperability and efficient data exchange across the different platform components, thereby reducing integration complexity and ensuring data consistency throughout the vessel design and assessment process.

Additionally, computational tasks with high processing demands can be delegated to dedicated external services, enabling scalable execution while reducing the computational burden on the core platform. Finally, the proposed Digital Platform Architecture incorporates cybersecurity considerations as an integral design principle, ensuring the confidentiality, integrity, and availability of data and services, while supporting secure communication and access control across all platform components.