

Danaos Research Centre | 3rd Quarter 2024 | EU Research projects

EU announced the evaluation results of the proposals submitted the second semester of previous year. All of our proposals passed the acceptance for funding thresholds and we are pleased to inform that three of them awarded to be funded with a total fund of 26 ME. An *optimum power-barge solution*, an *autonomous aerial inspection infrastructure* and an *AI cloud based platform* monitoring shipyards efficiency are the projects with a 3-4 years horizon, which will be start from Jan 2024.

New EU Research and Innovation Projects

AUTOASSESS Autonomous Aerial Inspection of GNSS-Denied and confined critical Infrastructure

101120732 | DTU | HORIZON-CL4-2022-DIGITAL-EMERGING-2-7 | 10ME | 01.10.23 | 4Y | 220 KE

Autoassess is a radical new approach for monitoring dangerous and dirty confined GNSS-denied areas using unmanned aerial systems (UAS or drones), by combining the latest developments in

- collision-tolerant UAS,
- multi-modal SLAM,
- path planning,
- autonomous drone racing,
- aerial manipulation,
- miniaturized NDT sensors, and
- ML-based defect identification.

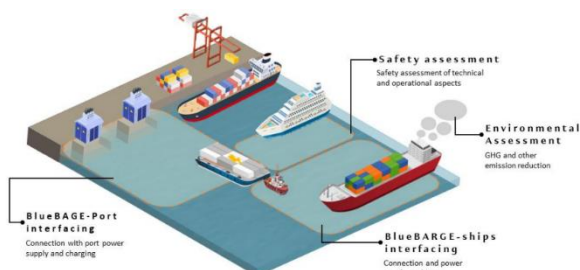


Only through a complete integration of these technologies is it possible to address the challenges of deploying aerial robots in these challenging conditions. Equipped with automated AI-based scanning, mapping, navigation and contact-based NDT, this has the potential to completely remove the need for human inspection. Using a digital twin approach brings “superhuman” results: comprehensive semantic-aware detailed 3D mapping (1 cm resolution) of large structures (>300 m), high resolution visual and NDT analysis (100um) and improved traceability with automatically generated trend analysis. The ML for system mapping and NDT is trained with sociotechnical inputs from experienced human inspectors. Currently, a typical inspection costs >1M€ and requires 15 days (8 days inspection and 7 days travel to low cost Far Eastern docks). A UAS-based inspection will take 1 day, with 1-2 days travel to an EU port at a cost of 200k€, saving the industry >9B€ p.a. with 2.4MT of CO2 reduction. This consortium includes many of the world leaders in the field of UAS-based inspection teamed with vessel owners and inspectors, enabling an end-to-end survey solution that would save 50 lives/yr, and provide safer, more reliable, and accurate inspection data.

BlueBARGE

101138694 | ABS | HORIZON-CL5-2023-D5-01 | 11.4 ME | 01.01.24 | 36 Months | 280KE

Project statement – General Objective BlueBARGE will design, develop and demonstrate an optimum power-barge solution to mainly support offshore power supply to moored and anchored vessels, limiting local polluting emissions and global GHG footprint in a life cycle perspective, following a modular, scalable, adaptable and flexible design approach, which will facilitate its commercialization by 2030.



The proposed power-barge solution will consider different alternatives as containerized power supply modules in a variety of configurations, where battery modules will serve as basis due to their high-energy efficiency and readiness level. The project will address electrical integration issues, interfacing challenges of the barge with ships, ports and local grid, operational safety and regulatory compliance aspects, delivering a high readiness and complete “power bunkering” solution. In overall, the BlueBARGE project’s full-integrated system aims at contributing to the shift of the maritime industry towards the goals of electrification and decarbonisation at an EU and international level.

ESY | ECOSHIPYARD

101138730 NTUA | HORIZON-CL5-2023-D5-01-15 | 4.5 ME | 01.01.24 | 170 KE

Objective of ECOSY is to provide stakeholders and shipyards of various sizes and dealing with vessels of all types of construction dependable and affordable toolset in cloud-based platform. So end users continuous monitoring and related to the sustainability of their operation.



materials (steel, aluminium, composites) a the form of a flexible and extendable will enable to perform (by themselves) assessments (including ranking of options)

ECOSY will utilise AI during its development. According the OpenAI/ ChatGPT: Shipyards can benefit from the use of AI in several ways, including:



- Quality control: AI can help ensure that ships are built to high standards by automatically checking for defects and deviations from specifications. This can reduce the need for manual inspections and save time and resources.
- Predictive maintenance: By analyzing data from sensors and other sources, AI can identify when equipment is likely to fail and schedule maintenance before a breakdown occurs. This can prevent costly downtime and improve safety.
- Design optimization: AI can help ship designers optimize the design of vessels for efficiency, stability, and safety. By analysing large amounts of data and simulating different scenarios, AI can identify the best designs for a given set of requirements.
- Supply chain management: AI can help manage the complex supply chains involved in shipbuilding by optimizing logistics and identifying potential bottlenecks or delays.
- Autonomous ships: AI can enable the development of autonomous ships, which could operate more efficiently and safely than manned vessels. This could potentially revolutionize the shipping industry and reduce costs and environmental impact.

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