



# RESURGAM

Robotic Survey, Repair and Agile Manufacture



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## Robotic Survey, Repair and Agile Manufacture

**Topic:** Improved Production and Maintenance Processes in Shipyards

**Programme:** SOCIETAL CHALLENGES – Smart, Green and Integrated Transport

RESURGAM project aims a decisive break-through with Friction Stir Welding (FSW) as a high integrity, low distortion, environmentally benign, welding technique to be developed in steel, in air, to facilitate the modular construction of ships across multiple yards with final assembly at one master yard and the development of the process of underwater, robotic FSW to allow repairs to be carried out on marine structures without needing to bring ships or platforms ashore to a dry dock. These fabrication and repair capabilities, backed by the secure, digital Industry 4.0 infrastructure and techniques already in widespread use in the automotive and aerospace industries, will facilitate the rapid, coordinated but distributed modular manufacture of ships and watercraft throughout Europe. Practically, this will allow ships damaged anywhere in the world will have the option of being repaired in place without the need to travel to the nearest dry dock. All of this will be implemented by the European shipyards and Naval architects in Europe.



### DURATION

Start: February 1st, 2021

End: January 31st, 2024



### BUDGETS

General Budget: € 6 123 140

EU Contribution: € 5 012 586



### PARTNERS

Coordinated by: EWF



Co-funded by the Erasmus+ Programme of the European Union

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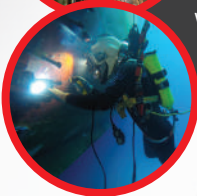


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- Enable the use of FSW for underwater and "under oil" welding of steel;
- Deliver a prototype underwater (U-FSW) head capable of robotic deployment;
- Deliver AI-enabled robotic UFSW system capable of performing inspection and FSW underwater and in confined spaces;
- Deliver in-yard FSW fabrication capabilities for modular build, modifications and retrofitting;
- Improve inter-connectivity and collaboration across European value-chain of key ship manufacturing stakeholders;
- Development of tailored business model for sustainability and commercialisation of RESURGAM outputs.

Conventional welding requires highly skilled workers, is dangerous and low productivity



Repair of ship hull damage requires very expensive manual divers or dry docking



Will introduce high productivity Friction Stir Welding of steel to European shipyards.



**Friction Stir Welding** is mechanised, low-distortion, safer welding solution; applicable to (modular) fabrication and underwater repair

