

PRESS RELEASE

A €11M EU funded innovation project, within the H2020 research programme

FIBRESHIP WILL GUIDE THE FUTURE OF THE EUROPEAN SHIPBUILDING INDUSTRY

- **The project sets out to build commercial ships over 50 metres in length using mainly fibre reinforced polymer (FRP) composite materials.**
- **The project consortium brings together 18 partners from the private sector, universities, and innovation centres from 11 EU countries.**
- **Within 24 months, full-scale prototypes will be built.**

Madrid, 19 June 2017. FIBRESHIP is an ambitious innovation project with a vision to drive the development and adoption of composites in the European shipbuilding industry. It will create the knowledge and build the tools for the construction of large composite merchant ships, over 50 metres in length, both seagoing and for inland waterways vessels, thus overcoming the current challenges and technology gaps which are found in conventional shipbuilding.

The project has been kicked off in Madrid (Spain), at the headquarters of the Centre for Development of Industrial Technology (CDTI), by Clara Eugenia García, General Director of Science and Innovation (Spanish Ministry of Economy, Industry and Competitiveness (EIC)); José Luis García Lena, General Director of Security, Pollution, and Maritime Inspection, General Directorate for Merchant Shipping (Spanish Ministry of Development); Renata Kadric, the FIBRESHIP Project Officer (EC); Julio Dolado, Delegate to HORIZON-2020 Smart Green and Integrated Transport (CDTI); and Santiago Encabo, Senior Project Officer of European Maritime Safety Agency-EMSA. FIBRESHIP is one of the largest innovation projects funded by the EU in this field, with a budget of €11 million, of which €9 million are funded by the EU's Horizon 2020 programme.

The Project Officer (EC), Renata Kadric, highlighted during her speech: "FIBRESHIP is a fundamental project to meet the future needs of European transport, especially in terms of

efficiency, safety and environmental commitment."

According to Mrs Clara Eugenia García (Spanish Ministry of EIC) : "FIBRESHIP is a relevant project because it combines three fundamental objectives: research and innovation, increase of industrial competitiveness and public and private collaboration. It meets the market needs".

Mr Santiago Encabo (EMSA) noted "FIBRESHIP faces the need to improve a fundamental aspect such as the safety of ships built with these materials at European level. A challenge that faces the project is that technology moves at a much faster pace than legislation. Yet, things are changing at IMO level regarding the use of FRP by the shipping industry".

Naval engineer and project coordinator Raúl Salinas sees the project as an innovative challenge that is technically feasible, as well as an opportunity for the European shipbuilding industry, driven by a strong consortium from 18 entities and 11 countries, which represents the entire supply chain.

To reach this goal, FIBRESHIP will develop, evaluate, and audit innovative Fibre Reinforced Polymers (FRP) for maritime applications, prepare new guidelines for design and production processes, advance efficient production and inspection methods, and adopt state-of-the-art and empirically validated software analysis tools.

An important area of work is the careful design and extensive use of performance indicators in the evaluation of the different solutions developed for three vessel categories: light merchant ships (container ships), passenger transport and leisure ships (ferries), and special service vessels (oceanographic ships). The project will develop a comprehensive guide covering design issues and approaches within those three categories that will form the basis for future guides and regulations for all ship types.

The different technologies generated in FIBRESHIP will be tested and validated using advanced simulation techniques and experiments. According to project coordinator Raúl Salinas: "Prototypes will be manufactured that can be subjected to real tests, which will show the functional characteristics of the new materials. We are going to evaluate an innovative solution with intumescent nanoparticles, together with several biomaterials and recycling fibres that may be more cost-effective than the current materials used for the construction of structural elements."

BENEFITS

The new FRP materials and construction processes proposed in FIBRESHIP will improve the efficiency of vessels, both in terms of energy consumption and maintenance costs, offering better solutions for merchant vessels at large. The potential benefits are:

- A reduction of the structural weight of vessels by 30% to 40%.
- Significant fuel savings from 10% to 15%.
- Increase in cargo capacity by roughly 12%.
- Reduction in maintenance costs by 30%.
- Operating costs savings between 7% for medium-sized container ships and 3% for larger vessels.
- Increase in recycling ratio from the current 34% to 75%.
- Greater stability of ships.
- Substantial reduction of greenhouse gases.
- Continuous monitoring of the vessel's structural health.
- FRP ships do not suffer from corrosion, resulting in a better life cycle performance.
- Better underwater acoustic signature.
- Aesthetically more appealing.

IMPACT ON THE INDUSTRY

Europe's leadership position in the world shipbuilding industry is based on its commitment to research, technology innovation and the delivery of high value-added products. In fact, Europe continues to account for around 40% of civilian and merchant shipbuilding in the world.

Europe's advantage is particularly apparent in lighter vessels, with hulls measuring up to 50 metres in length. At present, most pleasure boats and sailboats, ferries, patrol boats, rescue ships and warships measuring less than 50 metres are built using FRP materials instead of steel. Therefore, FIBRESHIP stands out as the first initiative to comprehensively introduce FRP in the construction of larger vessels.

The use of these materials for ships over 50 metres long is currently limited to secondary structures and components, largely because of a lack of design and certification guidelines in the event of fire, and the challenge to demonstrate that the use of FRP materials does not need to have a negative effect on a ship's safety levels.

FIBRESHIP intends to fill the various technology and knowledge gaps, and demonstrate the feasibility of using FRP materials in the three vessels types previously mentioned.

BUSINESS OPPORTUNITIES

FIBRESHIP stands out as a highly innovative European initiative funded by the EU's H2020 Programme, but also presents a clear business opportunity for companies and other stakeholders in the shipbuilding industry.

The success of the project would potentially lead to the widespread application of FRP materials in shipbuilding, to greater competitiveness of the European ship operators in the global market, and ultimately to spearhead innovation and growth in global shipbuilding.

ABOUT THE CONSORTIUM

FIBRESHIP is an international consortium of 18 organizations from 11 countries (Cyprus, Denmark, Finland, France, Great Britain, Greece, Hungary, Ireland, Italy, Romania, Spain) comprising:

- Three world leading classification and certification organizations—BUREAU VERITAS, LLOYD'S REGISTER, and RINA.
- Four medium-sized European shipyards—iXblue, NAVSHIP, SOERMAR, and TUCO.
- Three renowned research centres chosen for their experience and experimental capacity—CIMNE, ULIM, and VTT.
- Four relevant shipowners—ANEK, DANAOS, FOINIKAS, and IEO.
- Four companies specialising in shipbuilding architecture and engineering, in advanced solutions and in the development of CAE software for naval architecture and business consultancy—ATEKNEA, COMPASS IS, TSI, and TWI.

Its Advisory Board consists of 13 organizations, including prominent shipbuilders such as NAVANTIA and FINCANTIERI.

H2020 PROGRAMME

The European Union concentrates an important part of its research and development activities in its Framework Programme for the 2014-2020 period, known as Horizon 2020 (H2020). With a total budget of €80,000 million, the programme addresses pressing social challenges, promotes industrial leadership in Europe, and reinforces the excellence of its science base.

Horizon 2020 supports research and innovation projects with a wide range of technology readiness levels, from the generation of knowledge to activities that are closer to the market: basic research, technology development, demonstration projects, pilot manufacturing lines, social innovation, technology transfer, concept tests, standardisation, support for pre-commercial public-sector purchases, venture capital, and guarantee systems.