



**AUTOSHIP**  
Autonomous Shipping Initiative for European Waters



## Introducing AUTOSHIP: the largest autonomous and smart ship EU funded initiative

The AUTOSHIP project aims at speeding-up the Next Generation of Autonomous Ships, by demonstrating in real environment Short Sea Shipping and Inland Water Ways autonomous vessels. The project will develop two remote and autonomous ships and their Key Enabling Technologies on board, along with the needed shore control and operation infrastructure. The project added value will build on the requirements for the whole value-chain, from port infrastructures to logistic operators.

AUTOSHIP will help the ship operators/owners to gain competitiveness and renew their fleets, making them more competitive to replace road transport. Interoperability and Internet of Things will increase safety, security and speed of every operations.

The project is a major one in the current EU scenario and its relevance stands in being the first of a kind on which the research to come can be based on: reaching its targets will keep EU technological leadership and foster new jobs and relieved roads, enabling better and faster waterborne operations.

## The project

The main target of AUTOSHIP is to develop two fully autonomous vessels for SSS and IWW services in real environment. The use cases developed within the project will optimize efforts and investments in order to advance common standards and enabling operations in a shorter timeframe than expected: this will allow commercial applications of the technology behind the next generation of autonomous ships by the end of 2023.

To achieve this ambitious target, will be used a holistic approach which will revert technical innovation and public acceptance. The technology package will include full-autonomous navigation, self-diagnostic, prognostics and operation scheduling, as well as communication technology enabling a prominent level of cyber security and integrating the vessels into upgraded

e-infrastructure. In parallel, digital tools and methodologies for design, simulation and cost analysis will be developed for the whole community of autonomous ships.

## Deliverable D2.1 – “Supply Chain Mapping and Identification of Interactions” is now available

The report is a complete supply-chain definition, along with the identification of the interactions between the Short Sea Shipping use-case and the Inland Waterways use-case. The two cases have been investigated through semi-structured interviews, with follow-up communication and clarifications. These supply chain models have been compared to find the stage-by-stage properties that can be used into a generic model.

To read the complete report, visit the [DOWNLOAD](#) page of the project website.

## 1<sup>st</sup> Progress Meeting in Antwerp

The first General Assembly and Progress Meeting of the AUTOSHIP project was held from 23<sup>rd</sup> to 24<sup>th</sup> January 2020 in Antwerp, the second largest port in Europe, with the participation of a representative of EMSA (European Maritime Safety Agency).

The meeting focused on the progresses achieved so far, over the last six months. Each partner presented the results obtained in their tasks and work packages, with a focus on what it is going to happen next.

The consortium was also kindly allowed to visit the Flanders Hydraulic Research Center laboratory, that hosts a comprehensive set of tanks and VR simulation tools for navigation. Such advanced tools allow the pilots to virtually move in known scenarios and learn by doing, monitoring the surrounding weather conditions, the ship and the presence of other vessels. AUTOSHIP partners enjoyed the “navigation” and a nice exchange of information has set the basis for future exciting collaborations!



Figure 1: Virtual Simulator in the De Vlaamse Waterweg laboratory



## AUTOSHIP official press presentation in Norway

On the 21<sup>st</sup> January 2020, AUTOSHIP celebrated its start in Kristiansund, directly from the bridge of the ship Pioneer, from the partner Eidsvaag, which is one of the two ships that the project will make autonomous by 2023. The event was hosted by the Kongsberg Group, AUTOSHIP's global technological leader from Norway, and authorities from Belgium and Norway attended the event, as the largest EU-funded autonomous ship initiative was introduced to the press. A large press release followed the event, with multiple articles available on the web.



## KoM

On 20<sup>th</sup> and 21<sup>st</sup> June 2019 the AUTOSHIP consortium met for the Kick-Off meeting, which included representatives from the whole consortium and from INEA, DG MOVE and EMSA.

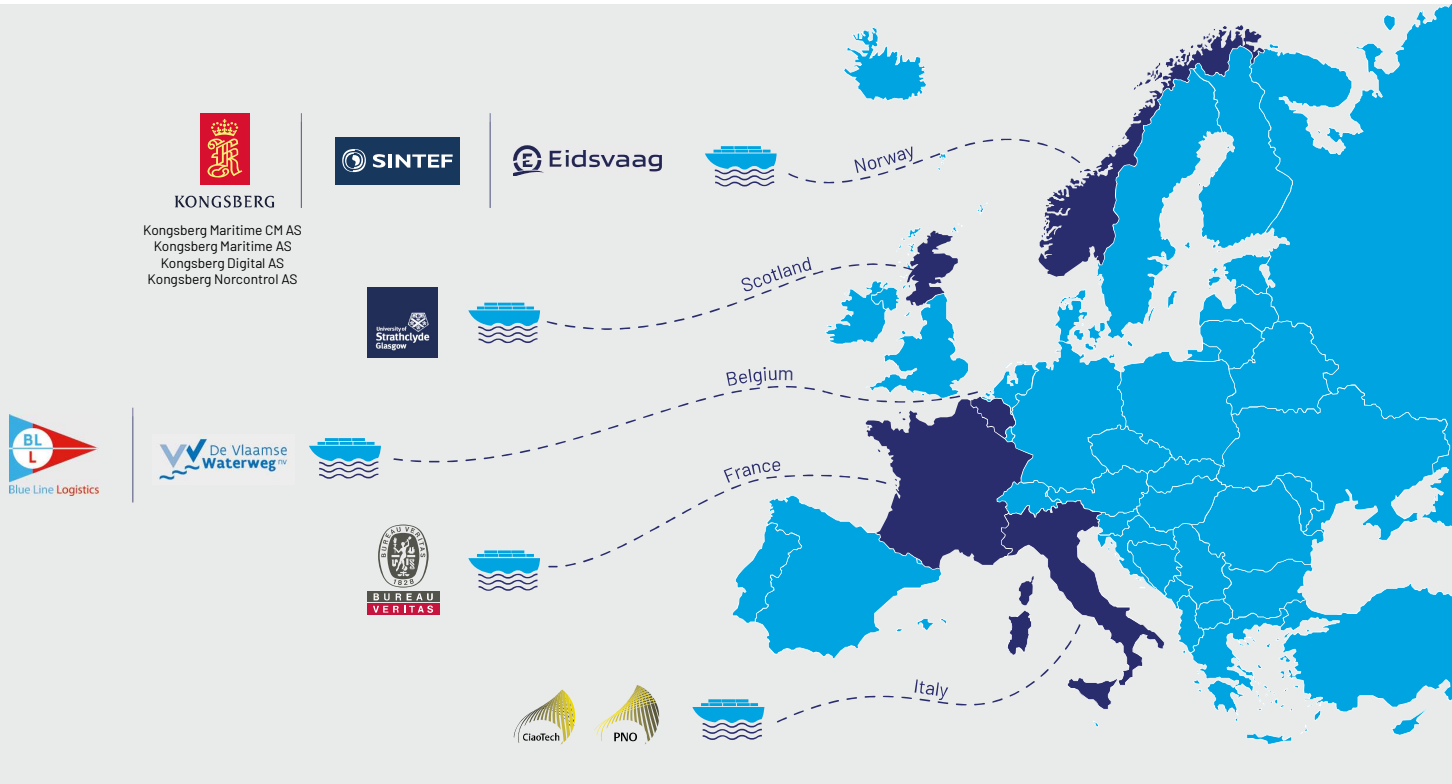
The first General Assembly was the occasion to introduce the project, the partners team and to discuss next steps to come. Two intense days at the end of which aims, expected results, tools, timing and roles were shown. The meeting was motivating, setting high challenges and expectations for AUTOSHIP.

“Well begun is half done...”.



# CONSORTIUM

The AUTOSHIP consortium is composed of 11 experienced partners and leading technology experts with proved capability to develop and achieve the aims of the project covering a wide geographical representation from 5 European countries.



## CIAOTECH S.r.l.

CIAOTECH (as a wholly owned company and Italian branch of the PNO Group) represents Europe's largest independent public funding and innovation consultancy with 30 years of hands-on expertise with more than 500 funding programmes in most EU countries, annually raising approximately 1 Billion Euro for its clients.

CIAOTECH "Innovation Management" services deliver high quality support to large sized companies, SMEs, Universities, Research Institutes, Associations and clusters in the full cycle of the innovation process including analysis, definition and innovation processes planning building innovation networks, partnerships and projects and managing projects and driving innovation. CIAOTECH has relevant experience in the review, definition and preparation of potential business models associated to every technology; and managing dissemination, exploitation and IPR aspects, taking particularly care of the industrial liaison and transfer, being especially skilled in the organisation of dedicate events and workshops.



KONGSBERG

## KONGSBERG MARITIME CM AS

Kongsberg Maritime CM AS (ex Rolls-Royce Marine) inherited the maritime branch of a global company operating in four growth markets – civil aerospace, defence aerospace, marine and energy. It is one of the world's leading suppliers of ship designs, power and propulsion systems, equipment and through life support services to the marine industry and a global company investing in technology and capability that can be exploited in each of these sectors to create a competitive range of products.



KONGSBERG

## KONGSBERG MARITIME AS

Kongsberg Maritime is a wholly owned subsidiary of Kongsberg Gruppen (KONGSBERG), which was founded on 20 March 1814 and celebrated 200 years in business in 2014.

Kongsberg Maritime (KM) delivers systems for dynamic positioning and navigation, marine automation, safety management, cargo handling, subsea survey and construction, maritime simulation and training, and satellite positioning. The solutions enhance efficiency and safety throughout the whole maritime technology spectrum and KM offers additional competence in providing turnkey engineering services within the shipbuilding and floating production sectors.



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## KONGSBERG DIGITAL AS

Kongsberg Digital AS (KOGD) is one of 3 business areas within the Kongsberg Group. KOGD is the groupwide centre of digital expertise for the Kongsberg Group providing the next generation software and digital solutions to customers within the Renewables, Utilities, Oil and Gas and Maritime industries. The company consists of 500 employees with the leading competence within internet of things, smart data, artificial intelligence, and automation and autonomous operations. To facilitate the digital journey of KONGSBERG and its customer, KOGD has established Kognifai; an open platform ecosystem, that consists of a cross-industry digital platform and KONGSBERG and 3rd party applications and services, and own technology teams with deep competence in internet of things, physical simulation, analytics, artificial intelligence, automation and optimisation of operations.



KONGSBERG

## KONGSBERG NORCONTROL AS

Kongsberg Norcontrol is a subsidiary of Kongsberg Defence & Aerospace, Norway's premier supplier of defence and aerospace-related systems, including products and systems for command and control, weapons guidance and surveillance, communication solutions and missiles. KOGN has developed, designed and installed complex and effective maritime surveillance solutions for more than 40 years. Its maritime surveillance solutions (including coastal, offshore, port and river surveillance) are implemented to identify and proactively manage risk, improving safety, efficiency and security of maritime transportation and its infrastructure by providing optimal situational awareness throughout an organisation.



## SINTEF Ocean AS

SINTEF Ocean AS is a company constituted by the Norwegian Marine Technology Research Institute (MARINTEK), SINTEF Fisheries and Aquaculture and the department for environmental technology in SINTEF Materials and Chemistry, which merged together on 1<sup>st</sup> January 2017. The company has 340 employees and is an integrated part of SINTEF, but also minority owned by strong and motivated industry players. Many of the challenges of modern society can be solved through sustainable use of the ocean. For a long time, SINTEF has been a distinct and important partner for trade and industry and the authorities, aiming to be on the leading edge in developing future-oriented solutions. So far, the ocean-related activities in SINTEF have been distributed among several institutes in SINTEF. By joining its forces in this area, SINTEF aims to become an even better partner for authorities and customers in the ocean industries. The merger is also an important step in our work to realise a future Ocean Space Centre, a new research centre, which has been highlighted by the Norwegian government as a priority R&D area in the years ahead.



## University of Strathclyde

The University of Strathclyde is a leading international technological institution ranking among the top-20 research-intensive universities in the UK and has received the Entrepreneurial University award for four consecutive years. The Engineering Faculty is one of the largest in the UK and joint research of the Department of NAOME (Naval Architecture, Ocean & Marine Engineering) with the other Faculty's Departments is rated fourth in the UK. The Department

currently has a strong workforce of 24 fulltime academic staff, 20 postdoctoral researchers and 80 PhD students, one of the largest research resources in the maritime field. The name of Strathclyde is synonymous with maritime safety research with more than five decades of sustained research and development at the highest of levels and with over 100 large-scale projects, instigated and/or led by NAOME. The Department continues to spearhead numerous initiatives with a pivotal role in promoting maritime safety and supporting industry and the regulatory process. More specifically, EU maritime safety research was launched with the SAFER EURORO Thematic Network (1996-2004), coordinated by NAOME. This led to some 50 large-scale projects worth €250M that brought step changes in maritime safety and world-leadership in EU on this research area. Landmark Projects in maritime safety, where NAOME played a co-ordinating or leading role include safenvship, roropro, nereus, harder, vrship-ropax2000, safecrafts, safedor, flagship, fireproof, floodstand, safeguard, goalds, safeport, holiship, nexus and tram.



## EIDSVAAG AS

Eidsvaag AS develops new innovative and sustainable businesses in the fish feed shipping industry: fish feed shipping and logistics are based on its extensive know-how and strong position in the fish feed sourcing and processing value chain. As part of the FjordFrende group, it manages the logistics suppliers to secure customer satisfaction and synergies within and with FjordFrende group.

Eidsvaag AS operates ship transport on the Norwegian coast, with the main emphasis on transport of fish feed. It employs 70 people. Eidsvaag AS has an agreement with Skretting AS for the shipping of all the company's fish feed in Norway; further, in 2019 it signed a contract with Cargill AS, to oversee the planning and handling of shipping of fish feed: emissions from ships that may cause environmental damage are within the requirements of the authorities. Thus, a significant part of the environmental work concentrates on the establishment of systems for reducing emissions when operating the vessels: Eidsvaag AS focuses on environmental measures and devotes a lot of resources to the planning and introduction of new and improved technology on board its ships. Continuous efforts are being made to develop logistics, and it is expected that this work will contribute to the company also being competitive in the future.



## BLUE LINE LOGISTICS (BLL)

Blue Line Logistics NV (BLL) is an inland waterway shipping company that has developed and operates a logistical platform for the transport of palletised goods consisting of logistical hubs combined with small inland waterway vessels/barges, called Pallet Shuttle Barges or PSB's over the last 3 years in Belgium and the Netherlands. In this period, BLL has acquired extensive know how on technical and operational use of the PSB's. This has first of all resulted in several technical improvements that are incorporated on the next generation of the PSB's, which are launched in



the last quarter of 2018. The acquired know how also includes the operation of small barges and their use on small waterways. This has allowed BLL to establish best work practices and access to a wide variety of clients to make the operation of this type of barges profitable. It also creates a real modal shift from road to waterway.



## BUREAU VERITAS MARINE & OFFSHORE REGISTRE INTERNATIONAL DE CLASSIFICATION DE NAVIRES ET DE PLATEFORMES OFFSHORE

BUREAU VERITAS is a world leader in Testing, Inspection and Certification services and is a founding member of IACS (International Association of Classification Societies). It offers innovative solutions that go beyond simple compliance with regulations and standards, reducing risk, improving performance and promoting sustainable development. BUREAU VERITAS MARINE & OFFSHORE is one of the world's leading classification societies and offshore safety and verification bodies. BV offers solutions for all types of ships, including Roll-on, roll-off ships, Inland navigation vessels, Container ships, Bulk carriers, Fishing vessels, etc. A diverse network of engineers and technical experts are dedicated to ship and offshore safety and efficiency. BV has more than 2,000 highly qualified marine surveyors operating in 180 survey stations in 90 countries.



## DE VLAAMSE WATERWEG NV

De Vlaamse Waterweg nv (a merger of nv De Scheepvaart and Waterwegen en Zeekanaal NV) manages and operates the waterways as a powerful network that contributes to the Flanders economy, prosperity and the livability of the area. De Vlaamse Waterweg nv supports transport via inland shipping, handles water management and increases the attractiveness of the waterways for recreation, tourism and natural experiences. From the registered office in Hasselt and departments in Willebroek, Brussels, Antwerp, Merelbeke and Mol, approximately 1,350 employees in this organization are working on a smart, versatile and prosperous waterway network. DVW stimulates the use of the Flemish waterways and of its land, while taking into account the interests of all the stakeholders involved and paying additional attention to sustainable growth, flood protection and integrated water management. DVW considers its mission to be an important social project and implements a modern, innovative and future-oriented policy focusing on a prosperous, mobile, safe and green Flanders.

# CONSORTIUM



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KONGSBERG

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[www.autoship-project.eu](http://www.autoship-project.eu)

[info@autoship.eu](mailto:info@autoship.eu)

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