

OTIMEDT

Market Exchange Report

July 2024

Bilateral initiative OTIMEDT ("Ocean Technology Innovation Market Exchange for Dalmatia and Trøndelag") is financed through the Fund for Bilateral Relations of EEA Grants and Norway Grants.

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1. Executive Summary

This Market Exchange Report outlines the activities carried out during the OTIMEDT project. The bilateral initiative, OTIMEDT ("Ocean Technology Innovation Market Exchange for Dalmatia and Trøndelag"), is funded by the Fund for Bilateral Relations of EEA Grants and Norway Grants. The project was implemented from May 1, 2023, to July 31, 2024, with a total grant of 100,000 EUR, evenly distributed between the project coordinator and the project partner.

For the duration of the project, both the University of Split (project coordinator) and Trondheim Tech Port (project partner) produced comprehensive mapping reports on the ocean technology ecosystems of Dalmatia and Trøndelag. By leveraging the data from these reports, stakeholders from both regions were invited to participate in a series of digital and in-person activities held throughout spring 2024, that resulted in collaboration opportunities for both countries and valuable insights on their blue economy sectors.

This report also summarises **best practices, technologies and approaches** in the blue economy sector in both regions, as well as **challenges and opportunities**.

From the **Croatian perspective**, key best practices include emphasizing sustainability and efficiency in maritime logistics, providing comprehensive training tailored to industry needs, and fostering high-quality networks for collaboration. Technological advancements such as advanced vessel tracking, AI-driven training tools, and fleet automation are recommended for optimizing operations and reducing emissions. New approaches involve strong collaboration with local communities, regulatory bodies, and clustering businesses to enhance knowledge sharing.

In Croatia, the blue economy sector faces challenges in keeping training programs up-to-date, understanding regulatory frameworks, and identifying end users for automation technologies. However, there are opportunities to leverage AI and simulators for advanced training, collaborate with Norwegian stakeholders for regulatory insights, and expand automation knowledge. Field visits emphasised Norway's advanced organizational systems and cooperation, providing valuable learning experiences. Strategies for improvement include implementing advanced vessel tracking, incorporating AI tools into training, developing MOUs for collaboration, initiating joint research projects, and fostering ongoing knowledge exchange to enhance efficiency, training, and industry adaptation.

From the **Norwegian perspective**, stakeholders underscore the importance of updated knowledge, optimal product pricing, and adaptation of technologies like AI in shipping, advanced fishing devices, navigation software, and hydrolysis for creating a sustainable bio-based circular economy. Future plans include integrating these insights to enhance sustainability, efficiency, training, collaboration, and technology integration, thereby improving operational outcomes and fostering innovation in the blue economy.

In Norway, the blue economy sector faces challenges in identifying other actors abroad and navigating the government and framework differences, pricing products optimally for export, and addressing transport logistics and CO2 emissions. However, there are opportunities to leverage

digital mappings and AI translators for better knowledge, navigate regulatory landscapes through networks, adapt pricing strategies for diverse markets, explore AI in shipping, and export Norwegian hydrolysis technology to Croatia. Strategies include using the OTIMEDT initiative's tools for better actor recognition, leveraging networks for regulatory insights, tailoring pricing through market research, implementing AI for logistics efficiency, and advocating for regulatory changes to support a bio-based circular economy. These approaches aim to enhance collaboration, market penetration, sustainability, and operational efficiency.

The OTIMEDT initiative has proven valuable in establishing connections, enhancing understanding of the Croatian and Norwegian blue economy sectors, and fostering innovation. The mappings of blue economy actors in Dalmatia and Trøndelag have been pivotal for networking and highlighted the need for more detailed regional mappings and a better grasp of local frameworks and regulations. The initiative has showcased two specific European regions, facilitating collaboration opportunities and sparking ideas for improving maritime and marine sectors in both countries. However, it remains to be seen how many opportunities will materialize in the future.

2. Introduction

The initiative's objective is to establish routes for strong bilateral cooperation between blue economy actors from the regions of Dalmatia (Croatia) and Trøndelag (Norway). The blue sector is strongly embedded in the overall economy of both regions, contributing significantly to the GDP and total employment. According to the 2021 Blue Economy Report¹, Croatia employs a total of 144,165 people and generates about 3.1 billion EUR in GVA from blue economy sectors. With 8% GVA in its economy, Croatia has the largest portion of GVA of any EU country. In Norway, the blue sector (including oil and gas) employed 10% and represented 22,4% of GDP (8% of GDP excluding oil and gas) in 2019.

Norway's position as a leading ocean economy is to a large extent due to its well-developed business clusters and local communities along the coastline, with skilled employees and thriving businesses. Both regions, Dalmatia and Trøndelag, have vast marine, maritime and coastal resources available for the creation of value-added products and services, in which sense the Dalmatia region is still exploring all of its potentials and opportunities and can benefit largely from collaborating with more prominent Trøndelag.

Given that the blue economy will play a key role in meeting Europe's environmental and climate objectives, it is important to promote investments in innovative technologies by fostering collaboration and seeking synergies across different blue economy actors in Europe. Regions of Dalmatia and Trøndelag have already started collaborating through specific projects aimed at boosting the innovation capacities of higher education institutions and strengthening collaboration of its regional stakeholders, whereas this initiative will add a new dimension creating bilateral collaboration opportunities for business actors from the blue economy sector.

To identify key stakeholders in both regions, the University of Split (UNIST) and Trondheim Tech Port (TTP) created mapping reports for Dalmatia and Trøndelag during the first phase of the project. These reports focused on identifying key stakeholders in the maritime and marine industries and pinpointing essential industry subsectors. In the second phase, virtual pitching sessions were organised, allowing industry stakeholders to present their organisations, products, and ongoing projects. Over 30 different stakeholders participated in these sessions. These virtual events facilitated the selection of participants for the B2B events held in Split and Trondheim in April and June 2024. During the on-site events in Split and Trondheim, stakeholders had the opportunity to exchange knowledge, establish bilateral collaborations, and visit the production facilities of various stakeholders in both regions. All the information obtained during the mentioned online and on-site events serves as the basis for creating this Market Exchange Report.

This document provides a direct approach and introduction to a new market which will increase the potential of collaboration agreements for the realisation of joint ventures and explore the matchmaking possibilities between the regions. The Market Exchange Report is based on

¹ The EU blue economy report 2021, <https://op.europa.eu/en/publication-detail/-/publication/0b0c5bfd-c737-11eb-a925-01aa75ed71a1>

cross-references between the mapping reports of both regions and matchmaking events. It proposes types of collaboration and concrete opportunities between stakeholders in each region. This provides insight into the current state of the market for Dalmatia and Trondelag which will greatly increase the possibility of collaboration between these regions in the future.

All the project activities directly contribute to strengthening bilateral cooperation between both countries' regions.

3. Mapping Report Overview and Key Figures

As part of the first phase of the OTIMEDT initiative, Mapping Reports were created to provide an overview of the actors in the ocean technology ecosystems of Dalmatia and Trøndelag. Ocean technology, as defined in these reports, encompasses “technologies for the development of maritime and marine industries”. In addition to detailing ocean technology companies, the reports also summarize the region's R&D environments, test lab infrastructure, hubs, competencies, networks, and forums.

The mapping reports provide a solid foundation for proposing measures to enhance Norwegian and Croatian innovation in ocean technology by fostering closer cooperation between actors in these regions.

Trondheim Tech Port (TTP) has extensive experience with creating mapping reports for various industries, including the health and energy technology sectors. During the initial phase of the project, TTP established and provided the methodology used to create the mapping reports for both Dalmatia and Trøndelag.

This methodology included conducting interviews with focus groups, accessing databases containing key figures for regional companies, and performing thorough desk research using publicly available sources. These steps ensured the mapping reports were as accurate and comprehensive as possible.

a. Mapping of the Ocean Technology Ecosystem in Dalmatia

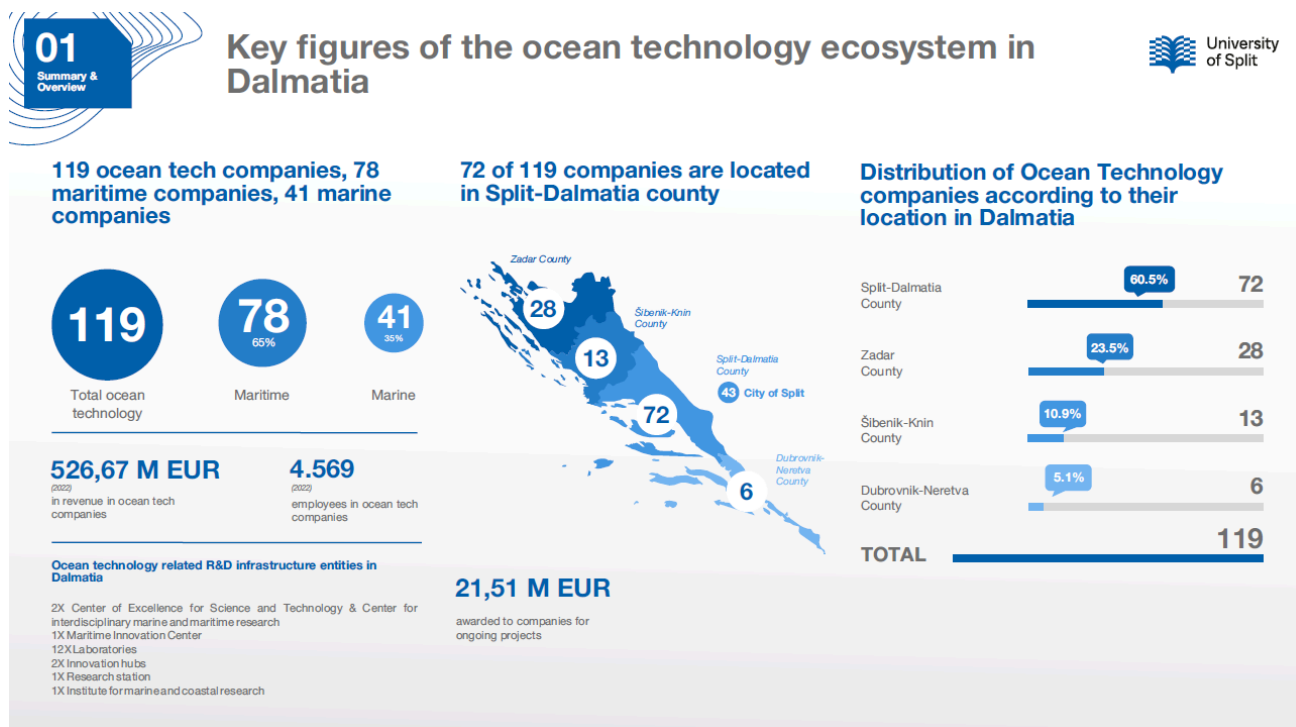
The mapping report of the ocean technology ecosystem in the Dalmatian region² identified a total of 119 ocean tech companies, comprising 78 maritime and 41 marine companies. These companies generated total revenue of 526.57 million EUR and employed over 4,569 individuals within the industry. In addition to the identified companies, the report highlighted 9 clusters, networks, and forums, as well as 10 public entities operating in the region as relevant actors.

Although the mapping report of the ocean technology ecosystem in Dalmatia identified over 52% more companies in the maritime sector compared to the marine sector, the maritime industry's total revenue was 88 million EUR higher in comparison.

² Mapping of the Ocean Technology Ecosystem in Dalmatia, 2024, https://marjan.unist.hr/UserDocImages/znanost/OTIMEDT_mapiranje_plave_ekonomije_regije_Dalmacije_22_12_2023.pdf

The mapping report focused on actors within the four regions of Dalmatia, identifying stakeholders exclusively from these areas:

- Zadar County
- Šibenik-Knin County
- Split-Dalmatia County
- Dubrovnik-Neretva County



Picture 1. Key figures from the Ocean Technology ecosystem in Dalmatia (Source: Mapping of the Ocean Technology Ecosystem in Dalmatia, 2024).

The mapping report detailed technology sub-sectors for each industry. Following is the breakdown of the sub-sectors that were taken into account during the creation of the Dalmatian mapping report.

Maritime Technology

Construction of ships/vessels and floating structures	Construction of all types of commercial, passenger, and special purpose ships as well as offshore and inshore constructions.
Technical consultancy	Consultancy services within maritime engineering, ship design and construction, cybernetics, asset management, risk management etc
Drones and autonomy	Development of subsea, aerial and surface drones with multiple

	applications in various maritime industries and other autonomy solutions for maritime applications
Software	Software for navigation, chart plotting, education, tracking systems, fleet management, ship design, asset management And other apps for maritime applications.
Propulsion and manoeuvring	Equipment and systems connected to the propulsion, dynamic positioning and manoeuvring of ships and other floating units. Includes actuators and valve control systems, hybrid propulsion systems, foil technology, hydraulics, thrusters etc.
Technical equipment	Electrical and mechanical equipment such as control systems, sensors, ocean communication systems, positioning Technical equipment systems, cargo handling and other deck operations and monitoring solutions for maritime applications.
R&D	R&D within maritime technology
Subsea equipment	Products and components which are designed for subsea use.

Table 1. Maritime sub-sectors for Dalmatian Mapping Report.

Marine Technology

Technical equipment and installations	Electrical and mechanical equipment and installations such as water filtration, treatment and cleaning systems, subsea imaging and monitoring, climate regulation systems, and other farming tools used in conventional and land-based aquaculture.
Software	Software for feeding assistance, process and production controlling, live analysis and data collection, and other software solutions for aquaculture
Technical advisory	Technical advisory services for marine business areas such as aquaculture, marine engineering, certification services, and software and process support.
Farming technologies	Targeted technology and facilities for both open sea and land-based fish farming, including offshore farming solutions and land-based RAS facilities.
Fish health, environment and R&D	Various products and services aimed at fish health preservation and monitoring and environment conservation, in addition to vaccination, genetics and stem fish research, tracking services for escaped farmed fish, and related advisory services.
Seafood farming and	Cultivation of various types of fish and shellfish species and

processing	processing by using advanced technologies.
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Table 2. Marine sub-sectors for Dalmatian Mapping Report.

The detailed mapping report, including all key figures categorized by industry and sub-sector, is available online for download and further analysis. The report is regularly updated.

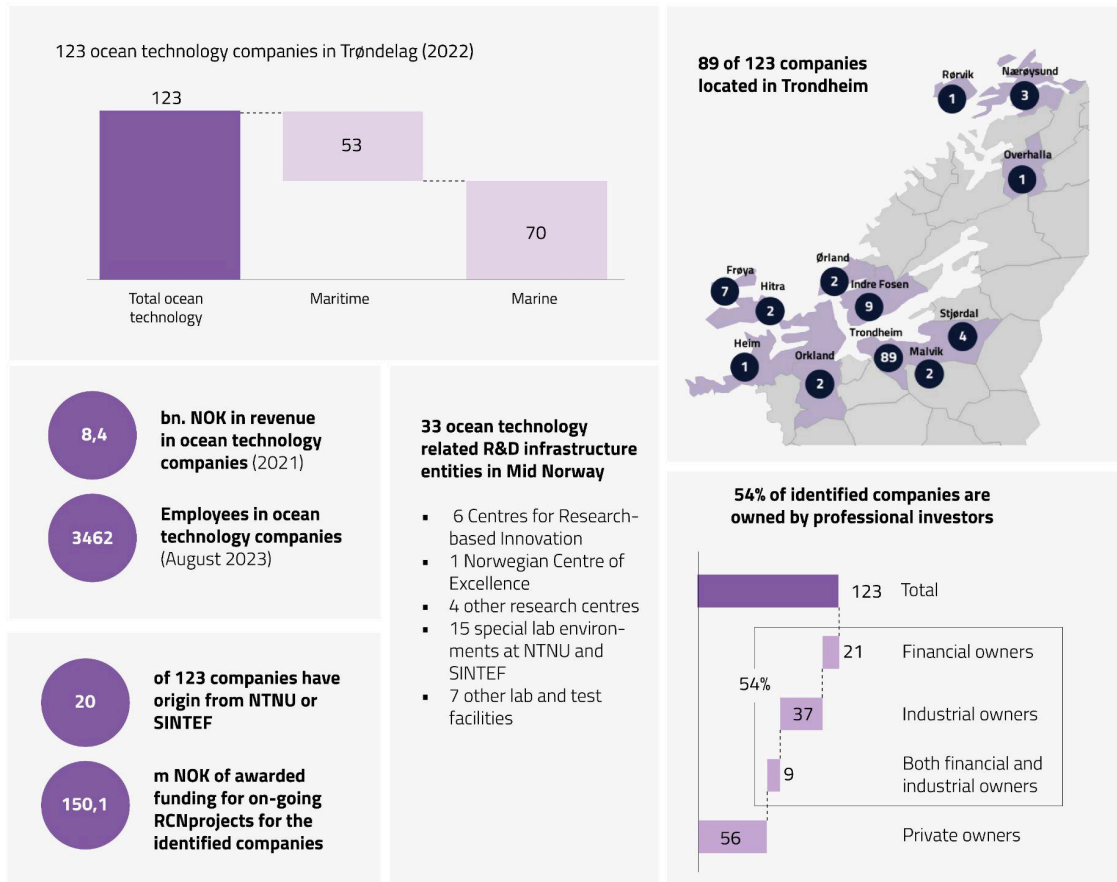
b. Mapping of the Ocean Technology Ecosystem in Trøndelag

The mapping of the ocean technology ecosystem for the region of Trøndelag³ identified a total of 123 ocean tech companies, comprising 53 maritime and 70 marine companies. These companies generated total revenue of 8.4 billion NOK and employed over 3,460 individuals. The report also highlighted 33 ocean-technology-related R&D infrastructure entities:

- 6 Centres for Researched-Based Innovation,
- 1 Norwegian Centre of Excellence,
- 4 other research centres,
- 15 special lab environments,
- 7 other lab and test facilities,
- 23 clusters, networks, and forums,
- 28 investors, some of which specialised in ocean technology,
- 8 public entities operating in the region as relevant actors.

Similarly to what transpired from the mapping of Dalmatia, maritime companies in Trøndelag, despite being in greater numbers, had a lower revenue when compared to marine companies; 2,491 million NOK for the maritime industry versus 5,850 for the marine industry.

³ Mapping of the Ocean Technology Ecosystem in Trøndelag, Version 1.1, November 2023, https://cdn.prod.website-files.com/629f52583d17357f8284afaa/65522a4d3bf7d3eee84a4b8b_Havteknologirapport_v1.1.pdf



Picture 2. Key figures from the ocean technology ecosystem in Trøndelag. (Source: Mapping of the Ocean Technology Ecosystem in Trøndelag, Version 1.1, November 2023).

Like the Dalmatian mapping report, Trøndelag’s report was structured around technology sub-sectors for each industry. Following is the breakdown of the sub-sectors that were taken into account.

Maritime Technology

Technical consultancy	Consultancy services within maritime engineering, ship design and construction, cybernetics, asset management, risk management etc.
Drones and autonomy	Development of subsea, aerial and surface drones with multiple applications in various maritime industries and other autonomy solutions for maritime applications.
Software	Software for navigation, chart plotting, education, tracking systems, fleet management, ship design, asset management And other apps for maritime applications.

Propulsion and manoeuvring	Equipment and systems connected to the propulsion, dynamic positioning and manoeuvring of ships and other floating units. Includes actuators and valve control systems, hybrid propulsion systems, foil technology, hydraulics, thrusters etc.
Technical equipment	Electrical and mechanical equipment such as control systems, sensors, ocean communication systems, positioning Technical equipment systems, cargo handling and other deck operations and monitoring solutions for maritime applications.
R&D	R&D within maritime technology.
Subsea equipment	Products and components which are designed for subsea use.

Table 3. Maritime sub-sectors for Trøndelag's Mapping Report.

Marine Technology

Technical equipment and installations	Electrical and mechanical equipment and installations such as water filtration, treatment and cleaning systems, subsea imaging and monitoring, climate regulation systems, and other farming tools used in conventional and land-based aquaculture.
Software	Software for feeding assistance, process and production controlling, live analysis and data collection, and other software solutions for aquaculture
Technical advisory	Technical advisory services for marine business areas such as aquaculture, marine engineering, certification services, and software and process support.
Feed products	Development of feed products for the aquaculture industry including fish feed health additives, early-stage feed, plankton-based feed, and seaweed.
Residual and waste utilization	Reutilization of residual substances and waste from aquaculture and other marine operations.
Farming technologies	Targeted technology and facilities for both open sea and land-based fish farming, including offshore farming solutions and land-based RAS facilities.
Fish health, environment and R&D	Various products and services aimed at fish health preservation and monitoring and environment conservation, in addition to vaccination, genetics and stem fish research, tracking services for escaped farmed fish, and related advisory services.
Farming Technologies	Targeted technology and facilities for both open sea and land-based fish farming, including offshore farming solutions and

	land-based RAS facilities.
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Table 4. Marine sub-sectors for Trøndelag's Mapping Report.

As for the Dalmatian mapping report, Trøndelag's mapping is regularly updated and available online.

4. Event Activities

After the mappings for both regions were concluded, they were used to identify stakeholders who were invited, through a *Call for Expression of Interest*, to join the next step of the initiative; a digital matchmaking event. This was just the first of three events that were held;

1. A **virtual pitching session** divided into two parts, which provided stakeholders from both regions an opportunity to present their organizations, products, services, and projects.
2. A two-day on-site **event in Split** on April 10th and 11th, 2024.
3. A two-day on-site **event in Trondheim** on June 5th and 6th of, 2024.

A. Virtual pitching sessions

The two virtual pitching sessions were hosted on Zoom and Google Meet and led by UNIST and TTP respectively. On March 13th, the Croatian stakeholders pitched to the Norwegian stakeholders. The opposite happened on March 14th. Overall, the virtual pitching session featured 16 Croatian and 8 Norwegian stakeholders.

Following these digital events, participants were asked to complete a survey to determine their interest in participating in the following steps of the initiative and which, if any, of the other country's stakeholders they were interested in connecting with further. The stakeholders had the opportunity to select different types of collaboration for every stakeholder. The options provided were:

- Further introduction / Network development
- Exchange of knowledge
- Participation in R&D projects
- Joint venture
- Sale deals
- Other
- Not interested

The results of this survey showed that the majority of Norwegian stakeholders were interested in further introduction (67%), exchange of knowledge (67%), and participation in R&D projects (50%), while Croatian stakeholders were interested in exchange of knowledge (80%), participation in R&D projects (80%), further introduction (50%), sale deals (50%), and other forms of collaboration (50%).

B. Event in Split

As a result of the interest shown in the aforementioned survey, a selected group of Norwegian and Croatian stakeholders were invited to travel to Split for the on-site events.

The first day of on-site events, April 10th, was held at the Technology Park of the University of Split and featured 16 Croatian stakeholders and 11 Norwegian stakeholders. In addition to B2B meetings, the event included a workshop on the topic of digital transformation and the role of digital innovation hubs, as well as skill advancement in the blue economy. This workshop was led by Prof. Dr. Damir Medved from **EDIH Adria**⁴.

On the second day of the on-site events, April 11th, the program featured field trips to several prominent Croatian stakeholders. Norwegian participants visited the **Faculty of Maritime Studies**, where they explored the planetarium and experienced the engine room and deck simulators. The itinerary also included a tour of **Salona Var d.o.o.**, a company renowned for its expertise in designing and manufacturing welding equipment and systems. During this visit, stakeholders observed the production of machine parts and metal structures, as well as a wide range of specialized products and technologies for wear and erosion protection, and the regeneration and repair of damaged metal parts. Additionally, a comprehensive inspection of **Centaurus d.o.o.**, a company specializing in the distribution, retail, and export of fresh and frozen seafood products, was conducted. Stakeholders toured the production facility, the storage area where raw materials are received from ships, and the entire commercial production section.

Following is an overview of the stakeholders who participated in the event in Split. More information about the stakeholders can be found in the Annex “Stakeholders involved in the initiative”.

Croatian stakeholders:

- Adriatic Propeleri d.o.o.
- Agena Marin d.o.o.
- Azara Adria d.o.o.
- Centaurus d.o.o.
- ELNAV AI d.o.o.
- Faculty of Maritime Studies, University of Split
- Fisherman Association Friška Riba
- Laboratory for Intelligent Autonomous Systems (LARIAT)
- Loop d.o.o. (NECOGI)
- Maral Technologies d.o.o.
- Marikomerc d.o.o.
- Nuić Nautika
- Plovput d.o.o.
- Salona Var d.o.o.
- Underwater Acoustics d.o.o.

⁴ EDIH Adria, <https://edihadria.eu/>

- University of Split

Norwegian stakeholders:

- Aquafind AS
- Blått Kompetansesenter AS
- F&Z Solutions AS
- Municipality of Frøya
- Nuas Technology AS
- Proffteiner AS
- SailorsMate AS
- Trondheim Tech Port

Following the activities in Split, all the stakeholders were asked to fill out an additional survey in which they could express further interest in the stakeholders they met. This survey was also used to determine which Dalmatian companies should be invited to the on-site events in Trondheim.



Picture 3. B2B meetings at the University of Split Technological Park.



Picture 4. Visit to Faculty of Maritime Studies engine room simulator.



Picture 5. Visit to Salona Var d.o.o. Headquarters in Solin.



Picture 6. Visit to Centaurus d.o.o.headquarters in Solin.

C. Event in Trondheim

During the first day of the event in Trondheim, 10 Norwegian stakeholders and 10 Croatian stakeholders gathered at DIGS, a co-working space located in the centre of Trondheim.

The day's program featured a workshop on digital transformation and skill advancement in the blue economy, led by Anne Grete Ellingsen, project manager from **EDIH Oceanopolis**⁵, alongside B2B meetings that partially acted as a follow-up for those conducted during the stakeholders' visit in Split. The Croatian stakeholders also had a chance to visit **SINTEF's Plankton Centre**, which is a part of the SINTEF Group, one of the largest independent research organizations in Europe.

On the second day of the trip, the agenda included field trips to several prominent Norwegian stakeholders located in the municipalities of Frøya and Hitra. The field trip included visits to **Eidsvaag AS**, a company that specializes in logistics and transport services for the aquaculture industry, where the focus of the company's presentation was the business aspects of aquaculture logistics and fleet management. Additionally, the participants visited the headquarters of **Blått Kompetansesenter AS**, in Sistranda, Frøya. They are an organization dedicated to the development and dissemination of knowledge, skills, and innovations within Norway's blue economy. During this visit, the participants also received two introductory

⁵ EDIH Oceanopolis, <https://www.dihioceanopolis.com/>

presentations from the **Municipality of Frøya**, concerning how the Municipality has managed to increase student recruitment to the blue economy fields of study, and **Kystplan AS**, a company that offers a range of services related to coastal planning and management. The last field trip of the day included a visit to **Lerøy AS**, a major seafood company located in Frøya and among the largest globally. Lerøy AS is involved in all aspects of seafood production, from farming to processing, sales, and distribution. Croatian representatives visited a cutting-edge salmon processing plant, where they were educated on the advanced processing methods and equipment utilized at the facility.

Following is an overview of the stakeholders who participated in the event in Trondheim. More information about the stakeholders can be found in the Annex “Stakeholders involved in the initiative”.

Norwegian stakeholders:

- Blått Kompetansesenter AS
- Haste AS
- MoreScope AS
- Municipality of Frøya
- Nuas Technology AS
- Proffteiner AS
- SailorsMate AS
- Trondheim Tech Port

Croatian stakeholders:

- Centaurus d.o.o.
- ELNAV AI d.o.o.
- Faculty of Maritime Studies
- Friška Riba d.o.o.
- Laboratory for Intelligent Autonomous Systems, University of Dubrovnik (UNIDU)
- Loop d.o.o. (NECOGI)
- Marikomerc d.o.o.
- Plovput d.o.o.
- Salona Var d.o.o. / Maral Technologies d.o.o.
- Underwater Acoustics d.o.o.

Following the activities in Trondheim, all the participants were asked to fill out one last survey in which they were requested to evaluate the activities carried out and report on any progress made in establishing concrete plans for collaboration with other stakeholders.



Picture 7. Trondheim Tech Port's Innovation breakfast: "Infrastructure & Collaboration - increasing innovation in Ocean technology - DIGS.



Picture 8. Trondheim Tech Port's Innovation breakfast: "Presentation of Ocean Technology Market Exchange for Dalmatia and Trøndelag (OTIMEDT)"- DIGS.



Picture 9. B2B meetings between Norwegian and Croatian stakeholders”- DIGS.



Picture 10. Visit to SINTEF Ocean Laboratory.



Picture 11. Visit to Eidsvaag AS, presentation on the topic of aquaculture logistics and fleet management.



Photo 12. Visit to Lerøy AS salmon production facility. Photography inside the factory was restricted due to company policy.

5. Key findings

Following events held in Split and Trondheim, surveys were sent to participants by the University of Split and Trondheim Tech Port. These surveys were conducted both to obtain input regarding the two field trips and to gather data on their experiences alongside other input, specifically emphasising the exchange of knowledge between the stakeholders.

In this section, we will analyse feedback provided by both Croatian and Norwegian stakeholders. Below are the questions that were sent to the stakeholders together with a summary of the feedback provided by the stakeholders.

I. Shared initiatives and collaboration

The answers to the following questions were used to report the current status of shared initiatives and collaborations ongoing between Croatian and Norwegian stakeholders:

- *Are there any new specific projects, initiatives, or areas of interest discussed during the meetings that are being considered for collaboration between your entity and the Croatian/Norwegian stakeholder?*
- *Since the trip to Split, has there been any progress concerning projects, initiatives, or areas of interest discussed during the meetings?*
- *Did the meeting uncover any areas where additional information or expertise is needed to facilitate collaboration? If so, what steps do you plan to take to address these knowledge gaps or resource needs?*

The following paragraphs summarise the status of different collaborations between Croatian and Norwegian stakeholders (listed alphabetically, adopting Croatian stakeholders as first reference).

Centaurus d.o.o. & Nuas Technology AS

Discussions have been initiated with Nuas Technology regarding potential knowledge exchange, cooperation, and sales, especially with regard to opportunities for cooperation within the treatment of residual raw material in Croatia. The possibility of participation in R&D projects was also discussed.

Centaurus d.o.o. & Proffteiner AS

Discussions revolved around potential knowledge exchange, cooperation, and sales. These discussions are currently in the preliminary stages, but there is potential for future collaborative opportunities, as Centaurus can help Proffteiner acquire contacts for running trials using Proffteiner's patented pots for harvesting blue crabs in the Adriatic Sea.

ELNAV AI d.o.o. & Aquafind AS

Discussions focused on integrating Aware Mate's fatigue detection with their maritime monitoring systems, technical specifications, and potential joint ventures.

ELNAV AI d.o.o. & Blått Kompetansesenter AS

Discussions involved a joint project to incorporate ELNAV.AI's technology into maritime training programs. Blått Kompetansesenter AS has expertise in maritime education and training and ELNAV.AI will provide safety solutions and technical support, assisting in grant applications and collaborative R&D efforts. Currently, ELNAV AI d.o.o. and Blått Kompetansesenter AS are identifying suitable grants exploring potential collaborations in the early stages. Additionally, there is interest in creating joint training modules using advanced simulators and AI tools, with consideration of applying for joint grants to fund these initiatives. No agreements have been finalized as of yet.

ELNAV AI d.o.o. & Haste AS

Discussions centred on enhancing navigational systems with fatigue detection, co-developing safety technologies, and technical collaboration.

ELNAV AI d.o.o. & MoreScope AS

Discussions focused on integrating real-time monitoring data into safety analysis tools, developing new analytical tools, and fostering collaborative efforts.

ELNAV AI d.o.o. & Municipality of Frøya

Discussions covered local regulatory requirements, potential pilot projects, and alignment with regional safety initiatives.

ELNAV AI d.o.o. & SailorsMate AS

Discussions focused on implementing Aware Mate's technology on fishing boats for product integration and safety enhancements. Currently, stakeholders are reviewing existing product offerings and planning specific adaptations for fishing boats. The next steps include conducting field studies and developing necessary adaptations. SailorsMate AS brings extensive knowledge of fishing boat operations and safety requirements, with a strong presence in the maritime industry, especially in the fishing sector. ELNAV AI d.o.o. provides advanced fatigue detection technology tailored for fishing boats, custom solutions, and supports the integration of Aware Mate. They also offer training and technical support to ensure effective adoption of the technology in the fishing industry. Additionally, there is also interest in adapting Aware Mate's technology for the fishing sector, including discussions on potential pilot projects to demonstrate its effectiveness. As of now, no agreements have been finalized.

Faculty of Maritime Studies & Municipality of Frøya

Discussions focused on exploring the possibility of Municipality of Frøya staff members visiting Split during the Autumn of 2024 to establish concrete collaboration. The visit would focus on networking between academia, relevant companies, municipalities, public organizations, high schools, primary schools, and other stakeholders to address specific sustainability issues in the community. Both parties expressed readiness to share their expertise and best practices, aiming to develop a joint venture that brings mutual benefits and supports our shared objectives.

Fisherman Association Friška Riba & Proffteiner AS

Discussions highlighted Proffteiner AS's potential for collaboration in addressing potential blue crab invasions in our part of the Adriatic Sea, as well as further networking.

Fisherman Association Friška Riba & SailorsMate AS

Discussions with SailorsMate AS focused on their project involving chart plotters, which has garnered interest among fishermen. Both parties have agreed on the potential purchase of two devices for fishing vessels, indicating a step forward in collaboration, after adapting SailorsMate's solution to Croatian needs.

In addition, Friška Riba expressed the need for additional information and technology related to fishing vessels. They highlighted the importance of securing funding through grants, leveraging EU and Norwegian knowledge and technology with 75% co-financed projects.

Loop d.o.o. (NECOGI) & Blått Kompetansesenter AS

Discussions included potential cooperation on "Innovation Norway" projects and future partnerships on environmental subjects. Additionally, the possibility of becoming acquainted with Norwegian projects related to marine ecology was explored.

Loop d.o.o. (NECOGI) & F&Z Solutions AS

Discussions included the need for software development alongside their hardware to develop "Pamela" for special cases and facilitate manual work. Underwater photography and its challenges were also addressed. For F&Z Solutions, the software can be adapted for their specific needs and object detection. Future development stages may involve integrating their hardware with the software. Both parties will remain in contact as the projects progress to stages where hardware and software integration is feasible.

Loop d.o.o. (NECOGI) & Proffteiner AS

Discussions included adding a system to detect crabs and indicate optimal trap locations. For Proffteiner, adapting the software for their specific needs and object detection was considered. Both parties presented recent project developments and discussed how AI tech could be used on Proffteiner's pots. Future development stages may involve integrating their hardware with the software.

Loop d.o.o. (NECOGI) & SailorsMate AS

Initial discussions involved creating a map with our data to represent marine debris and addressing sea depth measurement and display in coastal areas. Following the second event, further steps and cooperation were elaborated, including a potential solution for the depth problem. The current phase of potential collaboration involves identifying suitable grants for joint project financing. Both parties are committed to developing a joint product, with each contributing their knowledge and skills in specific areas.

Marikomerc d.o.o. & Aquafind AS

Discussions centred on the future development of the online sales market and potential assistance in expanding their business into Croatia.

Marikomerc d.o.o. & Blått Kompetansesenter AS

Interest was expressed in the company's concept, with potential discussions on joint ventures and the possibility of replicating their system in Croatia. Emphasis was placed on extensive knowledge exchange, participation in workshops, brand building, digital profile strategy, and business development. There is keen interest in aligning activities similar to those in Trondheim

municipality with opportunities in Croatia. The stakeholder sees potential for leveraging their expertise, whether personal or corporate, to facilitate beneficial collaborations among universities, industries, and public entities in both regions.

Marikomerc d.o.o. & Haste AS

Discussions focused on optimizing logistics and strategies for transportation activities for supplying customers with fish produce.

Marikomerc d.o.o. & MoreScope AS

Discussions focused on the industry's CO2 emissions impact and sustainability in the blue economy. MoreScope's platform helps companies and investors gather, analyze, and measure climate data to reduce their carbon footprint and understand climate impacts.

Marikomerc d.o.o. & Municipality of Frøya

Discussions focused on establishing connections with companies in the Municipality of Frøya to enhance networking. The goal included connecting with local fishermen to supply raw materials to Croatia for processing or sales.

Marikomerc d.o.o. & Nuas Technology AS

Discussions addressed the processing and reusability of waste materials. The presentation of their technology to companies in Croatia was considered, with the aim of installing an in-situ by-products reprocessing facility.

Marikomerc d.o.o. & Proffteiner AS

Discussions focused on cooperation in blue crab-catching technology and the possibility of supplying traps to Italy. Topics included the sale of blue crab traps on the Adriatic coast and testing experiments in Neretva Bay. Marikomerc's experience in blue crab processing was noted, providing valuable fresh knowledge.

Laboratory for Intelligent Autonomous Systems (LARIAT-UNIDU) & Applied Underwater Robotics Lab (AURLab-NTNU)

The discussion focused on potential joint R&D projects and scientific exchange.

Laboratory for Intelligent Autonomous Systems (LARIAT-UNIDU) & Haste AS

The stakeholders discussed the potential for collaboration involving AI in transportation planning.

Laboratory for Intelligent Autonomous Systems (LARIAT-UNIDU) & F&Z Solutions AS

F&Z Solutions followed up with LARIAT concerning the potential purchase of one of their underwater devices.

Laboratory for Intelligent Autonomous Systems (LARIAT-UNIDU) & Proffteiner AS

The stakeholders discussed further networking and environmentally-focused R&D.

Laboratory for Intelligent Autonomous Systems (LARIAT-UNIDU) & SailorsMate AS

Discussions were had concerning how SailorsMate could be used to integrate maps and pictures taken by LARIAT's ROV.

Plovput d.o.o. & Applied Underwater Robotics Lab (AURLab-NTNU)

The potential of surface buoys for ocean/sea observation was discussed with AURLab NTNU which provided input based on their experience in the EU context. Furthermore, there was an interest in cooperation, for example using underwater drones/robots for some of Plovput's tasks.

Plovput d.o.o. & Blått Kompetansesenter AS

Discussions covered both companies' services, business development projects, and ideas. They also explored differences in aids to navigation implementation and lighthouse management between both countries, alongside underwater research equipment. Blått Kompetansesenter also aided Plovput in growing their network by introducing them to the Kystverket, the Norwegian Coastal Authority.

Plovput d.o.o. & Municipality of Frøya

Discussions with the Municipality of Frøya covered comparing maritime safety systems in island-rich sea areas and managing maritime lighthouses and Aids to Navigation, as well as preserving maritime cultural heritage. Both parties discussed potential collaborations to enhance maritime signalling and cultural preservation efforts. To move forward, it was suggested to schedule more meetings and use online communication to clarify necessary activities for productive collaboration. Additional discussions explored protecting maritime lighthouses as cultural heritage and potential joint projects, including implementing IALA recommendations for lighthouse preservation and marketing. The next steps involve defining project goals, agreeing on beneficial outcomes, and seeking funding opportunities.

Salona Var d.o.o. / Maral Technologies d.o.o. & Aquafind AS

Discussions focused on sales channels, market penetration strategies, and potential partnership opportunities. Aquafind could potentially serve as a sales channel for Salona Var's mariculture equipment, expanding its market reach in Norway. Their role would be as a sales and distribution partner, leveraging Aquafind's strengths in sales and marketing alongside Salona Var's expertise in mariculture equipment production, fostering mutual market expansion.

Salona Var d.o.o. / Maral Technologies d.o.o. & Blått Kompetansesenter AS & Municipality of Frøya

In discussions with the Municipality of Frøya and Blått Kompetansesenter, the topic of discussion was Norway's mariculture industry, networking opportunities, and market insights. Frøya can provide regulatory guidance, local resources, and industry connections. They facilitate and connect within the mariculture sector. Blått Kompetansesenter brings mechanical engineering expertise and experience in mariculture equipment development, aiming to enhance collaboration with Frøya's local knowledge and network. R&D projects are something that is currently being considered.

Salona Var d.o.o. / Maral Technologies d.o.o. & Nuas Technology AS

Discussions focused on topics of product compatibility, equipment needs, and technology integration. Nuas Technology's products could align with Salona Var's equipment requirements, opening opportunities for joint product development or integration. Nuas Technology could provide technology expertise or collaborate on enhancing equipment capabilities. Salona Var's mechanical engineering skills would complement Nuas Technology's products, potentially

leading to innovative solutions and better equipment performance through their partnership.

Salona Var d.o.o. / Maral Technologies d.o.o. & Proffteiner AS

Discussions focused on topics such as crab trap development, production capabilities, and potential synergies. Collaboration with Proffteiner could involve jointly developing and enhancing crab traps, utilizing Proffteiner's expertise in this field. Proffteiner would play a role as a co-development partner for crab trap technology. Salona Var's manufacturing capabilities and experience in equipment production were seen as complementing Proffteiner's expertise in crab trap design, aiming to create enhanced products and improve market competitiveness through their partnership.

Underwater Acoustics d.o.o. & Aquafind AS

Discussions centred on potential collaboration contingent upon Aquafind acquiring sea current or sea noise measuring equipment in the future.

Underwater Acoustics d.o.o. & Blått Kompetansesenter AS

Discussions focused on potential collaboration, including R&D and sales, with Blått Kompetansesenter in the fields of underwater noise and ultrasound anti-fouling, pending their identification of suitable Norwegian partners.

Underwater Acoustics d.o.o. & F&Z Solutions AS

Discussions explored potential collaboration with F&Z Solutions in terms of use cases of USVs and ROVs in mapping projects.

Underwater Acoustics d.o.o. & Municipality of Frøya

Discussions focused on the Municipality of Frøya providing help in establishing potential collaboration with Norwegian companies within the municipality's territory, which included both contact info to potential Norwegian partners and providing assistance in opening doors to the Norwegian market.

Underwater Acoustics d.o.o. & SailorsMate AS

Discussions explored potential collaboration with SailorsMate in the areas of underwater sea currents measurement and underwater noise, especially concerning sailing boats.

II. Best practices, technologies, and approaches within the blue economy sector

To address the contents of this section, both Croatian and Norwegian stakeholders were asked to answer the following question:

- *Reflecting on the field visits and interactions with stakeholders, what valuable insights or lessons have been gained regarding best practices, technologies, or approaches in the blue economy sector? How do you plan to integrate these insights into your own initiatives or operations?*

The obtained insights have been divided between Croatian and Norwegian.

Insights from the Croatian stakeholders

By integrating insights from the field visits and interactions with stakeholders, Croatian participants provided the following feedback.

Best Practices:

1. **Sustainability and Efficiency:** Emphasis on sustainable and efficient maritime logistics (Eidsvaag AS).
2. **Comprehensive Training:** Tailored training programs that address current industry needs, integrating real-world scenarios to better prepare professionals (Blått Kompetansesenter).
3. **High-quality Networking:** Importance of establishing large and high-quality networks for better collaboration and business results (Various stakeholders).

Possible adaptation of new technologies:

1. **Advanced Vessel Tracking:** Use of advanced vessel tracking and monitoring systems to optimize routes and reduce emissions (Eidsvaag AS).
2. **AI-driven Training Tools:** Incorporation of simulators and AI-driven tools to enhance training experiences (Blått Kompetansesenter).
3. **Automation and Software Integration:** Observations on high levels of automation and the use of software in managing fleet logistics (Various stakeholders).

New approaches:

1. **Collaboration with Local Communities:** Strong focus on working with local communities and regulatory bodies to ensure sustainable operations (Eidsvaag AS).
2. **Industry Clustering:** Emphasis on grouping businesses together to encourage working together and sharing knowledge in the blue economy (Various stakeholders).
3. **Focus on real-world Applications:** The emphasis on practical, real-world applications of technology in the blue economy sector was evident. Stakeholders like Eidsvaag AS and Lerøy AS showcased how theoretical innovations can be effectively translated into operational efficiencies and sustainability practices.
4. **Holistic approach to sustainability:** The Norwegian stakeholders demonstrated a strong commitment to sustainability, not only through technological advancements but also via community engagement and regulatory compliance. This holistic approach provides a valuable model that we plan to adopt and adapt to our operations.

Plans to integrate insights:

1. **Sustainability and Efficiency Enhancements:**
 - Action: Implement advanced vessel tracking and monitoring systems.
 - Outcome: Optimized routes, reduced emissions, and increased operational efficiency.
2. **Enhanced Training Programs:**
 - Action: Integrate AI-driven tools and simulators into training programs.
 - Outcome: Improved training outcomes, and better-prepared maritime professionals.
3. **Collaborative Approaches:**
 - Action: Strengthen collaborations with local communities and regulatory bodies.
 - Outcome: Enhanced compliance, and increased community support.
4. **Industry Clustering:**
 - Action: Engage in creating, supporting, and managing industry/sector clusters, leveraging Norwegian expertise.
 - Outcome: Improved collaboration and knowledge sharing in the blue economy.
5. **Technology Integration:**
 - Action: Explore and implement software solutions for managing fleet logistics.
 - Outcome: Enhanced efficiency in logistics management.

Insights from the Norwegian stakeholders

By integrating insights from the field visits and interactions with stakeholders, Norwegian participants provided the following feedback.

Best Practices:

1. **Knowledge updates:** Emphasis on the importance of having access to updated knowledge about companies, like for example the mappings that were carried out through the OTIMEDT initiative. This can also facilitate future planning and development of international projects.
2. **Optimal Product Pricing:** Product pricing between foreign countries is crucial as it requires understanding diverse market conditions, consumer behaviour, and economic factors to ensure competitive and profitable pricing strategies.

Possible adaptation of new technologies:

1. **AI and shipping:** Implementation of new AI technology in the shipping and freight industry.
2. **Fishing devices:** Norwegian fishing devices could be adapted to capture other species of marine animals that only live in warmer seas (Proffteiner AS).

3. **Navigation software:** Norwegian software navigation tools can be adapted and integrated for Croatian use.
4. **Hydrolysis:** Norwegian hydrolysis technology could be exported to Croatia to allow for the reuse of raw leftover materials from fish processing, enabling a more sustainable bio-based circular economy.

New approaches:

1. **Handling residual raw materials from the fishing industry:** Collaboration with Croatia would require a different sourcing and network solution as the infrastructure is more fragmented.

Plans to integrate insights:

1. **Knowledge updates:**
 - Action: Gain access to updated mappings of different blue economy ecosystems.
 - Outcome: Acquire a better and updated understanding of other regions, allowing for market exploration, export, and collaboration.
2. **Optimal Product Pricing:**
 - Action: Understanding diverse market conditions, consumer behaviour, and economic factors between foreign countries.
 - Outcome: Ensuring competitive and profitable pricing strategies.
3. **AI and shipping:**
 - Action: Implementation of new AI technology in the shipping and freight industry.
 - Outcome: Improved efficiency, accuracy, and cost-effectiveness in operations.
4. **Fishing devices:**
 - Action: Adapting Norwegian fishing devices to capture other species of marine animals that live in warmer seas.
 - Outcome: Enhanced capability to fish in different marine environments.
5. **Navigation software:**
 - Action: Adapting and integrating Norwegian software navigation tools for Croatian use.
 - Outcome: Improved navigation capabilities tailored to the Croatian context.
6. **Hydrolysis:**
 - Action: Exporting Norwegian hydrolysis technology to Croatia to enable the profitable reuse of raw leftover materials from fish processing.
 - Outcome: A more sustainable bio-based circular economy, and the creation of a novel business opportunity.

III. Challenges and opportunities within the blue economy

For this section, a different set of questions was used to investigate best practices, technologies, and approaches within the blue economy sector:

- *In what ways have the field visits and discussions with stakeholders contributed to expanding your understanding of the challenges and opportunities within the blue economy sector? Have any specific strategies or solutions emerged as a result of these interactions?*

The obtained insights have been divided between Croatian and Norwegian.

Croatian perspective

Challenges and opportunities within the blue economy sector:

1. **Training and Technology**

- Challenges: Keeping training programs up-to-date with industry advancements.
- Opportunities: Utilizing AI and simulators for cutting-edge training.
- Insights: Comprehensive training programs tailored to current industry needs, integrating real-world scenarios, and advanced tools for better preparation of maritime professionals.

2. **Industry Dynamics and Regulatory Insights**

- Challenges: Understanding regulatory frameworks, market demands, and technological advancements.
- Opportunities: Exploring collaboration opportunities with Norwegian stakeholders.
- Insights: Engaging directly with stakeholders like the Municipality of Froya, Aquafind, Nuas Technology, and Proffteiner provided firsthand insights into the mariculture industry, including environmental considerations and market access barriers.

3. **Modernization and Automation**

- Challenges: Identifying potential end users for specific technologies in automation.
- Opportunities: Expanding knowledge on automation in the blue economy.
- Insights: Field visits helped broaden understanding of how advanced technologies are applied in the blue economy sector.

4. **General Observations**

- Challenges: Recognizing and addressing unique challenges specific to each stakeholder's context.
- Opportunities: Learning from Norway's high-level organizational systems and mutual cooperation.
- Insights: The educational and productive nature of the visits highlighted the advanced organizational systems and mutual cooperation in Norway.

Emerging Strategies and Solutions:

1. **Technological Integration**

- Strategy: Implement advanced vessel tracking and monitoring systems.
- Outcome: Optimized routes and reduced emissions, enhancing operational efficiency.

2. **Enhanced Training Programs**

- Strategy: Incorporate AI-driven tools and simulators into training modules.
- Outcome: Improved training outcomes and better-prepared maritime professionals.

3. **Collaboration and Partnerships**

- Strategy: Develop MOUs or partnership agreements with stakeholders.
- Outcome: Formalized collaboration frameworks, joint research projects, and potential funding opportunities.

4. **Strategic Planning**

- Strategy: Initiate joint research or pilot projects to test innovative solutions.
- Outcome: Real-world testing of solutions and strengthened industry collaboration.

5. **Networking and Knowledge Exchange**

- Strategy: Build relationships with Norwegian stakeholders for ongoing knowledge exchange.
- Outcome: Continuous learning, adaptation to industry trends, and expanded networks within the blue economy sector.

Norwegian perspective

Challenges and opportunities within the blue economy sector:

1. **Acquiring knowledge about other actors within the blue economy**

- Challenges: Recognising other blue economy actors and what they are working with (often English website pages are not available).
- Opportunities: Utilising mappings such as the one carried out by the OTIMEDT initiative.
- Insights: Digital mappings with direct access to companies' information and links to their websites that can be translated efficiently by AI-translator software.

2. **Sectoral differences**

- Challenges: The blue economy sectors in Norway and Croatia appear to be different. These differences may present challenges in terms of regulatory environments, market dynamics, and operational practices.
- Opportunities: Opening opportunities for exporting, establishing daughter companies, and other forms of collaboration.

- Insights: Utilising the network developed during the OTIMEDT initiative to navigate the regulations and political landscape in Croatia.
- 3. Optimal Product Pricing**
- Challenges: Croatia and Norway present diverse market conditions, consumer behaviour, and economic factors between foreign countries.
 - Opportunities: Selling services and products in the Croatian market.
 - Insights: Utilising the knowledge and network acquired during the OTIMEDT initiative to adapt the pricing of products and services for the Croatian market.
- 4. AI and shipping**
- Challenges: Logistics and transport are key for the blue economy, especially when considering that shipping is one of the greatest contributors to CO2 emissions.
 - Opportunities: This aspect in relation to AI is still widely unexplored.
 - Insights: Optimisation and effectivization of shipping via AI would help tackle the reduction of CO2 emissions from this sector, as well as reduce costs overall.
- 5. Blue circular economy**
- Challenges: The Croatian government only allows for the rest raw materials from the fishing industry to be disposed of without reusing it or transforming it into a resource.
 - Opportunities: Exporting Norwegian hydrolysis technology to Croatia would enable the profitable reuse of raw leftover materials from fish processing.
 - Insights: Adjusting Croatian regulations to make them more similar to the Norwegian ones, allowing the Croatian government to tackle this new sustainable market.

Emerging Strategies and Solutions:

- 1. Understanding and Identifying Key Players in the Blue Economy**
- Strategy: Utilize digital mappings like those from the OTIMEDT initiative to gain insights into blue economy actors and their work. Implement AI translator software to efficiently translate information from non-English websites.
 - Outcome: Enhanced understanding and recognition of other actors within the blue economy, facilitating better collaboration and knowledge sharing. Improved access to information, leading to informed decision-making and strategic partnerships.
- 2. Industry Dynamics and Regulatory Insights**
- Strategy: Leverage the network developed during the OTIMEDT initiative to navigate Croatian regulatory and political landscapes. Explore opportunities for exporting, establishing daughter companies, and forming collaborative ventures.
 - Outcome: Successful entry and operation in the Croatian blue economy market. Strengthened international collaborations, leading to shared expertise and resources.

3. **Optimal Product Pricing**

- Strategy: Use the knowledge and network from the OTIMEDT initiative to tailor product and service pricing for the Croatian market. Conduct market research to understand local consumer behaviour and economic conditions.
- Outcome: Competitive and profitable pricing strategies in Croatia. Increased sales and market penetration due to well-adapted pricing.

4. **AI and Shipping**

- Strategy: Implement AI technologies to optimize logistics and transport, focusing on reducing CO2 emissions and operational costs. Develop AI-driven solutions for predictive maintenance, real-time tracking, and automated decision-making in shipping.
- Outcome: Reduced CO2 emissions from the shipping sector, contributing to environmental sustainability. Enhanced operational efficiency and cost-effectiveness in logistics and transport.

5. **Blue Circular Economy**

- Strategy: Advocate for regulatory changes in Croatia to allow for the reuse of raw materials from the fishing industry. Export Norwegian hydrolysis technology to Croatia to facilitate the transformation of raw materials into valuable resources.
- Outcome: Establishment of a sustainable bio-based circular economy in Croatia. Increased profitability and resource efficiency in the Croatian fishing industry through the adoption of advanced hydrolysis technology.

6. Conclusions

According to the stakeholders' feedback, the OTIMEDT initiative proved useful in acquiring connections, deepening the understanding of Croatian and Norwegian blue economy sectors, and inspiring change and innovation.

The mappings of the blue economy actors in the regions of Dalmatia and Trøndelag have served as a starting point for the networking activities planned within this initiative. They have also confirmed that there is a need for more detailed mappings than the ones carried out at the European level⁶. Moreover, the need for a better understanding of the local frameworks and regulations in the different countries also arose.

One of the greater challenges that we face today in Europe when considering the blue economy market, is that we embody a level of complexity that is not easy to represent or visualise. It is not easy to get detailed overviews that allow us to investigate which kinds of companies exist within the blue economy, in which field they operate, and what services they offer.

The OTIMEDT initiative has contributed to showcasing two specific regions in Europe and acted as a good starting point to facilitate collaboration opportunities, between the countries of Croatia and Norway, as it allowed stakeholders to connect and develop good ideas on how to improve maritime and marine sectors in both countries. What remains to be seen is how many of the opportunities mentioned in the *Key Findings* chapter will concretize.

Moreover, this initiative should be considered as a first step towards addressing the challenges and opportunities that it mapped out; future projects could address said challenges and investigate them further.

⁶ The EU blue economy report 2021, <https://op.europa.eu/en/publication-detail/-/publication/0b0c5bfd-c737-11eb-a925-01aa75ed71a1>

Annex

Stakeholders involved in the initiative

Following is a list of all the stakeholders involved in the events in Split and Trondheim, from both Croatia and Norway. The stakeholders are listed in alphabetical order.

The provided web addresses might change over time (last updated: 5th of July 2024).

Croatian stakeholders:

- **Adriatic Propeleri d.o.o.**
Manufacture of ship's propellers diameter up to 1600 mm. specialized in diagnostics, repair, modification and optimization of marine propellers for all types of vessels.
<https://www.adriaprop.hr/>
- **Agena Marin d.o.o.**
Privately owned with a fully equipped shipyard. Creates everything in house, from initial idea and conceptual design to prototype development and plug and mold production.
<https://agena-marin.com/>
- **Azara Adria d.o.o.**
Certified seafarers recruitment and placement agency.
<https://azara.hr/>
- **Centaurus d.o.o.**
Company that deals with distribution, retail and export of fresh and frozen fish and delicatessen products from the sea in the HoReCa segment.
<https://www.centaurus.hr/en/>
- **ELNAV AI d.o.o.**
ELNAV.AI specializes in the development of state-of-the-art technologies aimed at enhancing navigational safety, addressing the gap between traditional maritime practices and modern technological advancements.
<https://elnav.ai/>
- **Faculty of Maritime Studies, University of Split**
The Faculty of Maritime Studies in Split, part of the University of Split in Croatia, provides higher education and conducts research in maritime disciplines. It plays a vital role in training maritime professionals and advancing maritime sciences and industries in Croatia.
<https://www.pfst.unist.hr/en>
- **Fisherman Association Friška Riba d.o.o.**
The Fisherman's Association FRIŠKA RIBA was by professional fishermen from Split and nearby areas The association's 20 fishermen use their boats and tools to offer a

wide range of products, including small blue fish, shellfish, and various types of white fish.

<https://www.friska-riba.hr/en/>

- **Laboratory for Intelligent Autonomous Systems (LARIAT), University of Dubrovnik**
The Laboratory for Intelligent Autonomous Systems (LARIAT) at the University of Dubrovnik is a research lab with an interdisciplinary team specializing in control systems, robotics, and artificial intelligence, providing solutions to real-life challenges.
<https://lariat.unidu.hr/>
- **Loop d.o.o. (NECOGI)**
AI tool to help underwater nature. Solving the problems of underwater and beach litter, vegetation and animal migration by using drones and AI computer vision.
<https://necogi.com/>
- **Marikomerc d.o.o.**
Processor and distributor of frozen fresh smoked, dried, marinated and salted seafood products.
<https://marikomerc.hr/en>
- **Nuić Nautika d.o.o.**
Manufacture, repairing and maintenance of boats and yachts and other product made of fibre reinforced thermosetting resin.
<https://nuicnautika.hr/>
- **Plovput d.o.o.**
Plovput d.o.o. is a limited liability company 100% owned by the Republic of Croatia. Installation of navigation safety facilities on waterways in internal sea waters and the territorial sea of the Republic of Croatia and ensuring their proper operation.
<https://www.plovput.hr/en/>
- **Salona Var d.o.o. / Maral Technologies d.o.o.**
SALONA VAR d.o.o. is a private family-owned company offering complete solutions for the maintenance and repair of industrial plants in various sectors such as energy, iron and steel production, mining, building materials manufacturing, construction, maritime and river ports, agriculture, the food industry, and utility companies. Maral Technologies d.o.o. is a mechanical engineering company specializing in the (re)manufacturing, maintenance, and repair of professional marine equipment. The company also develops innovative products and solutions for mariculture, including fish feeding systems, net cleaners, fish spawning systems, and multifunctional hybrid vessels.
<https://salonavar.hr/>
- **Underwater Acoustics d.o.o.**
The company specializes in innovative ultrasonic antifouling devices to prevent algae, shell, and marine organism buildup on ship hulls. Having developed the initial product with the latest technology, the company is now focused on adapting and marketing two

new versions. Besides producing ultrasonic equipment, the company offers services in underwater acoustic measurements, 3D prediction and modeling of underwater sound propagation, and consulting in shipbuilding.

- **University of Split**

University of Split is an educational and research institution offering a wide range of undergraduate, graduate, and postgraduate programs. It is known for its strong emphasis on science, engineering, medicine, social sciences, and humanities, and fosters a dynamic academic environment with various research initiatives and international collaborations.

<https://unist.hr/en/>

Norwegian stakeholders:

- **Aquafind AS**

AquaFind is forging a fully digital trading platform that empowers the entire industry to engage in buying, selling, and leasing among peers.

<https://www.aquafind.no/>

- **Blått Kompetansesenter AS**

A growing innovation company that creates results through collaboration, and specialises in the blue economy.

<https://bksnorge.no/>

- **F&Z Solutions AS**

F & Z Solutions provides automated water sampling; simple, reliable, and portable.

<https://pamela.solutions/>

- **Haste AS**

A software company that offers an intelligent transport management system (ITS) integrated with its own marketplace.

<https://www.haste-app.com/>

- **MoreScope AS**

A comprehensive climate platform that makes it easier and faster than ever to collect, analyze, and quantify climate data. They help companies understand and reduce their carbon footprint.

<https://www.morescope.com/>

- **Municipality of Frøya**

Frøya is the westernmost municipality in Trøndelag county with 45 localities that operate aquaculture activities, including seaweed- and fish farming.

<https://www.froya.kommune.no/>

- **Nuas Technology AS**

NUAS Technology AS is a company that works to give smaller and larger companies in

food production better margins through their patented hydrolysis technology.

<https://www.brukfisken.no/en/bruk-fisken/>

- **Proffteiner AS**

Proffteiner has developed a new type of crab trap that revolutionizes crab fishing called Viking Traps (NOR: Vikingteina).

<https://proffteiner.no/en/home/>

- **SailorsMate AS**

SailorsMate provides professional chart plotters for both marine and maritime applications.

<https://sailorsmate.com/>

- **Trondheim Tech Port**

Trondheim Tech Port is an interest organization with the goal of increasing Norway's innovation power through closer cooperation focusing on oceans, health, energy, and digitalisation.

<https://www.trondheimtechport.no/>