Interreg

Co-funded by the European Union

Italy – Croatia

DIH InnovaMare

D.4.1.2. Report on organized open call

Interreg Co-funded by the European Union

Italy – Croatia

DIH InnovaMare

Project identification
Project id: ITHR0200416
Name of the lead partner organization: Hrvatska gospodarska komora
Name of the lead partner organization in English: Croatian Chamber of Economy
Project title: Cross-border digital innovation Hub for innovative marine technology
Project acronym: DIH InnovaMare
Program priority: Sustainable growth in the blue economy
Specific objective: Developed new innovative solution concepts for challenges in blue economy that are ready for funding opportunities
Project duration in months: 30

Work package: WP4 Co-creation of innovative solution concepts, project concept and new funding opportunities/schemes
Activity title: A1 - Create methodology and organize open call for identification of challenges in blue economy sectors that could be solved by innovative marine technologies
Expected date: 31st July 2025

Activity description: Setting up challenges and defining needs is the key driver to innovative companies and scientific-research institutions to understand for what they need to develop solutions with their expertise. So, the first step is to discover challenges and needs from different stakeholders. In this process we will set up a call for stakeholders from different sectors that are facing challenges or they have different needs for improvement in their activities with aim to have less impact on Adriatic sea and that can be solved with marine technologies. This can be companies from blue economy sectors, public companies, ports, local and regional authorities. Intention is to have at least 15 applied teams and 20 challenges and needs defined. So each organization can apply to max two challenges. PPs and Aps will be part of call creation as well as enable bigger reach for involvement of stakeholders. Responsible partner for this act is CCE.
Partner responsible: LP CCE
Dissemination level: CO-Confidential
Status: Final
Version: V1
Date: 24.07.2025.

EXECUTIVE SUMMARY

This report summarizes the results of the Open Call launched under WP4 – A4.1, aimed at identifying challenges in the blue economy that can be addressed through innovative marine technologies. The call collected 24 valid challenge proposals, out of which 20 were selected for further development within the Innovation Competition. Key sectors represented include maritime transport, fisheries, and research infrastructure. The open call achieved broad stakeholder engagement, with participation from three countries and five types of institutions. A timeline deviation occurred due to initial low engagement, resulting in an extension of the submission deadline to 7 July 2025. Despite this, the overall activity met its objective and aligns with project targets.

1. Introduction

The Open call for identification of challenges in blue economy sectors that could be solved by innovative marine technologies was organised within WP4 – A1. The main objective was to identify challenges from different sectors in blue economy sectors that can be addressed by innovative marine technologies with the aim of reducing the negative impact on the Adriatic Sea. Contributions of stakeholders will help shape future initiatives and technological developments that promote sustainability, innovation, and resilience in our marine environments.

The call was open to individuals and organizations involved in both traditional and emerging sectors of the blue economy. Each applicant was allowed to submit up to two challenges.

The structure and communication of the open call followed the guidelines defined in the **D.4.1.1 Methodology of the Open Call**, delivered during the second project period. This methodology outlined the call's structure, dissemination strategy, evaluation criteria, and timeline.

The Open call was launched on 27.11.2024. and the applications were made via Mairos platform through application form. The announcement was promoted through the DIH InnovaMare community, including social media channels (Facebook, Instagram, LinkedIn), the project website, and direct email outreach to stakeholders listed in the DIH InnovaMare Map of Excellence. Project partners (PPs) and associated partners (APs) also supported the dissemination.

It is estimated that the open call reached over 1,000 stakeholders, including more than 300 contacts from the Map of Excellence, over 500 followers on the DIH InnovaMare Facebook page, over 400 followers on Instagram, and 830 LinkedIn. Additionally, the open call was actively promoted through various project activities and events, such as brainstorming sessions, focus groups, mentoring sessions, and other occasions where the project was presented.

2. Analysis of submitted applications and stakeholders

By the extended deadline of July 7, 2025, a total of 24 challenge applications were submitted. The analysis below provides insights into the submissions based on three key parameters:

a) Country

The applications were submitted from three countries, with the majority coming from Croatia:

Croatia: 16
Italy: 7
Colombia: 1

b) Type of organisation

Stakeholder types among the applicants included:

Type of organisation	Number of applied challenges
Higher Education Institutions	4
Public Institutions	4
Scientific and Research Organizations	5
Small and Medium-Sized Enterprises	9
Large enterprise	2

c) Blue Economy sectors analysis

This analysis is divided by established (traditional) and emerging sectors blue economy, which is defined in the EU Blue economy report 2022-2023.

1) ESTABLISHED SECTORS OF BLUE ECONOMY

Sector name and description	Number of applied challenges according to sector
Fisheries and Aquaculture (Marine Living Resources): *This sector involves the farming, harvesting, processing, and marketing of aquatic plants and animals, such as fish, shrimp, and shellfish.*	5
Maritime Transportation (Port activities, Maritime transport): *This sector includes shipping, ports, and related services, such as logistics, freight forwarding, and cargo handling.*	10

Tourism and Recreation (Coastal Tourism): *This sector includes activities such as coastal tourism, recreation, and marine wildlife watching.*	1
Coastal Infrastructure: *This sector involves the construction and maintenance of infrastructure, such as coastal protection and erosion control, as well as the development of marine based renewable energy infrastructure.*	1

2) EMERGING BLUE ECONOMY SECTORS

Sector name and description	Number of applied challenges according to sector
Emerging Marine Renewables: *This includes ocean energy, floating solar energy, and offshore hydrogen generation. These sources are crucial for sustainable growth and align with the European Green Deal's ambitious goals.*	0
Blue Biotechnology: *Particularly focusing on algae, blue biotechnology involves the use of marine resources to develop products that could be used in pharmaceuticals, cosmetics, and food industries. The algae sector in particular shows strong market dynamics and socio-economic potential.*	1
Desalination: *Desalination is commonly recognized as an emerging sector within the blue economy, providing critical solutions for fresh water.*	0
Maritime Defense, Security, and Surveillance: *This sector includes activities that ensure the safety and security of maritime zones.*	1
Research and Infrastructure: *This includes the development of submarine cables and marine robotics, which are essential for improving the resilience and technological capabilities of maritime activities.*	4

Additionally, one more challenge was applied from an organisation that underlies in the category of "Other" in the Blue economy – sensor for sea data acquisition.

3. Evaluation process

The evaluation process was conducted in July 2025 by the project consortium. The applied challenges were sorted into an Excel document and given ID and title. Each challenge was scored (1–5) by each partner based on:

- Relevance to blue economy sectors
- Innovation potential
- Feasibility of proposed solutions
- Impact on stakeholders

The scoring criteria was descripted as follows:

Criteria		
1. Relevance to Blue Economy Sectors	Score	Description
	5	Directly and significantly addresses a core Blue Economy sector.
	4	Strong alignment with Blue Economy goals, though slightly broader in scope.
	3	Moderate relevance; indirect but still related.
	2	Weak link to Blue Economy sectors.
	1	No clear connection to Blue Economy.
2. Innovation Potential	Score	Description
	5	Highly innovative; breakthrough or disruptive idea.
	4	Strong innovation with new methods or technology.
	3	Some innovation; builds on existing solutions with enhancements.
	2	Limited innovation; mostly incremental.
	1	Not innovative; duplicates existing practices.
3. Feasibility of Proposed Solutions	Score	Description
	5	Highly feasible with a clear, credible plan and capacity to execute.
	4	Feasible, though may require minor adjustments or risk management.
	3	Moderately feasible; execution depends on some uncertain variables.
	2	Significant feasibility concerns; plan is underdeveloped.
	1	Unfeasible or unclear how it will be implemented.
4. Impact on Stakeholders	Score	Description
	5	High impact; benefits are broad, deep, and well-documented.
	4	Strong positive impact on key groups.
	3	Moderate or localized impact.
	2	Limited or unclear stakeholder benefit.
	1	No evident or likely impact.

Table 1. Open call scoring criteria

Based on the evaluation results, the top 20 challenges that achieved a total score of 100 or higher across all assessment criteria were selected to advance to the next project phase: the Innovation Competition (Activity A4.2). This upcoming phase will provide a collaborative platform for teams to further develop

their proposed solutions, refine their concepts, and compete for potential implementation opportunities within the DIH InnovaMare ecosystem.

4. Selected challenges

Selected challenges are listed in the table below.

No.	Challenge ID	Challenge title	Total score
1	OPC - 20	Sensor Suite Design for Monitoring Regenerative IMTA Systems in the Adriatic Sea BE economy sector: Blue Biotechnology	141
2	OPC -5	Marine litter in coastal areas - finding an innovative and eco-friendly solutions BE sector: Maritime transportation	138
3	OPC -13	Insufficient port infrastructure that can support ships in reducing pollution while docked BE sector: Maritime Transportation & Coastal Infrastructure	137
4	OPC -2	Efficient Autonomous Underwater Monitoring for Marine Ecosystem Protection and Port Infrastructure Safety BE sector: Maritime Transportation	134
5	OPC - 10	Poor waste management practices for tracking and recycling system for fishing gear and fish processing byproducts BE sector: Fisheries and Aquaculture	134
6	OPC - 4	Marine pollution - liquid and solid waste in nautics BE sector: Maritime transportation	133
7	OPC - 11	Innefficient waste management in the fish processing industry BE sector: Fisheries and Aquaculture	132
8	OPC - 1	Lack of ability of dynamical validation of efficiency measures, fuel savings, emissions reductions in the Adriatic Sea BE sector: Maritime transportation	131
9	OPC - 15	Operational and Maintenance Inefficiencies Across the Maritime Lifecycle: From Shipbuilding to Fleet Management BE sector: Maritime Defence, Security, and Surveillance	130
10	OPC - 3	Real-time hydrographic and meteorological data integration BE sector: Maritime transportation	128
11	OPC - 21	Integration between rail transport and port logistics BE sector: Research and Infrastructure, Other (Last Mile Railway)	127

12	OPC - 17	Lack of underwater data transmition technologies - expanding the range of sources for multi-source environmental data acquisition and processing platforms BE sector: Research and Infrastructure	123
13	OPC - 7	Seabream predation and climate change weather extreems in mussel and oyster production systems BE sector: Fisheries and Aquaculture	120
14	OPC - 22	Poor integration between railway infrastructure and ports, especially in the Last Mile segment BE sector: Research and Infrastructure, Other (Last Mile Railway)	120
15	OPC - 9	Lack of integrated visitor data for tourism planning BE sector: Tourism and Recreation	118
16	OPC - 16	Insufficient legacy onboard sensors BE sector: Other - Sensor for sea data acquisition	117
17	OPC - 12	High maritime traffic congestion during peak tourism seasons BE sector: Maritime Transportation & Coastal Infrastructure	115
18	OPC - 18	Legal aspects of autonomous surface vessels BE sector: Maritime Transportation	110
19	OPC - 23	Digitalization & sustainability in maritime transport BE sector: Maritime Transportation	109
20	OPC - 24	Energy supply from renewable sources in Croatia BE sector: Other (Port Authority, Maritime Transportation)	104

Table 2. Selected Open call challenges

The results were published on the project's webpage and Mairos platform.

- Project webpage: https://www.italy-croatia.eu/web/dihinnovamare/dettaglio?articleId=26844063&groupId=4465901
- Mairos platform: https://mairos.org/news/open-call-for-blue-economy-challenges-closed/

4.1. Descriptive analysis of the selected challenges

This section presents a descriptive analysis of the 20 selected challenges from the DIH InnovaMare open call. The challenges are grouped thematically to highlight trends, stakeholder priorities, and sector-specific needs in the blue economy.

Environmental Monitoring & Pollution Control

- OPC-20: Sensor suite for regenerative IMTA system monitoring.
- OPC-5, OPC-4, OPC-10, OPC-11: Address marine litter, nautical waste, and fishery waste tracking.
- OPC-1: Dynamic validation of emissions and fuel savings.

Infrastructure & Logistics Integration

- OPC-13, OPC-3, OPC-12: Port infrastructure, hydrographic data, and congestion issues.
- OPC-21, OPC-22: Last mile rail-port logistics integration.

Digitalization and Technology Gaps

- OPC-17: Underwater data transmission technology gap.
- OPC-23: Need for digitalization in maritime transport.
- OPC-16: Legacy onboard sensor limitations.

Climate Resilience and Ecosystem Protection

- OPC-2: Autonomous underwater ecosystem monitoring.
- OPC-7: Aquaculture affected by climate-induced predation and weather extremes.

Sector-specific Operational Inefficiencies

- OPC-15: Operational inefficiencies from shipbuilding to fleet management.
- OPC-18: Legal framework gaps for autonomous vessels.

Data for Policy & Planning

- OPC-9: Lack of integrated data for tourism planning.
- OPC-24: Renewable energy supply for port operations.

Sectoral Insight

Sector	No. of Challenges	Key Themes
Maritime Transportation	7	Pollution, congestion, digitalization, infrastructure
Fisheries & Aquaculture	3	Waste, climate resilience, ecosystem protection
Blue Biotechnology	1	Sustainable aquaculture & monitoring
Research & Infrastructure	3	Data transmission, port/rail logistics
Tourism & Recreation	1	Smart data use in tourism
Defense & Surveillance	1	Lifecycle management
Other (e.g. Sensors, Port Authority)	3	Energy, sensors, logistics

5. Activity deviations

The main deviation in this activity involved a revision of the planned timeline. The original submission deadline for the open call was set for **February 1st, 2025**. However, due to limited engagement from key stakeholders, the project consortium decided to **extend the submission period until July 7th, 2025**.
This extension aimed to enhance outreach and increase participation by promoting the open call through additional project activities and events, including **brainstorming sessions, focus groups, mentoring sessions**, and other occasions where the project was presented.
As a result, the **evaluation process and announcement of the selected challenges were also delayed**. Nevertheless, this extension was essential to ensure the activity's core objective was met—identifying at least 20 relevant challenges. The Open Call met its target of identifying at least 20 high-quality challenges relevant to blue economy innovation. The initiative directly supports WP4 objectives, particularly the co-creation of innovative solution concepts. It also contributes to cross-border cooperation, as evidenced by the inclusion of participants from Croatia, Italy, and Colombia. Key project indicators, such as stakeholder diversity and alignment with sustainability goals, were satisfactorily addressed.
Importantly, the extension **did not impact the timeline or delivery of any other project activities or objectives**.

6. Conclusion

The open call successfully identified 24 relevant challenges across diverse sectors of the blue economy. Among them, 20 were selected for their strong potential to drive impactful innovation.
These selected challenges reveal critical needs in environmental monitoring, infrastructure modernization, digital transformation, and ecosystem protection. While some sectors like marine renewables remain underserved, the majority of applications show strong alignment with sustainability and innovation goals. To address these challenges, future efforts should focus on cross-sector collaboration, data-driven decision-making, and the development of scalable, technology-based solutions.
The selected challenges will be further developed and tackled in the upcoming Innovation Competition, which will take place in Venice during the 4th project period.