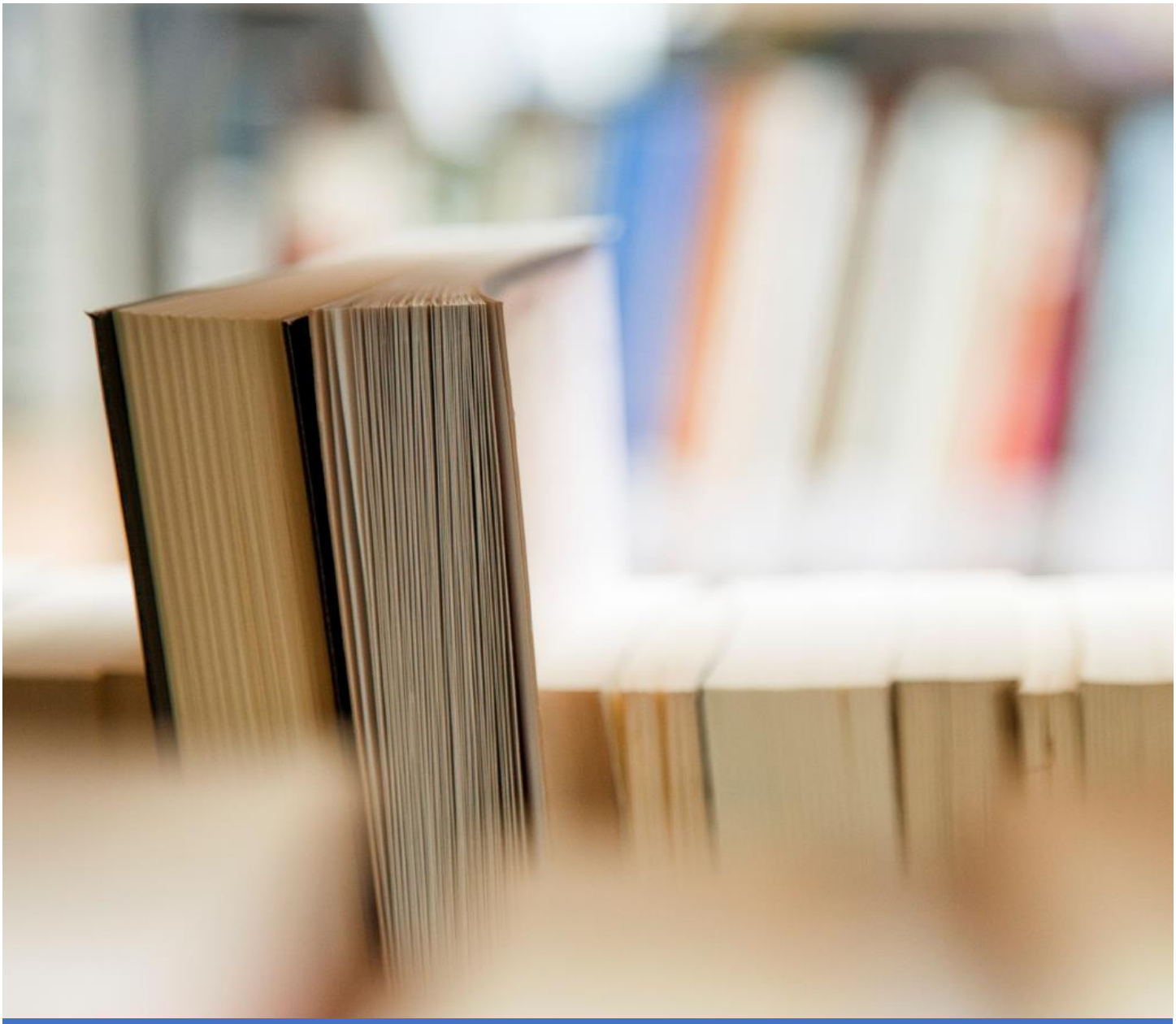

Analysis paper on cross-border cooperation among SMEs in Croatia and Italy in the blue and circular economy sector

Deliverable 1.1.1

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1. Introduction

This document is a presentation on state of the art in the area of cross-border collaboration between Croatia and Italy in the blue and circular economy sector. The focus of the research are the SMEs and their opportunity to grow within the blue economy. Document represents result of desk research and interviews with multiple stakeholders from the region.

In the analysis we used methodology provided by the EU commission on blue economy Blue Economy Report 2023, dataset provided by the Interreg ADRION Joint Secretary, InnovaMare cluster and data from the keep.eu web page.

2. Cross-border collaborations

2.1 Existing cross-border project cooperations

Based on the results of the mapping process of the cross-border key projects, there are more than ninety cross-border collaborations that include various projects aimed at addressing a wide range of issues in the marine and environmental sciences, with a focus on innovative technologies and sustainable practices. The common theme among these projects is a focus on advancing technology and knowledge in underwater and maritime domains. The overall goal was to promote innovation, sustainability, and scientific exploration in these areas, with potential applications in fields such as marine conservation, archaeology, and aquaculture. The full list of projects and their scope is attached to this document marked as Appendix no. 1, Table 1. - overview of the cross-border projects and their scope.

Furthermore, there are in total 37 organizations that are connected to the listed projects, and most of them are linked to multiple projects. Based on the analysis of the key projects table, the largest number of involvements in various project is 5 times and that includes four organizations from the public sector, NGO, or BSO, and only one organization from the private sector, but it is not a part of the SMEs category. From the stated category, there are only two companies, one small, and one medium that are involved in more than three cross-border projects. As shown is Table no. 1, and Figure no.1, SMEs in total compose 43,2 % of the total organizations involved to the cross-border projects.

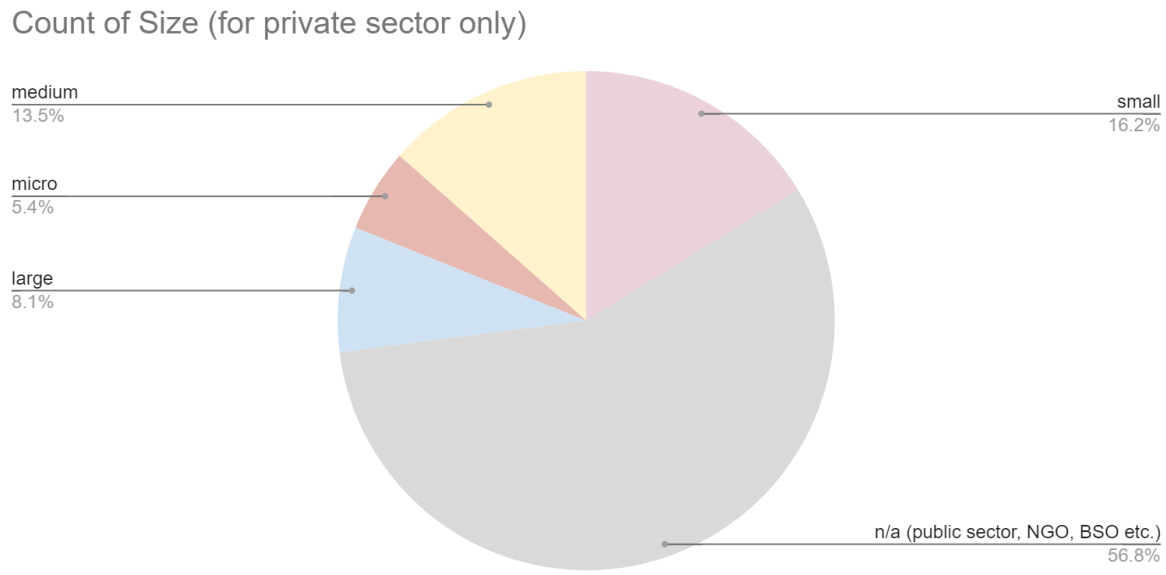

Figure 1 - Overview of the SMEs in organizations linked to the cross-border projects

Table no.1 - Overview of the organizations linked to the existing cross-border projects, number of projects involved and size

	Organization linked to the project	Projects involved	Size (for private sector only)
1	Apphia srl	4	small
2	ARPA - FVG	5	n/a
3	Association for Nature, Environment and Sustainable Development Sunce	1	n/a
4	Brodosplit Ltd.	5	large
5	Byte Lab Group Ltd.	2	micro
6	CNR Institute of Marine Sciences	2	n/a
7	Crismani Ecologia	1	medium
8	Cromaris	1	medium
9	DIAMEC srl - Apphia srl	0	small
10	Distretto Ittico di Rovigo e Chioggia	3	medium
11	G-NOUS	3	small
12	GDi Ltd.	2	medium
13	GEOCOM Parma	3	small
14	H20-Robotics	3	micro
15	Inetec Ltd.	4	medium
16	ISME	5	n/a

17	ISPRA	5	n/a
18	Istituto Zooprofilattico Sperimentale delle Venezie	3	n/a
19	Laboratory for intelligent autonomous systems	0	n/a
20	Laboratory for Robotics and Intelligent Control Systems - LARICS	1	n/a
21	Laboratory for Underwater Systems and Technologies (LABUST)	3	n/a
22	Laguna Project snc	3	n/a
23	Port of Ravenna Authority	3	n/a
24	PROAMBIENTE S.c.r.l. (consorzio)	3	small
25	Ruđer Bošković Institute	2	n/a
26	Saipem S.p.A	4	large
27	Seastema	3	large
28	Šibenik-Knin County	2	n/a
29	Università degli Studi di Trieste	2	n/a
30	University Ca' Foscari of Venezia Department of Humanities	2	n/a
31	University of Dubrovnik, Department of Applied Ecology	2	n/a
32	University of Padua - Department of Biology	5	n/a
33	University of Padua - Department of Information Engineering	1	n/a
34	University of Rijeka, Faculty of Maritime Studies	2	n/a
35	University of Salento - DIAMEC	1	n/a
36	University of Trieste - Department of Engineering and Architecture	1	n/a
37	WIRELESS AND MORE	1	small

When it comes to partners of organizations involved in cross-border projects, there are 66 identified organizations, but only 5 of them were lead partners in more than 2 cross-border projects, out of which only two belong to the SME category. Full list is shown in Table no. 2 below. Representatively, in Figure no.2, is shown that most of the lead partners on cross-border projects come from the public sector (68,2 %), and SMEs the rest, in percentage as follows (micro 3 %, small 12,1 %, medium 10,6 %, large 6,1 %). Moreover, table no. 2 represents the countries of the lead partners involved in projects. As highlighted in the table, organizations from Italy hold the highest rank, with involvement as lead partners in 61 cross-border projects, followed by Croatia with 27 leading partners in the same projects. Ten countries in total were leading partners in the cross-border projects.

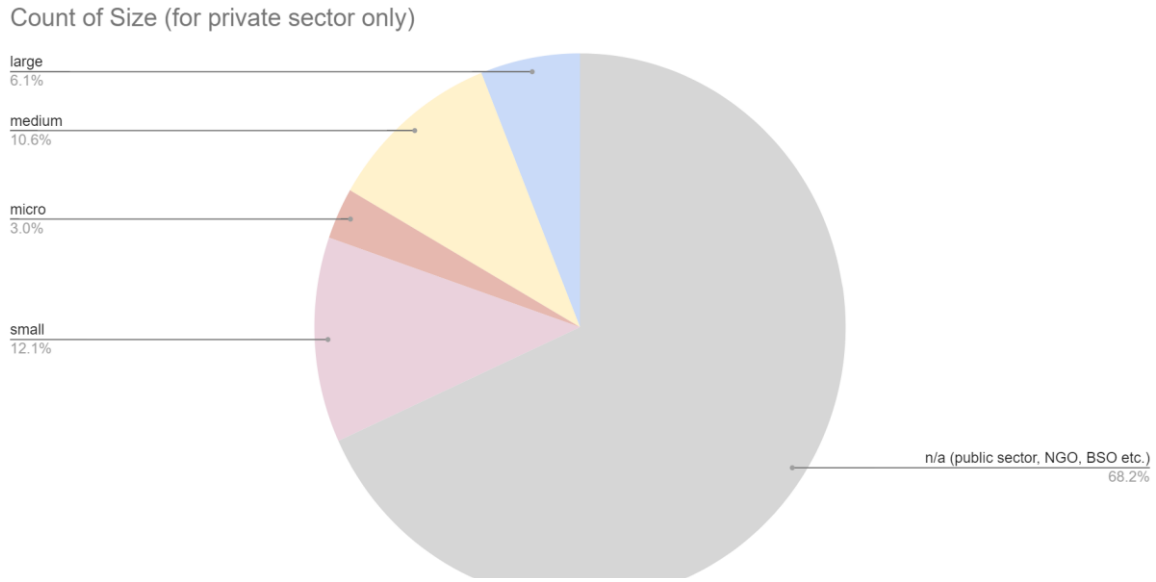

Figure 2 - Overview of the SMEs in organizations linked to the cross-border projects

Table no. 2 - Overview of the country of lead partner and cross-border projects involved

	Country of the lead partner	Projects involved
1	Belgium	1
2	**Croatia**	**27**
3	Germany	1
4	Greece	1
5	Israel	1
6	**Italy**	**61**
7	Netherlands	2
8	Norway	1
9	Portugal	1
10	United Kingdom	1

Table no.3 - Overview of the lead partners on cross-border projects, number of projects involved and size

	Lead Partner	Projects involved	Size (for private sector only)
1	Alma Mater Studiorum – University of Bologna	1	n/a
2	Apphia srl	1	small
3	Apulia Region	1	n/a
4	ARTI (Puglia)	1	n/a
5	Association for Nature, Environment and Sustainable Development Sunce	1	n/a
6	Autorità di bacino distrettuale del fiumo Po	1	n/a
7	Byte Lab Group Ltd.	2	micro
8	CIRI-EC Centro Interdipartime ntale per la Ricerca Industriale – Edilizia e Costruzioni – Università di Bologna	1	n/a
9	CMCC Foundation	1	n/a
10	CNR	1	n/a
11	CNR - ISMAR	4	n/a
12	Consiglio Nazionale delle Ricerche	1	n/a
13	CORILA	1	n/a
14	Crismani Ecologia- Sea Service	1	medium
15	Deltares	1	n/a
16	DIAMEC srl	1	small
17	Distretto Ittico Rovigo Chioggia	2	medium
18	DIV Group	5	large
19	Dream-Italia	1	medium
20	ERPAC - Regional Institute for the Cultural Heritage of Autonomous Region of Friuli Venezia Giulia	1	n/a
21	EURO-MEDITERRANEAN CENTER ON CLIMATE CHANGE FOUNDATION	1	n/a
22	FBK- Fondazione Bruno Kessler	1	n/a
23	Federpesca	1	small
24	Fincantieri	1	large
25	G-NOUS	2	small
26	GDi Ltd.	2	medium
27	H2O Robotics	1	micro
28	Inetec Ltd.	4	medium
29	Institute of Oceanography and Fisheries - IOF	1	n/a
30	ISME (University of Genova and University of Salento)	1	n/a
31	ISPRA	2	n/a
32	Istituto Nazionale di Ricerca sulla Biodiversità	1	n/a

33	IUAV	1	n/a
34	Fraunhofer Center for Maritime Logistics and Services	1	n/a
35	Municipality of Ravenna	1	n/a
36	Port Authority of Venice	1	n/a
37	PROAMBIENTE S.c.r.l. (consorzio)	4	small
38	Public Institution RERA S.D. for coordination and development of Split Dalmatia County	1	n/a
39	Region Puglia	1	n/a
40	Regional agency for enviromental protection of Veneto	1	n/a
41	Regione del Veneto	1	n/a
42	Ruđer Bošković Institute	1	n/a
43	Saipem S.p.A	2	large
44	Science Center- Immaginario Scientifico Trieste	1	n/a
45	Seastema SpA	1	large
46	SISTEMATICA SpA.	1	small
47	SPACE APPLICATIONS SERVICES NV	1	medium
48	T2i - technology transfer and innovation	1	medium
49	TU Delft	1	n/a
50	TWI LIMITED	1	small
51	UNIVE	1	n/a
52	Universidade do Porto (Portugal)	1	n/a
53	University Ca' Foscari of Venezia Department of Humanities	1	n/a
54	University of Bologna	1	n/a
55	University of Calabria	1	n/a
56	University of Dubrovnik	1	n/a
57	University of Haifa	1	n/a
58	University of Oslo	1	n/a
59	University of Padua	1	n/a
60	University of Rijeka, Faculty of Maritime Studies	1	n/a
61	University of Thessaly	1	n/a
62	University of Udine	1	n/a
63	University Politecnica Marche	1	n/a
64	UniZg, FER	5	n/a
65	WSense S.r.l.	1	small
66	ZADRA NOVA - Zadar County Development Agency	1	n/a

2.2 Long term cooperations

Two countries, and a common area to protect, strengthen and improve. That's just where it comes into play: the Interreg Program for cross-border cooperation Italy-Croatia 2014-2020, developed with the objective of strengthening cooperation between the territories of the two States overlooking the Adriatic Sea and managed from the Veneto Region in quality by the Program Management Authority. Since 2015, the Program has encouraged initiatives in the field of "blue growth", that is, economic development based on the use of the potential of marine and coastal environments to create sustainable work and employment, to be developed in harmony with the environment. With a total budget of 236.8 million euros, the Program has allowed more than 800 stakeholders national, regional and local to exchange knowledge and experiences and develop and implement pilot products and services in multiple areas. The Program supported important investments with the aim of improving the quality of lives of over 12 million people, through the financing of 92 thematic projects on 4 priorities (innovation, climate risks and changes, environment and culture, transport seafarers).

Among the 92 projects financed by the Italy-Croatia Interreg Programme, there are a total of 11 strategic projects carried out over the last four years, united by a strong drive for innovation and representative of the spirit of cooperation that the European Union encourages among its member states. Their sharing of resources and experiences in the macro-areas of Maritime Transport, environment and cultural heritage, safety, innovation led to common solutions that have allowed effective interventions in areas subject to critical issues but also with important opportunities for development. Thanks to these projects, agreements and strategies were also born for adapting to changes in climate and marine and coastal management, which have led to territories safer through investments in infrastructure, fish markets and projects have in fact been created mariculture, but also training and promotion centres for cultural heritage. They were not missed also interventions aimed at yields re the most sustainable port areas and to reduce CO2 emissions, give it LED lighting systems those based on photovoltaic panels, but spaces have also been created of co-working or projects aimed at improving accessibility for people elderly and people with disabilities to cultural and natural heritage. The complexity and breadth of interventions coordinated by public institutions, third sector, SMEs, is witnessed by almost 7 million individuals reached by initiatives awareness on environmental and ecological issues and other numbers significant among which they deserve to the 10 sites of naturalistic and cultural value that are the objects of specific promotion initiatives and the technological

upgrade campaigns in the field of water management and marine litter which resulted in the collection of 250,000 particles of microplastics.

In the field of maritime transport, the first and most obvious point of contact between the coastal territories of the Italian and Croatian Adriatic, three projects were completed: FRAMESPORT, SUSPORT and MIMOSA, with the first oriented to the development of small port centres both from an economic and tourist point of view, transforming them on development occasions throughout the territory that surrounds them also through the standardization of data relating to infrastructure and services of the small ports (about 600) of the Adriatic as the only destination nautical. The second one focused on energy efficiency and environmental sustainability actions for the major ports and with a specific attention to transport goods while the third party has improved the offer of solutions and services of sustainable multimodal transport for passengers in the regions Adriatic countries involved in the project, for example with maxi screens and displays in the embarkation and disembarkation areas.

As for the environment and cultural heritage, elements of fundamental importance for areas involved, the projects were divided into four directions: TAKE IT SLOW, MARLESS, CASCADE and ARGOS. From the promotion of Adriatic region as a sustainable, intelligent destination with a strong naturalistic and cultural imprint a prevention and removal systems of plastic waste present in the sea, but also studies on biodiversity, marine and wet areas, finally with the establishment of governance municipality of fishing and aquaculture activities in the Adriatic Sea for protect biodiversity and resources marine.

The scope of safety and effects of climate change is instead been addressed by the STREAM, FIRESPILL and ADRIACLIM projects all oriented towards tackling environmental emergencies more effectively, starting, in the first case, from the introduction of an integrated system of risk management based on sharing data, metrics and good practices in territories united by similar problems, to limit the damage from the flooding which was severe in the Adriatic area increase and it is expected that they may increase in the next decade. STREAM instead led to the creation of a flood register and a map of risk areas with related emergency management plans while, with a similar setup, the FIRESPILL project addressed the problem of fires and the necessary preparation actions population and civil protection services. ADRIACLIM, on the other hand, is occupied in a more general way than theme of resilience to change climate change by involving research institutes, universities, institutions and companies from the two

countries, providing tools information integrated with the observed data and high-resolution climate models, as a basis for the development of new strategies.

Environmental monitoring, in all its forms, has been one of the cornerstones of the action of the Interreg Italy-Croatia Program and resulted in four projects: CASCADE, ARGOS, MARLESS and INNOVAMARE. In the first case the objective was to increase knowledge of marine environments through the consolidation of water monitoring and a communication that involved local communities. The critical issues of the coastal areas are linked to the increase in tourist flows and consequently the maritime traffic, but also to the presence of aquaculture sites and industrial discharges in the rivers that flow into the Adriatic Sea. There are interventions therefore directed towards environmental protection, the development of natural methods and scientific methods to restore damaged sites and the creation of systems aimed at protecting marine ecosystems, plus 77 events, from seminars and conferences to real field activities, including scuba diving and initiatives specific for schools. There was no shortage of more technical interventions such as example the positioning of maritime monitoring systems, that is, two meteorological-oceanographic buoys off the north-eastern coast of Croatia, while in Puglia a surface robot (USV - Unmanned Surface Vehicle) equipped with a scanner for hydrographic and environmental survey applications and fixed buoys was tested in the Torre Guaceto area. Everyone the data collected then flowed freely onto a digital platform. At the level of conservation interventions of marine environments instead, the one for the protection of the Pinna Nobilis, the largest bivalve mollusc (it can reach one meter in length) in the Mediterranean, should be noted, risk of extinction, with a specific repopulation project carried out in the area of the Cetina River estuary in Croatia. In Emilia-Romagna instead *Spartina maritima* and *Spartina* transplant operations were carried out anglica, aquatic plants typical of lagoon environments, dangerously decreased in recent years due to climate change. The ARGOS project, on the other hand, had as its main objective that of arriving at a shared management of fishing and aquaculture activities in the Adriatic capable at the same time of supporting and preserving natural resources. To do this, a scientific approach was adopted associated with the promotion of dialogue between the various institutions of Italy and Croatia: among the results obtained, the definition of measures and models to minimize the environmental impact of fishing activities on marine habitats and species, a common and coordinated framework of scientific and socio-economic databases for sustainable management of fishing and aquaculture activities and an increase in awareness regarding sustainable behaviours within the seafood supply chain. Concretely, a new type of device for the repopulation of fish fauna called FAD (Fish Aggregating Device) was tested in Trieste. That is, buoys that attract marine organisms and are useful for increasing biodiversity. In Zadar and Split,

however, artificial underwater barriers have been created, which help the fish fauna to hide and protect themselves, effectively transforming them into oases of reproduction for various species.

MARLESS, however, started from the mapping of marine pollution, and then continued with awareness campaigns, definition of shared rules and actual interventions to remove waste from marine areas. From a prevention point of view, the project saw the installation of monitoring systems via cameras along the rivers thanks to technology “River Eye” and a software specialized in recognizing waste, while from side of removal interventions, systems have been adopted in Veneto automatic collection systems based on floating wheels capable of intercepting foreign particles. Floating robot cleaners should also be mentioned and an experiment carried out to purify water from microplastics in the most natural way possible, that is, using typical mussels from the Mediterranean.

Also in the name of technology the INNOVAMARE project led to the creation of an innovative ecosystem model in the healthcare sector underwater robotics and sensors for monitoring and preventing marine pollution. During this year, the Digital Innovation Hub was also established, a private cross-border entity that brings together all the partners involved in order to develop innovative solutions for monitoring and predicting pollution in the Adriatic Sea; the go-ahead was given at the INNOVAMARE Academy, a pilot project for future study courses in marine technologies. Also important is the Living Lab of the Adriatic, that is monitoring systems through floating robots such as the SWAMP-2, responsible for the collection and analysis of water samples, but also the Korkyra, a small catamaran capable of mapping the seabed and "intelligent" buoys capable of collecting millions of environmental data.

Considering that the Interreg Program for cross-border cooperation Italy-Croatia 2014-2020 was a great success, that is Italy-Croatia 2021-2027 with focus on innovation in the blue economy, capitalizing previous cooperation experiences, and creating stronger synergies with EUSAIR. Eight counties from Croatia, and 25 provinces from Italy are involved. The total budget is 216.23 million EUR.

2.3 SME cooperations

Involvement of SMEs in cross-border operations and network groups remains limited.

The KISS ME project intends to strengthen innovation capacities of small and medium-sized enterprises by comparing the approaches of four different border regions and by exchanging tools to improve policy instruments aimed at fostering innovation in SMEs in each region.

HAMAG-BICRO is a project partner in the KISS ME project within which it will play an active role in cooperation, learning about the process and gaining knowledge for the benefit of the agency and the partners involved. The aim is to find best practices for raising awareness among SMEs to engage in cross-border cooperation and to find appropriate tools for selecting project ideas among small and medium-sized enterprises. HAMAG-BICRO will coordinate regional cooperation in a group of cross-border stakeholders regarding the innovation potential of small and medium-sized enterprises in a cross-border context.

Project results will be the introduction of new innovation tools in each cross-border region, resulting in a number of SMEs profiting from best practice-instruments elaborated through the project. Strengthening the capacity of participating organizations as well as regional actors, small and medium-sized enterprises will be encouraged to join cross-border cooperation in the INTERREG context. The completion of the project will develop a sustainable network of cooperation between the participating regions to assist each other in implementing their strategies. Changing the strategic focus of the policy instruments involved will better integrate the possibilities for cross-border cooperation between SMEs in the future. The complete list of SMEs, as well as BSOs can be found in Appendix no.3, Table 3. - Overview of the SME-s and BSO-s from both Italy and Croatia

3. Collaboration per identified sectors

The EU commission classification finds 13 sectors of the blue economy from which 5 were identified as outside of project scope in terms of low SMEs representation. These are: Desalination, Marine non-living resources, Ocean energy, Port activities. Within the project different organizations cover 16 different sub-sectors, the most prominent one being Service activities incidental to water transportation which has the largest number of coverage, a bit over three times the second highest.

Table no.4 - Overview of sub-sectors covered through the cross-border cooperation, country the organization that is covering them is from and the number of organizations covering them from each country

Sub-sectors covered in the cross-border cooperation projects	Number of organizations that are in the sector/sub-sector from this country	
	Croatia	Italy
PA3 Construction of water projects	3	0
PA4 Service activities incidental to water transportation	15	2
LR2 Aquaculture	4	0
LR3 Processing and preserving of fish, crustaceans and molluscs	0	1
SR1 Building of ships and floating structures	4	1
SR2 Building of pleasure and sporting boats	3	0
SR3 Repair and maintenance of ships and boats	2	1
ES0 Research and education	1	0
ES4 Defence and Security	2	1
ES6 Environmental protection	1	3
ES7 Ecosystem services	1	2
ES9 Multiuse platforms	2	1
OG3 Support activities for petroleum and natural gas extraction	1	5
MT1 Sea and coastal passenger water transport	0	1
MT5 Renting and leasing of water transport equipment	0	1
CT5 Transport	1	0

3.1 Blue biotechnology

This industry covers marine creature groupings that are not often used for commercial purposes as well as the use of their biomass. Among the crucial marine resources utilized as feedstock in the Blue Bioeconomy are bacteria, fungi, invertebrates, and macro- and microalgae.

Blue biotechnology, also known as marine biotechnology, is a branch of biotechnology that focuses on the use of marine organisms, often from the ocean, and the unique properties they possess for various applications in fields such as medicine, agriculture, food production, environmental management, and more. It involves the bioprospecting, cultivation, and genetic manipulation of marine organisms, including microorganisms, algae, and marine animals, to develop new products, processes, and technologies.

Blue biotechnology research and applications contribute to sustainable resource management, environmental conservation, and the development of innovative products that can have economic and ecological benefits. It relies on interdisciplinary collaboration among biologists, chemists, environmental scientists, and engineers to harness the potential of the world's oceans and marine life.

The most notable sector of the EU Blue Bioeconomy is the algae sector. It is considered an innovative sector of the EU Blue Economy that is evolving and growing, offering new opportunities, new sustainable products and creating jobs while contributing to ocean regeneration. In this regard, the new approach for a sustainable Blue Economy in the EU540 adopted in May 2021, among others, emphasizes a major opportunity for developing new algae-based food and feed products in the EU market to alleviate environmental pressures exerted by agriculture, aquaculture, and fisheries. Although pollution should primarily be reduced at source, this new approach also stresses that algae production at sea will help mitigate excess carbon, nitrogen, and phosphorus from water. Moreover, the European Commission will explore the potential of cell-based seafood as an innovative and sustainable alternative.

However, despite many innovative start-ups driving sustainable production in Europe, the EU (including EEA countries) still produces less than 1 % of the global algae production. However, the EU Blue Bioeconomy is not only about algae. More and more marine creatures are expanding northwards and thriving due to warming waters caused by climate change and due to changes in the food web. While this poses environmental threats, this may also create market opportunities. For example, jellyfish are thriving due to increased food (plankton) availability and decreased fish numbers to compete with for food. Obstruction of power plants functioning was observed in recent years due to jellyfish blooms.

Good example for this is the **GoJelly project**, which identifies various potential market applications from jellyfish biomass like producing food and feed, biofertilizers or collection of microplastics. Researchers have discovered that mucus of jellyfish can bind microplastic which might be a game changer in wastewater treatment. The project tested whether biofilters can be produced from jellyfish. These biofilters could then be used in sewage treatment

plants or in factories where microplastic is produced. The project has been financed from the European Union's Horizon 2020 research and innovation programme, and it included partners including organizations from various countries. Most of the organizations come from the scientific and research sector, but two PRIVATE companies were also involved, one from Germany, and one from Italy, both belong to SME classification.

In this sector we can also find an example of success stories, one such is from **MARI TER**, which provides maritime and under water services for the most important National company. One of the potential solutions, in order not to disperse the skills and technologies that distinguish the Abruzzo mining industry, involves the possibility of encouraging their application in sectors connected with O&G activities. MARI TER offers maritime, civil engineering, safety, or environmental services do not operate solely for the O&G industry; underwater excavations and mud removal from basins, seabed dredging, inspections. Mari Ter, which in addition to the activities in the mining sector, is responsible for the construction and installation of floating breakwaters, the reconstruction of overflows, up to fish restocking. Another example of success stories can be found in a project BioProCro, a project which represents the first structured (national) and organized attempt to access the resources of the Croatian marine system, in order to speed up and simplify the process of discovering and evaluating natural compounds, biomaterials and bioactive substances from the Croatian marine environment. Through seven work packages, the project is focused on research and development of new sources of chemical compounds, genes, microorganisms, macroorganisms and other valuable products from nature, research and development of knowledge on the use and management of biological resources. The project enables top research in the field of marine biotechnology, and includes the application of biological knowledge and the most modern techniques in the research of the marine environment and its biological components, either as a source of targeted biotechnological products and their applications: new enzymes (bio-catalysts), proteins and peptides, secondary metabolites, polysaccharides (bacteria, seaweed), fatty acids and lipids (algae). Marine coastal systems such as the Adriatic Sea are assumed to be a possible rich source of new products for medical and biotechnological applications. Although the richness and diversity of marine systems are well known, their availability and exploitation in Croatia has been very limited so far, and research work on Croatian marine resources has been limited to several separate international projects.

3.2 Coastal tourism

Coastal tourism is the biggest mature and growing sector across the Blue Economy in terms of GVA and employment. As described in the EU's Blue Growth strategy, coastal and maritime tourism bears large potential to

promote a smart, sustainable and inclusive Europe. Europe is the most-visited continent worldwide, welcoming half of the world's international tourist arrivals. The EU alone accounts for almost 40 % of the world's international arrivals. Coastal areas and islands tend to be major tourism hotspots. These areas have always been sought for their unique characteristics making them ideal places for leisure and tourism activities to take roll. In recent years, the increasing number of tourists have led to concerns around the environmental impacts of tourism on marine ecosystems and the sustainable development of coastal areas, especially those characterized by high-density building and expanding environmental footprints. Over half of the EU's tourist accommodation establishments are located in coastal areas.

The economies of many EU member states depend heavily on tourism. The three primary sub-sectors of coastal tourism—accommodation, transportation, and other expenditures—are included in the EU Blue Economy Report and Observatory along with cruise and maritime tourism. Coastal tourism refers to a type of tourism industry that focuses on attracting visitors to coastal or shoreline areas, including beaches, coastal towns, and waterfront regions. It involves the promotion and development of tourism activities and infrastructure in these areas to cater to tourists seeking a wide range of experiences, relaxation, and recreation in coastal environments. Coastal tourism and the blue economy are closely interconnected, as they both revolve around the sustainable use and management of coastal and marine resources. The blue economy encompasses a broader concept that includes various economic activities related to oceans and seas, while coastal tourism is one specific sector within the blue economy. It's important to note that while there is synergy between coastal tourism and the blue economy, there are also potential conflicts and challenges. Overdevelopment, pollution, and unsustainable tourism practices can harm marine and coastal ecosystems, posing a threat to both the sustainability of coastal tourism and the broader goals of the blue economy. Therefore, a balance between economic development and environmental conservation is essential to ensure that both coastal tourism and the blue economy can thrive in a sustainable manner.

Examples of successful cross-border cooperation include:

- The TOURISM4ALL project aims to establish and foster an expansive cross-border network of tourist destinations that emphasize both natural and cultural heritage. The primary aim is to diminish the prevalent dependence on seasonal tourism while concurrently advancing social inclusion. To accomplish this, the project seeks to facilitate the exchange of approaches and methodologies among stakeholders

and jointly promote tourism services tailored to disadvantaged individuals and those with specific accessibility requirements, including but not limited to people with disabilities and the elderly. By creating a network of accessible tourist destinations and enhancing the inclusivity of tourism services, the project strives to diversify the tourism sector, thus contributing to sustainable economic development and fostering a more inclusive society where all individuals can partake in and enjoy the benefits of tourism.

- The primary goal of the MADE IN-LAND project is to bolster the safeguarding and appreciation of the untapped natural and cultural resources within inland regions by means of tourism development and improved accessibility. This initiative seeks to establish a novel cross-border strategy that unlocks the latent potential of these inland assets by integrating them into broader networks and markets. By collaborating with coastal areas, typically associated with mass tourism, and employing innovative techniques like integrated management, marketing, and promotion, the project offers an opportunity for inland areas and the project regions as a whole. MADE IN-LAND's objectives extend beyond enhancing the intrinsic value of hinterland's cultural and natural heritage and preserving them through the active involvement of local communities as stewards of these resources. It also aims to capture non-seasonal tourist flows and introduce new tourism offerings that foster functional, environmental, and cultural continuity across various regions. This holistic approach not only strengthens the appeal of these inland areas but also fosters sustainable and well-rounded tourism, paving the way for a more harmonious coexistence of diverse landscapes and communities.

The two projects under discussion share a common thread in their organizational structure. Central to both initiatives is the Lead Partner (LP), a role assumed by an entity based in Italy. This choice suggests a pivotal role played by the Italian partner in steering and coordinating the projects. Diving into the composition of the consortium, the Project Partners (PP) paint a picture of balanced collaboration between Croatia and Italy. The synergy between these two countries is evident, as the distribution of Project Partners reflects a near equilibrium, underlining the shared responsibility in the projects' execution. Delving deeper into the nature of these partnerships, a significant proportion is attributed to Local Government entities, numbering at 7. This underscores the importance of local governance structures in the successful implementation of the projects. Strikingly, the combined presence of Business Support Organizations (BSO) and Non-Governmental Organizations (NGO) is also noteworthy, totalling 7. This signifies an equal footing with Local Government entities, emphasizing the diverse stakeholder landscape involved in these initiatives. Further dissecting the composition of BSO and NGO entities, a

geographical skew becomes apparent. The majority of these organizations are sourced from Croatia, suggesting a concentration of non-governmental and business support entities from this region. This localized involvement may bring a unique perspective and nuanced understanding of the challenges and opportunities specific to the Croatian context. In contrast, all the Research Centres enlisted in these projects hail exclusively from Italy. This concentration signifies a strategic alignment of research capacities with the Italian partner, indicating a focused approach to leveraging specific expertise for the projects' success. For a comprehensive overview, Table 5 and Figure 3 provide a visual representation and numerical breakdown of the organizational distribution within these projects. These visual aids offer a clear snapshot of the collaboration, highlighting the intricate web of partnerships and emphasizing the diverse expertise brought by each participating entity.

Table no.5 - Overview of types of organisations from each country involved in the mentioned projects

Type of organisation		Country	
		Croatia	Italy
1	Regional Authority	0	2
2	University	2	0
3	Ministry	0	1
4	Local Goverment	4	3
5	BSO	2	2
6	NGO	2	1
7	Research Center	0	2

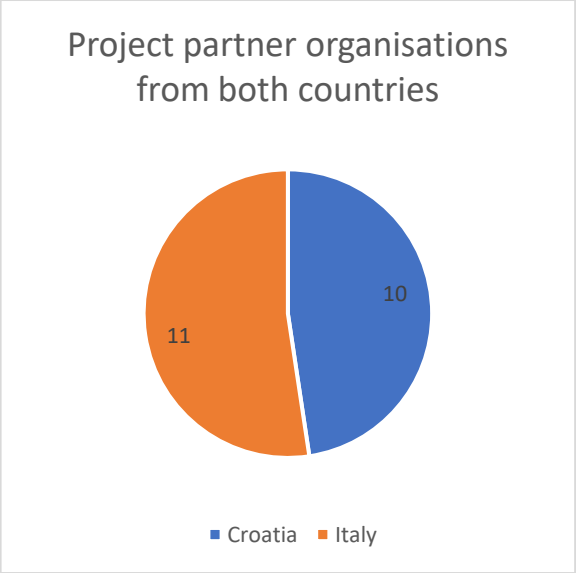

Figure 3 - Overview of the organizations linked to the mentioned projects

After the analysis of projects and partners involved in those projects, next organisations have been selected in this sector for having great potential as well for their existing successful projects operations and cross-border collaborations:

- Federazione Autonoma Balneari (FAB) is an association in which the interests of bathing businesses are advanced, supports them in the discussion of maritime state concessions, favors a recognition of the

commercial value of these businesses, and intends to enhance all those activities and businesses that work with seasonal employment, with the seaside, and with the coast.

- GAL Costa dei Trabocchi Local Action Group is a partnership composed of public bodies, trade associations and private entities entitled to manage funds for territorial development in order to create employment and improve general living conditions in the municipalities of the Costa dei Trabocchi. GAL acts for the establishment and consolidation of local supply chains by promoting the enhancement of the territory's cultural and food and wine heritage and the development of responsible and sustainable tourism, particularly that related to the enjoyment of the Via Verde. Promotes environmental protection and the improvement of the quality of life, social inclusion and the development of services in marginal areas. It contributes to strengthening the competitiveness of the area and the sectors linked to its identity through linkage with other initiatives in the area. It also undertakes to develop a communication strategy with the aim of expanding the notoriety of the Costa dei Trabocchi within and beyond national borders.

- Bikelife organizes cycling vacations, arranging all aspects of the trip and providing expert assistance with guides, transportation, facilities and real experiences. They offer many cycling destinations along bike paths and coastal vistas, from weekend to weeklong, for group and individual bike trips and experiences designed to leave a lasting impression.

- Laguna Trade is a middle size business in nautical and hotel tourism sector who is a pioneer in environmentally friendly nautical marina and resort business. They have two marinas in the Adriatic area, one in Rogoznica (the older one) and one in Dubrovnik (the new one). They also organize regattas and involve many Italian companies and entrepreneurs in cooperation activities. They won multiple awards for the best marina at the Adriatic and this year the owner of the company got the award of the entrepreneur of the century in Croatia. The company is in process of developing a concept of a first circular marina and tourist resort in the Adriatic and maybe even far beyond.

- Red Adventures is a small enterprise providing value chain service of adventure experiences across whole area of the Adriatic Croatia working with individuals and small groups but also developing products and

services involving large number of local stakeholders promoting local autochthon offers including promoting the standards of sustainability. The entrepreneur participated in the projects involving national and nature parks and co-created guidelines for adventure tourism and innovative environmentally and socially responsible value chain product and service establishment.

- Terra Mera is a micro enterprise and startup active in sustainable, regenerative and transformative tourism and offers strategic planning, consulting and training services, event organization, accommodation and experience tourism. The headquarters are in rural area of Šibenik Knin County but the focus market is global. The market segmentation is cultural creatives all over the world. She is involved in many projects and is also lecturing these topics on several high schools dealing with sustainable and regenerative tourism in Croatia and abroad.

In this sector we can find several examples of success stories, some of which are projects Islan Walking Tourism, Škraping and Eco Fishing Tourism. Island Walking Tourism is a project done by Ante Curać and his agency, who are one of the pioneers of walking tourism in the coastal Croatia with more than 25 years of organization of walking tours with more than 70.000 guests visiting small inland village of the Island of Korčula to experience cultural and natural heritage and other attractions of the island. He is the author of the guide of the island walking tours and one of the most prominent promoters of this type of sustainable coastal tourism in Croatia and beyond. Škraping is one of the examples of how to turn local challenges into globally attractive sustainable tourism products. Namely, the carst coastal areas are turned into adventure race combining climbing, running, jumping, walking and nature orientation that attracts thousands of participants every year since 2006. It is combined with the island products fair that connects island producers and island lovers at one place, promoting sustainable island local production and economy. The Eco Fishing Tourism project takes on the ecological aspect of the business results from the green entrepreneurship project, as a part of COAST UNDP project and cooperation with development agencies in four Dalmatian counties. The goal is to introduce tourists with a traditional fishing method (trawling) in form of active vacation thus giving you the opportunity to participate in fishing itself. For that purpose, the company has thoroughly reconstructed the boat R/B JADRAN TRI, previously a typical trawler, in order for the boat to be able to accommodate passengers.

3.3 Infrastructure and robotics

The Maritime sector has been transformed by digitalisation and technological innovation in practically every area, from underwater drones to airborne equipment. As a result, several ocean-related infrastructure and robotics projects in the works could potentially have a significant influence in the future. Technological progress is accelerating in four areas:

1. Ocean sensing and imaging instruments (using artificial intelligence and machine-to-machine communication)
2. Expansion of spatial coverage of float arrays and fixed observation platforms
3. Increasing autonomy in mobile platforms
4. New complex systems integration schemes

Another area that is becoming increasingly active in the Blue Economy is the use of maritime robots. For example, underwater robots are used for different maritime environments, such as scientific research, exploration of oil and gas, and border surveillance.

The infrastructure and robotics sector encompasses a range of industries and technologies that focus on the integration of robotics, automation, and artificial intelligence into the planning, construction, operation, maintenance, and management of physical infrastructure systems. This sector aims to improve the efficiency, safety, sustainability, and overall performance of critical infrastructure, such as transportation networks, utilities, buildings, and urban environments. Infrastructure and robotics are closely connected with the blue economy, as they play essential roles in harnessing the economic potential of the world's oceans and coastal areas in a sustainable and environmentally responsible manner. The blue economy encompasses a wide range of activities related to marine and aquatic resources, and the integration of infrastructure and robotics technologies is key to its development.

Infrastructure and robotics are linked to other blue economy sectors in various ways, some of which include:

1) **Marine Infrastructure Development**: Infrastructure in coastal areas, such as ports, harbors, and marinas, is critical for supporting various blue economy sectors, including shipping, aquaculture, and marine renewable energy. Robotics are employed in the construction, maintenance, and monitoring of these marine infrastructure facilities.

2) **Maritime Transportation**: Robotics and automation technologies are used in the shipping industry to enhance the efficiency and safety of maritime transportation. Autonomous vessels, robotic cargo handling, and navigational aids contribute to reducing shipping costs and environmental impact, aligning with the goals of the blue economy.
3) **Aquaculture**: Infrastructure in the form of fish farms and offshore aquaculture facilities is essential for sustainable seafood production. Robotics are used for tasks such as underwater monitoring, feeding, and harvesting, helping to increase the productivity of aquaculture operations while minimizing environmental impact.
4) **Marine Renewable Energy**: The blue economy includes marine renewable energy sources like tidal and wave energy. Robotics play a role in the installation and maintenance of underwater energy infrastructure, contributing to the development of clean and sustainable energy solutions.
5) **Underwater Exploration and Research**: Infrastructure in the form of research vessels, underwater laboratories, and remote sensing networks supports scientific research and exploration of marine ecosystems. Robotics, including remotely operated vehicles (ROVs) and autonomous underwater vehicles (AUVs), are used for data collection and deep-sea exploration.
6) **Environmental Monitoring**: Infrastructure and robotics are vital for monitoring and protecting marine environments. Sensors, drones, and autonomous systems are used to collect data on water quality, biodiversity, and pollution levels, facilitating the sustainable management of coastal and marine resources.
7) **Ocean Tourism**: Coastal infrastructure and robotics contribute to the growing ocean tourism sector. Autonomous submarines, underwater drones, and glass-bottom boats offer tourists unique opportunities to explore marine environments while promoting the blue economy.
8) **Security and Surveillance**: Infrastructure and robotics are used for maritime security and surveillance, including monitoring activities in marine protected areas and ensuring the safety of coastal and offshore facilities.
9) **Waste Management and Cleanup**: Robotics are employed in waste collection and cleanup efforts in marine environments, helping to address the issue of marine litter and pollution.

Examples of successful cross-border collaboration projects include:

- EUMarineRobots (EUMR) project proposes an access-infrastructure for the deployment of a full-range of aerial, surface and sub-surface marine robotic assets, the combined value of which is far greater than the

sum of their parts. EUMR will open transnational access to significant national marine robotics R&D assets across Europe. The main objective of the EUMR project is to open up key national and regional marine robotics research infrastructures (RIs) to all European researchers, from both academia and industry, ensuring their optimal use and joint development to establish a world--class marine robotics integrated infrastructure. The EUMR consortium comprises 15 partners from 10 countries who, collectively, can deploy a comprehensive portfolio of marine robotic assets with required associated support assets and expertise. Countries included were: Italy, Ireland, Croatia, Norway, Germany, Spain, Portugal, France, UK. The network is a strong and balanced grouping of globally distinguished key players with a diverse, track-record of excellence across marine / robotic sectors. Partners are members of a wide variety of existing networks, and research infrastructure collaborations both formal and informal across Europe and the world. EUMR is a first stage in aggregating these networks and assets as world-leading for support and growth of a strong community of practice in marine robotics and marine. This project has received funding from the European Union's Horizon 2020 research and innovation programme.

- The MARBLE project's primary objective is to enhance competencies and expertise in the application of maritime robotics within the blue economy domain. It aims to achieve this goal by supporting the development of an innovative joint master's program called "MARBLE - Maritime Robotics in Blue Economy" and by implementing collaborative training programs involving universities, research institutions, business clusters, and a digital innovation hub. The project addresses challenges such as the demand for intersectoral and technological skills in blue economy education and the absence of an international, interdisciplinary, sustainable-focused master's program dedicated to maritime robotics in the blue economy sector. To meet these challenges, the project focuses on establishing a network of academic and business partners to enhance maritime robotics skills and capacity building through networking events, study visits, and educational methodology seminars. It also aims to foster knowledge and skills related to sustainable blue economy in the Adriatic-Ionian Area through training courses and hackathons that address relevant issues. Additionally, the project is committed to preparing the necessary documentation for the joint master's program, including accreditation documents, curriculum, administrative processes, and a university path and mobility scheme.

After analysing projects being done in this sector and all of the partnering organisations involved in them, these organisations have been selected for having potential to bring potentially interesting discussions and ideas on the topic of “Blue economy and Artificial Intelligence”.

- Digital Borgo was created as a network of innovative companies with the aim of establishing a national and international center of expertise on digital. Digital Borgo offers advanced and high-level professional services such as e-commerce, online advertising, website and mobile application development, communication and strategic marketing, social media management, offering 360° IT consulting as a strategic partner in the planning and elaboration of business strategies using the web and new technologies. Digital Borgo is an incubator for young people and innovative start-ups who have a business idea and need support, contacts, and guidance to realize it. It organizes themed events, trainings, workshops and seminars to connect entrepreneurs and potential investors interested in collaborating.

- SeaCras is Earth Observation-AI startup company for water quality monitoring, specialized for highly challenging coastal waters with focus on Adriatic Sea. As a participant in Interreg Italy-Croatia InnovaMare project, SeaCras was invited to present on „Innovative solutions for sustainability of Adriatic Sea“ conference and has a strong interest for participation in Adriatic research and innovation cooperation projects.

- European Digital Innovation Hub Abruzzo and Molise (EDIHAMo) is an initiative of major stakeholders from Italy’s Abruzzo and Molise regions aimed to combine efforts and skills to establish a competence center on digital technologies with particular focus on AI/HPC. The primary focus of EDIHAMo is to provide digital services to SME and PAs. EDIHAMo will deliver services in the following sectors: Assessment, Test-Before-Invest, Training and Skill Development, Funding. The main EDIHAMo strategic priority areas of intervention are Agrifood, Automotive-Mechatronics, Life Sciences, ICT/Aerospace, Logistics-Mobility, Tourism, and Fashion-Design. EDIHAMo pays particular attention to environmental sustainability and circular economy.

- GDP Analytics offers scientific Sales & Operations Planning, that is state-of-art scientific solutions to automate and optimize Sales and Operations Planning. They provide a scientific software to optimize S&OP processes, such as: Optimal resource allocations; AI based forecasts; Real time simulations; Tailor-made

algorithms. GDPA's mission is to drive businesses growth with scientific solutions have developed a framework led by data-driven strategies.

In this sector we can find several examples of success stories, two of which are Robotics for Sea Wind Turbines and Innovative WisePlace Infrastructures for Coastal Areas. Robotics for Sea Wind Turbines is a startup project of the team of engineers from Split develops drones for air and underwater maintenance of the sea wind turbines, platforms and other off-coast equipment that requires regular and expensive maintenance which can be replaced by the usage of the smart devices and robots. Innovative WisePlace Infrastructure for Coastal Areas is a project done by Eupolis Group, who develop infrastructural projects, programs and investments in coastal areas since 2000 and realized multiple infrastructural projects for public and private sector for sustainable tourism, brownfield area regeneration, nature protection, sustainable coastal and road transport, cycling, circular waste management, etc.

3.4 Marine living resources

The marine living resources sector is a multifaceted domain encompassing the extraction, transformation, and distribution of renewable biological resources from aquatic ecosystems. Referred to as living marine resources or living aquatic resources, it represents the rich tapestry of organisms inhabiting oceans, seas, and other aquatic environments, each holding economic, ecological, and cultural significance. This diverse spectrum of resources includes an array of species, spanning from fish, shellfish, and marine mammals to seaweed and a myriad of other marine life forms. Within this category, there exists a distinction between commercially valuable species, harvested for human consumption and trade, and non-commercial species that play integral roles in the intricate balance of marine ecosystems, influencing their health and resilience.

In the context of the European Union (EU), a multitude of cross-border projects and initiatives are dedicated to the realm of marine living resources, aligning with overarching objectives of sustainability, resource management, and ecological preservation. These initiatives are recipients of financial support and resources from various EU programs, including the European Maritime and Fisheries Fund (EMFF), Horizon 2020 (now Horizon Europe), and the European Regional Development Fund (ERDF). The focus of these projects extends across several key domains:

1. Sustainable Fisheries Management: Collaborative efforts within this sphere concentrate on the development and implementation of sustainable fisheries management practices. These endeavours strive to combat overfishing and enhance the precision of stock assessments, ensuring the health and longevity of fish stocks.

2. Aquaculture Development: Initiatives in aquaculture development aim to foster the sustainable expansion of aquaculture as a strategic solution to alleviate the pressure on wild fish stocks while concurrently bolstering the EU's seafood production capacity.
3. Marine Conservation: The cross-border projects addressing marine conservation are committed to the establishment and preservation of marine protected areas, the safeguarding of biodiversity, and the sustainable management of non-commercial marine species.
4. Innovation and Research: EU-funded projects underpin research and innovation in the sustainable utilization of marine living resources. This encompasses groundbreaking work in aquaculture, fisheries technology, and seafood processing, contributing to the ongoing transformation of the sector.
5. Marine Pollution and Environmental Protection: Projects oriented towards marine pollution and environmental protection focus on issues like habitat restoration, ecosystem health, and the mitigation of pollution, ultimately serving as guardians of the quality and integrity of marine living resources.

Through these projects, the European Union demonstrates its commitment to safeguarding the integrity and sustainable utilization of marine living resources, forging a path towards a prosperous and resilient blue economy while maintaining the ecological balance and vitality of our oceans and seas.

Some examples of successful collaboration projects include:

- The FAIRSEA project aims at enhancing transnational capacity and cooperation in the field of an ecosystem approach to fisheries in the Adriatic region by exchanging knowledge and sharing good practices among partners. The complementary expertise of the partners is shared, interlinked and integrated, considering also challenges and opportunities identified by stakeholders. The efforts are embedded in a spatially explicit management platform that will allow to share expertise, create a common pool of knowledge, boost the operational application of the ecosystem approach to fisheries, enhance the competence in complex system dynamics, and foster a consensus on the state of the environment and fisheries in the region. The process developed in FAIRSEA will provide an opportunity to describe best practices and define guidelines for a sustainable fishery management. The project was funded from the Interreg Program for cross-border cooperation Italy-Croatia 2014-2020.

- The PRIZEFISH project is founded on the core objective of instigating a cross-border, territorial, and socio-economic transformation in the collaborative, sustainable utilization of Adriatic fishery resources. By doing so, it seeks to bring about long-term advantages for the Adriatic marine ecosystems. Leveraging the knowledge acquired from numerous prior and ongoing cooperative ventures within the fisheries sector, PRIZEFISH is dedicated to addressing a dual territorial challenge faced by Italian and Croatian Adriatic fishing SMEs and Producer Organizations (POs). This challenge revolves around enhancing sustainability and bolstering economic competitiveness in seafood markets. The project's strategy involves the development and piloting of innovative fishery products endowed with added value, achieved through ecolabels that meet stringent criteria related to environmental, economic, and social sustainability.

- The DORY project, building upon the achievements of the IPA Adriatic ECOSEA initiative, aims to facilitate the adoption of unified management models to support sustainable fisheries and the implementation of alternative spatial management measures. Through pilot activities, the project seeks to evaluate innovative solutions that reduce the adverse ecological impact of aquaculture while concurrently fostering biodiversity in fish habitats. The project's key outcomes encompass the development of sustainable fishing management guidelines, the utilization of an integrated sea management tool (DISPLACE) for Maritime Spatial Planning (MSP), policy recommendations, pilot actions to enhance nursery areas and mitigate aquaculture impacts, two cross-border knowledge exchange events, two learning labs for marine protected area (MPA) managers and technicians, and one technical event tailored for policy makers. The project's target audience includes local, regional, and national public authorities, organizations managing protected areas and natural heritage, regional and local development agencies, associations, non-governmental organizations, universities, and research institutes.

Within the sector under observation, the landscape is characterized by a trio of projects exemplifying cross-border collaboration between Croatia and Italy. A noteworthy aspect is the consistent role of Italy as the Lead Partner in all three initiatives, indicating a pattern of leadership and coordination stemming from the Italian side. Examining the composition of the project partnerships, it becomes evident that the number of partners from Croatia is comparatively smaller than their Italian counterparts across these three projects. This discrepancy suggests a predominant role played by Italian entities in driving and steering the collaborative efforts. The distribution of partners reveals a significant pattern within the realm of Research Centers. Remarkably, a staggering 83.3% of

Research Center partners involved in these projects originate from Italy. This concentration highlights a strategic alignment of research capabilities and expertise with the Italian Lead Partner, showcasing a targeted approach to leveraging specialized knowledge for the projects' objectives.Beyond Research Centers, the collaboration extends to sectors such as Regional Authority and Business Support Organizations (BSOs). Together, these two sectors hold the second-highest number of organizations involved in the projects. This collaborative effort between Regional Authorities and BSOs underscores the multifaceted nature of the initiatives, involving both governmental bodies and business support entities in the cross-border cooperation. It's also noteworthy that other organizational types are represented individually, with some exclusive to either Croatia or Italy. This diversity in the organizational makeup adds layers of expertise and perspectives, contributing to the richness of the collaborative efforts. In essence, the identified projects showcase a dynamic landscape of cross-border cooperation, where Italy assumes a leading role, and collaboration spans across Research Centers, Regional Authorities, and Business Support Organizations. This intricate web of partnerships reflects a strategic and diverse approach to addressing challenges and leveraging opportunities within the sector, with a nod to the complementary strengths of both Croatia and Italy in the collaborative pursuit of shared goals.

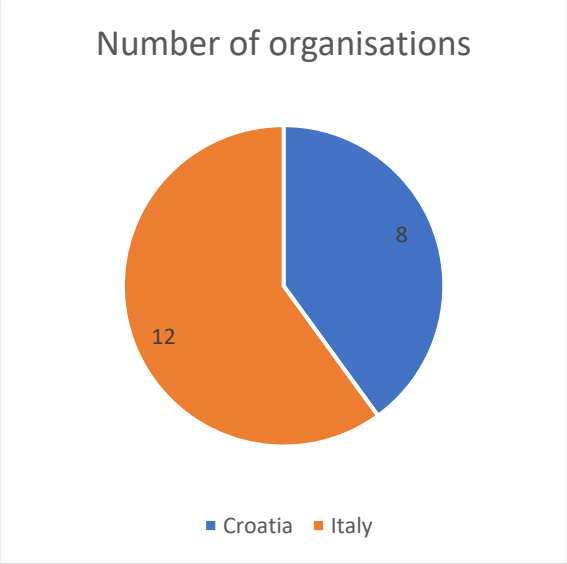

Figure 4 - Overview of the number of organizations linked to the mentioned projects by country

Table no.6 - Overview of organisation types from each country involved in the mentioned projects

	Croatia	Italy
Regional Authority	1	3
University	1	0
Ministry	1	0
Local Goverment	1	0
BSO	2	2
NGO	1	1
Research Center	1	5
Higher Education	0	1

Table no. 7 - Overview of sub-sectors that are covered from the sector of Marine living resources and the number of organizations covering them from each country

Sub-sectors that are part of the Marine living resources sector		Number of organizations that are in the sector/sub-sector from this country	
		Croatia	Italy
1	LR2 Aquaculture	4	0
2	LR3 Processing and preserving of fish, crustaceans and molluscs	0	1

After analysing the projects and partners involved in those projects, these organisations have been selected in this sector for having great potential as well for their existing successful projects operations and cross-border collaborations:

- Elica specializes in the design, sale and installation of communication instruments and on-board electronics, for recreational and professional boating. Elica is involved in the installation of on-board instrumentation for recreational boating. Specialist in the Mediterranean area of hydroacoustic systems applied to sustainable professional fishing. Specialist in environmental monitoring systems, particularly control of hydrocarbon spills at sea for the protection of the ecosystem.

- Plavi svijet d.o.o. is a social enterprise owned by Institut Plavi svijet (Institute Blue World) dealing with sustainable management of marine living resources in the Adriatic Sea. They provide research and development services in the field of marine living resources protection, monitoring, regeneration and promotion, education, sustainable tourism programs development, marketing and sales, provision of the marine resources and biodiversity tours and strategic planning, business and advisory services in the same sector.

- Information Systems for Sustainable Development ISOR d.o.o. is a micro enterprise specialized in the research, innovation and development projects, environmental impact assessments, and information systems for environmental system management, monitoring and assessments.

In this sector we can find several examples of success stories, few of which are projects Marine Living Resources Conservation, Living Resource Monitoring and Management Services and Information Systems for Sustainable Development. Marine Living Resources Conservation is a project by the Blue World Institute of Marine Research and Conservation, which was founded in 1999. The Blue World Institute is an independent non-profit organisation set up with the intention to carry out scientific research and conservation of the marine environment as well as educational activities, with an emphasis on the Adriatic Sea and the wider Mediterranean basin. Their three main programmes – research, education and conservation – provide a framework for executing multiple projects aimed at furthering the understanding of the marine environment, its flagships species, and public participation in their protection. The Blue World Institute led several national and international conservation activities. Through their efforts, the waters of Kvarnerić were declared the first Dolphin Reserve in the Mediterranean Sea in 2006, which later became a Natura 2000 site. Their efforts have led to the development of one of the largest networks of European Natura 2000 sites for bottlenose dolphins. They are working with relevant stakeholders to expand this network towards offshore areas and identify similar areas for loggerhead turtles. Their initiative led to a proposal for establishment of the first marine peace park in the Adriatic Sea in 2013, as a means for both marine conservation and resolution of the border dispute between Croatia and Slovenia. Through series of international publications and book chapters, they are furthering transboundary conservation at a global scale. Since 2004, the Blue World Institute is an official organisation partner of the international Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS). Through its work, the BWI provided expertise in setting national standards for carrying out of seismic activities and mitigation of impacts on marine fauna. As part of the NETCET Project, which commenced in 2012, the Blue World Institute expanded its conservation work on sea turtles. In 2013, they opened Marine Turtle Rescue Centre in Mali Lošinj which is a restorative measure supporting the rehabilitation of endangered marine turtles. As a continuation of this work they are cooperating with international partners in the LIFE Euroturtles Project and, in the near future, they will further develop, expand and upgrade their rescue centre with the assistance of local partners. Living Resource Monitoring and Management Services is a project led by Association Sunce, which was founded in 1998 by the group of Split intellectuals as a response to the growing need for an independent and expert body that will offer solutions to environmental issues and nature protection. Today Sunce is known, at the national and international level, as one of the leading organizations for the protection of nature and environment in Croatia promoting natural values, marine and coastal

environment and local communities, whose development depends on the principles of sustainability and circular economy. They promote, protect and support sustainable use of marine living resources through monitoring, management and other services to public and private stakeholders. Information Systems for Sustainable Development is being led by Marina Stenek, which is an expert for environmental protection working in multiple organizations for consulting and environmental protection activities related to marine living resources.

3.5 Marine renewable energy

Marine energy, also known as marine and hydrokinetic energy or marine renewable energy, is a renewable power source that is harnessed from the natural movement of water, including waves, tides, and river and ocean currents. These technologies use the kinetic energy of waves, currents, tides, and thermal energy of deep cold water to surface water conversion to generate clean energy. Marine energy can also be harnessed from temperature differences in water through a process known as ocean thermal energy conversion.

In the sea space of Italy and Croatia there is currently a preparation study being held to assess the feasibility of a potential offshore wind farm in the Northern Adriatic coastal zone near Croatia and Italy. The study is being done as part of a call for preparatory studies for cross-border renewable energy projects.

In this sector we can find one example of success storie, and that is in the project Coastenergy. Coastenergy is a pilot project on usage of blue energy (marine renewable energy) for the public building of the local administration in City of Poreč in cooperation with the Faculty of Mechanical Engineering and Shipbuilding in Zagreb and Institute Hrvoje Požar. The project was awarded as a best EU project in category of contribution to science and innovation and was implemented through the Interreg V-A Italy Croatia.

3.6 Maritime transport

Maritime transport, as an integral component of the EU blue economy sector, refers to the movement of goods, people, and services across Europe's extensive network of waterways, including oceans, seas, and inland water bodies. It plays a pivotal role in facilitating trade, connecting coastal regions, and reducing the environmental footprint of transportation. In the EU blue economy, maritime transport emphasizes sustainability, efficiency, and innovation, aiming to enhance connectivity while minimizing the environmental impact through initiatives like

cleaner fuels, improved logistics, and enhanced intermodal connections. This sector is vital for both economic growth and the responsible management of Europe's maritime resources.

Examples of successful cross-border collaboration projects include:

- The GUTTA project strives to enhance the environmental sustainability of ferry routes connecting Italy and Croatia. This overarching goal will be accomplished through the pursuit of three specific objectives: 1. The first objective entails the development of a web-based tool designed to offer CO2-optimized ferry routes. This tool will utilize operational meteo-marine forecast data to achieve this aim. 2. The second specific objective involves an evaluation of the information contained within CO2 emissions data, collected under EU Regulation 757/15 on MRV (Monitoring/Reporting/Verification). This assessment will determine the added value of such data. 3. The third specific objective of GUTTA focuses on analysing historical and contemporary trends in maritime mobility between Italy and Croatia. This analysis will consider the impacts of events like the COVID-19 pandemic.

- The METRO project is dedicated to enhancing environmental sustainability within the maritime transport sector, with a specific emphasis on tourist connections in the North Adriatic region. This objective will be pursued through both technological advancements, including the development of hybrid solutions for passenger vessels, and logistic improvements. The latter will encompass a study on the adaptation of power supply infrastructure in small harbours and the establishment of new routes among North Adriatic ports. The project aims to address several pressing challenges within the Program area, including the necessity for more integrated, efficient, and sustainable maritime connections between eligible territories, the alleviation of traffic congestion stemming from seasonal tourism, and the enhancement of competitiveness among shipbuilding companies.

Table no.8 - Overview of sub-sectors that are covered from the sector of Maritime transport and the number of organizations covering them from each country

Sub-sectors that are part of the Maritime transport sector		Number of organizations that are in the sector/sub-sector from this country	
		Croatia	Italy
1	PA3 Construction of water projects	3	0

2	PA4 Service activities incidental to water transportation*	15	2
3	MT1 Sea and coastal passenger water transport	0	1
4	MT5 Renting and leasing of water transport equipment	0	1

*Sub-sector "PA4 Service activities incidental to water transportation" includes activities related to water transportation of passengers, animals or freight; operation of terminal facilities such as harbours and piers; operation of waterway locks; navigation, pilotage and berthing activities; lighterage, salvage activities; and lighthouse activities.

In this sector we can find one example of success stories, and that is project Green Public Transport project by Platforma 22. Platforma 22 develops technical studies for green blue marine transport solutions with experience in developing solutions for cities such as Šibenik and Dubrovnik in cooperation with Norwegian partners experienced in this sector.

3.7 Research and Innovation

Research and innovation in the context of the EU blue economy sector refers to the active pursuit of knowledge, cutting-edge technologies, and creative solutions to address the unique challenges and opportunities presented by Europe's marine and maritime resources. It involves scientific exploration, development of sustainable practices, and the application of new technologies to harness the potential of the oceans and seas. This emphasis on research and innovation underpins the EU's commitment to sustainable and responsible utilization of marine resources, from fisheries and aquaculture to renewable energy and coastal tourism. By fostering continuous advancements and promoting collaboration among stakeholders, the EU aims to drive economic growth while preserving the health and vitality of its marine ecosystems. The blue economy research and innovation sector grapples with a multitude of significant challenges. A fundamental issue revolves around the scarcity of comprehensive and up-to-date data pertaining to marine ecosystems, species, and resources. This data deficiency impedes the ability to make informed decisions and hinders the sustainable management of vital marine resources. Addressing this knowledge gap is crucial for steering the sector towards a more sustainable and responsible future. In addition, the development of cutting-edge technologies tailored for underwater exploration, resource extraction, and the conservation of oceanic environments poses a substantial financial burden. Achieving breakthroughs in these areas is contingent

on significant research and innovation investments. The pursuit of advanced solutions in the blue economy hinges on securing the necessary funding and resources to drive progress in a field with profound implications for both economic and environmental sustainability. Furthermore, ensuring a proficient workforce well-versed in marine science and technology is paramount for the sector's advancement. This necessitates substantial investments in education and training programs to equip individuals with the skills and knowledge vital for pioneering advancements in the blue economy. Furthermore, given the inherently transboundary nature of many challenges within the blue economy, international collaboration is imperative. Collaborative research and innovation efforts have the potential to yield more comprehensive solutions to complex issues. However, geopolitical tensions and resource disputes often present significant obstacles to effective cooperation, underscoring the need for diplomacy and multilateral initiatives to foster productive relationships in this globally interconnected sector.

Research in Croatia is performed in both public and private research organizations. Public R&I sector, with the leading role of universities, dominates in both research manpower and research activities. There are 8 public universities (67 faculties and art academies and 1 university center), 25 public research institutes, 11 public polytechnics, 3 public colleges, 3 private universities, 3 private polytechnics, 20 private colleges, 4 technology transfer offices at universities, 3 science - technology parks and 11 research centers in the industry, each one of them playing an important role in the development of R&I sector in Croatia. In accordance with the Bologna system, higher education in the Republic of Croatia has a three-cycle study model, including undergraduate, graduate and postgraduate level of study. Like several other European higher education systems, the Croatian system has a binary structure comprising the professional and university profile of study programmes and institutions. Unlike higher education institutions that run university programmes up to the doctoral level, professional studies are primarily delivered at polytechnics at the undergraduate and graduate level and as short-cycle professional studies. Professional studies primarily focus on the labor market and an immediate participation in the workforce, and they lead to the acquisition of primarily professional competences. University study programmes qualify students for developing and applying scientific, artistic and professional achievements and lead to the continuation of academic education.

Examples of successful cross-border collaboration projects include:

- The InnovaMare strategic project aims to collaboratively develop and implement an innovation ecosystem model focusing on underwater robotics and sensors. This initiative is dedicated to the monitoring and

surveillance sector, with a clear mission of fostering sustainability in the Adriatic Sea. It seeks to address a pressing challenge: enhancing the effectiveness of innovation activities within the blue economy. To achieve this, InnovaMare prioritizes the transfer of knowledge among enterprises, research and development centers, higher education institutions, and the public sector. Through education and capacity-building initiatives, this project aims to empower various stakeholders and promote collaboration in the pursuit of a sustainable future.

Adriatic mariculture plays a pivotal role in providing highly sought-after fish products, catering to both local and distant markets. The potential for this sector to evolve is greatly amplified by the integration of cutting-edge technologies. In the AdriaAquaNet project, industries and research laboratories from both Italy and Croatia join forces to implement a range of innovations, including:

1. Pioneering feeding methods designed to enhance the well-being and quality of farmed fish.
2. The development of novel vaccines and natural compounds to bolster fish health.
3. The introduction of advanced waste management systems for sea farms, which not only mitigate water pollution but also extract biofuel.
4. Innovative approaches to food processing and marketing that enable access to a broader consumer base.

Anticipated outcomes encompass the involvement of up to 25 small to medium-sized enterprises in the testing and adoption of these technological advancements. Additionally, approximately 50 workers will receive training from experts in seven research laboratories to apply these innovations within their work environments. This collaborative effort marks a groundbreaking initiative, fostering cooperation between both shores of the Adriatic Sea, with the shared goal of elevating the quality of fish farming and marketing.

The pursuit of a sustainable Blue Growth faces a significant hurdle in the form of inadequate scientific and socio-economic observations concerning the state of the marine environment. The TECHERA project seeks to address this challenge by advocating for the adoption of emerging technologies, such as big data sharing and analytics. These innovations aim to enhance the smart specialization of companies operating within the blue economy while also piquing the interest of the younger generation in smart and blue career opportunities. TECHERA will interconnect the products and outcomes of previous projects, weaving them into illustrative case studies that foster the

exchange of knowledge and demonstrate the potential advantages of integrating and complementing various approaches. This approach will also help identify operational and knowledge gaps. To ensure effective communication and dissemination of these initiatives, TECHERA will pinpoint key stakeholders within thematic area 1. Collaboration with other Standard and Strategic IT-HR projects operating within the same domain will be integral. Various engagement techniques, including lectures, participatory discussions, and gaming, will be employed to facilitate the transfer of results within the Programme Area and beyond. Ultimately, TECHERA will offer prospective insights for the next programming period, contributing to the formulation of a strategy for digitization and the identification of key innovations to enhance competitiveness within the blue economy.

In the triad of projects under examination, the recurrent theme emerges with Italy assuming the role of the lead partner in the majority, with a notable exception being the InnovaMare project. This consistent pattern suggests a centralizing influence of Italian partners in driving and orchestrating collaborative efforts, underscoring their proactive role in shaping the direction of these initiatives. A focal point within this collaborative landscape is the sector of Regional Authority, standing out as the domain with the largest number of organizations involved across all the mentioned projects. The prominence of Regional Authority partners signifies a concerted effort to engage and integrate governmental bodies at the regional level, indicating a commitment to a bottom-up approach in addressing challenges and fostering cooperation. What adds an additional layer of complexity and international dimension is the involvement of an International Association as one of the project partners. This association's focus on promoting trans-national and interregional cooperation introduces a global perspective to the projects. Its participation not only amplifies the collaborative nature of these initiatives but also underscores the commitment to fostering cross-border ties and sharing best practices on an international scale. Beyond Regional Authority, Business Support Organizations (BSOs) emerge as another significant player, holding the second-highest count among the organizations included in these projects. The involvement of BSOs underscores the emphasis on fostering an environment conducive to business development, innovation, and economic growth. Their participation speaks to the recognition of the pivotal role played by these entities in catalyzing economic activities and providing essential support structures. Complementing the collaborative landscape are Research Centers, representing a critical component in the pursuit of knowledge and innovation. The inclusion of Research Centers underscores the commitment to leveraging advanced research capabilities to address challenges and drive advancements within the sector. Their presence highlights a strategic focus on incorporating cutting-edge research and development into the collaborative efforts. In summary, these three projects exhibit a recurrent leadership

role for Italy, with Regional Authority playing a pivotal role by contributing the largest number of organizations across all projects. The diverse participation, including International Associations, BSOs, and Research Centers, reflects a comprehensive approach to cross-border collaboration, encompassing governmental, international, business, and research perspectives for a holistic and impactful outcome.

Figure 5 - Overview of organisation involved in the projects by country

Table no.9 - Overview of organisation types from each country involved in the mentioned projects

	Croatia	Italy	Bosnia and Herzegovina	Greece	Albania	Montenegro
Regional Authority	7	10	4	2	6	0
University	0	1	0	0	0	0
Ministry	1	0	0	0	0	0
Local Government	0	1	0	0	0	6
BSO	3	7	0	0	0	0
NGO	0	1	0	0	0	0

Research Center	6	2	0	0	0	0

Table no.10 - Overview of sub-sectors that are covered from the sector of Research and innovation and the number of organizations covering them from each country

Sub-sectors that are part of the Research and innovation sector		Number of organizations that are in the sector/sub-sector from this country	
		Croatia	Italy
1	ES0 Research and education	1	1
2	ES7 Ecosystem services	1	2

After analysing the projects and partners involved in those projects, these organisations have been selected in this sector for having great potential as well for their existing successful projects operations and cross-border collaborations:

- Nav.El deals with marketing, installation, technical assistance of electronic equipment of all the best brands on the market, as far as recreational and professional boating is concerned. Established in 2007, however, it boasts a long educational career matured by the owner since 1984 with various work experiences in the field of naval electronics.

- SeaCras is Earth Observation-AI startup company for water quality monitoring, specialized for highly challenging coastal waters with focus on Adriatic Sea. As a praticipant in Interreg Italy-Croatia InnovaMare project, SeaCras was invited to present on „Innovative solutions for sustainability of Adriatic Sea“ conference and has a strong interest for participation in Adriatic research and innovation cooperation projects.

In this sector we can also find an example of successful cooperation, one such is from Micoperi, which is a leading offshore contractor providing subsea solutions to the Oil and Gas Industry worldwide since the Forties. It is the in-depth knowledge base from Micoperi's rich past and continual drive to solve its client's offshore challenges that

makes Micoperi today the preferred offshore contractor for many of clients world-wide. Micoperi from Ortona, is famous for having won the contract to remove the wreck of the Costa Concordia from Isola del Giglio, safeguarding the island and its marine environment. The company also created the Micoeri Blue Growth start-up, active in the biotechnology sector and in the production of natural products extracted from microalgae, as an alternative to chemistry and applicable both in agriculture and in the medical field. More recent is the attention shown by some companies towards the renewable industry, but with more interesting applications.

In this sector we can find two examples of success storie, and that is in the project Eco-Social Enterpeise fro promotion and protection of large marine vertebrates by the Blue World Institute Ltd and the project Digital Cartography for Croatian Island by Antonio Morić Španjić, Pinus Nigra Ltd. Recognising their invaluable role in the ecosystem, Institute Blue World research focuses on large marine vertebrates with an aim to contribute to the protection and conservation of the whole marine environment. This is achieved through cooperation with competent authorities, development of innovative management measures, creation of partnerships with relevant stakeholders and involvement of the public through awareness-raising and education. Research on protected species is conducted under permits issued by relevant authorities following national legislation of the countries where they operate and is carried out following a set of voluntary adopted set of standards and norms ensuring animal welfare. In recent years, they have expended the geographical aspect of their research to open bases on Vis Island (2008) and in Murter Island (2013). Furthermore, with partner organisations they supported the development of surveying programs in Montenegro, Italy and Albania. Bringing all of this work together with the aim of providing basin wide data, they conducted aerial surveys of the whole Adriatic Sea in 2010 and 2013. The results of these surveys present the first ever data on distribution and abundance of cetaceans, sea turtles and giant devil rays in the Adriatic and are setting the reference point for a regular monitoring programme. Antonio Morić Špenjić is an experienced expert and vice president of Centre for Sustainable Development with GIS Technology (CROGIS), focused on research, development and innovation of projects that are related to island cultural, natural, social and economic resources. He is initiator of multiple projects including those including schools and children in promotion of sustainable development of island and coastal areas using GIS and aerospace technologies, among other topics.

3.8 Shipbuilding and repair

Shipbuilding and repair, within the context of the EU blue economy sector, encompass the construction, maintenance, and refurbishment of vessels such as ships and boats. This sector is crucial for ensuring the efficiency and safety of maritime transportation, as well as for supporting activities like fishing, tourism, and offshore energy production. Shipbuilding involves the creation of new vessels, while repair focuses on the restoration and upkeep of existing ones. Both activities contribute significantly to the economic growth and sustainability of the EU's blue economy by fostering a skilled workforce, technological advancements, and the creation of modern, environmentally friendly vessels that comply with stringent international standards.

Examples of successful cross-border collaboration projects include:

The BEAT project builds upon the research conducted in blue (green) technologies as part of the BlueTech project, with the goal of facilitating knowledge transfer between enterprises and universities, ultimately formalizing the establishment of a cross-border cluster. The project's primary objective is to stimulate the development of innovative solutions and promote collaboration among innovation stakeholders in the region. This will be achieved by creating a cross-border cluster focused on blue technologies within the shipbuilding sector.

Table no.11 - Overview of sub-sectors that are covered from the sector of Shipbuilding and repair and the number of organizations covering them from each country

Sub-sectors that are part of the Shipbuilding and repair sector		Number of organizations that are in the sector/sub-sector from this country	
		Croatia	Italy
1	SR1 Building of ships and floating structures	4	1
2	SR2 Building of pleasure and sporting boats	3	0
3	SR3 Repair and maintenance of ships and boats	2	1

In this sector we can find two examples of success stories, and that is in the projects Innovative Green Sport Motorboats by Ivan Kljaković Gašpić, Rand Shipyard d.o.o. and Innovative yacht and special purpose boats building by Grant Willis. Rand Shipyard is a smart and green boats startup shipbuilding company started by Scandinavian businessmen but led by Croatian shipbuilders and managers with experience in sports and nautics. The company has headquarters in Kaštel Sućurac with innovation, environment, and society in focus. They are growing steadily and applying lean and green business practice in the Adriatic area producing boats for the global market. Grant Willis is a boat production manager in several companies helping in production of high-quality yachts and recently initiating green and innovation new yachts and boats with manufacturing facilities in the Kaštela bay and exporting boats to global, mainly US markets.

4. Stakeholder identification

4.1 List of stakeholders

Out of 178 stakeholders present on our list, 92 are from Croatia and 86 are from Italy, as seen in table no. 12 and figure no.6. Majority, almost half of them, come from Private Sector, with almost equal percentage from both countries.

Table no.12 - Overview of Organization types, the country they are from, their number and percentage that they hold out of the overall number of organizations included in the cross-border cooperation

Organization type	Croatia	Italy	Total	
Scientific Research	23	24	47	n
	48,94	51,06	25,54	%
Private Sector	42	46	88	n
	47,73	52,27	47,83	%
Public Sector	29	20	49	n
	59,18	40,82	26,63	%

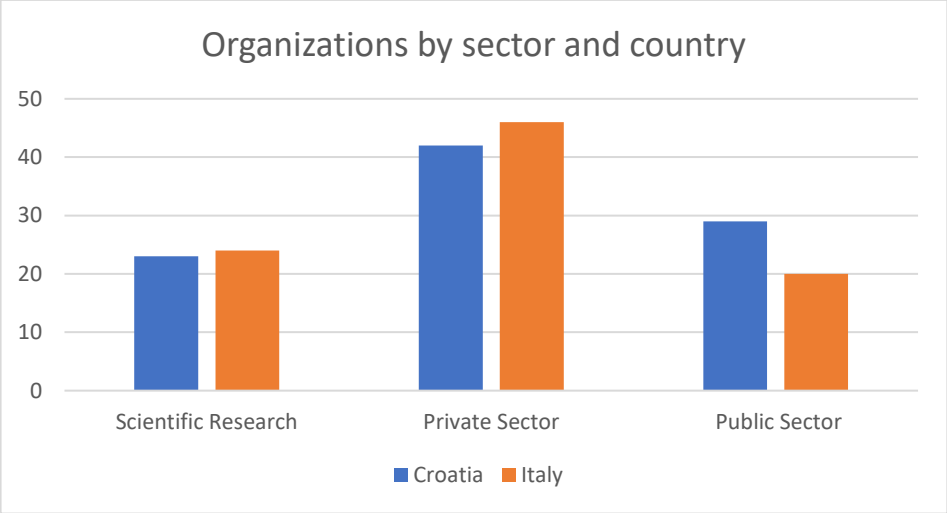

Figure 6 - Overview of the organizations linked to the cross-border projects, divided by type and country

4.2.1 SMEs

From organizations from the Public Sector, under the type of SMEs, there are 64 of them from Croatia and Italy. As shown in the table and figure below, there are three types (Micro, Small and Medium) and majority of them are in the Micro and Small size, with a total of 36 of SMEs from Croatia and 28 from Italy.

Table no.13 - Overview of SMEs, their size, the country they are from, their number and percentage that they hold out of the overall number of SMEs included in the cross-border cooperation.

Public sector by type and country				
	Croatia	Italy	Total	
Micro	20	5	25	n
	80,00	20,00	28,41	%
Small	10	17	27	n
	37,04	62,96	30,68	%
Medium	6	6	12	n
	50,00	50,00	13,64	%

Large	2	4	6	n
	33,33	66,67	6,82	%
n/a	3	14	17	n
	17,65	82,35	19,32	%

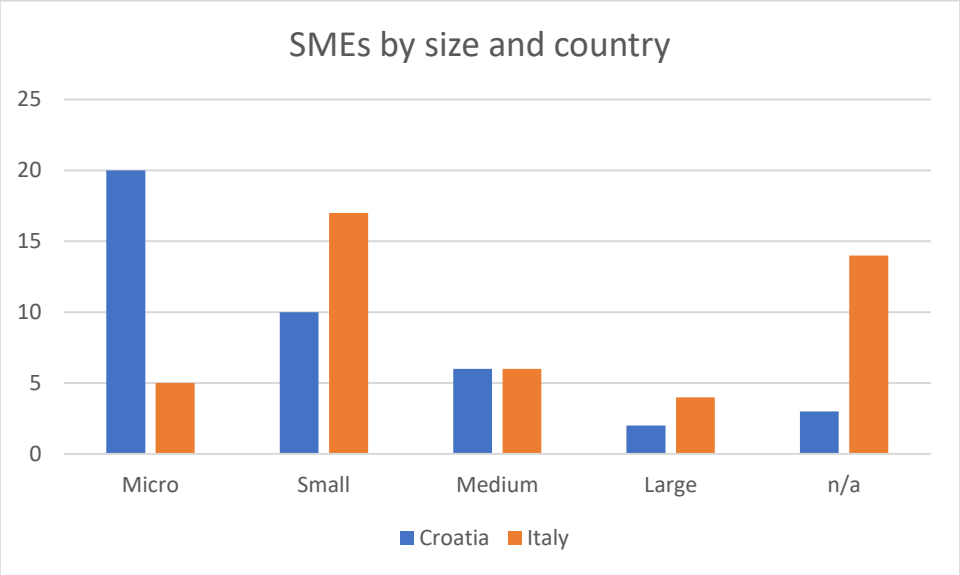

Figure 7 - Overview of the SMEs linked to the cross-border projects, divided by size and country.

4.2.2 BSOs

There are only 9 BSO organizations included in the cooperation projects, all of them from Croatia. They make 18,37% of the total number of government organizations.

Table no.14 - Overview of BSOs, the country they are from, their number and percentage that they hold out of the overall number of BSOs included in the cross-border cooperation

Government organizations				
Organization type	Croatia	Italy	Total	
BSO	9	0	9	n
	100,00	0,00	18,37	%

Table no.15 - List of BSOs included in the cross-border cooperation

No.	Name	Country	Type of organization
1	Croatia Indepedent Software Exportes (CISEX)	Croatia	BSO
2	Croatian AI Association	Croatia	BSO
3	Croatian business angels network - CRANE	Croatia	BSO
4	Croatian Employers Association - ICT Association	Croatia	BSO
5	Development Innovation Center AluTech	Croatia	BSO
6	Entrepreneurial incubator IZAZOV Pula	Croatia	BSO
7	Technology center Split	Croatia	BSO
8	Technology Incubator Pula	Croatia	BSO
9	Urban center/Incubator Šibenik	Croatia	BSO

4.2.3 Government organizations

As shown in the table and figure below, there are a total of 29 Government organizations, 17 of them from Italy and 12 from Croatia. Most of them fall under Local Government, with Regional Authority having the smallest number. The full list of government and non-government organizations, their type and from which country they are is attached to this document marked as Appendix no.2, Table 2. - overview of the government organizations and their information.

Table no.16 - Overview of Government organizations, their type, the country they are from, their number and percentage that they hold out of the overall number of Government organizations included in the cross-border cooperation.

Organization type	Number of organizations that are in the sector/sub-sector from this country			
	Croatia	Italy	Total	
Local Government	7	9	16	n
	43,75	56,25	32,65	%
Ministry	4	4	8	n

	50,00	50,00	16,33	%
Regional Authority	1	4	5	n
	20,00	80,00	10,20	%
n/a	5	3	8	n
	62,50	37,50	16,33	&

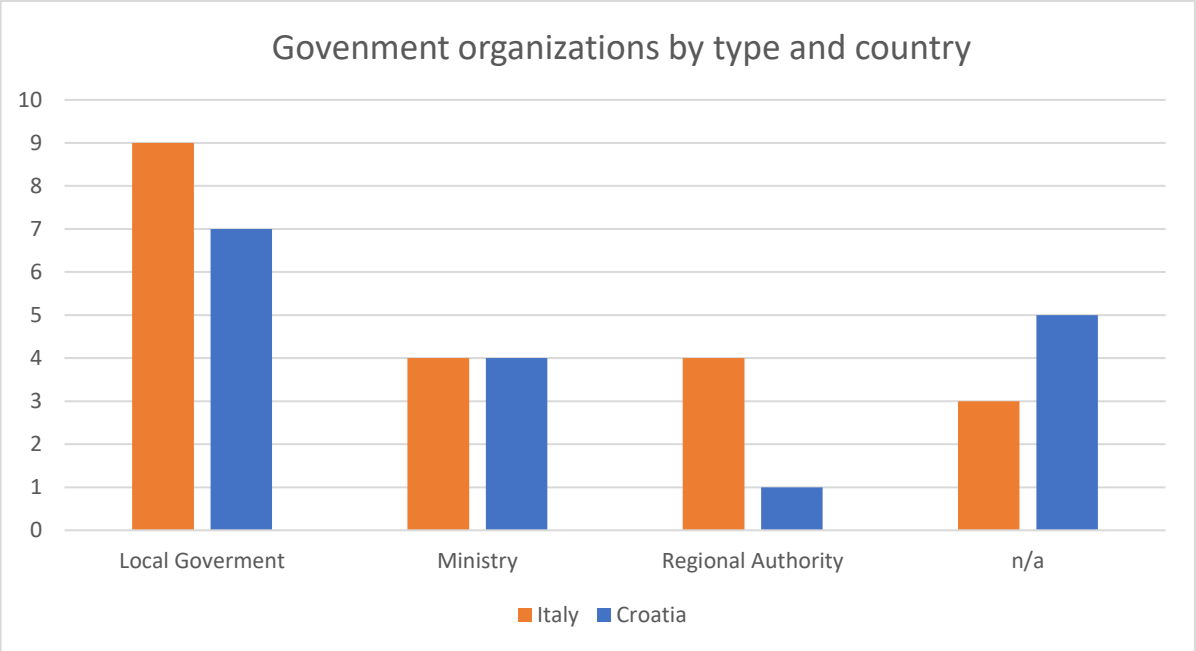

Figure 8 - Overview of the Government organizations linked to the cross-border projects, divided by size and country.

5. Conclusion

The state of the art analysis identified main 5 cooperation challenges:

1. The most significant issue facing the research and innovation industry is the system's widespread fragmentation, as different institutions frequently carry out the same or comparable duties on their own. This leads to a duplication of effort because the same scientific problems are not addressed jointly but rather separately. This problem is made worse by the lack of scientists and their distribution over various places. As a result, there is a deficiency in effective coordination and collaboration when tackling crucial issues. These solitary pursuits not only result in duplication of effort but also obstruct the possibility of combining assets, knowledge, and perspectives. A paradigm change in the direction of encouraging a more cohesive and integrated research ecosystem is required to overcome this obstacle. This involves creating mechanisms for effective communication and coordination among organizations, encouraging the sharing of resources and expertise, and promoting a collective approach to research and innovation to maximize the impact and efficiency of scientific endeavours.

2. A major impediment to scientific advancement is the lack of space allotted for research infrastructure, especially when considering the various requirements of transdisciplinary experimental and industrial research. The scarcity of accessible space not only makes it difficult to expand research endeavours but also makes it difficult to store the equipment required for state-of-the-art scientific study. Innovative and comprehensive research projects are hampered by the current research facilities' inability to satisfy the demands of collaborative, cross-disciplinary endeavours. Lack of space to house specialized equipment and create collaborative research environments can hinder the kind of synergy needed to tackle multidisciplinary, complicated scientific concerns. Strategic planning is needed to increase research infrastructure to meet this challenge, making sure that it is not just large enough but also designed to facilitate the intricate demands of modern, multidisciplinary research endeavours.

3. The problem of disjointed regulatory frameworks makes cross-border collaboration extremely difficult, especially when it comes to a variety of marine operations. The prevalence of differing rules and regulations among many nations adds uncertainty and complexity to the design and implementation of cooperative initiatives. Legal uncertainty is exacerbated by exclusive economic zones and overlapping jurisdictions, which frequently result in disputes and hold up the licensing and permit procedures. Stakeholders must coordinate and negotiate carefully to navigate these regulatory complexities since the absence of standard operating procedures makes it difficult for projects and research endeavors to be implemented smoothly. To overcome these obstacles and create a more favorable atmosphere for international collaboration in marine activities, a concentrated effort must be made to standardize regulations, create uniform standards, and expedite approval procedures.

4. The presence of technology disparities between international organizations presents a significant obstacle to cross-border research collaboration. Variations in the speed at which technology is developed can lead to differences in the readiness of parties to work together, which can create an atmosphere in which some parties view cooperation as more competitive than cooperative. Fears that exchanging technological know-how could expand the current divide and put less technologically advanced companies or nations at a disadvantage can intensify this competition. The free exchange of knowledge necessary for productive collaboration may be hampered by the fear of falling behind and the reluctance to reveal proprietary technologies. In order to overcome this obstacle, a careful balance between promoting information sharing and protecting competitive advantages must be struck, creating an environment that fosters advancement on both sides rather than widening the gap in technology.

5. Effective cross-border cooperation requires strong communication channels and active engagement from various stakeholders, including government bodies, industries, research institutions, and local communities. Language barriers, differing communication styles, and a lack of awareness about the benefits of cooperation can hinder the establishment of productive partnerships. Enhancing stakeholder engagement and promoting effective communication strategies are vital for overcoming this challenge.

Addressing the array of issues outlined above requires a multifaceted strategy that incorporates heightened awareness, intensive research, and increased financial backing. Through transparent communication regarding these issues and the articulation of current progress, future plans, and the potential benefits of amplified investment, nations can fortify their technological capabilities. The transparent presentation of ongoing developments and future intentions is a linchpin in this strategic approach. By providing prospective investors and partners with a clear roadmap, this not only fosters a sense of accountability but also encourages stakeholders to actively support initiatives, whether through financial contributions or collaborative projects. An informed and engaged community is more likely to contribute to the advancement of crucial sectors. Financial support is pivotal in expediting progress, and governments and private organizations can be swayed to allocate more funds by highlighting the tangible advantages of increased investment. This includes the acceleration of research timelines, the development of cutting-edge technologies, and the potential for substantial societal impact. Demonstrating the return on investment in terms of innovation and societal progress is key to garnering support. Clear communication about the necessity of funding such research is equally crucial. Emphasizing the potential for groundbreaking discoveries, the economic advantages of leading in emerging technologies, and the long-term benefits for various industries helps decision-makers understand the importance of sustained financial support. This, in turn, builds public support as citizens recognize the significance of these initiatives for the betterment of society. The emphasis on cross-border cooperation underscores the collaborative nature of tackling these challenges. While national technological advancements are vital, breaking down international barriers is equally essential. Through the exchange of knowledge, materials, and research findings, nations can synergize their strengths, creating a more effective and coordinated approach to addressing global challenges. Increased visibility also benefits grassroots researchers and organizations. As awareness of these challenges rises, networks between different entities strengthen. This enhanced interconnectedness facilitates smoother collaboration on both smaller and larger initiatives. Researchers and organizations become more accessible to each other, fostering an environment that encourages the sharing of knowledge, resources, and ideas. In summary, the comprehensive strategy of raising awareness, conducting in-depth research, and obtaining funding is indispensable for resolving the intricate issues at hand. By doing so, nations can not only improve their technological standing but also promote cooperation and mutual advancement among allies in addressing the most critical challenges of our time.

6. List of Appendices

Appendix no.1, Table 1. - overview of the cross-border projects and their scope

	Name	Project Scope
1	3D reconstruction of ancient underwater shipwrecks for the realization of virtual museums through immersive and virtual reality	Processing of 3D models of underwater archaeological
2	A.R.E.S.	New marine technology development Autonomous Robotics for the Extended Ship
3	Academic events and student internship	
4	Adri.SmArtFish	Strengthen the small-scale fishery role in the North Adriatic Sea area (GSA 17) in the near future by fostering their potential for innovation within the Blue Growth context, through the adoption of an ecosystem-based management approach.
5	ADRIADAPT - a Resilience information platform for Adriatic cities and towns	Specific objective is to improve the climate change monitoring and planning of adaptation measures tackling specific effects in the cooperation area.
6	AdriAquaNet	In recent years, research has shown that farmed fish can grow more resistant to pathogens and environmental stress by changing their feed. By designing and testing new feeds, we aim to address a number of understandable consumer concerns about the quality of farmed fish. In addition, by introducing new technology to extract biofuel for the waste that accumulates in cages, farms will be able to keep their local waters clean and obtain energy to run their facilities.
7	ADRIREEF	ADRIREEF project aims at examining the Blue Economy potential of Adriatic reefs, enhancing the attractiveness of existing marine resources to promote economic development through, inter alia, aquaculture and tourism activities.
8	Advanced design of hydrodynamic and aerodynamic characteristics using CFD	

9	AeRoTwin - Twinning coordination action for spreading excellence in Aerial Robotics	
10	AIplan4EU	Bringing AI Planning to the European AI On-Demand Platform
11	aPad -smaller, lighter, smarter autonomous marine surface vehicle	
12	Aquafaang	To generate genome-wide functional annotation maps for the six commercially most important fish species within European aquaculture and exploit their contribution to variation in traits of commercial relevance, focusing on improved resistance to disease.
13	ARCHEOSUb (Autonomous underwater Robotic and sensing systems for Cultural Heritage discovery Conservation and in situ valorisation)	Project aim: to develop products and services in support of the discovery of new Underwater Cultural Heritage (UCH) sites and of the surveying, conservation, protection, and valorisation of new and existing ones. The project will use an in-situ underwater sensor network deployed at a site for real-time monitoring and surveillance
14	ARES (under evaluation)	Autonomous robotics for the extended ships
15	ASPRA	ASPIRA is a remote-controlled system designed to perform the complete underwater ultrasonic examination of baffle bolts as well as visual examinations of core basket inspection objects without repositioning. The ASPIRA manipulator has five degrees of freedom driven by electric motors and four degrees of freedom driven by pneumatic cylinders. The power supply, controller, video, pneumatic and communication modules are integrated in a system which can be remotely operated by an ethernet connection.
16	BEAT	
17	CADDY	Develope a multicomponent system consisting of a BUDDY AUV custom made for interaction with divers, equipped with an underwater tablet as a means of interaction with the diver, a stereo camera, mono camera, multibeam sonar; and MEDUSA ASV modified to serve as the surface vehicle in the CADDY scenario.
18	Carbon credits	Reduction CO2

19	Cascade	Increase awareness on data FAIRness principles and applications through the project specific example
20	CASCADE	Increase awareness of marine environment and the appeal of the marine cross-border areas
21	DeFishGear	Addressing the wider marine litter issue to ultimately provide a key strategic input on a regional level. Among the activities, ROV coupled to acoustic surveys in protected areas as a mean to to map marine litter distribution on the seafloor.
22	Developing the Croatian Underwater Robotics Research Potential (CURE)	The project aims at reinforcing the Croatian S&T potential in underwater robotics (underwater systems and technologies).
23	Development of composite structures for sound insulation	
24	DexROV: Delivering the sub-sea technologies for new services at sea	The goals of the project are: - Move control of ROVs to shore, from a safe distance. - Overcome latency involved between onshore control centres and ROVs, through autonomous operations - Develop advanced dexterous tools with the capacity to grip and manipulate in ways similar to a human hand
25	DORY	
26	Easily Transportable Buoy for Diving Support	
27	ECOSUSTAIN	Ecosustain project created water quality monitoring software.
28	EMME - Exploring the fate of Mediterranean microplastics: from distribution pathways to biological effects	Monitoring and study of micro-plastics in the sea
29	Enclosure prototype	prototype system innovative to treat mussels
30	Ensemble FloodSmart	Real - time Flood Risk Management
31	Ensmble OperOSS	Software applications for the management of new operation smart grids.
32	EUMarineRobots: Marine robotics research infrastructure network	To open up key national and regional marine robotics research infrastructures (RIs) to all European researchers, from both academia and industry, ensuring their optimal use and joint development to establish a world-class marine robotics integrated infrastructure.

33	EXCELLABUST - Excelling LABUST in marine robotics	
34	FAIRSEA	
35	Finfish mariculture dynamic energy budget model (FiMDEB)	
36	Firespill	Fostering Improved Reaction of crossborder Emergency Services and Prevention Increasing safety LeveL
37	Fishing forecast maps for Sustainable Fishing	Satellite image processing chain for the generation of fishing forecast maps in the Lower Adriatic and Ionian seas
38	FutureEUAqua	Is to effectively promote the sustainable growth of climate-change resilient, environmentally-friendly organic and conventional aquaculture of major fish species and low trophic level organisms in Europe, to meet future challenges with respect to the growing consumer demand for high quality, nutritious and responsibly produced food.
39	GUTTA	
40	Heterogeneous autonomous robotic system in viticulture and mariculture (HEKTOR)	The purpose of the project in the mariculture discipline is to attempt for the first time in Croatia to include in the process of fish cage farming "robotic systems" for the automated monitoring of fish cages. This job now requires the long work of divers in all, even the harshest of weather conditions. In addition, the obligation of environmental protection and constant monitoring of the status around and below the cage in mariculture necessarily requires measurements of all relevant parameters and sampling from the bottom (sediment) and in the water column. The proposed HEKTOR robotic system will enable these activities to reduce the need for divers, thus increasing the safety of the production process and directly protecting the health of workers.
41	HiSea	HISea aims to develop, test and demonstrate information services that provides high resolution data of water quality at sea. The services offered by HiSea will incorporate and process data that are being obtained through the marine, land and climate services COPERNICUS (the EU Earth Observation and Monitoring service), local monitoring data and advanced modelling. The platform will improve operation, planning and

		management of different marine activities, with a focus on the usage in the port and aquaculture sectors.
42	Influence of water mass movements on the spatial and temporal distribution of ecotoxicants in the Small and Large Lake of the Mljet National Park	
43	INFORMARE	The INFORMAR E Project (POR-FESR 2014 - 2020) aims to provide the regional tourism sector, in particular the seaside tourism sector, with a multiplatform information tool with high quality standards, designed for an extended audience of stakeholders, tourists and professionals. It aims at developing an innovative information system to collect and provide observed and forecast meteomarine data concerning the Emilia Romagna coast.
44	INFRASAFE	Infrasafe project PORFESR 2014- 2020 aims to develop a multidisciplinary platform to provide technologies and knowhow to companies for the monitoring and management of hydraulic infrastructures and related hazards.
45	InnovaMare	
46	Innovative water jet propeller solutions	
47	Interreg Italia-Croazia – project InvestinFish	The project's mission is to support micro, small and medium companies in exploiting their products potential, innovative value and quality of territorial F&A tradition by transforming the classic "do everything alone" into innovative multi-open partnership approach
48	INTESA	The "INTESA" project involves the Ministries of Transport of Italy and Croatia, the General Command of the Port Authorities and the main Adriatic ports with the aim of improving cross-border cooperation in the port area. The project includes joint actions aimed at increasing the nautical accessibility of the main ports of the two shores through the adoption of IT systems for real-time data exchange and navigation aids, aiming to improve the efficiency of maritime transport, safety of navigation and the harmonization of procedures in intra-Adriatic traffic. of the Canal where it is particularly difficult to arrive with a traditional boat.
49	Lancer II	LANCER is designed to satisfy all requirements related to reactor pressure vessel examinations as well as remedial activities. Inspection equipment is capable of

		performing remote underwater ultrasound testing using contact technique, eddy current and visual testing, taking specimens and grinding action or other corrective action.
50	LIFE GHOST	The project GHOST - co-funded under the LIFE + Biodiversity Instrument of the European Union, promotes concrete measures to preserve and improve the ecological status of the rocky habitats (Tegnùe) in the north Adriatic Sea.
51	Life Lagoon Refresh	The LIFE LAGOON REFRESH project foresees the diversion of a freshwater flow from the Sile river into the lagoon, necessary for recreation of the typical salt gradient of buffer areas between lagoon and mainland, for restoration of the reedbed habitat, and for improvement of the lagoon environment and its biodiversity.
52	Life SeaForest	SEAFOREST LIFE will carry out concrete actions for the conservation of the Posidonia meadows, aiming at the reduction of their degradation, which proceeds without ceasing. It will also allow local businesses and the Parks themselves to purchase carbon credits that will reduce their gaseous emissions, thus helping to improve carbon sinks generated by Posidonia oceanica.
53	Life Seresto	Recovery of seagrass meadow in Venice Lagoon
54	LIFE VIMINE	LIFE VIMINE (2013-2017) was a project that aimed to define and apply a new type of integrated approach to land management, based on the protection from erosion of the innermost sandbanks and marshes of the Venice Lagoon.
55	Lifewatch - ERIC	LifeWatch ERIC is a European Infrastructure Consortium providing e-Science research facilities to scientists seeking to increase the knowledge and deepen the understanding of Biodiversity organisation and Ecosystem functions and services in order to support civil society in addressing key planetary challenges.
56	Made In-Land	
57	MAELSTROM - Smart technology for Marine Litter SusTainable RemOval and Management	MAELSTROM will strive to provide answers and technological solutions to the complex question of whether floating river litter should be intercepted, and legacy ml removed, considering the balance between the positive effect of avoiding microplastics degradation

		into micro/nano plastics and the potential negative effects of the own removal process.
58	Manta River Project	The project idea called "Manta River Project" stems from a very concrete need which among its main objectives will be to collect essential data for a subsequent targeted investigation on the possible effects of microplastics in the food chain on the recommendation of the Community.
59	Mapping, monitoring and management of the transboundary Natura 2000 network at sea - 4M	
60	MARGNET	Mapping and recycling of marine litter and ghost nets on the seafloor.
61	marGnet - Mapping and recycling of marine litter and Ghost nets on the sea-floor	he project proposes multi-level solutions aimed on the one hand at monitoring and mapping marine debris on the seabed and on the other hand at their removal and recycling. In particular, the project intends to provide: 1) a rapid method for mapping and large-scale monitoring of the diffusion of marine debris on the seabed thanks to acoustic survey tools (WP3 and WP5); 2) a prototype that exploits low-temperature pyrolysis to transform marine debris into a reasonably priced energy source (WP4); 3) tools to support the decisions of institutions and policy makers to guide the process of defining policies regarding marine litter (WP5).
62	MARIN - Monitoraggio Ambientale Remoto Integrato Navale	Unmanned system for environmental monitoring consisting of a naval platform, a surface acoustic sensor, a team of aerial drones and a land-based Command and Control station for remote management.
63	Marine Strategy Emilia Romagna	MBES and ROV survey
64	MARLESS - MARine Litter cross-border awarenESS and innovation actions	The MARLESS project will address the problem of waste in the Adriatic Sea from various aspects, which includes monitoring the amount of waste in the sea, raising citizens' awareness of this problem, pilot activities aimed at testing experimental processes of removing waste from the sea, as well as transboundary management to reduce waste which reaches the Adriatic Sea.
65	MedAID	To increase the overall competitiveness and sustainability of the Mediterranean marine fish farming aquaculture sector, throughout the whole value chain

66	METRO	
67	Mining and mineral processing experiences in solving modern environmental issues	Development of water treatment technology to purify water from plastic and micro-plastic.
68	MIRA	Testing the effectiveness of remotely controlled instruments (AUVs, UAVs and Autonomous Surface Vehicles -ASVs) in environmental monitoring programmes
69	Monitoring the operation of the marine engine by acoustic signal analysis	
70	NAIADI	NAIADI project is POR-FESR 2014-2020 aims at developing a new aquatic “robot” class based on open hardware and software, with zero environmental impact, taking advantage of cutting-edge technologies to collect multidisciplinary data (Geophysical, Geochemical and Environment al data) to study and monitor various contexts, as harbours, lakes, rivers, channels and coastal areas.
71	Optimizing the vibro-acoustic properties the ship at an early design stage	
72	ORCA	ORCA is an independent module, designed to provide remote underwater ultrasonic examinations of reactor pressure vessel nozzle to safe end, nozzle to pipe, and safe end to pipe welds.
73	PASSport	Project for the experimentation of the use of aeronautical, underwater and aquatic drones for the collection of data and useful information to improve accessibility, safety and environmental monitoring in port areas.
74	PELAGO	The objective of the project is twofold. On the one hand, it is intended to improve the collection of data on fishing effort to help effectively plan fishing activities. On the other hand, we want to promote awareness of the problem of plastic waste.
75	PEPSEA - Protecting the Enclosed Parts of the Sea in Adriatic from pollution	Objective is to increase the safety of the Programme area from natural and man-made disaster.
76	Performfish	PerformFISH will work to ensure sustainable growth of the MMFF industry, based on consumer perceptions and real market requirements. It aims to support fish farms to operate not only in optimal economic and

		environmental conditions, but also in a socially and culturally responsible manner.
77	Permanent exposition inside the Science Center - Immaginario Scientifico Trieste	Exposition for young visitors to introduce the Archimedes principle, AI and Underwater robotics and its application in marine environments (from hydrocarbon deposits under its seabed, to offshore wind on the surface).
78	PRIZEFISH	
79	PROGETTO VE.M.A.S.A. - VEicolo Marino Autonomo Sicurezza e Ambiente	Development of an autonomous marine vehicle for safety and environmental monitoring.
80	Project in collaboration with ATENA Association: “Atena Offshore Vision”	
81	Protect AS - Development of system for control and protection of ports from introduction of alien species	Development of a port control and defence system against potential introduction of organisms, which will reduce the vulnerability of the coastal area to climate change.
82	QUS	Supports accurate body data acquisition. Intelligent sensors.
83	RASFarm	
84	Robovas	Develop on-demand shipping and nearshore operation services based on unmanned underwater and surface vessels. The system will be facilitated by interconnected vehicles equipped with specialized sensor technology, a reliable data transfer cloud network for over- and underwater communication, a monitoring station and a real-time web-based user interface.
85	ROBUST: Robotic subsea exploration technologies	It aimed to tackle the aforementioned issue by developing seabed in situ material identification through the fusion of two technologies, namely laser-based in-situ element-analysing capability merged with underwater AUV (Autonomous Underwater Vehicle) technologies for sea bed 3D mapping.
86	S.A.S.M.A.	Environmental monitoring AUV design, prototyping and test
87	S.E.A. - Security for Environment and Aquaculture	Design and implement an integrated and innovative system for the monitoring of the marine environment and its state of health, and that would keep safe both

		the production plants and the environment in which they are installed
88	SEA Reader	It is an innovative integrated system for the monitoring of the marine environment and its state of health, to support the farmer in the management and optimization of production and in the reduction of environmental impacts related to the management of plants
89	SEA recovery of explosive remnants of war	Development of a collaborative and intelligent autonomous robotic system, integrated with space assets mechanical technologies, artificial intelligence, satellite navigation and analysis of satellite data, would make it possible to independently carry out different agricultural operations, with different crop varieties, for which the use of human labour is still envisaged. Marine Geophysical Survey (MBES-SSS ROV mounted) and underwater ROV positioning
90	SeaClear - SEarch, identificAtion and Collection of marine Litter with Autonomous Robots	The goal is to use a mixed team of Unmanned Underwater, Surface, and Aerial Vehicles - UUV, USV, UAV -- to find and collect litter from the seabed and from the water column, focusing on coastal areas since that is where waste inflow concentrates
91	SeaDevil	Autonomous Underwater Vehicle (AUV)
92	Sealine Integrety Mangement	Underwater and superficial positioning for ROV operation
93	So.si.a.q	
94	Soundscape	Contribute to protect and restore biodiversity
95	SPLACE	Implementation of a circular economy model supported by a technological infrastructure providing information for decision-making and enabling technologies for the monitoring, collection, recycling and reuse of waste at sea
96	STIMARE	The development of elements (methods, data, analysis) to define optimal strategies for intervention and management of the coast, in order to mitigate the risk of erosion and enhance the territory
97	SUstainable fiSHeries wIth DROnes data Processing - SUSHI DROP	

98	Symbiosis	To develop a prototype of a non-invasive system to monitor coastal and deep waters for fish stock, and to assess the environmental health by monitoring key pelagic fish species
99	TAO	TAO (PORFESR 2014- 2020) develops innovative technologies to monitor the coastal belt, understand the causes of the erosion of the littoral zone and identify solutions to contain it.
100	TARGET	TARGET is a device designed for ultrasound and eddy current testing inspections of PWR reactor pressure vessel bottom mounted instrumentation tubes' J-weld and inner surface. It can be used as a stand-alone inspection tool or integrated with LANCER.
101	TECHERA	
102	TEchnological Consortium TO develop sustaiNablity of underwater Cultural heritage	The preservation, conservation or restoration of underwater archaeological sites requires the adoption of sustainable and affordable solutions aiming primarily at preserving them in situ as well as increasing their knowledge. This creates several research challenges that are intrinsical interdisciplinary because they involve strict collaboration among various experts from different sectors like archaeology, geology, biology, marine science, engineering, robotics, computer science and a lot of other disciplines. Indeed, this is the overall aim of the TECTONIC project: to promote an intersectoral collaboration between academic and non-academic professionals working in these different topics and support the exchange of skill and expertise between them, to implement, improve and assess innovative materials, techniques, tools, and methodologies for the Underwater Cultural Heritage.
103	Technology Day Marghera	Annual Saipem event focused of innovation.
104	TOURISM4ALL	
105	Underwater Muse	Make natural and cultural heritage a leverage for sustainable and more balanced territorial development
106	Unmanned patrol vessel	Study for maritime unmanned platforms for military purposes
107	Venezia2021	

108	WiMUST - Widely scalable Mobile Underwater Sonar Technology	It aimed at conceiving and designing an intelligent team of cooperative autonomous marine robots, acting as intelligent sensing and communicating nodes of a reconfigurable moving acoustic network, that could drastically improve the efficacy of the methodologies used to perform geophysical and geotechnical acoustic surveys at sea.

Appendix no.2, Table 2. - Overview of the government and non-government organizations, from what country they are and their type

No.	Name of organisation	Country	Type
1	ARPA Emilia Romagna - The oceanographic structure DAPHNE	Italy	Local Goverment
2	ARPA Molise	Italy	Local Goverment
3	ARPA Puglia	Italy	Local Goverment
4	ARPAV - Servizio Osservatorio Acque Marine e lagunari	Italy	Local Goverment
5	ARTA Abruzzo	Italy	Local Goverment
6	AZRRI- Agency for Rular Development of Istria Ltd. Pazin	Croatia	Local Goverment
7	Central Adriatic Port Authority- Ancona	Italy	Local Goverment
8	City of Buje-Buie	Croatia	Local Goverment
9	City of Zadar	Croatia	Local Goverment
10	Dubrovnik Development Agency DURA d.o.o.	Croatia	Local Goverment
11	Eastern Adriatic Port Authority- Trieste	Italy	Local Goverment
12	Muncipality of Kotor	Montenegro	Local Goverment
13	Muncipality of Riccia	Italy	Local Goverment
14	Muncipality of San Leon	Italy	Local Goverment
15	Municipality of Budva	Montenegro	Local Goverment
16	Municipality of Herceg Novi	Montenegro	Local Goverment
17	Municipality of Revenna	Italy	Local Goverment
18	Municipality of Tivat	Montenegro	Local Goverment
19	Municipality of Ulcinj	Montenegro	Local Goverment
20	North Adriatic Sea Port Authority- Venezia	Italy	Local Goverment
21	Old Royal Capital Cetinje	Montenegro	Local Goverment
22	Primorsko - goranska county Regional Development Agency PRIGODA	Croatia	Local Goverment
23	Regional Development Agency Dubrovnik-Neretva County DUNEA	Croatia	Local Goverment
24	Regione Marche P.F. Biodiversita e Rete ecologica regionale	Italy	Local Goverment
25	Rijeka Development Agency	Croatia	Local Goverment
26	Special Agency Concentro of the Chamber of Commerce Industry, Agriculture and Craft of Pordenone	Italy	Local Goverment

27	Šibensko kninska county Regional Development Agency	Croatia	Local Goverment
28	Zadar County Development Agency Zadra Nova	Croatia	Local Goverment
29	Abruzzo Region	Italy	Regional Authority
30	Apulina Region-Department of Tourism, Economy of Culture and Valorization of Territory	Italy	Regional Authority
31	ARPA FVG	Italy	Regional Authority
32	Calabria Region	Italy	Regional Authority
33	County of Durrës	Albania	Regional Authority
34	County of Fier	Albania	Regional Authority
35	County of Lezhë	Albania	Regional Authority
36	County of Primorje and Gorski Kotar	Croatia	Regional Authority
37	County of Shkodër	Albania	Regional Authority
38	County of Split and Dalmatia	Croatia	Regional Authority
39	County of Tirana	Albania	Regional Authority
40	County of Vlore	Albania	Regional Authority
41	Dubrovnik Neretva County	Croatia	Regional Authority
42	Emilia Romagna Region	Italy	Regional Authority
43	Emilia Romoagna Region-General Directorate for Agriculture, Hunting and Fishing, Services for Wildlife and Fishing Activities	Italy	Regional Authority
44	Friuli Venezia Giulia Autonomous Region- Services fro hunting and fishing resources	Italy	Regional Authority
45	Friuli Venezia Giulia Region	Italy	Regional Authority
46	Herzebosnian Canton	Bosnia and Herzegovina	Regional Authority
47	Herzegovina Neretva Canton	Bosnia and Herzegovina	Regional Authority
48	Istria County	Croatia	Regional Authority
49	Lika-Senj County	Croatia	Regional Authority
50	Marche Region	Italy	Regional Authority
51	Molise Region	Italy	Regional Authority
52	Protezione Civile Regione Friuli Venezia Giulia	Italy	Regional Authority
53	Public institution Nature of Šibenik – Knin County	Croatia	Regional Authority
54	Puglia Region	Italy	Regional Authority
55	Region of Epirus	Greece	Regional Authority
56	Region of Ionian Islandas	Greece	Regional Authority
57	Regional Union of Chambers of Commerce of Veneto Region	Italy	Regional Authority
58	Šibenik-Knin County	Croatia	Regional Authority
59	Una Sana Canton	Bosnia and Herzegovina	Regional Authority
60	Veneto Region	Italy	Regional Authority
61	Veneto Region	Italy	Regional Authority
62	Veneto Region- Tourism Department	Italy	Regional Authority
63	Veneto Region-Agri-encironment, hunting and fishery direction	Italy	Regional Authority
64	Veneto Region's Agency for the Innovation in the primary sector- Veneto Agricoltura	Italy	Regional Authority
65	West Herzegovina Canton	Bosnia and Herzegovina	Regional Authority
66	Zadar County	Croatia	Regional Authority

67	Authority for the Management of Parks and Biodiversity-Romagna	Italy	Ministry
68	Autorità Portuale del Mare Adriatico Meridionale	Italy	Ministry
69	Dubrovnik Port Authority	Croatia	Ministry
70	HRVATSKE VODE - legal entity for water management	Croatia	Ministry
71	ISPRA - Istituto Superiore per la Protezione e la Ricerca Ambientale	Italy	Ministry
72	Istituto Idrografico della Marina Militare	Italy	Ministry
73	Kornati National Park	Croatia	Ministry
74	Ministry of Agriculture	Croatia	Ministry
75	Ministry of Agriculture- Department of Professional Support and Development of Agriculture and Fisheries	Croatia	Ministry
76	Port of Ravenna Authority - Autorità di Sistema Portuale del Mare Adriatico Centro Settentrionale	Italy	Ministry
77	Public institution "Nature Park Telašćica"	Croatia	Ministry
78	Association for Nature, Environment and Sustainable Development SUNCE	Croatia	NGO
79	Clean Adriatic Sea Alliance	Croatia	NGO
80	Croatian Association of Unmanned Systems (HUBS)	Croatia	NGO
81	Lag Eastern Venice- VEGAL	Italy	NGO
82	Local Action Group "Brač"	Croatia	NGO
83	Molise Towards 2000	Italy	NGO
84	Orada Adriatic	Italy	NGO
85	Šibenik Tourist Bord	Croatia	NGO
86	AGRI.TE.CO sc Ambiente Progetto Territorio	Italy	n/a
87	Aitronik Srl	Italy	n/a
88	Aqua Engineering Srl	Italy	n/a
89	ARPA Calabria	Italy	n/a
90	ARPA Liguria	Italy	n/a
91	ATRAC	Croatia	n/a
92	CODEVINTEC	Italy	n/a
93	ELMAR s.r.l.	Italy	n/a
94	Forum of the Chambers of Commerce of the Adriatic_Ionian area	Italy	n/a
95	GeoCom Parma	Italy	n/a
96	GREEN SEA Soc. Coop	Italy	n/a
97	Hydrographic Institute of the Republic of Croatia - Split	Croatia	n/a
98	MICOPERI S.p.A	Italy	n/a
99	Misli more	Croatia	n/a
100	Navalprogetti Srl	Italy	n/a
101	Orion S.p.A.	Italy	n/a
102	Plovput	Croatia	n/a
103	Polytechnic of Šibenik	Croatia	n/a
104	Ponikve eko otok Krk d.o.o.	Croatia	n/a
105	Rosetti Marino Group of Companies S.p.A.	Italy	n/a
106	ROVCRAFT	Italy	n/a
107	Salona VAR	Croatia	n/a

108	SAP Hrvatska	Croatia	n/a
109	SELC Soc. Coop.	Italy	n/a
110	ŠIBENSKA PRIVATNA GIMNAZIJA & CENTAR IZVRSNOSTI SV: LOVRE	Croatia	n/a
111	Tecnos sas Chioggia	Italy	n/a

Appendix no.3, Table 3. - Overview of the SME-s and BSO-s from both Italy and Croatia

No.	Name of organisation	Country	Type
1	ASSAM. Agency for Agrofood Sector services of Marche	Italy	BSO
2	Croatia Indepedent Software Exportes (CISEX)	Croatia	BSO
3	Croatian AI Association	Croatia	BSO
4	Croatian business angels network - CRANE	Croatia	BSO
5	Croatian Camping Association	Croatia	BSO
6	Croatian Employers Association - ICT Association	Croatia	BSO
7	DELTA 2000 Consortium Company with Limited Liability	Italy	BSO
8	Development Innovation Center AluTech	Croatia	BSO
9	Entrepreneurial incubator IZAZOV Pula	Croatia	BSO
10	Fisherman's Cooperative Omega3	Croatia	BSO
11	Fishfarm Caldoli LTD	Italy	BSO
12	Fishing Cooperative Istria	Croatia	BSO
13	Fišškina LTD	Croatia	BSO
14	Friultrota Di Pighin LTD	Italy	BSO
15	Geomar LTD	Croatia	BSO
16	Mariculture Cluster	Croatia	BSO
17	Maritime Technology Cluster FVG	Italy	BSO
18	National Research Council (CNR)	Italy	BSO
19	Organisation Porducers of Bivalve Mollusc of the Veneto Sea (Adriatic Sea)	Italy	BSO
20	Public Insitution RERA S.D. for coordination and development of Split-Dalmatia County	Croatia	BSO
21	Regional Agency for Technology and Innovation	Italy	BSO
22	Social Cooperative Societly Odoós	Italy	BSO
23	Technology center Split	Croatia	BSO
24	Technology Incubator Pula	Croatia	BSO
25	Urban center/Incubator Šibenik	Croatia	BSO
26	Aeda d.o.o.	Croatia	Micro
27	Bedalov d.o.o.	Croatia	Micro
28	Byte Lab grupa d.o.o.	Croatia	Micro
30	CNT Technologies Srls	Italy	Micro

31	Communication Technology srl	Italy	Micro
32	Geolux d.o.o.	Croatia	Micro
34	H2O-Robotics	Croatia	Micro
35	IEL d.o.o.	Croatia	Micro
36	INTECO ROBOTICS	Croatia	Micro
38	Jadranski ronilački servis d.o.o.	Croatia	Micro
39	Laguna Project snc	Italy	Micro
40	Mali Mol d.o.o.	Croatia	Micro
41	MARIS NAVAL d.o.o.	Croatia	Micro
43	Matuna d.o.o.	Croatia	Micro
44	MDM Team Srl	Italy	Micro
45	Neptun-Sub	Croatia	Micro
47	Orqa d.o.o.	Croatia	Micro
48	Prehnit d.o.o.	Croatia	Micro
49	SEA CRAS j.o.o.o.	Croatia	Micro
51	Skyproxima	Italy	Micro
52	Tema d.o.o.	Croatia	Micro
53	Vectrino	Croatia	Micro
54	ZADAR SUB d.o.o.	Croatia	Micro
56	ANTHEUS srl	Italy	Small
57	APPHIA srl	Italy	Small
58	Bourbon offshore DNT s.r.l	Italy	Small
60	CroNoMar d.o.o.	Croatia	Small
61	De Naval d.o.o.	Croatia	Small
62	Diamec	Italy	Small
64	DIAMEC Technology Srl	Italy	Small
65	Framos Technologies d.o.o.	Croatia	Small
66	G-NOUS Srl	Italy	Small
67	HAVYARD DESIGN & ENGINEERING RIJEKA d. o. o.	Croatia	Small
69	Hidrocibalae d.o.o.	Croatia	Small
70	Inelteh d.o.o.	Croatia	Small
71	KvarnerCAD d.o.o.	Croatia	Small
73	MARINETEK ADRIATIC d.o.o.	Croatia	Small
74	Microlaben	Italy	Small
75	Novacavi Srl	Italy	Small
77	PROAMBIENTE S.c.r.l. (consorzio)	Italy	Small
78	Rana Diving SPA	Italy	Small
79	Reicom- Insis engineering solutions Srl	Italy	Small
80	River cleaning	Italy	Small
82	Servizi Tecnici S.r.l.	Italy	Small
83	Shoreline soc. Coop.	Italy	Small

84	SOCOTEC Italia	Italy	Small
86	Statim d.o.o.	Croatia	Small
87	Subsea fenix srl	Italy	Small
88	Tipteh Zagreb d.o.o.	Croatia	Small
90	WIRELESS AND MORE	Italy	Small
91	Crismani ecologia srl	Italy	Medium
92	Cromaris	Croatia	Medium
93	Dalmont d.o.o.	Croatia	Medium
95	Distretto Ittico di Rovigo e Chioggia	Italy	Medium
96	GDi d.o.o.	Croatia	Medium
97	INETEC - Institut za nuklearnu tehnologiju d.o.o.	Croatia	Medium
99	IVANAL d.o.o.	Croatia	Medium
100	MEDIS DIH	Italy	Medium
101	PLANETEK Italia Srl	Italy	Medium
103	Saipem Croatia	Croatia	Medium
104	Terminale GNL Adriatico S.r.l.	Italy	Medium
105	TRIPMARE SPA	Italy	Medium

Appendix no.4, List of Figures

Appendix no.5, List of Tables