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BLUE BIO MED

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MED Innovation Alliance mid-term action plan



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MEDITERRANEAN INNOVATION ALLIANCE for SUSTAINABLE BLUE BIOECONOMY

2023-2024 ROADMAP



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1. Introduction and executive summary

Introduction

BLUE BIO MED is an Interreg MED strategic project funded in 2020 in the framework of the [PANORAMED](#) platform, aimed at improving governance of territorial cooperation in the euro-Mediterranean area.

BLUE BIO MED follows the emerging paradigm of transformative innovation policies oriented towards societal challenge and specifically toward sustainable development transition, as advocated by the UN Agenda 2030, the European Green Deal and many other related strategies at national/regional level. In this evolving policy environment, the Project aims at improving the capacity and readiness of MED actors to address societal challenges through innovation, exploring the added value of transnational cooperation to improve the impact of innovation actions.

This document is the result of a co-design process that involved numerous actors from the Mediterranean innovation ecosystem, interested in Blue Bioeconomy.

During 9 months throughout 2021 and 2022 this community - formed by public bodies, research and university, companies and business entities, civil society representatives, international / European organisations - gathered 5 times, in-person and online, to explore, discuss and converge on the main features of the **Mediterranean Innovation Alliance for Sustainable Blue BioEconomy** (MedIA-SBB or MedIA), namely:

- MedIA's main roles and activities-> co-design workshop, in Ferrara, Italy, Nov. 2021
- Specific actions of the MedIA -> online co-design workshop, February 2022
- MedIA Governance model -> co-design workshop in Barcelona, Spain, April 2022
- Short term Objectives and startup phase -> co-design workshop in Bari, Italy, May 2022
- Main Topics of interest of the MedIA community -> online co-design workshop, July 2022.

The work of the 5 co-design sessions is captured in a visual format, on virtual white boards available on line¹ (examples in the figure below), and the outcomes of this work are condensed in the following chapters.

¹ Link to public visual content https://miro.com/app/board/uXjVONiHN3s=?share_link_id=165013838544

Executive Summary

(Chapter 2) The MedIA-SBB lays on the **vision** of a community of people from quadruple helix organisations across the Mediterranean that meet, exchange, collaborate to ideate, test and adopt sustainable innovative solutions for the blue bioeconomy challenges of the Mediterranean. Our vision is for the MedIA-SBB to become a reliable and trusted reference entity for the Mediterranean, with which other blue economy networks and initiatives in the Mediterranean basin, and in other European sea basins, will relate to and cooperate with when it comes to innovation and sustainability.

The **rationale** behind the creation of the MedIA is to outline a broad perimeter to collaborate with the existing Mediterranean initiatives and learn from them. Particularly relevant is the role of the regions in the MedIA as triggers and catalysts of the blue economy innovation; in fact the Smart Specialisation Strategies (S3) of the Mediterranean European regions are increasingly including blue bio-economy-related themes.

(Chapter 3) The main **roles** that have been envisaged for the MedIA gravitates around the creation of blue bioeconomy knowledge and its exploitation towards innovation::

ROLE 1) knowledge exchange and capacity building which includes **activities** such as:

- a) Education activities and capacity building (training courses, summer schools, education with school pupils, etc.)
- b) Shared repository of innovation solutions (via an on line open access platform)
- c) Production of documents (scientific publications, position papers, policy papers, etc.)
- d) Dissemination activities (scientific conferences, Topic-related seminars for expert and practitioners, Best practice workshops / webinars, initiatives with local quadruple helix actors, etc.)

ROLE 2) promotion of innovation on the ground, which includes **activities** such as:

- e) Project ideation (preparing joint proposals for funding schemes, consortium building, etc.)
- f) Innovation scale up (Technology transfer projects to test and /or replicate solutions, enhance new value chains or new business models; meet funders and investors)

(Chapter 4) The community then reflected on the themes where the MedIA should focus on and the community is willing to commit its effort in the upcoming years. Four

broad **strategic thematic areas** under the umbrella concept of Sustainable BlueBioeconomy were initially identified. Only for 3 of them a **working group** will be established.

- **Marine biotic resources**, including: sustainable fisheries and aquaculture. Within this theme a working group on Sustainable Aquaculture will be created.
 - Specific topics of this working group are: Alternative feed; Alternative food Species diversification; Integrated Multi-Trophic Aquaculture (IMTA); Waste valorisation; Standards and product certification; Climate change.
- **Marine environment and biodiversity conservation**, including challenges such as marine plastic litter challenges, invasive alien species. NO working group will be created under this theme.
- **Blue biotechnologies**, intended as a tool to transition to sustainable blue bioeconomy, cutting across several economic sectors and value chains. Within this theme a working group on blue biotechnology will be created.
 - Specific topics of this working group are: microalgae and macroalgae value chains; Biorefinery approaches; Blue biotechnology value chains to foster networking between research and industry; Legal framework for the market entry of the derived materials and substances; Blue Biotechnology Hubs.
- **Digitalisation of the Blue Bioeconomy**. Within this theme a working group on blue biotechnology will be created.
 - Specific topics of this working group relate to: Educational aspects; Entrepreneurial aspects; Collaborations with R&D stakeholders. Precision fishing, precision fish farming, discovery of new biotech compounds.

(Chapter 5) The **Governance model** of the MedIA, in a mature and consolidated phase, would be based on a 3-body structure: a strategic committee with decision-making powers, a technical office as a support body with some executive powers, and working groups as promoters of projects and initiatives (executive power).

There should be a base of formal members(subscribers/associates) of the MedIA, sustaining it through a fee, which could be layered depending on the nature of the member (SME, university, public body, etc.) and on the service level that the member benefits from.

(Chapter 6) In the **startup phase** (Chapter 6.1.1) the strategic committee and the technical office will be merged into the Coordination Group, formed by all the Blue Bio Med project partners + the B-blue project coordinating partner. The 3 working groups

(chapter 6.1.2) will be formed by the stakeholders that have shown interest in participating in the co-design workshops. Both the coordination group and the working group members will offer their work on a voluntary basis.

The wider basis of the Alliance is represented by two groups (Ch. 6.1.:

- 1) The people and organisations that have contributed to design the MedIA participating in one or more of the 5 workshops: these are 118 individual persons from 71 different organisations from 13 Mediterranean countries (the majority from Spain and Italy). In terms of type of organisations: 30% were from higher education and research bodies, followed by regional public authorities (18%) and national public authorities (10%). The total of business related organisations (SME, companies, business support) amounts to 10% while civil society reached almost 6% of participants.
- 2) A subset of the above is represented by those who actually undersigned the **MedIA-SBB Charter**, an act that was launched in September 2022 to formally crystallise the support of the community to the MedIA, moving forward. While we are writing the MedIA counts **58 signatories** from **54 organisations**, from **10 countries** (top by numbers: Italy, Spain, Greece). Also in this case the majority of the sample, 48%, is represented by research and education bodies, while the remaining is equally shared among business-related entities and public bodies and authorities.

In terms of the actions and activities to carry out in the next 18-24 months, i.e. **the short term roadmap**, we have identified activities at working groups' level, gathered in the table of chapter 6.4 and actions to be achieved at MedIA level (chapter 6.3), mainly, but not exclusively, related to internal and external communication, as a mean to create identity and sense of community in the Alliance. Among others:

- The creation of a MedIA-SBB **visual identity**
- ...a **rolling calendar** of MedIA-labelled initiatives
- A **newsletter** created by the Alliance members' contents and circulated among them to keep the community up-to-date or mobilise them towards a certain activity.
- **3rd Blue Bioeconomy Innovation Forum** in 2023
- Regular internal meetings (Coordination Group (3 monthly), working groups leads, advisory board members).

Most of the activity of the startup phase will be dedicated to ideate and submit project proposals to funding schemes to sustain the Alliance itself and its thematic working groups. To this end funding and collaboration opportunities have been scouted through the Blue Bio Med project and through the reporting of the MedIA members (ch. 6.5).

(Chapter 7) The MedIA-SBB is intended as a tool to boost opportunities for networking, exchanges of experiences, cooperation, advocacy and increasing visibility for blue bioeconomy at Mediterranean level beyond the end of Blue Bio Med project. TheMedIA will continue “opportunistically” linked to other initiatives. There are more than 15 upcoming projects/initiatives (see chapter 6.4 and 6.5) that will contribute to the implementation of the MedIA-SBB and its working groups. Additional project proposals submitted during 2022 will hopefully be financed during 2023 and increase the available resources. In addition, collaborations are foreseen in 2023 with the UfM Blue Economy Roadmap, EU Mission Restore our Ocean and waters by 2030, EC Smart specialisation platform for sustainable blue economy.

The first opportunity for the MedIA community to meet again at the EMD23 being inspired and implementing a further step toward the consolidation of the MedIA-SBB.

2. Vision, mission and rationale

VISION

Our vision is that the Mediterranean Innovation Alliance for Sustainable Blue Bioeconomy, “MedIA-SBB” or “MedIA” in short, becomes a community of people from quadruple helix organisations across the Mediterranean that meet, exchange, collaborate to ideate, test and adopt sustainable innovative solutions for the blue bioeconomy challenges of the Mediterranean.

Our vision is for the MedIA-SBB to become a reliable and trusted reference entity for the Mediterranean, with which other blue economy networks and initiatives in the Mediterranean basin, and in other European sea basins, will relate to and cooperate with when it comes to innovation and sustainability.

MISSION

Our mission is:

- To build capacity across the Mediterranean to design, plan, implement and evaluate a new wave of transformative innovation policies at different scales to move towards sustainable blue bioeconomy.
- To promote collective innovation actions to boost blue bioeconomy potential to generate shared value (economic, social, environmental) either making existing activities and value chains more sustainable, fostering emerging sustainable niches and business or exploiting the untapped potential of blue bio resources to foster sustainable development in all sectors.
- To seize cooperation opportunities deriving from European and international policies and programmes, to lift the Mediterranean innovation ecosystem positioning while contrasting polarization and feeding territorial cohesion and integration across the regions.

RATIONALE

The analysis of the current context reveals a dense mosaic of Med-based initiatives, a comprehensive matrix by type of entities and by main areas of interest, all of which pursue sustainability, either as a direct objective or by taking it as a guiding principle. These can involve national entities (e.g. ministries) developing high level policy agendas and frameworks, business associations or clusters interested in blue economy value chains, mixed-entities communities working on a specific Med subregion, funded projects focusing on a specific problem, research networks drafting their priority agendas.

Building on this, the rationale underpinning the MedIA is not to create a further niche or layer but, on the contrary, to define a broad perimeter that can accommodate all of

the above initiatives, collaborate with and learn from them. The MedIA will also provide a space to disseminate existing initiatives and “extend” them, in time or in terms of involved organisations, or to establish inter-level communication between high level and grass root initiatives. At the same time, where gaps are detected, in terms of actors, topics or type of actions, new collaborations could be generated within the MedIA.

A further motivation is that an entity such as the MedIA-SBB would act as a sounding board for initiatives and communities, making them permeable to each other through the systematic mobilisation of information and opportunities, creating a community of communities.

Finally, the MedIA also aims to enhance and stimulate the role of regions as trigger and catalyst of the blue economy innovation. As the analysis of the Smart Specialisation Strategies (S3) of the Mediterranean European regions shows², the theme of the blue economy and the sub-themes related to the blue bio-economy are increasingly present in regional strategies and we believe that the MedIA can contribute - together with other European initiatives such as WestMed, EUSAIR, the upcoming Sustainable Blue Economy S3 platform, etc. - to develop inter-regional collaborations to demonstrate and scale up innovative solutions across both sides of the Mediterranean.

² See Blue Bio Med Deliverables: D2.1 RIS3 Country Reports and Policy factsheet [HERE](#) and D3.2.2 - Synthesis Multilevel Report and Mapping Tool [HERE](#)

3. MedIA-SBB role and activities

The MedIA-SBB will focus on two main “knowledge-based” roles in order to pursue the vision and achieve the mission described above. The two roles concern:

- 1) Knowledge exchange and capacity building
- 2) Promotion of innovation on the ground.

Both include a set of different activities described in ch. 3.1 and 3.2.

As it is better explained below (chapter 4 and 5), most of the activities of the MedIA will be carried out by thematic working groups; which are challenge-led, participative and open, multi-actor and interdisciplinary.

3.1 Role 1: Knowledge exchange and capacity building

Scientists, researchers and innovative companies represent a relevant portion of the MedIA in numerical terms and for activity intensity. They are also important knowledge providers and the MedIA-SBB shall create the opportunities for this knowledge to be channelled towards a wide mediterranean community of potential users of such knowledge: companies, service providers, public bodies, citizens (consumers, students, etc.), etc.

Four strong motivations underpin this role:

- 1) (Shared) knowledge is a foundational element of innovation, not only because ideation might arise from it but also because it helps create awareness of problems and acceptance of, and openness towards, novel solutions.
- 2) The MedIA should “safeguard” science-based knowledge, in order to prevent misconceptions and support sound decisions-taking in blue bioeconomy.
- 3) Knowledge sub-communities exists, i.e. a community of experts in a vertical, very specific blue bioeconomy subject, that lack of opportunities for exchanging and networking; within the MedIA these can “meet” and reach a critical mass of experiences and knowledge (publications, research, experiences, products) that could be more easily made available to society and innovators.
- 4) It is necessary to build innovation capacity in the diverse Mediterranean actors, starting from transferring the knowledge and the lessons learned from more advanced to less advanced areas or value chains.

The ambition for the MedIA is to become a referent blue bioeconomy think tank in the Mediterranean.

A range of **activities** emerged in the co-design workshops, related to this role, that can be summarised as follows.

3.1.1 Education activities and capacity building

This includes actions from higher education to schools:

- Internship: students could be hosted by the different members of the MedIA, university to university (across the Mediterranean), university to business, university to public bodies, etc.
- A MedIA Academy addressing pupils of any age: primary school to lifelong learning courses.
- Summer schools for university and postgraduate students.
- Training courses for practitioners from the business sector as well as from the public sector in order to build the capacity to stimulate and enable innovation in the BBE sectors.
- International schools for young people.

Among the above, the international school for young people deserves a special mention as the MedIA Community considered it interesting. This initiative in fact would offer the opportunity to pull several levers of change: collaboration among different organisations from various countries to create the framework for the school to happen; stimulation of a participative culture in the young ones including soft skills such as challenge-led approaches, entrepreneurial attitude, etc.; awareness raising about the relevance of sea resources; students mobility as the seed for future international networks and professional collaborations; connection with youth organisations such as FFF or Mediterranean Youth Council.

3.1.2 Shared repository of innovation solutions

- A library connected to other online blue economy and bioeconomy resource-centres.
- Monitoring new upcoming innovations.
- Mapping existing innovation in a clear way, for instance by specific criteria relevant for innovation (like TRL - technology readiness level, or field of application).
- Using existing online open access platforms (e.g. the EU [marina platform](#)).

3.1.3 Production of documents

The MedIA-SBB refers to quite broad thematic areas, which are the focus of chapter 4. The recommendation is that the MedIA breaks these down into sub-topics (e.g. in the area of marine biotic resources a subtopic could be “feed for sustainable aquaculture”) and field of interest (policy making, business, science and research, etc.) so as to be as focused as possible avoiding being too general when it comes to, for instance:

- Editing scientific publications/collection of research papers
- Identification / scouting of innovation for a specific challenge or problem
- Drafting of position papers on a certain emerging topic

- Preparing documents addressing policy makers
- Preparing training material
- Etc.

3.1.4 Dissemination activities

The guiding light of the MedIA is to stimulate and promote innovation in the territory and across the Mediterranean, therefore a body of diverse dissemination activities is key to channel such knowledge towards specific target groups.

The international character of the MedIA will be fulfilled by involving experts from different med countries to feed/organise/implement the dissemination activities; on the other hand, to achieve the goal of creating culture and capacity it is necessary to work locally, to address (site-)specific challenges, to use local cases, to involve local stakeholders. Therefore dissemination activities will occur in a specific region for a specific group while drawing from Med-wide knowledge.

This action is key to building local blue bioeconomy communities of quadruple helix actors, mirroring the MedIA and feeding it, bottom-up. The importance of the role of “facilitator” or “point of contact” bridging regional communities and innovation ecosystems with the MedIA-SBB has been stressed in order to achieve a balanced and widespread MedIA community. In the starting phase of the Alliance the activities will be in fact carried out by existing working groups / communities, in some cases active in specific territories; these groups will at the same time feed the knowledge of the MedIA and deepen its roots in the Med Regions.

A calendar of MedIA-labelled dissemination initiatives will be built bottom up, based on the proposal of the MedIA members; this could include:

- Scientific conferences
- Topic-related seminars for expert and practitioners
- Best practice workshops / webinars
- Focus groups with supply chain actors or other target groups to collect experiences, needs, articulate challenges
- Networking and matchmaking initiatives, promoting the meeting of innovation offer and demand.
- Other type of peer-to-peer exchange initiatives

The MedIA community has recognised as particularly relevant the organisation of initiatives with local quadruple helix actors. This would help meet several needs: the mapping of existing initiatives at regional level (to build upon and engage with); the involvement of small local actors that are usually not involved in larger events or have other types of barriers (time for travelling, language, etc.); it can be tailored to the groups in order to understand their innovation needs and it would promote matchmaking to identify/experiment solutions; it can help create an awareness and an innovation ecosystem that eventually lead to having blue bioeconomy better positioned in the RIS3. Such an action would also need that a regional contact point with the MedIA is identified.

3.2 Role 2: Promoting innovation on the ground

This role of the MedIA is intrinsically connected to the previous one but aims at a different output which is the collaborative ideation of new solutions, their demonstration and validation and their scale up through business or public support.

The MedIA community stressed how, while the knowledge exchange role might be the most relevant for the MedIA, it is only by linking it to tangible, place-based results that local actors can be kept engaged and interested, and their knowledge, culture and innovation capacity could be increased and enhanced. Furthermore, collaborative design and experimentation is the natural continuation of the networks and groups created through the dissemination and training activities.

To be remarked is that the actions carried out under this role should have an open, interdisciplinary and multilevel nature.

Typically this role would be played by implementing the following [activities](#).

3.2.1 Project ideation

Funded projects shall aim at developing and testing innovative solutions responding to the needs identified in the blue bioeconomy field.

The working groups described in the following chapters are the spaces where open innovation and co-design activities are initiated. In preparation to this, funding opportunity scouting and project mapping-monitoring activities will be performed by the working groups. Project consortia will be built by linking to local groups and participants to dissemination and training activities. Inter-regional / international cooperation will be a hard requirement of the projects conceived within the MedIA.

The design of multiple projects under different working groups will lead to create a portfolio of synergic projects, each experimenting on complementing aspects of a certain innovation: technical feasibility and impacts, financial and business models, social acceptance and readiness, regulation and policy, etc.

During the co-design workshops, the participants also emphasised that the MedIA, due to the large number of people and organisations it involves, could play an advisory role to the funding programmes. Indeed the MedIA can raise to the attention of the programme's managers the needs collected bottom-up from its members and lobby for the continuity of funding across the whole innovation pathways (from ideation to mainstream, from science to policy, from technology to behaviour).

In terms of consortium building most of the activities mentioned above, under the knowledge-exchange role, lead to the connection to potential project partners. A specific action required in order to effectively ideate a new innovation project is mapping these people and organisations and their interests (towards which programme, type of cooperation, funding, etc.). Particular effort will be put to encourage the participation of grassroots associations and civil society; during the preparatory work for this roadmap it emerged that the involvement of these groups is

difficult and their perspective is not included, but indirectly, in innovation projects. This is particularly true for the blue bio-economy, a subject scarcely known to citizens.

Finally, it is to be emphasised that while the MedIA aims to pave the way and enable the creation of new innovation projects, it does not intend to replace existing tools, such as online platforms or matchmaking events organised by other bodies. In fact, the MedIA will value such existing resources, channelling its community towards them whenever the topic is relevant. In practical terms, this means that when innovation project ideas have been conceived within a MedIA working group, they could be pitched in other groups and platforms, trying to broaden consortia or fine tuning those same ideas.

3.2.2 Innovation scale up

Innovation upscale can be obviously pursued through funded projects and networking/matchmaking events, therefore it is strictly interweaved with the actions described above. Nonetheless, to stress the importance that this has for the Mediterranean basin it is worth mentioning it as a separate activity.

This activity refers to the development of Med strategic technology transfer projects where a solution tested in a certain region is further tested and replicated in a different context/region. In this case, beyond the technical aspects that might need an *in situ* validation, what is really crucial is to create the enabling conditions for replication: therefore economic analysis, regulatory framework and acceptance are the main areas to focus on. Policy makers play a key role and the MedIA seems well positioned to engage with such players being born from the boost of 4 interreg projects, involving tens of Med regional bodies.

A further aspect of scaleup projects is the creation or adaptation of existing value chains, which requires strong connections between scientists and business actors.

Approaching potential funders - also at local level - and implementing follow-up actions within the working groups (for instance disseminating project outputs or organising exchange events (visits, peer-to-peer exchange, etc.)) was also mentioned by the co-design workshops participants as part of this activity even though it is more suitable for times of greater maturity of the MedIA.

4. Topics and working groups

Working groups will be the main operative instruments of the MedIA. They will be organised thematically: each working group will gravitate around a specific blue bioeconomy theme or challenge and might have a varying duration and composition depending on its purposes. A working group provides the coalescence particle around which to gather and manage knowledge, bring together stakeholders, organise work and implement actions in favour of innovation, such as the following. More on working groups features is in chapter 5.

Four broad strategic thematic areas have been identified under the umbrella concept of Sustainable BlueBioeconomy and as the thematic core of the MedIA:

- **Marine biotic resources**, including: sustainable fisheries and aquaculture
- **Marine environment and biodiversity conservation**, including challenges such as marine plastic litter challenges, invasive alien species
- **Blue biotechnologies**, intended as a tool to transition to sustainable blue bioeconomy, cutting across several economic sectors and value chains.
- **Digitalisation of the Blue Bioeconomy**

Within these overarching themes, each working group has identified its topic(s) of election for 2022 and 2023. The following chapters report the outcomes of a scouting exercise performed within the MedIA community to identify topics and related feasible actions, based on the actual opportunities brought in the group by its members.

For the time being no working group is expected to be activated, within the MedIA community, on the themes of Marine environment protection and biodiversity conservation.

4.1 Marine Biotic Resources: sustainable aquaculture

Sustainable aquaculture is a central topic of all of the main Mediterranean networks and policy initiatives the MedIA has liaised with. Together with sustainable fishery it represents EUSAIR pillar 2, it is one of the six pillars of WestMED initiative and is one of the 8 topics of the Union for the Mediterranean 2021 Ministerial Declaration on Sustainable Blue Economy. The picture is completed by the 2021 Strategic Guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030.

In these documents and declaration aquaculture is seen from multiple points of view, environmental (climate change and marine conservation), food security, political (space use and governance), economic (diversification of incomes, new value chains), equity (job creation, access to food, health), and research and innovation are mentioned as - among others - means to reach these sustainability objectives. Indeed the

BlueMed Strategic Research and Innovation Agenda³ includes Aquaculture and Fisheries as sectors of interest.

The MedIA aligns and cooperates with all of the above-mentioned bodies. A cooperation with the Aquawest group of WestMED is already ongoing and interactions with and inspiration from the PlanBleu's Roadmap for the sustainable development of the aquaculture sector in the Mediterranean occurred along 2021 and 2022.

Based on existing working groups, projects, research activity and interest of the MedIA community the following subtopics have been identified to potentially work on in the upcoming months:

- Alternative feed for marine species, in order to lower the impact of the whole value chain
- Alternative food for people provided by aquaculture, in face of potential food and protein shortage and decrease in fishery production
- Species diversification; both in terms of market consolidation of species that have been tested in the field in recent years and in terms of exploring new species (sea-urchins, algae, etc.) also approaching different end sectors, beside food, also cosmetics, pharmaceuticals, chemicals, etc.)
- Integrated Multi-Trophic Aquaculture (IMTA), this includes concepts of ecosystem-based practices and circular economy
- Waste valorisation, adopting a circular approach to manage organic waste, including shells, bones, and decreasing pollution at sea.
- Standards and product certification. This topic was brought up also tackling social acceptance and food security related to aquaculture
- Climate change, this responds to the need to have an organised corpus of science-based information on the impact of climate change to aquaculture (for instance through invasive species or marine heat waves), on how sustainable aquaculture could mitigate climate change and provide other significant ecosystem services such as carbon capture.

In addition to the above, cross cutting elements emerged during the co-design workshops such as capacity building and training, knowledge exchange and open access to available resources, interregional and international cooperation, industry-research collaboration; which were flagged as important to the topic and in fact have been already described in chapter 3.1 as central to the role that the MedIA will play.

³ <http://www.bluedmed-initiative.eu/strategic-research-and-innovation-agenda/>

4.2 Blue Biotechnologies

Blue biotechnology is not, in several cases, identified explicitly as a sector or priority by the existing Mediterranean initiatives and policy papers, nonetheless it is recognised by all of these as a mean to make aquaculture and fishery more efficient, to valorise their impact, to improve their profitability, to reduce their waste, while also effectively channel marine biotic resources towards a range of other economic sectors, providing new, more sustainable, substitute materials to several value chains. An exception to this is represented by BlueMed which highlights blue biotechnology as one of the main sectors of interest of its Strategic Research Agenda.

Beside the value added by blue biotech to several sectors, it has become more and more relevant, representing now a new blue economic sector of its own: it is generating job opportunities, new professional profiles and a specific market.

Within this theme, those summarised below are the topics of interest identified by the participants to the co-design workshops; some overlapping exists with those listed under the theme of sustainable aquaculture, as it was expected given the premises:

- microalgae and macroalgae value chains: production, extraction of chemical building blocks, biomass, energy.
- Biorefinery approaches: scan opportunities and analyse the feasibility of marine bioresource-based biorefinery solutions.
- Blue biotechnology value chains to foster networking between research and industries, foster collaboration opportunities and project emergence.
- Legal framework for the market entry of the derived materials and substances in the various target value chains: Food, feed, medical, pharmaceutical, cosmetics, chemicals, textile, etc.
- Blue Blotechnology Hubs. rather than a topic in itself, this refers to the mobilisation of innovation actors around country hubs to work on the above-mentioned topics and foster pilots and demonstrators.

4.3 Digitalisation of Blue Bioeconomy

The adoption of technologies such as remote monitoring tools, remote sensing, Artificial Intelligence, Machine Learning, geoinformatics and automation have the potential to transform the main industrial stakeholders active in Blue Bioeconomy. Unfortunately, the traditional value chains of aquaculture, maritime industry and blue bio-economy do not usually collaborate with the sector of Digital Technologies losing a big opportunity to create new innovative and profitable value chains.

Also from the research point of view the interest in this topic is limited and reflects the fact that the adoption of digital technologies in blue bioeconomy is very limited: in fact,

as of the end of 2021, only 99 research papers were produced in the last decade which combine digital technologies and blue bioeconomy.

Several measures and suggestions were identified in order to cover the existing digital needs in blue bioeconomy. Such needs have been grouped by three main pillars - Education; Entrepreneurship; Collaboration between industries and research organizations - and are described below:

- Educational aspects: Increase the number of PhDs and Master courses; training courses and information spreading for practitioners and operators of the aquaculture and fishery sectors; scholarships & entrepreneurship programmes dedicated to digitalisation & Blue Economy.

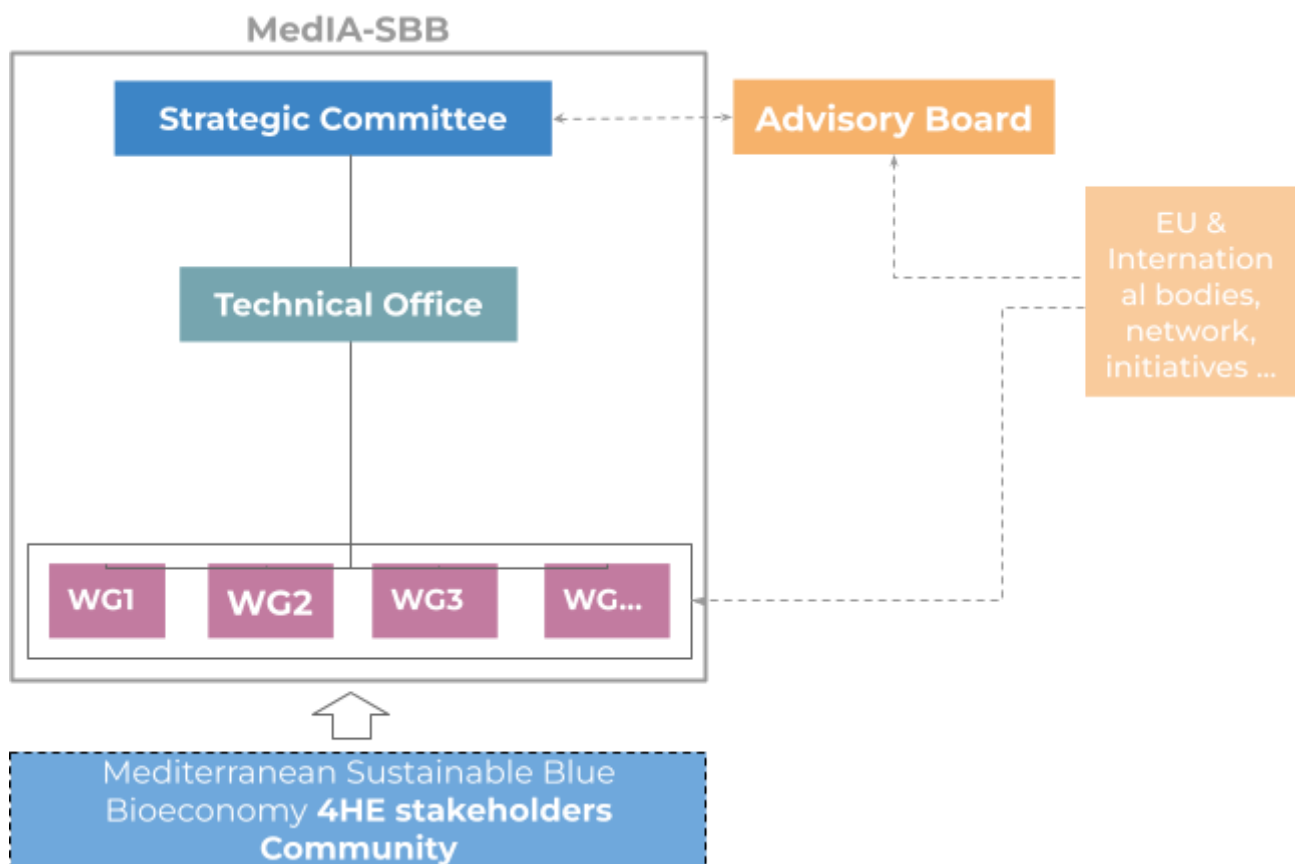
Some EU countries such as Italy's (2018), Denmark's (2018), UK's (2018) have already integrated this problem to their national bioeconomy strategies in order to enhance the use of online educational tools that will provide access to equal education, training and skills and will benefit growing bioeconomy labour market.

- Entrepreneurial aspects: More funding to address the funding gap for entrepreneurial initiatives such as dedicated BlueBio seed/venture capital initiatives; mentoring sessions; enhance specific technologies such as precision fish farming & deep learning in new biotech compounds.
- Collaborations with R&D stakeholders in order to develop innovative products and systems: increase the knowledge transfer activity, in particular addressing precision fishing, precision fish farming, discovery of new biotech compounds.

During the 5th co-design workshop, beside articulating the selected topics as described in this chapter, the members of the Working Groups proposed some tangible actions that have been collected in a table shown in chapter 6 that will be the backbone of the first 18-24 months of activity of the MedIA-SBB Working groups.

5. Governance

The Governance model of the MedIA-SBB depicted in this chapter builds on the work done within the Blue Bio Med project and draws on the project deliverable 4.3.1 prepared by CREDA⁴. This work led to identify a model suitable for a venture such as the MedIA: i.e. a multi-stakeholder initiative addressing sustainable development challenges through transformative innovation, taking into account the views of actors at different governance levels and countries; flexible enough to accommodate bottom-up initiatives from working groups of various nature and dimensions while also



keeping the MedIA-SBB community together as a whole, there included the many connections with existing initiatives.

The one proposed is a 3-body governance model: a strategic committee with decision-making powers, a technical office as a support body with some executive powers, and working groups as promoters of projects and initiatives (executive power).

N.B. While the model depicted here is intended for a more mature stage of the MedIA-SBB the actual governance in the startup phase is a simplified model of this one and is described in Chapter 6.

⁴ Most of the text, pictures and tables of this chapter are either inspired by or are excerpts from the Blue Bio Med Deliverable 4.3.1 "Governance Model" available here <https://blue-bio-med.interreg-med.eu/what-we-achieve/deliverables-database/>

The strategic committee and working groups should be composed of quadruple helix stakeholders, present at different governance levels and countries in the Mediterranean. As for the technical office, its staff and funding will initially be provided by the members of the strategic committee, however more stable funding streams at the consolidation stage should enable the hiring of additional staff by the technical office, supporting its needs.

The strategic committee performs advocacy and strategic leadership functions. It will use a mission-oriented approach to align the innovations co-developed by the working groups towards the governance model's shared agenda, and promote the alignment between these initiatives and policy development at different governance levels. Additionally, it will also preserve a transversal point of view, aiming for inclusiveness across the (i) quadruple helix distribution, (ii) governance level and (iii) transnational dimensions. The strategic committee will be flexible enough to adapt to new circumstances and opportunities, being open to evolving and changing its composition according to the evolution path of the organisation.

The technical office is mostly concerned with day-to-day guidance and oversight tasks, taking the role of a support body with executive functions. The technical office supports the strategic committee in translating the shared agenda into a practical roadmap, and once the roadmap is established its functions comprise monitoring, coordinating and supporting the actions carried out by the working groups to implement the roadmap while promoting learning and adaptation. It is also focused on supporting the heterogeneity existing in the organisation by engaging and giving support to all the members of the working groups, especially the ones that might present some resource constraints or are less used to being members of a transnational organisation. Additionally, it plays a key role in the evolution of the organisation; as a monitoring body, it is in a privileged position to facilitate the exchange of knowledge and best practices across working groups. Its work is crucial in connecting the working groups to the resources needed to diffuse emerging innovations across the Mediterranean. Among other, these resources might include access to other experimentation sites, finance, markets, or policy influence.

Finally, the working groups represent the executive body and are responsible for developing innovations with transformative potential, aligned with the governance model's shared agenda roadmap. They have a self-governed nature and their number and composition might vary depending on stakeholder priorities and the phase of development of the organisation itself. The working groups would strive to provide safe spaces for experimentation with portfolios of emerging innovations, pursuing at a later stage their diffusion and upscaling with the goal of challenging the established socio-technical regime. The working groups should thus look for a balance between stakeholder inclusiveness and the implementation potential of the innovations co-developed.

Finally, it would be desirable to maintain and nurture the connection with relevant Mediterranean bodies and initiatives by setting up an Advisory Body to whom refer to to seek advice with regards to the MedIA-SBB agenda and main decisions, obtain

foresight on the Med blue economy Innovation scenario, and identify collaborations. The organisations represented in the Advisory Committee could also contribute to the working groups. Initially these organisations will be those forming the Blue Bio Med “sounding board”, namely: Union for the Mediterranean, BlueMed Initiative, WestMed Initiative, Conference of Peripheral Maritime Regions, EUSAIR, Plan Bleu.

In terms of operational mechanism, preliminary discussions during the co-design workshop led to the general agreement that:

- the MedIA-SBB should be established as a non for profit entity with a structure that allows to formalise the subscription of its members, associates or shareholders.
- The membership structure should be layered to reflect the different intensity of contribution to the MedIA activities of the members. Different membership levels also correspond to different participation in decision making and execution; finally it should also be linked to provision of different services from the MedIA itself.
- The membership fee, besides reflecting the tiered membership approach, should also be modulated according to the type of organisation, with low to no fee for micro and small companies and non for profit associations.

The pathway to get to a definitive governance structure is a progressive one. The scheme below - extracted from D 4.3.1 of Blue Bio Med (see footnote 4) - depicts the main phases of this progress and what it entails in terms of the actual governance bodies (decision, execution, relationship, etc.) internally, within the MedIA and externally, towards other bodies and organisations that are not members of the MedIA but the MedIA relate to (e.g. advisory committee).

	Phase I - Initiation	Phase II - Consolidation	Phase III - Expansion
Context	Definition of the shared vision and agenda by the founding group of stakeholders, and the establishment of the first building blocks of the governance model.	Focus on innovation co-development. The number of members is stable to define further the governance model.	Emphasis on innovation diffusion and upscaling. Expansion in terms of members and complexity of the structure, achieving full maturity
Internally	<ul style="list-style-type: none"> - Establishment of the strategic committee and the technical office - Participatory process to define the shared vision and agenda - Identification of the first working groups - Definition of a preliminary calendar and the roadmap - Horizontal distribution of tasks - implementation of communication mechanisms 	<ul style="list-style-type: none"> - Enhancement of the expertise and the role of the current members - Standardisation of processes to increase the managerial capacity - Growth of existing working groups and creation of new ones - Experimentation with portfolios of emerging innovations - Growing role of the technical office in supporting working groups 	<ul style="list-style-type: none"> - Reinforcement of the operational, monitoring or support tasks - Diffusion and enhancement of innovations being promoted - Shared agenda monitoring and revision (technical office and working groups) - Integration of new members and potential definition of tier membership - New working groups according to new members' expertise and opportunities
Externally	<ul style="list-style-type: none"> - Endorsements and partnerships with other organisations - Collocation within the network of policy frameworks operating in the Mediterranean 	<ul style="list-style-type: none"> - Promotion of branding of the organisation - Definition of a strategy of participation in events and congresses - Increase in of advocacy tasks 	<ul style="list-style-type: none"> - Increase in the commitment of the organisation to other initiatives - Consolidation of a network of members and partners, promoting new synergies

The structure of the MedIA in the initiation phase, i.e. in the next 18- 24 months of activities is described in chapter 6.

6. The MedIA-SBB startup phase (2023- 2024)

6.1 Start up phase

The startup phase of the Alliance will span the next 18 to 24 months and corresponds to the initiation phase illustrated in the scheme at the end of chapter 5. It will be characterised by a predominant reliance on voluntary work and bottom up initiatives with a light and flexible coordination.

The three pillars of the MedIA-SBB in its initiation phase are:

- The Coordination Group
- The Working Groups
- The MedIA community

6.1.1. Coordination Group

The Coordination Group will play the role of the Strategic Committee and of the Technical Office at once; the Coordination Group will be formed by the founding members of the MedIA, i.e. the partners of the consortium BLUE BIO MED and the coordinator of the project B-BLUE.

The Coordination Group will be responsible for:

- updating the annual agenda of activities and objectives
- reviewing the accomplishments of the first year of activity
- liaising with the working groups
- creating communication channels and feeding them to keep the MedIA members up-to-date with the activities of the MedIA as a whole and of the working groups.

Furthermore, the Coordination group will set up a regulation framework for the establishment, in the consolidation phase, of the Strategic Committee and of the Technical Office, and identify the appropriate status of the MedIA as a legal entity that will enforce them.

The Coordination Group will also keep the connection with the external network of organisations mentioned in chapter 5 as potential members of the advisory board.

The Coordination Group will be formed by a person nominated by each of the following partners, i.e. the Blue Bio Med consortium and B-Blue lead partner:

- ART-ER, Italy
- Area Science Park, ASP, Italy
- Conference of Peripheral Maritime Regions - Intermediterranean Commission / CPMR-IMC, France
- Center for Agrofood Economics and Development, CREDA, Spain
- National Centre For Scientific Research Demokritos, Greece

- Italian National Agency for New Technologies, Energy and Sustainable Economic Development, ENEA, Italy
- Andalusian Institute for Research and Training in Agriculture, Fishery, Food and Ecological Production, IFAPA, Spain
- Malta Council for Science and Technology, MCST, Malta
- Portuguese Directorate-General for Maritime Policy, DGMP, Portugal
- Ruder Boskovic Institute, Croatia
- Technopolis, Montenegro
- Technology Park Ljubljana, Slovenia

6.1.2 The Working Groups

In the initial phase the working groups leverage existing initiatives, they represent an opportunity for people and organisations working on the same topic at different levels and within different groups to connect their activities and enlarge the respective networks and topic-related communities.

They are completely free in terms of self organisation, intensity of effort and type of actions they want to carry out, with the only exception that MedIA-SBB labelled actions will have to be communicated to the Coordination Group. The working groups are required to report on their activity to the Coordination Group and support the circulation of information through the MedIA communication channels.

The community that participated in the co-design workshops bring in the MedIA a wealth of knowledge, competences and opportunities. The working groups will be set up initially opportunistically (and realistically) building on this existing work and interest that emerged during the workshops and also lead to identify the main topics of interest (Ch. 3); these working groups are:

- Sustainable Aquaculture

Co-coordinators: ART-ER; IFAPA.

Members (based on the actual participation to the 5th co-design workshop + suggested by participants as relevant to the topic):

ART-ER	Regional agency	Italy
IFAPA	Research Org.	Spain
Government of Catalonia	Public Body	Spain
BlueNetCat	Regional Network	Spain
Plan Bleu	Research Center	international
Agencia Andaluza del Conocimiento	Regional Agency	Spain
ENEA	National Agency, Research Org.	Italy

Conference of Peripheral Maritime Regions	Network	International
WestMED National Hub Algeria	Network	International
Hellenic Centre for Marine Research	Research Org.	Greece
Malta Council for Science and Technology	Public Body	Malta
National University of Athens	Research Org.	Greece
Area Science Park	Research Org.	Italy
Ministry for Agriculture, Fisheries and Animal Rights Department of Fisheries and Aquaculture	Public Body	Malta
CIHEAM Zaragoza	University	Spain
UNIDO	Agency	International

- Blue Biotechnologies

Co-coordinators: ENEA

Members (based on the actual participation to the 5th co-design workshop + suggested by participants as relevant to the topic):

ENEA	National Agency, Research Org.	Italy
National Institute of Biology of Slovenia	Research Org.	Slovenia
UBE Corporation Europe	Company	Spain
University of Murcia	University	Spain
University of Foggia (STAR Facility Centre)	University	Italy
Portuguese Directorate-General for Maritime Policy	National public body	Portugal
Hellenic Centre for Marine Research	Research Org.	Greece
WestMED National Hub Algeria	Network	International
Hamag-Bicro	Business support organization	Croatia
Stazione Zoologica Anton Dohrn	University	Italy
MEDSEA Foundation	Non for profit org.	Italy
Center for Agrofood Economics and Development, CREDA	Research Org. / Univ.	Spain
Pôle Mer Méditerranée	cluster	France

- Digitalisation of the Blue Bioeconomy

Coordinator: National Centre For Scientific Research Demokritos.

Members (based on the actual participation to the 5th co-design workshop + suggested by participants as relevant to the topic):

National Centre For Scientific Research Demokritos	Research Center	Greece
ART-ER	Regional agency	Italy
Clust-ER AgriFood	Regional Custer	Italy
University of Ferrara	UNiversity	Italy
B2E Colab	non-profit association	Portugal
ANI Agência Nacional de Inovação	Sectoral Agency	Portugal
Emilia-Romagna Region; BlueNetCat (Catalona, Spain);	Public body	Italy
BlueNetCat	Regional Network	Spain
CoopEstense Association of Cooperatives	Business	Italy

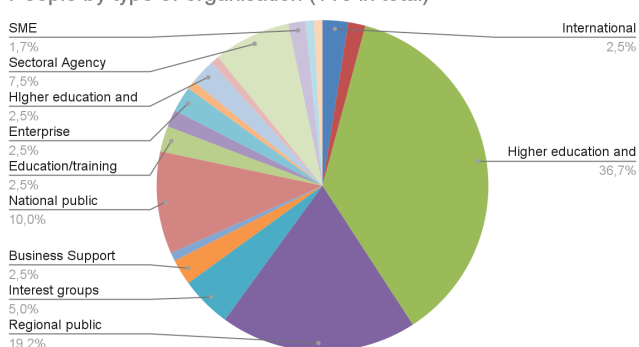
To be remarked, once again, that the members of the above working groups are individuals from the listed organisations and initiatives, that will contribute on a voluntary non-binding basis to the progress of the discussions on the working groups' topics.

In fact, it is expected that most of the working groups' efforts will be devoted to preparing and submitting projects in order to obtain the necessary funding to sustain themselves, supplement existing activities and initiate new ones.

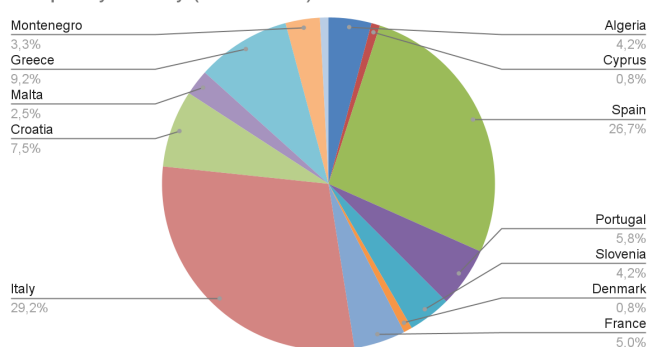
6.2 The Media-SBB community (and the Media Charter)

During the workshops a remarkable number of people and organisations participated in co-designing the Media: over 100 individuals from over 70 organisations. Most of them participated in more than one workshop.

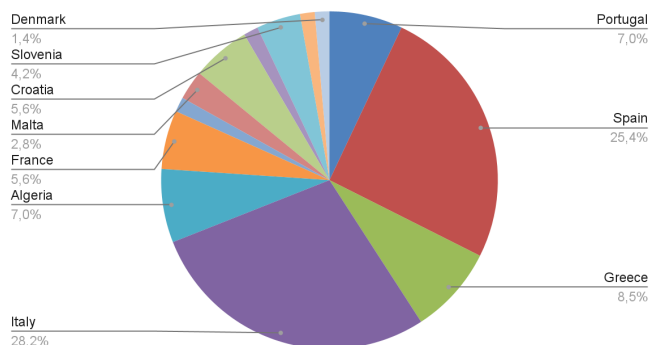
People by type of organisation (118 in total)



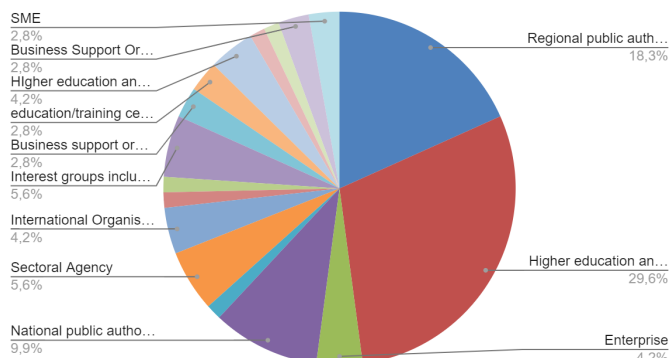
People by country (118 in total)



Participating organisations by country (71 in total)



Participating organisations by type (71 in total)



In order to formally capture the involvement of these individuals in the MedIA-SBB and their endorsement, it was proposed to them to **undersign the MedIA-SBB Charter** that embraces the vision and mission of the Medla itself.

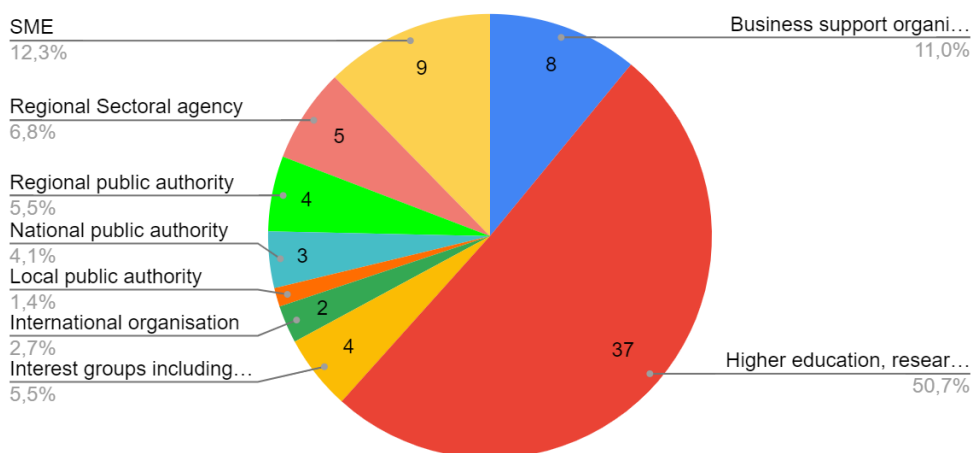
The MedIA-SBB Charter is annexed to this document and it is possible to undersign it via an online form: <https://forms.gle/JMAH6oCccV67J96s9>.

The signatory is a person, not an organisation, who is interested in blue bioeconomy and wants to be part of a mediterranean network on this topic, and contribute to its progress. All signatories adhere to the CHarter representing their individual self, not the organisation they work for, but of course the competences, knowledge and networks they bring into the MedIA are connected to the organisations they work for.

As of the end of December 2022, 73 individuals from 67 different organisations have signed up. The signatories of the MedIA represent a subset of the community that contributed to the codesign workshops.

MedIA Charter signatories' organisations by type (73 signatories from 67 organisations)

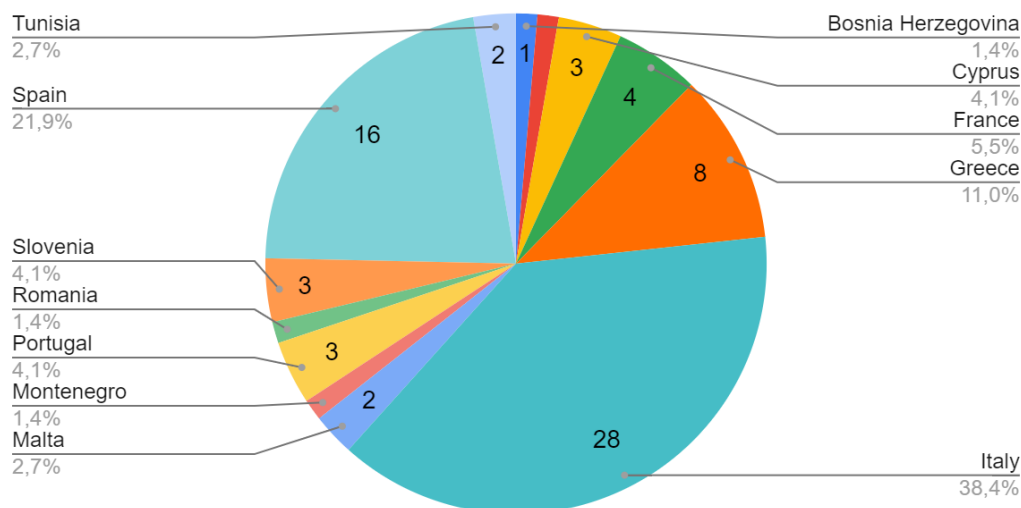
As of november 2022



For the next future, the mechanism of joining and supporting the MedIA will be through the subscription (via the online form). All the working groups members and contributors will have to undersign the MedIA Charter.

MedIA Charter signatories by country (73 signatories)

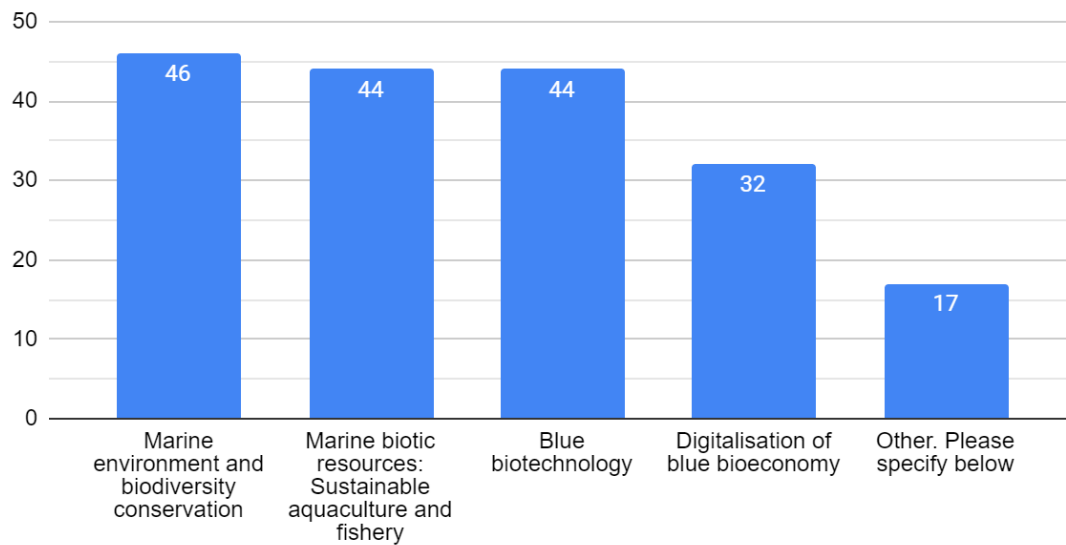
As of november 2022



The signatories were asked to identify which of the four main thematic areas of the MedIA-SBB (see chapter 4) they are more interested in. The graph below shows the results. 11 people added extra topics among which: Consumer awareness, product communication re Aquaculture and fishery; Promotion of sustainable tourism; Marine Ecosystem modelling; Bivalves (Restoration of native oysters in sea, use of probiotics in molluscs hatchery); seaweed, micro and macro-algae, marine actives, superfoods.

Favourite thematic areas of the MedIA Charter Signatories

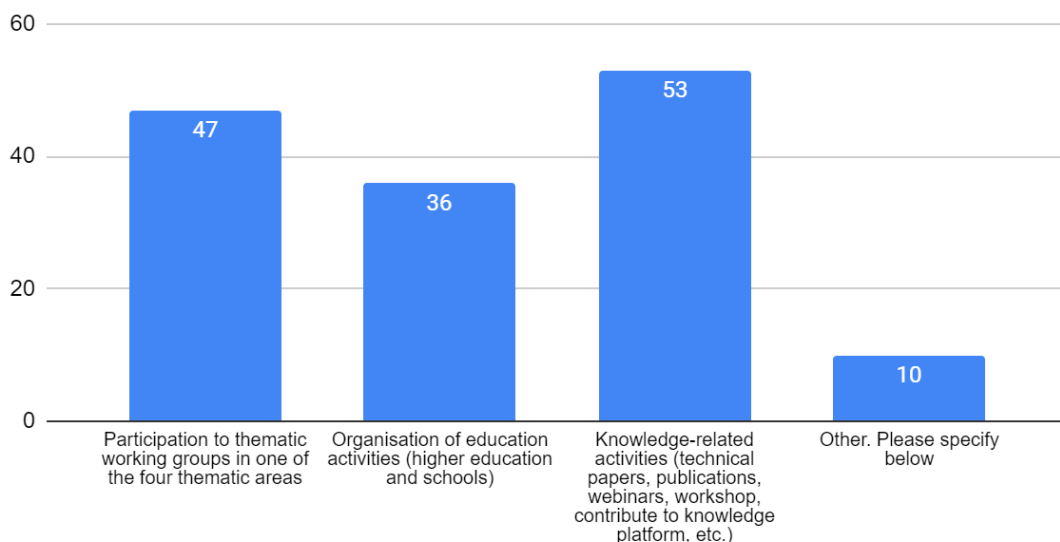
Multiple choices possible.



Finally we asked the signatory the activities they would be willing to contribute to or are interested to know about within the MedIA, based on the roles and activities described in chapter 2. See the graph below for an overview. In terms of other suggestions received it is worth mentioning: the organisation of study visits, Technology transfer activities, project ideation and other forms of transnational cooperation.

MedIA activities the signatories are willing to contribute to.

Multiple choices possible



A last chapter of the MedIA Chart sign up form was dedicated to collect suggestions for synergies and collaboration with existing and upcoming initiatives. The most relevant ones have been included in chapter 6.5.

6.3 Activities (roadmap) at MedIA-SBB level

The activities of the MedIA will unroll on two levels:

- The “micro-level”, via the working groups, concerning training, projects, meetings, conferences, related to the topics and sub-topics of the working groups. (ch 6.4 below)
- The “macro-level”, concerning cross cutting activities, not related to a specific theme or topics but transversal to the MedIA as a whole. (this chapter)

Most of the activities in the startup phase will be aimed at consolidating the existing community, increasing the MedIA members and creating a sense of belonging.

To this end communication activities are fundamental and most of the actions in the first 2-year roadmap are devoted to this. The activities will be agreed upon by the Coordination Group and directly performed by its members on a voluntary basis. The voluntary nature of the work makes it impossible at this startup stage to create a rigid time schedule for the envisaged actions. Such actions are:

- Creation of a MedIA-SBB **visual identity** to “brand” the initiatives that benefit from the MedIA; this can be for initiatives born within the Alliance and its working groups, or, for instance, for external initiatives that are integrated/enriched by members of a working group
- A **rolling calendar** of MedIA-labelled initiatives will be created and kept open to all the MedIA members
- A **newsletter** fed by the Alliance members’ contents and circulated among them to keep the community up-to-date or mobilise them towards a certain activity. In the startup phase this will be a crucial tool for internal communication. All members will be invited to send their news on upcoming initiatives, search for partners, search for interns (or intern hosting), collaboration, etc, to be spread across the MedIA community
- **3rd Blue Bioeconomy Innovation Forum in 2023.** The Coordination Group will decide the topic(s) and the specific objective(s) of the event, that will also represent an opportunity for networking and to update the MedIA community about the progress of the working groups and of the MedIA as a whole. The 3rd Blue Bioeconomy Forum will be organised in the framework of relevant blue economy initiatives around the Mediterranean (for instance, EMD2023 in Brest)
- Regularly **meet with the working groups’ leads.** This is intended with the aim to capture the active topics, actions planned or performed, etc. to facilitate the internal communication and to promote the ...
- ...sharing of the knowledge created by the working groups or any other MedIA-SBB labelled activity in a **shared knowledge repository on the Marina platform.**
- **Meet** regularly (every 3 months) (re Coordination Group)
- **Liaising** with the (potential) members of the advisory board.
- Identify other sources of **funding** for the sustainability of the MedIA as a whole. (see chapter 6.5) and stimulate project ideation and proposal submission.

6.4 Activities (roadmap) at working group level

The following activities were proposed by the participants in the fifth codesign workshop. As already mentioned with regard to the activity at MedIA level, the voluntary nature of the work of the working groups' members does not allow these actions to be placed into a rigid roadmap. However, the liaison of the Coordination Group with the leaders of the working groups will make it possible to identify the status of these activities and assess whether and how fast the MedIA is progressing towards its consolidation phase.

Working Group / Topic	Type of activity	Actions	Other notes
Sustainable Aquaculture	Way of working	<ul style="list-style-type: none"> - Coordinated by ART-ER and IFAPA - 1 or 2 annual meeting in hybrid form - Expert group meetings (more frequent, vertical topics) 	
	Knowledge -related & Education	<ul style="list-style-type: none"> - Development of an open knowledge platform (Plan Bleu and WestMED) - Webinars in collaboration with experts of marine data manager 	
	Projects Ideation of new projects; networking opportunities with existing ones	<ul style="list-style-type: none"> - Interreg euro-med strategic project on the topic of IMTA for the next submission deadline - looking for a leader - COST ACTION on Sustainable Aquaculture for the next deadline (oct 2022), lead by Aquawest - Horizon Europe BlueMissionMed project ("Supporting the Mediterranean sea basin lighthouse for the implementation of the Mission restore our ocean and waters"). 	
	Events	<ul style="list-style-type: none"> - Mediterranean Sea Space Final Conference - MSP-MED project 	13-14/10/2022, Rome

		<ul style="list-style-type: none"> - B2B meetings for knowledge transfer at relevant international events. INNOVAZUL (Cadiz, 29-30/11/2022) - Enterprise Europe Network 	29-30/11/2022 Cadiz
		<ul style="list-style-type: none"> - Participation in/contribution to European Maritime Day 	24-25 May 2023 (Brest, France)
Blue Biotechnology	Way of working	<ul style="list-style-type: none"> - 2 Online meetings per year + 1 person event per year exploiting other events (side events within bigger events) - Updates through the newsletter within the Working Group and across the whole MedIA - A space like Mirò to work in real time and asynchronous (esp. for collaborative project ideation) - Web Platform to share information (e.g. Marina Platform or the one used by the COST action Ocean4 Biotech) 	
	Knowledge-related & education	<ul style="list-style-type: none"> - Re-training programmes for blue bioeconomy professionals on the blue biotechnology sector--> scaling up pre-existing initiatives - Publication/report on waste valorization (drafted as part of the B-Blue project) - Publication/report on blu biotech value chains (drafted as part of the B-Blue project) - Collect and analyse needs and concerns of the fishing and aquaculture sector: Meetings with fishermen associations (local level), analysis outputs of projects (e.g. BLUEFASMA) - Living labs at local level: involving local operators, developing pilots /demonstration sites (collaboration with operational partners) 	

		<ul style="list-style-type: none"> - Newsletter and/or LinkedIn/FB group to spread relevant articles, information on the topic - Course on Blue Biotechnology in the International university of the sea, at University of Murcia (developed in collaboration with other entities) 	
	<p>Projects</p> <p>Ideation of new projects; networking opportunities with existing ones</p>	<ul style="list-style-type: none"> - Support to project preparation; selection of strategic blue biotech projects (e.g. 5) to be promoted in the SEMED platform for access to finance - Ocean4Biotech, and Slovenian research programme on marine biotechnology - ThinkInAzul Project (ending in 2025) on Marine Science Strategy in Spain (ref. UNiv. Murcia) - IMTA project supported by the FEAMP Programme in the Apulia Region (Italy) - “Enhance- microalga” Interreg-Atlantic project. Possible interaction and knowledge exchange on the biorefinery approach to develop new products from microalgae (ref. Stazione Zoologica is Associated partner) - Cluster BIG (Italy) working groups on Marine Biotechnology topics - The Italian Resilience and Recovery Plan funds regional innovation ecosystem projects that could, on their turn, provide funding at regional entities (RTOs, univ. and companies) to experiment in the blue biotechnology field 	
	Events	<ul style="list-style-type: none"> - Conference on Marine Biotechnology organised by the European Society of Marine Biotechnology 	Spring 2023, Malaga, Spain

		<ul style="list-style-type: none"> - Summer School on Marine Biotechnology at the Stazione Zoologica 	20-22 September 2022
		<ul style="list-style-type: none"> - Winter school organized by University of Foggia in the framework of the BlueBio Co-Fund project 	17-19 January 2023
		<ul style="list-style-type: none"> - Events aimed at increasing blue biotech "acceptance" as a powerful mean to move forward a sustainable BBE 	
		<ul style="list-style-type: none"> - Seminar to present the competences in the Blue biotechnology field 	
		<ul style="list-style-type: none"> - Annual forum of the Blue Biotech Hubs 	
Digitalisation of the Blue Bioeconomy	Way of working	<ul style="list-style-type: none"> - Define a yearly work plan and assign tasks (e.g. workshop preparation, tech scouting, etc) - Bimonthly online meetings for the members of the working group - Annual in-person meeting in combination with specific events and fairs - Establish a dedicated page in the MEdIA newsletter - Exploit major events to meet and disseminate our goals, results etc. 	
	Knowledge-related & education	<ul style="list-style-type: none"> - Technological scouting (digital technologies and cross-fertilisation from other sectors, identify each strengths from each regions) - Develop training material to build digital literacy - Showcase local good practice and share experience 	

		<ul style="list-style-type: none"> - Create opportunities for internship at advanced fish farming facilities for students and aquaculture operators - Internal training on the topic of digitalisation for the Media members - Cross-regional workshop of experts and multi-actors (4HE) groups (local level) 	
	<p>Projects</p> <p>Ideation of new projects; networking opportunities with existing ones</p>	<ul style="list-style-type: none"> - Funding scouting and brokerage - traditional incentives (subsidies eg. Horizon Europe) and NOVEL incentives (eg. EIB blue digital agenda) - Link / Collaborate with Blue Economy Project In Algeria (2022- 2025). A part of this project is dedicated to developing Marine Biotech. - Link with regional S3 working groups (for instance in Portugal there is a dedicated S3 working group on Maritime Issues and one on Digital Transition) 	
	Events	<ul style="list-style-type: none"> - Organise a workshops on digital technologies and ICT in aquaculture - Connections with enterprise networks (eg. EEN) for brokerage opportunities 	

6.5 Opportunities and resources

This chapter draws on the work carried out within the Blue Bio Med Project and uses excerpts and informations from del 6.2.1 prepared by the partner MCST (see the full report on the project website⁵) (chapters 6.5.1 to 6.5.5 below) and on the opportunities signposted by the community members during the workshops and when signing the Charter (chapters 6.5.6 and .7 below).

6.5.1 Mission: Restore our Ocean and Waters - Horizon Europe

Within the Horizon Europe Framework Programme⁶ it is worth mentioning the Mission: Restore our Ocean and Waters⁷ which aims to contribute to the recovery of our ocean and waters by 2030 and more specifically to the following objectives:

1. Protect and restore marine and freshwater ecosystems and biodiversity, in line with the EU Biodiversity Strategy 2030
2. Prevent and eliminate pollution of our ocean, seas, and waters, in line with the EU Action Plan Towards Zero Pollution for Air, Water and Soil
3. Make the sustainable blue economy carbon-neutral and circular, in line with the proposed European Climate Law and the holistic vision enshrined in the Communication on a new approach for a Sustainable Blue Economy

Through phase one, the Mission will strive to reach these goals by deploying innovative solutions at basin scale, with each basin focusing on a particular area in this developing and piloting phase (2021-2025). After a first wave of calls under Horizon Europe in the Work Programme 2021, a second round of calls was opened in May 2022. These calls follow the Mission implementation plan⁸ and support the creation of Mission lighthouses as well as key enablers such as the Digital Twin of the Ocean and public engagement.

The Mission will roll out 'lighthouses' across EU sea and river basins. Relevant for the MedIA is the lighthouse: Mediterranean Sea: prevent and eliminate pollution

Lighthouses will act as hubs and platforms for the development and deployment of transformative innovations of all forms – technological, social, business, governance – and integrate existing knowledge outputs and new knowledge, ensuring local business participation and citizen engagement and outreach. They will be selected and implemented through the calls for proposals following the Horizon Europe principles.

⁵ Deliverable 6.2.1 Scouting report of opportunities to strengthen the transnational innovation ecosystem. [HERE](#)

⁶https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

⁷https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/healthy-oceans-seas-coastal-and-inland-waters_en

⁸https://research-and-innovation.ec.europa.eu/system/files/2021-09/ocean_and_waters_implementation_plan_for_publication.pdf

6.5.2 European Partnership - Horizon Europe

European Partnerships⁹ bring the European Commission and private and/or public partners together to address some of Europe's most pressing challenges through concerted research and innovation initiatives.

The European Partnerships are collected across 6 clusters: of which cluster 5 "Climate, Energy and Mobility" and cluster 6 "Food, Bioeconomy, Natural Resources, Agriculture and Environment" are relevant for blue bioeconomy. In 2021-2022 the following calls have been published under Horizon Europe Partnerships:

- Sustainable Blue Economy Partnership (SBEP) - The partnership has launched in November 2022 the call for proposal BlueBio 3rd Additional Call – Amplifying project reach and knowledge impact, due to close in February 2023.
- The Circular Bio-based Europe Joint Undertaking (CBE JU). It is a €2 billion partnership between the European Union and the Bio-based Industries Consortium (BIC) that funds projects advancing competitive circular bio-based industries in Europe. The 2022 calls for proposals closed in September 2022
- European Partnership Water Security for the Planet (Water4All). The objective of this partnership is to boost systemic transformations across the entire water research – innovation pipeline. The 2022 call for proposals is currently open for full proposal until March 2023.

6.5.3 Widening Participation and Spreading Excellence - Horizon Europe

The actions under this title contribute to building research and innovation capacity for countries lagging behind. The most relevant of the MedIA is the COST Action.

The European Cooperation in Science and Technology (COST), is a cross-border scientific network of excellent researchers and innovators. These networks offer an open space for collaboration among scientists across Europe (and beyond) and thereby give impetus to research advancements and innovation. COST is bottom up: researchers can create a network – based on their own research interests and ideas (any scientific field) – by submitting a proposal to the COST Open Call. COST Actions are interdisciplinary and open. It is possible to join ongoing Actions. They are multi-stakeholder, often involving the private sector, policymakers as well as civil society. The next collection of proposals will be closed on 25 October 2023.

6.5.4 LIFE programme & INTERREG programmes

They are 2 different programmes, managed by different bodies, that we treat together as they are both very well known by the majority of the MedIA partners and they will for sure be considered to support the MedIA activities in the future. Currently no calls

⁹https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/european-partnerships-horizon-europe_en#:~:text=Latest,What%20are%20European%20Partnerships%3F,concerted%20research%20and%20innovation%20initiatives.

for proposals are open for 2023 but they will be and the blue bioeconomy topics can well accommodate in the objectives of both programmes.

A very thorough description of the INTERREG programmes and opportunities can be found in chapter 6 of deliverable 6.2.1 of the project Blue Bio Med (see footnote 5).

6.5.5 Partnership on Research and Innovation in the Mediterranean Area (PRIMA)

PRIMA is an initiative launched by 19 Euro-Mediterranean Countries, including 11 EU States (Croatia, Cyprus, France, Germany, Greece, Italy, Luxembourg, Malta, Portugal, Slovenia and Spain) and 8 non-EU Countries (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Tunisia and Turkey). Together they participate in an EU joint research and innovation programme funding Research and Innovation (R&I) projects in the fields of Water Management, Sustainable Agriculture, Agri-Food Value Chain and Water, energy, food and ecosystems (WEFE) Nexus.

The PRIMA programme is implemented through three sections:

- Section 1: Calls for R&I projects funded directly by the European Commission in line with the Horizon Europe rules.
- Section 2: Calls for R&I projects are funded directly by the countries participating in PRIMA, selected according to Horizon Europe rules.
- Section 3: Initiatives organised, managed, and funded by Participating States in alignment with the PRIMA Strategic Research Agenda.

Section 1 and 2 Calls will be launched again around January 2023 (information here: <https://prima-med.org/submit-your-project/>)

6.5.6 Opportunities to liaise with, signposted by the Media community: vertical, topic-related research and innovation projects

Out of the many projects that were reported by partners we list in this and the following chapters only the ongoing one with a potentially transnational scope.

- 2B-Blue: Boosting the Blue Biotechnology community in the Mediterranean. Proposal to INTERREG Euro-MED
- LIFE-TRANSFER - Seagrass transplantation for transitional Ecosystem Recovery - <https://www.lifetransfer.eu/> End date 30/11/2025
- LIFE-LIFEEL - Urgent measures in the Eastern Mediterranean for the long term conservation of endangered European eel (*Anguilla anguilla*). <https://lifeel.eu/> - Ending in 2024.
- OCEAN4BIOTECH - European Transdisciplinary Networking Platform for Marine Biotechnology. October 2019 - April 2024 <https://www.ocean4biotech.eu/>
- ARGOS - Interreg Italy-Croatia strategic projects. "Shared Governance of Sustainable Fisheries and Aquaculture Activities as Leverage to Protect Marine Resources in the Adriatic Sea. <https://www.italy-croatia.eu/web/argos> April 2020 - June 2023.

- RESISTANCE - Raising awareness of Maritime Spatial planning importance. <https://www.italy-croatia.eu/web/resistance> April 2020 - June 2023.
- Aquae Strength - Strengthening capacity on aquatic animal health and epidemiological surveillance - funded by WOA and Italian Health Ministry. Ongoing <https://www.izsvenezie.it/wp-content/uploads/2022/11/AQUAE-STRENGTH-project.pdf>
- Diving tourism promotion strategy - Project funded by the Cypriot Deputy Ministry of Tourism in order to elaborate the current status of the diving industry in Cyprus, compare this with other EU countries diving frameworks and provide a report with best practices for the future of the industry in Cyprus.
- MOL.MUL.SOS - Sustainable multi-trophic mollusc farming in Gargano (Italy). FEAMP funded project (2021-2023) <https://mollusc.it/project-mollusc/>
- SUPERTROUT, PRIMA funded project. Improving Sustainability and Performance of aquaculture farming system: breeding for lactococcosis resistance in rainbow TROUT. 12/2020-11/2023. <https://www.izsplv.it/it/supertrout.html>

6.5.7 Opportunities to liaise with, signposted by the Media community: projects/initiatives to strengthen networking, community building, blue bioeconomy governance

- S3 Thematic Platform for Sustainable Blue Economy, launched in March 2022. <https://s3platform.jrc.ec.europa.eu/sustainable-blue-economy>
- Dialogue4Innovation, the institutional dialogue project funded by Interreg Euro-Med 2021-2017 under Mission 1 "Innovative sustainable economy". Among other activities the IPD will support the consolidation of multiple stakeholder Mediterranean alliances linked to sustainable development challenges. The project is starting on 1 January 2023.
- EmpowerUS - "Socio-economic Empowerment of coastal communities as users of the sea to ensure sustainable coastal development, Horizon Europe, <https://empowerus-project.eu/> 01/10/2022-30/09/2025
- Horizon Europe BlueMissionMed project "Supporting the Mediterranean sea basin lighthouse for the implementation of the Mission Restore our ocean and waters". CPMR Intermediterranean Commission (founding partner of the Media) is partner of the project. Due to start.
- CMMI - MaRITeC-X - Marine and Maritime Research, Innovation, Technology Centre of Excellence, H2020. <https://www.cmmi.blue/cmmi-maritec-x/> , 01/10/2019-30/09/2026
- PREP4BLUE: Preparing the Research & Innovation Core for Mission Ocean, Seas & Waters. June 2022 – May 2025 <https://prep4blue.eu/project-overview/>
- EMPORIA4KT Interreg Atlantic. "Design and implementation of actions between triple helix players to foster innovation and competitiveness within Blue Economy sectors" <https://www.emporia4kt.com/> March 2019 – June 2023
- Project Blueair - Blue Growth Smart Adriatic-Ionian S3- 2020-12-01 – 2023-05-31 <https://blueair.adrioninterreg.eu/>

7. Final remarks

The MedIA-SBB is intended as a tool to boost opportunities for networking, exchanges of experiences, cooperation, advocacy and increasing visibility for blue bioeconomy at Mediterranean level beyond the end of Blue Bio Med project. As fully described in the previous chapters, MedIA in its start-up phase will rely on resources made available on a voluntary basis.

More than 50 organisations have already joined the Charter¹⁰ and as reported above there are more than 15 upcoming projects/initiatives (see chapter 6.4 and 6.5) that will contribute to the implementation of the MedIA-SBB and its working groups. Additional project proposals submitted during 2022 will hopefully be financed during 2023 and increase the available resources. In addition, collaborations are foreseen in 2023 with the UfM Blue Economy Roadmap, EU Mission Restore our Ocean and waters by 2030, EC Smart specialisation platform for sustainable blue economy.

A workshop proposal investigating the role and effectiveness of strategic alliances for Blue Sustainable economy has been submitted for the EMD23 in Brest (23-24 May). Whether the workshop will be approved or not the EMD23 will be the closest occasion for meeting the community, being inspired and implementing a further step toward the consolidation of the MedIA-SBB.

¹⁰https://docs.google.com/forms/d/e/1FAIpQLSfDB-N-kePeuJ_vBTsdnuRYAJ4TE48ttMzq9RiQZf5B-Z1DyA/viewform