

B-Blue

Building the blue biotechnology community in the Mediterranean

WP 5 - Transferring

Key Performance Indicators for effective innovation knowledge transfer Deliverable 5.2.2

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HAMAG-BICRO¹

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List of Abbreviations and Acronyms

Acronym	
Med	Mediterranea
BBt	Blue biotechnology
WP	Work package
KT	Knowledge Transfer
KTP	Knowledge Transfer Plan
KPI	Knowledge Performance Indicators
PP	Pilot project
PPP	Power Point Presentation
CNR - IRBIM	National Research Council - Institute for Biological Resources and Marine Biotechnologies (Ancona)
ENEA	Italian National Agency for New Technologies, Energy and Sustainable Economic Development (Roma)
APULIA REGION	Apulia Region - Service Staff Structure to supporting the Coordination of International Policies
HCMR	Hellenic Centre for Marine Research
PEPMA	Panhellenic Union of Middle Range Fisheries Ship Owners
CMFO SA	Central Market Fishery Organisation
NKUA	National and Kapodistrian University of Athens
GSRI	General Secretariat for Research and Innovation
LEFKIPPOS	Science and Technology Park of Attica
UoC	University of Creta
NIB	National Institute of Biology,
UMU	University of Murcia – Information and Communication Engineering Department
PMM TVT	Pôle Mer Méditerranée – Toulon Var Technologies
AlgEN	Algal Technology Center

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About B-Blue project

10 partners with proved experience in the Blue Bioeconomy field from 8 Mediterranean (Med) countries and more than 300 Med stakeholders from universities, research centres, public authorities, business support organizations and Med multilateral organizations are working together for 22 months to create the Blue Biotechnologies (BBt) community in the Mediterranean. The exploitation of marine bio-resources through biotechnological solutions is a field with massive potential for innovation and economic growth. This field is a relatively young discipline, so opportunities and key enabling factors need a coordination. **B-Blue** project aims at gathering the key actors of the Med BBt sector and increasing their innovation capacity and their coordination to unlock the innovation potential in the field through joint transnational initiatives, also involving organizations from the southern shore of the Mediterranean. The transnational coordination framework which, the project aims to create, is based on an inclusive quintuple-helix approach that always include the socio-environmental perspective in the decisional process and is built on a common knowledge ground selected based on its potential of addressing the Sustainable Development Goal at Med level. The **B-Blue** works towards to the implementation of a transnational coordination mechanism for the BBt community through the mutual interconnection of the digital BBt community platform and a Med network of territorial-based-collaborative space on selected BBt value chains (BBt HUBs).

About WP 5

The main objective of the WP 5 is to improve innovation capacity of the project partners both on horizontal knowledge of the BBt sector and on vertical issue of specific value chain. This package is dedicated to a knowledge transfer among different institutions and aims at transferring the knowledge collected and developed in the WP 3 and WP 4 activities to a selected group of key stakeholders of the blue biotechnologies (BBt) sector. So, the idea of knowledge transfer is to create connection both at territorial level and at Med level in the community. Along with deliverables dedicated to implementation strategy (D 5.1.1) and performance monitoring (D 5.1.2), this WP includes report on the Knowledge Transfer Plan (D 5.2.1) and the report on the Key Performance Indicators for effective innovation knowledge transfer (D 5.2.2). This WP also includes two big transnational knowledge transfer workshops (in Portugal and Croatia), three national/regional bootcamps on horizontal innovation knowledge with high potential for market exploitation, eight national/regional seminars on

vertical knowledge on specific value chains. These activities are complemented by the activation of the digital knowledge package (e-learning material from WP 3) and an ICT matchmaking tool to unlock business opportunities matching innovation knowledge offer and demand in the BBt sector.

1. Executive summary

The report proposes Knowledge performance indicators (KPIs). The main objective of them is to measure performance of the Pilot projects in the B-Blue project. Similar as we described Knowledge transfer plan in deliverable 5.2.1. in this report, we described KPI for each pilot project. There are five pilot projects, each of them covering the national BBt sector of the country it comes from. The countries included in this deliverable are Spain, France, Italy, Greece and Slovenia. As it previously mentioned in D 5.2.1. each action plan for knowledge transfer (KT) has an identical structure. Regarding this report, information about stakeholders interested in PP activities is crucial. Thanks to this information received via the questionnaires named *PP questionnaire* and *Stakeholders questionnaire* (for more information please see deliverable 5.2.1), we created KPIs with the aim to assess performance of the KT activities. This was an argument why it was important in which KT activities stakeholders of PP plan to involve themselves until the end of B Blue.

2. Fundamental definitions

Blue biotechnology (BBt) is defined as *the production of renewable biological resources and the conversion of these resources and waste streams from the marine environment into value added products, such as food, feed, bio-based products and bioenergy* (European Commission, 2012). The European Commission, in its Communication "*Innovating for Sustainable Growth, a Bioeconomy for Europe*" (2012) states that "*in order to cope with an increasing global population, rapid depletion of many resources, increasing environmental pressures and climate change, Europe needs to radically change its approach to production, consumption, processing, storage, recycling and disposal of biological resources*". Two of the areas the Commission considers very promising are blue biotechnology (as part of the blue bioeconomy) and aquaculture (European Commission, 2012).

Knowledge transfer (KT) is a concept which describes transfer of knowledge from one institution/organisation to others. In practice, there are various channels of knowledge transfer which comprise formal and informal channels of knowledge transfer. According to Knell and Rojec (2008) i) foreign owned companies, ii) joint venture, iii) technical assistance programme and other forms of aid, (iv) technology licensing contracts, (v) imports from upstream suppliers, especially capital goods, (vi) exports to downstream customers can be considered as formal channels of knowledge transfer, whereas (vii) research collaboration, (viii) subcontracting agreements and (ix) exchange of people, hiring skilled labour, education, training and trade fairs are informal channels of knowledge transfer. Frequently knowledge transfer happens among the institutions/organisations of different types of activities e.g. from universities or research technology organisations to the private companies.

Knowledge transfer plan (KTP) means a group of activities which connect project developers, project stakeholders and wider audience interested in the project result. Project developers create a project. They have their own objectives which frequently in case of an innovative project includes development of their innovation capacities. This is important, since this facilitates carrying out knowledge transfer to their stakeholders. At the heart of it is knowledge that is transferred between institutions alongside with other accompanying activities (e.g. the knowledge transfer often goes hand in hand with the exchange of experts who should know how to use transferred knowledge in a new company/organisation). For this reason the company and/or the organisation need(s) a plan for carrying out a knowledge transfer. The knowledge transfer plans also include dissemination and communicating activities.

Pilot project (PP) is an initial small-scale implementation that is used to prove the viability of a project idea.

In the context of this project, **Knowledge performance indicators (KPI)** assess performance of KT activities of the pilot projects. KPI assess the KT activities where the stakeholders plan to include themselves until the end of the B Blue project. Main objective of KPI is support achieving objectives of the PPs.

3. Key Performance Indicators: collecting information and methodology

Development of the questionnaires and sending of them to the pilot project developers and their stakeholders were the most important steps in creation of knowledge performance indicators. As it previously mentioned (deliverable 5.2.1) the first was *Questionnaire on the pilot projects results and knowledge transfer plan in the field of blue biotechnology* (we will

refer to it as *PP questionnaire*), whereas the second was *Questionnaire on stakeholders' interests in participation in the knowledge transfer plan* (we will refer to it as *Stakeholders questionnaire*). The *Stakeholders questionnaire* had focus on exploring stakeholders' interests in participation in the pilot projects' knowledge transfer plan. Regarding the KPI, the most important parts of the questionnaire refer to the stakeholder assessments in which KT activities they intend to participate. Thanks to these information we created the KPIs. The KPIs has focus on achieving objectives of PPs. Based on the received responses, it can be argued that PPs are in the initial stage and the opportunities for commercialisation of the projects results will be possible explored in the near future. Thus, in creating of KPIs KT activities in which stakeholders plan to participate until to the end of B Blue project were assessed. It is assumed that the interactions between PP developers and their stakeholders can open opportunities for development of the PP and achieving their sustainability in the period after B-Blue completion. In construction of the KPI indicators we used the planned values of the indicators related to the number of new stakeholders (we will refer it as *planned number of new stakeholders*) that each of the pilot project developer would reach by the end of the B Blue project. These values were introduced on *WP 5 on line project meeting* on March 22, a Power point presentation (PPP) *WP 5 Meeting* was given by Mrs. Maja Ljubić Čmelar from HAMAG BICRO. These values are included due to the fact that the values can contribute to the achievement of the objectives of the pilot projects.

4. Key performance indicators of the pilot projects

As it mentioned earlier, the main idea of the pilot projects' action plans is to outset the new projects which will be developed in post B-Blue project period. Thanks to the received PP questionnaire, in this part of the report we will present project ideas, stakeholders, their involvement in KT activities, planned number of contacted stakeholders by PP developers and key performance indicators.

Italian pilot project - Elements of action plan and key performance indicators

According to deliverable 5.2.1 the pilot project is named Use of macroalgae biomass for high value compounds and valorization of aquaculture discards. It is supposed to be a demonstration site. This site was developed by CNR – IRBIM, ENEA, APULIA REGION. The principal objective of this action plan is to enhance innovation capacities of the developers in

the field of micro and macro-algae production for high-value compounds and to improve their capacities to participate in the field related international research/business network and international research projects.

The main regional, national and local stakeholders that will be involved in the action plan are the following: *Gargano Shell Fish Farm*, *South Agro*, *Bio4dreams*, *BlueInvest* and *ClusterBIG*.

These stakeholders will be involved in the following activities:

Gargano Shell Fish Farm's and *South Agro's* employees will use learning materials about blue biotechnology (i.e. books, videos, research findings, reports, best practice examples, etc.) until the end of the project.

Gargano Shell Fish Farm's, *South Agro's*, *Bio4dreams'* and *ClusterBIG's* employees will use trainings and workshops materials about Bluebiotechnology sector in Mediterranean until the end of the project.

Gargano Shell Fish Farm's, *South Agro's*, *Bio4dreams'* and *Blueinvest's* employees will participate in intra-organisational cooperation and in expert exchange in the field of the BBt until the end of the project.

ClusterBIG's employees will participate in conference(s) in Mediterranean BBt sector until the end of the project

Bio4dreams' and *ClusterBIG's* employees will use online platforms in BBt for Mediterranean and worldwide for BBt community information exchange until the end of the project.

BlueInvest's and *ClusterBIG's* employees will participate in government's driven cooperation in Mediterranean BBt sector between the firm and knowledge-based partner, via public grants until the end of the project.

Planned number of new stakeholders

According to available information from the PPP the pilot project developers (CNR-IRBIM, ENEA and APULIA REGION) will contact more than 40 various organisations (41) until the end of the B Blue project.

Key performance indicators of Italian pilot project

We created knowledge performance indicators based on planned stakeholders' activities within PPs. The main reason was that, we assume that these activities contribute to PPs objectives. Therefore, the first column of the following table describes the activities taken for the knowledge performance indicators and the second column describes the numeric values, required to achieve the objective of the PP. In addition, in the bottom row, second column we added the number of organisations which PP developers will contact until the end of the project. We assume that majority of values from the *Power point presentation* will be realized by the end of the project.

Table 1: Key performance indicators and Italian pilot project

Key performance indicators	Number of stakeholder
To include PP stakeholders in the conference(s) in Mediterranean BBt sector until the end of the project	3
To promote on line platform for information exchange in the field of BBt	2
To speed up intra-organisational cooperation and in expert exchange in the field of the BBt until the end of the project	4
Promote more intensive use of learning materials about blue biotechnology	2
To increase number of stakeholder in the pilot project	25

Greek pilot project – Elements of action plan and key performance indicators

This pilot project is named Developing the critical mass to sustain BBt value chains in Greece. The main idea of the pilot project is to create a knowledge network that could boost the development of the selected value chains in Greece and namely: micro and macroalgae for high value added products, integrated multi-trophic aquaculture, valorisation of aquaculture/fisheries/processing by-products and discards. The main scope is to bridge the gap by developing and implementing optimal development of the value chains bringing together universities, advance technological institutes, research centres/labs, SME and

large companies. The stakeholder(s) can participate in the pilot project as organisation/institution's employee(s) or solely as the expert(s).

PP developers are *The Hellenic Centre for Marine Research (HCMR) and its associate Partner the General Secretariat for Research and Innovation (GSRI)*. The main stakeholders of the project: *the University of Crete, (UoC), The National Technical University of Athens (NTUA), the company MicroPhycos, LEFKIPPOS Science and Technology Park of Attica, the Ministry of Rural Development & Food / Managing Authority of the Greek EMMF* for the first two value chains and *the National and Kapodistrian University of Athens (NKUA), the Central Markets Fishery Organisation (CMFO) SA and the Panhellenic Union of Middle Range Fisheries Ship Owners (PEPMA)* for the third value chain.

The principal objective of this action plan is to enhance innovation capacities of the developers in the fields of algae production, IMTA , aquaculture/fisheries discard valorisation in Greece and to promote this initiative into a national level to become a focal point in this field for support to businesses and policy makers.

These stakeholders will be involved in the following activities:

All stakeholders' employees will use learning materials about blue biotechnology (i.e. books, videos, research findings, reports, best practice examples, etc.) until the end of the project.

All stakeholders' employees will use trainings and workshops materials about blue biotechnology sector in Mediterranean until the end of the project.

CMFO, PEPMA, GSRI, LEFKIPPOS, and the Ministry of Rural Development & Food will be mentored in the field of blue biotechnology until the end of the project.

HCMR's, NKUA's, UoC's, NTUA's, MicroPhycos, and GSRI's employees will participate in intra-organisational cooperation and in expert exchange in the field of the BBt until the end of the project.

All stakeholders' employees will participate in conference(s) in Mediterranean BBt sector until the end of the project.

All stakeholders' employees will use online platforms in BBt for Mediterranean and worldwide for BBt community information exchange until the end of the project

HCMR's, CMFO's, PEPMA's, NKUA's, UoC's, NTUA's, MicroPhycos and LEFKIPPOS employees will participate in Idea competitions in BBt for Mediterranean until *the* end of the project.

HCMR's, PEPMA's, NKUA's, UoC's, NTUA's, MicroPhycos employees will participate in government's driven cooperation in Mediterranean BBt sector between the firm and knowledge-based partner, via public grants until the end of the project.

HCMR, CMFO, PEPMA, NKUA, UoC, Lefkippos and MicroPhycos, will apply for public grants in Mediterranean BBT for developing prototypes, refine their business plans, conduct customer trails and market research.

PEPMA's employees will receive subsidies in form of lowering costs for product development, including employee costs, materials, capital investments, cheaper usage of offices and equipment in BBT, etc.

Planned number of stakeholders

According to available information from Maja Ljubić power points presentation one of the pilot project developer HCMR will contact more than thirty various organisations (32) until the end of B Blue project.

Key performance indicators of Greek pilot project

We created key performance indicators for Greek PP similar to Italian PP. We combined results of the PP questionnaire and values of early mentioned Power point presentation (PPP), these values represent *Planned number of new stakeholders*. We assume that majority of the values from the PPP will be realized by the end of the project

Table 2: Key performance indicators and Greek pilot project

Key performance indicators	Number of stakeholder
To include PP stakeholders in the conference(s) in Mediterranean BBT sector until the end of the project	4
To promote on line platform for information exchange in the field of BBT	4
To speed up intra-organisational cooperation and in expert exchange in the field of the BBT until the end of the project	3
Promote more intensive use of learning materials about blue biotechnology	4
To increase number of stakeholder in the PP	32

Slovenian pilot project – Elements of action plan and key performance indicators

This PP is named Work Café. The main idea of the pilot project is to co-create value chains relevant to Slovenia and to use the connections to lobby the strategic plan development. This pilot project is conceived as online event, where stakeholders will use the Zoom and micro (other type of on line) platforms to present the topic of blue biotechnology and foster a discussion on blue biotechnology among the stakeholders of value chains. The developer of the pilot project is National Institute of Biology (NIB), Marine Biology Station Piran. The main regional, national and local stakeholders that will be involved in the action plan are the following Jožef Stefan Institute, Technology Park Ljubljana, Government Office for Development and European Cohesion Policy, AlgEN and National Institute of Chemistry and Soline d.d.

Importantly, as the B-Blue project, its Work Café and other activities coincide with the iteration of the Smart Specialization Strategy in Slovenia, project partners from NIB will advocated to include the BBT content into the existing pillars, mainly health, circular economy and materials. We will strive to nucleate the existing knowledge on the organisms and processes, relevant for BBT and the necessary KT that will promote the advancement in technological readiness level. The initial value chains will focus on cosmetics, waste valorization, biomaterials, plastic degradation, among others. The target organisms for valorization include algae, fungi and bacteria.

These stakeholders will be involved in the following activities:

All stakeholders' employees will use learning materials about blue biotechnology (i.e. books, videos, research findings, reports, best practice examples, etc.) until the end of the project.

All stakeholders' employees will use training and workshop materials about blue biotechnology sector in Mediterranean until the end of the project.

All stakeholders' employees will be mentored in the field of blue biotechnology until the end of the project.

All stakeholders' employees will participate in intra-organisational cooperation and in expert exchange in the field of the BBT until the end of the project.

Planned number of stakeholders

According to available information from the PPP, NIB (pilot project developer) will contact more than thirty various organisations (34) until the end of B Blue project.

Key performance indicators of Slovenian pilot project

Similar to other PPs, we created key performance indicators for Slovenian PP. We combined results of the PP questionnaire and values of the PPP. We assume that majority of values from the PPP will be realized by the end of the project.

Table 3: Key performance indicators and Slovenian pilot project

Key performance indicators	Number of stakeholder
To include PP stakeholders in the conference(s) in Mediterranean BBt sector until the end of the project	4
To promote on line platform for information exchange in the field of BBt	4
To speed up intra-organisational cooperation and in expert exchange in the field of the BBt until the end of the project	4
Promote more intensive use of learning materials about blue biotechnology	4
To increase number of stakeholder in the PP	20

Spanish pilot project – Elements of action plan and key performance indicators

According to available information, University of Murcia and Regional Government of Murcia are developers of the pilot project. The main objective of the pilot project is to create a knowledge network of actors involved in aquaculture innovation and algae production. The network, result of the pilot project will bring together all the regional and many Spanish Mediterranean aquaculture stakeholders from various professional fields: growers, producers, business developers, investors, participants from government. The main regional, national and local stakeholders that will be involved in the action plan are the following organisations: Tilamur, The Blue Future, Cluster Acuiplus, Regional Government of Murcia (we will refer to them as Regional government) and Ministry of Fisheries (we will refer to them as Ministry).

These stakeholders will be involved in the following activities:

All stakeholders' employees will use learning materials about blue biotechnology (i.e. books, videos, research findings, reports, best practice examples, etc.) until the end of the project.

Blue Future and the Regional Government stakeholders' employees will use trainings and workshops materials about blue biotechnology sector in Mediterranean until the end of the project.

Regional Government and Ministry stakeholders' employees will be mentored in the field of blue biotechnology until the end of the project.

All stakeholders' employees will participate in intra-organisational cooperation and in expert exchange in the field of the BBt until the end of the project.

Tilamur, Cluster Acuiplus, Regional Government and Ministry stakeholders' employees will participate in conference(s) in Mediterranean BBt sector until the end of the project.

Cluster Acuiplus, Regional Government and Ministry stakeholders' employees will use online platforms in BBt for Mediterranean and worldwide for BBt community information exchange until the end of the project

All stakeholders' employees will participate in Idea competitions in BBt for Mediterranean until the end of the project.

Tilamur, Regional Government and Ministry stakeholders' employees will participate in government's driven cooperation in Mediterranean BBt sector between the firm and knowledge-based partner, via public grants until the end of the project.

Tilamur and Cluster Acuiplus stakeholders' employees will apply for public grants in Mediterranean BBt for developing prototypes, refine their business plans, conduct customer trails and market research.

Planned number of stakeholders

According to available information from the PPP, UMU will contact more than thirty various organisations (34) until the end of B Blue project.

Key performance indicators of Spanish pilot project

Similar to other PPs, we created key performance indicators for this PP. We combined results of the PP questionnaire and values of the PPP. We assume that majority of values from the PPP will be realized by the end of the project.

Table 5: Key performance indicators and Spanish pilot project

Key performance indicators	Number of stakeholder
To include PP stakeholders in the conference(s) in Mediterranean BBt sector until the end of the project	2
To promote on line platform for information exchange in the field of BBt	3
To speed up intra-organisational cooperation and in expert exchange in the field of the BBt until the end of the project	4
Promote more intensive use of learning materials about blue biotechnology	4
To increase number of stakeholder in the PP	20

French pilot project – Elements of action plan and key performance indicators

According to available information from the PPP, PMM TVT (French pilot project developer) will contact more than thirty various organisations (34) until the end of B Blue project.

Planned number of stakeholders

We used values of early mentioned PPP. We assume that majority of values from the PPP will be realized by the end of the B Blue project. After the revision of document we added new key performance indicators in accordance with information provided by Mrs. Charlene Auregan about action plan of French pilot project.

Table 6: Key performance indicators and French pilot project

Key performance indicators	Number of stakeholder
To include PP stakeholders in the Webinar on topic Horizon Europe funding opportunities for bioeconomy	5
To include PP stakeholders in the technical workshop related to action plan of the French Pilot Project	3
To include PP stakeholders in the working groups on topics related to action plan of the French Pilot Project	5
To increase number of stakeholder in the PP	20

5. Sources

EC – European Commission - Communication "*Innovating for Sustainable Growth, a Bioeconomy for Europe*" (2012). Available at <https://op.europa.eu/en/publication-detail/-/publication/1f0d8515-8dc0-4435-ba53-9570e47dbd51>

Knell, M., Rojec, M., (2007). The economics of knowledge and knowledge accumulation: A literature survey, Understanding the Relationship between Knowledge and Competitiveness in the Enlarging EU, U Know project, Project study.