Exploitation Plan

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Deliverable Number 3.1.2

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Partnership:

Summary

Preface

The present document reports how the most significant outputs produced by cluster's previous projects (i.e. Adrireef, Blue Kep, Fairsea, Itaca, Prizefish and Sushi.drop) can be capitalized and integrated for further exploitation. It is intended to define the starting point to set up commercial initiatives or new research endeavours.

Methodology

Among the 24 outputs collected in the Inventory of results (D3.1.1) we have selected those that we deem are most suitable for further capitalization. In particular, each of the responsible partners have filled a form in which they were asked to:

1) Specify the characteristics of the output which may favor the explotability, such as the innovative content, the replicability, the re-usability and the transferability.
2) Specify the possible target groups of knowledge transfer activities oriented to the maximization of the impact of the outputs.
3) Foresee possible exploitation strategies, being them oriented to commercial or educational/scientific goals or to other form of capitalization such as the development of follow up projects.

More in detail, for the commercial exploitation, we present:

i) the potential opportunities for new products and services, number of patents, and licensing opportunities.
ii) the partner(s) who are going to commercialise the result on the market, including possible start-ups or spin-offs
iii) the potential customers

This document was conceived as an extension of the Capitalization Exercise Proposed by the JS to the LP, which gave to the partnership effective guidelines for the selection of the outputs presented in the following pages.

Overview of the selected outputs.

As anticipated, on the whole, the projects involved in TECHERA produced 24 main outputs. The following list reports the subset that includes the outputs most suited for exploitation.

ADRIREEF PROJECT

Photogrammetry derived products

Underwater Structure From Motion photogrammetry was tested at the Paguro wreck study case, to estimate the volume of the fouling community. The survey results were associated to the outcomes form the laboratory analysis on species diversity and biomass estimation to provide relevant information for planning the routinary activities needed for the maintenance of the assets offshore. The 3D maps generated from the lower resolution surveys were also converted for the interactive rendering of 3D graphics within any compatible web browser, to raise the public awareness on the protected area and his peculiarities and inform scuba divers and operators. Moreover, the same photogrammetry data source was reprocessed, optimised and embedded in a virtual reality application for promoting a scuba diving experience at site (available through Oculus Quest headsets and designed for engaging a large and generic public to scuba diving and the site protection.

Output typology: ICT and operative tool

Map of Adriatic reefs webGis

The has Map of Adriatic reefs webGis been built with the purpose of geographically representing data regarding the Adriatic natural reefs, artificial reefs and wrecks and making them accessible to scientists, public administrations and citizens. Input data come from a wide recognition, both from literature review and from surveys conducted through the project partners. Database building included three main steps: literature and available data review, questionnaire design and data aggregation.

Output typology: ICT and operative tool

BLUE KEP

Cooperation agreements

The agreements aimed at starting cooperation among IT-HR education systems in the nautical and maritime sector. Several Croatian and Italian technical high-schools were actively involved in the creation and endorsement of the documents, which were the basis for planning students' mobility exchange programmes, including the involvement of sector clusters and companies in hands-on training. With such output, the project achieved the goal of building and testing a sustainable mobility scheme that can be considered a basis for future actions by other national or EU financed programmes. The output was hence needed for standardising school curricula and for harmonising recognition of students' credits in the cooperation countries through a shared recognition scheme and common assessment criteria of students' competences and qualifications. This was an answer to a growing need of specialised and skilled labour force that are key to boosting the blue sector's competitiveness and innovation.

Output typology: Methodology, best practice and/or tool for effective stakeholders' involvement

FAIRSEA

FAIRSEA integrated platform

The objective of the FAIRSEA integrated platform is to enhance the conditions for supporting sustainable fisheries management and ecosystem approach to fisheries in the Adriatic and Ionian Sea. It was achieved through the implementation of a spatially explicit and territorially integrated tool that integrates datasets (years 2000-2020) from physics of the sea to bioeconomy of fisheries. The platform is populated with several layers of data organized into modules. The massive amount of data are integrated as much as possible and the technical integration was adapted to address stakeholders' and policy makers' issues.

Output typology: Database, dataset or structured list of information/data

Fish N' Ships

In order to increase awareness on difficulties and solutions for an Ecosystem Approach to Fisheries and to create an impact on all target groups a Food Web Card Game was developed reproducing the Adriatic/Mediterranean marine food web and fisheries complexity. The game was used to increase the awareness of the general public and especially the younger generations on what is fishing, the large complexity of species targeted by exploitations, what is the impact on marine ecosystem processes induced by fishing, but also what is the complexity of fisheries techniques. The game was developed as an online website that is used to collect the information on the playing activity to study the behavior of stakeholders.

Output typology: Methodology, best practice and/or tool for effective stakeholders' involvement

ITACA

ITACA WebAPP

ITACA project has developed an ICT system (the ITACA WebAPP), which is based on a predictive statistical-mathematical model that makes possible to predict the selling price of the fish product and, consequently, to calibrate the fishing effort on a daily and / or monthly basis based on market demands. The model runs on an econometric algorithm merged with an ecological module, that starting from historical statistical data, provides as output the most probable price in the market for the coming days. The ITACA WebAPP is operating on two pilot species (anchovies and sardines) and has been tested by a group of Adriatic fisheries operators of the Adriatic region, covering on the whole the 80% of the fleet of the small pelagic sector.

Output typology: ICT and operative tool

PRIZEFISH

PRIZEFISH APP for the valorization of the Adriatic Fish products

The App developed has been conceived as an opportunity to create a direct contact with consumers which recognize and add value to Adriatic seafood products obtained by more sustainable fishing practices and tools. The App has served a dual purpose: 1) Informative function, to inform consumers on daily available fish products thus adding value to the whole chain; 2) Operative function, to facilitate the direct contact with the consumers, the products selling and delivery.

The App allows the consumer to know the "zero mile" fish available around him and start a direct contact with the fishermen.

Output typology: ICT and operative tool

SUSHI.DROP

Unmanned Underwater Vehicle "*Blucy*"

The Blucy is a multipurpose Unmanned Underwater Vehicle for noninvasive underwater habitat monitoring, developed and tested during the project. The test was oriented to assess the effectiveness of the underwater drone for surveying the benthic zone in swallow and deep-water environment of the Adriatic Sea and has been made by collecting optical and acoustic data to produce digital models of the underwater environment. At the end, an evaluation of the benefits brought by the adoption of the UUV technology in monitoring deep- water ecosystems has been made.

Output typology: ICT and operative tool

Individual Exploitation Plans

Photogrammetry-derived products (Adrireef)

Added Value. *Web-app for the realtime rendering of 3D point clouds.* Traditional methods for visualize spatial data are generally static, 2D based and require technical knowhow. 3d spatial datasets are getting more common and used because they can easily drive technical information to "non technical" users but the lack of standard formats and the need of high performance hardwares to load the datasets is limiting their usage. The proposed server based web-app overcome the hardware constrains and provide an user friendly interface to manage large 3D spatial dataset. *Virtual Reality Application.* Virtual Reality is a growing communication sector with unprecedented potential for engaging people and increasing public awareness about nature conservation topics. This is particularly effective for those habitats and species difficult to see and experience in person (i.e. deep-sea habitats and tiny creatures). The virtual dive at the Paguro wreck provides a great opportunity for most of the people to visit the marine reserve hard to reach because completely submerged and offshore (12 nautical miles from the coasts). No previous published communication provided a similar opportunity to experience and learn about the marine reserve to a wide public.

Ready to use? The developed webapp based on web-GL technology. The programming architecture is opensource. The Virtual Reality application developed within the Adrireef Project provides a blueprint for any other case scenario. The application architecture is flexible to include new features and functionalities for customising the application to new communication needs. Moreover, the latest virtual reality headsets are equipped with more powerful CPUs able to process more dynamic scenarios and more content functionalities.

Transferable? The Webapp architecture is not sharable but a different app could be developed accordingly to the client's needs. The blueprint developed for the Virtual Reality application can be used to build new content and immersive experiences based on the needs. The back-end coding requires program developers to be adapted. There are not account regulatory, administrative, institutional constraints.

Key Targets to approach. Offshore Energy sector to provide 3D visual data visualization support on offshore structure and assets.

Key events for dissemination. European Maritime Days

Commercial Exploitation. The revenue for the Web App will come from the services of spatial data processing, the back-end webserver app management for clients. For the Virtual Reality application, revenue would not be directly from the distribution of the VR app but associated with side events and virtual tickets, items comemrcialised within Meta Platforms.

Commercial Lead. Comune di Ravenna with the partnership of Habitats Edge Ltd and Ubica srl

Commercial Targets. The target sector for the Web App is Offshore Energy. Product customers: Private sector for Energy exploitation, Engineering companies, public administrations, companies in the field of environmental assessment, field surveys, touristic promotion, etc.
For the Visual communication and the Virtual Reality part, product customers identified are: teenagers, scuba divers, managers, and students of any age.

Education Scientific exploitation. N.a.

Scientific Publications. Conference papers Presented at Med Energy Conference and Exhibition

Other Exploitation strategy. Study visit at Miramare is an example of replication of the experience and product developed for the Paguro site within Adrireef project, MB data processed from Blucy and data visualized within the 3D viewer integrated in WebGis
Potential Integration with other project results. Integration with other project results are under evaluation and possible but specific assessments are needed to design an adequate resulting product.

WebGis App of the Adriatic reefs (ADRIREEF)

Added Value. The developed geodatabase aggregates the available information on the distribution of hard substrates at coastal and offshore areas across the Adriatic Sea and represents a new and comprehensive cartographic layer informing on the reef kind (natural reefs, artificial reefs and wrecks). The data were collected through a literature review and questionnaires compiled by the Adrireef project partners. Data were aggregated and classified among the three classes and information on the depth, origin and other fields was included.

Ready to use? The webGIS page is published online and accessible to users.

Transferable? The Geodatabase is transferable to existing cartographic web portals. The webGIS interface could be integrated into existing web pages. The source code for programming the WebGIS interface is open-source and freely shareable. The CNR as leader of the tool development should be informed and involved in any further development or use of the geodatabase

Key Targets to approach. Policy makers, Turistic and administrative hubs

Key events for dissemination. N.a.

Commercial Exploitation. The product development workflows could be replicated for preparing similar informative layers in other areas. The revenue could come from the Geodatabase development including literature review, stakeholders identification and spatial data processing.

Commercial Lead. CNR

Commercial Targets. The target sector is Coastal and Marine Management. Product customers: Engineering companies, companies in the field of environmental assessment, field surveys, public administrations, etc.

Education Scientific exploitation. N.a.

Scientific Publications. N.a.

Other Exploitation strategy. Replication on other marine sub-regions across all EU.

Potential Integration with other project results. Citizen science projects could be based on this platform to gather and visualize monitoring results. The WebGis and the web app could be tailored to host several information

Cooperation agreements (BLUEKEP)

Added Value. The output is innovative as it, based on the identification of common innovative technical skills, aims at standardising technical (nautical and maritime) curricula and providing a single recognition scheme for school credits that can be channelled in the labour market more easily. Its added value lies in the fact that it stimulates the implementation of the acquis communautaire and of the Bologna process in Croatia and seeks the harmonisation of the regulatory framework for the recognition of credits, on the one hand, and the transfer of knowledge between higher education institutions and the business sector.

Ready to use? Yes, every document is available and can be used by other organisations

Transferable? The output can be transferred to many other blue-economy sub-sectors and can useful to many other institutions-private actors accordingly (e.g. food &drink, catering and hospitality, tourism, cultural heritage). The output can be adapted to other thematic objectives, such as for instance creating innovative skills in the fileds of sustainable tourism, blue tourism, cultural heritage, culture and creative industries.

Key Targets to approach. We can easily reach out to local and regional authorities with which we cooperate. These are the Conference of Maritime and Peripheral Region (CRPM), the Forum of Adriatic Ionian Chamber of Commerce (Forum AIC), the Forum of Adriatic Ionian Cities (FAIC), the Association of Adriatic Ionian Universities (UniAdrion).

Key events for dissemination. N.a.

Commercial Exploitation. N.a.

Commercial Lead. N.a.

Commercial Targets. N.a.

Education Scientific exploitation. We may explore the possibility to involve universities in Italy and Croatia and support the organisation of a cross-border Summer-Winter School on the blue skills for

innovation and this could be linked to the implementation of the new 2021-2027 IT-HR programme as related to Pillar 1 Blue Growth of the EU Strategy for the Adriatic Ionian Region (EUSAIR).

Scientific Publications. N.a.

Other Exploitation strategy. N.a.

Potential Integration with other project results. N.a.

Integrated Platform (FAIRSEA)

Added Value. The platform result in a high technological and innovative tool, intensively data-driven. Embeds data from oceanography (physics and biogeochemistry) up to socio-economic information on fisheries. The platform is containing also results from scenario analysis useful for Ecosystem Approch to Fisheries. It is intended to be useful for policy makers, institutions and organizations

Ready to use? The platform is accecible at this website: https://fairsea.inkode.it/#/login and its usage is described in FAIRSEA D.4.8.2 "Integrated platform and key elements". Once the access is made the user can visualize several layers of information, download data, combine and analyze data, as well as runnign a few scenarios of management actions with exploration of results.

Transferable? The FAIRSEA integrated platform have high potential transferability that is fully described in "FAIRSEA D5.4.2 Guidelines for potential future implementation of the EAF using FAIRSEA products". Basically the platform can be improved, upgraded and enlarged to other areas. At the moment the platform is under the control and responsability of the FAIRSEA partnership.

Key Targets to approach. FAO-GFCM is interested in the results included in the platform.

Key events for dissemination. The result has been presented several times and is often used as a demonstrator. The coming period we plan to present to: - GFCM Working group on vulnerable marine ecosystems and essential fish habitats (WGVME-EFH) – in Rome on 7-10 March 2023.
- GFCM Subregional Committee for the Adriatic Sea (30 May – 2 June 2023).

Commercial Exploitation. Potential interest for commercial exploitation is low. It is expected as a service for communication, visualization, confrontation, support and sharing.
Commercial Lead. N.a. ; **Commercial Targets** N.a.

Education Scientific exploitation. A couple of partners have already used the platform as material for an Advanced School on fisheries tools for management (AMAREMED 2020). The platform will be potentially used in next schools of the series (about 25 students each year). It is foreseen that the platform will be used in the Master on Sustainable Blue Growth by partner OGS. (about 30 students each year). Further exploitation will include development of ecological indicators to assess fisheries (a framework developed by PRIZEFISH), and this will be done through involvement of at least one PhD student.

Scientific Publications. Journal and conference papers submitted or in preparation

Other Exploitation strategy. The FAIRSEA integrated platform have high potential upgrading and

updating is fully described in "FAIRSEA D5.4.2 Guidelines for potential future implementation of the EAF using FAIRSEA products". All data included can be easily updated by including:

- New years (after 2018) of available inputs
- New species (in the case of BSTAT module)
- Increase platform resolution (from actual 1/16 to 1/24 or 1/32);
- Update aggregation of results, upgrading and explicit better socio-economic data;
- include new management scenarios;
- saving user inputs on MCDA
- expanding on larger areas the domain of the platform;
- link directly information with those available on websites
- connect with other platforms (e.g., Copernicus, Worms, STECF etc);
- allow online dynamic modelling of scenario.

Basically most prominent improvements will regard the operationalization and dynamic connection of layers and scenarios. Most important upgrading would be to enlarge the domain of data coverage in space (e.g. to Adrion domain).

Potential Integration with other project results. The framework developed in PRIZEFISH for assessing ecological indicators for fisheries certification will be embedded in the platform. Therefore for each species and each fleet there will be a possibility to calculate the whole set of indicators. The platform will embed the 2D and 3D images resulting from monitoring carried out in SUSHIDROP. Maps will be located and a pop-up image will alllow increasing resolution and watching inisde the monitored domain. Similar approach will be done for maps developed by ADRIREEF project

Fish N' Ships is a card game (FAIRSEA)

Added Value. The Fish N' Ships is a card game that was developed and used to increase the awareness of the general public and especially the younger generations on what is fishing, the large complexity of species targeted by exploitations, what is the impact on marine ecosystem processes induced by fishing, but also what is the complexity of fisheries techniques. The game was developed as an online website that is used to collect the information on the playing activity to study the behavior of stakeholders.

Ready to use? The game is ready to use: sical card game was printed in more than 1200 copies, in IT, HR, EN. Distributed for free under request by educational and scientific organization. The online version is available here: https://www.fishnships.it/ . The game could be direcly use by anyone. It is fully documented in the FAIRSEA Deliverable: D 2.3.5 – Food web card game

Transferable? Yes. We are currently trasnferring for example to Southern Benguela System (South Africa). This require some minor restructuring of the game, translation, revising the species and fisheries cards. It is under scrutiny the adaptation to other systems (eastern Mediterranean Sea, Islandic Sea)

Key Targets to approach. The WWF is highly interested in the approach and would like to use it, together with educational organization for communication purposes. The game has been used to apply to the UNESCO Prize for the use of information and communication technologies in education.

Key events for dissemination. The game will be used in:

- event with high schools on 03/03/2023 at OGS
- Trieste NEXT 22-24 september 2023
- Master in Sustrainable Blue Growth (https://blueskills.inogs.it/)

Commercial Exploitation. Potential interest for commercial exploitation is high. Nevertheless, the result is now under responsability of OGS which is submitting request for registering the brand for protection at EU level. Intention to make it business opportunity will be evaluated afterwords, possibly with the White Cocal Press that developed it for OGS.

Commercial Lead The eventual commercial lead will be in the hands of
1) Istituto Nazionale di Oceanografia e Geofisica Sperimentale - OGS
2) White Cocal Press di Diego Manna

Commercial Targets. Target sectors are educational tools and games. Possibly the number of target is very high because of the possible easy transferability fo the approach.

Educational and Scientific exploitation. Very high potential. For educational purposes: OGS is developing it (together with White Cocal Press) into a Southafrican version. OGS is using it for communication and dissemination in several events. Scientific: the online version will be saving the cards used as a way to collect data on people behaviour with respect to management

Scientific Publications. Fish N' Ships is possibly the subject of a paper for young generations that is under development.

Other Exploitation strategy. The game can be further upgraded and updated by: increasing the potential ways of gaming (including simplified one); adapting it in order to be played by a single player against the computer (using AI); users can be forced to represent different stakeholders in order to test diversity in behavior; can be easily translated in other languages (it is foreseen translation in Slovenian language). Exploitation strategy consists in developing new versions in other places (e.g., South Africa) Seminars at secondary schools and universities allowed to introduce EAF concepts and contribute to a change of the mindset. Webinars underlining the principles of EAF, introducing different aspects related to the project and illustrating the integrated tool (theory and application) run targeting the general public, as well as students, early career scientists, policy-makers and different stakeholders. The card game reproducing trophic web complexity and functioning was used during public events and seminars at schools to transfer scientific contents on ecosystem functioning to younger generations through entertainment.

Potential Integration with other project results. Future developments might include: i) insights from PRIZEFISH project for including relevant ecological impacts, scoring and economic value of all exploited species for example; ii) the game can be used in other projects as a demonstrative/communication tool.

ITACA WebAPP (ITACA)

Added Value. The ITACA WebAPP is an ICT system oriented to fisheries operators that allows to forecast the most probable selling price in the market for two fish products (anchovies and sardines). The most probable selling price is defined by the application of an algorithm that runs on the basis of historical data on catches and prices for the two species collected at whole Adriatic level. The algorithm is continuously updated thanks to the uploading of new data by fisheries operators. The added value deals with the ability of the WebAPP to orient the future catches and provide fisheries operators with a tool that allows to tailor catches quantity to obtain the most profitable return, avoiding surplus.

Ready to use? Yes, the WebAPP is currently under utilisation by a restricted group of small pelagic fisheries operators of the North Adriatic Sea. At today, its functions are set to be operative in the whole Adriatic Sea, by different fishing harbours.

Transferable? Yes, the WebAPP could be transferred at twofold levels. Firstly, it can be transferred at geographical level, by introducing in the algorithm new fishing harbours and/or new geographical areas, therefore including new parameters for the calculation of expected market prices of fish products. Secondly, the econometric model and the ITACA WebAPP could be applied to other ichthyic species and return the expected market pride as well. In both cases, a preliminary data collection and model setting is needed.

Key Targets to approach. Small pelagic fisheries enterprises

Membership: The ITACA cluster has been established within the ITACA project as a group of Small pelagic fisheries enterprises interested and engaged in the utilisation of the ITACA WebAPP. The cluster, so far, includes about 20 enterprises under a voluntary adhesion. The ITACA WebAPP could be an useful tools for all the fisheries organisations of producers that operates in the market of fish products or, more generally speaking, to all aggregates subjects operating along the fish products chains.

Key events for dissemination. N.a.

Commercial Exploitation. The WebAPP has been conceived to be freely available to small pelagic fisheries operators to increase the sector competitiveness, under the adhesion to the ITACA Cluster and the compliance with Cluster rules. In the Cluster rules, specific provisions for the sustainability of the functioning WebAPP costs are reported. Nevertheless, the approach and the tool developed could be a private service to be marketed to different groups of operators. For instance, the WebAPP could be introduced to market as specific service/products for fisheries enterprises to improve their market and positioning capacities. To this purpose, some important issues about the database availability and reliability, to make the WebAPP forecasts precise, should be faced, before its commercialisation.

Commercial Lead. The further development of the ITACA WebAPP could be easly endorsed by a specific subjects who have deep knowledge on fishing operations and ICT competences. In this view, a start-up merging specific competences in food market (and especially in fish chains) and ICT competences should be launched

Commercial Targets. Fisheries enterprises in aggregation such consortia, organisation of producers, clusters, etc.

Education Scientific exploitation. The WebAPP utilisation could contribute to the enrichment of statistical database regarding the fisheries activities, mainly in terms of collection of new data on catches (at very local level) and selling prices for the fish products. Those data could be the basis for further research and studies.

Scientific Publications. Scientific publications could be the results of WebAPP data analyses. Not foreseen at moment.

Other Exploitation strategy. The ITACA WebAPP approach could be replicated also for other icthiyc species with a commercial value.

Potential Integration with other project results. The environmental component of the ITACA WebAPP (i.e. the one that provides for indicatations in terms of size and possible sustainability of catches) could be further improved by introducing new and different environmental parameters collected and made avialable by database and ICT tools established by other projects, besides official registers. On the other hand, all new data on catches and prices for small pelagic stocks could be made available to integrate official existing database. In that case, specific agreements for data protection should be foreseen.

App For The Valorization Of The Adriatic Fish Products (PRIZEFISH)

Added Value. The App has been conceived as an opportunity to create a direct contact with consumers which recognize and add value to Adriatic seafood products obtained by more sustainable fishing practices and tools.
The App has served a dual purpose:1) Informative function, to inform consumers on daily available fish products thus adding value to the whole chain; 2) Operative function, to facilitate the direct contact with the consumers, the products selling and delivery. The App allows the consumer to know the "zero mile" fish available around him and start a direct contact with the fishermen.
The Adriatic Fishery products represent the core part of the model, the object that capture consumers' attention. By means of georeferenced information it will be possible to know: i) the fishery's products availability and the distance from the consumer's localization; ii) information on the species and seasonality; iii) information on the fishermen that caught the product, techniques and tools used; iv) when and where to go to buy the product; v) if the product can be home delivered.

Ready to use? The PRIZEFISH App has been designed and tested - in the Marche Region pilot area – within the PRIZEFISH project. The app intends to promote a local and reliable seafood market model for the fresh product, also with the initial aim to offer a further support to the fishery's sector to cope with the pandemic emergency and emergency consequences. For the consumers: The App is available for download on the IoS and Android store looking for "PRIZEFISH". For the fishermen: Adriatic fishermen can join the activity and be included in the APP requesting for registration from the website https://www.prizefish.eu/. Currently the hosting and mantainance of website, backoffice and APP is guaranteed till the end of 2023

Transferable? The App has a transferable potential also beyond the PRIZEFISH context as well as regional borders. The App is based on the use of georeferenced data, so possibly it can be transferred to any geographical context. Within the PRIZEFISH project the APP was built as a regional pilot activity and thus it is available at present only in Italian language. However, for the perspective of potential transfer, a prelinary analysis should be conducted to evaluate the framework conditions in terms of review of existing initiatives, policy and administrative background, fishers' interest and local market analysis.

Key Targets to approach. AMAP is already member of the ARIEL (Plus) Knowledge Network for innovation speed-up and uptake in small-scale fisheries and aquaculture. One of the Network mission and operational goal is to support the setting-up of virtual marketplaces to shorten the supply chain, promote quality and traceability as well as raise the consumers' awareness on sustainable practices. The Network works through the innovation community at https://arielplus.cnr.it/.Moreover, an opportunity to further disseminate the result is to approch the following small-scale fisheries associations, set-up under the Adri.SmArt.Fish project (INTERREG Italy-Croatia Programme): "Associazione Piccola Pesca Adriatica" for the Italian side and "HOK Udruga malih priobalnih ribara jadrana" for the Croatian side.

Key events for dissemination. AMAP is planning to promote the result at "Tipicità in Blu", the main event on the blue economy at regional level (Ancona, May 2023).

Commercial Exploitation. If upgraded with additional functionalities such as the cart, further opportunities could be explored

Commercial Lead. ICT experts could be interested in a potential commercial exploitation of the results

Commercial Targets. The App was tested by the CogePa - the Small-scale fisheries consortium of Marche Region. Potential targeted sectors are, -Fishermen consortia and Associations of the Adriatic (and Mediterranean) area; -Consumers/buyers/caterers/Etichal Purchasing Groups from the Adriatic (and Mediterranean) area

Education Scientific exploitation. We may explore the possibility to involve universities in Italy and Croatia and support the organisation of a cross-border Summer-Winter School on the blue skills for innovation and this could be linked to the implementation of the new 2021-2027 IT-HR programme as related to Pillar 1 Blue Growth of the EU Strategy for the Adriatic Ionian Region (EUSAIR).

Scientific Publications. N.a.

Other Exploitation strategy. The APP is based on the use of georeferenced data, thus the solution could be potentially replicated in any other area, inside and outside the it-hr programme. Current limitation is language-related, thus replication in different countries could be possible as long as translation is provided. The initiative is coherent with the 2021 - 2027 IT-HR Programme priority linked to the promotion of a sustainable economic development through green and blue innovation policies with reference to the S0 1.1 RSO1.1. Developing and enhancing research and innovation capacities and the uptake of advanced technologies and SO1.2. Developing skills for smart specialisation industrial transition and entrepreneurship

Potential Integration with other project results. N.a.

Integration of the Underwater drone Blucy with Open access GIS (SUSHI.DROP)

Added Value. The SUSHIDROP drone is unique in the sense that it can operate both as a Remotely Operated Vehicle and as an autonomous vehicle, and having an open architecture, it is possible to integrate new instruments.

Ready to use? The Blucy drone has been used in multiple surveys, including one in the framework of TECHERA and the University of Bologna is open to collaborations involving the usage of this device to perform new monitoring surveys. The Open GIS is available at https://site.unibo.it/sushidrop/it/data.

The Deliverable 4.3.3 of the project SUSHI DROP is an explanatory document which details how an external user can interrogate the GIS platform to obtain the desired outputs.

Transferable? The Open database of SUSHI DROP is published in formats defined by the Open Geospatial Consortium (OGC) so to make geospatial (location) information and services FAIR (Findable, Accessible, Interoperable, Reusable) for scientists, public administrations and citizens.

Key Targets to approach. We would approach these networks: EMODNET (https://emodnet.ec.europa.eu/) ; SEADATANET (https://www.seadatanet.org/)

Key events for dissemination. Underwater Acoustics Conference and Exhibition (UACE). Underwater Technology Conference (UTC). International Conference on Smart and Sustainable Technologies (SpliTech). Underwater Robotics Conference (URC)

Commercial Exploitation. It is conceivable the launch of a new inspection service based on the usage of the drone as a means to assess the marine status.

Commercial Lead. The University of Bologna may favor the exploitation of the drone technology on the market through the activities of its Knowledge Transfer Office.

Commercial Targets. Environmental agencies, local/national authorities concerned with sustainability of the marine economy, fisheries, industries interested in monitoring offshore infrastructures.

Educational and Scientific exploitation. UNIBO plans to integrate the generated knowledge into a course for its PhD Programmes in "Engineering and Information Technology for Structural and Environmental Monitoring and Risk Management (EIT4SEMM)" and “Innovative technologies and sustainable use of Mediterranean Sea fishery and biological resources” (FishMed-PhD).

Scientific Publications. 1 Open Access Journal Papers and 3 conference papers already published. We are planning the submission of an additional journal paper by the end of the TECHERA project Self-archiving online repositories (green road) or peer-reviewed scientific journals (golden road)

Other Exploitation strategy. 1) We plan the upscaling and replication of the results of SUSHI DROP in additional demo sites, inside and outside the ITA-HR region. For example, within TECHERA, we have performed a scientific mission in the MPA of Trieste Miramare. The result replication potential is evident from the coherence with the following specific objectives of the 2021-2027 Italy-Croatia Programme: Market-driven research and R&D cooperation in SO 1.1; Monitoring systems and integrated management tools in SO2.2.

Potential Integration with other project results. The drone technology can provide input data for the Platform developed within the FAIRSEA project, and contribute to the REEF assessment and virtualization technologies developed within ADRIREEF.

Discussion and Conclusions

As already anticipated in D3.1.1, all the cluster projects produced outputs with a strong operative level which are suitable for potential exploitation. In the following table, the specification for each selected output about the compatibility with Commercial, Educational and Research, and Other form of exploitations is reported.

	Adrireef 1	Adrireef 2	Blue Kep	Fairsea 1	Fairsea 2	Itaca	Prizefish 1	Sushi Drop
Strategy	**Photogram.**	**WebGIS**	**Agreements**	**Fish'n Ships**	**Platform**	**WebApp**	**Prizefish App**	**Drone**
Commercial	Y	Y	N	Y	N	Y	Y	Y
Educational/Research	Y	N	Y	Y	Y	Y	Y	Y
Other	Y	Y	N	Y	Y	Y	Y	Y

Moreover, the PPs have evaluated the potential targets of the exploitation activities (i.e. the so called *takers*). These targets can be grouped in the following categories:

- Fishery Enterprises & associations
- General Public – Consumers - Ethical purchasing groups
- Restaurants/ caterers
- ICT and Geomatic companies - Investors
- Academia & research
- Policy makers - Sectoral Agency - Development Agency
- Local action groups/NGO

Each partner interested in the exploitation of the different outputs was asked to rate from 1 (min) to 10 (max):
1) the Influence i.e. the power stakeholders have over the result exploitation to control what decisions are made, and facilitate its implementation
2) The Importance, i.e. the priority given to satisfy stakeholders' needs and interests

The results of this poll are reported in the following tables:

INFLUENCE	ADRIREEF 1	ADRIREEF 2	Blue Kep	Fairsea 1	Fairsea 2	ITACA	Prizefish 1	Sushi Drop
Stakeholders	**Photogram.**	**WebGIS**	**Agreements**	**Fish'n Ships**	**Platform**	**WebAPP**	**Prizefish App**	**Drone**
Fishery Enterprises & associations				5	8	9	10	5
Consumers - General Public - Ethical purchasing groups	8	6		10			8	
Restaurants/ caterers							8	
ICT and Geomatic companies - Investors	9	9					7	8
Academia & research	7	7		8	10		6	8
Policy makers - Sectoral Agency - Development Agency	8	8	10	3	8		8	10
Local action groups/NGO	9	9		10	8			5

IMPORTANCE	Adrireef 1	Adrireef 2	Blue Kep	Fairsea 1	Fairsea 2	ITACA	Prizefish 1	Sushi Drop
Stakeholders	**Photogram.**	**WebGIS**	**Agreements**	**Fish'n Ships**	**Platform**	**WebAPP**	**Prizefish App**	**Drone**
Fishery Enterprises & associations				3	10	8	10	8
Consumers - General Public -Ethical purchasing groups	9	8		10			8	
Restaurants/ caterers							6	
ICT and Geomatic companies - Investors	9	9					5	6
Academia & research	7	7		5	8		6	10
Policy makers - Sectoral Agency - Development Agency	9	7	10	3	10		8	8
Local action groups/NGO				10	10			8