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BlueRemediomics

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Project Acronym	**BlueRemediomics**
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Instrument	**RIA**
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WP Lead	**ERINN and FTO**
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UK Research and Innovation

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HISTORY OF CHANGES		
Version	**Publication date**	**Changes**
1.0	9 June 2023	N/A; Initial First full version
2.0	18 July 2024	Section 2.2.4 updated to include more explanations and guidelines related to Open Science and Open Access, aligning with the objectives set up under the Horizon Europe funding scheme. Section 3.2. "Post-Dissemination Requirements": Update of the continuous reporting protocol. Section 7.1. The Key Performance Indicators (KPIs) set out in the PDEC Table 2 have been recorded mentioning the current status of success in the time period between M1-M18 of the project Section 7.2: The events section was updated with all past and upcoming external events. Typographical edits throughout document Correction of formatting errors and structure throughout document where needed Correction of grammatical errors
3.0	18 November 2024	Section 5 was added to include an explanation and a table of the expected KERs, pathways to reach the end TRLs and exploitation measures for each KER based on the recommendations from the EC review meeting. Section 5 also details an explanation of exploitation measures in non-associated 3rd countries especially with a view to ABS.

Executive Summary

The **BlueRemediomics** Plan for Dissemination, Exploitation and Communication (PDEC) outlines the consortium's rights and obligations to the European Commission (EC) for Dissemination, Exploitation and Communication (DEC) of the project results. It adopts EC best practice guidelines and defines the objectives of **BlueRemediomics** DEC. It also identifies target stakeholders, proposes communication tools and channels, and outlines responsibilities and resources to carry out effective knowledge management, and to measure impact.

All project participants have an obligation to participate in the DEC of **BlueRemediomics** results and outputs to create impact, especially in their own countries and in their own communities. Within the PDEC, the DEC activities to be performed are described, along with protocols and processes to be followed.

BlueRemediomics has a work package (WP) dedicated to these activities (WP6 led by Beneficiaries ERINN Innovation and FTO) specifically designed to support project communication activities to a wide audience and targeted dissemination and exploitation of results for specific stakeholders. To support participants in DEC of results, a portfolio of resources is available, developed under WP6. This portfolio isupdated regularly, and additional resources made available as required. **BlueRemediomics** makes use of the latest tools and communication channels to ensure cost effectiveness and maximum impact.

The PDEC has been developed by beneficiary ERINN Innovation who also oversees its continuous implementation. This is the second version of the PDEC, updated at the first reporting stage (M20). As it is a dynamic document, it will be evaluated again at the following EC reporting stages and adjusted if needed. An official updated version (D6.2 – PDEC-updated) is due in M45.

Contents

1. Introduction

BlueRemediomics aims to establish strategies to responsibly harness the full potential of marine microbial communities for its sustainable exploitation as a bioresource for new molecules, genes, and organisms. It proposes to achieve this ambitious aim by uniting science, industry, and society stakeholders in a framework compatible with environmental protection. To this end, **BlueRemediomics** will 1) Develop an integrated bioinformatics platform to explore the marine microbiome, uniting data and data types; 2) Establish innovative culturomics and screening platforms to experimentally exploit marine microbes using new methods for scaling up biomass; 3) Develop novel, natural products and processes based on marine bioresources and demonstrate their positive application on the upcycling of bioplastics, reducing waste in food systems, and emerging environmental issues; 4) Develop aquaculture and ecosystem services, which will improve the understanding of the relationship between the marine microbiome and ocean health; 5) Increase awareness of the marine microbiome by fostering high-level engagement and knowledge exchange with stakeholders and targeted end users.

To guarantee the adoption of **BlueRemediomics** solutions, support its uptake, and maximise the impact and legacy of **BlueRemediomics**, the project has put in place effective communication, dissemination, engagement and knowledge transfer (KT) strategies in a standalone work package (WP), namely WP6 – Communication, Dissemination, Outreach and Exploitation.

1.1 Rationale

The **BlueRemediomics** PDEC outlines the DEC strategies to be implemented by the consortium throughout the project lifetime and beyond.

Adopting the European Commission (EC)'s best practice guidelines and aligning with rights and obligations outlined in the **BlueRemediomics** Grant Agreement (GA) related to dissemination and exploitation, the PDEC describes internal processes and protocols set up to support communication, manage generated knowledge and to ensure exploitation of the **BlueRemediomics** results. It identifies key project stakeholders, communication tools and channels and describes the means (tools, messages) of dissemination and measures to support exploitation.

1.2 Objectives

The PDEC aims to:

- Promote the project activities and results beyond the consortium by employing a range of communication and dissemination tools;
- Provide a useful guide to all members of the **BlueRemediomics** consortium about rules and responsibilities surrounding DEC;
- Identify and profile the target stakeholders for the different project results;
- Define the most effective dissemination and exploitation channels and tools, which are tailored to the relevant stakeholders;
- Outline the Knowledge Management (KM) and Knowledge Transfer (KT) principles and protocols to ensure the effective transfer of Key Exploitable Results (KERs);
- Ensure timely and efficient knowledge management and transfer while safeguarding intellectual property (IP);

- Maximise post-project uptake by developing thorough and forward-thinking plans that clearly outline the potential users and applications of the project's KERs and KT activities required to ensure objective and measurable short and long-term project impacts.

The **BlueRemediomics** PDEC describes the DEC activities to be performed to ensure the exploitation of the project's outputs, its maximum impact, and the availability of the gained knowledge for all interested organisations. It is a dynamic document and will be evaluated and updated at EC reporting stages, allowing for adjustments as needed.

2. Key Principles Guiding the PDEC

2.1 Definitions and Terminology

The foundation of the **BlueRemediomics** PDEC is the knowledge management process which has been implemented from the start of the project and which informs communication, dissemination, and exploitation (KT), in line with the EC definitions[1] as follows:

- **Communication** is a strategically planned process that starts at the outset of the project and continues throughout its entire lifetime. It is aimed at promoting **BlueRemediomics** and its results. It requires strategic and targeted measures for communicating about **BlueRemediomics** and the project's results to a multitude of audiences, including the media and the public, and possibly engaging in a two-way exchange. Activities used for communication purposes are, for example, a public website, press releases, promotional articles, videos, social media and public outreach activities linked with the TREC (Traversing European Coastlines Exploration) expeditions.
- **Dissemination** *is the public disclosure of the project results by appropriate means, other than resulting from protecting or exploiting the results, including by scientific publications in any medium* (Definition according to HE GA). Dissemination makes research results known to various stakeholder groups in a targeted way, enabling them to use the results in their own work. Activities used for dissemination purposes are, for example, peer-reviewed scientific publications, book chapters, research theses and dissertations, conference presentations, education and training workshops on Access and Benefit (ABS) and culturomics, clustering activities and collaboration with other EU-funded projects.
- **Exploitation** *is the use of results in further research and innovation activities other than those covered by the project, including among other things, commercial exploitation such as developing, creating, manufacturing and marketing a product or process, creating and providing a service, or in standardisation activities* (Definition according to HE GA). It requires several steps including identifying exploitation mechanisms and activities, focused on identified end users to ensure impact and uptake of the results, which will provide measurable impacts for **BlueRemediomics**, while ensuring any project-generated IP is properly managed.

[1] http://ec.europa.eu/research/participants/portal/desktop/en/support/reference_terms.html; https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/temp-form/report/periodic-report_horizon-euratom_en.pdf

2.2 Rights, Rules and Obligations related to Results

This section outlines a summary of some key aspects of the rights and obligations relating to the protection of these results; however, it is not an exhaustive summary. For further details on the project and Horizon Europe rules surrounding ownership and protection of results please refer to the Grant Agreement (GA), Consortium Agreement (CA) and on specific rules for data outputs, please see deliverable D7.2 Data Management Plan (DMP; M6).

2.2.1 Ownership of Results

Results are owned by the participant that generates them. Two or more project participants' own results jointly if they have jointly generated them and it is not possible to establish the respective contribution of each participant, or separate them, for the purpose of applying for, obtaining, or maintaining their protection (GA Article 16.2 – Annex 5). The joint owners must agree (in writing) on the allocation and terms of exercise of their joint ownership (joint ownership agreement) to ensure compliance with their obligations under the GA. If valuable results are not protected, the Commission may under certain circumstances assume ownership of the results (see GA Article 16 – Annex 5 for further details).

2.2.2 Protection of Results

Each partner has an obligation to protect its results. Project partners who have received funding under the grant must adequately protect their results — for an appropriate period and with appropriate territorial coverage — if protection is possible and justified, taking into account all relevant considerations, including the prospects for commercial exploitation, the legitimate interests of the other project participants and any other legitimate interests.

2.2.3 Exploitation of Results

Each partner has an obligation to exploit its results. Project partners who have received funding under the grant must — up to four years after the end of the action (see Data Sheet, Point 1) — use their best efforts to exploit their results directly or to have them exploited indirectly by another entity, in particular through transfer or licensing.

If, despite a Beneficiary's best efforts, the results are not exploited within one year after the end of the action, the Beneficiaries must (unless otherwise agreed in writing with the granting authority) use the Horizon Results Platform to find interested parties to exploit the results. If results are incorporated in a standard, the Beneficiaries must (unless otherwise agreed with the granting authority or unless it is impossible) ask the standardisation body to include the funding statement (see GA Article 17) in (information related to) the standard.

Intellectual Property Rights (IPR) and Management

BlueRemediomics will follow the rules for IP set out in the consortium agreement (CA) and regulated by the EC. More information can be found in GA (Article 16.4) "Intellectual Property Rights (IPR) — Background and Results — Access Rights and Rights of Use".

BlueRemediomics will explore the improvement of the protection and sustainable use of marine (genetic) bioresources by advancing new intellectual property rights (IPR) approaches to securing clear access while ensuring fair and equitable sharing of benefits arising from their utilisation.

Current practice with regards to ABS, IPR and scientific openness can create conflicting obligations, resulting in suboptimal use, protection and sharing. **BlueRemediomics** is exploring solutions which balance reward, sharing, and tracing technology to facilitate development of a sustainable blue bioeconomy by focusing on databases, biobanks and the terms and conditions imposed on providers and users. Furthermore, by taking into consideration the emerging trends in Digital Sequence Information (DSI), a standardised traceability system from sampling to data based is being developed on (i) Open Science practices; (ii) Findable, Accessible, Interoperable, and Reusable (FAIR) principles; and (iii) Collective Benefit, Authority to Control, Responsibility, and Ethics (CARE) principles.

2.2.4 Communication and Dissemination of Results

Each participant must disseminate their results as soon as possible by disclosing them to the public. However, no dissemination may take place before a decision is made regarding possible protection (section 3.1). Other participants may object if their legitimate interests in relation to their results or background could potentially suffer harm. Results that are disclosed too early (before the decision on their protection) may run the risk of making protection impossible.

Therefore, project participants who intend to disseminate their results must give at least 30 calendar days prior notice (see section 3.1.1) to other project participants (unless agreed otherwise), together with sufficient information on the results they intend to disseminate (GA Article 17 – Annex 5).

Any other participant may object within (unless agreed otherwise) 20days of receiving notification if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the results may not be disseminated unless appropriate steps are taken to safeguard those interests.

NO dissemination at all may take place, if:

- the results in question need to be protected as a trade secret (i.e. confidential knowhow) or
- dissemination conflicts with any other obligations under the grant (e.g. personal data protection, security obligations, etc).

Open Science and Open Access (OA) to Scientific Publications

‘Open Science’ is an approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible in the research process.

The open science provisions in Horizon Europe contain a set of requirements and encouraged practices that cover some of the most important aspects of open science. They concern research outputs such as scientific publications and research data and additional open science practices.

‘Research outputs’ are results to which online access can be given in the form of scientific publications, data or other engineered outcomes and processes, such as software, algorithms, protocols, models, workflows and electronic notebooks.

This section outlines OA requirements for scientific publications. Participants must also manage the digital research data generated in the action (‘data’) responsibly, in line with the FAIR principles. For more information on open science in relation to research data management and FAIR principles, please see the **BlueRemediomics** Data Management Plan (D7.2 - DMP).

Providing OA to peer-reviewed scientific publications in Horizon Europe funded projects is an obligation for all grants(GA Article 17 – Annex 5). The collection and upload of these publications and their underlying digital research data to an open access repository is the responsibility of the publication authors/data owners.

Beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. This includes articles and long-text formats, such as monographs and other types of books. Immediate open access is required i.e. at the same time as the first publication, through a trusted repository using specific open licences. Participants are encouraged to provide open access to ALL publications, even if they are not peer-reviewed.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements.

Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine actionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication.

How to provide open access (source: Annotated Grant Agreement HE):

Beneficiaries/authors may publish in the venue of their choice, either in a closed venue (i.e. access to all content is restricted), an open access publishing venue or in a hybrid publishing venue, provided that all their open access related obligations as detailed in the Grant Agreement are complied with:

- *Open access publishing venues* — Are publishing venues whose entire scholarly content is published in open access (e.g. open access journals, books, publishing platforms, repositories or preprint servers).
- *Hybrid publishing venues* — Are publishing venues which provide part of their scholarly content in open access, while another part is accessible through subscriptions/payments (e.g. hybrid journals and books). These are often journals/books based on subscription/purchase which provide open access to part of their content when an open access fee is paid by their authors/institutions (paid ad hoc or on the basis of an institutional agreement with the publishers).
- *Mirror and sister journals* (i.e. more recently established open access versions of existing subscription journals, which may share the same editorial board as the original journal and usually have (at least initially) the same or very similar aims, scope and peer review processes and policies; these journals often have a name similar to the subscription title but a different ISSN) are considered open access publishing venues for Horizon Europe grants (not hybrid journals).

In parallel, beneficiaries/authors must deposit their publication in a machine-readable format (i.e. structured format that can automatically be read and processed by a computer) in a trusted repository — before or at publication time — and immediately provide open access to the publication through that repository.

⚠ Publishing in an open access venue without depositing in a repository, does NOT comply with the open access requirements. All peer-reviewed publications must be deposited in trusted repositories and open access provided to them through the repositories.

When choosing the publishing venue and the repository, beneficiaries/authors must keep in mind that licensing requirements, metadata requirements and validation requirements must also be complied with at this time.

⚠ The European Commission offers Horizon Europe beneficiaries Open Research Europe (ORE), an **open access publishing platform with no publishing fees**. ORE is offered as an additional publishing option to Horizon Europe beneficiaries. When ORE is the selected publishing venue, all requirements for open access to scientific publications are automatically fulfilled, as ORE deposits publications in the all-purpose repository Zenodo under the conditions required by Horizon Europe.

Immediate open access through the repository must be provided either to the final peer-reviewed manuscript accepted for publication or to the final published peer-reviewed version.

Please also note that **publication fees are only eligible when publishing in full open access publishing venues (venues in which the entire scholarly content is openly accessible to all) and not in hybrid venues.** Publication fees may, in particular, include peer review fees, including where the peer review service has been provided by an organisation different from the one providing the publishing venue. Peer review fees for publications are eligible for reimbursement only for the first round of peer reviewers.

⚠ **Publishing fees** (including page charges or colour charges) for publications in other venues, for example in subscription journals (including hybrid journals) or in books that contain some scholarly content that is open and some that is closed are NOT eligible costs.

⚠ **Publishing fees** for open access books may be eligible to the extent that they cover the first digital open access edition of the book (which could include different formats such as html, pdf, epub, etc.).

⚠ **Printing fees** for monographs and other books are NOT eligible.

Repository requirements (source: Annotated Grant Agreement HE):

Beneficiaries must ensure deposition of and open access to publications (and research data, where the case) through trusted repositories.

'Repositories' are online archives, where researchers can deposit digital research outputs and provide (open) access to them. Repositories help manage and provide access to scientific outputs and contribute to the long-term preservation of digital assets. They can be institutional, operating with the purpose to collect, disseminate and preserve digital research outputs of individual research organisations (institutional repositories, e.g. the repository of University X) or domain-specific, operating to support specific research communities and supported/endorsed by them (e.g. Europe PMC for life sciences). There are also general-purpose repositories, such as for example Zenodo, developed by CERN.

Personal websites and databases, publisher websites, as well as cloud storage services (Dropbox, Google drive, etc) are NOT considered repositories. Academia.edu, ResearchGate and similar platforms do not allow open access under the terms required and therefore are also NOT considered repositories.

For more information on OA, please consult GA Article 17 - Annex 5 (Communication, Dissemination, Open Science and Visibility), in particular the Annotated Model Grant Agreement provisions.

Licensing requirements and IPR:

Scientific publications must be licensed under the latest available version of a Creative Commons Attribution International Public Licence (CC BY) or an equivalent licence. For monographs and other long-text formats the licence may exclude commercial uses and derivative works (as in CC BY-NC, CC BY-ND or CC BY-NC-ND or equivalent licences).

For more guidance, including an explanatory checklist of the rights conferred by the above licences that will help researchers to understand publisher-equivalent licences, see the HE Programme Guide.

Beneficiaries (or authors, where the case) must retain sufficient intellectual property rights to be able to comply with their open access requirements.

⚠ The obligation to ensure open access under the conditions set out in the Grant Agreement precedes any subsequent publishing agreement and is therefore a prior obligation with respect to such agreements.

Best practice: Beneficiaries/authors retain the copyright on their work and grant, insofar as possible, non-exclusive licences to publishers. To facilitate this, beneficiaries should put in place institutional policies to ensure copyright retention by authors and/or beneficiaries and compliance with the open access requirements.

To help you find publishing venues that comply with Horizon Europe open access requirements, you can use:

- the Journal Checker Tool (Journal Checker Tool: Check which publishing options are supported by your funder's OA policy |) — can help to determine whether a specific publishing venue allows compliance with the open access obligations of Horizon Europe

- the Directory of Open Access Journals (Directory of Open Access Journals – DOAJ) — can help to identify full open access journals that allow open access publishing under CC BY or an equivalent licence

- Open Research Europe (Open Research Europe | Open Access ... | Open Research Europe (europa.eu)) — open access publishing platform of the European Commission, allows automatic compliance with the Horizon Europe requirements.

2.2.5 Visibility of funding

Project participants are obligated to use the EU emblem when publishing and/or presenting work carried out under the **BlueRemediomics** project (GA Article 17.2). Unless the European Research Executive Agency (REA) requests or agrees otherwise, any dissemination of results (in any form, including electronic) must acknowledge EU support and display the European flag (emblem) and funding

statement (translated into local languages, where appropriate). This includes media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc. in electronic form, via traditional or social media, etc. dissemination activities and any infrastructure, equipment, vehicles, supplies or major result funded by the grant. When displayed in association with another logo, the EU emblem must have appropriate prominence. For the purposes of their obligations under this Article, the project participants may use the EU emblem without first obtaining approval from the Agency. This does not, however, give them the right to exclusive use. Moreover, they may not appropriate the EU emblem or any similar trademark or logo, either by registration or by any other means.

Any communication or dissemination activity related to the project must include the following EU emblem and funding acknowledgement:

Funded by the European Union under the Horizon Europe Programme, Grant Agreement No. 101082304 (**BlueRemediomics**). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

The European Union funding emblem is available in two versions, including the above vertical format and the horizontal format (left).

Any communication or dissemination activity related to the project in which non-EU funded participants are involved must include the emblem and acknowledgement above, as well as the following non-EU funding emblems and acknowledgements where relevant.

ETHZ, our Swiss partner should acknowledge funding from the Swiss State Secretariat for Education, Research and Innovation (SERI) along with the logo as follows:

The Swiss Partner on **BlueRemediomics** (Eidgenoessische Technische Hochschule Zuerich) has received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI) under Contract No.22.00384.

Our UK partners (UCL, UCAM, UNIABDN) are required to cite funding from the UK Research and Innovation (UKRI) along with the logo as follows:

UK Research and Innovation

UK Partners on **BlueRemediomics** are supported by UK Research and Innovation (UKRI) under the UK Government's Horizon Europe funding guarantee Grant No. IFS 10061678 (University College London); IFS 10055633 (The Chancellors Masters and Scholars of the University of Cambridge); IFS 10057167 (University of Aberdeen).

When displayed in association with these non-EU funding emblems and acknowledgements, the EU emblem must have appropriate prominence.

The EU funding emblem and acknowledgement are available on the project Google Drive. If you have any queries about their use, please contact ERINN Innovation (rebecca.pflanz@erinn.eu).

2.3 General Data Protection Regulation Implications

The General Data Protection Regulation (GDPR) (EU 2016/679) provides enhanced protection to individuals' data privacy rights. Organisations storing or using personal data (anything that allows identification of an individual) must clearly disclose what data is being collected and how, why it is being processed/used, how long it is being retained, and if it is being shared with any third parties. Personal data can be names, email addresses, job titles, phone numbers, and anything that allows identification of an individual.

2.3.1 GDPR Compliance (website, mailing list and events)

The **BlueRemediomics** project website (www.blueremediomics.eu) managed by ERINN, is fully compliant with GDPR by incorporating a Privacy Statement and Cookie Bar informing website visitors about what **BlueRemediomics** does with any personal data gathered. A 'Subscribe to News' button is clearly visible on the Homepage, allowing people to voluntarily sign up to the **BlueRemediomics** mailing list. The sign-up page contains a link to the Privacy Statement, and the subscription is on a double opt-in basis whereby people who sign up need to confirm their email address to complete the subscription process, which ensures compliance regarding consent under GDPR. The subscription system will send an automatic BlueRemediomics email to the subscriber who then needs to click on the link in the email sent to them. The mailing list will only be used to share **BlueRemediomics**-related information and news. Photographs and videos taken at **BlueRemediomics** project events, workshops, meetings and promotional activities will comply with GDPR through the use of consent forms to be signed by all persons involved when relevant. Personal data collected at events will be stored on secure databases and will not be used /shared for any other purpose.

3. Pre- and Post-Dissemination Requirements

3.1 Pre-Dissemination Requirements

3.1.1 Prior Notice Procedure

For all types of Publications, Dissemination and Communication Activities (including scientific publications, talks, poster presentations, non-scientific and non-peer reviewed publications, etc.) where NEW **BlueRemediomics** results or outputs are presented, the Prior Notice Procedure (protocol below) must be applied.

The main project participant involved in the dissemination of new results from the **BlueRemediomics** project (owned by one or several parties) must give at least 30 days advance notice to the other parties (unless agreed otherwise), together with sufficient information on the results they intend to disseminate (GA Article 17 – Annex 5, CA Article 8.4.2), according to the following protocol:

PROTOCOL – Prior Notice Procedure

- ☐ Participant(s) proposing a dissemination activity (submission/communication/publication) should inform all project participants by email of their intent at least **30 calendar days** before submitting/communicating/publishing using the 'Prior Notice Email Template' below and upload/attach the planned submission/communication/publication (full draft, if possible, but at a minimum this must include an abstract including title, author(s), project participants involved and details on where it will be submitted/communicated/published and/or presented).

- ☐ The email needs to be sent to the whole consortium using the following email address: blueremediomics@ebi.ac.uk

- ☐ Project participants have **20 calendar** days to object if they can show that their legitimate interests in relation to the submission/communication/publication would be significantly harmed if the disclosure is permitted. In such cases, the results may not be disseminated unless appropriate steps are taken to safeguard those interests.

- ☐ Any objection to the planned submission/communication/publication shall be made in accordance with the GA by written notice to the BlueRemediomics Coordinator and to the participant(s) proposing the submission/communication/publication, within 20 calendar days after receipt of the notice. Any objection needs to be justified and precise suggested modifications given. An objection is justified if:
  - It adversely affects protection of results/background of the objecting party.
  - Legitimate interests of the objecting party would be significantly harmed.
  - The proposed publication includes Confidential Information of the objecting Party (CA Article 8.4.2.2)

- ☐ If no objection is made within the above stated timeline, or if objections are addressed and accepted by the objecting participant(s), the submission/communication/publication is permitted.

- ☐ If an objection has been raised the involved Parties shall discuss how to overcome the justified grounds for the objection on a timely basis (for example by amendment to the planned publication and/or by protecting information before publication) and the objecting Party shall not unreasonably continue the opposition if appropriate measures are taken following the discussion.

- ☐ In addition to the above, participants must send a completed **IP Assessment Form** to the IB lead ERINN (rebecca.pflanz@erinn.eu) latest **15 days in advance** of the intended dissemination activity. ERINN assesses the form, with support from relevant WP leads where needed. For further information, please see the protocol below (section 3.1.2.).

Note: The objecting Party can request a publication delay of not more than 90 calendar days from the time it raises such an objection. After 90 calendar days the publication is permitted, provided that the objections of the objecting Party have been addressed. (CA Article 8.4.2.4)

Prior Notice Email Template:

Dear BlueRemediomics colleagues,

We have prepared a [*insert planned disclosure e.g., communication/publication*] to be submitted to [*insert communication/publication name/item*] / presented at [*insert event name/location*] on [*insert date*]. Please see the [*insert document type/information*] attached.

In accordance with the Grant Agreement, any BlueRemediomics participant who intends to disseminate their results must give prior notice to other project participants, who are then provided **20 calendar days** to object to the proposed dissemination activity. In exceptional circumstances where a dissemination activity is planned unexpectedly in a shorter timeframe, then notice to other project participants must be as soon as possible.

Objections are justified if:

a) The protection of the objecting Party's Results or Background would be adversely affected, or

b) The objecting Party's legitimate interests in relation to its Results or Background would be significantly harmed, or

c) The proposed dissemination activity includes Confidential Information of the objecting Party.

Any objection must include a precise request for necessary modifications. Please submit justified objections, with precise modifications, to [main participant email], the project coordinators Dr Rob Finn EMBL-EBI (rdf@ebi.ac.uk) and Chris Bowler CNRS (cbowler@biologie.ens.fr) and the project manager EMBL-EBI (shriya@ebi.ac.uk) within 20 days, so before [insert date].

If no objections are received within this timeline, we assume that all parties agree with the dissemination of these results.

3.1.2 Intellectual Property (IP) Assessment Form

As outlined in the GA, an IP check is implemented as part of the prior notice process, whereby participants who intend to disseminate results will be asked to confirm that there is nothing exploitable in relation to the results they intend to disseminate, to ensure no IP is accidently exposed. This is verified by ERINN, and if needed with support from other Innovation Board (IB) members. Participants must send a completed IP Assessment Form to the IB lead ERINN who assesses the form, with support from relevant WP leads where needed, as outlined in the protocol below. The form to be completed is available on the project Google Drive >> Pre-Dissemination Protocols: IP Assessment Form. The **BlueRemediomics** IB will support IPR protection through assessing results, including their exploitation potential, as part of the knowledge management and transfer process.

PROTOCOL – IP Assessment Form

- ☐ Participant(s) proposing a dissemination/communication/publication activity involving BlueRemediomics results that haven't yet been disseminated previously, should send information on the intended activity to IB lead ERINN (Rebecca.pflanz@erinn.eu) with the completed IP Assessment Form for the respective results (Appendix Annex 2). Timeline **= latest 15 days in advance** of the intended dissemination activity.

- ☐ ERINN will review and communicate with the proposing participant(s) in case of necessary clarifications. The assessment consists of:
  - O Preliminary screening, i.e., checking if all information required from the participant is included in the IP Assessment Form;
  - O Reviewing of the activity (at least the abstract, but ideally the whole publication draft or similar) to identify potentially exploitable knowledge;
  - O Identification of potential conflicts of interest related to ownership, authorship and institutions involved, including entities or other projects.

- ☐ If any information is lacking or insufficient, ERINN will request further details from the proposing participant(s) and the assessment period will be suspended until the participant responds with adequate clarification.

- ☐ If ERINN indicates that the result(s) could (potentially) be considered commercially exploitable, and this is confirmed by the coordinator, then the participant must carry out their best effort to protect and exploit the result and the planned activities should be postponed:
  - O In this case, firstly, ERINN will inform the proposing participant(s) about this situation and request that the relevant participant(s) (together with their technological transfer/IP legal officer(s)), confirm whether these results indeed are commercially exploitable and indicate whether there is an interest in exploiting such results, and how they want to proceed (each participant institution will have a disclosure of invention system).
  - O If it is deemed that the result is commercially exploitable, and if no IP exploitation is envisaged by the owner(s) of the results, it is best practice to consider offering to transfer it to other project participants or third parties better positioned for the exploitation of the results and willing to seek their protection. In such case, the project participants' or third parties must accept to protect the results by written consent within 10 days to all project participants.
  - O If such transfer is not done, project participants that have received European Union funding but do not intend to protect their results, must inform the European Commission (EC) BlueRemediomics Project Officer before any dissemination activity is carried out – by means of informing the BlueRemediomics Coordinator as only the Coordinator can directly contact the EC Project Officer. This notification is mandatory for up to four years after the end of the project.

- The EC may – under certain circumstances – assume ownership of the results, except in any of the following cases:
  - It is not possible, reasonable or justified to protect;
  - There is a lack of potential for commercial or industrial exploitation;
  - The consortium participant intends to transfer the results to another participant, or third party established in an EU Member State or associated country that will protect them;
  - An extension of protection would not be justified given the circumstances.

  In the case that the EC will assume the ownership, the EC must formally notify the concerned participants within 15 days of receiving notification.
- If owner(s) of the results, other project participants or third parties, and the EC do not assume the ownership and do not take the necessary measures to protect it, ERINN's assessment is complete with a recommendation in the IP Assessment Form. The IP Assessment Form is then signed by ERINN and sent to the proposing participant(s), with the Coordinator (rdf@ebi.ac.uk) and the Project Manager (shriya@ebi.ac.uk) in cc.

☐ If the intended dissemination or communication activity involving BlueRemediomics results does not involve exploitable results, ERINN's assessment is complete once the recommendation(s) is/are included in the IP Assessment Form, and it is signed by ERINN.

☐ If there is any doubt on whether the result(s) could (potentially) be considered commercially exploitable, then ERINN will share the completed IP Assessment Form with the Innovation Board and ask them to support in the assessment (following the steps above)

☐ If no exploitable information is identified, all documents (including the completed IP Assessment Form) are sent to the proposing participant(s), with the Coordinator (rdf@ebi.ac.uk) and the Project Manager (shriya@ebi.ac.uk) in cc to inform them that they can go ahead with the intended dissemination activity (submission/communication/publication) as planned.

3.2 Post-Dissemination Requirements

As part of the EU contractual requirements all Scientific Publications, Dissemination Activities and Communication Activities are reported as part of the Continuous Reporting of the project in the EC Funding and Tender Opportunities Portal (EC Portal).

3.2.1 Continuous Reporting of Scientific Publications

NOTE: Scientific Publications resulting from BlueRemediomics will be collated and uploaded to the EC Portal by ERINN. Project participants do NOT need to upload this information to the Portal themselves. Participants are asked to send their publications to ERINN (rebecca.pflanz@erinn.eu) as soon as available and no later than two weeks after the official publication date, see detailed Protocol in section 3.2.2 below.

Scientific Publications must be uploaded to the EC Portal once they have been accepted for publication. This includes articles in journals, publications in conference proceedings/workshops, books/monographs, chapters in a book, thesis/dissertation, *etc*.

3.2.2 Continuous Reporting of Dissemination Activities and Communication Activities

NOTE: All Dissemination Activities and Communication Activities will be collated and uploaded to the EC Portal by ERINN. Project participants do NOT need to upload this information to the EC Portal themselves. To successfully manage the recording of these activities, ERINN requires all participants to routinely send any updates on the below communication/dissemination activities to ERINN (rebecca.pflanz@erinn.eu) following the described protocol:

- **Communication updates** (e.g. events, exhibitions, interviews, media articles, newsletters, press releases, print materials, social media campaigns, TV/Radio campaigns, Video, website updates, other);
- **Dissemination updates** (e.g. clustering activities, collaboration with EU-funded projects, conferences, education & training events, meetings, other scientific collaborations, other).

For RP1, ERINN collated all DEC activities collected during RP1 in three dedicated project Smartsheet tabs (Communication, Dissemination & Outreach, Publications).

PROTOCOL – EC Reporting of Scientific Publications, Dissemination activities and Communication Activities

- Partners are asked to send an email to ERINN (Rebecca.pflanz@erinn.eu) describing their Dissemination Activity or Communication Activity, as soon as all information is available and **no later than two weeks after the activity took place**.
  - The email should detail both the target audience* of the activity, as well as the outcome of the activity (such as: number of people reached, Impressions/views/reshares of posts etc.).

ERINN will follow up with partners if more information is needed to upload the activity on the EC portal.

- ERINN will follow up with all project partners to ensure completeness and correctness of all dissemination and communication activities at EC reporting stages.

**Target audiences can be: Industry/business partners, innovators, EU institutions, National authorities, regional authorities, local authorities, civil society, citizens, research communities, specific end user communities, international organisation (UN body, OECD, etc.), investors, other.*

3.2.3 Patents (IPR) Reporting

BlueRemediomics participants are responsible for tracking their Intellectual Property (IPR) resulting from the project. Whenever a new IPR has been filed (the EC recommends filing with the European Patent Office), participants are required to notify the coordinator (rdf@ebi.ac.uk, cbowler@biologie.ens.fr) the project manager (shriya@ebi.ac.uk) and ERINN (rebecca.pflanz@erinn.eu) with the relevant information. Project participants are responsible for uploading the required information in relation to their IPR directly to the EC Portal. Participants are required to provide the following details:

- Identification of IPR type and Confidentiality
- Type of IPR (Patent/Trademark/Registered Design/Utility Model/Other)
- Confidentiality (Yes/No)
- Application Title
- Embargo end date

3.2.4 Datasets

BlueRemediomics participants are responsible for recording and uploading all datasets resulting from the project to the EC Portal. For further details on the project and Horizon Europe specific rules for data outputs, please see D7.2 Data Management Plan (DMP; M6).

3.2.5 Overview of Post-Dissemination Continuous Reporting Protocols

Item	Action needed by acting participant	Participant uploading to EC Portal
Scientific Publications	• Send Scientific Publications to ERINN	ERINN
Dissemination Activities and Communication Activities	• Send Dissemination Activities and Communication Activities to ERINN latest 2 weeks after the activity took place.	ERINN
Patents (IPR)	• Record and upload the required information • Notify ERINN of new IPR filed	Participant owning the IPR
Datasets	• Record and upload all datasets	Participant owning the dataset(s)

4. Stakeholder Engagement

The purpose of the engagement activities described in the **BlueRemediomics** PDEC is to facilitate dialogue, build relationships and generate exchanges between **BlueRemediomics** and relevant stakeholders as described below.

4.1 Internal Stakeholders - Project Bodies

External Advisory Board (EAB)

An EAB has been appointed to provide independent advice and project oversight and establish collaborative crosstalk with other projects expected to be funded under this topic. It includes 4-5 experts representing bioprospecting, marine microbiomes, and governance domains, drawn from both academic and industrial backgrounds. Members include Prof. Fayza Daboussi, Scientific director at Toulouse White Biotechnology (TWB-INRAE); Prof. Folker Meyer, Head of Data Science at the University of Duisburg-Essen; Dr Morten Limborg from the University of Copenhagen (Scientific Lead HoloFood and FindingPheno); and Prof. Linda Amaral-Zettler, microbial oceanographer and microplastics expert at NIOZ Royal Netherlands Institute for Sea Research. They provide scientific and strategic advice and guidance during the execution of the project, in accordance with the “Terms of Reference (TOR)”.

Management Board (MB)

An internal project Management Board (MB), composed of the leadership team, WP leaders, and a dedicated Project Manager (PM) has been formed (M1). The MB formulates the internal policies and plans covering the following aspects: (1) DMP (D7.2) – at the project start, the MB has developed, agreed, and disseminated a DMP to the consortium that provides the framework for the organisation and management of the data generated by the **BlueRemediomics** project. The DMP was developed with adherence to open access and ‘FAIR’ and `CARE’ principles. (2) The Management Board shall prepare the meetings, propose decisions and prepare the agenda of the General Assembly. (3) The Management Board shall monitor the effective and efficient implementation of the Project. (4) In addition, the Management Board shall collect information at least every 6 months on the progress of the Project, examine that information to assess the compliance of the Project with the Consortium Plan and, if necessary, propose modifications of the Consortium Plan to the General Assembly. Bimonthly meetings between the Management Board are organised to ensure the necessary interoperability and inter-dependability.

Innovation Board (IB)

The Innovation Board focuses on the exploitation and valorisation of **BlueRemediomics** results, and is composed of the Coordinators, APPLE members, as well as representatives from the industry and SME partners in the project (direct end users of many KERs) plus Management Board members on call, depending on the type of KER. Additional relevant experts will be sought as required, particularly if end users not represented or identified by the consortium show an interest in the **BlueRemediomics** solutions.

The IB (formed in M12) is chaired by WP6 lead ERINN. The IB is an advisory board, which will make recommendations on dissemination and exploitation, but all decisions will be made by partner(s) owning the results. The IB assists partners in identifying results and innovation that may need protection; provides advice on the determination of results ownership, management of joint ownership granting of access rights, freedom to operate, patentability and the choice between patent and other procedures; and identify risks and opportunities with respect to the evolution of the solution, potential customers and/or existing and emerging competitors. During the projects lifetime, there will be six Innovation Board meetings to assess KERs.

4.2 Stakeholder Engagement Strategy

To engage with its stakeholders, **BlueRemediomics** implements a structured KMT methodology. By focusing on Individual Outputs and associated Impact Plans, appropriate target and end users will be identified, along with potential application and exploitation routes.

The consortium has extensive experience in multinational, multilingual, multidisciplinary and multi-participant collaborative research and innovation activities, and in effective communication of progress and results. By applying the Stakeholder Engagement Strategy, we have identified these various groups in society to have a vested interest in the **BlueRemediomics** results.

Likely end users of BlueRemediomics KERs include:

- **Industry:** A range of companies along the development pipeline (SMEs and large companies) covering pharmaceutical to aquaculture sectors who will develop and translate bioactive molecules, enzymes, and processes into commercial products. This includes food companies looking for food preservatives, the cosmeceutical industry (skin health and beauty) and industry in the aquaculture sector, industry interested in protein design and analysis, the agricultural market, eco-friendly fertilisers, and fish and meat producers/renderers. It also includes companies focusing on bioremediation, and chemical synthesis as well as industry interested in scaling up the production process to pilot-scale reactors (up to 800L; TRL 5-6) for two promising target organisms/consortia (led by NORCE and aided by beneficiaries NAICONS and VALAGRO).
- **Scientific community**: Wet lab and data scientists and researchers exploring marine microbiome chemistry, antimicrobial applications, protein design and analysis, food production, and fish health professionals/companies (such as Zilt and Leroy Seafood Group ASA who are beneficiaries in this project). Companies such as Eagle Genomics, expanding into the field.
- **Policy and regulation:** Policymakers within national marine jurisdictions and international marine governance organisations. Non-Governmental Organisations (NGOs) involved in marine conservation and protection. Provider countries, Competent National Authorities (CAN), database operators, lawyers, environmental managers.
- **Society**: Consumers, general public, media, marine conservation NGOs. Exploit growing public interest in climate change and anthropogenic impacts to help communicate and engage with wider society and discuss the use of more sustainable, low-impact, natural products and solutions.

The **BlueRemediomics** Stakeholder Engagement Strategy is outlined below in Table 1. It includes the objectives, activities and expected impact of engagement per main target stakeholder group throughout the full project duration.

Table 1: BlueRemediomics Stakeholder Engagement Strategy

Target Groups	Tools of Engagement	Expected Impact
Academics and Scientists	• OA scientific publications on results not requiring IP protection. • Participation in conferences, strategic networks, workshops, trade fairs, and site visits. • New partnerships via industry relevant meetings / organisations. • In-person training, online courses, and openly accessible protocols.	• New wave of international collaborative research in marine microbiome biodiscovery, harnessing increased capacity and knowledge achieved by **BlueRemediomics**. • Utilisation of the potential of the marine microbiome to provide sustainable biogenics and services to society and deliver on the Green Deal's ambition of a 'blue economy'. • Increased connectivity of marine microbiome databases (sequence and chemical) and genetic resources, with appropriate guidelines. • Widescale adoption of the Discovery Platform tools and workflows by the scientific community • Enhanced exploration of marine eukaryotic microbes using bioinformatics and novel expression platforms for natural product development. • Transfer of knowledge • Raise awareness of the project results • Reuse of the project's scientific data
Policy and Decision makers	• Aquaculture and ecosystem service outputs will be transferred to policymakers, and environmental managers, via IB and workshops. • Participation and presentation of the project results at events. • Four high-level training workshops on ABS, targeting NCAs of provider countries, two workshops on culturomics, two informatics training events. • Policy recommendations for MPAs and policies for the management and sustainable protection of marine biodiversity and ecosystems and by extensions ocean health across space and time	• Development of informed policies for the sustainable and equitable exploitation of the marine microbiome. • Policy to improve the planning of human activities, thereby protecting the marine microbiome and ensuring the maintenance of healthy oceans. • Increase in food security by improving efficiency in aquaculture systems through the development of microbiome-based solutions (e.g. increased pathogen resistance). • Widescale adoption of the Discovery Platform tools and workflows by policymakers • Improved understanding of the interplay between ABS and IPR, with

	• Serious boardgame on ABS negotiations • Presentation of the project results at high-level conferences/to advisory bodies • OL activities directed at policy and regulatory bodies	streamlined licences simplifying routes to markets. • The project will follow outcome of CBD COP15 for DSI / BBNJ, which will influence the policy developments in relation to ABS and IP on marine genetic resources and synthetic biology; biobanking in a digital world; and ocean governance and ocean science.
Businesses / Industry	• Visits and follow-up with industry to inform and maximise the exploitation of KERs • Online access to bioinformatics Discovery Platform outputs will enable transfer to industry stakeholders interested in analysing and designing marine microbial communities. • Novel processes for microbial community degradation and bioactive products will be transferred (via IB) to the: (i) cosmeceutical industry, (ii) pharmaceutical companies in the aquaculture sector, (iii) food companies seeking new food preservatives, (iv) companies involved in chemical synthesis (start-up to pharma), (v) PETases for upcycling and reducing microplastic waste, (vi) organic pollutant bioremediation, (vii) fish and meat producers and renderers • Project website, news articles, blogs, press releases • Publications in sector-specific and industry relevant magazines • Conferences and events to promote achievements • Training, Workshops, OL activities	• Development of new industries focused on biodegradation, bioremediation, and bioengineering, creating new jobs, and increased financial revenues. • Alternative bio-produced personal care products (e.g. sunscreens) whilst addressing the negative impact of organic pollutants on the environment. • Reduced reliance/consumption of new raw materials, achieved by both the use of alternatives product and the upcycling of current waste streams. • Widescale adoption of the Discovery Platform tools and workflows by the industry sector. • Improved knowledge of upscaling laboratory discoveries appropriately for industrial biotechnology exploitation. • New bioactive products demonstrating sufficient TRLs for rapid exploitation in the pharmaceutical, cosmeceutical, agriculture and/or food sectors.
Citizens and society as a whole	• Project branding and promotional materials (factsheet, banners) website, news articles, blogs, social	• Increased literacy and awareness across a range of stakeholders, highlighting the importance of protecting and responsibly harnessing marine microbiomes.

	media, videos and non-scientific press publications. • Unique and extensive outreach campaign, including TREC expedition. • Innovative workshops for teachers and school children to increase knowledge on the marine microbiome and bioactives (EMBL, UNIABDN) • Attendance at scientific and non-scientific events, e.g. citizen science events, town hall gatherings, workshops at policy forums and webinars.	• Greater societal appreciation of marine microbiomes' potential for the development of sustainable products or as tools to address issues, such as climate change or algal blooms. • Increased citizens' participation in **BlueRemediomics**-related activities • Raise awareness on the importance of **BlueRemediomics** for the consumers and inform them about the benefits of the project towards sustainable, bio-produced products.
Other EU projects and networks	• Invitation to **BlueRemediomics** events • Joint presentations at conferences • Joint participation in workshops from other projects • Joint events with EU projects from other calls	• Coordinated dissemination activities in order to maximise project impact, exchange on Research and Development results and improve robustness of project results • Stronger collaborations and networks • Increased opportunities to work together, coordinated research efforts and better use of resources

4.3 BlueRemediomics-Specific Stakeholder Events

4.3.1 Training Courses

BlueRemediomics will deliver four face-to-face training workshops (T1.6, T2.2 - two bioinformatics, two culturomics) and establish an online bioinformatics training course (D1.9, D1.10) that will help educate a wide range of stakeholders who can meaningfully exploit the Discovery Platform well beyond the lifetime of the project. Additionally, **BlueRemediomics** will leverage the consortium's vast knowledge and expertise in these scientific areas and ABS domain to provide high-level scientific training to CNAs from the most relevant provider regions (T5.3).

4.3.1.1 Target Group: Scientists

Uniquely, **BlueRemediomics** unites the following components: (i) Beneficiary EMBL-EBI's MGnify microbiome resource and analysis platform, which already hosts major marine and freshwater datasets, e.g. *Tara* Oceans ; (ii) the European Research Infrastructure Consortium EMBRC (EMBRC-ERIC), which has substantial marine culture collections; (iii) experts who have access to a variety of screening technologies. These established components will enable the project to commence immediately on developing blue products, with interoperability and data flows enhanced during the project. To ensure longevity of **BlueRemediomics** outputs beyond the lifetime of the project, a suite of training and dissemination activities will be developed, targeted at a range of stakeholders in Europe and beyond.

Workshops on the use of the "Discovery Platform" will be conducted for both academic and industrial stakeholders. **T1.6** will provide training in bioinformatics with two workshops. The first four-day workshop (due in M24) will be delivered in person to project partners and the recording will be converted into an online course. The second workshop (due in M45) will be targeted externally to 30 members of the external community as part of the final **BlueRemediomics** conference with training material converted to an online course and the final version of usage documentation updated in repositories. The face-to-face training material describing the utility of the discovery platform will be collated and converted to an online training course made available via EMBL-EBI's 'On-demand' training platform, linked by ELIXIR TeSS training platform from the **BlueRemediomics** website.

T2.2 will provide training on culturomics with two workshops of 20 people on the development of new methods to isolate and culture microbial communities that produce bioactives of interest. These courses will be held as a mixture of online training courses and two site visits to pilot infrastructure for cultivation (National Algae pilot Mongstad and NBioC, Risavika). The online training will aim for >100 views. The workshops will then be followed up with surveys, which will gather the impact of the training. EMBL will build upon existing metagenomics training. SU and EMBBRC will extend their annual course on the basics of culturing and identification of marine phytoplankton to showcase the developments made during the project. Collectively, these training resource will build capacity in Europe and enable **BlueRemediomics** to reach lower-middle-income countries.

4.3.1.2 Target group: Industry

Aside from the above-mentioned training workshops (T1.6, T2.2) on bioinformatics and culturomics, **BlueRemediomics** will also facilitate face-to-face meetings between a **BlueRemediomics** IPR holder and targeted industry representatives that have been identified during the project's communication and dissemination activities.

Within this scope, bilateral meetings and presentations (up to 25) will be organised with visits and follow-ups with industry leaders to inform and maximise the exploitation of KERs (RP2). This will involve Beneficiaries EMBL and NORCE's technology transfer offices to enable licencing of IPR (e.g. Beneficiary ABSint expects to provide the ABS consortium track and trace tool on a licence basis). Beneficiary LEITAT will support by identifying relevant end users and establishing direct contact.

Resulting from the KMT activities in T6.4, final KER will be taken forward with associated knowledge transfer plans and exploited through several activities in T6.5. ERINN will be responsible for the management and execution of KTPs for potentially high-impact KERs identified in T6.4. T6.5, i.e. science to industry transfer. LEITAT will identify end users and conduct bilateral meetings (5-10 users) to establish exploitation pathways. ERINN will publish all final KERs in a **BlueRemediomics** key achievements publication, highlighting discoveries and outlining their Pathway to Impact to facilitate further development and exploitation.

4.3.1.3 Target Group: Policy Makers

BlueRemediomics is directly and actively engaging with several ongoing policy developments that will shape the future of (marine) biotechnology in Europe and beyond. Notably, this project is following the outcome of CBD COP15 for DSI / BBNJ (Marine Biodiversity of Areas Beyond National Jurisdiction), which will influence the policy developments. The policy developments of focus are: (i) ABS and IP on marine genetic resources and synthetic biology; (ii) biobanking in a digital world; and (iii) ocean

governance and ocean science. **BlueRemediomics** will leverage the consortium's vast knowledge and expertise in these scientific areas and ABS domain to provide four high-level scientific training to CNAs (D5.5, M45) from the most relevant provider regions, namely the Global South which encompasses the Caribbean, Pacific, Africa, and Southeast Asia (T5.3). The training is based on an Access and Benefit Sharing (ABS) role playing game allowing participants to practise ABS negotiations using a large set of scenarios based on different scientific practices (T5.3), developed in M12. The role game will be used to engage CNAs, who are responsible for negotiating ABS contracts (Mutually Agreed Terms, MAT) and providing ABS permits (Prior Informed Consent, PIC), but often lack the scientific knowledge to properly assess the applications. Practicalities (local organisation, venue selection and local language) will be facilitated by leveraging the ongoing collaborations with CARICOM (Caribbean), PSIDS (Pacific), the African Group (Africa) and the LDCs (Asia). If appropriate, a similar training event will be executed for G77 negotiators at BBNJ.

4.3.1.4 Target Group: Citizens and society as a whole

Outreach actions are linked with the TREC expedition led by Beneficiaries FTO and EMBL. Stopovers at eight European coastal cities (and involving the local **BlueRemediomics** partners) are used to directly engage with society in general, and young people (including students) specifically, in both coastal and inland communities, while associated social media campaigns reach out to wider communities. Based on the project's scientific results, FTO is producing a set of unique outreach tools and activities with participation from all partners (D6.5) including a **BlueRemediomics** booklet, which will be made available to the public both in print and online format, giving an overview of the various scientific research fields as part of the project, along with the relevant findings and results in each area.

The eight European coastal cities selected for the stopovers are:

- Galway (September 2023)
- Bilbao (October 2023)
- Lyon (January 2024)
- Barcelona (March 2024)
- Marseille (April 2024)
- Naples (May 2024)
- Athens (July 2024)
- Lorient (October 2024)

More information on the stopover activities can be found on the website in the "Outreach section". Additionally, innovative workshops for teachers and school children are being provided at the TREC stopovers mentioned above to increase knowledge on the marine microbiome and bioactives (EMBL, UNIABDN).

4.3.2 Individual Brokerage Meetings

Other exploitation activities will be developed depending on the final KERs and their associated KT routes, which will be defined at implementation stage. Ongoing identification and networking during the project will identify personal contacts within industry groups with whom **BlueRemediomics** can conduct focused individual brokerage meetings.

5. TRL Pathways to Exploitation

The **BlueRemediomics** research programme spans the innovation pipeline from the generation of fundamental new data and knowledge derived from the marine microbiome to the application of this knowledge for the development of new products and to inform future regulations, policies and best practice in the management and protection of marine species in their natural environment and in aquaculture facilities. In order to successfully achieve the target Technology Readiness Levels (TRL) for each expected Key Exploitable Results (KERs), the project is applying targeted pathways to realisation and exploitation measures, which are described in Table 2. These include insights on the methodological approach for each expected KER, along with potential risks and mitigation measures and giving a status update after RP1.

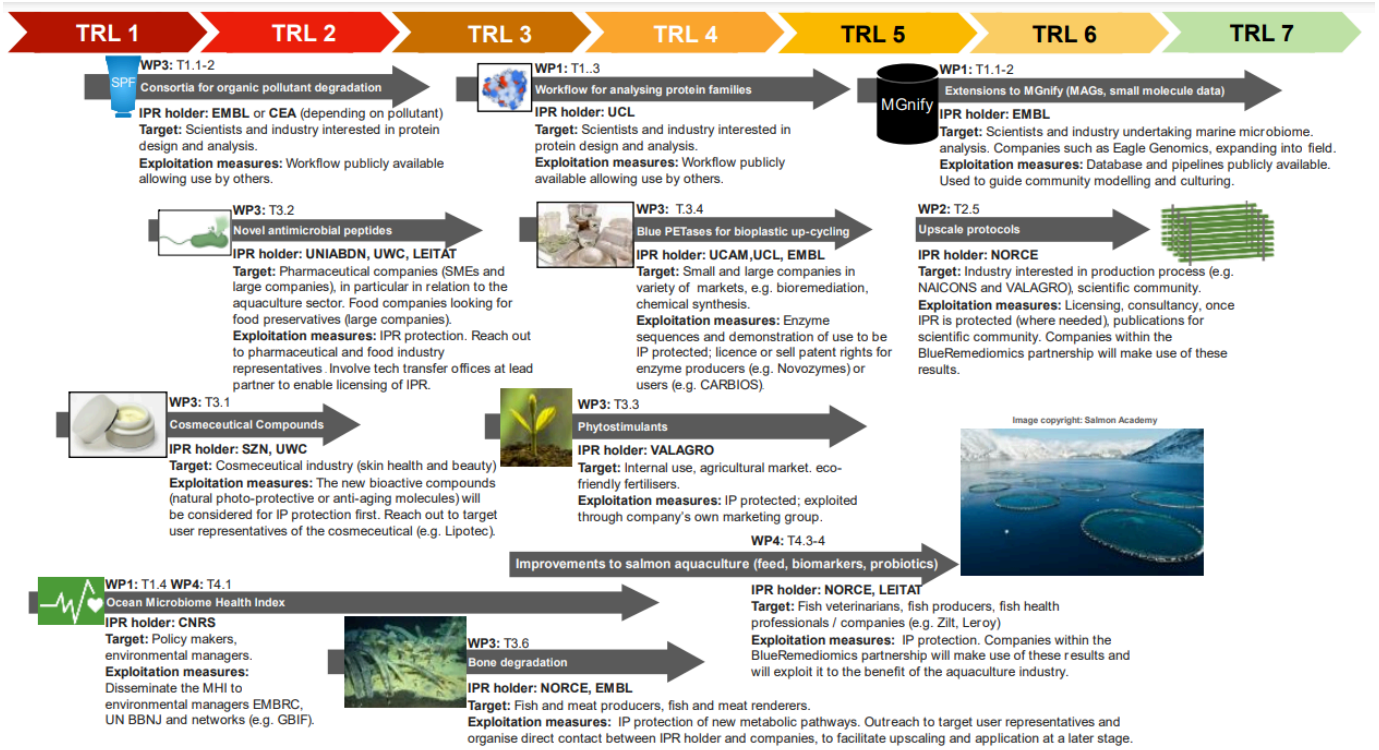

Fig 1: Expected Key Exploitable Results and expected associated measures and actions (as laid out in the Grant Agreement)

Table 2: Overview of Expected KERs and Associated Exploitation Measures

Expected KERs	Start TRL	End TRL	Pathway to realisation and links to Tasks / methodological approach	Target	Exploitation Measures	Risks (L/M/H)
Three novel cosmeceutical compounds (SZN, UWC)	1	2	Progress for the selection/ characterisation of the active molecules. Partners have identified suitable BGCs that are currently under the expression procedures. Project activities will increase TRL by using an unexplored pool of potential BGCs of interest, represented by marine metagenomes. This approach will be combined with the utilization of proper heterologous hosts to recombinantly obtain these natural products. This will increase the chances of obtaining new natural products from uncultivable microbiomes. Timeline: In progress. (T3.1)	Cosmeceutical industry (skin health and beauty) The compounds could be main ingredients, such as UV-protectors or additives, such as antioxidants	The new bioactive compounds (natural photo-protective or anti-ageing molecules) will be considered for IP protection first. Reach out to target user representatives of the cosmeceutical (e.g. Lipotec).	**Risk**: Few suitable BGCs detected (M) **Mitigation**: Increase the panel by including different metagenomes. Use available genomes and strains in the consortium **Risk**: BGCs non-expressed in the host (M). **Mitigation**: Selection of an alternative host.
Consortia for organic pollutant degradation (EMBL, CEA)	1	2-3	Using a combination of genomic data mining and coupled with experimental approaches develop three different consortia capable of degrading organic pollutants (T1.2 and T1.5). Identify organisms in the culture collections that contain appropriate parts of the degradation pathways (T2.3). Develop high-throughput screening systems using LC-MS analysis, which	Scientists and industry are interested in the biotransformation of organic compounds using a consortium of microbes.	Experimental protocols are made available via scientific publications. Data analysis approaches explained and possibly captured as a reusable script/workflow.	**Risk**: Biotransformation leads to a product that is potentially more harmful than the original product (L). **Mitigation**: Select organisms/pathways that will not perform such transformation. **Risk**: Rates of biotransformation are too slow to be useful in an applied setting (M).

			can take different combinations of microbes and intermediate molecules from the degradation pathways and evaluate the biotransformation capacities of the microbes (T3.7).			**Mitigation**: Understand the rate limiting set, be it enzyme catalysis or exchange of degradation products. **Risk**: Identifying appropriate organisms in the culture collections compared to metagenomic datasets (H). **Mitigation**: Restrict informatics searches to those organisms that are part of culture collections. **Risk**: Consortium of microbes can not be co-cultured, either due to different growth conditions or that the different microbes impact one and other (M). **Mitigation**: look for alternative combinations of microbes. Alter the experimental setup such that microbes are grown individually and the intermediate degradation products are transferred.
Novel antimicrobial peptides (AMP) (UNIABDN, UWC, SZN, LEITAT) **Five novel AMP (RiPP class) - these molecules can be applied in a**	1	3	Use of an unexplored pool of potential BGCs of interest, present in marine metagenomes. This approach will be combined with the utilization of the most appropriate heterologous hosts to recombinantly obtain these natural products. This will increase the chances of obtaining new natural products from the uncultivable microbiome. The partners have already identified several suitable BGCs that are currently under the expression procedures. Timeline: in progress. (T3.2).	Pharmaceutical companies (SMEs and large companies), in particular in relation to the aquaculture sector. Food companies looking for food preservatives (large companies).	IPR protection. Reach out to pharmaceutical and food industry representatives. Involve tech transfer offices at lead partner to enable licensing of IPR. Work with industrial advisory board to develop desirable characteristics of products (Target Product Profile)	**Risk**: Few suitable BGCs detected (L) **Mitigation**: Increase the panel by including different metagenomes and/or RiPPs classes **Risk**: BGCs not expressed in host. (M) **Mitigation**: Selection of an alternative host **Risk**: Expressed peptides are not antimicrobial. (H)

range of products.						**Mitigation**: Increase the screening options by including a wider range of biochemical assays and modes of challenge.
Candidate EPS (Ifremer)	1	3-4	Identification of five new exopolysaccharides (EPS). Selection of bacterial strains from different collections (Ifremer, UWC and EMBRC-RCC) for EPS discovery. Characterization of newly discovered EPS (T3.5). Ifremer has identified suitable strains which produce EPS (T3.5). Work in progress: small-scale production for chemical analysis and functional properties as microgels (T3.5). EPS-based microgel conception for encapsulation of antimicrobials and lactic bacteria (T3.5).	Food and Cosmetics industries Project Industrial partner - VALAGRO Scientists (gelling properties and encapsulation)	Candidate EPS identified. Known how transfer for EPS isolation and characterization. Four EPS (Ifremer collection) sent to VALAGRO under MTA for preliminary test of biostimulant activities. Bacterial biomass (cell pellet) can also be proposed as by-product production. Known how transfer for production on a larger scale of both bacterial biomass and EPS Known how transfer for EPS based microgels production.	**Risk:** Manufacturing process optimization needs more time as expected (yield of product, regulatory requirements, benchmarking practices). Define market and specificity of the products according to market demand (M) **Mitigation:** EPS production at industrial scale is well mastered. Involvement of NORCE partner. The novelty and biological efficacy if relevant could convince customers and end-users. Cell pellets will be a by-product of EPS production **Risk:** EPS too viscous for microfluidic gelling. Weak stability of microgels in targeted applications, average length of release of active compounds too short. (L) **Mitigation:** Depolymerisation of EPS by enzymes produced with partners can decrease viscosity. Cross-linking with different types of ions or ion mixture, or co-gelling in mixing two EPS can improve gelation.
Ocean Microbiome Health Index - OMHI (CNRS)	1	4	Global survey of community growth rates using marine microbiome datasets in space (MGnify genomes v2.0) and time	Policy makers, environmental managers,	Disseminate the OMHI to environmental managers EMBRC, UN BBNJ, and	**Risk**: Difficulty for identifying a global-scale / universal OHMI . Feasibility of identifying universal ocean health indicators. (M)

			(EMO-BON time-series) is underway (T1.4 and 4.1). Comparison of Codon Usage Bias (CUB) to estimate community growth rates and compare it with the Ocean Microbiome Health Index (OMHI) in coastal areas and Exposome stressors in open ocean is underway (T4.1). Ongoing comparison (benchmark) to profile (presence-absence and abundance) global marine microbiome catalogs (MGnify genomes v2.0, OMD-v2, SPIRE) (T1.4). On-going collection and assembly of contextual data from in situ and satellite-derived products (Temperature, salinity, nutrients, plastics, etc.) (T1.4 and 4.1). Genome/species niche modelling to link marine microbiome diversity and functions to Exposome stressors (e.g. microplastics) in open ocean (T4.1). Inference of genome-resolved co-occurrence / ecological networks as tools to identify community-level bioindicators (e.g. density, keystones) associated to “ocean health” (T4.1).	aquaculture companies.	networks (e.g. GBIF, GOOS). Development of Microbes EOV using community ecological traits (e.g., growth rates, genome size).	**Mitigation:** Develop biome-specific OHMI, i.e., coastal vs. open-ocean vs. aquaculture-specific indicators. **Risk:** Computing time for profiling all MGnify genomes across all marine metagenomics samples. (L) **Mitigation**: Leverage kmer-based profiling methods to scale the genome profiling at global scale using all assembled data in MGnify.
Bone degradation (NORCE, EMBL)	2	4	Early-stage discovery, screening and characterization (TRL2-3). This phase involves the bioprospecting for new collagenases, their recombinant production and biochemical	Enzyme manufacturers, food industry (fish and meat producers and	IP protection on the enzyme sequences or synthetic genetic pathways. License or sell patent rights to enzyme	**Risks:** Low discovery yield, low recombinant expression yield, poor activity. (M)

			characterization. Computational methods (HMM profile building) have been used in WP1, to search in the databases (Uniprot and MGnify) for new collagenase enzymes. Further use of algorithms for their functional classification, domain composition, structural variation and function-determining positions are currently being explored for further exploration of the sequence space in the family. (T3.6) Design of synthetic constructs, cloning and recombinant expression have been employed to produce and purify the enzyme candidates in the lab. In vitro activity assessment has been done with relevant collagen substrates. The proof-of-application studies (TRL4-5) involve testing the enzymes in small-scale laboratory setups to verify their efficiency in collagen degradation under relevant conditions and feedstocks (e.g. bone meal, ossein). (T3.6) Enzymes are produced and purified at a larger scale (1 liter). Lab-based bioreactor systems will be used for monitoring hydrolysis of small batches of collagen-rich substrates (e.g., ossein extracted from fish waste or bone meal from meat deboning residues). (T3.6) **Milestone** – Identification, successful expression and characterization of several active collagenase candidates.	renderers), nutraceutical (collagen peptide hydrolysates), cosmetic (skin regeneration) and pharma sectors (wound healing, scar treatment, cell isolation).	manufacturers. Outreach to target end-user representatives and organize direct contact between IPR holder and companies, to facilitate upscaling and application.	**Mitigation**: Powerful algorithms and the relatively small size guarantees the discovery of novel collagenases. Eventually, NORCE has an in-house collection of two collagenases discovered during the ERA-Net funded project ProBone. Expressibility issues are mitigated by structure-guided domain truncation and the use of several expression vectors and hosts to maximize yield and solubility. The use of complementary substrates, such as fluorescence-labelled collagens and FALGPA peptides have been used to assess catalytic activity more accurately. Two relevant feedstocks (chemically extracted ossein from fish and grinded bone meal) and process control improvements will be used to mitigate the risks associated to the proof of hydrolysis application.

Workflow for analysing protein families (UCL)	3	5	A generic workflow to map protein sequences from MGnify assemblies to functional families. This will scale to thousands of sequences, allowing key functional residues to be determined. A computational workflow has been developed (FunTuner) for subclassifying protein families into functionally distinct sub-families (T1.3). This includes the following modules: (a) Modules to extract relatives of the protein family from the MGnify metagenome resource at EBI. (b) Modules to segregate protein domains into distinct functional families (FunFam). (c) Modules to generate multiple sequence alignments of FunFams and identify conserved residues. (d) Modules to compare alignments of FunFams and identify residues differentially conserved across FunFams. These are likely to be under positive selection and are described as 'tunable sites'. (e) Module to compare the chemical similarity of these tunable residues in a particular FunFam against a reference protein. FunTuner has been preliminary tested by experimental validation of putative target PETases in the experimental lab of Prof. Florian Hollfelder.	Scientists and industry interested in protein design and analysis.	Workflow publicly available allowing use by others.	**Risk**: Enhancing the performance of the method. Performance needs to be assessed by experimental groups and feedback then informs refinements to the algorithm. These experiments can take a longer amount of time. (M) **Mitigation**: Preliminary testing has been undertaken in the Hollfelder lab, at the University of Cambridge with some promising results. The work is currently being written up for publication in a journal.

			Application of FunTuner to enzyme families being studied in the BlueRemediomics consortium (a) PETases (b) Collagenases			
Blue PETases for bioplastic up-cycling (UCAM, UCL, EMBL)	3	5	Three new PETases enzymes with demonstrated activity will be produced. Potential targets will first be identified from the MGnify database (generated in WP1). We will develop mechanisms to streamline this process by improving search systems. (T1.3) Specifically, this will involve medium-scale screening capacity to generate data that will be passed back to the informatics groups (UCL [Orengo], EMBL [Finn]), to improve target selection. Establishing this mechanism and scale will advance the TRL. (T3.4)	Small and large companies in variety of markets, e.g. bioremediation, chemical synthesis.	Enzyme sequences and demonstration of use to be IP protected; licence or sell patent rights for enzyme producers (e.g. Novozymes) or users (e.g. CARBIOS).	**Risk:** Delays in experimentally screening the targets. (M) **Mitigation:** Three targets are now successfully experimentally validated as active PETases by the Hollfelder lab in Cambridge. **Risk:** Delays in exploiting new validated PETase data to modify target selection protocols and select further targets. (L) **Mitigation:** Structural analyses of the 3 new PETases have been undertaken together with other recent publicly available data and further selections have been made using a revised protocol. These are currently being experimentally validated.
Phytostimulants (VALAGRO)	3	5	Screen culture collections (WP2) to identify biological samples that demonstrate bioactivity suitable for agricultural applications (T3.3). Specifically, different exopolysaccharides samples (Ifremer), cultures and/or lysates (~1L) (Norce), guided by informatics selection, will be screened as “leads” that have biostimulant, biofertilizer and/or biocontrol activities (T3.3)	Internal use, agricultural market. Ecofriendly fertilisers/biostimulants. Beneficial impact on plant growth, particularly those important in food	IP protected; exploited through the company’s own marketing group.	**Risk:** Manufacturing process optimization needs more time than expected (yield of product, regulatory requirements, benchmarking practices). Inability to define market and specificity of the products according to market demand (M) **Mitigation:** EPS production at industrial scale is well established. Involvement of NORCE partner.

			This task will utilise the laboratories and industrial scale up facility at VALAGRO for the novel phytostimulant and will evidence the connection of data streams and specimen collections. (T3.3)	production, e.g.wheat, corn.		
Salmon aquaculture improvements (NORCE, LEITAT)	3	5	An extensive monitoring program from different commercial aquaculture production systems and rearing strategies as well as the wild, to provide a better overview of exploitable microbiome stains with probiotic properties. Sample collection finalised. Analysis of fish microbiome and health in progress (T4.3) A novel mix of insects tested as a sustainable novel feed ingredient to determine modulations of the function of the gut microbiome. fish trial and analysis of welfare finalised. Analyses of microbiome and fish health and nutrient utilization capacity are in progress (T4.4). Few bacterial strains with potential probiotic properties have been identified and extensive testing on their function at in vitro level has been performed (T4.4 and 4.5) Upscaling and optimizing the methodology of incorporating the selected bacterial consortium into the feed pellets, to be used as “probiotic”, is in progress (T2.2 and 2.5). Several kelp species and preservation methods were tested to assess the	Fish veterinarians, fish producers, fish health professionals / companies (e.g. Zilt, Leroy)	IP protection. Companies within the BlueRemediomics partnership will make use of these results and will exploit it to the benefit of the aquaculture industry. Publications for the scientific community.	**Risk**: Delay in upscaling the consortium (M) **Mitigation**: 3 bacterial strains have been selected and shipped to NORCE for upscaling, from which only 2 are the target strains and 1 selected as a backup. Fish trial / **Risk**: Delays in fish trial (M) **Mitigation**: Arrangements with a potential fish facility and feed company have been made and the signing of the contract is in progress. Upscaling of the bacterial strains is progress and shipment to the feed company is planned for mid-December. Kelp is harvested by Lerøy and ready to be shipped.

			presence and bioaccessibility of bioactive compounds with antimicrobial properties. (T4.5). An in vivo trial with Atlantic salmon is planned to test the kelp as well as the bacterial consortium, where their function will be tested i) to improve the digestibility of kelp as a novel sustainable feed ingredient and ii) challenge with a common bacterial pathogen in the Norwegian salmon industry (i.e., *Aeromonas salmonicida*). Planned for Q1 of 2025 (T4.5)			
Upscale protocols (NORCE)	5	6	Scale-up fermentation of three consortia (800L). Consortia/microorganisms to be produced by either heterotrophic fermentation or under photoauto- or photomixotrophic conditions will be coming from BlueRemediomics partners (based on outcomes of tasks 2.1-2.4 as well as WPs 3-5). Scale-up protocols will be developed together with these partners based on the growth information from the lab and experience with similar organisms. This work is connected to T2.5.	Industry interested in production process (e.g. NAICONS and VALAGRO), partners that identified/delivered the consortia/microorganisms, scientific community.	Licensing, consultancy, once IPR is protected (where needed), publications for scientific community. Companies within the BlueRemediomics partnership will make use of these results.	**Risk**: Fermentation fails during the scaling up phases (M-H). **Mitigation:** Scale up will be performed in small steps, each time increasing the reactor volume (up to 800L reactors). If a step does not work, go back one step and compare process parameters. Moreover, we can conduct metagenomic and metabolomic analyses to rationalise the failure and predict main process parameters to adjust for successful cultivation.
MGnify Database Extensions (EMBL)	5	6-7	Formalisation of workflows/pipelines to be nf-core compliant, ensuring industry standard of development (T1.2, T1.4, T1.5). Production of Anvi'o based curation workflow to validate Eukaryotic genomes,	Scientists and industries in the marine microbiome field. New companies looking to expand into this field.	Workflows are publicly available allowing use by others. Additional data is publicly accessible through the MGnify website.	**Risk**: MAGs are too fragmented or incomplete for BGC and/ or pathway predictions (M). **Mitigation**: Co-assemblies provide a means to improve quality, especially for Eukaryotes.

			improving confidence in quality and uptake (T1.2). Protein sequence mapping workflow from assemblies to functional families allowing the complete traceability of data from source through to exploitation (T1.3). Increase in data volumes: 500 new marine metagenomic assemblies, >500 novel prokaryotic MAGs, 50 new eukaryotic MAGs. Addition of small molecule data to metagenomic analysis, improving sequence data for biodiscovery (T1.2). Increase in data types: small molecule and chemical reaction data (T1.1), marine prokaryotic catalogue (T1.2), marine eukaryotic catalogue (T1.2), biosynthetic gene clusters (T1.1), viral genomes, plasmids (T1.1), integrated phages (T1.2).		Data is FAIR and open access, so there is no direct IP. Spin-out company could be established to perform contract research.	**Risk**: Metabolomic models are extremely computationally expensive to execute (M). **Mitigation**: Investigate reducing complexity or use of more efficient tools. Elastic cloud compute could offer an alternative approach should compute resources be limited. **Risk**: Functional sub-setting of protein families results in excessive targets to experimentally characterise (H). **Mitigation**: Use multiple criteria and additional analyses to reduce sets. The scale of the database could become problematic (M). Investigate additional database technologies to make the resource more accessible.

5.1 Exploitation in Non-Associated Third Countries

Within BlueRemediomics there is sufficient opportunity for exploitation by third countries, specifically in relation to Access and Benefit Sharing (ABS). WP5 is set to build a strong impact on non-associated third countries (i.e. national administrations in charge of ABS compliance for the use of genetic resources) through the development of ABS training (T5.3) including a role play game, allowing participants to practice ABS negotiations using a large set of hypothetical scenarios, based on different scientific practises (D5.4). The Access and Benefit sharing game is set up to address knowledge gaps of Competent National Authorities (CNAs) and will focus specifically on CNAs of provider countries in the most relevant provider regions for marine biotechnology, including non-associated third countries at different levels of economic development, to build ABS governance capacity and facilitate science understanding.

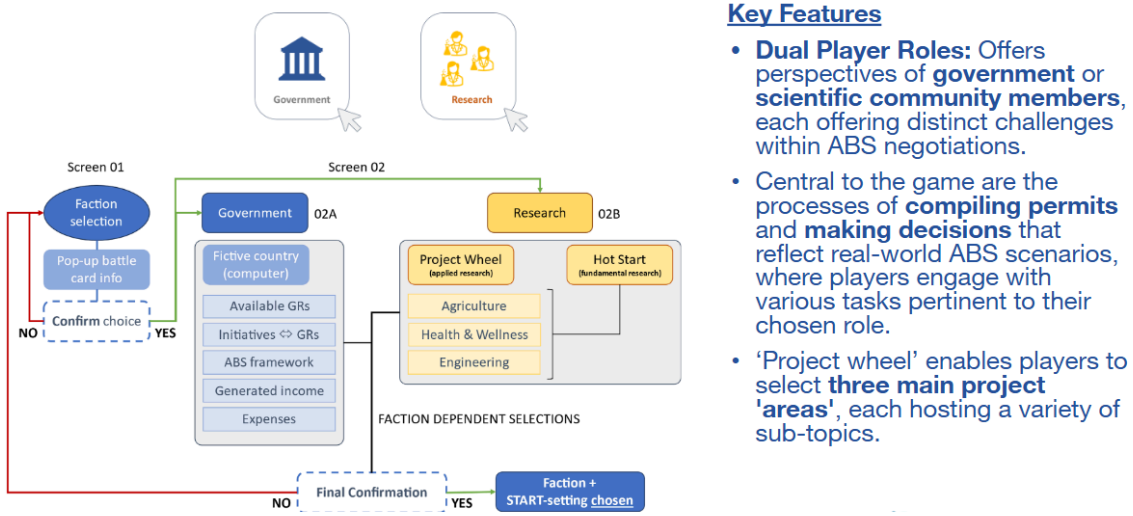

Fig 2: ABS Game Concept

Existing collaborations with the PSIDS (Pacific Islands), CARICOM (Caribbean Region), African Group and LDCs (Least Developed Countries) will be used to select locations and participants. A report on the outcome of this exercise will focus on both the barriers that have been overcome through the training and identify additional areas that need further development (D5.5). Below is a list of the non-associated third countries considered.

Type of provider region	Description and links
PSIDS (Pacific Islands)	Pacific Small Island Developing States (PSIDS). Spans the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Global value of Pacific genetic resources -most countries still face challenges in relation to ratification and implementation of ABS governance. Existing collaborations with UNIABDN, ABSint and links to CBD and the Global Environment Facility (GEF) will be utilised.

CARICOM (Caribbean Region)	22 countries stretching from The Bahamas in the north to Suriname and Guyana in South America, CARICOM comprises states that are considered developing countries, most of them island states. Existing collaborations with UNIABDN, ABSint and links to CBD and the Global Environment Facility (GEF) will be utilised.
African Group	The Africa Group at the United Nations is made up of the 54 African Union Member States at the United Nations. The bloc coordinates its efforts on various topics, ranging from health and migration to issues of peace and security. Existing collaborations with UNIABDN, ABSint and links to CBD and the Global Environment Facility (GEF) will be utilised.
LDCs (Least Developed Countries)	Low-income countries confronting severe structural impediments to sustainable development. There are currently 45 countries on the list of LCDs (reviewed every 3 years by the UN CDP). Existing collaborations with UNIABDN, ABSint and links to CBD and the Global Environment Facility (GEF) will be utilised.

To further increase awareness of ABS broadly across the European Union and in non-associated third countries, information on sovereignty and potential ABS obligations is currently being incorporated into the EMBL MGnify resource (T5.4). To facilitate this, the same ABS procedure is applied for all genetic resources:

1) Using the coordinates of the sampling location, the geographical location can be cross-referenced with land and sea borders (specifically the EEZ of coastal states).
2) MGnify then offers the option to list if the jurisdiction where the sample was obtained from requires an ABS permit or not (based on a country list curated by BlueRemediomics partner ABSint).
3) If an ABS permit is indeed needed, it is the responsibility of the respective project partner to obtain such permits and to conduct the R&D within the scope of the permit. ABSint has made its propriety tool 'ABS Portal and Wizard' available to be used for BlueRemediomics genetic resources, and this had been communicated twice yearly at everey BlueRemediomics meeting.

This high standard of ABS compliance is upheld for all genetic resources used in the project, including those coming from non-associated third countries. This is possibly the first known example of a resource that informs scientific users and policy makers of their ABS obligations. This, and the accompanying best practise guide on biobanking and sample tracking will guide database providers, users, CNAs (see T5.3) and provider countries including the selected non-associated third countries towards trusted and fair relationships (D5.6; D5.7).

6. Knowledge Management, Transfer and Exploitation of Results

6.1 Knowledge Management and Transfer Overview

The European Commission has identified the importance of improving knowledge transfer (KT) between public research institutions and third parties, including industry and civil society organisations, as one of ten key areas for action[2]. **BlueRemediomics** will employ a proven Knowledge Management and

[2] https://ec.europa.eu/invest-in-research/pdf/download_en/knowledge_transfe_07.pdf

Knowledge Transfer (KMKT) methodology to effectively address this key aspect of facilitating project impact.

This methodology was originally developed in the FP7 MarineTT project (GA Number 244164), and further developed and applied by the H2020 COLUMBUS project (GA Number 652690 - www.columbusproject.eu). This methodology has been applied in many FP7,Horizon 2020 and Horizon Europe funded projects, such as AQUAEXCEL, AQUAEXCEL^{2020}, AQUAEXCEL3.0, AquaInnova, ParaFishControl, PerformFISH, SIMBA, ERGO, REvivED water, RES4BUILD, SEALIVE, BIOGEARS, SEArcularMINE, TechOceanS and WaterLANDS.

Knowledge Management (KM) is the process of identifying, capturing, organising, analysing, and storing knowledge to ensure its availability to be transferred effectively to specific and relevant users.

Knowledge Transfer (KT) is the process of creating, organising, capturing/sharing/distributing knowledge to ensure its availability for future users, focusing the research being conducted on the wider needs of society and industry[3]. KT encompasses both commercial and non-commercial activities, such as research collaborations, consultancy, licensing, spinoff/spinout creation, researcher mobility, and publications *etc*. KT aims to support mutually beneficial collaborations between universities, businesses and the public sector. The ultimate end benefit of successful KT is the application and influence of knowledge on targeted communities with greater impact (short and long term) across academia, industry and society.

Project Outputs/Knowledge Outputs (KOs) are described as "a unit of knowledge or learning generated by or through research activity. It is not limited to *de-novo* or pioneering discoveries but may also include new methodologies/processes, adaptations, insights, alternative applications of prior know-how/knowledge" [*Definition developed by AquaTT in the context of the COLUMBUS project*]. Typically, such knowledge might be referenced as a small part of a published paper, potentially three to five years after the approach is pioneered in a research project.

Key Exploitable Results (KERs) within **BlueRemediomics** are tangible or intangible outputs of the action, such as data, knowledge and information whatever their form or nature[4] which have been deemed to be of **high priority** for project transfer actions. The means by which KERs will be identified from KOs is described in this section, but it is important to note that **BlueRemediomics** is not implying any sort of value judgement between KOs and KERs. Rather, the project is simply using this distinction to allow knowledge that is of the most direct impact to the project, or is most feasibly transferable by the project, to be prioritised when assigning resources for transfer. By focusing on identifying KERs and transferring them when they have been assessed as having potential application and impact, it is possible to fast-track them, providing a faster impact on target- and end-users external to the project.

End User(s) are the individual(s) who are identified as being in a position where they could feasibly **apply** a given unit of Knowledge (KO/KER) and by doing so create the desired eventual impact of that knowledge. The KO/KER may need to **evolve** to reach the end user.

Target User is an individual(s) (organisations should be avoided where possible as specificity is crucial), whose position makes them a potential stepping-stone needed for a KO/KER to progress towards an identified end user and eventual impact. Target users are individuals with a specific mandate or

[3] http://europa.eu/rapid/press-release_MEMO-07-127_en.htm?locale=en
[4] https://intellectual-property-helpdesk.ec.europa.eu/

responsibilities relevant to the specific KO/KER being evaluated. Target users should not merely be potential users of knowledge but should be individuals whose application of the knowledge is likely to advance it down the Pathway to Impact.

A **Knowledge Transfer Plan (KTP) / Pathway to Impact Plan** is an informed stepwise plan for achieving the identified eventual impact of any piece of knowledge, regardless of whether this impact is achievable in the short, medium or long term. In **BlueRemediomics** these will be developed for all selected KERs. The KTP identifies the end user capable of producing the desired eventual impact and outlines a specific series of transfer activities to intermediate target users.

Eventual Impact is the ultimate end benefit of the application of the knowledge (KO/KER). It is defined as an overall enhanced situation, generally for society but it can also be research or industry-specific. Eventual impacts can be the adoption of new technologies, products or innovation identified and refined within the project, or a change in protocols.

The KMKT of **BlueRemediomics** KERs is integrated into the project through WP6 and is based on regularly collecting KOs/KERs through structured templates and interviews with project participants responsible for developing the results. Collected results will be assessed by ERINN, and the Innovation Board Members based on criteria related to their innovation capacity, relevance to the sector, and expected impact. Knowledge Transfer Plans (KTPs) or Impact Plans will be developed for individual or clusters of KERs assessed as being of high potential for contributing to the project's objectives. This customised approach will increase the likelihood that 1) KERs will be transferred and exploited successfully, and the result applied; 2) there is an increased potential for impact from the transfer; and 3) it is possible to measure and demonstrate the impact of the transfer.

ERINN will coordinate and collaborate with the IB and other **BlueRemediomics** WPs to support the KT. All project participants will contribute to the project's KMKT activities by adhering to the protocols and assisting in the collection and analysis of KOs and the transfer of high-potential KERs to end users. Additionally, LEITAT will identify end users and conduct bilateral meetings (5-10 users) to establish exploitation pathways.

The KMKT methodology consists of the following three overall phases and is further described in detail below:

- Collect and Understand
- Validate and Analyse
- Transfer and Exploit

6.2 Knowledge Management and Knowledge Transfer (KMKT)

This section of the PDEC outlines the stepwise process, which will be carried out within **BlueRemediomics** Task 6.4 and Task 6.5. This methodology will see KOs identified, collected, reviewed, and prioritised to project KERs with developed KTPs. The figure below outlines an example of a full Pathway to Impact. The following subsections will refer to **Figure 1**. to demonstrate how each step contributes to the development of this.

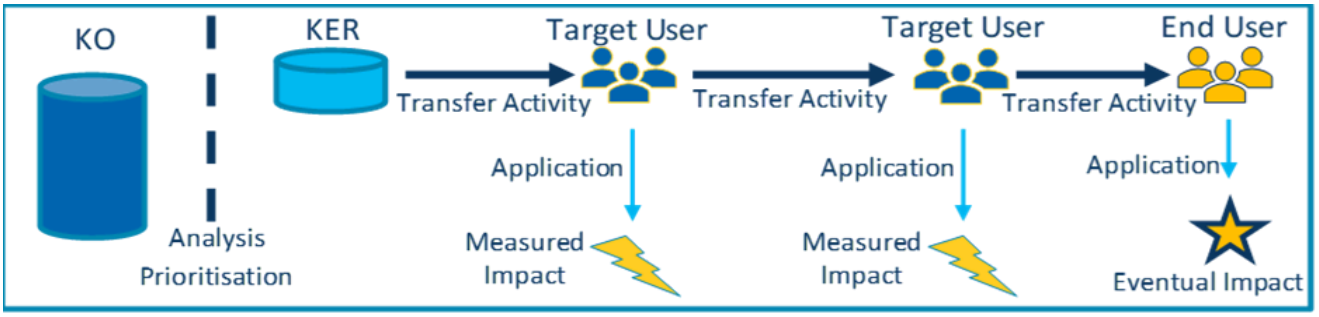

Figure 1: BlueRemediomics Knowledge Transfer Methodology

6.2.1 Collect and Understand

Phase 1: Capturing of KOs in an internal KO Collection Template.

Effective KT relies on careful identification and description of KOs to ensure that all key information is provided which will result in effective transfer (**Figure 2**). Quality control measures will be performed, to ensure that the KOs can be clearly understood by others who may not be experts in the relevant disciplines. Each project participant will treat information from other participants as confidential unless otherwise stated and not disclose it to other parties unless the information is publicly available. It is important for all project participants to note that KOs are not only the final results of research, but they can also be part of the methodology to obtain the final result, which could be an innovation for a research area or process.

Phase one aims to understand the positioning of a KO to be better able to carry out impactful KT activities. It intends to help clarify how the KO could be beneficial to different target and end users. This step identifies potential applications, target and end users and the eventual impact of aKO. This information will also inform the development of Knowledge Output Pathways (KOPs) of KOs that progress to being a KER having been assessed as having high potential application and impact.

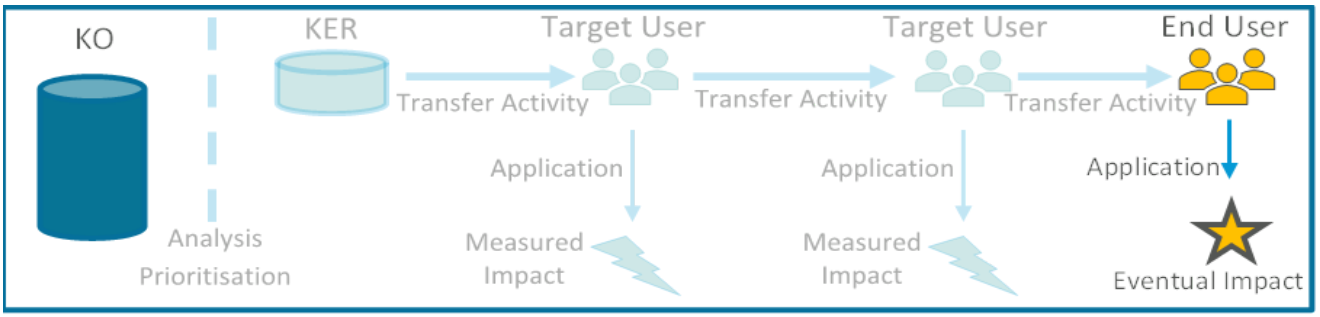

Figure 2: BlueRemediomics Knowledge Transfer Methodology: Collect and Understand

It should be noted that KOs/KERs, especially those collected early in the project, are likely to continue to develop over the course of **BlueRemediomics**. Collected knowledge will be periodically reviewed by ERINN, the IB and participants asked to provide updates if applicable. As the KO Collection Template will be available on the **BlueRemediomics** Google Drive, participants will be able to advise ERINN if a given KO/KER needs to be updated.

PROTOCOL – Knowledge Collection

- ERINN sends the Knowledge Output Collection Template to **BlueRemediomics** Task Leaders, who will be requested to complete it and update as necessary for any KOs developed in the concerned period.
- If the Task Leader thinks another project participant is better placed to provide the requested information, then they should send it on to the relevant person(s).
- For each identified KO, all fields of the template should be completed. Explanations are provided with each question. Completed Templates should be sent to ERINN.
- If needed or wished for by the KO owners, ERINN arranges and conducts initial scoping interviews with the output owner(s) for clarity on the knowledge collected.
- ERINN carries out the first assessment of each completed KO template, and checks:
  - If the title of the output(s) is sufficiently informative;
  - If the description of the output(s) is sufficiently comprehensive for a non-expert to adequately understand the nature of the output and to determine its possible application;
  - If the potential end-users of the output, as well as the potential application by each of these end users is reasonable/desirable and if there are any other potential end users;
  - If the output(s) is supposed to be publicly available or is subject to IPR protection, which would influence transfer potential.
- In addition, an IP check will be carried out. This involves:
  - the KO generating participant will be asked to complete an IP Assessment Form (see also section 3.1.1). Assessment Forms will be reviewed by ERINN, and if needed the Innovation Board, who will provide guidance as necessary until all relevant parties believe sufficient IP protection rules have been applied to the further dissemination, communication, and exploitation of the output.
- After the first assessment, the KO owner(s) will receive an updated draft of the KO Collection Template to check for accuracy and respond to any queries. This step will be repeated as necessary until both ERINN and the KO owners agree on the final version that can advance to the next phase (validation and analysis).

6.2.2 Analyse and Validate

Phase 2: The collected KOs are reviewed and assessed for potential application and impact.

Once validated, KOs go through a Due Diligence process, whereby a more thorough examination and evaluation of the output and its applicability and readiness for transfer will be investigated (**Figure 3**). Due Diligence will be undertaken so that any factors that could affect the transfer potential (confidentiality, competition, IPR) of the output and ultimately the uptake and impact of the knowledge can be identified. Following Due Diligence, KOs will be prioritised and those with potential to have impact will go through to the next step. An essential step in the **BlueRemediomics** KMKT methodology is the identification of output applications, potential impact and respective end users (e.g. applications could be in various areas and sectors not just the one in the research area of the project) for each KO which has been assessed as having high potential application and impact.

Important aspects are prioritisation of high potential KOs and profiling target and end users to gain valuable data to inform successful Impact Plans. This is not a ranking of their importance but rather a method to help **BlueRemediomics** identify where to focus transfer and exploitation efforts. For those prioritised, the expert groups will attempt to identify potential target users whose application of the knowledge would be of benefit in transferring it towards its eventual impact.

Those KOs that are validated and deemed to be of priority for the project will be re-labelled as **Key Exploitable Results (KERs)** and progressed to the third phase. Any KO that is not made a KER will continue to be periodically reviewed and any remaining at the end of the project will still be captured as evidence of project results for final reporting. The identification of target users in the analysis stage is critical to laying the groundwork for transfer and exploitation plans in the third phase. The exercises in this phase may also serve to identify potential stakeholders that are worth connecting with, even in cases where the knowledge may not yet be ready for transfer.

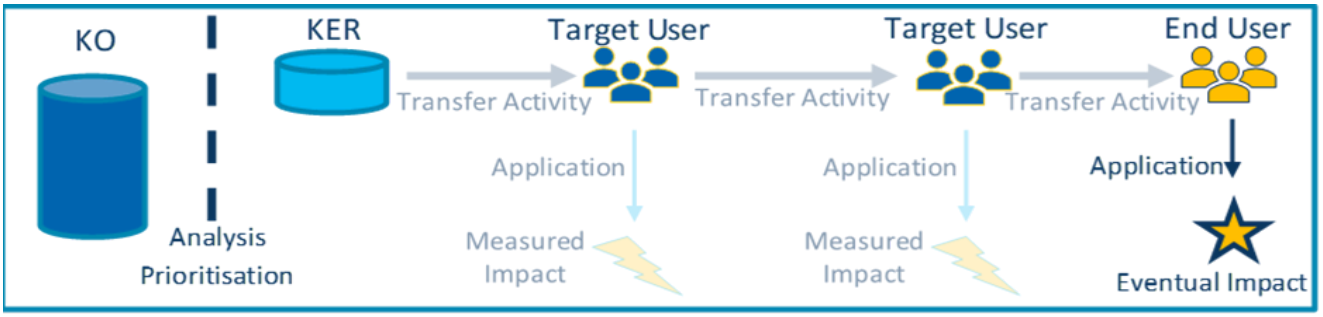

Figure 3: BlueRemediomics Knowledge Transfer Methodology: Analyse and Validate

PROTOCOL – Knowledge Analysis

At periodic intervals, ERINN will organise "expert analysis meetings" together with the Innovation Board.

The frequency and makeup of these meetings will be determined in collaboration with the Project Coordinator as well as based on the current status of knowledge collection and management in the project.

The expert analysis meetings will carry out a thorough examination and evaluation of the KOs (collected so far) and their applicability and readiness for transfer. Particular attention will be paid to:

- Identification of all likely target- and end-users. We encourage project participants to be as specific as possible and innovative when determining potential end users.
- It is important to consider the following when profiling target- and end-users:
  - Understand the user's mandate or responsibilities;
  - Consider their background knowledge, attitude, and practice in relation to the issue;
  - Understand their knowledge needs;
  - Understand what and who may influence their decisions;
  - Be aware of their preferred sources of information and knowledge.
- Identification of associated application and impact potential.
- Assess the Technology Readiness Level (TRL) that could inform the development of an appropriate output pathway to impact, where the output requires further research, validation or scale-up.

Experts in these meetings will be asked to:

- Confirm the accuracy and feasibility of transfer both within and beyond the project (but as a direct result of the project) for each presented output, to the best of their understanding.
- Assign to each KO a ranking to determine whether it should be prioritised as a KER based on its current status.
- Discuss and identify potential target users to whom the knowledge should be transferred to progress it towards its eventual impact.

If any questions emerge from the expert analysis meeting, ERINN will reach out to the relevant KO owners to attempt to provide an answer.

6.2.3 Transfer and Exploit

Phase 3: Carry out and report on KT activities; while measuring the impact of both the activity and the application of the Knowledge by the User(s).

For each KER, a Knowledge Transfer Plan (KTP)/Pathway to Impact Plan will be developed. Implementing an efficient KTP that is tailor-made to the needs and capacities of specific target and end users (profiled in phase 2) will maximise the chance of successful transfer resulting in uptake and application. The key to success is achieved through fully understanding the target- and end-user, and developing the KTP around them. There are several steps included in the KTP, and there are different downstream routes to reach its eventual impact. KTPs are the accumulation of numerous KT activities as represented in **Figure 4**.

KTPs will ensure KERs go through a Due Diligence process, whereby a more thorough examination and evaluation of the KER and its applicability and readiness for transfer will be investigated. Due Diligence will be undertaken so that any factors that could affect the transfer potential (confidentiality, competition, IPR) of the KER and ultimately the uptake and impact of the knowledge can be identified. The individual project participant within **BlueRemediomics** best positioned to conduct the transfer will be identified and this phase will attempt to clearly describe how the impact of **BlueRemediomics**' KERs will be measured, even after the project has come to a close.

The work carried out in this phase will not only be important for accurately reporting the full breadth of impact of the project to the EC, but it will also assist all participants in carrying out exploitation activities. Not every KER transfer plan will be able to be reasonably executed during the lifetime of the project but, by delivering clear plans, the KM methodology will help establish how exploitation actions within the project will feed into the overall impact of the project as a whole, and help achieve the societal goals of **BlueRemediomics**.

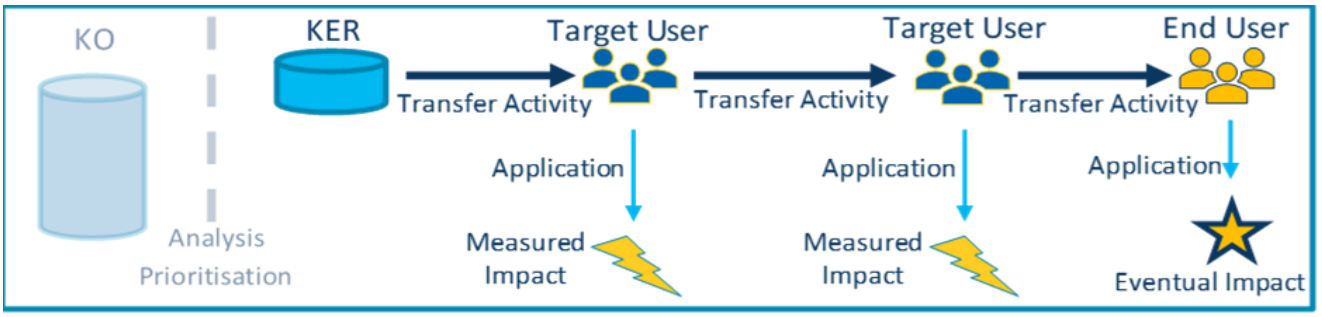

Figure 4: BlueRemediomics Knowledge Transfer Methodology: Transfer and Exploit

PROTOCOL – Knowledge Transfer and Exploitation

For any knowledge that has been determined to be a KER:

- ERINN will collaborate with the Innovation Board, and the owner(s) of a KER to develop a Knowledge Transfer Plan (KTP)/Pathway to Impact for each KER. In particular, this effort will focus on the following considerations regarding the first target user(s) in the plan:
  - Building on the impact potential identified in the validation and analysis step, ensure that a concise and compelling narrative for the opportunity/business case is developed.
  - The technical level of the target user; the depth of information needed; and the style of language most effective for communicating with them.
  - The background knowledge of the target user.
  - Any preconceived ideas that the target user may have relating to the area of interest.
  - Ways in which to relate the knowledge to examples with which the target user is familiar, or ones they can easily envisage.
  - The level of evidence or validation that the target user requires.
- ERINN will be responsible for drafting these plans, which will then be provided to the Project Coordinator and generating project participant(s).
- Once a KTP has been drafted and reviewed, it will be opened up for feedback from the Innovation Board.
- ERINN will work with all relevant project participants to assist where possible in the translation of KTPs into exploitation activities. The nature of these exploitation activities will be highly dependent on the KER, the target user, the transferring participant, the timeline, resources available, foreseen activities in the DoA, and other variable considerations. The exploitation activities themselves may be carried out within a range of externally focused tasks.

7. Dissemination and Communication Resources

All **BlueRemediomics** project participants dedicate time to perform communication and dissemination activities and are encouraged to engage in a two-way exchange with the public at large, and where possible the media, with the aim to show how EU research and innovation funding has a positive impact on society. Through its communication activities, **BlueRemediomics** will demonstrate why working together in a European consortium is important in addressing a challenge that affects society.

To facilitate communication and dissemination throughout the project, a portfolio of promotional project material has been developed and will continue to be elaborated upon during the project lifetime.

7.1 Promotional Materials

7.1.1 Logo and Brand

A specific project logo has been developed to visually represent the project. The project logo is an integral part of the brand as it is and will be included in all project's promotional materials both print and online. The **BlueRemediomics** project logo is available in various versions and sizes. The different

versions and guidance on how to properly utilise the **BlueRemediomics** logo (correct use of the logo in relation to the background, spacing, etc.) can be found in the Brand Guidelines that have been developed alongside the logo.

The logo suite and Brand Guidelines are available on the project drive and can be requested from ERINN (contact: rebecca.pflanz@erinn.eu).

Figure 1: Horizontal BlueRemediomics logo

Figure 6: BlueRemediomics logo – Icon only

PROTOCOL – Utilising BlueRemediomics Branding alongside other Institutional Branding

While it is preferable that all participants use **BlueRemediomics** branded resources when disseminating the project's results, we recognise that some institutions will require participants to use their own institutional branding for conferences and various presentations. To balance the interests of BlueRemediomics, and our contractual obligations to the EC, with various institutional requirements, we require the following requirements to be included at minimum:

- The **BlueRemediomics** logo must be included on at least the Title Page and Conclusion/Thank You slide, however usage on all slides would be preferred.
- The EU emblem and funding acknowledgement (GA Article 17) must be visibly present on either the first or the last slide.

7.1.2 Project Dissemination Templates

BlueRemediomics PowerPoint, Word, and Poster Presentation Templates have been developed to use at internal and external events when presenting the **BlueRemediomics** project and can be downloaded from the project drive in the "Templates Drive" folder. Further additional assets, such as infographics, will be developed over the course of the project and can be downloaded from the project drive and requested from ERINN (contact: rebecca.pflanz@erinn.eu).

PROTOCOL – Dissemination Templates

Project participants should use the **BlueRemediomics** Dissemination Templates when promoting the project's objectives or presenting project results.

Download the Template from the project drive and or request from ERINN (contact: Rebecca.pflanz@erinn.eu).

- When using the PowerPoint Presentation Template, choose to insert "new slide" and pick your preferred content template.
- Respect all of the Templates' format (background, font and layout).
- Always ensure that the correct EU Emblem, EU and non-EU funding logos and acknowledgements are present on any **BlueRemediomics** presentations, deliverables and reports etc.

7.1.3 Factsheet

A promotional factsheet presenting the **BlueRemediomics** objectives and expected results was developed inMx. The factsheet can be shared digitally and distributed at relevant events, both virtually and in-person. The factsheet is used to raise awareness of the project and its goals. It can be downloaded from the **BlueRemediomics** website in the resources section and the project drive or it can be requested from ERINN (rebecca.pflanz@erinn.eu). Project participants are encouraged to distribute the factsheet though their networks and at relevant events. If participants wish to have the factsheet available in another language, they should follow the protocol outlined below.

PROTOCOL – Dissemination Templates

- Contact ERINN (contact person: Rebecca.pflanz@erinn.eu) requesting the original factsheet template with English text.
- ERINN supplies the template with the original text in English to requesting project participant.
- Project participant translates the text (as laid out in the template) into their language.
- Project participant then sends the translated text back to ERINN.
- ERINN applies the translated text to the factsheet template and publishes the new version of the factsheet, after validation and sign-off from the project participant responsible for the translation.

7.1.4 Roll-Up Banner

A **BlueRemediomics** Roll-up Banner has been designed and developed for use at internal and external events to raise awareness about the project, for example at exhibition booths. The banner can be found

on the **BlueRemediomics** website in the resources section, project drive or it can be requested from ERINN (rebecca.pflanz@erinn.eu).

PROTOCOL – Roll-up Banner Printing

Project participants can make use of the **BlueRemediomics** Pull-up Banner at internal and external events to raise awareness about the project.

- The template is designed to print as a standard pull-up banner measuring 800 mm wide by 2000 mm high, however, if a partner requires different dimensions, ERINN will endeavour to adjust the banner template to the partner's needs.
- Please print the pull-up banner in full colour, making no adjustments to the colour settings.
- The pull-up banner can be found on the **BlueRemediomics** website, project drive or it can be requested from ERINN (rebecca.pflanz@erinn.eu) for any queries around dimensions, printing and material requirements.

7.1.5 Website

The project website, (https://blueremediomics.eu/) went live on time in M6 (May 2023) and has been developed following the EU's best practice guidelines for project websites. The website is fully compliant with the General Data Protection Regulation (EU 2016/679, GDPR) by incorporating a privacy statement and cookie bar informing website visitors about what **BlueRemediomics** does with any personal data gathered. Google Analytics is used to track traffic and monitor the use of the website, which will be used to inform Continuous Reporting.

To ensure successful promotion of the project and to sustain the interest of the target audience and attract new users, the website's content is being maintained, continuously updated and populated with new information throughout the project's lifetime. The website will remain live for five years after the end of the project, serving as a valuable public resource of research information on the subject and promoting the outputs of this publicly funded research.

PROTOCOL – Website Content: Requests for posting and uploading

- ERINN manages the **BlueRemediomics** website and is updating it on a regular basis.
- Project participants who might have feedback on the site or wish to upload materials, news or events to the website (e.g., calendar) should contact ERINN (rebecca.pflanz@erinn.eu).
- Project participants are requested to include a link to the **BlueRemediomics** website on their own institution websites as well as promote it through the **BlueRemediomics** social media channels (see section 6.1.6).

7.1.6 Social Media

Social networking is an integral part of the **BlueRemediomics** communication strategy. The project results and outputs are actively disseminated through the BlueRemediomics X (Twitter) and LinkedIn accounts (managed by ERINN). Stakeholders are encouraged to follow **BlueRemediomics** social

media, which are forums for engagement with interested parties and contribute to capacity building, showing participant expertise and knowledge through active discussions.

To achieve the highest possible impact with the **BlueRemediomics** social media channels, in M16 ERINN launched a researcher interview campaign in the first reporting stage of the project, called "The Blue Biome Boffins", which aims to celebrate the valuable work of all **BlueRemediomics** partners by promoting the research within the consortium. The campaign interviews different participants in the **BlueRemediomics** project, from Early Career Scientists to Senior Researchers, to learn more about their role and valuable work in making this project a success. The interviews are promoted on the website under the "About section" and across the **BlueRemediomics** social media channels in the form of articles and short form videos.

The RP1 statistics on BlueRemediomics's social media profiles can be found in Table 2 (section 7.1).

To ensure a consistent flow of social media content, a proactive communication cycle was established. ERINN directly requests information from partners regarding their communication and dissemination activities according to a predetermined timeline. This ongoing cycle allows to maintain a readily available pool of up-to-date content for social media use.

As with other means of communication, attention should be paid to the content being shared on social media. The consortium should determine which information to keep private and which to publish, where and to what extent. If you have questions about what is appropriate, please contact ERINN (rebecca.pflanz@erinn.eu). For **BlueRemediomics** to keep its reputation and create an engaging and thriving online community, it is necessary to effectively manage potential risks. The following are guidelines for all participants who participate in social media and apply whether participants are posting to the **BlueRemediomics** account, their own accounts or commenting on other accounts.

PROTOCOL – BlueRemediomics Internal Code of Social Media Conduct

Participants should try to contribute to social media channels where possible. Support can be requested from ERINN.

General Rules

- Ensure the content is yours to share (research or opinions) or acknowledge the source accordingly.
- Ensure there are no IP issues.
- Use appropriate tags and hashtags to acknowledge funding.
- Do not use offensive language, argumentative or illegal content, etc.
- If you communicate publicly about **BlueRemediomics** or **BlueRemediomics** -related matters, you must disclose your role within the project.
- Be professional, use good judgement and be accurate and honest in your communications; unprofessional language or behaviour reflect poorly on the project, and may result in liability.
- Unless approved by the coordinator EMBL-EBI, your social media name, handle and URL should not include **BlueRemediomics** project's name or logo.
- Be mindful around controversial subjects, where emotions may run high e.g., politics. It is important to show respect for others' opinions.

X (Twitter)

- Participants wishing to communicate via the **BlueRemediomics** X (Twitter) accounts have the following options:
- Send a short message (280 characters max) to ERINN (email rebecca.pflanz@erinn.eu) who can post from the **BlueRemediomics** account on your behalf. Ideally, include an image or short video to make it more visually appealing.
- Refer to **BlueRemediomics** by tagging the project (using @ **BlueRemediomics** on X (Twitter) in your own tweets; ERINN will always aim to retweet/share such posts.
- Retweet/share **BlueRemediomics** posts through your personal and institutional social media accounts.

LinkedIn

- Participants wishing to communicate via the **BlueRemediomics** LinkedIn accounts have the following options:
- Send a short message (500 characters max) to ERINN (email rebecca.pflanz@erinn.eu) who can post from the **BlueRemediomics** account on your behalf. Ideally, include an image or short video to make it more visually appealing.
- Refer to **BlueRemediomics** by tagging the project (using @ **BlueRemediomics** on LinkedIn) in your own LinkedIn posts; ERINN will aim to re-share such posts.
- Re-share **BlueRemediomics** posts through your personal and institutional social media accounts.

Tips

- Social media is highly visual — it's deal to post pictures, videos, GIFs or data visualisations.

7.1.7 Press Releases

Press releases will be issued to appropriate media outlets (trade press, journals, web portals) to ensure that industry, communities, civil society, policymakers, and the wider community are aware of the project, its objectives and its later outcomes. The strategy is intended to ensure that there is media coverage at local, regional, European and international levels. ERINN will share project news through internal (consortium mailing list, stakeholder database and project participant networks) and external (press releases, social media, etc.) channels, which ensures a broad awareness of the project across the spectrum of relevant stakeholders. Project participants are encouraged to publish articles and press releases at regional, national, and international levels, making use of their own communication networks and channels. ERINN can support project participants in these activities.

PROTOCOL – Press Releases

Project participants should notify ERINN if there is news suitable for an official project press release:

- ERINN will develop a draft and seek approval from the **BlueRemediomics** Coordination team.
- Once approved, press releases will be disseminated using appropriate channels.
- They will be uploaded to the project website and all project participants are encouraged to distribute at national or regional level.
- Where necessary the project participants can adapt the press releases to customise them to their audience and if needed translate the articles.

NOTE: Project participants may also initiate the writing of press releases (e.g., local, national). ERINN can then support writing and editing if required. Participants are asked to provide a short summary in English if the original communication is in another language. Participants who publish any article/press release at a regional or national level must send a copy to ERINN and where possible provide metrics to demonstrate uptake by other news channels/readership.

7.1.8 Video

A **BlueRemediomics** professional video has been developed in M17 for project participants to disseminate and promote the **BlueRemediomics** project at events and on social media. The video showcases the project to the general public, explaining the approach and the value of the research being conducted by **BlueRemediomics**. The video is promoted on the **BlueRemediomics** project website on the home page and under the Resources section. Participants are encouraged to add it to their accounts of video-sharing websites, such as YouTube and Vimeo. Participants are also encouraged to share the video with their wider networks and so it is hoped the video will be adopted by the consortium for use in their existing international outreach activities. Five shorter video clips have been developed for participants to disseminate and promote the **BlueRemediomics** project and its outcomes (available on the project drive).

7.1.9 Outreach Activities

A set of outreach tools is being produced and promoted by FTO to disseminate science with the general public and local stakeholders. Since the Kick-off meeting, FTO is engaging in a dialogue with different scientists working in other Work Packages to better conceive outreach tools based on verified and robust science information. These outreach tools will be produced to animate activities taking place in eight

selected European cities, during the Tara Europa expedition led by the Tara Ocean Foundation. The eight stopovers are: Galway (Sept 2023), Bilbao (Oct 2023), Lyon (January 2024), Barcelona (March 2024), Marseille (April 2024), Naples (may 2024), Athens (July 2024) and Lorient (October 2024).

During these stopovers, the project co-sponsored the Tara Europa Lab, a round-table event to promote science-to-policy dialogue, where project scientists shared their work and learn about specific issues faced by local stakeholders as well as initiatives implemented locally. Find out more about the Tara Europa Lab Workshops in the "outreach section" of the BlueRemediomics website.

7.1.10 Other Resources and Tools

As the project progresses podcasts, infographics, blogposts, social media visuals and GIFS, etc. will be created to present the project activities in an attractive and dynamic way. Other resources and tools will be uploaded to the **BlueRemediomics** website under the Resources section and participants will be encouraged to share them through their channels. Other promotional material can be developed as required, depending on budget availability and considering sustainability. Please contact ERINN (rebecca.pflanz@erinn.eu) with any other ideas for promotional material to support your communication and dissemination activities.

8. Dissemination and Communication Activities

The purpose of **BlueRemediomics** dissemination and communication activities is to make the project, its results and activities known to society at large so that all stakeholders, also beyond the project's own community, will be able to understand its messages. All **BlueRemediomics** participants are dedicating time to perform dissemination and communication activities and are encouraged to engage in a two-way exchange with the public at large, and where possible the media, with the aim to show how EU research and innovation funding has a positive impact on society. Through its dissemination and communication activities, **BlueRemediomics** demonstrates why working together in a European consortium is important in addressing a challenge that affects all societies.

8.1 PDEC Tools, Channels and Target Groups

As the project progresses, it will be critical to ensure that the project outcomes are effectively and efficiently transferred to industry, policy, community, and research users, etc. A distinct strategy is being applied to each targeted audience, using appropriate messages, means, and language. In order to effectively promote and spread awareness about the **BlueRemediomics** concept and results so as to achieve the expected impacts, the following communication tools and activities (**Table 2**) are being designed and implemented by the consortium and coordinated and monitored by WP6. In order to evaluate and monitor the effectiveness of the strategy and measure the extent to which it successfully meets the objectives, the table highlights the **Key Performance Indicators (KPIs)** of each tool/activity as well as the current status.

Table 2. BlueRemediomics PDEC tools, channels and target groups (high level)

BlueRemediomics Communication and Dissemination tools and channels	Industry	Scientists	Policy actors	Society
Project website: The project website constitutes the main communication tool as it provides easy access to a broad audience around the world. The website is designed following the best practice guidelines for EU project websites. **Target: > 10,000 visits over the project, >250 directly signed up to 'subscribe to news' through website.** **Current Status (end of RP1): >6,500 total website visits, >50 'news subscribers'**	□	□	□	□
Press releases and Promotional articles: Press releases will be produced regularly making use of a range of services and publications aiming at increasing awareness about the project's objectives, progress and outcomes. **Target: At least 10 original press-releases or promotional articles published, leading to further publication of >25 articles.** **Current Status (end of RP1): BlueRemediomics project partners published >9 original press releases and media articles. 11 promotional articles were additionally published through the BlueRemediomics website, >7 promotional articles were published on external media outlets.**	□	□	□	□
Videos: Videos will provide, for example, an introduction to the project and its objectives, as well as project outcomes and contributions. **Target: At least one professional and at least 5 shorter media clips are expected to be viewed by more than 10,000 people in total.** **Current Status (end of RP1): 1 professional project video published with >1.300 views. 2 Short form "researcher interview videos" with >900 views. Five videos were published by FTO on the TREC expedition achieving a total of >10k views across the FTO social media accounts incl. LinkedIn, X(Twitter) and Instagram.**	□	□	□	□
Social media strategy: The project will have a Twitter account which will target the general audience as well as specific targeted stakeholders. All project participants' social media outlets will share content and point out the relevance for their specific target groups, and thus direct their audience to **BlueRemediomics** channels and website. **Target: social media presence latest from M3 and for the full duration of the project, with X/Twitter and other social media activity and targeted promotional campaigns (for promoting specific topics) expecting to reach more than 50,000 people.**	□	□	□	□

Current Status (end of RP1): >49,700 impressions on LinkedIn and >950 page views on LinkedIn, 5.35% average engagement rate on Linkedin. >40.000 impressions on X(Twitter), 3.8% average engagement rate on X/Twitter.				
Participation in conferences and relevant activities: Active cooperation with the other projects funded under this call topic, e.g. common events, information exchange, and collaboration in the Horizon Booster programme. **Target: Represented in more than 30 relevant international (research, policy and industry) events over the project duration. Dissemination in 12 relevant events (1,000-5,000 attendees in total). 3-4 new projects are expected for the capitalisation of the project results (after 4 years).** **Current Status (end of RP1): BlueRemediomics was represented at >20 relevant international events to date. Dissemination activities took place in >10 relevant events.**	□	□	□	
Project network and events: **BlueRemediomics** will actively cooperate with the other project selected under this call topic and complementary successful projects. **Target: established cooperation, e.g. common events, exchange of information, collaboration in the Horizon Booster programme, etc.** **Current Status (end of RP1): BlueRemediomics has established the following cooperation with the other project funded under this call topic:** **- ABS related workshop led by BlueTools project (Nov 2024)** **- Joint Policy Brief on benefit sharing of DSI led by BlueRemediomics with input of the BlueTools project** **- BlueRemediomics was presented by the EMBL Coordinators at the BlueTools project Kick-Off Meeting** **- Cooperation with BlueTools on facilitating uptake of the ABS game developed by BlueRemediomics** **- Joint promotional article on the Blue Economy with the BlueTools project**	□	□	□	
Outreach activities: The project results will be exhibited at local science outreach events. Linked with TREC (FTO-EMBL) expeditions. Eight *Tara* Port calls along EU coastline. **Target: Special Tara magazine (EN, FR, ES, DE languages). Videos and social media content for each port call aiming for more than 200 participants.** **Current Status (end of RP1): Five videos were published by FTO on the TREC expedition along with targeted social media campaigns for each stopover on the FTO LinkedIn, Twitter and Instagram channels. The port calls reached >500 participants, with ~150 participants taking part in the dedicated science-to-policy workshops alone. A special online Tara Magazine will be published in RP2.**		□	□	□

Open access scientific publications (in high impact peer-reviewed journals), review articles and editorials: **BlueRemediomics** scientific publications will be published in gold OA (budget included) journals and adhere to the FAIR principles for research outputs, e.g. OA data deposition. We expect to publish more than 20 high-impact articles, submitted to pre-print servers prior to peer-reviewed OA journals **Target: More than 20 publications.** **Current Status (end of RP1): The project submitted 2 journal articles and 1 preprint to date.**	□	□	□	
Training: Four high-level training workshops on ABS, targeting NCAs of provider countries, two workshops on culturomics, two information training events, online training course Two site visits to pilot infrastructure for cultivation (National Algae pilot Mongstad and NBioC, Risavika). **Target: 20-30 attendees/workshop, more than 100 views of the online training.** **Current Status (end of RP1): N/A – the workshops are still in the planning stage.**	□	□	□	
Policy Recommendations: For MPAs and policies for the management and sustainable protection of marine biodiversity and ecosystems and, by extension, ocean health across space and time. **Current Status (end of RP1): N/A – expected in RP2/RP3.**			□	
Bilateral Meetings: Visits and follow up with industry to inform and maximise the exploitation of KERs. **Target: up to 25 meetings.** **Current Status (end of RP1): N/A – expected in RP2.**	□			

8.2 External Events

All project participants have a responsibility to engage the public in their research activities and results and take advantage of the potential for public interest that **BlueRemediomics** generates. Project participants are encouraged to initiate dissemination activities that are appropriate for the irrespective contributions and ERINN can provide support as required. Examples include live broadcasts, blogs, institute open days, etc.

The project results are also presented as oral presentations, posters, etc. at major international meetings and conferences of relevance to **BlueRemediomics**. Conferences, seminars, workshops, and other meetings are very useful forums to consult with **BlueRemediomics** target audiences in a face-to-face capacity and to address issues relevant to the work done in the project. International and sector relevant conferences, meetings, etc. are frequently attended to communicate the results of the project to the maximum number of persons. See protocol for public outreach activities below.

Table 3 shows a list of past and future events that were already attended or are of interest to **BlueRemediomics** participants or stakeholders in the future. These events are added to the project website on an ongoing basis under the "News and Events" section.

*Table 3. Relevant events for **BlueRemediomics** consortium and stakeholders*

Event	Location	Date
EAS – European Aquaculture Society	Europe	Annually
WAS – World Aquaculture Society	Global	Annually
One day parallel session with other consortia at EAFP	Europe	2025
13th Advanced Phytoplankton Course in Naples 2024 by SZN	Naples (Italy)	6-26 October 2024
19th International Symposium on Microbial Ecology (ISME)	Cape Town (South Africa)	18-23 August 2024
One day parallel session with other consortia at EAS	Stavanger (Norway)	24-28 June 2024
Workshop on Computational Mass Spectrometry by UNIABDN	Aberdeen (UK)	19-21 June 2024
Gordon Research Conference – Marine Microbes, Linking Genes, Rates, and Biogeochemistry in Marine Microbiology	Les Diablerets (Switzerland)	9-14 June 2024
6th International Conference On Functional Metagenomics (FMG-2024)	Kruger National Park (South Africa)	2-5 June 2024
International Conference on Marine Data and Information Systems (IMDIS)	Bergen (Norway)	27-29 May 2024
EMBO Lecture Course "Imaging Marine Organisms Across Scales" at SZN	Naples (Italy)	9-12 April 2024
Workshop on "AquaFuture – Challenges ahead" by NORCE	Bergen (Norway)	9 April 2024
Policy Workshop at the Gordon Conference by UNIABDN	Ventura, California (US)	12 March 2024
Winter school on "Quantitative Seascape Ecology of Marine Plankton"	Paris (France)	4-8 March 2024
Side event at 10th Session of the International Treaty on Plant Genetic Resources for Food and Agriculture by UNIABDN	Rome (Italy)	20-24 November 2023
Representation of BlueRemediomics BBNJ Symposium by FTO	Edinburgh (UK)	October 2023
Workshop at Aquaculture Europe 2023	Vienna (Austria)	18-21 September 2023

Presentation of BlueRemediomics by UWC at the South African Society for Microbiology 2023	Stellenbosch (South Africa)	17-20 September 2023
Workshop at 21st EAFP Conference Aberdeen 2023	Aberdeen (UK)	11-14 September 2023
Policy Session at the ECMNP Conference in Granada by UNIABDN	Granada (Spain)	03-08 September 2023
BlueRemediomics presentation at 8th European Phycological Congress by IFREMER	Brest (France)	20-26 August 2023
BlueRemediomics Representation at Digital Ocean Forum 2023	Brussels (Belgium)	15 June 2023
Presentation of the BlueRemediomics Project at the Irish Ocean Literacy Network Meeting	Cork (Ireland)	08 June 2023
Keynote Speech by BlueRemediomics co-coordinator at the BIOPROSP23 meeting	Tromso (Norway)	14-16 March 2023

PROTOCOL – Public Outreach Activities: Internal and External Events

Project participants should notify ERINN if there is news suitable for an official project press release:

- Project participants should inform the Project Coordinator and ERINN of their planned outreach activities so they can be promoted, providing insight on type of activity, objectives, target audiences and reach/number of people (see section 3.2).
- Project participants should inform other participants about the event via email. If the planned outreach activity involves the dissemination of **BlueRemediomics** results, the pre-dissemination requirements of the prior notice protocol and the IP assessment form must be carried out (see section 3.1).
- All public engagement and outreach activities must be reported during (internal and external) reporting periods.
- ERINN will include events on the **BlueRemediomics** website.
- ERINN will update the EC Portal on all Dissemination Activities.

8.3 Scientific Publications – Relevant Journals

The consortium expects to publish at least 20 OA articles over the full duration of the project. **BlueRemediomics** scientific publications will be published in fully OA (budget included journals and adhere to the FAIR principles for research outputs, e.g. OA data deposition.

At M18, one article has been accepted and is available in preprint and a further two articles have been submitted to an OA journal.

Partners will also be encouraged to use platforms, such as Open Research Europe, which provides avenues to publish in open access, boost research credibility, enhance the visibility of the work, and to develop a better understanding in the field. In addition, partners will be asked to share work where possible, including non-traditional article types e.g. data notes, study protocols, and systematic reviews. Open Science practices will be integrated as rules and recommended protocols into the **BlueRemediomics** DMP(D7.2).

9. PDEC Monitoring and Evaluation

The PDEC functions as an operation manual and will be updated throughout the project. WP6 Co-leader ERINN will continue to review and amend the PDEC in line with the latest DEC activities and project results. As part of the revision process, each subsequent version of this deliverable will be validated by the consortium. Furthermore, the project coordinator (EMBL) and project participants will also review the PDEC at each review stage and provide recommendations. The current version will function as the operational manual and will be revised as part of D6.2 – Updated PDEC, including exploitation outcomes (M45 – August 2026).

10. Project participants involved in the work

All project participants are expected to carry out dissemination and exploitation activities as well as communication activities. ERINN provides coordination and support to all activities.

Appendix

Annex 1 – Glossary

"Access rights" are the rights to use results or background related to the project, as set out in the Grant Agreement (https://ec.europa.eu/info/fundingtenders/opportunities/portal/screen/support/glossary).

"Background" Any data, know-how and/or information, whatever its form or nature (tangible or intangible) – including any rights such as intellectual property rights – which are needed to carry out the project or exploit its results. (https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/glossary) .

"Dissemination" means the public disclosure of the results by any appropriate means (other than resulting from protecting or exploiting the results), including by scientific publications in any medium. (https://www.iprhelpdesk.eu/sites/default/files/newsdocuments/FS-Plan-for-the-exploitation-and-dissemination-of-results_1.pdf)

"End Users" are last Target User identified on the *Knowledge Output Pathway*, *i.e.* individual(s) who will apply the *Knowledge Output* at the end of the *Knowledge Output Pathway*. Once they apply the KO, Eventual Impact is reached. The Knowledge Output may have undergone several revisions/adaptations through the value chain before reaching/being relevant to the needs of the end-user. Definition according to COLUMBUS (Horizon 2020 project: 652690).

"Exploitation" means the use of results in further research activities other than those covered by the action concerned, or in developing, creating, and marketing a product or process, or in creating and providing a service, or in standardisation activities. (https://www.iprhelpdesk.eu/sites/default/files/newsdocuments/FS-Plan-for-the-exploitation-and-dissemination-of-results_1.pdf)

"Eventual Impact" the ultimate end benefit of the application of the *Knowledge Output*, and its influence/effect once taken up and applied by the target community. It is defined as an enhanced situation that is contributing to a need (political, industrial, scientific, or societal). Definition according to COLUMBUS (Horizon 2020 project: 652690).

"Knowledge Management" is the process of identifying, capturing, analysing, organising, and storing knowledge to ensure its availability and ability to be *transferred effectively* to specific users. It comprises a range of practices used by organisations to identify, create, represent, and distribute knowledge for reuse, awareness and learning. Definition according to MarineTT (FP7 project number 244164); COLUMBUS (Horizon 2020 project: 652690).

"Knowledge Outputs" are units of knowledge or learning generated by or through research activity. They are not limited to *de novo* or pioneering discoveries but may also include new methodologies/processes, adaptations, insights, alternative applications of prior know how/ knowledge. Definition according to COLUMBUS (Horizon 2020 project: 652690).

"Knowledge Output Pathway" can be a single step or a series of steps required to carry a Knowledge Output to its Eventual Impact. Where there are a series of steps, it will include detailed mapping of the

steps, the users involved at each step and their predicted role in the pathway to Eventual Impact. Definition according to COLUMBUS (Horizon 2020 project: 652690).

“Knowledge Transfer” is the term for the overall process of moving knowledge between knowledge sources to targeted potential users of knowledge. Knowledge Transfer consists of a range of activities which aim to capture, organise, assess, and transmit knowledge, skills and competence from those who generate them to those who will utilise them. Definition according to COLUMBUS (Horizon 2020 project GA Number: 652690).

“Target User” is the individual(s) who you have identified in your Knowledge Output Pathway to whom a Knowledge Output will be transferred. They are not necessarily the end-user or participant of the KO; rather they can be the steppingstone needed for a KO to progress towards an *Eventual Impact*. More than one Target User can be part of one KOP. Definition according to COLUMBUS (Horizon 2020 project: 652690).

Annex 2 – IP Assessment Form

Table 4. IP Assessment Form for screening of dissemination and communication activities to ensure protection of results. Cells in teal to be filled by author, cells in turquoise to be filled by WP6 lead ERINN.

IP Assessment Prior to Dissemination	Description / Comments
Title of the Dissemination or Communication Activity	
Type of Dissemination or Communication activities, including details on names, dates, places, *etc*. *Scientific Publications: Article in Journal; Publication in Conference proceedings/ Workshop; Book/ Monograph; Chapter in a Book; Thesis/ Dissertation; Other* *Dissemination and Communication activities: Organisation of a Conference; Organisation of a Workshop; Press release; Non-scientific and non-peer-reviewed publication (popularised publication); Exhibition; Flyer; Training; Social Media; Website; Communication Campaign (e.g., Radio, TV); Participation to a Conference; Participation to a Workshop; Participation to an Event other than a Conference or a Workshop; Video/ Film; Brokerage Event; Pitch Event; Trade Fair; Participation in activities organized jointly with other Horizon Europe project(s); Other*	
Where to find it (if it is/will be published)? *Give information on where to find the Dissemination or Communication Activity, if it will be in the public domain, e.g., website address, scientific journal details, etc.*	
Have all contributors to the Dissemination or Communication Activity been included in the author list where relevant, or are otherwise properly acknowledged? *Include the names of the authors here*	
Do all authors agree on this Dissemination or Communication activity? *Declaration of the main/ corresponding author*	
• Q1: Have different institutions been involved in this Dissemination or Communication Activity? • Q2: If yes, have you taken care of ownership issues? How?	• Answer to Q1: • Answer to Q2:

Is appropriate acknowledgment to EU included? *Note: always include the statement indicated in the BlueRemediomics Brand Guidelines into any BlueRemediomics Dissemination or Communication Activity.* *If possible, also include the EU emblem*	
Which part of the **BlueRemediomics** project does the Dissemination or Communication Activity correspond with? *Include WP number and, if possible, tasks numbers*	
Does the Dissemination or Communication Activity include work originating also from non- **BlueRemediomics** work, *e.g.*, from other EU or nationally funded projects? *Include name/ code (Grant Agreement number) of the project*	
• Q1: Is the result you are aiming to disseminate considered to be commercially/ industrially exploitable? • Q2: If yes, have you protected the result prior to dissemination, please give details?	• Answer to Q1: • Answer to Q2:
Do you, as a reviewer, consider the result that is aimed to be disseminated here, to be commercially/ industrially exploitable? Please give clarifications.	
Does the information contain any personal data? If yes, has permission been obtained for the public use of such data? If yes, please include this.	
Do all authors agree on the Dissemination or Communication Activity being disclosed through the **BlueRemediomics** channels (*e.g.*, project website) once accepted/ presented? *A declaration of the main/ corresponding author indicates that all participants agree*	
Which stakeholders could be interested in knowing about the results and the conclusions of your Dissemination or Communication Activity? *Choose the relevant target group(s) among:* *A) Industry*	

B) Policy/ decision-makers *C) Scientists* *D) Consumers/ general public* *E) Other stakeholders (please specify)* *Please specify as detailed as possible*	
Date of submission to WP6 Lead ERINN	

Recommendations:

WP6 lead ERINN recommendation (to publish or protect)	

Authorisations:

Main author of publication	**WP6 lead ERINN**
Date: Signature:	Date: Signature:

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