

D4.1 QH Platform methodology

Authors and information about this document

Authors	Ofer Engel Elmina Homapour
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1 Introduction

The description of the GRRIP platform is provided in general terms, but suggests two overarching objectives (found in the DoA under section 1.3: concept):

1. **Engagement:** The GRRIP platform caters to GRRIP stakeholders, specifically the GRRIP partners, relevant RPFO's (GRRIP case studies), and their corresponding QH stakeholders. It will be used to engage the various stakeholders, providing the structure to sustain participation, collaboration, communication and coordination between stakeholders.
2. **Knowledge and learning:** The platform will be used for mutual learning and exchange of knowledge between the five RPO&RFOs and their stakeholders.

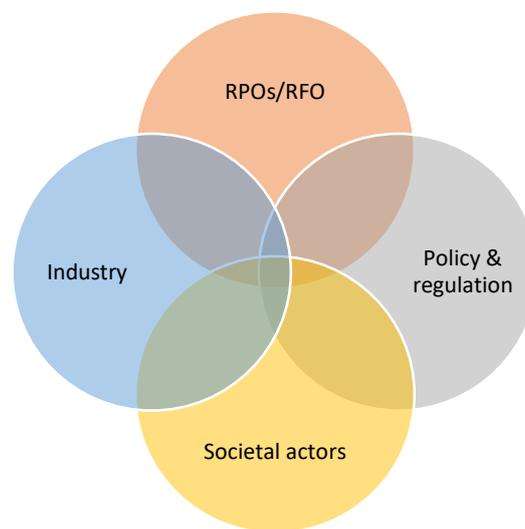


Figure 1: Platform stakeholders and the quadratic helix

There are of course additional benefits, far beyond a knowledge ecosystem:¹ a platform of stakeholders related to one another through their common interest in cultivating responsible marine and maritime research and innovation fosters a vessel for social capital:² a channel for novel information, a repository of explicit knowledge and access to those who possess implicit knowledge, a space to cultivate social norms such as mutual help and trust, and a community of people and organisations with a set of obligations and expectations.

1.1 Objective of this document

This document is designed to provide *a roadmap for the requirement elicitation process*, part of a planning phase that will culminate in a high-level Business Requirement Document (BRD) for the GRRIP Platform. Due to the diversity of the members of the GRRIP consortium, different players bring with them different perspectives, requirements and objectives. To seek a common ground the elicitation

¹ See Hess, C. and Ostrom, E., 2005. A Framework for Analysing the Knowledge Commons: a chapter from *Understanding Knowledge as a Commons: from Theory to Practice*. The MIT Press.

² See Coleman, J.S., 1988. Social capital in the creation of human capital. *American journal of sociology*, 94, pp.S95-S120.



process seeks to sketch the contours of a system that is valuable to all parties, a framework they can adapt to meet their specific targets.

The requirements list in section 2.2. is part of a “living document”, reflecting an increasing understanding of relevant business needs and required adaptation to a changing environment. Those changes are documented by overriding obsolete requirements (but keeping them in the list) and documenting the requirements’ rationale.

1.2 Mapping platforms designed for responsible M&M RFPOs

To establish the scope and function of the platform, we turn our attention to existing knowledge management and social network solutions used for marine and maritime RFPOs. Several such frameworks are currently maintained or in various stages of development. There are currently numerous platforms for M&M RPOs and their stakeholders, resources that vary widely in their value, the frequency of engagement and the range of services are being used. Below are just a couple of examples of different categories of platforms (including database platforms, knowledge sharing platforms and engagement platforms):

1.2.1 Online databases for M&M RPOs

Several databases exist, that are developed, maintained and used in a decentralized manner, providing services for the community of M&M researchers and their stakeholders. Examples include:

1. Ocean Biogeographic Information System (OBIS) is an [online archive](#) for marine mammal, sea turtle, seabird and ray & shark data, a service maintained and updated by contributors all over the world, sharing data and supporting this initiative.
2. Online Marine Registry is [an online database](#) of coastal habitat creation schemes, case studies and white papers.
3. Marine Knowledge Gate 2.0 (EurOcean_KG) is an [online repository](#) of marine research projects and their results, funded by the EU and other major national (RFPOs) from 25 European coastal countries, as well as from Regional and International Agencies.

1.2.2 Environment Platform Wales

This platform is particularly of interest to SU, and is designed to address emerging environmental and climate concerns, increasing the availability of evidence across a broad range of issues relating to the environment and well-being goals. The Platform brings together universities, research centres and other organisations interested in evidence-based research to promote these aims. In addition, the platform will facilitate the following measures:

1. It aims to develop innovative approaches to identifying evidence gaps and understanding the needs of evidence users in Wales.
2. It is designed to facilitate interdisciplinary and cross sectoral collaboration to address identified evidence gaps and to ensure that evidence users have timely access to appropriate expertise.
3. It strives to support the exchange of expertise and skills between researchers, policy makers and practitioners within member organisations.

1.2.3 The MARINA Knowledge Sharing Platform (KSP)

This platform was established between 2016-2019 and funded by H2020-EU (circa €3M), under the MARINA grant agreement (Marine KSP for Federating RRI Communities). This platform is particularly interesting because it marries M&M research with RRI principles and values. The platform seeks to





connect existing groups, technologies and services to facilitate the engagement of RFOs and RPOs, CSOs, industry stakeholders, policy and decision makers and other stakeholders. As of early 2020, it consisted of circa 1200 members (individuals or organisations).³ Some of the features supported include:⁴

- User, and roles and access permission management system
- Information about relevant individuals, organisations, and expertise for networking purposes
- Support to access from a range of devices,
- Tools for sharing information and managing documents,
- Synchronous and asynchronous communication tools,
- Interfaces with existing social networks and platforms,
- Event management systems,
- Team management and web-conferencing systems,
- Decision support tools and co-production mechanisms

1.2.4 The One Ocean Hub – Knowledge Translation Platform

Whereas the MARINA is an already existing platform, consisting of a technological solution together with existing partners, the One Ocean Hub's Knowledge Translation Platform (KTP) is still in development, and its specification and implementation is still in discussion. In addition, whereas the MARINA combines a very diverse range of organisations, individuals and R&I projects, the existing funding for the OOH is for projects that focus on developing countries, and specifically in West and South-Africa, in the South-Pacific and the Caribbean. Moreover, the OOH focuses currently on five main research streams:⁵

1. **Integrating ocean governance** for equity and sustainability: Discovering the full potential of law & policy to foster a coherent, inclusive and transparent sustainable blue economy by considering the inter-dependencies of the environment & human rights to connect across sectors still operating in isolation: ocean/land/freshwater/waste management, trade, investment, innovation & intellectual property, development cooperation.
2. **Sharing Knowledge in science dialogue with civil society**: collaborative documentaries or artistic activities to support constructive dialogue on complex issues and sources of conflicts about the ocean. Engaging in education programmes to connect young explorers with the ocean and their peers around the world, emotionally connecting civil society with the ocean through the arts: Exploring how cultural heritage and creative responses can bring together experts and stakeholders in ocean research and help surface multiple conceptions of the ocean; evolving challenges to, and possible futures for, ocean management; and the ocean's multiple contributions to human wellbeing.
3. **Connecting and climate-proofing fisheries** for equity and sustainability: Investigating multiple, potentially conflicting, fishery sectors (e.g. artisanal, commercial, recreational, aquaculture) and, integrating the traditional knowledge of local communities, develop understanding of the role of fisheries in critical marine habitats and natural processes (marine food webs), the potential impact from plastics and climate change, and the ecosystem response to different socio-ecological and governance approaches.

³ It was not possible to obtain further details about the frequency and quality of engagement on the platform.

⁴ Taken from MARINA Deliverable D4.1

⁵ This list is taken verbatim from the [resources section of One Ocean Hub site](#).



4. **Discovering hidden trade-offs in the deep sea:** Exploring deep sea environments to advance understanding of the potential values of diverse marine resources (including for biomedical innovation) and existing and projected impacts of resource extraction on vulnerable or functionally important marine life. Research considers potential deep sea mineral, biological and freshwater resources, in the context of environmental changes (including impacts of climate change), and with a view to preventing the blue economy from degrading the marine environment and its actual and potential benefits to human well-being.
5. **Empowering sustainable and equitable “blue societies”:** Revealing tangible and intangible cultural heritage, including invisible and marginalized knowledge, practices and economies, and social and environmental injustices, to inform and challenge, through participatory modelling methods different management scenarios and economic planning for specific sectors (fisheries, mining, tourism).

As is evident from the examples above, the knowledge ecology on M&M RPFOS already comprises a wealth of websites developed and maintained by variety of international and national organizations. To navigate within this considerable amount of information and knowledge, partners of the One Ocean Hub are working with the [UNITAR](#) to support the conceptualization, design and oversight of a virtual platform for integrated knowledge translation (KTP) on the oceans, serving the One Ocean Hub’s vision of ‘integrated ocean governance for equitable and inclusive sustainability.’ Expected to launch in May 2021, the KTP is designed to provide a legacy for the One Ocean Hub programme, connecting across multiple stakeholder groups and communities of practice while remaining rooted in community led action and learning.

Integrated Knowledge Translation builds on experiences gained in the health sector in bridging the Know-Do Gap. Further, UNITAR has considerable experience in the establishment of effective online knowledge and learning services, particularly in the area of climate change and green economy. Their established [UNCC:Learn](#) site has been operating for a decade and providing training services for tens of thousands of public sector officials, academics, students and others each year. This new initiative will build on this experience, increasing the flow of knowledge and ideas across the existing hierarchy of sites, and engaging users that want to access information and share what they know. Having developed an initial outline of the form that the KTP will take, UNITAR and the One Ocean Hub are now entering a process of consultation with key international and national stakeholders to present the outline and gain feedback to improve it further before moving into the phase of technical development and prototyping. Due to the resources funding the project, the Knowledge Transfer Platform has to be compliant with the official development assessment (ODA). This means that GRRIP partners may be able to join if they fall under this remit, and if not, they would need to raise their own funds in order to join

1.2.5 WorldLabs

Other than the examples above, WorldLabs is not a dedicated solution for M&M RPFOS. Rather, it is a generic platform that targets research and innovation eco-systems, seeking to bring stakeholders together in a dedicated social network. The aim is to tackle problems of fragmentation and sub-optimal communication, communicate opportunities, provide tools for monitoring engagement and overcome professional, economic and geographical barriers. Features include: hosting events, managing groups and communities, assessing candidates, collecting data and running contests, among others. Although there is a rudimentary version of WorldLabs that is free, to get any real value out of the platform would require substantial investment.



2 Methodology

Having presented three of the existing platforms in the market, this section defines the purpose and scope of the GRRIP platform, deriving the specification from two sources: in section 2.1, we appeal to the plan within the description of work, and section 2.2 we provide initial examples of features and requirements for the platform, and devise a process by which the sites could choose the platform that would best suit their needs.

2.1 Scope and purpose of the GRRIP platform

The GRRIP platform contributes to meeting two objectives of the GRRIP Project:

Objective 2 Seeks to “[E]stablish structures to facilitate, promote and maximise real sustainable engagement with, and input from, the Quadruple Helix (QH) (industry, societal actors, policy and other RPO&RFOs). GRRIP will pay particular attention to societal actors (often referred to as citizens, public, society, civil society organisations) through the entire project and within each RPO&RFO R&I process interventions.” More specifically, this objective will be achieved, among others, by “Establishing the QH platforms for each RPO&RFO with clear operational processes and roles. This will include on-going dialogue methods such as workshops, fora and social media. This will result in on-going mutual learning processes. It is this dialogue platform that will facilitate the real QH engagement and input into the RRI of the RPO&RFOs”

Objective 4 Seeks to develop a sustainable Mutual Learning process across the M&M RPO&RFOs both during the institutional and cultural change project and the ongoing evaluation feedback loop cycles. This will entail establishing the platform and methodology for mutual learning between the RPO&RFOs and with QH. This will include communication methods, conduct, cycles, and roles within the RPO&RFOs and QH.

The section on the establishment of the platform states that its purpose would be the constructive engagement between the QH and RPO&RFO, and that it would have the following features:

- 1 Clear objectives and purpose
- 2 Method of communication
- 3 Operational process and roles
- 4 QH engagement methodology or dialogue-oriented processes for the different stages of R&I in the RPO&RFO including case studies and workshops
- 5 Methodology for engagement on CSO driven engagement including co-creation and citizen science
- 6 Mutual learning
- 7 Reflection and evaluation cycles

These objectives need to be refined, contextualized, and articulated in a way that is specific for the precise needs of the different RPOs and RFOs. Preliminary discussions with some of the sites suggests that the value of joining such a platform is yet, unclear, and the case for joining still needs to be made.

The table below presents the opinion of the five RPFOS with regarding the relevance of each type of research stream available in the One Ocean Platform, the projects described in section 1.2.3 above. These have been collected during the June 2020 audit interview sessions (at the time of writing, we are still waiting for PLOCAN to submit their input).



Table 1: Overlapping interests between GRRIPs 5 RPFs and the research streams of One Ocean Hub

Five research streams available in the One Ocean Platform	MAREI	SU	IUML	WAVEC
Interdependencies of the environment & human rights to connect across sectors	We are heavily involved in a number of ocean governance projects but these tend to focus on Maritime Spatial Planning but we also are partners, for example, in a COST ACTION OceanGov (Ocean Governance for Sustainability – Challenges, Options and the Role of Science) and we helped to found Marine Social Science (MarSocSci) network	This would fit with existing projects.	Several members of IUML are doing research in law, economics and geography. They already work on this topic.	This is relevant for my organisation. It is related with our ongoing projects on licencing processes and environmental monitoring methodologies for marine energy development
Sharing Knowledge in science dialogue with civil society	Ocean and human wellbeing are definitely an area of interest but we haven't yet been involved in a project in this area.	This would fit with existing projects.	Yes. IUML is already involved in such initiatives (UN-e-sea). However, language can be a challenge (French may be mandatory depending on targeted audience).	This is relevant for my organisation. It is related with our ongoing projects on public outreach and educating local communities on the benefits of marine energy.
Climate-proofing fisheries for equity and sustainability, integrating traditional knowledge of local fisheries	We run Climate Ireland, the national climate adaptation service on behalf of the Irish government and through this we are working closely with Canadian and Australian colleagues who have significant experience of engaging indigenous people around aspects of climate change impacts and adaptation.	This would fit with existing projects.	Yes. Cerographers and marine life sciences researchers of IUML are already working in this field.	This is relevant for my organisation. It is related with our ongoing services related with the ocean clean up.
Marine bio-diversity and hidden trade-offs in the deep sea	Marine bio-discovery is not in our field (though colleagues in our institute are actively involved).	We have currently no deep-sea research project. We have though staff with some knowledge on the topic.	Less developed in IUML than other topics. However, still relevant for us.	This is relevant for my organisation. It is related with our ongoing activities on environmental monitoring and fields campaigns.
Empowering sustainable and equitable "blue societies": Revealing tangible and intangible cultural heritage, including invisible and marginalized knowledge, practices and economies	routinely support participatory approaches to inform horizon scanning (scenarios development) especially with regard to change in economic, societal or environment circumstances (or policies)	This would fit with existing projects.	Not a priority.	This is less relevant, as it is not related with our ongoing projects.

2.2 Outlining features and requirements for the GRRIP platform

This section provides examples of possible features and requirements of the GRRIP platform. It also provides guidelines for the process of choosing the GRRIP platform. The requirement list is organised along thematical categories. In order to improve the overview and the workability of the list of requirements, a total of five categories were defined into which the requirements were sorted in relation to their subject matter, and that apply for requirements from all partners and perspectives. Those are shown in the following table, which can be adapted, revised and expanded during the specification elicitation process:

Categories	Detail
System architecture	Definition of the structure, behaviour, and views of the system and its entities, including operational processes and role-based access, system integration and interfaces (databases, email, web, dashboard, scheduled scripts etc)
Usability, Engagement, and communication	Ease of use and learnability, traceability, comprehensibility and transparency of internal processes (such as reporting and analytics of system usage), Interface requirements, features to allow on-going dialogue and feedback such as workshops, discussion boards and social media related features, news-feeds, events, reminders as well as a definition of communication methods, communication conduct, cycles, roles and responsibilities within the RPO&RFOs and QH.
Knowledge management features: mutual learning and identification of expertise	Resources for the dissemination, co-production and acquisition of knowledge, lessons learned, case studies and post-mortems, search capabilities of content and people or expertise.
Addressing uncertainties and risks	Consideration of uncertainties, risks and unknown factors
Computational specifications	Requirement on the software and hardware to allow integration with existing systems, constrained by available resources

Table 2: Thematic categorization of requirements

Within the individual categories requirements that relate to similar aspects are located next to each other to facilitate usage. As a result, order in respect to the origin of the requirement is neglected. Each category is associated with a requirement table such as the one shown in Table 3.

requirement ID			requirement detail		
Source of Requirement	index (###)	Version ID (###)	Type	Requirement description	Requirement rationale

Table 3: Table of requirements (template)

Table 3 will be distributed among the five RPFOS, to allow each partner to fill in their requirement from the point of view of the partner. For each requirement, RPFOS will describe not only the nature of their requirement, but also its rationale: how would it contribute to the goals of the organisations and the relationship between RPFOS and its QH stakeholders or any other stakeholder. Requirements can be adapted from the existing platforms, such as the ones described in section 1.2 above. The requirements can fall into one of the types/categories described in Table 2.



RPOs would then fill in the table with a list of requirements, and assign each requirement with an ID, composed of three fields as follows:

1. Source of requirement: a reference to the name of the consortium member or a different stakeholder that suggested the requirement, for example: WaVEC, PLOCAN, ECN, SU, UCC etc...
2. Index: a three-digit running number starting at 001
3. Version ID: a two-digit number starting at 01 and increasing with each update of the requirement.

The requirement detail consists of a type (optional), a short description and a rationale, justifying the requirement. Below are some existing examples of feature and requirements of platforms:

- Data security to guarantee data integrity through methods such as end-to-end encryption and login access control.s
- Engage with the social actors via interface and discussion fora for stakeholders, RPO/RFOs, society and industry. Communication channels for commentary and feedback.
- Report capabilities for monitoring and control
- Dashboards and configuration the preference in displaying the relevant data
- Advertising meetings and processing minutes, events, conferences and training workshops
- Disseminate and publish news, content, and results that emerge during the project
- Data management analyse and processing the data in a secure way.
- Integration with apps and analysis tools

2.3 Assumptions and constraints

Ownership of the system: This will be established after a dedicated workshop and consultations with the sites to choose the suitable platform. If the decision is to join an existing platform, the owner of the platform is already a given. Otherwise, further consultation is necessary.

Living document: The list of features and requirements will be part of an evolving document, as we anticipate the arising need to change requirements, document them, and keep the definition of the conceptual framework in sync with the use of the system. Although the business requirements specified may change less frequently as the system or technical requirements, they are not always understood, recognised or correctly interpreted by certain the stakeholders. Change is therefore more frequent in the technical, product or software requirements.

3 The requirement elicitation method

In the context of GRRIP, we understand requirements elicitation to be the process of coming to an agreement on a list of requirements gathered from relevant stakeholders such as researchers, management, customers, users, members of the QH and external RPOs/RFOs with a stake in the project. This process culminates in the final requirements definition protocol. The process is not as straightforward as just asking the stakeholders what they want they system to do, as in many cases, they are not aware of all the possibilities that exist, and may be limited by their immersion in the current state.

The requirements for the GRRIP Platform are determined through a multistage process detailed in the subsection 3.1 below. Due to the size and broad scope of the consortium, transparency of the process





and consensus decisions supported by all involved stakeholders are essential during requirement elicitation.

3.1 The steps for choosing the platform

First step: All RPFOS enumerate their needs and requirements, in consultation with the QH (and other relevant stakeholders) by filling in table 2 section 2.2, one table for each RPFOS (see details above). Moreover, while filling the table, the RPFOS may need to consider the following questions:

- How compatible is the selected platform with the infrastructure used by the RPFOS?
- Who are the end users and what do they need?
- Does the platform support communication with relevant stakeholders?
- What are the requirements around data integrity and security?

Second step: Those are consolidated into one document that was made available for the whole consortium as a basis of further work. During further negotiation with representatives of each partner the requirements are reviewed and elaborated further. Redundancies are removed, contradictions resolved, and requirements challenged, discussed and sharpened.

Third step: an existing requirement within this document must pass a consensus on the most suitable platform for the GRRIP project.

4 Conclusion:

We have presented feature and requirements of existing platforms, as well as a process by which the GRRIP platform can be chosen. Given that the development of GRRIP platform or selecting one of the existing M&M RPOs platforms needs the consultation with the GRRIP consortium and RPOs and RFOs, the main goal has been to provide a suitable starting base for development of GRRIP platform. The starting base should consider the following features:

- To support users for collaborative work such as sharing, news, documents, files.
- To provide users with the capability of analysis, such as analysis tools which most users are comfortable to analyse their work.
- Offer guidance to users during the implementation stage of GRRIP Actions Plans for cultural and institutional interventions.
- Provide users with workflow maps to guide them through the whole process.

Since the whole process will be reviewed and revised after the GRRIP Action Plan RRI trial (T6.5), the features and requirements of the platform may be revised and integrated with the findings that have been accumulated until that point.

4.1 Next stages

The next stage will comprise of a joint workshop with all RPFOS leaders to make a binding decision whether they can see the value and utility in joining a platform, and if so, what would be its function, in general terms. Most efficient would be in same workshop as the QH training WS in October. If a consensus is reached to go ahead with the plan, the requirement elicitation process will commence.

1. In a first step all RPFOS document the requirements essential from their perspective individually, filling in the Table 3, one for each RPFOS.
2. In a second stage, tables from all RPFOS will be consolidated into one document that will be made available for the whole consortium as a basis of further work.





3. A requirement workshop with representatives of each RPFO will review the requirements and, where necessary, elaborate them further. Redundancies will be removed; requirements challenged, discussed, and sharpened. In a final step each requirement within this document must pass a consensus decision to be taken into further account.
4. The results of the requirement workshop will be consolidated in a final document (V1.0). Further versions of the Requirements List will be stored as revisions.

The person responsible for managing the process would be a Project manager, UCC post doc with DMU/RUG in assistance. The D&C committee will then take over responsibility of the platform creation once there a decision is made in the workshop. If a decision is made to join an existing platform, the committee will be responsible for negotiation with the owners of the platform on the conditions of joining it.

