

DELIVERABLE 5.1

FRAMEWORK AND PRACTICAL GUIDELINE FOR STAKEHOLDER ENGAGEMENT

Work Package 5 Societal Interactions and Engagement

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Abstract	This is the first deliverable of WP5, aiming to provide guid- ance to overall project management of the UNITED project. The deliverable focuses on establishing all the rules necessary in harmonious engagement of all related stakeholders of the project. This can be accomplished by creating a common vo- cabulary for stakeholder engagement as well as forming the main steps and the general principles of a mobilisation pro- cess. It also provides guidance for the identification of rele- vant people and the different ways to involve various catego- ries of stakeholders, exposes the expected results of a critical analysis of the challenges and the identifies the preconditions for a successful stakeholder mobilisation process in each pilot.
Keywords	Stakeholders, stakeholder engagement, framework, stake- holder register tool





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ACRONYMES

CCT	Coordination Committee Team
CSET	Core Services Exploitation Team
СТ	Consortium Coordination Team
EC	European Commission
IPR	Intellectual Property Right
PA	Partner Assembly
PM	Project Management
SAB	Stakeholder Advisory Board
WP	Work package
NGO	Non-Governemental Organisation
H&S	Health ans Safety
OWF	Offshore Wind Farm
ORECCA	Off-shore Renewable Energy Conversion platforms – Coordination Action
MUSES	Multi-Use in European Seas (Horizon 2020 funded project, 2016-2018)
TROPOS	Modular Multi-use Deep Water Offshore Platform Harnessing and Servicing Mediterranean, Subtropical and Tropical Marine and Maritime Resources (FP7-Ocean 2011 funded project, 2012-2015)
UNITED	Multi-Use offshore platforms demoNstrators for boostIng cost-effecTive and Eco-friendly pro- Duction in sustainable marine activities (Horizon 2020 funded project, 2020-2023)
WP	Work Package
SAB	Stakeholder Advisory Board
WP	Work Package
CoP	Community of Practice
FP7	Framework funding programme ran from 2007 to 2013
MUSICA	Multiple Use of Space for Island Clean Autonomy EU project
MULTI- FRAME	Assessment Framework for successful development of viable ocean multi-use systems
IAP2	International Association of Public Participation
3BL	Triple Bottom Line
Teams	Unified communication and collaboration platform developed by Microsoft Corporation





POPD	Processing Of Personal Data
GDPR	General Data Protection Regulation
EC	European Commission
EU	European Union
EDPS	European Data Protection Supervisor
DPO	Data Protection Officer
MERMAID	Innovative Multi-purpose Off-shore Platforms: Planning, Design and Operation (FP7-Ocean 2011 funded project, 2012-2016)
MUCL	Multi-Use Co-Location
EEF	Education Endowment Foundation
OPA	Open Policy Agent
TRL	Technology Readiness Level
VECTORS	VECTORS of Change in European Marine Ecosystems and their Environmental and Socio-Eco- nomic Impacts project
R&D	Research & Development





EXECUTIVE SUMMARY

This deliverable is the first one of WP5, that is devoted to societal interactions and engagement, as well as the social acceptance and the involvement of all stakeholders in Multi-use design and operation. The WP will serve as the primary point of contact with stakeholders limiting their fatigue, building a centralized survey and engagement point, and facilitating effective, streamlined communication channels both outside and within the project. Deliverable D5.1 reflects the internal project management structure of the UNITED project and aims to work as a guide to establishing all the rules necessary in harmonious engagement of all related stakeholders of the project. More specifically this deliverable creates a common vocabulary for stakeholder engagement in UNITED as well as forms the main steps and the general principles of a mobilisation process. It also provides guidance for the identification of relevant people and the different ways to involve various categories of stakeholders, exposes the expected results of a critical analysis of the challenges and the identifies the preconditions for a successful stakeholder mobilisation process in each pilot.





INTRODUCTION

The objective of Task 5.1 is to set up a framework for stakeholder mobilisation in UNITED and provide guidelines for the different stakeholder engagement activities through the project. In this way, deliverable 5.1 is a practical guide for stakeholder engagement in UNITED. It is intended for:

- WP5 partners, as a first step in the development of WP's activities
- Pilots, in order to support the design and implementation of their stakeholder mobilisation strategy
- All UNITED partners, in order to support stakeholder related activities in the other work packages
- A wider range of users afterwards the project, as a tested methodological framework for stakeholder engagement.

Stakeholder mobilisation in UNITED will take place at 3 different levels: in the Pilots, under the Stakeholder Advisory Board (SAB) membership, and through the Community of Practice.

This guide aims to establish a common vocabulary for stakeholder engagement in UNITED, to set out the different aspects of stakeholder mobilisation in the project, the main steps and the general principles of a mobilisation process (chapters 1 and 2). It provides guidance for the identification of relevant people and the different ways to involve various categories of stakeholders (chapter 3). Chapter 4 exposes the expected results of a critical analysis of the challenges and the identification of preconditions for a successful stakeholder mobilisation process in each pilot. Development and implementation of a roadmap for stakeholder engagement in the Pilots are described in Chapter 5, as well as the potential synergies between pilots. Chapters 6 and 7 set preliminary framework for the evaluation of stakeholder participation in UNITED and the formulation of recommendations for future multi-use developers.

1.1 Why do we need stakeholder engagement in UNITED?

The development of an ocean multi-use system depends upon a multitude of stakeholders from maritime authorities, research institutes, business community, insurance and classification companies, to local communities. Thus, UNITED project and its pilots require a thorough understanding of the wide range of stakeholder groups. There is a wide range of interests in and positions on multi-use, which are manifested at varying scales and degrees of intensity.

Having a good understanding of stakeholder groups is a prerequisite for establishment of mechanisms for attracting stakeholder input into the UNITED project, for effectively feeding the project outputs back into relevant policy, research and business processes, and providing recommendations on ways to achieve social acceptability for UNITED pilots. It is crucial to have those with the power actively involved throughout the project, in order to ensure the acceptance, feeling of ownership and implementation of final project recommendations (i.e. UNITED Commercialisation Roadmap).

1.2 Terms and Definitions

HOW TO DEFINE "STAKEHOLDERS"?

As a broad definition, a "<u>stakeholder</u>" is a person or an institution with an interest or concern in a business or project. In the case of UNITED pilots, any person or organisation impacted and/or willing to take part (in a positive or negative way) in a project can be considered a stakeholder.

In order to target what kind of stakeholder should be involved in the different steps of the project, the stakeholder can be classified regarding:





- The type of organisation they are or they represent: public administration or authority, business, NGO, education and research
- Their scale of intervention: local, regional, national, European, international
- Their sector or domain of intervention: aquaculture, tourism, wind farms, transports, protected areas
- Any other relevant criteria according to the context

Guidance for the identification of relevant stakeholders for each pilot is provided in chapter 3.

Stakeholder Categories

Firstly, in UNITED project stakeholders are categorised in internal, external and 'expanded' stakeholders according to the following definitions:

- Internal: An internal stakeholder is part of the project team, be it the project partner or the subcontractor. They are usually interested in the efficiency of project run and may contribute with their knowledge to assist especially for the single pilots. Additionally, grouping of stakeholders around the pilots itself are of internal type, since they are directly required for implementation. The project Advisory Board stakeholders are also categorised as internal.
- External: The external stakeholders of the project are those who have not been directly involved • in the implementation of pre-operational, operational, or post-operational activities of the demonstration pilots but may be involved in interviews and workshops to advise the activities and research. They are also key actors in the effective dissemination and engagement efforts of the UNITED project to generate a community of practice, come to a consensus on best practices, and expose the results of the activities and lessons learnt through the project activities. This deliverable focuses on these external actors. Thus, the external stakeholders include main users of the project outputs. For example, those are the stakeholders working in industries which would benefit from the pillar outputs (governmental, insurance, implementation companies, etc.). When it comes to public authorities, and other relevant regulatory agencies (e.g. insurance agencies, classification bodies), there are typically one or two stakeholders identified as a liaison/representative of the authority. However, a secondary grouping of stakeholders are businesses actors who would be able to implement lessons learnt in furthering the development of ocean multi-use. Also, there are localized stakeholders related to each of the demonstration pilots which are not directly in contact with the project or activities but impacted by them.
- **'Expanded' Stakeholders:** These may include the industry, customers, employees, manufacturers, vendors, environmental and other community activists, and more, that may not have direct interest in pilots or may not operate in countries where UNITED pilots are located. These for example include wider associations representing certain industry on the EU/international level, or the international governance bodies and initiatives, or media. Maintaining strong, consistent communications with all types of stakeholders ensures stronger impact through a much more buy-in and better public relations.

Secondly, the project defines seven general categories that partially reflect some broader societal structures that are applicable to identifying stakeholders in many different contexts:

• **Commercial Business:** Defined as an organisation deriving commercial value from the maritime use, in one or more activities of the value chain of the certain maritime industry sector. These





could be, for example, a producer, operator, commercial, etc. depending on the maritime use considered.

- **Business support consultancies:** Organisations providing consulting services in either policy, research, management, communications, engineering or any other area.
- **Research organisations:** Universities, research institutes, and or research consultancies, be it private or public. There may be a thin line between consultancy and research, and potentially regulator and research, as some regulatory bodies are involved in research projects themselves. However, in these cases, the major legitimacy of a regulator as a stakeholder is in regulating, hence these should be considered under the 'regulator' category. Only universities, research institutes or strictly research consultancies are predominantly engaged in research as their main activity and source of income, and therefore should be considered under 'research organisation' category.
- **Regulators:** Implementing the policy by enforcing regulations that are administrative in their nature. These regulations are the rules that are made to make people/organisations comply and behave in a certain manner in line with policy objectives. For example, regulators are public authorities such as licensing bodies, port authorities, etc. In fact, regulators possess only those powers specifically delegated to them by the policy maker –usually the government.
- Policy makers: The policy maker decides what the regulations should be and passes the laws implementing the regulations. In comparison to regulations, policies are general in nature. Both policy makers and regulators make policy. The distinction is that policy makers define the fundamentals and define the parameters within which policy making is delegated to regulators. It is more useful to think, not in terms of policy making versus regulation, but, rather, as macro policy versus micro policy. Basic and macro-policy must be set by the government. Regulators must follow and enforce policies articulated by the government.
- **Classification societies:** These are the organisations that establish and maintain technical standards for the construction and operation of ships and other offshore structures. Classification societies are also responsible for the validation of construction in accordance with these standards and carry out regular surveys to ensure compliance with the standards.
- Insurance companies: An organisation that provides coverage, in the form of compensation resulting from loss, damages, injury, treatment or hardship in exchange for premium payments. The insurance company calculates the risk of occurrence then determines the cost to replace (pay for) the loss to determine the premium amount. Insurance companies are usually relevant stakeholder in the context of offshore wind energy, oil and gas and aquaculture.
- **Funding bodies:** These include EU and national/regional funding programmes, private and public funding institutions (e.g. Green Investment Bank) or Intermediaries Sectoral or cross-sectoral clusters and associations.
- NGOs and other intermediaries representing society at large: Environmental Non-Governmental Organisations (NGOs), citizen associations, community movements, etc.
- Consumer and Society at large + community of practice

HOW TO DEFINE "MOBILISATION"?

The mobilisation can take different forms, such as:

- Written contributions:
 - <u>Questionnaire</u>: a form sent to a group of stakeholders for written answers





- <u>Review</u>: a draft document sent to one or several stakeholders to get a feed-back
- One-to-one meeting: <u>interviews</u> (could be face to face, by phone, Skype...)
- Collective meeting: <u>workshops</u>. For the workshops, the mandate of the meeting needs to be explicit to the participants (what is expected from participants? Is it mainly information and feedback on the results presented, collective work, vote?), as well as the outputs (do you expect participants to share some data during the workshop, how will this data be used in the project, are you going to make decisions during the workshop or after, etc.).

The most relevant format for each step of a stakeholder involvement process should be chosen in line with the objectives of the mobilisation.

These different forms of mobilisation can involve various levels of stakeholder engagement (Arnstein, 1969):

- <u>Information</u>: give information to stakeholders without expecting feedback
- <u>Consultation</u>: ask for a feedback from stakeholders on some results, plan or project
- <u>Concertation</u>/co building: make a group of stakeholder work together to build some collective proposition for a project
- <u>Co-decision</u>/partnership: make a decision with stakeholders who have a legal responsibility on the subject

The level of mobilisation must be explicitly mentioned to all the stakeholder involved before any participation. Guidance for a relevant definition of stakeholder engagement at each step of participation is provided in sections 5.1.2. and 5.2.3.

1.3 Role of Stakeholder advisory board

The Stakeholder Advisory Board has been established early on in the project with the aims to ensure external advice, review of project outputs and wider dissemination of project outputs. It also ensures synergies with other relevant projects in which the Advisory Board Members are involved in. The Advisory Board Members, each coming from one maritime sector, and with their professional networks, may also be of particular help when identifying suitable stakeholders to be engaged for interviews or workshops in the project. The main task of the SAB is to reflect on the progress of the UNITED project, bringing in strategically relevant knowledge and experience. The advisory board consists of experienced leaders in policy, science, and business in the fields relevant for UNITED. The advisory board consists of the leading persons and is chaired by one representative of the energy sector and one from the Aquaculture sector. All SAB members represent or have links to larger networks in the Community of Practice, which will be instrumental for large scale deployment of results. Additional members may be appointed from other EU research projects relevant to UNITED, and hence enforce cross-fertilization between different research and policy initiatives. They are also specifically focusing on scientific quality of UNITED deliverables as well as the practical applicability in management and policy. Other interested groups are also welcome to join these meetings and, in this way, increase the outreach of UNITED. Members of the SAB have been appointed and those, who had the opportunity on short notice, attended the kick-off meeting held at the end of January 2020. The current composition of the SAB is detailed in the annex and on the UNITED website¹.

¹ https://www.h2020united.eu/





1.4 Link with Community of practice – link with WP9

UNITED project aims to establish a wider Community of Practice (CoP) in order to stimulate a broader discussion on the topic of multi-use with the wider community. The concept of multi-use has been gaining popularity in the last years, especially with the support from the FP7 and Horizon 2020 Programmes as well as through the implementation of the Maritime Spatial Planning Directive which requires all EU member states to establish maritime spatial plans by 2021. Many countries have already considered the concept of multi-use in their spatial plans (e.g. Belgium, Portugal), while others are supporting the concept by developing dedicated pilots, guidelines and studies (e.g. Multi-use procedure in the Netherlands). Thus, there are already some good practice examples available, and interest is generated around the topic. By establishing the CoP UNITED aims to support sharing of knowledge and good practice examples across the EU.

The following comprise some of the ideas for **operationalisation of the CoP**:

- LinkedIn CoP discussion group: A closed member only page where discussion topics could be posted together with short discussion papers (blog-style) to be commented upon by the members. Such page can also be used to discuss engagement in relevant events, alignment across projects and post multi-use related news. Such page Member only log in CoP section of the website: Page where members could access the draft reports and conduct the review, or contribute with additional content and literature.
- Biannual meetings of the CoP: Time, location and agenda for such meeting will be determined together with all members facilitated by the chairman.
- Management of the CoP: The CoP should continue to function even beyond the project lifetime. Thus, organising its management accordingly from the onset will be crucial e.g. Establish rules and practices for the annual applications and voting for the chairman, nomination of new members, yearly Terms of Reference for the CoP work, etc.

The UNITED CoP will aim to merge with other existing CoP initiatives such as the Dutch CoP, MULTI-FRAME and MUSICA projects CoPs.

2. FRAMEWORK OF STAKEHOLDER ENGAGEMENT

2.1 Description of a process

Engaged stakeholders is a key strategic objective for UNITED. This objective is achieved by using an accountable and transparent process for engaging stakeholders. The UNITED Stakeholder Engagement Framework represents UNITED's commitment to accountable and transparent stakeholder engagement. The Framework has been influenced by the International Association for Public Participation (IAP2) spectrum. The IAP2 spectrum is an internationally recognised framework, designed to help organisations select the appropriate level of participation required to achieve the objectives of different stakeholder activities.





	INCREASING STAKE					
	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER	
STAKEHOLDER PARTICIPATION GOAL	Researchers provide stakeholders with balanced and objective information to assist them in understanding the research.	Researchers obtain stakeholder feedback on the research.	Researchers work directly with stakeholders to ensure that stakeholder concerns and aspirations are consistently understood and considered in the research.	Researchers partner with stakeholders for salient aspects of the research.	Researchers assist stakeholders in conducting their own research.	
PROMISE MADE TO STAKEHOLDERS BY RESEARCHERS	We will keep you informed.	We will keep you informed, listen to and acknowledge your concerns and aspirations and provide feedback on how your input influenced the research.	We will work with you to ensure your concerns and aspirations are directly reflected in the research and we will provide feedback on how your input influenced the research.	We will look to you for advice and innovation in designing and conducting the research and incorporate your advice and recommendations to the maximum extent possible.	We will provide advice and assistance as requested in line with your decisions for designing and conducting your research, as well as for implementing the findings.	

Figure 1: Stakeholder spectrum based on IAP2

The Spectrum of Public Participation was developed by the International Association of Public Participation (IAP2) to help clarify the role of the public (or community) in planning and decision-making, and how much influence the community has over planning or decision-making processes. It identifies five levels of public participation (or community engagement).

The IAP2 is based on a number of levels, regarding the level of involvement that stakeholders have in the project's activities. Figure below presents the Stakeholder spectrum, with the horizontal axis to depict the increasing impact on the decision and the vertical axis the public participation goal and the promise to the public.

1st Level of Spectrum: INFORM

Public participation goal: To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.

Promise to the public: We will keep you informed.

Community engagement is a two-way process (International Conference on Engaging Communities, 2005), which means that the first level of the Spectrum, Inform, is not really community engagement because it only involves a one-way flow of information. The US Environment Protection Agency suggests that:

The INFORM level of public participation does not actually provide the opportunity for public participation at all, but rather provides the public with the information they need to understand the agency decisionmaking process. This level is on the Spectrum to remind agencies that sometimes there is no opportunity for the public to influence decision-making and simply informing them is the appropriate activity. When you





conduct the "inform" level of public participation, it is important to recognize that you are not trying to persuade or manipulate the public in any way. As such, the inform level is not the same as a public relations campaign. Rather, the inform level of public participation requires the agency to serve as an honest broker of information, giving the public what they need to fully understand the project and decision and to reach their own conclusions as to the appropriateness and adequacy of the decision.

Despite it not being community engagement, the INFORM level can be quite appropriate in many situations including letting people know about changes to legislation, health promotion messages (e.g., this great video likening sexual consent to drinking tea) or informing people about benefits they might be entitled to.

2nd Level of Spectrum: CONSULT

Public participation goal: To obtain public feedback on analysis, alternatives and/or decisions.

Promise to the public: We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision. We will seek your feedback on drafts and proposals.

CONSULT is quite a low level of community engagement being "the basic minimum opportunity for public input to a decision" (United States Environmental Protection Agency, 2017). Essentially it involves obtaining feedback about plans, ideas, options or issues, but with little interaction. The promise is to "listen and acknowledge" issues raised, but not necessarily to act on them.

At this level it is particularly important to be quite clear about the focus of the consultation and what is not negotiable. CONSULT can involve little interaction (e.g., surveys or written submissions) or it can be more interactive (e.g., focus groups, public meetings). CONSULT largely involves one-way communication – feedback from the community – although there is still an element of two-way communication through the promise to "provide feedback on how public input influenced the decision".

CONSULT is particularly appropriate when there is little passion or complexity in relation to an issue [5] and can be useful for obtaining feedback about a draft plan or for canvasing a range of views early in a longer planning process. For example, Newcastle Regional Libraries are beginning a strategic planning process and are consulting with a range of stake holders. The purpose of this stage of the process is to identify potential issues needing to be considered in order to guide the next stages of the planning (which will involve more collaborative processes).

3rd Level of Spectrum: INVOLVE

Public participation goal: To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.

Promise to the public: We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.

At the INVOLVE level, the community is invited into the process to a greater extent than with Consult. As can be seen, the goal is to work with the public throughout the process: it is not a one-off. While the promise implies that issues raised should be taken into account, decisions at this level are generally made by the organisation or department rather than the public.





Again, it is important to be clear about what is negotiable and that the decision-making will not be made by the community. The higher level of participation required by the public, means this level can be appropriate when people are having some investment in an issue, but it is not very controversial nor has major implications for other people.

4th Level of Spectrum: COLLABORATE

Public participation goal: To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.

Promise to the public: We will work together with you to formulate solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.

The COLLABORATE level is about partnership and sharing power (Hardy, M., 2015). The promise sets high expectations as it promises to incorporate advice and recommendations "to the maximum extent possible." It implies an interactive process with an emphasis on two-way processes.

While decision-making still lies with the organisation or department, there is much greater input from the community. Creating the trust needed and ensuring there is genuine engagement can be costly and time-consuming.

Because of the high level of participation, it is particularly useful for controversial issues and complex problems. There can be risks involved in processes at this level. If the promise is seen as being broken (e.g., if members of a community cannot agree of ways forward, or if some sections of the community feel their views were not taken into account), trust can be broken and future relationships with key stakeholders can be significantly damaged (United States Environmental Protection Agency, 2017). Collaborate requires interactive processes where there can be opportunities to explore issues in some depth.

5th Level of Spectrum: EMPOWER

Public participation goal: To place final decision-making in the hands of the public.

Promise to the public: We will implement what you decide.

The EMPOWER level places the final decision-making in the hands of the public. It does not necessarily mean it is the highest level of community engagement. Whereas COLLABORATE requires a high level of community engagement, EMPOWER does not necessarily require the same degree of community engagement. At this level, a decision could be made by the community through a process that requires little interaction or engagement (e.g., a referendum).

If we adopt bottom up approaches to working with communities and are committed to social justice, however, the Empower level still implies interaction and engagement. It also requires us to ensure that those effected by decisions can have input into the process. EMPOWER implies that this process is in relationship to significant issues.

The Framework that has been developed for UNITED, is to provide direction in stakeholder engagement and communication. It ensures stakeholder engagement activities are integrated and undertaken in a co-ordinated manner to improve the effectiveness of UNITED's engagement efforts. The involvement of stakeholders in UNITED project is mainly related to:

> overall view of UNITED's performance





- ➢ areas of strength
- > opportunities for improvement
- > impressions of policies and procedures
- > relevance and usability of the multi-use activities
- > preferred method of engagement

Using information provided by stakeholders to develop the Framework ensures UNITED meets stakeholder needs and expectations, while fulfilling the project's main objectives.

UNITED's engagement principles follow a four-step engagement process model, which is an adaptation of the International Association for Public Participation (IAP2) Spectrum. The four steps can be briefly summarized by four main questions:

Step 1: What is the purpose of the engagement?

Step 2: What group of stakeholders do we need engagement from?

Step 3: What process we need to choose in order to engage?

Step 4: How do we evaluate the process?

The process model adopted promotes the diversity of UNITED stakeholders and engagement activities. The spectrum is designed to assist UNITED in selecting the appropriate level of engagement required for different stakeholder groups by identifying the characteristics, stakeholder participation goals, promises to stakeholders and examples of engagement tools for each level of engagement (Table 1).

	Inform	Consult	Involve	Collaborate	Empower
Characteristics	One-way engage- ment	Limited two-way engagement; we ask questions, stakeholders re- spond.	Two-way or multi- way engagement; learning on all sides, stakehold- ers and UNITED act inde- pendently, UNITED is deci- sion maker.	Two-way or multi- way engagement, joint decision making and ac- tions.	Decisions dele- gated to stake- holders; stake- holders play a role of govern- ance.
Stakeholder par- ticipation goal	To provide stake- holders with bal- anced and objective information to help them understand the process, pro- posed solutions and outcomes.	To obtain stake- holder input on analysis, proposed solutions and out- comes.	To work directly with stakeholders throughout the process to ensure public issues and concerns are con- sistently under- stood and consid- ered.	To partner with stakeholders in the process, in- cluding the devel- opment of alter- natives and the identification of the performed so- lution.	To place final de- cision making in the hands of the public.

Table 1: Levels of stakeholder engagement.





Our promise to stakeholders	We will keep you in- formed.	We will keep you informed, listen to and acknowledge concerns and pro- vide feedback on how stakeholder input influenced the decision.	We will work with you so that your concerns and is- sues can be di- rectly reflected in the alternatives developed and provide feedback on how stake- holder input influ- enced the deci- sion.	We will look to you for direct ad- vice and innova- tion in formulating solutions and in- corporate your advice and recom- mendations into the decisions to the maximum ex- tent possible.	We will imple- ment what you decide.
Example of en- gagement tools	 Factsheets Email bulletins Media releases Dedicated project web pages on the UNITED website Written reports 	 Public analy- sis and advice Focus groups Surveys Public meet- ings Meetings with selected stakeholders Webinars and other online forums 	 Workshops Consultative committees (e.g. SAB) 	 Consensus building Participatory decision mak- ing Partnerships 	• Delegated de- cisions

2.2. Main principles

2.2.1 Stakeholder Monitoring and Management

When it comes to stakeholder management and mobilisation, a much broader understanding of the term stakeholder is preferred, which exceeds the consideration of (internal) stakeholders directly affected by Pilots (e.g. subcontractors, project partners, shareholders and owners). The overall goal of UNITED is to show the practicability of offshore multi-use for further developments in this sector. By identifying the multi-layered aspects of stakeholder, which present a key challenge within the UNITED project, solid management strategies are defined as building blocks for stakeholder engagement. Bourne et al. (2005) emphasized, that it is indispensable for project managers, not only to communicate with close supportive "tame" stakeholders but also those that may be hostile to the priorities of project goals and visions. As these power structures may change constantly, a high level of maintenance in the form of active communication systems is required (Bourne et al., 2005). The risk of opposing parties causing trouble for the project can be mitigated by establishing a credible foundation of understanding stakeholders influence, as covered in the section above (in 3.1). In turn, stakeholder influence can be used as a subtle positive driver for project success (Bourne et al., 2005). Thus, the following chapter addresses the issue of stakeholder engagement and mobilisation via stakeholder participation and communication matrix. It shall be noted, that stakeholder engagement is not only conducted because of pursuing the successful realization of a project, no matter the costs, but rather strives to comply with ethical standards according to the triple bottom line (3BL) principles (Bourne et al., 2005). Elkington (1997) envisaged, the 3BL as performance success defined as not only meeting financial bottom line performance measures but also environmental and social responsibility performance measures. The





participatory way of stakeholder management within UNITED aims at winning different interest groups over, to support or consider the project in a positive way, through appealing to their intrinsic motivation. This chapter will discuss the tools and possibilities available for a continuous stakeholder monitoring as well as management, considering the approach of a hermeneutic circle (Figure 256).



Figure 256 : Stakeholder monitoring and management within UNITED based on hermeneutic circle approach adapted from Ellmann & Weilaner (2019).

2.2.2 Iterative and adaptive Approach

Given that social systems are subject to continuous change, stakeholder analysis is an iterative process (Figure 2) that will evolve throughout the stages of the UNITED project, rather than one isolated analytical step. An iterative process will be used to compile the stakeholder list and formulate strategies. As new information is gained (purposefully or opportunistically), stakeholder information will be updated and stakeholder strategy action revised, in order to ensure the most suitable approach.

2.2.3 Clarity of Organisation and Communication

This section provides guidance for pilots' organisation for stakeholder engagement and clarity of "user interface" for external stakeholders involved in UNITED.

Pilot interlocutors

In order to ensure a good coherence of stakeholder engagement within the pilots, each pilot should name one single "interlocutor" responsible for stakeholder contacts and activities. More specifically, this person will be in charge of:

- Regularly updating the stakeholder register (excel file, available on Teams -> WP5 folder)
- Contact stakeholders for the different activities they could be solicited for (interviews, workshops, etc.), following up with these solicitations
- Coordinate activities that involve external stakeholders in the Pilot, make sure the process is as efficient as possible and fits into the framework for stakeholder engagement provided by WP5





- Participate to WP5 traineeship
- Ensure coordination with Communication tasks (WP9), in order to streamline communication and solicitations towards stakeholders

The interlocutor for stakeholder management for each pilot is listed in Table 2. The designated interlocutors will be responsible for updating the stakeholder register on a regular basis as well as planning outreaching activities. Also, these interlocutors will work on how to combine common workshops at pilots together (as in D5.3).

Table 2 : Pilot Interlocutors responsible for stakeholder management.

Pilot	Interlocutor responsible for stakeholder management and contact person
German Pilot	Maria Jaeger
Dutch Pilot	Zinzi Reimert
Belgian Pilot	Thomas Kherkove
Danish Pilot	Hans Christian Sørensen
Greek Pilot	Ioanna Drigkopoulou

2.2.4 Ethics of Communication and Mobilisation

When engaging with stakeholders, it is vital to lay out ethical principles and subsequent procedures if applicable. As was identified in the ethics deliverables 11.1 and 11.2, UNITED is engaging with research participants through interviews and workshops. Therefore, personal data can be collected during these interviews and workshops. The EC has prescribed ethical principles and a practical informed consent procedure to follow when doing so. UNITED follows these principles and will thereby assure transparency. Ethical principles under Horizon 2020 in the context of research participation can be summarized as follows:





- The principle of proportionality, meaning that cause and effect or action and consequences should be proportional. Questions posed during interviews and surveys should be proportional to the project aims;
- The right to privacy, meaning the absence of public attention. Information collected during interviews and surveys will be treated confidentially, which is further specified in 5.3
- The right to protection of personal data. Resulting data from interviews, surveys and workshops will be protected and stored securely in compliance with latest GPDR 2016/697 regulations, which is further specified in 5.3 and D11.2 (POPD – Requirement no. 2)
- The right to physical and mental integrity of a person. No physical or mental pressure will be applied in any form during the recruitment procedure and the informed consent procedure
- The right to non-discrimination. No discrimination during the identification and recruitment of research participants will take place. Meaning, no discrimination based on colour, race, gender, religion, political preference, age, nationality or marital status. The UNITED consortium has an international character with partners with a headquarters in 8 different countries and people from many nationalities are represented within the consortium
- The need to ensure high levels of human health protection. It is ensured that research participants will only participate in interviews, surveys and workshops under high levels of human health protection.

The above principals will be adhered to throughout the UNITED project and applied in the communication and dissemination activities, recruitment and building of a community of practice, as well as the identification, recruitment, data gathering, and processing of survey and workshop participants. Furthermore, guidelines on safety and protection in relation to the activities to be carried out in the context of the project (not related to testing or administration of human based research, as this is not applicable in this context) will be adhered to in order to provide those working within the project the robust ethical standards.

Informed Consent Procedure

In practice this means that UNITED will follow an informed consent procedure *before* participation with stakeholders in interviews or workshops. In this procedure the participant is informed with information about the project aims and how the data will be processed through a consent form. The consent form includes:





- The identity of the data controller
- The specific purposes of the processing for which the personal data will be used;
- The subjects right as guaranteed by the GDPR and EU Charter of Fundamental rights, in particular the right to withdraw consent or access their data
- Information as to whether data will be shared with or transferred to third parties and for what purposes;
- How long the data will be retained before they are destroyed;
- > Potential risks for the participant should be noted
- Whether data will be transferred

Signed documents of informed consent will be kept on file by the data controller and stored and retained in a dedicated folder until 3 years after the project. The document of an informed consent can be found in ANNEX 9.3 Document of Informed Consent.

Respect of GDPR

Besides following the ethical principles described by the EC and a practical informed consent, the General Data Protection Regulation (GDPR) represented by the Regulation (EU) 2016/679 will be respected as well.

"Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)."

The GDPR is the regulation (EU) 2016/679 which entered into force on 24th May 2016 and applies since 25th May 2018. It represents the base for all actions including personal and sensitive data. It is an essential step to strengthen the fundamental rights of the individuals in the digital age and facilitate business by clarifying rules for companies and public bodies in the digital single market.

In collecting personal and sensitive data, e.g. if external parties like stakeholders want to receive newsletter, enter the website or conduct interviews, the following has to be explained:

- 1) Why asking for the information?
- 2) For which purpose?
- 3) How long will the data be stored?

Every individual, whose sensitive data are processed, have the right to access and correct their own personal data. Additionally, they have also the right to have recourse at any time to the European Data Protection Supervisor (EDPS).





Application within UNITED

Because data protection gains more and more in importance, UNITED takes the issues and measures very seriously. The project leader disposes of a GDPR-team and a data protection coordinator. Advice of this team can be taken by now. Whether this project possesses of a DPO will be decided later on.

If partners of the UNITED project are processing personal data, they must do it under the Agreement in compliance with applicable EU and national law on data protection (including authorisations or notification requirements). Additionally, they should only process data that is strictly necessary for implementing, managing and monitoring the Agreement. They have to inform the individual persons whose data are collected and processed. Additionally, people will be informed in advance, that their personal data are collected. Besides, it will be prevented to share e.g. contact lists with third parties.

More information about what data will be collected for e.g. organising events or webinars are provided in Deliverable 11.2 (POPD – Requirement No. 2).

3. IDENTIFICATION OF STAKEHOLDERS

3.1 Identification of Stakeholders involved in UNITED Pilots

When it comes to stakeholders, understanding the power environment of a project and the position of individual players and the significance of their potential influence is crucial (Lovell, 1993). As numerous past examples, especially in aquaculture, show, the acceptance of an industry, production site is decisive for its success and future opportunities. At present, aquaculture has a lasting negative reputation, due to bad practice in the past (use of antibiotics, pollution seabed, introduction of alien species, diseases) and missing stakeholder involvement and misguided identification of stakeholders. This leads to a preference for wild-caught marine foods over cultured products in several countries (MELUR 2014; Ernst & Young 2008). Thus, in order to avoid any misunderstandings between stakeholders and project planers, a thorough investigation on the identification of potential stakeholders for all five Pilots was conducted (Figur). As Krause & Mikkelsen (2017) stated, in many cases the omission of relevant stakeholders and social concerns in aquaculture development projects contributes to inequity, social conflicts and sometimes even violence. Main social implications of aquaculture are usually multi-dimensional and usually affect more than just one distinct area of interest. Often, there are several aspects involved, when it comes to the attitudes to and perceptions of aquaculture and its effects (e.g. on the environment, on possible job-creation and economic benefits, on interference with tourism, fishing or recreation, on food security), the organisation of and participation in planning for aquaculture, the direct benefits of aquaculture and their distribution, the negative effects of aquaculture production activities and conflicts with other interests, the effects on the wider economic and innovation system as well as the effects on cultural fabric and other social aspects (Krause & Mikkelsen, 2017). In this regard, Hishamunda et al. (2009) pointed out, that far more context-specific socio-economic dimensions need to be considered such as gender, employment and income, nutrition, food security, health, insurance, credit availability,



human rights, legal security, privatisation, culture/identity, global trade and inequalities, as well as policies, laws/ regulations, macro-economic context, political context, customary rules and systems, knowledge and attitudes, ethics, power, markets, capital and ownership.

Only by the means of an extensive stakeholder management can conflicts and concerns, regarding the multi-use of marine environments, be identified and resolved along the process of a project. It has also to be kept in mind, that due to multi-use concepts, several different and more diverse stakeholder groups are affected and it needs to be determined, which of these groups can be addressed in a similar way and which groups do not go along together very well (Krause & Mikkelsen, 2017). Moreover, the results of various stakeholder analyses regarding offshore aquaculture in the past have revealed, that there are different types of actors involved in the offshore realm compared to near-shore areas (Krause et al., 2003; Wever et al., 2015). Consequently, different types of conflicts, limitations and potential alliances have to be considered (Krause & Mikkelsen, 2017).

A first pilot survey was conducted in March 2020 within the frame of T1.1 and allowed to draw a baseline for stakeholder identification in each pilot. This survey has shown that the UNITED project partners face four distinct groups of stakeholders:

- 1. Administrative and governmental institutions on a local, regional, national and international level (e.g. the Federal Maritime and Hydrographic Agency, Federal Ministry of Food and Agriculture, National and Flemish authorities, European Commission)
- 2. Potential users of multi-usage scenarios and future investors such as
 - Fishermen and fisheries (looking for new job-opportunities due to reduced fishing quotas)
 - Offshore technicians
 - Aquaculture entrepreneurs that wish to expand to (new) environments and explore new production technologies
 - Wind farm operators and energy companies (who are obligated by law to adopt multi-usage scenarios)
 - Operators of (decommissioned) oil rigs (who are looking for alternative usage of their infrastructure)
 - Cable line/pipeline companies, shipping and mining sectors, as well as construction businesses (who are interested in using synergetic effects by multi-usage such as scour protection, joint usage of infrastructure)
 - Tourist companies (who wish to engage in new touristic spots to offer for visits and diving expeditions)
- 3. Local communities, consumers and (environmental) NGOs
- 4. Universities as well as research and development institutes and educational sector

Similar results were found by Rasenberg et al. (2014) during the stakeholder assessment of the MER-MAID project. This seems plausible, as the same marine regions were point of focus during MERMAID (Baltic Sea, the North Sea & Wadden Sea and the Mediterranean Sea), except for the Atlantic Ocean, for which there is no Pilot included in UNITED. Van Hoof et al. (2020) characterized similar stakeholder groups as actual operators of multi-use activities, actors involved in the production and market chain (ancillary industry, processing, transport and trade parties and consumers), government parties involved due to licensing, marine spatial planning/marine management, financiers, risk assessors, insurers, as well as other users of the marine environment, such as NGOs and the wider public.





The identification of different stakeholder categories also helps to determine the geographical scale (local, regional and ecosystem/global scale) as well as the time-scale, in which certain stakeholder groups have to be addressed during the course of the project (at the present: right at the start and during all the stages of the project, in the future: towards the end of the project) (Krause et al., 2015).

Figur indicates the identified stakeholders related to the five Pilots. Most of the stakeholders are either project partners of UNITED and hence, directly involved in the Pilots or are subcontractors, that assist with the installation of (technical-) setups or the operation of the MUCL. From looking at identified stakeholders, it is advisable to assign them to groups. A visual representation of stakeholder clusters can be useful in determining relationships among individual players and emphasize potential group influences. Bourne & Walker (2005) point out, that a group with relatively weak individual power may exert strong influence when banded together. Figur also helps to elucidate the importance of "external" stakeholders with strong power but distant to the project. They seem transparent; however, their potential impact may be underestimated regarding external opinion shaping (Bourne & Walker, 2005). For this reason, the best possible way to identify the stakeholders from the beginning is persecuted in UNITED.

A list of stakeholders identified at an early stage of the project and their main motives is provided within Annex 9.2 (tables 4 to 8). This first step of identification will be further elaborated within the scope of Task 5.2 (Support of stakeholder engagement process in the pilots.







Figure 3: Identification of stakeholder groups relevant for the UNITED project.





3.2 The Stakeholder Register Tool

Throughout the UNITED project stakeholders will be added into a general database (*stakeholder regis-ter*), where certain solicitation measures and follow-up actions will be individually specified. A template (excel file) for this stakeholder register has been developed within WP5. It can be used within each Pilot (one register per Pilot) in order to:

- Have a list of the stakeholders in presence; to be able to find the contacts and basic information quickly
- Be able to have an overview of the different kind of stakeholders in presence
- Be able to select (filter) certain type of stakeholder that could be contacted for research activities.
- Follow up with the participations, keep track of the various solicitations

This way, stakeholder groups, which are not directly affected by the pilots, will be considered as well (e.g. general public, local communities) and provided with information, the opportunity of knowledge integration and joint learning in order to resolve potential conflicts over coastal resource use (Stepanova, 2015). A plethora of case studies and research has shown, that education and dissemination of the concept of ecosystem services, in the context of aquaculture, are crucial to be recognised by the general public, are key elements for proper valuation by economic markets (Barbier 2013; Costanza et al., 2014) and for the emergence of innovative aquaculture practices (Krause & Mikkelsen, 2017).

Good Practices: Guideline to Stakeholder Identification

In order to identify a broad range of stakeholders in a somewhat holistic manner, various approaches can be chosen. A convenient way of coming across stakeholders is through using already existing networks of former project partners, research facilities and institutes as well as subcontractors (Ellmann, & Weitlander, 2019). Further, already completed projects may give you an idea where to start looking for potential interest groups by revising project charters (containing information about the name of the project manager, client, sponsor, other influential players), contracts (obtains names of suppliers, local agents, and contacts from the client's side), stakeholder register as well as procurement documents. Additionally, taking a closer look at enterprise environmental factors (EEF: organizational culture/structure, internal/external political climate, existing human resources, available capital resources, regulatory environment, financial and market conditions) and organizational process assets (OPA: organizational standard processes, standard-ized guidelines, templates, corporate knowledge base – lessons learned, historical information, past project files) can be useful in revealing interest groups. Further techniques in regard to stakeholder identification involve (Usmani, 2019):

- **Brainstorming**: meet with people from your project team and experts in the field and begin with listing categories such as media, authorities, consumers and end users etc. to identify as many potential stakeholders as possible. During this brainstorming session you can always use questions to guide you in the process:
 - Who is directly/indirectly involved with the project?
 - Who may be affected by the project?
 - Who gains or loses?





- Who wants to complete the project successfully?
- Who are the suppliers?
- Who will use the project's deliverable?
- Who are the competitors?
- Who are the shareholders?
- Who has the authority over the project and its outcome?
- Who has the authority to provide support?
- Who can cause your project to fail?
- Consulting with community representatives, organisations and already identified stakeholders: Find out what existing networks and structures exist to support community engagement and reach out to leaders and facilitators within those groups to explain your intensions and ask for their feedback on your strategy. Some organisations may have been involved in similar efforts, with the population or in the area of concern. Moreover, you can interview stakeholders you already identified, as especially key interest groups are often well connected to large networks (SustaiNet Software International Inc., 2019).
- Advertising: There is always the possibility to promote your project in the media (e.g. relevant journals, magazines, community newspapers, radio and websites, as well as social networks) at fairs or conferences.

3.3 Stakeholder Classification regarding their Interests and Impact

In order to comprehend the impact that stakeholders hold over the course and outcome of a project, a classification is conducted, determining the various stakeholders' influence. This means, that a mere identification of stakeholders alone is not as useful as taking one step further along the process of stakeholder analysis and thus, classifying which interests stakeholders are in accordance with, the extent to which they are affected by, or opposed to. However, this classification is supposed to be a baseline observation of the current status quo of stakeholders who are involved in Pilots, and does not raise claim for completeness or a final conclusion yet. Any stakeholder analysis is based on thorough field observations, conducted in the geographical area under study, in which stakeholder impact, interests and interrelationships between groups as well as between the project might change during time (Suárez de Vivero, 2007). Thus, further insights into stakeholder motives will be investigated in D5.4 as the UNITED project proceeds. The main interests, gathered from the survey, of the so far identified stakeholders regard:

- The outcome of project (i.e. general applicability of offshore aquaculture) and research results (e.g.: improving remote operation of offshore measurement devices, aquaculture products)
- The strict compliance with relevant guidelines and legislation
- Realizing upscaling of TRL of Pilots
- Economic incentives (i.e. upscaling of multi-use systems) and new job opportunities

At this point in the project, more internal than external stakeholders were identified in total (across all Pilots). During the course of the project, as part of the ongoing stakeholder engagement process, more external stakeholders will most likely be identified, while the number of internal stakeholder (mostly project partners) is not expected to change noticeably.





Based on the information provided so far, the stakeholder groups (Figure 4) will be illustrated in a 'Power-Interest chart', regarding their influence and importance with respect to the project. It is indispensable to familiarize oneself with the nature of power and influence of stakeholders, the sources of this power and the way in which it is used to, contributes to or manipulates the planning and management of a project. Various studies investigated this issue and characterized forms of power (Bourne & Walker, 2005). Yukl (1998) described three basic source groups of power and their characteristics:

- 1. Position power derived from statutory or organizational authority: formal authority; control over rewards; control over punishments; control over information; and ecological (physical/social environment, technology and organization) control.
- 2. Personal power deduced from human relationship influences or traits: expertise; friendship/loyalty; and charisma.
- **3.** Political power derived from formally vested or conveniently transient concurrence of objective and means to achieve these: control over decision processes; coalitions; co-option; and institutionalization.

Greene and Elfrers (1999) identified seven forms of power, which complement the observation of Yukl (1998):

- 1. Coercive based on fear. Failure to comply results in punishment (position power).
- 2. Connection based on "connections" to networks or people with influential or important persons inside or outside organizations (personal & political power).
- **3. Reward** based on ability to provide rewards through incentives to comply. It is expected that suggestions be followed (position power).
- 4. Legitimate based on organizational or hierarchical position (position & political power).
- 5. Referent based on personality traits such as being likeable, admired etc. thus able to influence (personal power).
- 6. Information based on possession of or access to information perceived as valuable (position, personal & political power).
- 7. Expert based on expertise, skill and knowledge, which through respect influence others (personal power).

Figure 4 visualizes the importance of a stakeholder (group) and the extent to which a project might be at risk, in case the stakeholder' interests are not met. It can also be deduced which actions apply for which group of stakeholders, as not all stakeholders need to be involved at all stages or in all aspects of the project. Naturally, the other UNITED project partners have a high interest in as well as power over the course of the project. Also, insurance companies, owners of multi-use solutions and technology as well as the EU-Commission are very influential and have a certain interest in a (preferably) successful outcome. Consequently, these stakeholder groups have to be closely engaged and consulted on a regular basis via newsletters, reports and during periodic meetings. The stakeholders belonging to the public or subcontractors are also placed within the same area as the EU-commission and owners, high power and interest. Especially the power of subcontractors will decrease as more providers will enter the market. Depending on their motives and interests, especially NGOs are able to exert considerable pressure on the course of a project when it comes to its overall sustainability and required environmentally compatible actions. Thus, the public shall be informed and actively be engaged in the forthcoming events concerning the course of the project. This will be achieved through various dissemination activities such as interviews, conference presentations, stakeholder workshops, newsletters and project reports.

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Figure 4 : Power-Interest chart of external (light blue) and internal (dark blue) stakeholder groups.

Compared to the *public* stakeholder group, subcontractors are considered to have less power over the project. Nonetheless, conflicts concerning the project may arise, because currently there is only a limited number of subcontractors, who can carry out a certain job within the project. As Krause & Mikkelsen (2017) discussed, the establishment of aquaculture businesses in a region can influence the availability of input factors such as skilled labour, specialised suppliers, education programs, and other infrastructure. However, competition for input factors in limited supply may hamper the development of other industries, thus significant delays or increasing labour costs, which negatively affect the progress of the project, might be consequences that need to be kept in mind. Thus, it is advised, to closely observe this situation for every supplier individually. Ultimately, subcontractors should also be kept informed and actively engaged in the project accordingly to their importance and the potential risks they constitute.

A rather high power is assigned to the media, law and legislation, while their interest in the project's proceedings ranges from low to medium. They will be informed about relevant project information. Also, this group of stakeholders will be monitored and kept satisfied, as it is always possible for a player to shift his/her interests and power status. High power over and quite some interest in the project is expected from other scientists and managers of (competing) research projects. Those parties will be actively engaged and consulted, while keeping them informed about relevant forthcomings. This may be achieved through scientific publications in journals, newsletters as well as contributions at conferences. In particular cases, scientists can actively be involved by including them in stakeholder workshops as speakers.





Although, future investors - such as fishermen, looking for new job opportunities, or wind farm operators, exploring new economic possibilities- cannot directly influence the project, they share great interest in our findings. Their feedback regarding the project's proceedings and its outcome becomes important and powerful, once they demand feasible up scaling solutions and make use of government funding and incentives. In the end, it is the future investors that decide whether offshore multi-use systems will become more than just research pilots and actual state-of-the-art practice. Hence, it is crucial to engage potential investors from the beginning, as they will represent the main target group, when it comes to up scaling our solutions, developed during UNITED.

The power over the project that lies within authorities and government depends on the regulations and restrictions that need to be abided. These, rather powerful, institutions will be informed about project relevant events and actively engaged in the whole process. They especially share an interest in the project with regard to how environmental, health & safety, food, etc. statutes and laws are followed.

4. CRITICAL ANALYSIS OF THE CHALLENGES AND IDEN-TIFYING PRE-CONDITIONS FOR SUCCESS IN EACH PILOT

4.1 Overview of challenges identified in HORIZON multi-platform projects

Based on the extensive analysis of challenges, risks and barriers carried out and reported in Deliverable D1.1, there were four types of challenges mostly influencing the success of the multi-platform use in other Horizon projects that made a relevant attempt. Figure below summarizes these barriers by count.







Figure 5: Type of barrier count

As we can see from this diagram, the most dominant challenges that the multi-platform attempts encountered is the Legal/Governance ones, with Technical barriers following, while environmental barriers are mentioned less frequently than the others.

This overview of barriers is then categorized in types of multi-use activities, which is very useful in terms of giving insights on what types of challenges the UNITED multi-activities might face during deployment and operation. Below, the tables with the multi-use cases per barrier.

















Legal/governance/administrative barriers

Economic barriers









From the diagrams in figure 5, we can realize that:

Offshore Energy and Aquaculture Multi-Activities have faced the greatest barriers of all verticals, in terms of technical, economic, social, environmental and legal/governance/administrative barriers. This should be taken into consideration for UNITED project, as three out of the five pilots that the project involves plan to combine Offshore Wind Farms with some type of Aquaculture activity (mussels, macroalgae and flat oysters). Social, Environmental and legal/governance/administrative barriers also seem to be an issue for most of the attempted multi-uses.

The types of different barriers per sector, when these are categorized as Technical, Economic, Social, Environmental and legal/ governance/administrative, have been already reported in D1.1 as:

Technological barriers:

- In the *aquaculture* sector, it mostly relates to fixation/mooring issues, the compatibility of the sector with offshore wind, and the challenging weather and sea conditions.
- Regarding the **offshore energy**, this mainly relates to wave and tidal energy demanding novel technological structures and offshore energy challenges, for example in energy storage, the design of systems that can handle harsh conditions at sea, and offshore wind energy transmission.

Environmental barriers:

Mostly concern **the impacts on** *fish*, such as noise, disturbance, the effects on old and new species, aggregation around structures and over-exploitation of fishing grounds. *Birds* are also mentioned frequently in relation to environmental concerns, relating to the risk of collision and their attraction to fish waste. There appears to be relatively low mention of waste pollution or emissions, and an increased focus on the impacts on the natural habitat of animals and the ecosystem.

Legal, policy and governance barriers:

Refer mostly to a lack of clear guidelines and regulatory structure and framework regarding multi-use, as well as a lack of consistency in policy and procedures between national levels. *Insurance* comes up as a legal concern as well as an economic one, relating to unclear **insurance frameworks and** *safety* issues.

Social barriers:

The fishing sector and (local) fishermen are mentioned including concerns about **opposition by larger scale fisheries**, the possible exclusion of fishermen and conflicts between multiuse activities and local fisheries. Additionally, the **tourism and wind sectors stand out**, indicating challenges of social acceptance for these sectors.

4.2 UNITED Pilots identified Risks and Barriers

German pilot

Description of the pilot

In Fino3, the multi-use combination of Offshore Wind Farms (OWF) and aquaculture (blue mussel/macroalgae) will be tested to demonstrate the feasibility of such undertakings in practice. The combination of OWF and aquaculture has mainly been driven by the need to increase the aquaculture production, a key component of the Common Fishery Policy, Blue Growth Strategy and national policies. Moreover, the multi-use of offshore sites is highly demanded in several policy documents.





Identified barriers by the pilot

The answers from the questionnaire, reported in D1.1 indicate that the technological barriers are not of main concern for the pilot. This is due to the pilot already working as an established platform in the ocean, so several technical barrier categories that apply to other pilots might not hold here. Lack of damage due to extreme adverse environmental events, and the risk of damage in case of mooring failure are somewhat considered to be problematic barriers. Considering the economic barriers, insurance, decommissioning, and high maintenance costs seem to be barriers, none of the barriers were rated with a 5. With regard to the environmental barriers, the Fino3 pilot is not concerned about them. This might be partly due to the secluded position of the pilot site further away from the coast than the other pilots in UNITED. For the governance and legal barriers, the answers from the Fino3 pilot were on average the highest, indicating that most barriers here are considered as problematic. Looking at the social barriers, the Fino3 pilot shares the same set of concerns regarding these obstacles as the other pilots.

Dutch pilot

Description of the pilot

North Sea Innovation Lab (NSIL) is an independent test site for research, pilots and the up scaling of innovations in the field of seaweed cultivation, floating solar and other renewable energy innovations, and co-use of wind farms. With this pilot, NSIL will aim to reach four objectives:

- 2 Demonstration of offshore solar integration in offshore wind farms;
- 3 Demonstration of a safe operational plan for the commercial roll-out of integrated aquaculture in offshore wind farms;
- 4 Demonstrate and quantify the wave dampening of floating solar energy;
- 5 Demonstrate Rotate Monitoring.

Identified barriers by the pilot

The NSF indicated in the technical barrier section that most of the barriers presented there were not considered to be problematic for the multi-use combination. The only barrier that was considered to be an obstacle was the potential structural risk that could occur from accidental collision with aquaculture equipment. Regarding the economic barriers, the NSIL pilot provided similar answers as the other pilots (see chapter 4): insurance, maintenance cost and grid connection were considered to be potential barriers. The lack of infrastructure for energy for the multi-use activities was judged to be a barrier. NSIL was the only questionnaire participant that judged it as a potential obstacle.

Comparing the answers, the NSF has provided to the environmental barriers, it becomes apparent that many of the barriers are not seen as posing considerable obstacles to multi-use. For the barriers dealing with governance and legal issues, all of them are indicated to be somewhat of a barrier. For the social barriers, the NSIL pilot agrees that all the barriers presented pose problems, apart from the general acceptance of multi-use by the general and local public.

Belgian pilot

Description of the pilot

This pilot will focus on integrating native flat oyster production in wind parks. The project will be carried out in two locations: offshore in the wind parks of Belwind and Northwestern 2, and nearshore in Westdiep. Today, 274 turbines are operational in the Belgian part of the North Sea. The present turbines





are allocated in five wind farms. Within these two wind farms, an offshore mussel aquaculture pilot project Edulis is already running since September 2016. As such, the wind parks have extensive experience with offshore longline systems and operational challenges.

The nearshore site of Westdiep has several longlines since April 2017. The lines are currently used for test productions of flat oysters, blue mussels and seaweed. In this pilot, the nearshore site will be used for testing oyster growing equipment, nature-inclusive matrasses and for seaweed. Only when the systems prove to work nearshore, they will be tested in the offshore sites. This pilot has a primary and secondary objective:

- 6 To evaluate wind farms as a location for restoring native flat oyster reefs in combination with culturing flat oysters for human consumption;
- 7 To compare the growth of seaweed grown offshore and nearshore.

In the pilot document, one possible environmental barrier was identified. This barrier relates to the decommissioning of wind parks, which may conflict with the use of nature-inclusive scour protection which acts as a reef and enhances biodiversity.

Identified barriers by the pilot

The answers of the Belgian pilot were in some regards different from the answers provided by the other pilots. In several of the barrier sections, the Belgian pilot has indicated a different pattern than the pilots from the other countries. Regarding the technical barriers, the pilot indicated a diverse spread of potential barriers, some not being considered problematic at all, while others were seen as risky for multi-use. As with other pilots, the damage due to extreme environmental events (i.e. earthquakes or extreme storms), was considered as the highest potential barrier. Furthermore, the pilot feels competent with the technical knowledge it has acquired to make the multi-use combination resist adverse weather conditions.

Considering the economic barriers, the Belgian pilot was among the respondents that considered most barriers as being obstacles for their multi-use combination. The only part of the economic barriers that was not considered to be an obstacle for their project were lack of standardized procedures to co-use equipment or installations and the availability of government subsidies (or lack thereof). For the environmental barriers, Belgian acknowledged some barriers to be potential obstacles, while others were not seen as posing a risk. Underwater–noise disturbance was not seen as a problem at all, while the attraction of unwanted invasive species to the location of the multi-use combination was considered to be a potential barrier. Barriers that describe governance and legal issues were not considered to be as problematic by the Belgian pilot. In fact, Belgian had the lowest rating in this scale, indicating that most barriers do not pose an obstacle. The only barrier that was seen to be a problem was the uncertainty about the ability of one party to continue if the other party enters its decommissioning phase.

Looking at the social barriers, the answers provided by Belgian were similar to the ones provided by the other pilots. With their answers the pilot indicated that low individual financial power of local collaborators could prevent them from joining the multi-use combination, as well as conflicts of interest between different users of the sea are the only barriers that pose considerable obstacles. One item that the Belgian pilot did not consider at all a barrier was the acceptance of the multi-use combination by local affected community, suggesting a different relationship with the local community than the Greek or Danish pilot.

Danish pilot Description of the pilot





The Danish pilot considers multi-use of tourism and OWF that results from shared sea space, joint on and offshore infrastructure and operational activities. These include OWF sightseeing boat tours, diving and leisure fishing as well as shared onshore facilities such as OWF related information centre and the Industrial visitor Centre for Renewable Energy in Copenhagen (State of Green). Middelgrunden Wind is one of the rare OWFs (if not the only one) where tourism boats can approach the turbine closely and visitors can even climb the nacelle. The combination of tourism and OWF is increasingly gaining interest in Europe as shown in TROPOS, MUSES, etc., as it can derive long-term benefits for local communities by encouraging and promoting innovation, entrepreneurship and job growth. This may especially be a good opportunity for rural and areas in a need of economic boost and through tourism development. This pilot is expected to increase the TRL level of the multi-use solution and to expand tourism activities related to OWF (boat tours, leisure fishing and diving) in such a way that it can be a part of the general tourism offer in Copenhagen and the region. The pilot is to serve as a demonstrator of the improved multi-use information technology (boat scheduling system) and physical technology (facilities for divers on the platform) and advice the health and safety (H&S) practices, regulation - safety zone measures, and demonstrate operability and profitability of the multi-use solution.

In the pilot document, several barriers were already identified. These include economic concerns (low financial power and capacity to initiate and sustain tourism opportunities, high insurance premiums due to safety risks and little information about the interaction between activities that could advise insurance premiums), societal concerns (lack of awareness and interest of local boat operators and artisanal fisheries), technical barriers (frequent manual stops of an OWF may result in risk of failure of small components) and legal barriers (who is to cover the insurance premium and who will be liable in case of accidents?).

Identified barriers by the pilot

The answers provided by Danish pilot to the questionnaire were informative, but sparse. Several of the barriers seem not to have been applicable. Looking at the technical barriers, none of the presented items were considered to be an obstacle to the multi-use combination. Notably, even the risk of damage due to extreme environmental events was seen as no problem at all, while all the other pilots had considered this a large potential risk for their work.

For the economic barriers, the Danish pilot considered most barriers to be an issue for them, showing a similar pattern in answers than the other pilots. Interestingly, the Danish pilot did not indicate that high maintenance costs and high decommissioning costs would be obstacles as these barriers were regarded as not applicable. In the environmental barrier section, only the item with regard to the increased traffic of support vessels and the subsequent damage to the environment was answered. The answer showed that the pilot did not consider this barrier to be an obstacle at all. Considering the governance and legal barriers, the Danish pilot provided answers with a higher variety than in the other sections. Most items here were either considered to be a large obstacle, or not an obstacle at all.

Regarding the social barriers, the Danish pilot had the highest ratings for all barriers, considering all the barriers as large obstacles. The only question that is partly considered an obstacle is the question that discusses the lack of social acceptance of the multi-use combination by the society in general. The overall awareness of the risk of social barriers might reflect the nature of the multi-use combination, which is focused on tourism and therefore needs to interact with people and the local community.

Greek pilot Description of the pilot





This pilot will aim to combine aquaculture and tourism activities in marine space. SKIRONIS AQUACUL-TURE SA is a company that operates on the field of production marketing and exploitation of fish farms with all kinds of fish, shellfish in fresh or frozen form as well as distribution of product at Greek premises and abroad. The company operates a fish-farming unit, on floating facilities in the marine area near islet Patroklos (the islet is located near the coast, 850 meters from the shore). The aquaculture total annual production of marine Mediterranean fish in that area is 230 tones. There is great touristic interest in the area, as many tourists visit the coasts of Patroklos islet mostly with private boats, while in the summer a boat provides the service of transferring tourists to the island. The islet is private property but it is allowed to visit Patroklos beaches to swim. Scuba-diving is also very popular in that area, as there are many underwater attractions, one of them is a shipwreck, as well as ancient artefacts that can be traced in the seabed of the area. Other ways in which the aquaculture and tourism activities may be combined is by organising (seafood) boat tours of the marine area, cooperating with aquaculture farmers as speakers on these tours and providing the opportunity for tourists to taste their product.

One issue that should be taken into consideration, is that islet Patroklos is a private property that has also been characterized as an archaeological area and placed in a zone of absolute protection which prohibits any kind of construction. Licenses and legal issues should be investigated in order to proceed to any intervention in the marine space around that islet. Other possible barriers to realizing multi-use that were identified in the pilot document include economic concerns (opportunity costs, disruption of farming operations and balancing value and expectations with costs), societal concerns (disapproval of the aquaculture operation by the local community) and environmental issues (risk of excessive feeding of fish, impact on stress levels of fish).

Identified barriers by the pilot

The answers that the Greek pilot provided to the questionnaire are comparable to the answers provided by the other pilots. For the technical barriers, most answers were similar to the ones provided by the other pilots. A notable exception is that the Greek pilot was the only one that considered the risk of damage to the power supply cables from anchoring vessels to be a major obstacle to the pilot. For all the other pilots, this was not considered as problematic. Similarly, the Greek pilot was the only pilot that judged the risk of power failure to be a major barrier.

Looking at the economic barriers, it is noticeable that it is the only pilot that did not consider maintenance cost to be an economic barrier. For the environmental barriers, the Greek pilot judged on average most of the items to be barriers to multi-use, suggesting a high level of environmental awareness. While other pilots did not consider the collision risk for birds and bats to be a problem, the Greek pilot judged it as major environmental obstacle. Similarly, the pilot from the Greek pilot showed awareness of the potential risk of pollution due to aquaculture cages and the disturbance they can cause to the local ecosystem. Considering the legal and governance barriers, as well as the social barriers, the answers from the Greek pilot were average and no answer was provided that differs too much from the majority of the other pilots. The only exception to this observation is that the Greek pilot considers the lack of acceptance of the multi-use combination by the local community more of a problem than the German, Dutch, or Belgian pilot.

Summary of challenges risks and barriers of pilots

The essential challenges, risks and barriers, as defined hereby, in reference to the D1.1, can be defined as having some common aspects between the pilots, then again, due to particularity of each pilot





planned co-use, the site location, the legal aspects that define each country and of course the TRL level of each pilot are the parameters that differentiate the issues to be considered for each pilot. Therefore, technological barriers might not be considered as a problematic issue for all pilots and are thought to be manageable, though an issue has been raised, of damage due to extreme environmental events that could possibly pose a threat to the technical installations in the pilots. Lack of general technical knowledge was also mentioned by the German pilot, as a potential issue to the overall co-use structures. With regard to the environmental barriers, all pilots have been taking measures in order to closely monitor the environmental parameters affecting the footprint of the sites, though no pilot seems to be concerned of any potential environmental disturbance. Considering the economic barriers, all pilots shares a similar set of concerns due to the new business models that arise from the multi-uses, that have not been applied widely yet. What is more, all pilots consider insurance, maintenance cost and grid connection to be potential barriers. For the governance and legal barriers, the answers from the pilots on average considered it as the highest barrier, except from the Belgian pilot. Looking at the social barriers, pilots share the same set of concerns regarding these obstacles.

5. DEVELOPING ROADMAP FOR STAKEHOLDER ENGAGE-MENT IN THE PILOTS

5.1 General Process

The table below is an example for the documentation of every Pilot's stakeholder mobilization process, as close relation should be formed with internal stakeholders such as partners and sub-contractors directly involved in the pilot implementation. However, the content of information may vary as well as its detail and reporting frequency. Future external key stakeholders (public bodies, local associations, NGOs, local businesses and communities), who may be directly or indirectly affected by the pilot may be engaged in the course of the pilot implementation, should also be considered potential partners, although they might be more interested in the outcome and results. For this purpose, chapter 3.1 of deliverable D9.1. provides a clear overview of all stakeholder categories with topics and materials of interest. Moreover, chapter 4.2 of deliverable D9.1 addresses the plan for project outlets for communication and dissemination, while chapter 4.4 consists of the overall plan for community workshops and trainings. Hence, all means of communication towards various stakeholders (e.g. Workshops) will be coordinated and conducted in a well-planned consistent manner, following the paradigm of three-mode communication: push communication, pull communication, and interactive communication (PMI, 2013). While push communication intends to send specific information to targeted stakeholders (through reports, newsletters, memos or emails); the pull communication aims at extracting valuable information from stakeholders through interviews, workshops or personal conversations. Interactive communication follows a multidirectional information exchange between stakeholders and is considered the most efficient way to gain stakeholder common understanding (PMI, 2013). Concerning stakeholder engagement, the overall goal of UNITED lies within a situation-specific combination of these three modes, in order to establish effective communication routines. In this regard, Kerzner (2009) defined effective communication as the availability of correct information to the right stakeholder at the right time in a cost-effective manner, to constantly reinstate stakeholders' understanding about the project status. It is only through communication, that the trust of stakeholders can be earned and a relationship built (Berkun, 2005).





A similar stakeholder strategy, as planned for UNITED, was applied during the 'Ocean of Tomorrow' project: VECTORS. Stakeholders were engaged and encouraged to participate through semi-structured interviews at a geographical case study level and marine stakeholder workshops in order to disseminate results and obtain feedback (Burdon et al., 2014). The stakeholder groups involved in workshops included EU ministers, national government departments, nature conservation bodies, environmental agencies and non-governmental organizations. VECTORS identified particularly tense conflicts between so called (would be) users and those stakeholders, who pursue as high levels as possible to protect the marine environment (Burdon et al., 2014). It is crucial to familiarize oneself with the struggles previous projects faced to prepare and react in time. Transferring these incidents to UNITED, it can be deduced, that NGOs present a powerful stakeholder group, which are able to mobilize others (public, tourists, consumers) in a negative way. This can lead to a dysfunctional stage, the project is caught in, and an unpleasant circle of growing frustration for all participants.

Step	Objectives (why?)	Type of engage- ment tool (how?)	Participants (who?)	Follow-up activi- ties
WP and task frame (could be shared by sev- eral tasks or WP) Date/deadline Person/partner in charge	Beyond WP and de- liverables, what do you expect from this step of mobili- sation?	Level of engage- ment (infor- mation, consulta- tion) Format of mobili- sation (interview, workshop)	Type of stake- holders (e.g.: local authorities, aqua- culture busi- nesses)	E.g.: send partic- ipants a sum- mary of further results in the lo- cal language, in- vite them to an event Who is in charge of this follow- up?

Table 3: Example of table for stakeholder mobilization process' description

Framework based on legitimacy, credibility and salience

For knowledge and decision making to be taken up by users and stakeholders in the project, it is essential to meet various expectations that are put forward by different participants and users. As the blueprints and related decision making produced during the project are important carriers and production units of knowledge, these expectations also apply to them as well. As important as managing boundaries is, it is only one piece of the puzzle of effectively linking knowledge and action – a piece that is interconnected with the challenges of creating salient, credible, and legitimate information.

Credibility refers to whether an actor perceives information as meeting standards of scientific plausibility and technical adequacy. Sources of knowledge must be deemed trustworthy and/or believable, along with the facts, theories, and causal explanations invoked by these sources. However, individuals are often unable to independently evaluate the credibility of information. In fact, it is exactly the challenge of translating expert to judge credibility by the scientific process (information tends to be discounted by those who believe the process allowed "interests" rather than "science" to determine the results), who participates (key individuals seen as experts imbue credibility), or which organizations are engaged (organizations with a history of getting the "right" answer or valid results accrue credibility. Credibility has a dynamic component, in which the perception of credibility can evolve as predictive capability can be ascertained over time, as users can ask "did the scientists get it right?".

Salience refers to the relevance of information for an actor's decision choices, or for the choices that affect a given stakeholder. A knowledge model is deemed salient when it plays a significant role in understanding and





solving a policy issue at hand; its input is relevant to the issue, and its output can answer research questions that have been brought up in the context; One challenge is to produce information and technologies that meet the needs of decision makers and are thus seen as being salient.

Legitimacy concerns a fair representation of the views, values and concerns of involved stakeholders in the process of decision making or a carrying out of an assessment. The legitimacy that policy participants and scientific participants attribute to a given process rests on their belief that the processes are respectful of their view and concerns and conform to their perceptions of procedural fairness.

When connecting knowledge to action, choices are made about which problems and potential solutions will be considered, and which ones will not. Whether intentionally or as an artefact of unrepresentative participation by stakeholders, assessments based on knowledge gained from projects often fail to include the concerns and perspectives of the multi-use cases described in the project. Even assessments that are salient and credible to a number of stakeholders in the project may not influence the actual actors of the multi-use cases if they believe their views and concerns were not considered. Therefore, the framework should be strictly followed in order to maintain overall stakeholder satisfaction and to accomplish successful use cases coming from the project pilots.

Roadmap

The purpose of the roadmap is to give the project team and stakeholders (senior executives, upper management, marketing, investors) insights into the current state of the project. Here, clear expectations should be formulated, for how the project will progress. While creating the roadmap existing technological trends, market conditions, engineering constraints, and the organization's value proposition should be considered. Difficulties may arise, when stating core elements, which emphasize its effective-ness. For the implementation of the roadmap (which consists of goals, timelines, features, resources), some guiding questions can be used:

- Which activities are required to achieve the deliverables?
- Which resources are required for these activities (budget, time, personnel, etc.)?
- How long will it take to achieve those tasks?
- What are constraints, how does the critical path as well as schedules for all the individual tasks look like?
- Which problems will be addressed/solved?
- What makes the project different from others (e.g. Ocean of tomorrow)?

In the following, a general roadmap for all pilots, linked with main development milestones, is formulated below, while the expected achievements are listed under chapter 6 *Monitoring and Evaluation*. A more detailed roadmap will be developed under deliverable D5.2.

1. Pre-operational phase

Engagement aim: Informing about multi-use potentials and upcoming developments in the site and collecting comments on the design.

With whom and how: interviews with specific stakeholders and or focus group meeting to collect input/advise to the design, outreach to the multipliers (local NGOs, associations, networks). At this stage the stakeholders will also be engaged via webinars as detailed in deliverable D9.1 Initial Communication Plan.

Expected achievements: Acceptance of the multi-use development in the pilot, raised awareness about the concept of multi-use and increased interest in the topic.

2. Operational phase





Engagement aim: Demonstrating the functioning of the solution, collecting input about the commercialisation/ business plan ideas.

With whom and how: Experts in the field which is of relevance to the given pilot (e.g. aquaculture technology, offshore logistics, etc.) – local/national/international R&D departments of industry firms, institutes, specialised consultancies, public policy.

Expected achievements: Improved knowledge about the multi-use functioning, input to the business models and commercialisation readiness level improved.

3. Post-operational phase:

Engagement aim: Informing about the pilot results, supporting exploitation of results, and future collaborations on the topic.

With whom and how: Experts in the field, industry, policy and public. More focusing on dissemination activities (e.g. sending briefs, presenting results at conferences and webinars, publishing in local press) but also to follow up activities with some of the key actors as to discuss and support future collaborations on the topic.

Expected achievements: Improved interest for multi-use from industry and policy, collaboration opportunities.

Good Practices: Stakeholder engagement and follow-up

After any engagement step or activity involving external stakeholders, it is crucial to make use of follow-up activities to maintain engagement and enthusiasm as well as to stimulate interest and involvement by additional stakeholders. Highly rated suggestions include targeted, intensive outreach and education of the need for focused attention on scaleup and spread, as well as financial incentives and support (Norton et al., 2012). Norton et al. (2012) recommended to facilitate better information exchange, collaboration and use of existing knowledge. Stakeholders pointed out, that a considerable amount of activity in scale-up research, practice, and policy is not widely known, and thus fails to achieve its full benefit. Initiating a database as well as applying further measures such as email groups, conference calls and meetings for tracking and sharing information, regarding relevant project information, is considered most helpful. Launching follow-up activities can contribute to increase communication and collaboration among key stakeholders, allows for a more rapid learning and greater efficiency in resource utilization (Norton et al., 2012). Hence, stakeholders will be informed about the project's accomplishments and results via newsletters, the homepage as well as social media. Moreover, after all workshops, conducted during UNITED (organized in D9.2), the results and a synthesis report will be sent to involved stakeholder groups as a basis to stay in touch and continue the bi-directional dialogue.

5.2 Accounting for Synergies between the Pilots

Considering the fact that some of the project tasks have similar timelines, same target stakeholders and engagement needs, it is important to identify potential overlaps and establish synergies between the tasks early on in the project. Of particular interest for multiple tasks may be maritime authorities who





may be targeted to provide insights to various topics ranging from environmental impacts, regulatory environment, to economic benefits from multi-use.

The UNITED project will provide small and medium-size companies or EU institutions with the opportunity to build up reference guidelines and demonstrate their performance capability under realistic conditions. A stakeholder workshop with different areas of interest will be developed (described in D9.2). Especially, through a stakeholder workshop, linkages between all five Pilots can be created, when inviting speakers from other Pilots to the workshop or conducting the workshop at different Pilot sites.

Synergies among Pilots

The five UNITED pilots have similar timelines, which may allow for synergies in conducting some of the engagement activities. Moreover, four out of five pilots focus on multi-use scenarios, including offshore wind energy, which requires close collaboration with this sector. While targeted stakeholders and clear engagement timelines should be shared between pilots to avoid overlaps, this also presents the opportunity for conducting joint interviews and/ or workshops to collect input from stakeholders.

A joint organisation of workshops at some of the energy related conferences, such as the Wind Europe, may be of particular interest for pilots that focus on offshore wind related multi-use combinations (i.e. pilots in Denmark, Germany, Belgium and the Netherlands). Same stands for four pilots that focus on certain types of aquaculture (Germany, Belgium, the Netherlands, Greece), or the two that focus in tourism related multi-use combinations (Greece, Denmark).

Pilots 2, 3 and 4 (Denmark: who plan touristic tours to their facility which are not too far away from Kiel) can participate with candidates in the courses at Kiel and vice versa. Personnel can join in specifically designed site-visits at the other locations. These site visits will include site touristic objectives as well as basic educational aspects.

6. MONITORING AND EVALUATION

Table 4 : Monitoring and evaluation metrics

Short Term Eval- uation Metrics	How to achieve	Targets & Indicators
Improve health and safety in multi-use plat- forms or co-lo- cation of activi- ties.	A risk governance analysis founded on the ex- periences of the individual pilots, contributing to an inclusive roadmap for future implementa- tions and up scaling.	Indicator: Number of risks identified through stakeholder and expert workshops Target: Provide an analysis of 100% of risks identified
Raise societal awareness, in- volve local com- munities and se- cure acceptance	Utilize a 3-pointed stakeholder engagement process: 1) a stakeholder analysis in which rele- vant stakeholders will be identified, (2) inclu- sion of stakeholder in the pertinent steps in the pilot development process and (3) utilizing	Indicator: Percentage of stake- holder group activation





of these new de- velopments by society-at-large. HUCL activities		Target: 75% or higher stake- holder inclusion in all engage- ment processes across all pi- lots
	Carrying out training and capacity building of personnel to reduce risks and increase social ac- ceptance and awareness. Demonstration ses- sions will also take place online via webinars to ensure wider transfer and uptake.	Indicator: Number of work- shops, trainings, and capacity building activities. Target: 3 or more instances of webinars, and workshops (
		trainings during the project
	Ecosystem building and stakeholder empower- ment through continuous dialogue with author- ities, administrative bodies and local outreach activities will be organised with links estab-	Indicator: Number of stake- holder workshops and empow- erment sessions
	lished amongst relevant intermediaries on the local level, including networks, boards, cham- bers, associations, forums, etc.	Target: 3 or more instances over the life of the project
	Staged roll out of products and services result- ing from pilot work and the project as a whole, linking with implementation roadmap, life cycle assessments, new products and added value services. This rollout is accompanied by a strong	Indicator: Visitors to website. Followers on social media plat- forms. Number of commercial contacts for support. Number of marketing events.
	marketing campaign to generate interest of po- tential consumers and society-at-large.	Target: 2 or more marketing events to attract commercial interest. 5 or more commer- cial contact seeking support to utilize outputs.
Medium Term Evaluation Met- rics	Activities to Deliver	Targets & Indicators
Improve the professional skills and com- petences of those working and being trained to work	Hosting training workshops for stakeholder pro- cesses in each pilot (for partners and pilot coor- dination) about principles and process, adapta- tion to each pilot, including innovative forms of facilitation using participatory methods to en- gage participants. Demonstration sessions will also take place online via webinars as to ensure	Indicator: Number of work- shops, trainings, and capacity building activities. Number of Webinars Target: 3 or more instances of
economy.	wider transfer and take-up.	shops/trainings over the life of the project





	In 'young' sectors (aquaculture, solar power), the main aim will be to increase soft skills re- lated to commercialisation, budgeting and ac- quisition of funds, insurance, permitting, etc. Such collaborations and demonstrations throughout the project should establish the base for a long-term technical assistance with such stakeholders within these young sectors.	Indicator: Number of collabo- rations Target: 2 or more collabora- tions before the end of the project lifecycle.
Contribute to policymaking in research, inno- vation and tech- nology.	The assessments and validations of activities across the socio-economic, technological, and environmental spectra of the pilots will inform the acceptability and efficiency of the MUCL de- signs implemented. This includes developing best practices (recommendations) on ap- proaches to secure and shape participation of stakeholders in the design of future multi-use	Indicator: Number of policy, le- gal, insurance, and risk briefs. Number of stakeholders in- volved per pilot. Depth of mar- ket penetration with marketing and networking capabilities.
	combination platforms, targeted with all groups of stakeholders. Plans for action that address the case specific legal, insurance, risk and gov- ernance aspects of multi-use will be generated and disseminated. Experiences will be brought together and will be used to draw more generic conclusions how multi-use initiatives can be fa- cilitated including a risk governance analysis founded on the experiences of the individual pi- lots and cases.	Target: 5 briefs throughout the project lifetime. 75% or higher stakeholder capture across all pilots.

7. LOOKING FORWARD: SYNTHESIS AND RECOMMENDA-TIONS

The WP will conclude with synthesising results on stakeholder engagement, obtained from the pilots. A cookbook for best practices will be developed and recommendations on approaches to secure and shape stakeholder participation in the design of future multi-use combination platforms will be formulated. More specifically, these will address how and in what way stakeholders can be included in all stages of the development of multi-use projects and how the process of stakeholder engagement can be monitored.

This work will be done in close connection with WP6 and WP8, to ensure that recommendations include links to relevant regional /national policies, issues of social acceptance and raising awareness. This deliverable has set up a number of guidelines and rules that should be followed across all the activities carried out in the UNITED project, establishing the identification and communication with the different types of stakeholders in order to ensure the smooth carrying out of activities and to successfully address the current barriers faced by the project's pilots. The classification of stakeholders as described in chapter 3, will enable time optimization for the addressing of particular issues or workload to each targeted,





responsible group, while the roadmap, as described in chapter 4, will enable through the use of best practises to stimulate interest and involvement by additional stakeholders.

The purpose of this deliverable and the activities of WP5 are to ensure optimal stakeholder engagement for the dealing with the challenges, risks and barriers, as defined also by D1.1. Communication of WP2 involved partners with according stakeholders for the installation deployments, the training to the operational teams and the and the exhausting is one of the upcoming project's activities, with WP4 to communicate those environmental indicators that would prevent any environmental spoilage. Considering the economic barriers, collaboration with business stakeholders would be vital to help WP3 partners develop the new business models and identify those business opportunities that will motivate the multi-use activities to carry on after the end of the project, taking also into account the insurance, maintenance and other costs that will be identified during the project. The WP5 finally will look into the social barriers as identified by the stakeholders and reported in D1.1.

Based on the input and feedback of the pilots on the stakeholder engagement process, and the results of the monitoring and evaluation (deliverable D5.4), recommendations and lessons learnt will be presented in an innovative format (infographics/briefs/e-book/series of webinars). The task's results will be reported in deliverable D5.5.





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9. ANNEX

9.1 Composition of Stakeholder Advisory Board

Prof. Dr. Bela H. Buck – Marine Biologist - Head of Unit, Alfred Wegener Institute, Helmholtz Zentrum für Polar- und Meeresforschung

Dr. Buck is the chair of the ICES Working Group on Open Ocean Aquaculture (WGOOA) as well as the Head of the AWI-Working Group "Marine Aquaculture, Maritime Technologies and ICZM." He holds a professorship for "Applied Marine Biology" at the University of Applied Sciences Bremerhaven and also sits as the honorary president of the German Aquaculture Association. His particular research interests focuses predominantly on the multi-use of offshore wind farms, offshore aquaculture, shellfish and seaweed cultivation, culture techniques and system design, bioremediation and ecological engineering.

Marijn Rabaut - Independent expert - Marine and Renewables - Blue Cluster International Marine Policy Manager

Marijn Rabaut is active as an independent international expert in marine developments. Moreover, he is the international marine policy manager of the Blue Cluster of Flanders (Belgium), and he contributes to several projects with a science-business-policy nexus. He takes also the role as MSP-expert and he has been working as a researcher and as policy expert for various institutions and high level representatives. Trained as marine scientist (PhD – Ghent University Belgium), Marijn Rabaut is now creative in providing high-level added value in innovation projects, negotiation processes and policy advice. His work range is broad (from multi-use over coastal defence, ecosystem approach, aquaculture, renewable energy and MSP) which allows him to link issues as climate change, sustainable development, blue technologies and blue growth.

Prof. Dr. Harald Rosenthal

Dr. Rosenthal has worked for 50 years in offshore-aquaculture projects and was or is involved as chair, co-chair, organizing committee member, steering committee member, session chair, member of different advisory boards, member of international project evaluation panels, member of the international external review and evaluation committee, co-ordinator of a major EU-concerted action, member of the scientific board, chairman of an International Scientific Advisory Committee (ISAC), member evaluation panels (Brussels) for project proposal to be funded by the EU, external project evaluator, member of the programme and review committee of ICLARM, member of the "Advisory Commission, Member of the Consultative Committee of ICES, Chairman of the Mariculture Committee of ICES, Chairman - ICES Working Group on Environmental Impact of Mariculture", member of the "Aquaculture Planning Group", president of the European Mariculture Society and speaker in close to 600 committees, conference programme planning and execution as well as invited speaker at various conferences (at national and international level) and appointed life time member of the Royal Swedish Academy of Science (Agriculture, Forestry & Fisheries).





Nathalie Scheidegger - Project Leader Innovation and Knowledge North Sea at the Ministry of Agriculture, Nature and Food

Nathalie has a background in biology and environmental science with degrees from Universität Zurich and Leiden University. She is currently working on the integrated marine and maritime policy for the North Sea and in EU waters. Together with different stakeholders - entrepreneurs, NGOs, researchers, and government -, she is working on an integral approach to realize the societal challenges: e.g. energy-and food production and natural restoration. Therefore she – together with the Dutch Enterprise Agency – set up the community of practice the North Sea. Areas of expertise are project management, interim/change management, facilitating meetings, strategic and communication analysis, law, and natural sciences.

Dr. Nico Buytendijk - Programme Manager at Netherlands Enterprise Agency

Dr. Buytendijk is a program manager at RVO, the Netherlands Enterprise Agency with a focus on the North Sea. In this context, RVO organizes together with LNV (The Dutch Ministry of Agriculture, Nature and Food Quality) the Community of Practice Multi Use, aimed at multi-use of the North Sea. This is also done on behalf of TKIs and Top Sectors Energy, Agriculture & Food and Nature, together with NGOs, research institutions and entrepreneurs, in and on the North Sea.

Prof. Dr. Gerald Schernewski - Head of the Coastal and Marine Management Working Group; Co-speaker of the IOW research focus 'Coastal Sea and Society'; Professor at the University of Klaipeda, Lithuania; President of the Coastal & Marine Union International (EUCC)

Dr. Schernewski is Head of the Coastal and Marine Management Group at IOW in Germany. He holds a professorship at the University of Klaipeda, Lithuania, and is former President of the Coastal & Marine Union International (EUCC), The Netherlands. His interests lay in the further development of a systems approach framework (SAF) and supporting tools, for example to improve stakeholder participation or to measure the success of management measures using an indicator system. He aims to support marine spatial planning and coastal management practices. Furthermore, he has a rooted interest in ecosystem services, particularly the development and application of methods and tools to assess changes in ecosystem goods and service provision of coastal and marine systems. Dovetailing upon this, he is involved with the assessment and implementation of measures that improve the ecological status of coastal waters and support environmental policies, like the Water Framework Directive (WFD), for example the cultivation of different mussel species to improve water quality.

Heinz Schelwat – Owner of SAS Consultancy and member of the Platte Oester Consortium

Dr. Schelwat, as a member of the Dutch Flat Oyster Consortium (POC), shares in the mission to restore flat oyster (Ostrea edulis) beds in the North Sea. The main motive and research interest behind this is marine nature restoration. The work being conducted by this group and consortia match well with ecological restoration efforts in the pilot cases of UNITED and can benefit from knowledge and publications with one another. Specifically, as oyster restoration is one of the Multi-Use cases this is a strong connection with ongoing North Sea activities.





9.2 Stakeholders identified in each Pilot in March 2020

Table 3: Identified stakeholders of Pilot1 within the course of the UNITED project. The results are based on the survey conducted by Stichting Wageningen Research (as in D1.1).

German Pilot			
Partner	Is it a project partner or ex- ternal stakeholder?	What is the role of the part- ner in the pilot pro- ject/which service do they provide?	What is the main interest of the partner to participate in the pilot project?
FuE-Zentrum FH Kiel GmbH	Project partner	Pilot Lead	Research
KMF	Project partner	Nearshore site opera- tion/Producer/Consultant	Research results
4HJena	Project partner	Responsible for technical functioning, solutions, soft- ware of sensors, Monitoring devices	Research results, improving the remote automated data recording of sensors
UGent	Project partner	Design of longlines (algae)	Research
Federal Maritime and Hy- drographic Agency (BSH)	External SH	Approves/supervises mari- time legislation	Granting licence for the pi- lot
			Controls that the imple- mentation, operation and decommissioning of the pi- lot is according to national legislation
Shipping company	External SH	Offshore vessel for imple- mentation, maintenance, decommissioning- Transport of material and staff	Economic interests, obtain contracts
Helicopter com- pany(maintenance)	External SH	Transport of material and staff	Economic interests, obtain contracts
Company providing indus- trial divers	External SH	Implementation and de- commissioning phase – con- necting aquaculture farm with platform via sea cable	Economic interests, obtain contracts
Tank ship company	External SH	In charge of filling up the tank at FINO3	Subcontractor of FINO3
Insurance company	External SH	Insures the pilot	Subcontractor of FINO3
Other projects conducted at FINO3: Model-scale wave power plant, Scratch re- sistant anti-biofouling coat- ings, Current and sea loads,	External SH	No active participation, however other projects will take place at the same loca- tion at the same time, shar- ing costs?	Research results?





Bird migration, Meteorol- ogy, Hydrography, Georef- erencing, Water quality.		
Gamma radiation		

Table 4: Identified stakeholders of Pilot2 within the course of the UNITED project. The results are based on the survey conducted by Stichting Wageningen Research (as in D1.1).

Dutch Pilot			
Partner	ls it a project partner or ex- ternal stakeholder?	What is the role of the part- ner in the pilot pro- ject/which service do they provide?	What is the main interest of the partner to participate in the pilot project?
Stichting Noordzeeboerderij /North Sea Farm Founda- tion	Project Partner	Pilot Lead NGO	Realizing seaweed industry in The Netherlands
Oceans of Energy	Project Partner	Company floating solar	Towards commercial float- ing solar energy, using pro- ject for testing and demon- stration of certain aspects to higher TRL level
The Seaweed Company	Project Partner	Commercial seaweed com- pany	Towards commercial large- scale offshore seaweed cul- tivation
TNO	Project Partner	Supports with research on floating solar energy off-shore	Research
Ventolines	Project Partner	Service provider of onshore wind and solar and offshore wind projects	Role in future development
Deltares	Project Partner	Support technical questions	Research

Table 5: Identified stakeholders of Pilot3 within the course of the UNITED project. The results are based on the survey conducted by Stichting Wageningen Research (as in D1.1) and have been updated in December 2021.

Belgian Pilot			
Partner	ls it a project partner or ex- ternal stakeholder?	What is the role of the part- ner in the pilot pro- ject/which service do they provide?	What is the main interest of the partner to participate in the pilot project?
UGent	Project partner	Pilot lead	Research results





Jan De Nul	Project partner	Responsible for technical functioning offshore, de- sign structures offshore, design matrasses, solu- tions	Results
Brevisco	Project partner	Responsible for technical functioning nearshore	Results on aquaculture product
Parkwind	Project partner	Facilitator of the wind- mill parks, insurance	Applicability of multi-use of space
Colruyt	Project partner	LCA, economics	Possibility on producing oysters and algae and upscaling feasibility
RBINS	Project partner	Biological studies, Eco- logical implications Biological risk manage- ment, LCA	Research results
The Blue Cluster/De Blauwe Cluster (Belgium)	External stakeholder	Business	Business
Flanders Marine Institute	External stakeholder	Research	Research results
Ifremer (France)	External stakeholder	Research	Research results
Université de Montpel- lier (France)	External stakeholder	Research	Research results
Federal Public Service Health, Food chain safety and Environment	External stakeholder	Governmental organiza- tion	Control, compliance
Coalition "4Sea": WWF Belgium, Natuurpunt, Greenpeace Belgium and Bond Beter Leefmilieu	External stakeholder	Non-Governmental Or- ganization	Ocean and fishery sus- tainability
Belgian Offshore Plat- form	External stakeholder	Business	Business
Mibau Stema group (Norway)	External stakeholder	Business, quarry	Supplier, provided gran- ite
Sagrex group (Belgium)	External stakeholder	Business, quarry	Supplier, provided lime- stone
Compas BVBA (Belgium)	External stakeholder	Business	Supplier, provided ropes
Lhoist Belgium	External stakeholder	Business	Supplier, provided liming and cement





Table 6: Identified stakeholders of Pilot4 within the course of the UNITED project. The results are based on the survey conducted by Stichting Wageningen Research (as in D1.1).

Danish Pilot			
Partner	ls it a project partner or ex- ternal stakeholder?	What is the role of the part- ner in the pilot pro- ject/which service do they provide?	What is the main interest of the partner to participate in the pilot project?
SPOK Consultants	Project partner	Pilot coordinator	Promotion of renewable en- ergies
SUBMARINER Network	Project partner	Network, communication	Move forward the topic of multiuse and sustainable use of the ocean
Boat Provider	External Stakeholder	Boat service	Service provider
Copenhagen divers	External Stakeholders	Want to provide services	Develop diving opportuni- ties

Table 7: Identified stakeholders of Pilot5 within the course of the UNITED project. The results are based on the survey conducted by Stichting Wageningen Research (as in D1.1) and have been updated in December 2021.

Greek Pilot			
Partner	ls it a project partner or ex- ternal stakeholder?	What is the role of the part- ner in the pilot pro- ject/which service do they provide?	What is the main interest of the partner to participate in the pilot project?
WINGS	Project Partner	Pilot Lead	For business interests. Pro- vider of monitoring and management solutions, both to aquaculture farms and similar multi-use activi- ties
KASTELORIZO	Project Partner	Contact person for aquacul- ture business	To build a better social pro- file to the local community. To attract interest of differ- ent stakeholders (custom- ers, investors etc) to the aq- uaculture and restaurant.
KASTELORIZO	external stakeholder	Financial manager of aqua- culture	To build a better social pro- file to the local community. To attract interest of differ- ent stakeholders (custom- ers, investors etc) to the aq- uaculture and restaurant.
PLANET BLUE DIVE CENTER	Project Partner	Owner of Scuba diving cen- tre	For business interests. To expand the business activi- ties





PLANET BLUE DIVE CENTER	Project partner	Contact person for scuba diving centre	For business interests. To expand the business activi- ties
Mayor of Palaia Fokaia	External stakeholder	Contact person from a local authority	To promote new activities in the municipality
Sub (scuba diving centre based in Sicily, Italy)	External stakeholder	Business	Interested to learn more on the subject and to take a potential similar activity
Athina Diving Centre	External stakeholder	Business	Interested to learn more on the subject and to take a potential similar activity
Stratos Synodis (scuba div- ing centre)	External stakeholder	Business	Interested to learn more on the subject and to take a potential similar activity



9.3 Document of Informed Consent DOCUMENT OF INFORMED CONSENT

Grant Agreement No.	862915	
Project Title	UNITED: multi-Use platforms and co- locatioN pilots boostIng cost-effecTive, and Eco-friendly and sustainable proDuction in marine environments	
Start data of the project	01-01-2020	
End date of the project	30-06-2023	
Project Website		
This project has received funding from the European Union's Horizon 2020 Re- search and Innovation Programme under Grant Agreement no 862915		

You have been invited to participate in research under the UNITED project in the form of a survey, workshop or an interview. Before participation, please read the information below carefully. If statements in the document are unclear to you, do not hesitate to ask the contact researcher for clarification.

1. Project summary

There is in increasing demand for food security, nature conservation and restoration and sustainable energy. At the same time, European seas are undergoing massive developments of marine infrastructure and face an increase in competing activities and spatial claims coming from both traditional exploitation and new sustainable economic activities. The UNITED project aims at providing evidence for the viability of multi-use platforms in off-shore marine environments. Multi-use platforms in off-shore marine environments combine multiple functions like wind and solar energy harvesting, aquaculture (e.g. seaweed, oyster restoration) and marine tourism (e.g. diving, visits). Five test pilots will be used to showcase the translation of technical, regulatory, economic, social and environmental solutions from development state to demonstration in an operational environment. A range of productive economic and ecological processes can potentially benefit from each other in terms of spatial efficiency, functional synergies, sharing permitting investment and infrastructures to reduce operational and maintenance costs and create win-win solutions.

2. Purpose of data collection

You have been invited to participate in an interview, survey or workshop. Resulting data will be specifically used to

3. Benefit of participation

Participation is on an entirely voluntary basis and you may not directly benefit. However, you will make a substantial contribution to the UNITED project aims.

4. Risks of participation

There are no risks foreseen in participation





5. Compliance with ethical and legal regulations

We comply with EU and national ethical and legal regulations, including the latest GDPR (General Data Protection Regulation 2016/680) framework of the EU.

6. Privacy and data protection

Data resulted from surveys and interviews will be recorded and stored on secure servers. This data will not include any personal identification, so that data cannot be traced back to you as the source of the data. Data might be processed and analysed for publication in reports, scientific journals and other forms of project outputs, only in anonymized form. None of the data will be transferred to third parties. Retention time of the original research data is the same as the project duration, although the anonymized resultant data may be stored for longer periods of time to be used in future research. A copy of informed consent is kept on file up to 3 years after project closure by the data controller and access can be requested by the research participant.

7. Withdrawal of participation

At any point you may withdraw from participation by stopping the interview, survey or workshop.

8. Researcher contact

In case of any issues or questions you can contact:

Name: and contact:

9. Data controller

Name:and contact:

10. Consent statement

By signing this form, I state that I have read all information on this document of informed consent, I understand the information provided, and I agree with the terms and conditions provided on the informed consent document.

Research Participant

Signature

Date

Researcher

Signature

Date