



ODYSSEA

Operating a network of integrated observatory
systems in the Mediterranean Sea

Project Deliverable Report

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Observatory

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1 Introduction

ODYSSEA is a user-centred research and innovation project which aims to make marine data in the Mediterranean more easily accessible and useful to a broad range of end-users and stakeholders. The project is building the ODYSSEA Platform, which will host and provide access to Mediterranean marine data, as well as offering on-demand derived data services, such as indicators and models, for decision-making purposes. ODYSSEA's potential end-users and stakeholders include representatives from public, policy, industry, education, environmental conservation and science/research, as identified in Deliverable 11.1: project communication plan. ODYSSEA will also provide training for using the Platform and its services. The project also aims to develop a community of Mediterranean data users, by directly involving them in Platform design, data collection and day-to-day operations. In light of all this, identifying end-users and their specific needs and requirements, is a crucial and necessary step which will underpin the development of the ODYSSEA Platform and its continued usefulness after the funded phase.

This is a slightly modified public version of the original deliverable. Any sensitive or confidential information has been removed. The purpose of this document is to give the reader an overview of how the original set of user needs to be addressed by the ODYSSEA Platform were developed. The original deliverable summarises the information collected on ODYSSEA use cases thus far. It combines information provided in other deliverables and information received in response to a survey sent out to all project partners.

2 Collection of use cases

2.1 Information sources for the use cases

The use cases presented in this report were collected from a number of different sources, including:

1. The Use Case Survey, which was developed by UNEP-WCMC and sent out to all ODYSSEA partners in English and French via the odyssea-global@odysseaplatform.eu mailing list.
2. Information from Deliverable 2.1, which lists potential end-users for the nine ODYSSEA Observatories, and includes examples of potential end-users and services that ODYSSEA could provide.
3. Attendance at external events, for instance the “Oceans of Knowledge” event, hosted by IMarEST¹ in London (UK) on 7th November 2017, where various users of oceanographic data presented and discussed their data and information needs.
4. The use cases of the AtlantOS project (<https://www.atlantos-h2020.eu/targeted-products/>).
5. Research and expert opinion at UNEP-WCMC and from other ODYSSEA partners, including the fisheries and oil and gas business cases presented by Simon van Dam (Agora).

The information for each potential end-user/use case that was identified was collated using a use case template, so as to standardise the approach.

2.2 The Use Case Survey

In the survey, ODYSSEA partners were asked to provide information about any potential ODYSSEA end-users that they are in contact with, know about, or can think of. More specifically, they were asked: 1)

¹ Institute of Marine Engineering, Science & Technology

which ODYSSEA Observatory is relevant to the use case, 2) which sector the use case belongs to (Table 2), and 3) where the area of interest of the end-user is. Lastly, respondents were asked for a narrative description of the use case specifying who the end-user is, what kind of information/data they need, and for what purpose. Each individual survey provided the option to enter information about five use cases; where a respondent had information about more than five use cases, they were invited to open a new survey.

Table 2: Sectors included in the use case survey

Fishing	Aquaculture	Oil and gas	Shipping
Renewable energy	Recreation and tourism	Policy and governance (at national/regional/international level)	Environment and biodiversity management
Research and education	Civil society	Other (please specify)	

3 Preliminary Findings

3.1 Use cases across locations and sectors

From the methods of use case collection detailed above, 78 potential ODYSSEA use cases have been collected so far across all 12 sectors (Table 2). Use cases are presented in narrative form for optimum clarity, and also to help with framing development efforts towards their implementation by ODYSSEA partners, for instance:

Table 3: Use case #001: Location of fish nursery areas

Use case narrative	As a fisherman, I need to know the location of nursery areas for fish species XX in location XX, so as to avoid capturing under-sized individuals.
Use case breakdown	
Use case sector	Fishing
Who is the end user	Fishermen
What kind of data/information do they need	Location of nursery areas for specific fish species
In what format/product?	Unknown
For what purpose	To avoid capturing under-sized individuals
Area of interest to the end-user	n/a (speculative example)
Which ODYSSEA Observatory is relevant	n/a (speculative example)
Key information about the use case	
Suggested by/Idea from/Contact	Online survey example (Laura Friedrich/Corinne Martin) Business case (Simon van Dam)
Speculative, identified need or confirmed interest	Speculative
Development or implementation stage	n/a (speculative example)
Business case (potential to raise funds, and how)	The ODYSSEA platform will help directing the fishermen to those locations where the discards are likely to be minimal, therefore increasing the

	revenue of the fishermen and better utilization of the fishing fleet. It will also help fishermen comply with EU fisheries policy (discard ban).
Other key information	The ODYSSEA platform will have the capacity to identify and calculate when and where the various fish species will be spawning (reproducing). Integrated models will provide the parameters to locate the areas where each fish species is spawning and it can calculate the periods of spawning.

3.2 Identified data requirements

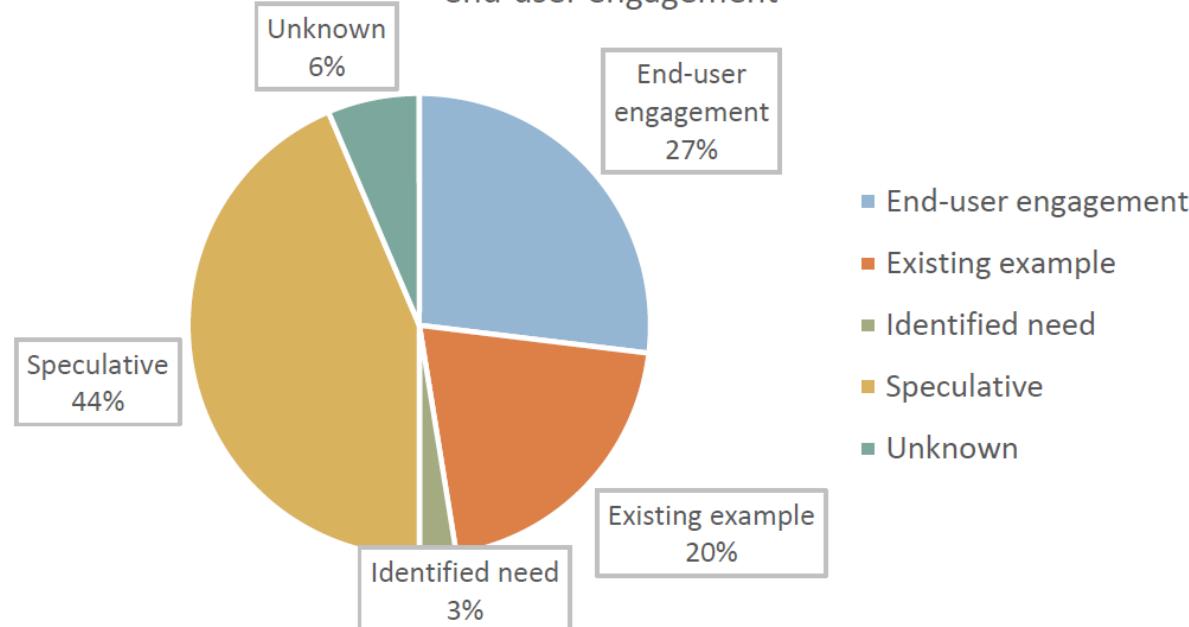
The use cases identified so far relate to a wide range of data types, including biodiversity, oceanography, meteorology, bathymetry, environment, and more. Historical, real-time and forecast data are required on a range of spatial scales. Fifteen of the use cases have already identified potential formats in which to package/communicate/publish the data, including text messages, mobile phone apps, social media, maps, time series and weekly bulletins.

3.3 Use case information categories

The collated use cases fall into four broad categories, based on the extent of end-user engagement that has taken place (Figure 1):

- 1) 33 of the potential use cases relate to a **speculative need** based on research and/or expert opinion. No ODYSSEA end-users have been identified or contacted yet regarding these speculative use cases, to our knowledge.
- 2) 16 of the potential use cases are based on **existing use case examples** from other geographical areas or data platforms, again with no specific ODYSSEA end-users identified or contacted yet.
- 3) 2 of the potential use cases relate to an **identified need** based on informal conversations with potential ODYSSEA end-users.
- 4) 21 of the use cases are based on **engagement with specific ODYSSEA end-users** that is already under way.

Figure 1: Number of use cases in each category of extent of end-user engagement



The use cases based on engagement with specific end-users are the most detailed, with some having already identified potential formats of data products, such as text messages with real-time weather forecasts and alerts for fishermen. These use cases, for which end-user engagement is already under way, are summarised in Table 2.

Moving forwards, the portfolio of use cases will have to be narrowed down to focus on developing selected ‘feasible’ use cases. The feasibility of developing each use case will be determined, primarily based on three factors:

1. Whether there is an active interest in the use case amongst end-users;
2. Whether the use case is feasible for the Platform, from a technical perspective;
3. Whether there is business potential for the use case to be maintained after the funded phase of ODYSSEA.

Although the list of 78 potential use cases is inspiring, especially in the context of a research and innovation project such as ODYSSEA, the four categories identified above that relate to the current *extent of end-user engagement* will help focus the efforts of the Consortium in terms of development and implementation of selected use cases. Keeping in mind the time bound nature of the ODYSSEA project, use cases for which end-users have already expressed a concrete interest to use e.g. data products ought to be prioritised for development. On the other hand, more speculative use cases might hold opportunities for ODYSSEA to develop innovative data based solutions for existing and future challenges facing marine users in the Mediterranean, and hence should not be disregarded, even though only a subset of use cases will, in the end, be developed and fully implemented. It is likely that of those implemented, only a fraction will generate sufficient funds to cover their maintenance costs and further development.

In the table below (Table 3), we give an example of a use case identified for each sector.

Table 3: Examples of potential use cases, for each of the 12 sectors considered (*locations have been removed*)

Sector	Use case (short) name and ID number	Use case source type	Narrative
Fishing	#067 Fish nursery areas	End-user engagement	<i>As a fisher, I need to know the location of nursery areas, especially for the endangered species</i>
Aquaculture	#011 Mussel farmers	End-user engagement	<i>Daily meteorological and oceanographic information provided to mussel farmers via social media</i>
Oil and gas	#016 Oil and gas extraction	End-user engagement	<i>Gas extraction companies and the Ministry of Energy need better meteorological and current information and forecasting for safer operations</i>
Renewable energy	#023 Offshore wind farm development	Existing example	<i>Offshore wind and wave farm operators and developers need wind and wave data to be able to plan their operations and developments</i>
Shipping	#029 Shipping routes, Greece/entire Mediterranean	Identified need	<i>Port authorities, cargo and cruise operators need forecast data to optimize shipping routes to enhance safety and reduce fuel consumption</i>
Other marine industries	#039 Data for marine mining	Existing example	<i>Marine mining operators receive texts with early warnings of poor weather conditions</i>
Coast guard operations	#032 Reach and rescue operations	Existing example	<i>Real-time, accurate spatial data on conditions informs decisions on where to employ reach and rescue resources</i>
Policy and governance	#045 National pollution and biodiversity monitoring	End-user engagement	<i>The ministry need microplastic concentration data for national pollution monitoring programmes</i>
Environment and biodiversity management	#077 Reporting on EU Marine Directive Descriptor 2	End-user engagement	<i>As a national government employee, I need to know the impact of invasive species on ecosystem, for reporting under Descriptor 2 of the EU Marine Directive</i>
Research and education	#062 National Institute data needs	End-user engagement	<i>As a research institute, we provide data to other stakeholders such as Fishermen, society, engineers, environmental agencies, harbours, and civil protection, etc. However, most of our measurements are random and depend on stakeholder requirements, and there are no buoys available for continuous measurements; therefore we need continuous measurements</i>

Recreation and tourism	#069 Human health risks for tourism	End-user engagement	<i>As a tourism operator, I want to know distribution of poisonous fish and/or jellyfish to take precautions for human health</i>
Civil society	#078 Information for Ocean Literacy	Speculative need	Communicating information about the ocean in a simple and interesting way can increase levels of Ocean Literacy within civil society, enabling and inspiring individuals to take more positive actions for the ocean in their daily lives, as well as increasing societal support for policies which protect and conserve the ocean

4 Next Steps

4.1 A searchable use case catalogue

The list of potential use cases identified so far is a living document which will be shared amongst the ODYSSEA partners. It will be continuously added to, and improved, as more use cases become available and as more detail is discovered for use cases already identified. Following the publication of this deliverable, a catalogue of these use cases will be created. This use case catalogue will be shared with partners as an online document to allow partners to easily search the use cases and identify those relevant to them.

The *use case catalogue* will enable ODYSSEA partners to:

- Share information about use cases, in order to avoid duplication of effort across the project,
- Identify potential end-users to engage with,
- Inform the design of the ODYSSEA platform and the development of data products,
- Identify speculative use cases which have the potential to greatly benefit end-users with the design of an innovative data based tool or product.

Moving forwards through the project, ODYSSEA Observatory partners will have to choose end-users and use cases to work with over the course of the project. The use case catalogue will help identify use cases that are feasible for the ODYSSEA Platform, both considering:

1. Whether there is an active interest in the use case amongst end-users, and
2. Whether the use case is feasible for the Platform from a technical perspective.
3. Whether there is business potential for the use case to be maintained after the funded phase of ODYSSEA.

4.2 Capturing engagement with ODYSSEA end-users

Finally, the development of use cases will require engagement of ODYSSEA partners, and in particular the Observatory operators, with the end-users in the countries. To ensure good communication between ODYSSEA partners who are developing the Platform and data services, partners on the ground in the countries and end-users, it is important to capture and record this interaction.

Thus, another next step is to develop a system, in consultation with ODYSSEA partners, to track these interactions in a way which will capture and share useful information. Elements of a Customer Relationship Management (CRM) system could be adopted, though any system should be kept as simple

as possible to ensure that it will be used effectively and by all. It may be that a system could accommodate both the use case catalogue as well as recording end-user engagement, all in one place.