Project no.: **770504**

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Project Acronym: **PERICLES**

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Deliverable title:	**Interactive online CH mapping portal**
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Duration:	36 months
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Contributing partners:	AAU, WU, UBO, UHI, QUB, UAVR, SAMS, MKA, PNRGM, FRI

Dissemination level of this deliverable	**PU**
Nature of deliverable	Websites, patents filling, etc.

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1 Executive summary

This deliverable D3.1 Interactive online CH mapping portal – part of WP3 describes the interactive online CH mapping Portal.

This document is a revised and updated version of the originally submitted deliverable (M9).

2 Introduction

This document describes deliverable D3.1 “Interactive online CH mapping portal” which is closely connected with deliverable D3.2 “portal data layer summary”.

CH provides a sense of place, unity, and belonging. Rooted in specific landscapes, seascapes, buildings, stories, traditions, language, and cultural practices, cultural heritage is a fundamental part of every society. It connects people to each other and to the past and helps guide the future.

Protection and advocacy for cultural heritage can strengthen identity and local society, thereby improving overall quality of life. Culture and heritage are essential in maintaining and building Europe’s economic, social, cultural and natural capital. Realising the potential of CH in these terms can generate prosperity, bring new jobs, enhance communities and improve environments in ways comparable to Blue Growth initiatives.

Yet, coastal cultural landscapes face risks from climate change, pollution, urbanisation, mass tourism, demographic challenges in remote regions, the fundamental transformation of the European fishing industry, neglect, and inconsistent policies of sea and shore conservation across governance scales and between regions.

Great challenges are faced in the on-going effort to sustainably govern cultural heritage in European coastal and maritime regions. In order to meet these challenges, PERICLES will:

a) develop an in-depth, situated understanding of the cultural heritage of marine and coastal land/seascapes, including knowledge across local, spatial, environmental, social and economic aspects;
b) develop practical tools, based on stakeholder involvement and participatory governance, for mapping, assessing and mitigating risks to cultural heritage and to enhance sustainable growth and increase employment by harnessing cultural heritage assets;
c) provide policy advice to improve integration of cultural heritage in key marine and environmental policies and the implementation of associated EU directives; and
d) develop effective knowledge exchange networks.

Key for the success of the project will be our application of a range of participatory, deliberative and action research methods directly involving decision-makers, stakeholders and the public. Innovative

aspects include an interactive, on-line, cultural heritage-mapping portal, cross-cultural heritage stakeholder networks, and focus on providing evidence on how to link European coastal and maritime environmental policies with cultural ones.

The below figure shows the location of our case regions: West coast of Scotland and the north and west coast of Ireland; Waddensea; east coast of Denmark; Estonia; Brittany; northwest coast of Portugal; Malta; Aegean sea.

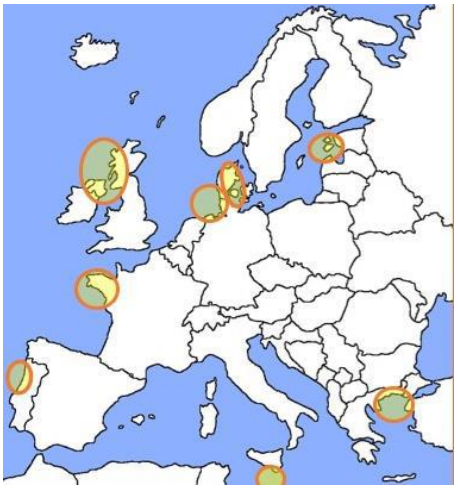


Figure 1: Location of PERICLES case regions

2.1 Interactive online CH mapping portal

An important task within the project is the development of a European online portal for accessing mapped data on cultural heritage. PERICLES is developing an interactive, multimedia online CH mapping platform to enable collection of data and analysis of the distribution of tangible and intangible CH. The aim is to generate a resource to better understand CH, particularly in the way that it is situated within marine and coastal land- and seascapes, provide an opportunity for citizens to engage with CH in an easily accessible and stimulating format both as contributors and viewers, and provide a resource for analysis of opportunities and threats in a spatially explicit way.

The portal is developed through several steps:

1. Technical development of the platform;
2. Artistic graphical user interface design;
3. Collation and integration of existing map data layers;
4. A citizen science campaign to crowd source further data;
5. Analysis and reporting of results;
6. Knowledge exchange and training; and
7. Continuing development.

The platform is multilingual to reflect participation across PERICLES' case regions (at least Danish, Dutch, English, Estonian, French, Greek, Irish, Maltese, and Portuguese) with the option to add further languages in future development. It will incorporate bathymetry and scientific base data, conventional point and polygon layers and text markers, audio and video recordings, graphics and animations, fiction literature references, poetry and other artwork. This is collected through review and incorporation of existing GIS layers for the case region (e.g. wrecks and monuments, environmental data, designations of protected areas, etc.; see D3.2) and public participation mapping. The interface will encompass a front end to view and add data and a back end to moderate, output and analyse data.

3 Portal development

3.1 Portal data

Primary data will consist of user-uploaded data. Secondary data is being drawn from existing map layers, which will largely be directly drawn from other mapping servers. Secondary data will include data on both CH; which will need to be seamlessly integrated with primary data; and 'background' data that serves to 1) contextualise and 2) provide opportunities for cross-analysis.

We expect material that will be displayed to be associated with one or more of the following:

- *tangible heritage* (e.g. buildings, wrecks, docks)
- *places* (e.g. a type of landscape, a viewshed)
- *practices* (e.g. traditional dance, shipbuilding, fishing)
- *knowledge and skills* (e.g. procedures, recipes, descriptions of embodied knowledge)
- *identities* (e.g. genealogies, literature, myths and legends, histories and historical events, stories, language and literature)
- *institutions* (e.g. ways of organising, legal traditions, ways of communal organising, social and cultural values)

This taxonomy is for analytical purposes; a user-facing taxonomy will be finalised in discussion between the project team and contractor, based on a likely maximum of six categories to avoid visual over-crowding. We will use a closed category system, which would help shape the UI, and an open tagging system to support searching.

Our gathering of primary data will be focused on the PERICLES case regions. Hence, display of the data will be regional, also to enable faster loading of data; however, the coding and design needs to be such that further regions can be added in future.

In terms of the types of data, we anticipate combinations of the following:

- Text descriptions
- Photos and images
- Video and audio clips
- Names of features on maps (e.g. someone might be able to see a place or feature and wish to input a local name to it).

Users will be able to mark these as points or polygons or associate them with geographical entities, e.g. political boundaries (e.g., where someone uploads an item on a cultural practice of a particular area). Videos uploaded to services such as Youtube and Vimeo can be sourced through a simple interface.

3.2 End users

We envisage use of the portal to be as follows.

Researchers, developers and planners
These users include academics, marine and coastal planners, and developers from sectors such as energy, aquaculture and tourism. They will be seeking to search and download data that PERICLES has gathered focusing on the 'new' data that PERICLES has added as well as interactions with background data. Researchers will want to view data as point data and in the form of heat maps or similar displays where some basic forms of analysis are applied, including pre-coded queries looking for associations or overlaps – e.g. 'is there an association between a particular type of CH, and location within a marine protected area'; or marking out multiple areas and comparing the relative CH within them, e.g. as counts of different types of CH. Their background will be relatively technical and they will likely be familiar with other GIS portal interfaces. The priority for the interface will be that it is sleek, efficient and intuitive but also suitable for use in combination with the analysis tools and without restrictions on the layers to be displayed.

Citizens and community groups, tourists, tourism agencies, creative industries
These users will be interested in exploring the interface in a way that is engaging and appealing. Their use may be less systematic and more exploratory; however, some structures might be created by the project for representative items of interlinked CH (e.g. as virtual trails and/or story maps). The priority for the interface will be to be simple and uncrowded, intuitive, aesthetically pleasing. A limited set of key layers will be presented that should be artistically displayed, along with a small set of basic tools for interpretation (e.g. a hotspot mapping feature), and some basic tools for 'map making' – picking particular features within a defined area, and highlighting some of particular relevance – so that these users can create their own appealing maps featuring 'trails' or other selections of heritage that stand out to them.

The user group that will be targeted for uploading features, and the upload interface will be integrated for this user group with the same set of priorities. The upload interface will be able to deal with multimedia objects in other locations (YouTube, etc.) and integrated for simple uploading to key online services.

3.3 Technical concept

The proposed design for the PERICLES site is to use a Python based server running [Django Rest Framework] to provide a single consistent Application Programme Interface (API) for the front end application to consume. The data that we will use will be a mix of custom data sets that we will store and serve ourselves and data provided by EMODnet (www.emodnet.eu). The front end application will make use of a single API to request map data (tiles, polygons etc.) from our own server and the server will handle sourcing the data and generating the response. In addition to the map data, we will also be storing and serving user-submitted content in the form of text, images and links to other media (primarily video and audio). The Python server will provide an API for querying/filtering this content based on physical location (map viewport) and other meta-data such as file-type, topic etc. In the case of links to external media, it will be the job of the front end application to fetch and display the media in question using appropriate tools. The decision to only use reference pointers to this kind of data is to two-fold: firstly, to reduce server bandwidth needed to serve media files as this could significantly reduce the speed of the site and secondly, for quality control purposes as there would be no mechanism to check the appropriateness of user submitted content. We plan to set up a separate YouTube/Vimeo account to host PERICLES produced video content and link to these via the portal.

We have developed a set of requirements for the user facing side of the site in conjunction with the front-end developer, which include, for example:

- Pan and zoom a map viewport over Europe and the surrounding seas.
- Toggle between a variety of base layers ranging from satellite images (NASA, Open StreetMaps, ESRI World Ocean Layer), to bathymetry data and shipping routes.
- Submission of citizen science media: text, images, video, audio and links. This should ideally include a mandatory meta data section in addition to a mechanism for reviewing submitted media before it is added to the site.
- Filter user submitted media based on file type, topic, date etc.
- Allow custom areas to be drawn for the purposes of filtering media.
- Presenting such media queries as points/markers directly on the map but also as a simple list for review and download.
- Overlaying different data layers, setting layer transparency, buffering around points, lines and

polygons
- Display of attribute data (e.g. name of features, data values, latitude/longitude coordinates)
- Hotspot mapping to focus attention to particular locations

3.4 Progress to date

It was our original intention to have the portal 'up and running' in time for public access in summer 2019. The planning for full technical delivery of the portal and data gathering has happened concurrently. Concerning the latter, the case region coordinator supported by WP3 has worked with each case region to develop an overarching regional research plan. Activities include both communication activities to advertise the portal and more active data gathering such as organizing stakeholder or community workshops for stakeholders and citizens to work with the portal and upload data.

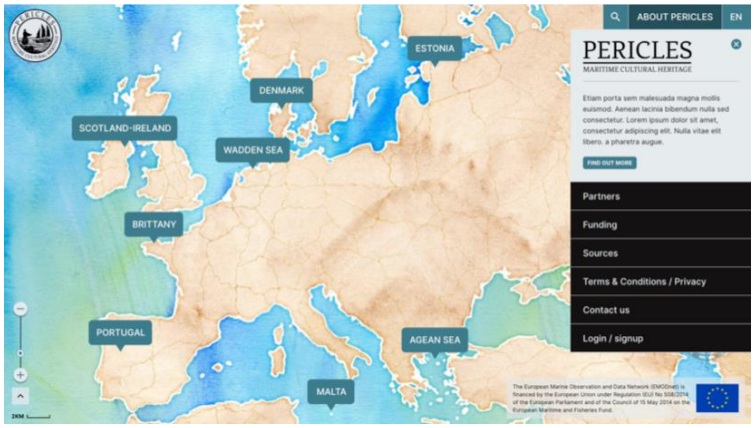
There have been significant set backs in terms of delivery of the portal, which were discussed in D3.1 1.0, up to Feb 2019, but since then there has been a further set back.

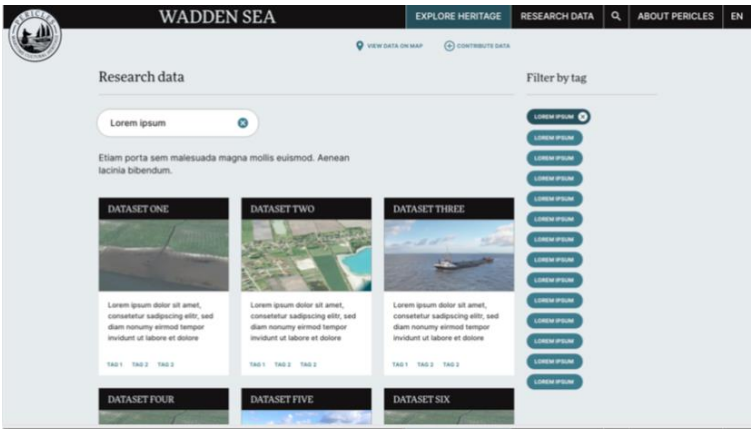
Originally, the technical infrastructure was delayed by the need to redevelop the technical concept, which was originally based on the SAMS server infrastructure, to adapt to the UOY technical environment. This resulted from the move of Jasper Kenter and his team to UOY, as there was no suitable principal investigator remaining at SAMS who could oversee the work. Following this setback, it turned out to be very difficult to match a subcontractor with the necessary expertise to the new technical concept. Because of budget and expertise changes resulting from the SAMS to UoY move, the remit of the subcontract had to be altered to include not just the artistic aspects, as initially intended, but also coding of the front-end user interface. It was very challenging to find a subcontractor who was able to take on both activities. UOY was in communication with 13 companies who were not able to take on the contract; only the 14th agreed to take on the assignment. As a consequence, the overall concept was not established between UOY and the subcontractor until January 2019. Unfortunately, at that point, the responsible technician (i.e. developer) at UOY left. His post was advertised at that point, and remains vacant until 1 October. This was a result of that the person who had been made a job offer by UOY, who was not from the EU, was not granted immigration clearance (which became clear on June 10, 2019). The latter was caused by a very unfortunate error made by the UOY human resources department in terms of not meeting regulations with regard to where the post had been advertised. As a result, the post had to be re-advertised over summer. UOY had a second technical officer, who briefly took over the project in early 2019, but then also resigned. Thus, the delay resulting from the immigration issues was very severe; and the compounding of this with the departure of the second technician was extremely unfortunate.

At this point, recruitment is complete, and the individual will be in post from 1 October 2019. Furthermore, the individual has started with key work on the portal over September, which will allow us to launch the first version of the portal in October, to be used with twos citizen workshops in the Scottish region on Oct 12 and 19, and a citizen and stakeholder workshop on Oct 21 in Bretagne.

The delivery has been divided into two stages: the first stage will involve core functionality in terms of providing access to secondary data, and the facility to upload data. This means that the project will be able to start advertising the portal and allowing public participation data. Consequent development will then add map editing, trails, and analysis functionalities.

Development of the artistic and user interface has been progressing steadily. The key challenge is now to connect the front-end with the back-end and GIS database. The selection of screenshots below provide some indication of the design and functionality of the portal.




WADDEN SEA
EXPLORE HERITAGE
RESEARCH DATA
ABOUT PERICLES
EN
Research data
Filter by tag
Lorem ipsum
Etiam porta sem malesuada magna mollis euismod. Aenean lacinia bibendum.
DATASET ONE
DATASET TWO
DATASET THREE
DATASET FOUR
DATASET FIVE
DATASET SIX


Wadden Sea
EN
KEY
EXPLORE HERITAGE
RESEARCH DATA


Wadden Sea
EN
KEY
Choose from these options:
Explore - lorem ipsum dolor
Research data - lorem ipsum dolor
GOT IT
EXPLORE HERITAGE
RESEARCH DATA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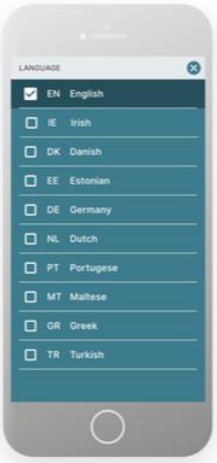
LANGUAGE
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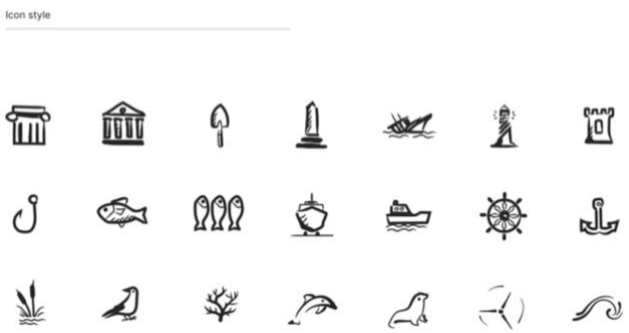
IE Irish
DK Danish
EE Estonian
DE Germany
NL Dutch
PT Portugese
MT Maltese
GR Greek
TR Turkish



Collation of secondary data for the portal has been conducted as planned. All consortium partners have been involved in searches to identify key secondary data layers that will be added two the portal. In total 255 layers were collated (D3.2). Two mechanisms are identified: 1) static upload of data to our portal; and 2) data stored elsewhere that will be dynamically pushed/pulled to/from our mapping server. For the latter, we will rely on EMODNET (www.emodnet.eu), which provides an exensive array of data.

Planned mobilisation for the portal and mitigation for delay

Across the project, the 'citizen science' component of the portal would involve citizens in the following ways:

1. Directly, as individual citizens reached through advertising
2. Directly, through specific activities, e.g. mapping workshops
3. Indirectly, through stakeholders uploading their existing data
4. Indirectly, through stakeholders engaging their members and audiences

As to the first, this will be achieved through the creation of template posters with URLs (www.mapyourheritage.eu) and QR codes to be distributed by UOY and social media advertising supported by a prize draw. The main concern with the delay here is that the 'input period' within the project period has reduced. This will be mitigated by a more focused campaign, supported by the creation of an additional, dedicated 60% post at UOY for the remainder of the duration of the project, who will coordinate the advertising campaign and actively support and encourage partners. If any further budget is freed up over the course of the project because of exchange rate fluctuations at UoY, we will consider targeted online advertisement.

As to the second, these have been delayed in terms of planning in one case region (Aveiro) but not in other regions across the project, and workshops in several regions are now in preparation as part of the Demo projects and WP7 activities. Furthermore, whereas previously we had planned to rely primarily on advertising, we are now planning additional activities to ensure data gathering in

different regions – e.g. in Aveiro, engaging with the “Blue Schools Initiative”, in Scotland, two additional citizen mapping workshops to feed into the Clyde Regional Marine Plan, and in Waddensea, additional portal activities with fisheries communities.

As to the third, stakeholders have already contributed data layers as part of the data review process which was completed in time (D3.2).

As to the fourth, in particular Aveiro and UBO have already promoted the portal with their stakeholders and it is therefore important to start with demonstrating the portal to them as soon as possible to maintain interest. This is why we are ensuring we will deliver the portal in time for Oct 21, 2019 in Brittany. The additional post at York also has the remit of demonstrating and training partners in the use of the portal and hence it is expected that we will be able to train partners and stakeholders more efficiently.

Furthermore, mitigation is also taking place through the roll out of a wide range of other activities to engage citizens and local communities, which are now reported in much more detail in D6.1 than was reported previously in the periodic report.

Finally, the new post that has been created at York, which has been filled by an experienced GIS analyst with significant experience in participation, will allow us to conduct ongoing data analysis in the last year of the project, and extend the timeline for gathering crowd-sourced data that can be usefully analysed by 3 months (M31 instead of M28).