

Project no.: 770504

Project full title: PrEseRvIng and sustainably governing Cultural heritage and Landscapes in European coastal and maritime regions

Project Acronym: PERICLES

Deliverable number:	D3.3
Deliverable title:	Internal Report on Initial Method and Tool Review
Work package:	WP3
Due date of deliverable:	M14
Actual submission date:	21/06/2019
Start date of project:	01/05/2018
Duration:	36 months
Reviewer(s):	Jasper Kenter (UoY)
Author/editor:	Laura Ferguson (QUB)
Contributing partners:	All

Dissemination level of this deliverable	PU
Nature of deliverable	R

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 770504. Further information is available at www.pericles-heritage.eu.

Table of Contents

1	Executive Summary	4
2	Adaptation Workshops.....	6
3	Archaeological Fish Bone and DNA Analysis	10
4	Crowdsourcing.....	14
5	Ecopath with Ecoism	18
6	Ethnographic Documentary	20
7	Ethnographic Interviews.....	24
8	Historical Archives/Documents/Photos	26
9	Interviews	29
10	Inventory	32
11	izi.TRAVEL	34
12	Landscape Approach	36
13	Narrative Approach	40
14	Oral History.....	42
15	Participatory and Deliberative Governance Mechanisms.....	44
16	Participatory Mapping.....	50
17	PERICLES Online Mapping Portal.....	54
18	Proactive Collaborative Conservation (ProCoCo).....	57
19	Risk Analysis.....	59
20	Social Media Data Mining.....	62
21	SWOT Analysis	65
22	Tools for Economic Valuation.....	68
23	Visitor Management Tools	70

24	Visual Problem Appraisal (VPA).....	74
25	Annex A PERICLES Tool Review Survey Results	76
26	Annex B PERICLES Tools Workshop, 25 th April 2019	82

1 Executive Summary

PERICLES is an EU-funded research and innovation project running from 2018-2021. PERICLES promotes sustainable, participatory governance of cultural heritage in European coastal and maritime regions through a unique interdisciplinary and geographically wide-ranging approach. European coastal and maritime regions are historically rich with unique land/seascapes, tangible artefacts, and intangible cultural heritage. The overall aim of the project is to develop a framework to understand, preserve and utilize maritime cultural heritage for societal good. PERICLES will develop practical methods and tools to enable and facilitate both the preservation and sustainable growth of cultural heritage, in particular for understanding and mapping cultural heritage, conserving and addressing risks, and exploiting cultural heritage for sustainable development and cultural heritage-based blue growth. These will be based on stakeholder and citizen involvement and participatory governance, and will provide targeted, evidence-based guidance on cultural heritage preservation.

This initial review scoped practical methods and tools through: a) a comprehensive literature review; b) a survey questionnaire with all partners and selected stakeholders across the case regions (see Annex 1); and c) a workshop session at the first PERICLES international conference (see Annex 2). Both methods and tools were reviewed, and there is some overlap between these two categorisations. In some cases, it could even arguably be categorised as both. Nevertheless, it is important to make a distinction between the two concepts. We define a tool as a mechanism that will aid CH managers evaluate, preserve or exploit cultural heritage (e.g. Maptionnaire and izi.TRAVEL). We define a method as a something that will help cultural heritage managers and researchers deepen their knowledge about a cultural artefact or phenomenon through the collection and analysis of additional data and information (e.g. ethnographic interviews and Visual Problem Appraisal).

PERICLES conceptualises cultural heritage management as consisting of three interrelated pillars: Space, Place and Identity; Risk, Resilience and Adaptation; and Deliberative and Participatory Governance (see https://www.pericles-heritage.eu/digitalAssets/603/603371_pericles_d2.4_v1.0.pdf).

The table below lists the methods and tools reviewed under the relevant pillar(s).

Space, Place & Identity	Risk, Resilience & Adaptation	Deliberation & Participation
Archaeological Fish Bone & DNA Analysis	Historical Archives	Participatory and Deliberative Governance Mechanisms
Crowdsourcing	SWOT Analysis	PERICLES Mapping Portal
Ethnographic Documentary	Inventory of Heritage	izi.TRAVEL
Ethnographic Interviews	Tools for Economic Valuation	Tools for Economic Valuation
Historical Archives	PERICLES Mapping Portal	Landscape Approach
Interviews	Crowdsourcing	Risk Analysis
Narrative Approach	Risk Analysis	Participatory Mapping
Oral History	ProCoCo	Historical Archives
Participatory Mapping	Ecopath with Ecoism	
PERICLES Mapping Portal	Adaptation Workshops	
Social Media Data Mining	Narrative Approach	
Tools for Economic Valuation	Visual Problem Appraisal	
	Visitor Management Tools	
	Participatory Mapping	

The methods and tools reviewed, arranged by PERICLES pillar(s) to which they can be applied.

Selected methods and tools identified in this review will be applied across demos in case study regions in close collaboration with associate partners and stakeholders. They will be applied in multiple instances to enable comparison and contrast in different geographic and thematic contexts. This will lead to the production of the PERICLES tools handbook, which will share knowledge and experiences of the tools and methods that are available, so that those involved with cultural heritage can better evaluate, preserve and sustainably exploit it.

This report focuses on providing an overview of these methods and tools and will act as a reference library for the PERICLES team and others when working in the cultural heritage sphere. The next 23 sections provide account of the tools and methods that were reviewed by the PERICLES team.

2 Adaptation Workshops

Name of the tool	Adaptation Workshops	
Pillar(s) <i>Please indicate the most relevant pillar</i>	Risk, Resilience and Adaptation	
Author(s)	Laura Ferguson	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Adaptation planning is based on identifying actions to reduce risks and to capitalise on opportunities (Pearce et al., 2012). Participatory adaptation workshops are an important part of identifying and implementing adaptation strategies. In taking into account various stakeholders' interests and involving them in managing and protecting their surroundings adaptation workshops allow planning to be developed with those who work and live in the area and are most familiar with its unique social, environmental and economic conditions (Chalker, 1994; Picketts et al., 2012).</p> <p>Although there are many benefits to participatory processes in environmental policy, there are also considerable issues associated with this approach (Few et al., 2007). Participatory adaptation workshops require participants to have a good understanding of the problem, be unbiased and be risk-intelligent, which is not always possible (Gibbs, 2015). Even in such cases, subjectivity of opinion may be viewed as a limitation (Bunruamkaew and Murayama, 2011), particularly in resilience and adaptation planning. A survey of wilderness campers from three provincial parks in Ontario, Canada, showed no association between participant values and the evaluation given by experts, as well as routine failure by the public to notice weak or damaged conditions (Shin and Jackson, 1997). This stresses the importance of integrating participatory measures with scientific criteria and expert opinion, particularly where physical conditions require consideration.</p> <p>Development and Ownership</p> <p>Common features among the guides and toolkits that have been developed for adaptation planning are; the need for commitment of resources, the need for understanding of the threats and vulnerability to them, active engagement with stakeholders, implementing the results of plans, and monitoring and evaluating the effectiveness of the measures taken (Pearce et al., 2012). Periodic feedback through monitoring and evaluation ensures that processes are held to standards, assesses the impact of initiatives, and indicates where change in plans is needed.</p> <p>Adaptation workshops can take various formats. Pearce et al.'s (2012) participatory adaptation workshops followed a simple approach. Workshop facilitators prepared blue note cards with documented risks related to the workshop sector written on them and posted them on a wall. Participants were initially requested to review, verify and update the information on these risk cards. They were then given the opportunity to discuss possible adaptation actions to address each of these. Actions were written on pink cards and posted on the wall next to the blue risk card they addressed. This continued until every risk card had at least one potential adaptation action.</p> <p>As spatial information has a key role in adaptation planning, adaptation</p>	

workshops also frequently involve a mapping exercise, which can involve interactive spatial support tools such as drawing, simulation and evaluation tools (Eikelboom and Janssen, 2013). The information gathered using these can then be analysed by GIS.

Another popular participatory adaptation workshop tool is scenario planning. Scenario planning considers a range of possible future scenarios, and participants are invited to discuss these from various perspectives, and consider how they might be planned for. Scenario planning can incorporate both qualitative and quantitative data, as well as average projections alongside extreme events, and is therefore particularly suitable where climate change effects must be considered (Moore et al., 2013). It is most useful when there is little or no opportunity to manipulate systems, and where a broader, more holistic approach is required.

Scenarios are brief narratives of hypothetical future events that have been designed to inform policy under a range of possible circumstances (Peterson et al., 2003). For a successful scenario planning exercise, structurally different scenarios must be presented, rather than simply variations of one theme (Moore et al., 2013).

There are six stages of the scenario planning process (adapted from Peterson et al, 2003):

1. Identify the issue
2. Assess the system
3. Identify plausible alternatives
4. Build scenarios
5. Run the scenarios with stakeholders, experts or against other scenarios
6. Screen policies to test how they would perform under the different scenarios

Scenario planning is dependent on the knowledge and understanding of the stakeholders participating, as well as their ability to consider other perspectives beyond their own (Peterson et al., 2003; Moore et al., 2012). It is also dependent on the quality of the scenarios, which must be plausible and not overlook any critical factors (Moore et al., 2013).

Moore et al. (2012) found that while scenarios were a useful exercise for beginning important collaborative discussion, scenario workshops alone were insufficient. Scenario planning can also be used in combination with adaptive management for a more robust approach, as with the Adaptation for Conservation Targets (ACT) Framework (Cross et al. (2012). In ACT the scenario planning is used to create positive conversations and start the flow of ideas, and then the iterative process of adaptive management evaluates and refines practices until they are functioning optimally.

Current Use and Applications

Adaptation workshops are used to brainstorm ideas, opportunities and potential limitations relating to adaptation policies and actions. They are used in all kinds of adaptation situations, and have found particular popularity in climate change adaptation planning. In addition to identifying and implementing adaptation strategies, adaptation workshops also work to enhance awareness and understanding of threats and their impacts among the community, and encourage local support for implementation (Picketts et al., 2012; Few et al., 2007).

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3 Archaeological Fish Bone and DNA Analysis

Name of the tool	Archaeological Fish Bone and DNA Analysis	
Pillar(s) <i>Please indicate the most relevant pillar</i>	Space, Place and Identity	
Author(s)	Dimitra Mylona Chrysa Gubili	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Archaeology and cultural heritage are closely linked both in practice and in public perceptions, (English Heritage, 1997; Smith, 2000; Cleere, 2005; Smith and Waterton, 2013). That several Archaeology departments in European universities, and further afield, provide courses and degrees on cultural heritage management reflects this close relationship (https://www.postgrad.com/courses/heritage-studies). In this context, archaeology has focused mostly on monuments and built landscapes, although in recent decades intangible aspects of the past are increasingly included (Vecco, 2010; Smith and Akagawa, 2008.). Nevertheless, much of the theoretical debate around this relationship focuses on issues of politics, conflict, and contested ethnic identities (Knapp and Antoniadou, 1998; Graham and Howard, 2008; Kavoura, 2012) alongside tourism and economic development (Duke, 2016; Richards, 2001).</p> <p>Archaeological fish bone and DNA analysis have not been used, so far, in the context of cultural heritage management and related research, but in recent years they have both showed considerable potential in highlighting past relations between humans and the marine environment (Orton, 2016) and also in historical ecology research (Barrett, forthcoming). Also, the fish bone analysis in particular has been used to explore issues of identity and world views or coastal communities of the past (e.g. Barrett et al., 2001; Mylona, 2008). DNA analysis of ancient animal bones is a rather new approach, and has been applied to only a few cases (e.g. Larson et al., 2010; Colominas et al., 2014). DNA analysis of ancient fish bones has been used in the field of nature conservation and historical ecology (Barrett, forthcoming; Orton, 2016), research on human ancestry and migrations (Cann et al., 1987; Cabrera et al., 2010) and, only recently, to explore archaeological questions such as trade (Star et al., 2017).</p> <p>Development (and ownership, if appropriate)</p> <p>The analysis of archaeological fish bones is an established sub-discipline of archaeology, ichthyo-archaeology (Wheeler and Jones, 1989), and it should be seen in conjunction with the analysis of marine mollusks, archaeo-malacology (Claassen, 1998). Archaeological fish bones and mollusks are found in excavations, especially with the application of targeted field techniques, for example water floatation. Fish bones and seashells usually represent food leftovers, are related to processing activities such as salt fish and fish sauce production and purple dye production (Beker-Nielsen and Gertwagen, 2016) or are linked to the cultic sphere (Mylona, 2008). They are bearers of information both on the marine physical environment and on the human cultural environment, as they reflect elements of the marine resources available in a certain area and a number of choices made by</p>	

humans in regard to these resources. These choices are driven not only by subsistence needs but also by factors such as technology, economic institutions, social organization and worldviews. Thus, the remains of fish and mollusks captured and used by people in the past offer a way to approach all these aspects of living. In this sense, they can be used to explore the livelihoods of coastal communities, their fishing ways and the way they existed

Background Context

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humans in regard to these resources. These choices are driven not only by subsistence needs but also by factors such as technology, economic institutions, social organization and worldviews. Thus, the remains of fish and mollusks captured and used by people in the past offer a way to approach all these aspects of living. In this sense, they can be used to explore the livelihoods of coastal communities, their fishing ways and the way they existed Claassen, C. 1998. *Shells*. Cambridge Manuals in Archaeology. Cambridge: Cambridge University Press.

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4 Crowdsourcing

Name of the tool	Crowdsourcing (including Citizen Science)		
Pillar(s) <i>Please indicate the most relevant pillar</i>	Risk, Resilience and Adaptation (Most Relevant): Space, Place and Identity		
Author(s)	Laura Ferguson		
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Crowdsourcing is the outsourcing of specific activities by means of an open call (Oomen and Aroyo, 2011). The method has a wide number of general applications, including environmental monitoring and decision-making, health studies, education, urban planning, and intangible heritage preservation. In terms of cultural heritage activities, volunteers are recruited by galleries, libraries, archives and museums to assist in the selection, cataloguing, contextualisation, and curation of digital collections (Oomen and Aroyo, 2011). Participating in these activities also has the added benefit of acting as public engagement with cultural heritage (Ridge, 2013). Another form of crowdsourcing, citizen science, can be used to gather environmental data for surveying and monitoring cultural heritage sites. It is a process by which citizens act as “voluntary sensors” (Goodchild, 2007, p.24) to collect large volumes of field data, typically over a wide geographical area, for collation and use in scientific research (Silvertown, 2009).</p> <p>Development and Ownership</p> <p>Crowdsourcing is a growing participatory phenomenon, facilitated by technological advances such as mobile computational devices, cloud computing and expanding Internet access (Wiggins and Crowston, 2011; Tenerelli et al., 2016; Brovelli et al., 2018), and encouraged by the openness and universality of the Web (Oomen and Aroyo, 2011) which increases accessibility to participatory methods by removing the barrier of distance and allowing the participant flexibility in scheduling the activity. It also removes some psychological barriers that may discourage participation in a physical group setting (Carver et al., 2001; Heywood et al., 2001). The technological requirements may, however, exclude some participants and leave some social groups under-represented, therefore the capabilities and needs of users should be taken into consideration in the design of accessible systems (Carver et al., 2001). It is thought that gamifying crowdsourcing through mobile applications could enhance engagement of existing contributors and attract new ones (Bowser et al., 2013).</p> <p>Current Use and Applications</p> <p>There are three organising structures in crowdsourcing: (1) contributory projects designed by professionals and contributed to by the public; (2) collaborative projects designed by professionals, where the public contribute, analyse data, help refine project design, and disseminate findings; (3) co-created projects where members of the public are involved in the entire process (Bonney et al., 2009). The model used is largely determined by the needs of the project and the skills and time commitment of volunteers. In some cases, an open call for crowdsourcing is not appropriate, because participants are limited to those who have or are willing to learn certain skills (Ridge, 2013). This has led to the derivative terms “communitysourcing,” or working with people who already have a relationship with an institution (Ridge, 2013), and “nichesourcing,” where tasks are completed by a</p>		

group of amateur experts in the field (de Boer et al., 2012).

Citizen science is a flexible tool that can be tailored to many purposes (Cooper et al., 2007). It encompasses a range of activities that people can do at home by means of passive sensing, volunteer computing, or volunteer thinking, such as helping to classify information on websites, recording environmental or ecological observations, participatory sensing using smartphones or other devices, or community or civic science aimed at addressing a common issue (Haklay, 2015). These activities engage participants in their local environment and collect information that was previously invisible (Goldman et al., 2008). This can be for a range of purposes, including hazard identification, environmental monitoring and documenting sense of place.

Wiggins and Crowston (2011) identified five types of citizen science projects: Action, Conservation, Investigation, Virtual and Education. Action projects are designed to encourage participant intervention in local concerns. These are most often bottom-up projects organised by the local communities themselves. Conservation projects address natural resource management goals, involving citizens in stewardship for outreach and increased scope. Investigation projects focus on scientific research goals in a physical setting, while Virtual projects have goals similar to Investigation projects, but are entirely ICT-mediated and differ in a number of other characteristics. Finally, Education projects make education and outreach primary goals.

Particularly suited to the collection of long-term monitoring data, citizen science brings the ability to track the ecological and social impacts of large-scale environmental change, including detecting unanticipated threats (Dickinson et al. 2010). Monitoring activities might include status assessment, impact assessment and adaptive management (Conrad and Hilchey, 2011). Such projects can realize significant social outcomes. In Mexico, the sea turtle monitoring network Grupo Tortuguero is a collaboration between biologists, agencies, and communities that through citizen science has helped to establish marine protected areas and sustainable fisheries practices that are sensitive to the wellbeing of both turtle populations and local livelihoods (Silvertown, 2009).

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5 Ecopath with Ecoism

Name of the tool	Ecopath with Ecoism	
Pillar(s) <i>Please indicate the most relevant pillar</i>	Risk, Resilience and Adaptation	
Author(s)	Simone Martino	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Ecopath with Ecosim (EwE) is a food web model of the network of fish and top predator species. It is free ecological/ecosystem modelling software that can be used to address ecological questions and also explore the ecosystem effect of fishing. This software is a suite made of three components:</p> <ol style="list-style-type: none"> 1. Ecopath - a static mass-balanced snapshot of the system; 2. Ecosim - a time dynamic simulation module for policy exploration; 3. Ecospace - a spatial and temporal dynamic module primarily designed for exploring impact and placement of protected areas. <p>The tools that are most used are Ecopath and Ecosim. Ecopath creates a mass balance model of the fisheries depicting trophic interactions. Data requirements are relatively simple and often already available from stock assessment, ecological studies, or literature. Ecosim uses the mass-balance model from Ecopath as a starting point and then presents the natural biomass flux rate over time as function of the interaction of the resource pool and the harvest rate. Time series data relative to the characteristics of the fisheries such as catches, fleet effort, fishing rate, etc., can be introduced. If this is done, Ecosim allows for the fitting of predicted biomass and is able to generate a forecast for biomass and catches and economic parameters of the fisheries.</p> <p>Development (and ownership, if appropriate)</p> <p>Ecopath was developed 20 years ago, but it is constantly updated by the interaction between developers and academics and practitioners in the world. EwE is developed by the Ecopath Research and Development consortium, established in Vancouver in 2011. It is possible to join the consortium and contribute to the development of the software by suggesting to programmers new ecological or economic parameters to measures.</p> <p>Current Use and Applications</p> <p>EwE is extensively used around the world by researchers and practitioners. As of January 2018 EwE counted 8,000 users in over 170 different countries and more than 800 publications recorded in ISI Web of Knowledge. Applications are mainly of two typologies:</p> <ol style="list-style-type: none"> 1. To understand the interaction within the food web of species and ecological consequences if one or more species increases in biomass or collapse. 2. To simulate the effect on the fish stock and catches of climate change 	

	and/or new policy measures such as quotas, fishing mortality of single species, effort of fleet, discarding, use of more selective gears, introduction of no take zone.
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6 Ethnographic Documentary

Name of the tool	Ethnographic Documentary
Pillar(s) <i>Please indicate the most relevant pillar</i>	Space, Place and Identity
Author(s)	Loes Witteveen Marloes Kraan
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Ethnographic films are specific type of documentary making and are often described as originating from practices in anthropology documenting ‘Others’ and other cultures. See for example Nichols (2001, p.150) or Basu (2000, p.97). To further characterise ethnographic films from a documentary perspective we can apply the typology of Bill Nichols to characterise the ethnographic film as an observational documentary (p.109). Other authors prefer to stay away from a chronological view on a typology of documentaries and rather prefer to define them as documentaries. Bruzzi (2000) takes a stand when stating: “Both the discussion of film as a record and the discussion of voice-over conclude by suggesting that the dialectical relationship between the event and its representation is the backbone of documentary filmmaking” (Bruzzi, 2000, p.10).</p> <p>Anderson and Lucas (2016) state: “Documentary filmmaking is a practice that encompasses many different objectives, ways of working and philosophies about media making and even about reality itself. It is a bit of an octopus with one foot in television, another in art practice, and another in journalism, not to mention social-sciences such as anthropology” (Anderson and Lucas, 2016, p.1).</p> <p>For now we will use a basic definition by referring to ethnographic film as follows: “it is a story, linked to observational documentary, based on reality filmed by a crew which includes ethnographic and filmmaking professionalism with an articulated methodology of the production including the visual ethics applied”.</p> <p>Development (and ownership, if appropriate)</p> <p>Photography and documentary in academia do not have long historical trajectories, as they only became research methodologies with access to cameras at the end of the nineteenth century. Taking such a consideration as a starting point for visual ethnographical presents a restricted technological view as expertise and experience with using still images, paintings and drawings, are the cradle of visual methods in research.</p> <p>Ethnographic documentaries are also gaining attention with the increasing interest in Visual Research Methods. This wider interest calls for further defining the tool as again a dominance of technological facilities to both hardware (e.g. mobile phones) and software (e.g. for editing and data management) is likely to overtake dedicated attention for a more methodological focus.</p> <p>Although the richness of visual data is a legitimate reason for using documentary it is an over-simplification to consider visual approaches to</p>

work as simple channels of communication – as ‘windows on the world’. Gillian Rose (2014) states that “the assumed richness of visual data also confronts researchers with challenges in the process of documenting, analysing and interpreting of the footage”.

In the contemporary world the production and circulation of visual and digital information is faster and more common than ever before, and engaged academic filmmakers consider that documentary-making offers closer interfaces between production and audiences. The connected focus on participation of the audience raises power issues with claims to differentiate between cooperation and participation (see e.g. Bayre et al., 2016). Such a focus on rethinking conventional research is expressed as “This [participatory communication L.W.] invites the use of visual, expressive, and co-constructed citizen-led approaches to communicating knowledge, as contrasted with traditional textual communication of research results”.

Current Use and Applications

In the case of PERICLES, the visual ethnographic approach is focused on collecting visual data portraying contemporary socio-political processes and using the edited visual compilation or analysis to affected, involved and interested stakeholders in processes of deliberative and transformative maritime and coastal governance.

For the PERICLES ethnographic documentaries we differentiate the observational PERICLES documentaries from a genre, which is called expository (Bayre, 2016; Nichols, 2001) or authoritative (Eriksson, 2012). This latter genre is frequently associated with issues over the documentation and portrayal of reality with an often-heard critique of the role of voice over (see for e.g. Bayre, 2016, p.99).

Using both typologies in a continuum, another critique is emerging in relation to aspects of reflexivity, which is seen as (relatively) absent in traditional ethnographic documentaries. Eriksson refers to traditional observational documentary for example “French Cinema such as French cinema vérité, which stated that the observed reality had to be dealt with in a reflexive way, including the way the film was made and how the participants reacted to the film.” (Eriksson, 2012, p.5).

To deepen ethnographic documentary beyond a genre typology, Gillian Rose (2016) introduced the model of the sites and modalities for interpreting visual materials. The sites of the image itself, of site of audiencing, the site of production and the site of circulation which for each site the technological, compositional and social modalities offer a framework for visual analysis.

For the case of PERICLES, the site of the image itself may constitute a challenge to ensure that enthusiasm for the aesthetics of coastal and maritime area images and the dedication to cultural heritage do not induce a tendency to make tourist films. Aspects of reflexivity are positioned in the site of the image itself and come to rescue as the visual textuality requires to be constituted for the ultimate use of the films as envisioned: contributing to participatory and deliberative governance of coastal and maritime cultural heritage. This also links to the sites of audiencing and circulation as the socio-

political processes which give the context for the 'consumption' or 'use' of the films require process design occurring in the social modality.

The envisioned audiences to be interested in the resulting ethnographic documentaries of the case study areas are:

- Major stakeholders in maritime and coastal governance and policy formation in relation to coastal resource management, environmental policy, fisheries; and above all in relation to maritime and coastal cultural heritage.
- Indirect stakeholders as audiences may gain an interest in such themes
- others

The search for technological specifics to materialise the envisioned ambitions can be positioned in the site of production. Converting technological challenges to references of participation is a doubtful interpretation of the term or just showing a lack of knowledge for technicalities in filming. For example, the recording of synchronous, and ambient sound of voice-over might be overlooked during the production, and Anderson refers to this as the prevalent idea that such problems are to be fixed in the postproduction (Anderson, 2016, p.205).

A detailed, long-time account of processes of community development using visual ethnographies are described by Timothy Kennedy (2008) in which he comes to a conclusion that such a process "fosters the development of community initiated solutions, not just descriptions of problems or complaints, thus providing mature and constructive information for decision-makers to respond to".

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7 Ethnographic Interviews

Name of the tool	Ethnographic Interviews	
Pillar(s) <i>Please indicate the most relevant pillar</i>	Space, Place and Identity	
Author(s)	Alyne Delaney	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Ethnographic interviewing is a type of qualitative research method that combines observation and directed one-on-one interviews, most often within the cultural environment. It is one method found when “doing ethnography.”</p> <p>Ethnography is a systematic study of people and culture which includes qualitative interviewing which describes (some aspects of) a society or culture (Spradley and McCurdy, 1972); it is “thick description” (Geertz). Ethnography includes the sociocultural context—e.g., descriptions of people, places, languages, events, material culture, etc. The key point is description and details.</p> <p>Ethnography is also more than a simple research method it is “the attempt to understand another life world using the self—as much as it of possible—as the instrument of knowing” (Ortner, 2006, p.42). Ethnography seeks to describe and to understand another way of life from the native point of view (Malinowski, 1922). Ethnography provides the opportunity to step outside of our own cultural backgrounds, to set aside our ethnocentrism, to see the world from the viewpoint of other human beings (Spradley, 1979).</p> <p>In other words, ethnography focuses on the emic viewpoints and meanings to the people we seek to understand. Rather than manipulate variables, both questions and answers must be discovered in the social setting being studied.</p> <p>Ethnographic fieldwork usually involves observation, interviewing informants, taking fieldnotes, making maps, collecting life histories, analyzing folklore, charting kinship, audio and videotaping, collection of relevant materials and documents, keeping a field journal, and taking photographs.</p> <p>The interviews can be unstructured or semi-structured, depending on the stage of research. The idea behind having ethnographic interviews as opposed to simply qualitative interviews is that some aspects of the culture/society should be understood when talking about specific aspects of cultural heritage.</p> <p>Development (and ownership, if appropriate)</p> <p>Ethnographic interviewing is a method and one aspect of conducting, or doing, ethnography - the systematic study of people and culture. Ethnographic interviewing was pioneered in anthropology, but is now practiced by a variety of social science and other researchers and practitioners.</p>	

Current Use and Applications

Ethnographic Interviewing is a well-established method in wide usage. It is particularly useful and important to use when one is trying to understand local culture and emic (insider) perceptions.

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8 Historical Archives/Documents/Photos

Name of the tool	Historical Archives/Documents/Photos
Pillar(s) <i>Please indicate the most relevant pillar</i>	All Three Pillars
Author(s)	Elaine Azzopardi
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>The use and analysis of documents is traditionally considered to be the domain of historical research. However, archival research is not restricted to historical documents but can also include historical and modern texts, photos, maps, reports, diaries, biographies, newspapers, WWW resources etc. As well as its foundational use in historical research, it is also more widely employed in other disciplines and is becoming a more common approach in sociology and anthropology (McCulloch, 2004; Prior, 2012) as well as in the natural sciences (e.g. the use of historical maps and aerial images to reconstruct land-use changes: Liu et al., 2018).</p> <p>Development (and ownership, if appropriate)</p> <p>There are a number of different approaches that can be taken to document analysis (document is used in a broad sense here) depending on whether a document is considered a container of information or whether a document is itself considered the topic of interest (Prior, 2012). However, whatever the approach taken, documents should still be evaluated for certain criteria such as who produced it and why (i.e. its context), its authenticity, its reliability, its representativeness, its meaning as well as any ethical or legal issues that may arise from using the document.</p> <p>In historical research, documents have typically been used as sources of information and an important distinction is made between primary and secondary sources. Primary sources are the 'raw material' created within the period studied and are considered to be the best form of historical evidence. Secondary sources are produced after the period of interest using the primary sources (McCulloch, 2004). However, the clear dichotomy between primary and secondary sources is increasingly being questioned and some types of document (e.g. autobiographies) can fall into either group (McCulloch, 2004). An important point that has been made about historian's traditional use of documents is that it is undertheorized in comparison to how documents are used in the social sciences in that historians do not usually develop a theoretical framework through which to interpret documents or do not generally make any underlying assumptions explicit (McCulloch, 2004).</p> <p>Different approaches tend to be taken to document/archival analysis in the social sciences. If the document is considered a 'container' of information then this information is usually subject to a systematic analysis which can be done using a variety of methods, e.g. content analysis, biographical analysis, thematic analysis, narrative analysis, discourse analysis, semiotic analysis etc. (Bryman, 2016; Prior, 2012).</p> <p>Another approach is when the document is itself considered to be the topic of interest and a key point in this approach is that the document itself is</p>

considered to have some agency (Prior, 2012). This approach is seen in 'geographies of knowledge' in history and the historical sciences and in network theory approaches (e.g. Actor Network Theory) in sociology (Prior, 2012). These approaches will include studies that look at how documents are used in social interaction, how they create or reflect a worldview and how they are used to reinforce it (Prior, 2012), in other words, a document is thought to be an active thing in the world (actant) not a passive source of information.

Current Use and Applications

In archaeology, archival research is often used to locate archaeological sites and can also be undertaken prior to excavation to gain a better understanding of a site. For example, historic travel accounts and sketches, as well as original discovery reports have been used to re/locate some prehistoric archaeological sites in the Maltese Islands (e.g. Borg and Grima, 2010); and Gambin used a combination of ancient maps and old photographs alongside soil sampling techniques to reconstruct past coastlines and harbours (Gambin, 2003). Additionally, archival research is an essential component of historical archaeology, not only in locating sites (e.g. WWII shipwrecks) but also in providing background context and furthering understanding.

Archival research is also a well-used technique in cultural heritage management where, for example, historic images and archived reports on past conservation interventions can be used to chart changes sites or objects may have undergone over time and therefore to inform management decisions.

In social sciences, document analysis is a widely used technique. It can be used alone or in conjunction with other methods (e.g. oral life histories or interviews) and in different disciplines (e.g. ethnography, policy analysis).

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9 Interviews

Name of the tool	Interviews
Pillar(s) <i>Please indicate the most relevant pillar</i>	Space, Place and Identity
Author(s)	Alexandra Baixinho Cristina Pita Margarida Silva
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Interviewing is a procedure used for collecting data through verbal interaction, in direct contact between an interviewer/researcher and one (or more) respondent/research participant(s). An interview is a 'conversation with a purpose' (Webb and Webb, 1932).</p> <p>The main goal of interviews is to elicit the experiences, views, and ideas of research participant(s) (Bernard, 2006; Matthews & Ross, 2010; Kumar, 2011).</p> <p>Interviews are particularly useful as a tool to get in-depth information on the respondent(s) perspectives, through their own accounts. Interviews can take place either face to face or at a distance, via telephone or internet. They can be applied either with a single research participant at a time (Individual interview) or with a group of people (Group interview) (Creswell, 2013).</p> <p>There are different types of interviews, which vary along a continuum, according to their degree of structure and standardization, between structured (more formal/standardized) and unstructured interviews (more flexible and informal), as further detailed below. Semi-structured interviews lay between these two types.</p> <p>The <u>structured (or formal) interview</u> is based on pre-determined questions and standardized techniques – the number and nature of questions, order of asking, wording of questions, etc. are standardized. The questions are mostly close-ended. In standardized interviewing, interviewers must always read questions, response options, and instructions to respondents exactly as they are scripted (Curriman, 2008).</p> <p>The key advantages of structured interviews are uniformity and precision. They are easier to administer and are less conditioned by interviewer's bias.</p> <p>The <u>unstructured (or informal) interview</u> allows greater flexibility in the number, form, and sequence of questions. Here, the interviewer has more freedom in adjusting the wording and order of questions, according to the level and conditions of the research participant, and to the context in which the interview takes place. In this type of interview the emphasis is set on the purpose, rather than the form, and the questions are mostly open-ended. The interviewer is also allowed to explore themes that have not previously been considered and to follow up the responses that are given (Kumar, 2011).</p> <p>Unstructured interviews are well suited to obtain rich data, namely with regards to complex or sensitive issues, and are useful to building theory (ECA,</p>

2013). Unstructured interviews are also called in-depth interviews, and a lot of what is called ethnographic interviewing is unstructured (Bernard, 2006; HM Treasury; 2003).

Most commonly, in qualitative research approaches, interviews tend to be semi-structured, containing a mixture of the two interview types. Semi-structured interviews are a more flexible and conversational interviewing approach than structured interviews, since interviewers can clarify question meanings to respondents (or adjust their wording), whenever they perceive respondents are having difficulty understanding a question (Ayres, 2008; Curriman, 2008).

This type of interview involves the use of a flexible interview guide, with key questions or topics, set according to the research questions and conceptual models (Ayres, 2008; Morgan & Guevara, 2008; ECA, 2013). Here, participants are more likely to be viewed as meaning makers, than as passive conduits for retrieving information from an existing vessel of answers (Warren, 2011).

In semi-structured interviews, the researcher has more control over the topics of the interview than in unstructured interviews. Simultaneously, the advantage with regards to structured interviews is that there is no fixed range of responses to each question (open-ended questions) (Ayres, 2008).

Development (and ownership, if appropriate)

Qualitative social sciences – in which interviews are a key research tool – have been using this method since the late nineteenth-century. Therefore, interviews are a well-established research method, recognized by academics, market researchers and governments (Matthews and Ross, 2010).

Current Use and Applications

The ability of interviews to explore issues in depth and capture diversity, as well as their concern with context, and their focus on exploring meanings, is key in promoting a better understanding of what people think, feel, or experience, and also how policies operate, are implemented, their processes and outcomes (HM Treasury; 2003).

Interviews are currently being used in eliciting shared values in Ecosystem Assessment/ Landscape Management (integrating nature conservation, cultural and social regeneration), with interpretative and potentially deliberative purposes (Kenter et al, 2014).

The use of interviews (including Photo-based Interviews) is also vastly documented in CH and Tourism studies (Richardson & Munsters, 2010; Wilson and McIntosh, 2010).

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10 Inventory

Name of the tool	Inventory
Pillar(s) <i>Please indicate the most relevant pillar</i>	Risk, Resilience and Adaptation
Author(s)	Stephanie Bardel-Ménard (Heritage Inventory Office of Brittany Region) Erwana L'Haridon (Heritage Inventory Office of Brittany Region) Translator French – English (Regional National Park of Morbihan Gulf – Irène Béguier)
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>The General Inventory of Cultural Heritage "shall make a list, study and make known those elements of the heritage that are of cultural, historical or scientific interest" (Art. 95, I). This regional authorities' competence in France is enshrined in Act No. 2004-809 of August, 13th, 2004 relating to freedoms and responsibilities.</p> <p>The investigation's field is vast and covers all properties created by man throughout the national territory: architectural heritage, railway heritage, school heritage, maritime heritage, tangible heritage, etc., whether public or private, over a period ranging from the 5th Century AD to 30 years before the date of the survey.</p> <p>The Inventory is based on the observation of "in situ" heritage elements. The analysis of the collected data is enriched by consulting bibliographic and archival sources.</p> <p>Prior to any Inventory operation, the scientific and technical specifications make it possible to define the means, objectives and expectations of an Inventory operation.</p> <p>Collected data and heritage analyses resulting from the Inventory operations have to be communicated: they are public data. These data are formatted according to national standards to allow for better interoperability.</p> <p>Although not subject to regulatory and/or legal constraints, Inventory regional services are requested to participate in the preparation of urban planning documents: revision of local urban planning plans (PLU), studies of protected sectors, architectural and heritage enhancement area (AMVAP) projects, etc. The urban planning services of some large cities use the Inventory to feed Geographical Information Systems (GIS) in order to ensure the best possible management of their heritage.</p> <p>More broadly, Inventory regional services work within the framework of agreements with public, associative or private actors: county councils, municipalities and communities of municipalities, natural parks, etc.</p> <p>Development (and ownership, if appropriate)</p> <p>The General Inventory is based on methods developed nationally, defined in specialised publications (descriptive systems, etc.) and according to</p>

standardised vocabularies (thesauri, principles of scientific analysis) which guarantee, at national level, the homogeneity of the study methods and the results recorded on a database shared by all French Regions.

25 Regions of France have joined forces to lead the project named, Group Study, Technical Research, Production and Use of the Electronic Dossier (GERTRUDE). This project made it possible to define, develop and implement a solution for the production, management and dissemination of Inventory works.

Current Use and Applications

"Making list, studying, making known": 3 essential steps in the Inventory process.

Census is the fundamental step in an investigation. This is the field work. The data collected during the census are then analysed and used to build the heritage studies during the "studies" phase.

The "making known" concerns the dissemination of studies on the websites of the Brittany Region (heritage.bzh) and the Ministry of Culture and Communication, or during communication activities (e.g. book publication).

Un outil numérique de recensement du patrimoine créé en Bretagne.

To assist in the census, an application was developed within the regional authority of Brittany in 2015. Easy to use, it allows a cartographic visualization of the collected data <http://kartenn.region-bretagne.fr/patrimoine/>.

The study phase uses the **Gertrude** database: description, history, monographs but also analysis of heritage and understanding of use changes are completed by iconographic documents (plans, surveys, photographs, archival documents, etc.).

11 izi.TRAVEL

Name of the tool	izi.TRAVEL		
Pillar(s) <i>Please indicate the most relevant pillar</i>	Deliberative Governance	and	Participatory
Author(s)	Jordi Vegas Macias		
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>izi.TRAVEL is an open and free online storytelling platform at global scale with the purpose of the democratization and promotion of cultures and territories. Its aim is to provide museums with easy tools to create audio guides and create added value around heritage, both inside and outside the museums. Also, it allows users of the platform to become either storytellers or consumers of the audio guides, and more audio tours can be developed. It also uses GPS location and QR codes to enhance users' experiences.</p> <p>More information is available at:</p> <p>https://www.youtube.com/watch?v=GHLvz2kyYPA&feature=youtu.be</p> <p>izi.TRAVEL has the vision to develop smart cities linked to cultural heritage and provide unlimited stories:</p> <p>https://www.youtube.com/watch?v=LXWteaQmajl&feature=youtu.be</p> <p>Development (and ownership, if appropriate)</p> <p>Founded in the Netherlands in 2011 and launched in 2013.</p> <p>CEO: Alex Tourski</p> <p>Corporate: Informap Technology Center LLC</p> <p>Office HC-2, Tiger Tower1, Al Tawun St. PO Box 38098, Sharjah UNITED ARAB EMIRATES</p> <p>Current Use and Applications</p> <ul style="list-style-type: none"> - Storytelling creation – all users can narrate their stories or become a storyteller. - Free audio guides for any visitor. - New tool for museums, tours and exhibitions. - Participatory tool for different stakeholders to get involved in cultural heritage (Bonacini, 2018). 		

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12 Landscape Approach

Name of the tool	Landscape Approach		
Pillar(s) <i>Please indicate the most relevant pillar</i>	Deliberative Governance	and	Participatory
Author(s)	Elaine Azzopardi		
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>There is no single definition of a landscape approach, partly because the terms landscape is understood differently by different users and partly because there are numerous, diverse implementations of the approach (Brown et al., 2005; Sayer et al., 2013; Reed et al., 2015). The Landscape Approach developed to incorporate wider social issues in conservation efforts, but it is not a single unified approach, and a variety of frameworks for implementing it exist (Sayer et al., 2013; Reed et al., 2015). Sayer et al. (2013) have identified 10 guiding principles to which landscape approaches adhere, or should adhere.</p> <p>Broadly speaking, a Landscape Approach can be defined as “a framework to integrate policy and practice for multiple land uses, within a given area, to ensure equitable and sustainable use of land while strengthening measures to mitigate and adapt to climate change” (Reed et al., 2015, p.1). As the landscape approach represents a move towards a more people-centered approach to conservation, local community and stakeholder engagement is essential to any Landscape Approach (Sayer et al., 2013) (some call this stewardship).</p> <p>This is a paradigm/ framework/ broad approach rather than a tool although the Cultural Heritage Module is a tool developed within one of the Cultural Landscape Approaches (Walter and Hamilton, 2014). Other CLAs used pre-existing tools such as archaeological survey and ethnographic interviews.</p> <p>Development (and ownership, if appropriate)</p> <p>The Landscape Approach developed from the fields of conservation and landscape ecology in an effort to move away from siloed approaches to conservation issues to include social, economic and cultural concerns (Brown et al., 2005; Sayer et al., 2013; Reed et al., 2015). The concept is not a new one. A change in approach towards one that promotes a broader strategy and disciplinary integration to tackle ‘wicked’ problems has been traced back to the late 1970s, although it really gained traction in the 2000s (see tables in Brown et al., 2005; Sayer et al., 2013 for details).</p> <p>However, there has been a plethora of different approaches and frameworks put forward by different organizations and different researchers, to the extent that there are still questions surrounding what a Landscape Approach really is (Reed et al., 2016). In an effort to bring some clarity, Sayer et al. (2013) suggested ten guidelines that underpin a Landscape Approach. They also point out that Landscape Approaches are process rather than project oriented and do not have a fixed end point but rather develop in real time. Therefore, constant monitoring and adapting of the approach is essential as is</p>		

quality engagement of local stakeholders (Sayer et al., 2013).

The **Protected Landscape Approach** as defined by the IUCN (Brown et al., 2005) appears to be a particular iteration or implementation of a Landscape Approach that specifically includes cultural heritage protection as well as biodiversity and sustainable resource use (Brown et al., 2005). It is not intended to replace systems that designate protected areas but rather to complement this process and links to designations such as the IUCN Category V Protected Area which explicitly recognises human influence in producing a distinct landscape, and UNESCO's World Heritage Cultural Landscapes (Brown et al., 2005).

The concept of Cultural Landscape has a long history and has been used in geography since the 19th century. However, it wasn't until the 1970s and 1980s that interest in the concept grew and it was taken up by other disciplines (Jones and Daugstad, 1997). In this sense, the emergence of the concept in more recent times parallels that of the Landscape Approach. As is the case with a Landscape Approach, the term Cultural Landscape is a complex one that does not have one single meaning or associated approach, rather it encompasses multiple approaches based on differing ideologies and values (Jones and Daugstad, 1997). Jones and Daugstad (1997) trace different usages of the term in a Norwegian context and show that while the different uses do have some similarities, emphasis and conceptualization (and underlying values) do differ depending on the user groups.

The **Cultural Landscape Approach** described by Walker and Hamilton (2014) is a Landscape Approach based on "the construction of a conceptual model of environment that reflects the indigenous perceptions of landscape" (Walker and Hamilton, 2014, p.1). The framework was developed following consultation with local communities, during which they found that the conservation of cultural heritage was of greatest interest, as opposed to the focus on biodiversity of most conservation organisations (Walker and Hamilton, 2014). The methodologies used in this approach are from archaeology and historical anthropology (Walker and Hamilton, 2014) and a tool within this framework is the Cultural Heritage Module. This tool essentially consists of a series of workshops where local stakeholders are taught basic recording and management skills to allow communities to develop their own management systems. This is then linked to participatory mapping of landscape features that provide cultural services and stakeholders design management programmes for important sites.

A Cultural Landscape Approach is taken by Blue et al. (2014) in their project Maritime Footprints which combines archaeological and ethnographic methods (e.g. surveys, interviews and an overview of recent maritime traditions) to explore the changing maritime cultural landscape in Masirah, Oman. In this project, they focussed on documenting local maritime traditions before they disappear (over-taken by larger motorised boats etc.) rather than looking at resilience or means of preserving this heritage.

A Cultural Landscape Approach is also advocated by Vakhitova (2015). In this approach, cultural heritage is considered "as a culturally significant, inhabited, and changing landscape", and the author argues that the approach

“allows enhancing both intangible and tangible dimensions of cultural heritage and, therefore, encourages a more inclusive consideration of diverse cultural heritage values (encompassing social and environmental categories, e.g. well-being, health)” (Vakhitova, 2015, p.217).

Current Use and Applications

The Landscape Approach concept is widely used, although it is not always identified as such (Reed et al., 2016). The use of the Landscape Approach is not restricted to conservation but is also being used in heritage management and in the fields of archaeological/anthropological research through frameworks like the Protected Landscape Approach and the Cultural Landscape Approach, both of which would be interesting for PERICLES. However, the Cultural Landscape Approach described by Walter and Hamilton was developed to include local values following on local consultation and therefore should not be applied uncritically. The approach taken in PERICLES with a focus on tangible and intangible heritage as well as on participatory governance seems to align with iterations of the Cultural Landscape Approach, well even if the project was not intentionally designed to do so.

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13 Narrative Approach

Name of the tool	Narrative Approach	
Pillar(s) <i>Please indicate the most relevant pillar</i>	Risk, Resilience and Adaptation (Most Appropriate); Space, Place and Identity	
Author(s)	Laura Ferguson	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>The narrative approach is an in-depth qualitative approach that can be applied in the investigation of landscape perceptions. Based on theories of place attachment and landscapes as societal constructs, the narrative approach is used to expose contrasting stories about what a landscape is, what characteristics are attached to it, and what it means when it is altered by change.</p> <p>Development and Ownership</p> <p>The narrative approach is an analytical tool from sociological studies that was developed for use in climate change adaptation planning by Kospel et al. (2017), who used landscape narratives in practice to bridge the gap between the theoretical considerations of constructivist landscape research in the academic realm and the policy relevance of different landscape constructions amongst practitioners in landscape management.</p> <p>Drawing on qualitative interviews with decision makers from landscape management organisations in Cornwall in the United Kingdom, Kospel et al. (2017) discovered local narratives about Cornwall's landscapes as natural systems, human–environment interaction and spaces of production. These constructions were in contrast to each other and to the way in which the region was portrayed by its Council.</p> <p>They identified three distinct narratives of Cornwall's landscapes: landscapes as natural systems; landscapes as lived-in places; and landscapes as spaces of production. The <i>natural landscape</i> narrative viewed the natural ecosystem as precious and under the stewardship of people. It most closely reflects traditional notions of conservation. The <i>lived landscape</i> narrative expressed closer ties between the natural and the man-made, with the two perceived as intertwined and the natural having a role in the distinctiveness of the local human system. From the lived landscape narrative, a need was identified for landscape management to adapt to change, while preserving local distinctiveness through sustainable human activities in the landscape. Finally, in the <i>productive landscape</i> narrative the romanticised form of heritage preservation was perceived as a barrier to keeping people working on the land and making economic progress on it. Typically, the productive landscape narrative expressed low landscape attachment.</p> <p>Kospel et al. (2017) concluded that this understanding could be used to inform dialogue that can be debated and integrated into adaptation strategies for an interdisciplinary approach to joint landscape management.</p>	

Current Use and Applications

While a relatively new approach that has not yet gained wide use in practice, the narrative approach has been applied by Kospel and Walsh (2018) at Godrevy Headland in Cornwall. Here, coastal erosion required the relocation of a visitor car park and there was conflict between individual and collective views. The question of for whom the landscape should be accessible represented a key issue of contention. The conflict arose because landscapes have different meanings and are used for different purposes among different people, and conflict is also more likely when the landscape is undergoing change. Applying the narrative approach demonstrated that different understandings of the Cornish landscape at Godrevy Headland have material implications for how issues of access, visitor management and long-term responses to climate change and coastal erosion are addressed. Their findings can be used to lay the foundation for collaborative dialogue, and have emphasised the importance of how landscapes are understood by actors in environmental management and decision making, and the value of applying a narrative approach to identify the contrasting landscape perceptions.

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14 Oral History

Name of the tool	Oral History	
Pillar(s) <i>Please indicate the most relevant pillar</i>		Space, Place and Identity
Author(s)	Alyne Delaney	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Oral history is the collection and study of historical information using interviews with people having personal knowledge of past events. These are often recorded and like many interviews can be analysed with discourse analysis.</p> <p>A key point of oral history is that through the interviews the researcher strives to obtain information from different perspectives, most of which cannot be found in written sources. This is often combined, however, with archival and documentary research. Similar to anthropological and ethnographic interviewing, with oral history, the researcher is working to uncover emic perspectives, experiences, and knowledge.</p> <p>A common form of oral history is life history. Well known life history topics have included the Great Depression, slave narratives, WWII, etc. For coastal and maritime cultural heritage, life and oral histories could include how women used to work in traditional industries, how traditional boats were built, how mariners worked and lived aboard ship, etc.</p> <p>Development (and ownership, if appropriate)</p> <p>Early efforts to collect oral accounts of the past include the thousands of life histories recorded by Federal Writers Project [FWP] workers during the late 1930s and early 1940s (USA). An agency of the New Deal Works Progress Administration, the FWP was deeply populist in intent and orientation; the life histories were designed to document the diversity of the American experience and ways ordinary people were coping with the hardships of the Great Depression. The best known of the FWP life histories are the "slave narratives" elicited from elderly former slaves living in the South; other narratives were collected from a variety of regional, occupational, and ethnic groups.</p> <p>Historians, however consider oral history as a rigorous method as beginning with the work of Allan Nevins at Columbia University. Nevins was the first to initiate a systematic and disciplined effort to record on tape, preserve, and make available for future research, recollections deemed of historical significance.</p> <p>Early interviewing projects tended to focus on the lives of the "elite"- leaders in business, the professions, politics, and social life (such as with Nevins research on President Grover Cleveland). But oral history's scope widened in the 1960s and 1970s in response to both the social movements of the period and historians' growing interest in the experiences of "nonelites." Increasingly, interviews have been conducted with blue-collar workers, racial and ethnic minorities, women, labour and political activists, and a variety of</p>	

	<p>local people whose lives typify a given social experience.</p> <p>Two main branches are in history and ethnology/folklore studies.</p> <p>Current Use and Applications</p> <p>Oral history is used extensively to uncover history of non-elites and in changing societies and lifeways.</p>
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15 Participatory and Deliberative Governance Mechanisms

Name of the tool	Participatory and Deliberative Governance Mechanisms	
Pillar(s) <i>Please indicate the most relevant pillar</i>	Deliberative and Participatory Governance	
Author(s)	Laura Ferguson	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Participation in governance involves citizens taking part in collective decision making (Fiorino, 2016), and it is a defining feature of good governance (UNDP, 1997; van Doeveren, 2001; Lockwood, 2010; Prager et al., 2015). All stakeholders should have the opportunity to participate in decision-making and exert influence in it, and there ought to be particular efforts to include marginalised or disadvantaged stakeholders (Lockwood, 2010). Participation need not necessarily be direct, but could be through representation by intermediate institutions (UNDP, 1997).</p> <p>Participation in the decision making process empowers people (Pollock, 2004) and strengthens democracy (Fiorino et al., 1990). The direct participation of citizens and other stakeholders can also be a tool in resolving, or even preventing, conflict over decisions (Boedeltje and Cornips, 2004; Stoll-Kleemann and Welp, 2006; Bouwma et al., 2010; Reed and Sidoli del Ceno, 2015). The input from multiple sources has numerous benefits, including improvements in quality of decisions, relationships and valuing of diversity, and greater capacity for managing problems (Beierle and Konisky, 2001; Lockwood, 2010).</p> <p>Social capital, based on the degree of connectedness and standard of social relations (Liu et al., 2014), is increased by participatory processes (Putnam, 1993), and the trust, shared norms and common rules make governance more sustainable (Healey, 1998). The sense of shared ownership generated by participatory methods can foster creativity (European Commission, 1996), generate more effective conservation (Backstrand, 2006) and increase the chance of successful policy implementation (Thomas and Middleton, 2003). The two-way learning process is a driver of community development (Chalker, 1994) and a support to management (Renn et al., 1995; Thomas and Middleton, 2003).</p> <p>Despite these benefits and being described as “the optimum approach” (Pollock, 2004, p.32), there is little evidence in support the long-term effectiveness of participatory mechanisms in governance (Cleaver, 1999; Fiorino, 2016). Furthermore, some instances of shared decision making have been declared unsuccessful (Berkes, 2004). Often, this is a result of failure during implementation, for example lack of community commitment during the process (Songorwa, 1999). Other issues that may result in complications include the subjectivity of public opinions (Shin and Jaakson, 1997; Bunruamkaew and Murayama, 2011), the homogenization of the group as a single entity in participatory processes (Agrawal and Gibson, 1999; Cleaver, 1999; Cooke and Kothari, 2001; Gray, 2003; Berkes, 2004) and problems surrounding access to the participatory processes (Carver et al., 2001; Heywood et al., 2001; Burns, 2012).</p>	

Development and Ownership

Participatory governance mechanisms are associated with a shift from top-down to bottom-up governance (Backstrand, 2006) and the distinction between governance and government (van Doeveren, 2001). This has become increasingly common since the 1990s (Prager et al., 2015), coinciding with the move away from hierarchical systems to participatory bottom-up approaches based on active involvement of communities collaborating in governance of their area. Gunningham refers to the “new governance” (p.145), that involves “dialogue and deliberation, devolved decision-making, flexibility rather than uniformity, inclusiveness, transparency, institutionalized consensus-building practices, and a shift from hierarchy to heterarchy” (Gunningham, 2009, p.146). New styles of governance blur the boundaries between the public and private sectors, and national and international levels (Jordan et al., 2003). Increasing trends towards such participatory governance, involving multiple stakeholders and interaction at the local level, are expected in the coming years (Oviedo and Brown, 1999). This bottom-up governance is argued to be more responsive, legitimate and effective than top-down governance because decisions take into account local circumstances, knowledge and values, as well as creating a greater sense of stakeholder ownership (Gunningham, 2009).

Current Use and Applications

Participatory governance mechanisms may take the form of gatherings, or other methods such as surveys and interviews that reach out to individuals rather than requiring them to come forwards.

Types of gathering include focus groups, consultations or hearings, citizen panels and deliberative workshops. The value of group mechanisms is in their interaction and collaborative decision making, although the extent to which participation equates to sharing in governance varies between types. At the weaker end of the spectrum are the consultations and focus groups, at which participants can voice their opinions but do not necessarily lead to policy creation. Deliberative workshops, a hybrid between consultation and research, provide participants with greater decision authority. They resemble focus groups, but provide the opportunity for participants to find out more about the topic, consider relevant evidence and discuss with other participants before presenting their view.

Citizen panels are another deliberative mechanism. Based on the jury model, they allow the public to participate in technical decisions. The process is designed for application to single issues, and involves testimony, questioning and deliberation before the panel reaches a conclusion. Though the format is participatory and the examination is rigorous, only a small proportion has access to a citizen panel and the issue for deliberation is restricted to the topic of debate (Fiorino, 2016).

Negotiated rulemaking is a participatory mechanism employed by American government agencies that to date has seen little use outside of the United States. In negotiated rulemaking, also known as multi-stakeholder engagement, an agency and other parties with a significant stake in the outcome participate in facilitated face-to-face interactions designed to produce a consensus. All parties must consent to a decision before it reflects a consensus (Fiorino, 2016). Although it is a highly deliberative method, it has been criticised for subverting the wider public interest for the interests of special interest groups (Funk, 1997).

Participatory governance should allow citizens to share in governing and co-determine policies in collaboration with government (Fiorino, 2016). The Queensland Government in Australia introduced Community Cabinet meetings in 1998 as part of a democratic reform policy, creating a platform for face-to-face discussion over an extended time period. A noteworthy example of a participatory governance mechanism, there were designed to bridge the gap between policymakers and the people by combining community forums, formal meetings and informal discussions (Reddel and Woolcock, 2004). Reddel and Woolcock distinguish the Queensland example from traditional approaches for its use of informality and less organised arrangements. The extension of government to the citizens was met with a high level of satisfaction when participants were surveyed in 1999, with even those who did not achieve their desired outcome feeling that they had been acknowledged and made part of the decision-making process.

Engagement in the form of surveys, interviews and initiatives are more remote forms of participatory governance than the group processes. In these, participant views are gathered without deliberation. While there is no forum for debate or discussion, they are useful as complementary to other forms of participatory governance, to provide a more broad and representative indication of public opinion that can be taken into account in decision –making.

Surveys are inexpensive and can be widely distributed, either in printed or digital form. They are an efficient and effective means of gathering information from multiple perspectives, particularly what Clement and Cheng (2011) refer to as the “silent majority” (Clement and Cheng, 2011, p.393) who are unlikely to attend community meetings and can be challenging to engage. One of the main issues regarding surveys is that response rates are often low. This can be improved to a certain extent through the persistence measure of a second mailing, but apathy is difficult to overcome (Ferguson, 2017).

Interviews gather a greater level of detail than surveys, and have potential to develop lines of enquiry that may not previously have been considered, providing a more detailed understanding. They may be fully-structured, semi-structured or unstructured. The less structure, the greater control the interviewee has over the direction of the interview.

Initiatives allow anyone to place an issue on the ballot for approval by vote, the outcome of which determines policy. While not a deliberative exercise, the process is equal and inclusive, can be deployed at various administrative scales and is the only mechanism by which citizens exercise full decision authority (Fiorino, 2016).

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16 Participatory Mapping

Name of the tool	Participatory Mapping	
Pillar(s) <i>Please indicate the most relevant pillar</i>	All Three Pillars. Most Relevant: Space, Place and Identity	
Author(s)	Laura Ferguson	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Participatory mapping, or community-engaged mapping (Burns et al., 2012), involves the identification, recording, classification and analysis of heritage resources in a place-based approach through methods based on public participation. The consultation of local people who live and work in the landscape can uncover a wealth of information on known and previously unknown heritage, including personal experiences and values (La Frenierre, 2008).</p> <p>The acquisition of information on perceived value can be achieved by asking participants to assign a numerical value or category to features. The mapping of values can be complex, as the value of heritage assets is largely subjective and subject to influence from a various characteristics and experiences. Howard (2003) uses the analogy of an optician putting lenses in front of the eye which distort the view. These lenses include characteristics such as nationality, gender, ethnicity, class, religion, poverty, 'insideness' (the extent to which a person is part of the community or just a temporary resident or visitor), expertise and age. Collective valuation captures the spectrum of perceptions, however this synthesis of opinion can also lead to the misrepresentation of communities as homogeneous entities with a single set of shared understandings (Agrawal and Gibson, 1999). Unfortunately, while a multidimensional, cross-scale approach would be more representative of communities in reality, characterising it is a challenging prospect (Carlsson, 2000).</p> <p>Development (and ownership, if appropriate)</p> <p>There are a range of different participatory mapping tools that have been developed for use in gathering information, from simple surveys, interviews or community-engaged mapping based on focus groups, to geo-crowdsourcing techniques and Participatory 3-Dimensional Modelling (P3DM). As every area is unique in terms of its cultural heritage, available resources and stakeholder networks, the methods and tools chosen should reflect the needs and resources of individual situations.</p> <p>Paper mapping can be as simple as asking participants to mark the geographic location of heritage feature with a pen, sticky dots, tags or push-pins on a map. Spatially classification clarifies the areas to which heritage features relate, removing the ambiguity of representing all as point data. Wall (1997) suggests classification as point attractions, linear attractions, which adhere to a narrow strip of land or transportation corridor, and areas, which are widely dispersed and can be represented by polygons. Mapping intangible assets can be difficult, and requires agreement on how they can be anchored to physical features or locations.</p> <p>One of the more recent spatial methods to be developed is Participatory 3-Dimensional Modelling (P3DM), which integrates participants' knowledge with 3D spatial information (La Frenierre, 2008). First, a 3D model of the area is created. Then participants are invited to take mental transect walks of it and discuss and map the cultural heritage assets as they go. P3DM helps participants describe their area's cultural heritage features, as it is easier to visualise the landscape using a 3D map, especially if participants have limited experience of working with 2D</p>	

maps (La Frenierre, 2008).

Cultural heritage can also be mapped non-spatially, for example using diagrams, flow charts, words or art. Diagrams are useful for systematically presenting complex and abstract information (Lowe, 1993). Resource framework diagrams feature five or six main categories with sub-categories leading off from these, offering a visual dimension to locate heritage features and identify how they are related (Millier Dickinson Blais, 2014). Ketso (<http://www.ketso.com/>) is a dynamic schematic method of participatory mapping. Coloured paper leaves represent different questions. Branches are created for different categories, such industrial heritage, social history and local people, and participants write their ideas on the leaves. They then share their ideas in groups, moving the leaves or branches to best represent group consensus.

Digital mapping applications can also be used to gather information from participants, and some of these are available free of charge, including My Maps, Mapline, WikiMapia and Community Walk. My Maps (<https://www.google.com/maps/about/mymaps/>) is a free application offered by Google which includes street maps, Street View, satellite imagery and route planning. Pin markers are customisable, photos or comments can be attached to pins, and maps can be accessed by multiple users, or made open to public access if required. In addition to these basics, Mapline (<https://mapline.com/>) has a range of more sophisticated mapping features, including sub-layering, radial hotspot mapping of clusters and overlaps, and a suite of territories to choose from for boundary lines. It also allows users to plot multiple locations in a single step. WikiMapia (<http://wikimapia.org/>) is focused on community creation. It lets users explicitly mark points, lines and polygons to indicate places of interest. Users can edit and vote on places mapped by others, although new entries must be approved by other users. As it is open content, WikiMapia is also a potential secondary data source. Community Walk (<http://www.communitywalk.com/>) is simple local mapping interface, based on Google Maps. Best for small communities, due to the restriction of 100 pins per map, Community Walk offers the options to add photos, comments, audio and interactive media.

Maptionnaire (<https://maptionnaire.com/>) is distinct from these applications for the level of analysis it allows, and also in that there is a charge for its use. It is a simplified online PPGIS participatory mapping tool, designed for use by those without GIS expertise. This is highly beneficial, as the requirements for significant investment in time and costly GIS expertise have been considered key barriers to its implementation (Korte, 1997). Users create a map-based questionnaire that is answered by community members. This can be designed to include questions to gather opinions and values. The data is then analysed and visualised in Maptionnaire, but can also be downloaded for use in all major GIS software.

Current Use and Applications

Participatory mapping is frequently used in tourism development, adaptation planning, to support community development initiatives, and to understand or celebrate sense of place.

There are varying approaches to participatory mapping of cultural heritage that frame the range of assets captured, from the comprehensive whole assets approach in which everything is mapped and the area is represented as a functioning system (Fuller et al., 2001), to more specific approaches that focus on a single purpose or specific theme. Mapping by theme, for example, may be useful for clarity in management or for marketing purposes. Themes might include traditional food, archaeology, links with literature, or links to certain industries. By focusing on a single topic, participants' thinking is more directed and this may result in more features being identified, including some hidden assets.

The heritage approach is particularly appropriate to PERICLES as it focuses on features or spaces that are connected to community identity (Fuller et al., 2001). It is a participatory approach in which community members are invited to identify features that make their community special. These can be parks, historical buildings, remnants of a former industry, or almost anything to which the community can have a connection. The aim is to produce a unique account of features that local people identify with, and is closely identified with theories of sense of place and as a counter-measure to placelessness, both of which are predicated on the idea that place is where location meets human meaning (Malpas, 2008).

The storytelling approach is another variation in cultural mapping described by Fuller et al. (2001) that differs from the heritage approach, primarily due to its stronger connection to intangible heritage. Most often based on oral history, this method can be used on its own or as part of a broader heritage mapping strategy. Its applications include the preservation of an area's social history, the enhancement of the community attachment to an intangible heritage feature, and the development of tourism products.

The Sandhills Family Heritage Association (SFHA) in North Carolina, USA, used the storytelling approach in their participatory mapping. Established to protect the land and cultural heritage of African-American people in the area, the SFHA conducted storytelling mapping in 2003 by means of interviews with 130 elders and community mapping exercises. The results were used to preserve and regenerate African-American social and cultural heritage in Sandhills. A gardening project was established, bringing elders together with local young people to share agricultural traditions, such as medicinal herbs, and the community's first African-American farmer and craft market was opened on the site of a civil rights era community centre. A book of oral histories and photographs called "Preserving Our Family Heritage" was compiled, and the annual Sankofa Festival founded. By linking the intangible heritage to physical locations, such as land plots, gardens and other community sites, SFHA were also able to offer community heritage tours to visitors.

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17 PERICLES Online Mapping Portal

Name of the tool	PERICLES Online Mapping Portal
Pillar(s) <i>Please indicate the most relevant pillar</i>	All Three Pillars
Author(s)	Jasper Kenter
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>An important task within the PERICLES project is the development of a European online portal for accessing mapped data on cultural heritage. PERICLES is developing an interactive, multimedia online cultural heritage mapping platform to enable collection of data and analysis of the distribution of tangible and intangible cultural heritage. The aim is to generate a resource to better understand cultural heritage, particularly in the way that it is situated within marine and coastal land- and seascapes, provide an opportunity for citizens to engage with cultural heritage 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.</p> <p>The PERICLES portal will be 'up and running' in time for public access in summer 2019.</p> <p>The portal is being 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.</p> <p>The platform is multilingual to reflect participation across PERICLES' case regions (at least Danish, Dutch, English, Estonian, French, Greek, Irish, Maltese, 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 being 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.) 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.</p> <p>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 cultural heritage; 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.</p> <p>We expect material that will be displayed to be associated with one or more of the following:</p>

- *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 will be stored outside our server.

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 cultural heritage, and location within a marine protected area?’; or marking out multiple areas and comparing the relative cultural heritage within them, e.g. as counts of different types of cultural heritage. 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 cultural heritage (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.

This is also 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.

18 Proactive Collaborative Conservation (ProCoCo)

Name of the tool	Proactive Collaborative Conservation (ProCoCo)
Pillar(s) <i>Please indicate the most relevant pillar</i>	Risk, Resilience and Adaptation
Author(s)	Laura Ferguson
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Proactive collaborative conservation (ProCoCo) is a collaborative model, involving cultural institutions, conservation scientists and companies. Perzolla et al. (2018) developed the collaboration model through an innovative preventive conservation procedure that demonstrates a preventive, predictive and proactive approach to preservation. Its aim is to measure the conservation state of a traditional or innovative material and detect degradation at an early stage in order to minimize damage and improve the practice of handling materials in a manner that does not endanger assets which may become valuable in the future. In addition, the manufacturing companies gain comprehensive knowledge on the degradation of their materials.</p> <p>Development and Ownership</p> <p>ProCoCo is a new approach to heritage conservation that was proposed by Perzolla et al. (2018). The tool is in development and not yet widely used.</p> <p>Current Use and Applications</p> <p>Perzola et al's (2018) application of ProCoCo involves two conservation partners, one of these a conservation scientist and the other a private partner. No cultural institutions were involved at this stage of trialling the model. The two participants decided that the accelerated ageing protocols in this case were UV radiation, heat exposure, and heat and humidity cycling.</p> <p>Analysis was performed using non-invasive, destructive and non-destructive methods. The range of techniques used in ProCoCo is dependent on the research question and the relevancy and sensitivity of the technique to the ageing process. In this case, the variety of techniques employed involved photographic examination, image processing, 2D scanning, Spectrophotometry, Electron Microscopy (SEM), Energy Dispersive X-ray (EDX) spectroscopy, Fourier Transform Infrared (FTIR) spectroscopy and Kawabata Evaluation system (KES). These assessed variations in perceived roughness, colour, thickness and compactness, as well as the presence/absence of elements ascribed to flame retardants present in the composite matrix, changes in the molecular groups that occurred after exposure to the selected ageing conditions, and bending, compressional and surface properties. Tensile properties (ND and D) data were also collected.</p> <p>Statistical analysis was applied, leading to the identification of a list of degradation markers indicating that the worst effects were caused by heat and humidity cycling. This illustrates how the method provides early detection of degradation processes taking place within the material, allowing</p>

the relevant preservation techniques to be employed in a timely manner. This may prevent loss of heritage assets and reduce the need for expensive or environmentally harmful conservation practices required at later stages of degradation.

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19 Risk Analysis

Name of the tool	Risk Analysis	
Pillar(s) <i>Please indicate the most relevant pillar</i>	Risk, Resilience and Adaptation; Governance	
Author(s)	Elaine Azzopardi	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>The term ‘risk analysis’ can be defined and used differently and is sometimes used interchangeably with the term ‘risk assessment’ (e.g. Kohler, Julich and Bloemertz, 2004 https://www.unisdr.org/files/1085_enriskanalysischs16.pdf).</p> <p>The International Standards Organisation (ISO) understands risk analysis to be part of a broader risk assessment process that also includes risk identification and risk evaluation (ISO 31000 (https://www.iso.org/obp/ui#iso:std:iso:31000:ed-2:v1:en)) as do the ICCROM risk management guidelines (https://www.iccrom.org/sites/default/files/2017-12/risk_manual_2016-eng.pdf). The UN Sendai Framework for Disaster Risk Reduction (https://www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf) uses the term risk assessment as do other UNISDR guidance documents. However, the Society for Risk Analysis defines risk analysis to be the broader process that encompasses risk assessment (https://sra.org/sites/default/files/pdf/SRA%20Glossary%20-%20FINAL.pdf) and while this is not directed at heritage management, their definitions and use of terminology may appear in the literature.</p> <p>Development (and ownership, if appropriate)</p> <p>Recognition of the importance of protecting cultural heritage from risk has grown since the second world war and international bodies such as UNESCO, ICCROM, ICOMOS have all taken steps to protect cultural heritage at risk (Vecco and Imperiale, 2017). For example, in 1972 UNESCO adopted the <i>Convention concerning the protection of world cultural and natural heritage</i>, and in 2007 the World Heritage Committee adopted the <i>Strategy for reducing disaster risks at world heritage properties</i> (Pavlova et al, 2017). These strategies and the UN’s Sendai framework for Disaster Risk Reduction 2015-2030 (https://www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf) have been adopted worldwide and are used by international and national institutions (Pavlova et al., 2017).</p> <p>However, natural and man-made disasters are not the only risks to cultural heritage and the disaster-oriented approach has been critiqued in favour of greater awareness of other long term and cumulative processes that may also pose a risk to cultural heritage, and some authors have argued that these processes must also be taken into consideration in the risk assessment and analysis stages of a broader risk management strategy which should also include stakeholder engagement (e.g. Michalski and Pedersoli, 2016; Romao et al., 2016). Others have also been critical of an approach to heritage that uses a framework dominated by threat assessment, especially ones that are not congruent with local perceptions of cultural heritage (Rico, 2014).</p>	

A related concept in heritage management is that of preventive conservation (Ortiz et al., 2014; Wang, 2015; Michalski and Pedersoli, 2016) and while some argue that it is the main focus of heritage preservation (e.g. Wang, 2015), there has been a deliberate attempt by organisations such as ICCROM “to create an international shift in attitude from traditional preventive conservation practice to risk management within the heritage profession.” (Michalski and Pedersoli, 2016, p.11) because of the former’s emphasis on slower, cumulative processes which has been considered ‘risk blindness’ (Michalski and Pedersoli, 2016).

Risk assessment and risk analysis are both parts of a broader risk management process or risk management cycle; the core process is made up of three steps of identify, analyse and evaluate which together make the risk assessment (Michalski and Pedersoli, 2016; Romao et al., 2016). Analysis is considered to be the most technical part of a risk assessment and often involves quantifying risk (Michalski and Pedersoli, 2016) although taking a qualitative approach to risk analysis has also been advocated because of the difficulty in quantifying loss of cultural heritage (e.g. Romao et al., 2016). The steps in a risk management process are shown in the diagram below, based on information from Michalski and Pedersoli (2016).



Current Use and Applications

Risk analysis, risk assessment and preventive conservation are widely used tools in heritage management and preservation. They are used at multiple levels, from national organizations to local museums. Some risk assessment studies take a GIS based approach to produce risk maps which are used alongside vulnerability matrices to evaluate hazard probability (e.g. Ortiz et al., 2014; Wang, 2015; Historic Environment Scotland, 2017). However, other techniques such as multicriteria analysis, probabilistic models and environmental monitoring techniques can also be combined with a GPS based approach in the risk management process (Ortiz et al., 2014).

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20 Social Media Data Mining

Name of the tool	Social Media Data Mining
Pillar(s) <i>Please indicate the most relevant pillar</i>	Space, Place and Identity
Author(s)	Laura Ferguson
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Data mining utilises online data as a secondary source, making use of the significant body of existing information available online and removing the expensive and time-consuming data-gathering processes. Data mining as a method has been applied in fields such as bioinformatics, data warehousing, business intelligence, predictive analytics, decision support systems, and many others (Gundecha and Liu, 2012).</p> <p>Ensuring quality is one of the main issues associated with both primary and secondary online data (Mummidi and Krumm, 2008; Brown et al., 2013). Data quality may be reduced by mistakes or intentional falsehoods that are difficult to identify and can bias results (Heywood et al., 2001; Mummidi and Krumm, 2008). Wood et al. (2013) highlight three sources of bias that should be considered when analysing data from photographic mined data from social media such as Flickr: (i) uneven representation across social groups as some demographics are more likely to be taking digital photographs and uploading them to social media websites than others; (ii) some activities or features are more suited to photographic documentation than others; and (iii) there is a possible bias against those who travel shorter distances from home, who may be less likely to take or share photographs, irrespective of the comparative level of value they attach.</p> <p>Development and Ownership</p> <p>Statisticians and economists have been applying the related practices of data fishing and data dredging since the 1960s. The term data mining first appeared in the 1980s, but it was the 1990s before it was in common use. The advent of the internet, in particular the rise of social media and the dawn of the era of big data, have seen the growth of new methods to extract information from the growing volume of available data.</p> <p>Current Use and Applications</p> <p>Data mining can examine many types of data and information flow, and can vary from simple to advanced techniques. Data mining can be divided into two categories: direct and indirect data mining. The aim of direct data mining is to use the available data to create model with a description of variables. The aim of indirect data mining is to no choice of a specific variable, but to establish a relationship of all the variables. Classification, estimation and prediction are direct data mining; Association rule, clustering, description, and visualization are indirect data mining (Weiping and Yuming, 2013).</p> <p>In terms of cultural heritage applications, information from social media has been found a rapid and reliable means of quantifying visitation rates (Wood et al., 2013), appreciation of place (Gliozzo et al., 2016), and cultural</p>

ecosystem services (Richards and Friess, 2015). Social media results in vast amounts of user-generated content on a daily basis (Gundecha and Liu, 2012), can be used to help understand social behaviour or analyse social reactions.

Gliozzo et al. (2016) found that quantifying geo-tagged digital photos uploaded to social media was an effective metric for measuring degree of appreciation of a place. This was based on the premise that images will be captured by greater numbers of people in areas that are perceived as being of higher value. Their study of multiple online geo-referenced digital photograph collections in South Wales supports comparatively demonstrated the use of three photo sharing websites Flickr, Panoramio and Geograph. Flickr was concluded the most useful of these in terms of pictures and contributions. It was also found to be more focused on human environments and activities than Panoramio. Though it covers more territory than Flickr or Panoramio, Geograph was not considered as useful due to its use of leaderboards, rewards and games which could potentially skew results.

In addition to gaining understanding of values and appreciation of a place or heritage feature, data mining of social media can also be used to tailor recommendations for heritage sites, based on users' travel preferences (Majid et al., 2012).

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21 SWOT Analysis

Name of the tool	SWOT Analysis	
Pillar(s) <i>Please indicate the most relevant pillar</i>		Risk, Resilience and Adaptation
Author(s)	Laura Ferguson	
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>SWOT stands for Strengths, Weaknesses, Opportunities and Threats. A SWOT analysis is a simple framework for identifying these attributes (Pickton and Wright, 1998). Strategies are then developed that are aimed at building on the strengths, eliminating the weaknesses, exploiting the opportunities or countering the threats (Dyson, 2004). SWOT is a popular planning tool because it incorporates multiple factors to direct planners to a plan that fits best between the internal and external factors (Wickramasinghe and Takano, 2009; Kangas et al., 2001). SWOT can also be used when a strategy alternative suddenly emerges and the decision context relevant to it has to be analysed (Kangas et al., 2001).</p> <p>Strengths and weaknesses are internal factors, while opportunities and threats are external factors. Strengths are the attributes in which the area has good provision or outstanding quality. They might include a wealth of old buildings, outstanding heritage value or established popularity. Weaknesses are attributes in which the area is deficient, either by nature or through poor planning or other lack of facilities. These can identify gaps where improvements can be made. Weaknesses could be signs of deterioration, or lack of access. Opportunities are areas in which events or trends can be taken advantage of. This could include, for example, heritage trails development. Finally, threats are factors which may damage cultural heritage assets or limit their use, such as climate change or changing legislation.</p> <p>Development and Ownership</p> <p>As SWOT is a very simple method, it may not be sufficient on its own (Chang and Huang, 2006), and is often used in conjunction with other methods or as a hybrid approach with another method, such as the Analytic Hierarchy Process (AHP) (Kurttila et al., 2000; Ghazinoory et al., 2007; Fan and Xue, 2018). Known as A'WOT, the SWOT/AHP hybrid method improves the quantitative information basis of strategic planning processes (Kangas et al., 2001).</p> <p>A'WOT is comprised of five steps (adapted from Kangas et al., 2001):</p> <ul style="list-style-type: none"> • SWOT analysis • Pairwise comparisons between the SWOT factors are carried out separately within each SWOT group. With these comparisons as the input, the mutual priorities of the factors are computed. • Determine the mutual importance of the SWOT groups. • Evaluate the strategy alternatives with respect to each SWOT factor as in the AHP. • Calculate priorities for the strategy alternatives. 	

In A'WOT, SWOT provides the basic frame within which to perform the analysis of the decision situation, and the AHP helps in carrying out SWOT more analytically and in elaborating the analysis so that alternative strategic decisions can be prioritised (Kangus et al., 2001).

In recent years the SWOT analysis has also, in some cases, been enhanced by other, resource-based, planning approaches that develop the internal perspective whilst analysing internal and external perspectives simultaneously (Dyson, 2004).

Current Use and Applications

The outcome of a SWOT analysis is then used to direct strategic planning (Wickramasinghe and Takano, 2009; Reihanian et al., 2012). In relation to cultural heritage, SWOT analysis is particularly used in tourism planning (e.g. Wang and Jia, 2008; Butler et al., 2011; Porto et al., 2012; Farsani et al., 2012). It is also used in cultural heritage conservation planning (Assari et al., 2012), cultural heritage development planning (Fan and Xue, 2018) and cultural heritage communication strategy planning (Martin-Caceres and Cuenca-Lopez, 2016).

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22 Tools for Economic Valuation

Name of the tool	Tools for Economic Valuation
Pillar(s) <i>Please indicate the most relevant pillar</i>	All Three Pillars
Author(s)	Jasper Kenter
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Economic valuation consists of assessment of the economic value of a marginal change in a good or service, whether this be a market good, or a non-market good which is valued by the public but not traded as a commodity. In mainstream economics, value is considered as an ‘exchange value’; something is only as valuable as what we might want to give up for it in exchange. For example, we might be willing to pay a certain entry price to enjoy a heritage experience.</p> <p>Economics of landscapes and the environment distinguishes direct use values, indirect use values, non-use values and option values. Direct use values relate to consuming a product, after which it cannot be re-used in the way (e.g. eating seafood). Indirect use values relate to the enjoyment of a good without impairing the good, for example, the value of visiting a monument. Option value relates to the value of ensuring value for the future. For example, somebody may be willing to pay to ensure a monument is maintained, so it can be enjoyed again later. Non-use values include altruistic, bequest and existence values. Altruistic values relates to valuing the knowledge that somebody else has use of something, bequest value relates to valuing the knowledge that future generations may still have use of something, and existence values relate to the value of knowing that something exists regardless of its use.</p> <p>The importance of assessing these values lies in that management of our cultural land- and seascapes is costly, and many of these costs are born by the taxpayer or charities rather than private individuals or businesses. By understanding the value of conservation, or different types of management approaches, this value can be used as a measure of social benefit, to justify expenditure, or to help select ways of managing heritage which have the largest amount of benefits relative to cost. Economic valuation can also help understand who bears the benefits, vs. who bears costs, which relates to questions of environmental and heritage justice.</p> <p>Current Use and Applications</p> <p>Economic valuation assesses these values using assessment of market prices, revealed preference and stated preference approaches. Revealed preferences consider how much people might be willing to pay to travel somewhere (travel cost method) for the benefit of enjoying something, or how much house prices change relative to the view of or proximity to a good. For example, living in or near a conservation area can increase house prices, which reflect the economic value of the conservation in terms of its amenity to home owners. Revealed preferences only consider use values. Stated preference methods, which include contingent valuation and choice experiments, can also reveal non-use values. They do this by simulating a hypothetical market. For example, many cultural heritage goods are not</p>

commodified, maintained with taxpayers' money or protected by legislation (e.g. historic marine protected areas). A contingent valuation or choice experiment, typically administered through individual questionnaires, and sometimes in group-based workshops, could ask respondents how much they would be willing to pay to protect the good for the future, or reduce risks to its decline, or improve it (e.g. through improving facilities etc.). This approach is now common in the economics of nature conservation but has also been used on occasion in the cultural heritage sector, for example in helping decide whether maintaining monuments is worthwhile. In contingent valuation, a proposed policy is valued as a whole, whereas in choice experiments policy alternatives are characterized by different discrete characteristics which are each valued.

Conventional economic valuation methods have been critiqued on a range of grounds, including that people often have poorly formed preferences, and that their preferences or values might not meet the assumptions of mainstream economics. In general, but more particularly also in relation to cultural goods, we cannot assume that people consider their values in a way that is about rationally trading off different options to maximise one's individual, self-regarding utility or preference satisfaction. As such, new discourses have arisen around shared, plural, cultural and social values that are being mirrored in new methods and tools that are more geared towards social processes of deliberation, participation and learning. In terms of economic valuation, this has led to the development of a range of approaches under the name Deliberative Monetary Valuation. Here, people deliberate on their values and preferences in small groups (either members of the public or stakeholders, and sometimes also including policy makers), either to establish more informed individual values, but increasingly to collectively establish values around benefits and policy options, through consensus or voting. These approaches are particularly helpful where there are complex issues to be considered and where there are many potentially conflicting interests that need to be aligned through an approach that is perceived as inclusive and procedurally just by the public and stakeholders.

23 Visitor Management Tools

Name of the tool	Visitor Management Tools
Pillar(s) <i>Please indicate the most relevant pillar</i>	Risk, Resilience and Adaptation
Author(s)	Laura Ferguson
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Maintaining cultural heritage sites often requires measuring and monitoring visitor activity to ensure it remains within sustainable limits. There are a range of variations of visitor management tools to assist with this, most of which have follow on from the idea of carrying capacity, a term that has its origins in ecology. Carrying capacity refers to “the level of use beyond which impacts exceed acceptable levels specified by evaluative standards” (Shelby and Heberlein, 1984). In other words, it is the maximum level of tourism at which the environment and infrastructure is able to cope without harm. Negative impacts from the stress of over-visitation or poorly planned tourism include erosion of land, overdevelopment or poorly planned development of structures, pollution, littering, noise,, overcrowding at sites and facilities, and direct damage or vandalism to cultural assets (Brandon, 1996). Exceeding the carrying capacity also has a negative effect on the local people who feel overwhelmed and no longer welcome tourists, as well as on tourists themselves as services are stretched and resources overcrowded.</p> <p>Development and Ownership</p> <p>Carrying capacity assumes a known and fixed relationship between use or visitation level and impact that is not necessarily reflective of tourist behaviour in practice. Carrying capacity also changes whenever management parameters are altered and is therefore neither fixed nor comparable across management boundaries. Such factors have led to it being described as “complex and confusing” (Hall and Page, 2006, p.147). Nevertheless, some form of assessing and managing access is required if resources are to be preserved from overuse and misuse. On this basis, a number of other visitor management tools have developed.</p> <p>Limits of Acceptable Change (LAC) (Stankey et al., 1984) is an alternative methodology that stops short of the critical limit imposed by carrying capacity. It defines minimal accepted conditions in areas of conflicting interests, so that management can intervene if conditions approach that state. Determining asset condition for carrying capacity or LAC can be established by assessing how it has changed in relation to one or two key values (Rogers et al., 2013). Rogers et al. recommend the limit is set by local asset managers, as they are in the best position to identify them. When this threshold is reached or approached, it should trigger management intervention.</p> <p>Assessments of carrying capacity and LAC can be used to inform integrated tourism and conservation management strategies following one of several frameworks, including Tourism Optimization Management Model (TOMM), Visitor Impact Management (VIM), Visitor Experience and Resource Protection (VERP), Recreational Opportunity Spectrum (ROS), Tourism Opportunities Spectrum (TOS), Ecotourism Opportunity Spectrum (ECOS) and Protected Area Visitor Impact Management (PAVIM).</p>

The Tourism Optimization Management Model (TOMM) (Mandis Roberts Consultants, 1997) builds directly on the methodology of LAC to provide a management system. It monitors and manages tourism based on an LAC assessment, as opposed to the maximum carrying capacity, for a more sustainable outcome. TOMM combines knowledge, community values and opportunities with knowledge of optimal conditions and the point at which the limits of these are breached. Monitoring systems and management options are then built around these parameters.

Visitor Impact Management (VIM) (Graefe et al., 1990) is the development of plans to reduce visitor impacts. This is done with the objective of preserving both the resources and the visitor experience. Visitor management could involve dispersing tourists or restricting numbers to relieve stress on sensitive areas. Other strategies include visitor education policies (instructing visitors where to go and how to behave), mandatory guides for visits, or employing on-site guardians to monitor visitors. Physical changes might include installing basic facilities such as toilets and litter bins where needed, building or reinforcing paths, creating designated parking areas or increasing hotel stock.

Visitor Experience and Resource Protection (VERP) (Manning et al., 1995) is an alternative visitor management framework in which the limit is defined by the quality in condition of the resources and the main aim in visitor management is to enhance the quality of the visitor experience. This is a more visitor-oriented approach than solely managing impacts.

Recreational Opportunity Spectrum (ROS) (Clark and Stankey, 1979) was developed in the USA and is based on carrying capacities and managing within them. It does not focus on visitor numbers or amount of use, but on the level of biophysical and social harm. Its purpose is to manage recreational impacts by identifying which recreational activities can be sustainably undertaken in an area, which areas the visitors prefer, and which areas can withstand recreational use. In Canada, the broadly similar methodology of the Tourism Opportunities Spectrum (TOS) has been used (Butler and Waldbrook, 1991), and for ecotourism the framework was again adapted for the Ecotourism Opportunity Spectrum (ECOS) (Boyd and Butler, 1996).

Protected Area Visitor Impact Management (PAVIM) (Farrell and Marion, 2002) is a framework that is less expensive and simpler to implement. It is built on public participation by requesting stakeholders identify values and management zones, as well as stating development objectives and impacts that need mitigating. Placing the framework in the context of actual and potential use results in a tailored integrated management plan specific to local needs that involves stakeholders to achieve community goals. Such site-specific management planning has been praised as having far more value than generic planning methods designed for application everywhere (Alexander, 2008).

Current Use and Applications

Through the assessment strategies and management frameworks described, managers are directed to critical areas and can take appropriate action to preserve them and plan for their future use.

On example of visitor management tools being applied to cultural heritage was in Krakow Old Town. Krakow Old Town was the political centre of Poland between 1038 and 1596, and in 1978 was among the first sites to be inscribed on the UNESCO World Heritage List. It is one of the most visited places in Poland. Visitor management strategies based on VIM were employed in Krakow to manage numbers and preserve the Old Town. Visitors were encouraged to visit sites away from the Old Town through publicity and the development of other cultural sites outside this area. There was also the introduction of a timed booking scheme at the Royal Castle to limit the size of groups and times of entry. These strategies reduced visitor impact on this popular area.

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24 Visual Problem Appraisal (VPA)

Name of the tool	Visual Problem Appraisal (VPA)
Pillar(s) <i>Please indicate the most relevant pillar</i>	Risk, Resilience and Adaptation
Author(s)	Loes Witteveen
Please provide a brief synopsis of the tool	<p>Background Context</p> <p>Visual Problem Appraisal (VPA) is a film-based learning strategy with ethnographic, deliberative and artistic aspects, which aims to enhance the problem analysis of complex issues and to facilitate the development of actions. VPA creates a space for social dialogue that enhances the inclusion of underrepresented stakeholders (e.g., women, youth, ageing population, remote professions) and increases the quality of problem analysis and policy design as argued by Witteveen et al. (2009). VPA is applied in workshop settings focusing on learning and change. The core of a VPA is based on 'mediated stakeholder consultations'. Diverse stakeholder filmed narratives create platform to meet stakeholders of the area or indirect stakeholder in policy and management positions in a mediated manner to explore and act on competing or conflicting interests.</p> <p>A VPA set is to be used in diverse arenas such as policy making and education in a structured way, consisting of three phases: (1) A scoping stage where participants become familiar with subject matter and issues through facilitated individual and group study and deliberation; (2) A simulated stakeholder consultation, where participants select and view a selected number of interviews and provide feedback. 'Meeting' a number of stakeholders allows the participants to learn about the different perspectives of these interviewees and the way they frame their problems. (3) In an 'action' stage, participants interpret and organize confusing, contrasting, and contradicting information and formulate recommendations for action. This can take various shapes such as scenario development, policy design or elaborated project proposals. The lifetime of earlier VPA productions show a lengthy use as dynamic changes in the context do not immediately affect its relevance. This has especially been proven with VPA use in higher education in relation to learning about wicked problems and stakeholder dialogue.</p> <p>Development (and ownership, if appropriate)</p> <p>A VPA set is made up of a series of filmed stakeholder portraits and accompanying documentaries. The framework for a VPA to develop in in PERICLES will focus on a VPA which portrays a diversity of cultural heritage and coastal governance related stakeholders to provide an overview of current issues and perspectives, covering key issues such as interrelations between land/seascapes and different types of cultural heritage, space, place and identity; different challenges and risks of different types of cultural heritage; conceptions of resilience and sustainability; opportunities and their social and economic feasibility; participation and deliberative governance; and the wider international context. The VPA will follow the argument elaborated by Fabinyi et al. (2010) that recognising complexity requires further unravelling of the diversity of, and nuance in opinions and views to countervail often assumed homogenous interpretations of important actor</p>

groups like fishers, locals, tourists and policy makers.

We will develop a framework while working on a VPA Wadden Sea, to represent narratives and stories of cultural heritage in coastal communities that might be transferable and relevant to be used across Europe. Representativeness refers both to common themes such as fisheries, tourism and to the portrayal of social imaginaries which are commonly recognised such as those of youth searching for contemporary social connectivity and the role of cultural heritage in relation to this.

The development of a VPA is initiated in multi stakeholder workshop with direct and indirect actors regarding the issue(s) at stake, prospect users of the VPA, the VPA producers, learning designer and art director eventually complemented with researchers and others.

To explore the VPA framework in the PERICLES context, we will search for similar activities working with communities of the Wadden Sea case region. The workshops will review, articulate and envision the cultural heritage and coastal governance issues in detail to be used as an input for the VPA documentaries and stakeholder selection for the filmed narratives.

Once the VPA production is in progress and is of substantial 'size' to consider it as a kind of prototype, we can start using the VPA on the PERICLES case locations to review and test the VPA production but even more to bring the VPA in action as a tool for participatory governance.

Current Use and Applications

Visual Problem Appraisal is used to enhance the analysis of complex issues and facilitate a plan of action by concerned stakeholders. VPA is used in the public domain whereby the filmed narratives represent overlooked and excluded stakeholders. In Higher Education VPA is used in training programmes dealing with cross-disciplinary problem analysis and policy design, and engages students in 'meeting' stakeholders through the latter's filmed narratives. The students consult and learn from the selection, observation and analysis of a series of filmed interviews and visualised stakeholder bound contexts.

25 Annex A PERICLES Tool Review Survey Results

The PERICLES tool review survey was conducted between 20th March and 8th May 2019. This survey of key partners and stakeholders covered what tools are used for **evaluating**, **preserving** and **exploiting** cultural heritage.

There were 13 participants, based in Malta, France, Scotland, Northern Ireland and Ireland. These comprised of 5 from the public sector, 2 from the private sector, 4 NGOs or charities, 1 designated area and 1 research institution.

Participants were asked to identify the three tools for methods that they used the most or had the most experience of for each of the purposes the tools might be applied. They were also asked to provide contextualising details qualitatively.

Evaluating Cultural Heritage

Survey participants were asked to identify the three tools or methods used in evaluating cultural heritage that they use the most, or have the most knowledge of. The results are shown below in *Fig. 1*.

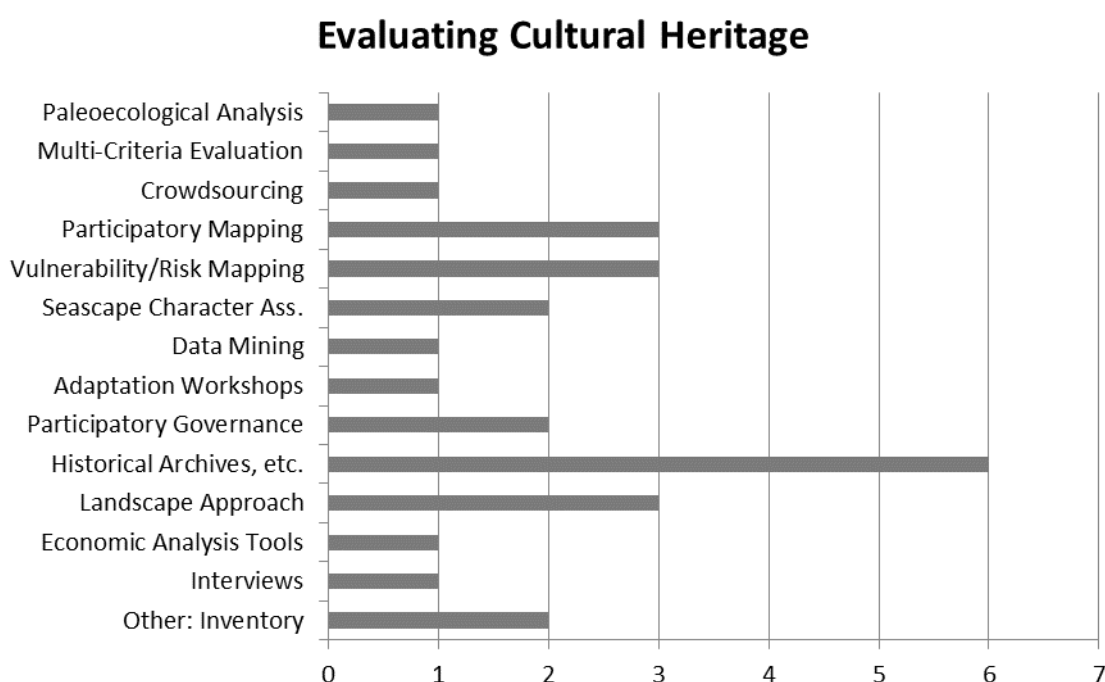


Fig. 1: PERICLES Tools Survey results for the most commonly used methods and tools for evaluating cultural heritage.

Respondents reported using these tools for mapping, designation and planning processes, as well as to understand impacts of visitors or climate change, and to raise awareness among or consult local people about their cultural heritage.

As Fig.1 illustrates, a wide variety of methods are used in total, but each is typically only reported in isolated or a small number of cases. The most frequently identified method is historical archives/documents/photos, which was used by 6 respondents. Commenting on the method, some respondents provided an insight into its use:

“Historical Archives etc. are used to create and further augment the existing marine historic environment record for NI to support marine planning, heritage asset management and improved public awareness and enjoyment.”

Department for Communities - Historic Environment Division and DAERA Marine and Fisheries, Northern Ireland

“We conduct historical research before, during and after the restoration and research on places to give them as much historical importance as possible.”

Din l-Art Ħelwa, Malta, Environmental and Cultural Organisation

Respondents were given the opportunity to rate the effectiveness of the three tools they had identified. The results of this are displayed in the bar chart below (Fig. 2) which shows the number of times each tool was rated in each of the categories.

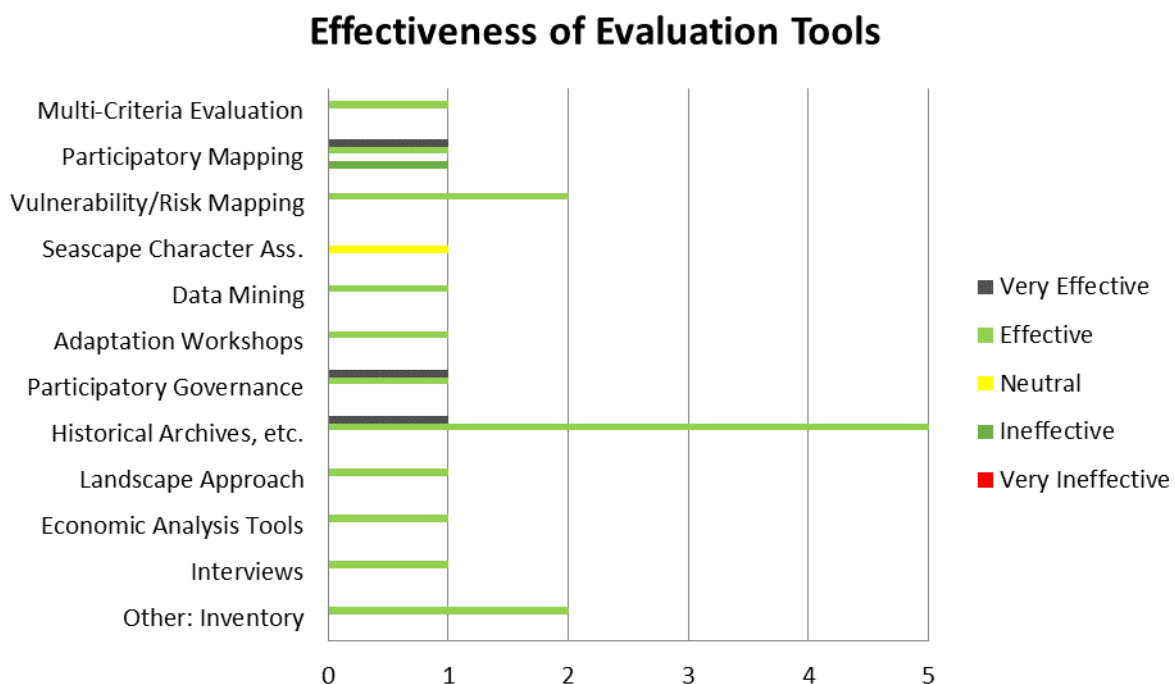


Fig. 2: Number of respondents rating the effectiveness of the cultural heritage evaluation tools by each category from very ineffective to very effective.

The results indicate that those who chose to rate the tools predominantly found them to be effective, with only two exceptions where the tools were less than effective, and three in which they were more positively rated very effective.

Preserving Cultural Heritage

Survey participants were then asked to identify the three tools or methods used in preserving cultural heritage that they use the most, or have the most knowledge of. The results are shown below in *Fig.3*.

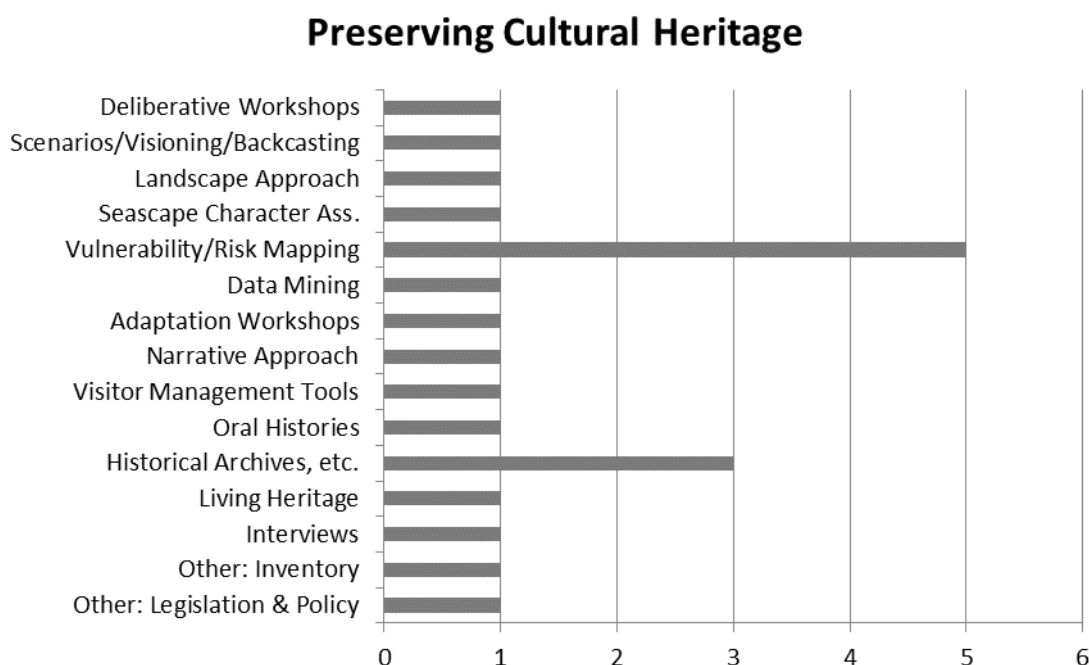


Fig. 3: PERICLES Tools Survey results for the most commonly used methods and tools for preserving cultural heritage.

These tools were used by respondents in managing heritage asset designation, protection and restoration, as well as in stakeholder engagement and adaptation planning.

As with tools for evaluating cultural heritage, a wide spread of methods are used for preserving cultural heritage, but there lacks a strong consensus on methods or tools beyond vulnerability/risk mapping.

Vulnerability or risk mapping was the most commonly reported method in preserving cultural heritage. Interestingly, while risk mapping could easily be kept within the professional heritage industry, it was reported by one participant that the outputs from theirs are also disseminated among the general public as a tool to raise awareness and generate support for protecting cultural heritage:

“Risk mapping: used in a GIS professional internship to help municipalities better know their coastal risks vulnerability, in a climate change framework; to [raise] awareness [in the] local population and to develop a local risk culture, including towards cultural heritage.”

Regional Natural Park of Gulf of Morbihan, France

As before, respondents were given the opportunity to rate the effectiveness of the three tools they had identified. The results of this are displayed in the bar chart below (*Fig. 4*) which shows the number of times each tool was rated in each of the categories.

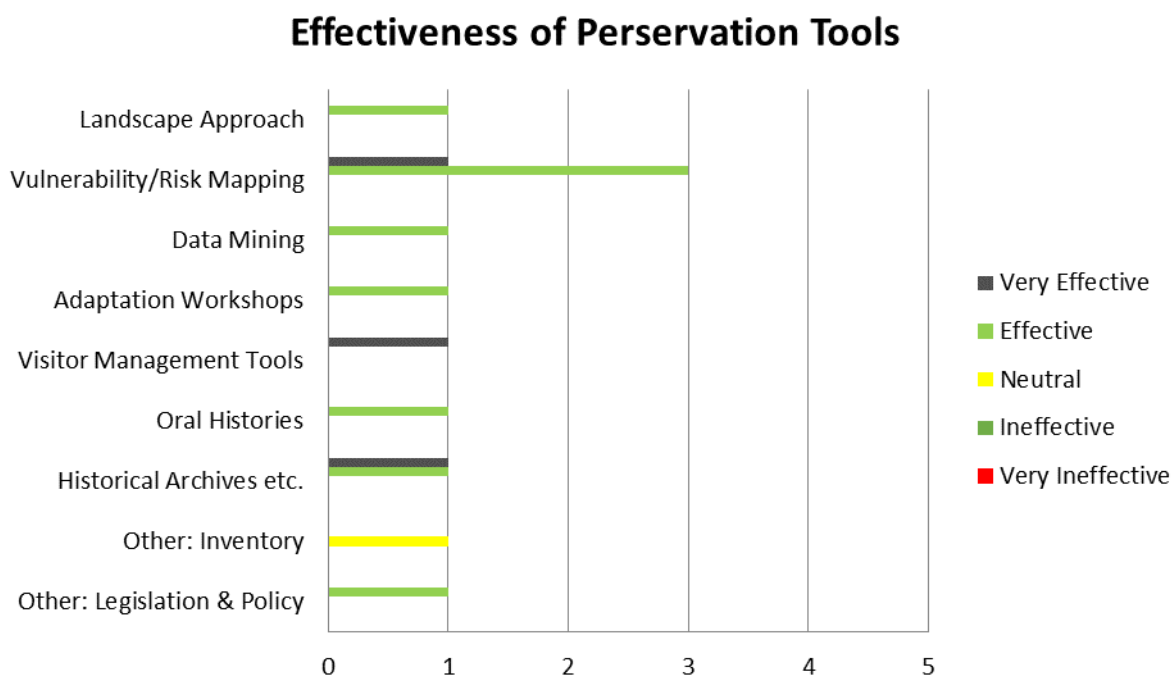


Fig. 4: Number of respondents rating the effectiveness of the cultural heritage preservation tools by each category from very ineffective to very effective.

Fewer participants chose to rate the preservation tools than the evaluation ones, however, those who chose to rate the tools predominantly found them to be effective. There was only one exception where a tool, in this case an organisation's own regional inventory system, was rated less than effective, and three cases in which tools were rated more highly at very effective.

Exploiting Cultural Heritage

Finally, the survey participants were asked to identify the three tools or methods used in exploiting cultural heritage that they use the most, or have the most knowledge of. The results are shown below in *Fig. 5*.



Fig. 5: PERICLES Tools Survey results for the most commonly used methods and tools for exploiting cultural heritage.

Respondents mainly cited uses around establishing awareness, and planning investment or access to the site for these tools. The identification of areas to be exploited, for example through the creation of trails, was also specified as an area that these tools are used in.

Respondents were once again given the opportunity to rate the effectiveness of the three tools they had identified. The results of this are displayed in the bar chart below (*Fig. 6*), showing the number of times each tool was rated in each of the categories.



Fig. 6: Number of respondents rating the effectiveness of the cultural heritage exploitation tools by each category from very ineffective to very effective.

As with the previous effectiveness questions, those who chose to rate the tools predominantly found them to be effective, with only one exception each for ineffective and very effective in this case.

Conclusions

The survey results indicate a wide range of methods and tools are used for evaluating and preserving cultural heritage, with notably fewer used for exploiting cultural heritage. This is evident both in the number of tools identified for exploiting cultural heritage and in the number of responses indicating use of any tools in exploiting cultural heritage. PERICLES will develop practical tools specifically for sustainable exploitation of cultural heritage and cultural heritage-based blue growth that will help address this gap in use of tools for cultural heritage exploitation.

A wide range of methods and tools were listed among practitioners' main three, but each only selected in isolated or a small number of cases, suggesting a need for improved knowledge exchange regarding the available techniques and their application. PERICLES will develop effective knowledge exchange networks and will produce a handbook of methods and tools that will be practical and easily accessible guidance targeted at cultural heritage practitioners, policy makers and private sector businesses that can benefit from exploiting cultural heritage. The PERICLES tools handbook will share knowledge and experiences of the tools and methods that are available, so that those involved with cultural heritage can better evaluate, preserve and sustainably exploit it.

In addition, the survey results reported that the tools and methods currently used are predominantly deemed effective on a 5-point scale of very ineffective to very effective. This not only suggests that they are valuable aids to cultural heritage evaluation, preservation and exploitation that would be beneficial to share among heritage practitioners, but also that there remains opportunity to improve them through the process of their application and evaluation in the PERICLES demos.

26 Annex B PERICLES Tools Workshop, 25th April 2019

The first PERICLES annual meeting in Den Helder, Netherlands, brought together project partners and stakeholders, and included a workshop on tools for understanding, preserving and exploiting cultural heritage. Participants were asked about existing methods and tools that were effective in their experience. Their responses were listed under four headings: Managing Tangible Heritage; Managing Intangible Heritage; Community Participation; and Risk Awareness and Adaptation. The results of this workshop are summarised below. PERICLES will develop effective knowledge exchange networks and will produce a tools handbook to share knowledge of the methods and tools that are most effective.

Managing Intangible Heritage - what works well
Collaboration with artists as mediators to show traditional knowledge Socio-linguistic work on place names Transmission of knowledge (e.g. seaweed harvesting and cooking days – atelier cuisine) Audio recordings (songs practices e.g. fishermen slapping backs to warm hands) National audio archives (e.g. songs in Estonia?) and national inventories Designation e.g. UNESCO designation of Kihnu island intangible heritage
Managing Intangible Heritage - what works well
Reuse of buildings (and supporting policies) Technology (e.g. 3D scans) Legislation Including heritage in events Public-private partnerships
Risk awareness and adaptation - what works well
Adaptation case studies and tool kits Technology – apps that are easy to use Free entry to cultural heritage sites Partnerships across disciplines (heritage, conservationists, scientists) Good historical information in tourist offices Inventories Citizen Science initiatives (e.g. SCAPE and ALERT) Initiate projects and get them going with locals (also a challenge)
Community Participation - what works well
Using a range of communication techniques directed at different groups Promoting community ideas Children's treasure hunts Interactive exhibits at museums Working with local and regional media Engaging community 'key people'