Bridging cultural heritage and communities through digital technologies: Understanding perspectives and challenges

GIGLITTO, Danilo <http://orcid.org/0000-0002-5334-4136>, CIOLFI, Luigina <http://orcid.org/0000-0003-4637-8239>, CLAISSE, Caroline and LOCKLEY, Eleanor <http://orcid.org/0000-0001-8257-9543>

Bridging cultural heritage and communities through digital technologies: Understanding perspectives and challenges

Danilo Giglitto
Sheffield Hallam University
Cultural Communication and Computing Research Institute
Sheffield, United Kingdom
d.giglitto@shu.ac.uk

Luigina Ciolfi
Sheffield Hallam University
Cultural Communication and Computing Research Institute
Sheffield, United Kingdom
l.ciolfi@shu.ac.uk

Caroline Claisse
Northumbria University
School of Design
Newcastle upon Tyne, United Kingdom
caroline.claisse@northumbria.ac.uk

Eleanor Lockley
Sheffield Hallam University
Cultural Communication and Computing Research Institute
Sheffield, United Kingdom
e.lockley@shu.ac.uk

ABSTRACT

We present and discuss the results of a qualitative study aimed at identifying what role interactive digital technologies could play in facilitating the participation of communities at risk of exclusion (particularly migrants and refugees) in cultural and heritage-related activities. Culture and heritage are known to be key factors in fostering social inclusion, and this has the potential for contributing to both the wellbeing of these communities and to cultural institutions themselves. Through surveys and interviews with two cohorts of participants (cultural heritage professionals and community facilitators), we gathered insights about their perspectives on how ICT tools could support their work with and for communities, as well as the challenges they face. This work sheds light on the opportunities and barriers surrounding the use of digital technologies for participation in the cultural heritage sector, which is timely due to the increasing focus on grassroots and community-led heritage initiatives and to the growing body of work on participatory ICT in disciplines such as human-computer interaction and community informatics.

CCS CONCEPTS

• **Human-centered computing** → **Empirical studies in HCI**; *HCI theory, concepts and models*; • **Social and professional topics** → Cultural characteristics.

KEYWORDS

cultural heritage, design recommendations, cultural institutions, social inclusion, participatory technologies

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1 INTRODUCTION

In this paper, we present the results of a qualitative study (conducted via a survey and follow-up interviews) aimed at identifying design recommendations for the CultureLabs platform, an ICT-empowered infrastructure that will host, among others, guidelines, methodologies, past community engagement projects, and collaborative work-spaces for facilitating the pursuit of social inclusion in the cultural heritage sector. The core of this study revolves around investigating the best practices of effective use of technology for participatory activities deployed around cultural heritage themes and/or the participation of migrant and refugee communities.

Over the past few decades, two main interrelated developments have occurred in the cultural heritage sector that have had a deep impact on cultural heritage institutions. Firstly, museums have questioned their expert-centric approaches [59] to seek a more active participation from local communities [11], with a growing focus on marginalised communities [12, 15]. Migrant and refugee communities are a prominent stakeholder to be engaged in these attempts, given the recognition of the importance of culture and heritage as means of social inclusion and of wellbeing. Secondly, the advancement of digital technologies has enhanced the opportunities of furthering the extent of community engagement in professionally-led cultural settings. Cultural institutions are losing the exclusivity of providing 'official' account of cultural heritage and [1, 14] and, as a consequence, have to promptly adjust and even transform their practices, often by taking advantage of technological means for archival, interpretation, and communication [27, 46, 68].

In parallel, research on interactive technology design for the cultural sector has also shifted its approach from deploying digital ways of recording and delivering digital content, to providing means

of dialogue and community engagement around heritage [17], with impact on how heritage professionals manage and monitor digital technologies in heritage institutions.

Because of the challenges that these paradigmatic shifts represent for cultural institutions, the people involved in this sector are often surveyed and their attitudes analysed in terms of readiness for change [4, 55, 70]. While this represents a reasonable research perspective on these matters, the competence and knowledge that cultural professionals have acquired through the process are often overlooked. A systematic investigation of the perspectives of cultural professionals, especially those regarding 'sensitive' topics such as the use of technology in participatory practices, may benefit the wider community of cultural professionals that operate in highly challenging digitally-mediated participatory projects.

Another category of stakeholders is facing complex challenges in relation to these changes: community facilitators, which in the context of this research are professionals that deal with the welfare of migrant and/or refugee communities. Beside the inherent challenge of supporting communities of people who often face critical moments as they begin their lives in new countries (for instance, refugees and asylum seekers), the new anti-immigrant prejudice and xenophobic attitudes that have been on the rise across Europe over the last decade [20, 54] are leading towards the necessity of achieving integration and inclusion by involving stakeholders at different levels [39]. The community facilitators involved in this research have depicted a scenario whereby the deployment of migrant-centred approaches has to overcome a scarcity of institutional opportunities and support, as well as a growing prejudice from society at large.

This paper argues that a definition of the suitable characteristics of digital technology for facilitating the organisation of social innovation projects for migrant and refugee communities may help the establishment of digital strategies and solutions for effective participatory activities. This is a useful contribution for researchers and practitioners exploring participatory activities in the context of culture and heritage (in domains such as heritage studies and practice, community-centred organisational studies, participatory citizenship, etc.), and for those investigating the design and deployment of interactive technologies for social participation and inclusion (e.g. digital civics, community informatics, and human-computer interaction).

We believe that, drawing from their invaluable previous experience, cultural heritage professionals and community facilitators can provide unique and valuable perspectives on how technology and interactivity may have a positive impact in terms of facilitating migrant- and refugee-centred participatory activities.

The study investigated two interrelated research questions: firstly, which solutions to the issues of participation and barriers to engagement can be offered through a digital tool/environment? We believe that a satisfactory answer to this question could lead to the identification of best practices around the most effective use of technology for participatory activities deployed around cultural heritage theme. Similarly, the second research question concerns the identification of the digitally-mediated solutions to the same issues and barriers when the community concerned is composed of people holding a migratory status. As these communities present their own set of challenges that may be more easily faced if these requirements are shared under the form of best practices, this may represent an important contribution to the state-of-the-art of migrant and refugee community engagement in cultural heritage practices.

In the following sections, we discuss the new challenges faced by two sets of professional figures engaged in this research, and the context and the methodological approach of the research. We then report on the findings around the perspectives of cultural professionals and community facilitators, and propose some concluding remarks on the implications of our findings.

2 EMERGING CHALLENGES FOR CULTURAL PROFESSIONALS AND COMMUNITY FACILITATORS

The next two sections will report upon, respectively, a brief state-of-the art of the existing practices and trends around digitally-mediated cultural heritage projects, as well as migrants and refugees involvement in participatory settings. Both sections will focus on the role of digital technology by highlighting the existing challenges and how the attempts to overcome them can lead to the establishment of best practices.

2.1 Community-centred cultural heritage, role of technology and impact on professionals

Over the past fifteen years, the institutionalisation of the concept of intangible cultural heritage (ICH) [69] has gradually led to an expansion of the importance of broader human engagement in any aspect of cultural heritage's identification, collection, and management [13, 57, 61, 64, 72]. The search for wider and deeper community engagement in the heritage sector has been fostered by the new opportunities offered through the advancement of digital technologies, which have greatly enhanced the opportunities for dissemination and access, as well as leading to frameworks for facilitating grassroots engagement [1, 14].

In this scenario, cultural institutions have taken advantage of participatory design approaches that have been successful in other sectors [60] in order to try to increase audience engagement in their collections and encourage a dialogue with their visitors, adopting more audience-centred practices [59]. For instance, cultural institutions have adopted participatory design to build interactive experiences that enhance the exhibition space and facilitate the engagement of new audiences [27, 48, 62, 68]. Co-design methodologies have also been refined to empower cultural heritage professionals to be more active in the design and direct management of digitally-enhanced visitor experiences [16].

Besides the impact on professionals in the heritage field, digital technologies are also having a significant impact in terms of supporting participation and community engagement in the cultural sector, enabling scenarios in which heritage gatekeepers can have control over cultural content that concerns them and decide what, where, and how to share it [29, 66]. As a result, we have been witnessing a proliferation of community-led cultural heritage endeavours that take advantage of platform solutions (often web-based) to collect, manage, or display cultural heritage [30, 67]. Community participation has strongly revolved around digitising manifestations of cultural heritage that are strongly linked with the cultural identity of the participants, such as – among others

– islander way of life [30], regional and local cultural distinctiveness [8], traditional dances [32], and indigenous culture [36], while the technology deployed includes Linked Data [8, 52], crowdsourcing support systems [52], exergaming [32], wikis [30], and virtual reality [9].

As the traditional hierarchical system of production and transmission of cultural heritage is being flanked by digitally-mediated circular processes open to active participation and bottom-up interpretation by non-professionals [1, 14], cultural institutions are taking a step further by going beyond the mere recognition of the importance of community participation and collaboration. In fact, some cultural institutions are now exploring their potential to work in the direction of social justice, operating towards aims such as promoting intercultural dialogue [38], fighting social inequalities, and strengthening minority groups' sense of belonging [58]. As a natural consequence, a concern for contributing to a fairer society adds a different challenge for the people employed in the cultural sector, who might wish or have to integrate social justice principles and approaches into their daily business as well as finding new and willing external actors with whom to collaborate [58].

In this context, the role of designers and developers of digital technologies for the cultural and heritage sector and the research questions they are investigating are also changing. From realising digital "design interventions" to be placed in museums to convey content to visitors and study their interactions, work in digital heritage, human-computer interaction (HCI) and, cultural computing has evolved to address a more variegated range of cultural contexts, from cities, to outdoor areas, and neighbourhoods, and a diverse set of heritage experiences. Recently, a number of "toolkits" have been produced to enable actors engaged in heritage practices to manage and lead digital initiatives, with the role of the technical experts substantially changing in the process [6, 22, 23, 28, 63]. Already, the-state-of-the-art in disciplines such as HCI is including work inspired by community informatics and community-centred approaches. However, the field is in need of further work when it comes to supporting the cultural engagement with communities at risk of marginalisation via digital tools and technologies.

Overall, even though the integration of digital technologies into cultural heritage practices is extremely promising, there are still several underexplored issues in community engagement and participation, such as the lack of assessment of users' needs and expectations [10, 53], incorrect assumptions about the digital literacy of participants [18, 67], and even the potential creation of new divisions within communities [30]. This paper argues that any attempt to overcome these issues will benefit from the insights of those professionals who have been personally dealing with these challenges, and that our empirical study is an important contribution to fill this gap. The views and insights we report in this paper were indeed collected through a study investigating the views and experiences of key stakeholders. Subsequent studies led by other CultureLabs partners have also recently investigated the views of members of various migrant communities. These studies have not been included in this paper as its focus is on exploring the views of professionals and facilitators around issues of community engagement and technology.

2.2 Emerging challenges for community facilitators

As the use of digital technologies has become an integral part of our lives, research shows how more efforts are needed to ensure that marginalised and disadvantaged groups such as communities of migrants and refugees are properly included in the so-called 'information society' [2, 43]. A productive and fulfilling participation in contemporary societies is thought to be strongly linked with access and adoption of digital technologies, which can facilitate the social inclusion of citizens and settlers [2, 45]. Evidence shows how social inclusion is positively affected by the use of technology because of the access to information they provide [45], a positive influence in terms of social and economic development [71], an enhancement of the opportunities in terms of communication capability and cultural identity expression [5], and a facilitation of fruitful collaborative efforts [56].

Conversely, the status of deprivation that some of the members of migrant and refugees communities may experience can entail an absence of Internet broadband, which, in turn, can lead to forms of systematic forms of social exclusion mostly caused by the lack of access to vital online information such as job opportunities or e-services [2]. Other cultural barriers, such as language and digital skills, can also prevent an optimal use of digital technology [2, 45]. These barriers to 'proper use' of digital technology manifest during the transitioning phases of settling and can cause the new landscape to become overwhelmingly complex as they add to the basic needs of food, shelter, and income [45]. A wealth of research shows how much more work needs to be done in order to alleviate the gap between those that can take advantage of the framework of opportunities that digital technology can offer and those who cannot [26, 34]. Agencies such as the United Nations and the European Union are also supporting new research to alleviate such disparity.

Cultural heritage is one ingredient that can strongly contribute towards the welfare of communities. The care and rediscovery of one's own cultural heritage can strengthen cultural identity [35] and help people connect with each other through the past [33]. This can be particularly beneficial for the people that have been marginalised from the GLAM (Galleries, Libraries, Archives, and Museums) sector [25] or are dissatisfied with the heritage interpretation provided by the institutional heritage sector [7, 47]. Besides, evidences show how the participation in heritage-related activities can enhance community empowerment and development [19, 30, 44, 49–51, 64]. Apart from the barriers related to the deployment of digital technology identified above, the use of digitally-mediated approaches – such as ethnocomputing [21, 40], corrective technologies [24], and digital storytelling [73] – and social networks [74] can lead to the creation of positive outcomes for communities at risk of exclusion participating in cultural and heritage-related activities, including fulfilling educational goals [21, 40], increasing of participation in the public sphere [73], and strengthening social cohesion [24] and cultural identity [74].

The broader context of the study that we report in this paper is an international collaborative project, which seeks to pursue such benefits by identifying suitable technology to overcome the barriers to engagement with the cultural sector by facilitating the creation of participatory activities for – among other disadvantaged groups

Table 1: Cultural professionals surveyed

Role	Institution	Country
Director	Museum	UK
President	Museum	Italy
Programme manager	Museum	UK
Intendant	Museum	Finland
Head of engagement	Museum	UK
Chief intendant	Museum	Finland
Project planner	Museum	Finland
Director of devel.	Museum	Finland
Director of course	University	UK
Owner	Consultancy agency	Netherlands
Manager	Museum	Italy
Researcher	University	Ireland
Creative director	Company	UK
Coll. manager	Foundation	Netherlands
Professor	University	UK
Researcher	University	UK
Researcher	Consortium	UK
Education officer	Museum	Ireland
Researcher	University	UK
Outreach manager	Museum	UK
Director	Foundation	Netherlands
Manager	Gallery	UK
Co-Chair	Conference	UK
Director	Cultural centre	France
Director	Museum	Netherlands
Teacher	Social coop.	Italy
Researcher	University	UK
Teacher	Social cooperative	Italy
Keeper	Heritage agency	Finland
Proj. manager	Heritage agency	Finland
Coordinator	Museum	Finland
Curator	Museum	UK
Total		32

– migrants and refugees. In doing so, we aim to tackle the issue of social exclusion by reporting around technology and features that have better served the cause of engaging those communities that are marginalised the most by the digital and knowledge divide. The connection between technology and cultural heritage creates a common framework between the two types of professional figures analysed in this study from which to draw best practices that can avail the intended beneficiaries of CultureLabs.

3 RESEARCH CONTEXT AND METHODOLOGY

This section illustrates the context of the research as well as the methodological steps and decisions underpinning the research design and the analysis of the outputs.

3.1 Context of the research

As we mentioned, the study we report on is part of CultureLabs, an international project focusing on the role that culture and heritage can play to facilitate social inclusion, particularly via the participation of migrant and refugee communities. CultureLabs aims at facilitating a more effective engagement in heritage-related and digitally-mediated activities. Universities, heritage institutions, SMEs (including a social enterprise), and NGOs working with migrants and refugees are participating in the project. The objective is to create a bridge between cultural and heritage professionals and institutions and communities of migrants and refugees, in order to facilitate the design and execution of participatory projects for social inclusion. CultureLabs is developing an ICT-empowered infrastructure for systematising and facilitating the organisation and wider deployment of participatory projects with community of migrants or refugees.

This will be realised through establishing participatory toolkits which will be assembled and made available by the project to a wide variety of stakeholders. The toolkits will comprise of a rich variety of resources, including – among others – guidelines, methodologies, past community engagement projects, and collaborative workspaces. The digital infrastructure will be made available to both institutional stakeholders and members of the aforementioned communities to make use of existing and/or commonly created resources, according to their mission, needs, and intended target groups. It will support them in carrying out tailor-made participatory engagement projects (from crowdsourcing and co-creation workshops to community-led exhibitions and dialogue programmes) to address the needs of different target audiences. The project will feature case studies led by cultural institutions in several European countries: pilot projects through which our methodology and technology will be developed and tested. In order to lay the foundations for the design of the platform and its components, a number of activities are being carried out: the team of CultureLabs collaborators are working together under the umbrella of co-design to define foundational approaches and strategies. As well as this, primary research is being conducted to collect the views and insights of key players that are external to CultureLabs and that represent stakeholder communities. The results we discuss later on in the paper were collected through one of the latter studies, for which heritage researchers and practitioners and community facilitators were recruited to take part.

3.2 Recruitment

Part of the work in CultureLabs is about investigating the perspectives and the needs of the sets of stakeholders and beneficiaries identified in the project. This paper draws from a study that concentrated on two macro-categories of participants, *cultural professionals* and *(of migrants and refugees) community facilitators*. Other partners at CultureLabs have led investigations on different sets of beneficiaries, including members of migrant and refugee communities. However this paper focuses on the investigation involving the two abovementioned professional categories.

In the context of this research, cultural professionals are defined as people involved in the GLAM sector or in arts and heritage related fields such as heritage education or research. It is important

to note that those participants listed in Table 1 as working as researchers in universities had extensive experience of work in the heritage domain, either by virtue of their roles (e.g. working at university museums; practice-led research on the GLAM sector, etc.) or because of previous positions they had held in the heritage field.

66 participants (32 cultural professionals and 34 community facilitators) partook in the research and were selected on the basis of their employment in various related fields such as heritage studies, arts and heritage conservation, educational services, digital collections, community engagement, and curation (for the cultural professionals) or their employment in non-profit organisations, public administrations, and other institutions that had experience with outreach activities and/or had programs for migrants and refugees (for the community facilitators). Participants were recruited via professional mailing lists and social media forums, and through personal contacts.

3.3 Methods

The study utilised two techniques: online surveys and semi-structured interviews. The research started off with the survey, which included questions about background, previous experiences, conceptions/understandings around technology, and, more importantly, an initial set of potential characteristics of technology for participants to consider as potential design recommendations. The choice of these characteristics/requirements for inclusion in the survey was based on the CultureLabs researchers' extensive expertise and knowledge of digitally-mediated organisation and management of participatory projects with migrant and refugees community. The design of the surveys overall was based on a combination of an analysis of best practice in participatory toolkit/platform design and the substantial expertise of the people leading CultureLabs.

The survey for cultural professionals was completed by 32 cultural experts from across Europe, covering expertise such as heritage education, arts and heritage conservation, and digital culture in the following professional fields (number of respondents in brackets, see Table 1 for the full breakdown of respondents):

- GLAM (Galleries, Libraries, Archives and Museums) (17)
- university and research institute (6),
- nonprofit (4),
- public sector (3),
- private sector (2).

The survey for community facilitators was completed by 34 professionals from across Europe, covering expertise such as social integration, refugees and asylum seekers support, youth development, and human rights in the following sectors (see Table 2 for the full breakdown of respondents):

- public sector (10),
- NGO (10),
- nonprofit (8),
- charity (3),
- university and research institute (2),
- private sector (1).

Semi-structured interviews were then carried out to follow-up the surveys with 24 respondents that had agreed to take part. The data gathered was analysed through content analysis and thematic analysis, principally via NVivo.

Table 2: Community facilitators surveyed

Role	Institution	Country
Project coordinator	Social Cooperative	Italy
Operator in legal services	Social cooperative	Italy
Project designer	Social cooperative	Italy
Managing director	Research institute	Germany
Head of European projects	Foundation	Italy
Project manager	Foundation	Italy
EU project designer	Foundation	Italy
Communication manager	Foundation	Italy
Educator	Social cooperative	Italy
CEO	Private organisation	Greece
Project coordinator	NGO	Greece
Psychologist	Social cooperative	Italy
Manager trainee	Social cooperative	Italy
Comm. manager	NGO	Greece
Administrator	Social cooperative	Italy
Service Manager	Charity	UK
Engagement coordinator	NGo	Greece
Deputy CEO	Local authority	UK
Partner	Charity	UK
Researcher	University	Finland
Group Worker	Charity	UK
Administrator	Pub. administration	Italy
Volunteer	Social cooperative	Italy
Referent	Pub. administration	Italy
Librarian	Pub. administration	Italy
Analyst	NGO	Bulgaria
Manager	NGO	Cyprus
Researcher	NGO	Greece
Innovator	NGO	Portugal
Researcher	NGO	Greece
Public servant	Government	Greece
Innovator	NGO	Portugal
Public Relator	NGO	Portugal
Manager	NGO	Portugal
Total		34

4 FINDINGS

The following two sections report upon the perspectives of – respectively – the cultural professionals and the community facilitators about the characteristics that digital technologies should have in order to overcome self-identified challenges in heritage-related participatory activities including the participation of migrant and refugee communities'. The sections include direct quotes from the research participants together with the characteristics of the speakers as defined in Table 1 and 2.

The following findings are reported separately for each of the two categories of participants and organised along the requirements to which they pointed to the most when examined collectively. This separation allows for a clearer emphasis on what technology can

do for each of the two professional figures to accommodate their ambitions for participatory approaches with communities at risk of exclusion. Furthermore, noteworthy similarities across the two cohorts are discussed in the last section of this paper.

4.1 The perspectives of cultural professionals

All the responses collected from this group of participants are reflections around effective ways in which digital technology can be used to facilitate best practices in culture-based participatory activities involving disadvantaged groups. The majority of these cultural professionals had a certain amount of previous experience in such settings. Therefore, they were in a good position to shed light on some digitally-mediated ways to overcome issues of participation in the arts and heritage sectors.

Specifically, they identified two main sets of challenges that digital technologies could help them face: overcoming the barriers to participation, and counteracting the difficulty of learning from each other in the GLAM sector. Overall, the respondents agreed on the usefulness of discussion websites and collaborative features as starting points for tackling these challenges. More details on this and the digitally-mediated support to tackle them are reported below.

4.1.1 Overcoming the barriers to participation. As previously mentioned, many professionals involved in the GLAM sector are facing expectations to engage more deeply with their audience and, more generally, the communities that are local to their institutions. There are some unresolved issues that these professionals are facing in order to reach a wider and deeper community engagement in their practices. Firstly, the cultural professionals surveyed described how it is already challenging for museums and similar cultural institutions to attract people through the door as they compete with a variety of actors in the market of cultural entertainment. This is particularly true for small cultural institutions in large or high touristic cities, as the President of a network of museums in Italy striving to broaden their audience explains: "*Although the city has many visitors, it is almost exclusively known for its main monument, and this makes visitors spending only a bunch of hours in the city, while citizens are unaware of us.*" On top of this, the difficulty exponentially increases when such cultural institutions aim at involving marginalised and disadvantaged groups, who "*may have other priorities*" (outreach and access manager of a local city museum in the UK, mainly dealing with introducing newcomers to local culture) or "*lack the confidence*" to build a relationship with museum staff (director of a museum in the UK with extensive experience in participatory approaches that connect museums with grassroots culture). In addition, the use of technology represents a deterrent to participation in cases where digital literacy is low: "*there's fear of using technology for some people at the museum because of the lack of confidence or because they are not working long enough at the museum to spend time to become familiar or learn new tools*" (university researcher in Ireland, investigating evaluation practices for public engagement in archaeological findings).

Even though the search for broader human engagement in heritage related practices make endeavours led by non-professionals paramount, it remains the fact that there may be diverging interests between the promoters of community-led heritage activities and the community members that are sought after to be the leaders of these activities. The fundamental question to be answered on the professional side is "why should they care?". More specifically, cultural professionals are burdened with providing grounded and convincing arguments about why community members should provide their cultural heritage representations or partaking in curatorial activities: "[we need to] *convince people of the truth of what the project is about, how to let people know what the project is about, the value and what they can get out from it*" (collections manager of a large foundation based in the Netherlands and tasked with developing a digital cultural heritage platform for Europe).

There is a certain agreement among our research participants that this conundrum can be solved through the deployment of digitally-mediated communication tools with characteristics that can be tailored to the community they wish to engage. Such a communication tool, for instance a discussion website or forum, should be explicitly designed for the purpose of allowing circular information around the participants, both in an asynchronous and a synchronous way. The participants that have used existing social media platforms for this purpose have indicated that, although an initial positive response, smaller changes to the layout or changes to the business model of the company owning the platform can invalidate the structure of the proposed content or disrupt familiar forms of contribution. These challenges with using commercial, general-purpose social media platforms have been voiced in other studies of the heritage domain [3].

According to our participants, such a tool should also be ideally offered in the first language of the participants, who should also be able to contribute content in their language of choice.

Other important principles that should inform technology design are transparency and honesty, and whatever tool is created should also communicate trust and integrity: "*by trust and integrity, I mean how to communicate what the project is about and what it is trying to achieve. More specially, to show the reasons behind the project, which are not about the politics but instead about cultural values. Depending on the context, I actually appreciate when people may have suspicions or may not be sure, so it is important to show that institutions are coming from a positive place*" (collections manager, foundation, the Netherlands). The implementation should be preceded by an investigation of what is of value to the participants: "*a lot of work needs to be done to learn about what is important for them. In my view, this can only be done through some form of active engagement with those communities*" (researcher, university, Ireland). Several respondents reported how community members are certainly more willing to participate in a digital environment if they are active part of the project producing it.

The participants should be able to take full ownership so as to influence – when possible – the outcome of a project in a way that meets their needs, as simply "*advertising events in a simple manner is not enough*" (collections manager, foundation, the Netherlands).

Besides the contribution to the design aspects, this ambition can be also partially fulfilled by the use of tools that can facilitate the gathering of participants feedback, a practice believed to be essential almost unanimously by our respondents. Our participants described built-in surveying tools or face-to-face feedback session as effective methods of gathering feedback.

The cultural heritage of the participants, including the identification of cultural values and relevance as well as symbolic meanings, can be collected through built-in tools that enable the collection of personal stories in oral or textual form.

4.1.2 Collaboration across cultural institutions. Given how challenging the scenarios in which they operate in, cultural professionals report surprisingly difficult to learn from other professionals from the same sector. The director of an English museum stated: "*I know that many other institutions are already doing very interesting work, but this is difficult for me to know about. This is critical because we would benefit to learn from others' mistake or lessons learnt*". Both sentiments – the feeling around a lack of easy access to information on other people's work and how beneficial would it be to get familiar with the state-of-the-art before undertaking a new project - are widely shared. The extent of this issue includes the scarcity of available information around best practices, canvases for workshops and other activities, and guidelines on how to approach particular communities. Although we live in an era in which finding this sort of information may seem easier than ever, the respondents highlighted that available information is always presented with a "*positive spin on them*" (outreach and access manager, museum, UK), embellished to impress the funding body or the audience (in organised events such as conferences and talks), while carefully hiding information on what went wrong (as, more often than not, there are deviations from expected or ideal outcomes) and what mistakes were made. This point is clearly explained by the owner of a Dutch consultancy agency for the cultural sector with over a decade of experience in audience engagement: "*funding opportunities are structured in way that is project-based and they want to hear about all the good things that were done. They want to hear that it was a great success. We tend to talk about our work (including to our colleagues) in that way. But it is also particularly helpful to share stories of challenges and unsuccess [sic] because there is no blueprint for this kind of work.*"

The necessity is, therefore, to prevent cultural institutions from being forced to improvise and produce disparate approaches to tackle problems that other institutions and practitioners have already tackled. Technology can help in two important ways: a) by enabling fruitful engagement with existing best practices and b) by facilitating cross-institutional collaboration between stakeholders.

A centralised platform could respond to the necessity of bringing all relevant information together for cultural professionals to take advantage of. In exchange, they could in turn contribute with information on their own practices and lessons learnt, in a crowdsourcing fashion, with a particular emphasis on the most demanding aspects of such endeavours. Such a platform should enable people to search for and access useful data, including information about other stakeholders, methodologies and tools, past relevant projects, and heritage-related material.

Even though some relevant material is already potentially available online, searching for it can be a burdensome task, and the professionals in the sector only have the time to do partial preliminary research: "*as a designer, I think that* [searching for and accessing useful data in a centralised platform] "*is important because it could save time and work. So much work is done already but, usually, it does not get reused or built on*" (researcher, university, Ireland). We were advised that information about other stakeholders should be featured under the form of 'yellow pages' that are populated by the same professionals that are willing to cooperate with others. This feature is believed to be particularly useful for smaller cultural institutions that may struggle to find partners, and it would also be useful for collaborators that are geographically dispersed.

The scarcity of best practices from which to draw upon is conceived to be the main reason for hosting methodologies and tools, especially co-creation practices as these are considered to be the most difficult to find. Past relevant projects should feature on the platforms as core inspirational content. In addition to the main challenges and hindrances faced, such existing projects should report all the important resources that someone else would need to deploy, should they wish to adopt a similar approach. Finally, heritage-related material refers to representation of tangible (e.g. monuments and natural sites) or intangible (e.g. traditions and social practices) artefacts that could provide thematic insights and guidelines on projects based on the co-collection and co-identification of cultural heritage manifestations.

Ideally, such a platform should also feature collaborative tools to foster initial cooperation among stakeholders. The most desired features by our participants revolve around facilitating project management, and include tools for tracking progress, forms for surveys or evaluation, note-keeping, idea voting tools, and online calendar tools. Communication among collaborators should also be facilitated through the possibility of discussing specific projects as well as a system of private messaging.

A platform such as this could represent a solution to accommodate the opinion – widely shared among cultural professionals – that in order to achieve something important in terms of inclusiveness in the cultural heritage sector people have to work with others as a node in a network.

4.2 The perspectives of community facilitators

Recruitment for this group of participants focused on selecting professionals that had a great deal of experience in engaging with migrants and refugees in a variety of participatory activities, even if not always linked to cultural themes and practices. Their responses are of great value in light of understanding how technology could improve their engagement practices.

Community facilitators identified two main sets of challenges, which present some common points with those voiced by the cultural professionals. These challenges stem from the several cultural barriers they regularly face in their engagement activities (including, sometimes, the low digital literacy of participants) as well as other intrinsic difficulties of the sector: the necessity of contextualising any approach and to not rely on 'one-size-fits-all' interventions. They way digital technology can help overcoming these challenges is for it to be designed and deployed with due consideration to cultural specificities, while also facilitating the sharing of best practices among stakeholders.

4.2.1 Proposing cultural-specific approaches. The community facilitators participating in this study have a considerable amount of experience in engagement practices with communities of migrants, and have worked particularly – in various ways – towards

improving refugees and asylum seekers' welfare. In this context, a challenge unanimously identified as a crucial concern is the necessity of bridging cultural distances that could negatively affect the extent of the engagement of such communities in participatory activities.

The main barrier is language, in frequent cases when the first language of the participants is little known. Such a barrier is usually tackled through hiring cultural mediators, or through engaging second generation migrants with similar or common backgrounds, who can to an extent facilitate the communication. However, a mediated relationship can make the establishment of a fruitful collaboration between facilitators and community members harder to achieve: "*language also made the relationship between facilitators and participants more difficult. Participants were taken on the project with not enough language skills, thus the facilitators found it difficult to teach both language and aspects of the project at the same time*" (university researcher in Finland, investigating mentoring programmes for women with foreign background).

Other cultural barriers may arise depending on the origin of the participants: "*the main challenge was about achieving integration, as these people came from completely different societies (Nigeria, Ghana, Senegal, Pakistan, Afghanistan, and Bangladesh) and don't have any knowledge of Italian society and its legal framework. Practical aspects of everyday life, such as recycling or behaving properly with the neighbours, were difficult to explain*" (operator in legal services for migrant and refugee groups at a social cooperative in Italy), let alone the purpose of a participatory activity to do with heritage. Besides, these communities are far from being monolithic entities and come with high internal differences. As such, any use of technology should consider many variables – such as gender, educational level, and age – rather than being based on the assumptions that each person has the same digital competence or access to technology.

When reflecting about what technology can do safely and effectively in such settings, the community facilitators focused on three characteristics.

Firstly, any attempt to undertake digitally-mediated participatory activities should focus on technology that the participants are already familiar with, rather than proposing technology and platforms that are common in the context where the activity takes place but too novel for the prospective participants. In the recruitment stage, a common mistake has been to rely on certain social media platforms. They initially seemed as the obvious choice by the facilitators: "*the main challenge was related to the fact that the digital social networks used the most by the local population weren't the same as the ones of the community they wanted to engage with*" (Head of local and European projects at a Italian foundation focusing on the engagement with new media and new technologies). This quotation refers to an attempt to involve members of the large Chinese community in Prato, Italy, which, as it turned out, were not keen on social networks and messaging services that are very common in Italy (e.g. Facebook or WhatsApp) as much as they were on using WeChat.

Secondly, the content featured in a digital environment must be presented in an accessible way. The attention towards accessibility is not exhausted with offering content in the language of community members, but it should also pre-explore cross-cultural meaning attributed to visual content such as images and icons as well as the way in which participants approach and consume information held in a digital environment. A possible solution to mitigate cultural distance in the adoption of technology could be the inclusion of participants in the design process [31], and indeed this resonates with previous research on ICT4D [41, 75].

Finally, whatever form it takes, technology should embed and represent the idea of safety. Although the overwhelming majority of participants agreed on the importance of a safe digital environment, 'safety' was conceptualised in at least three different ways by the respondents. By merging these conceptualisations provided by the respondents, a safe digital environment is one where, first and foremost, *privacy is respected*. This entails that information shared by people should be treated with care, respect, and securely. Whatever digital tool is designed and/or deployed, it should also be aiming at *generating trust* based on the principle that any form of content that may be provided by participants will be safely stored and protected. This last point is particularly important for people having a precarious status such as asylum seekers, whose situation can be compromised by inadvertently releasing the wrong information. Safety also refers to *protection from personal attacks and harassment*, and this includes ways of trying to prevent digital environments used for participation and engagement from becoming places where discriminatory language or abuse finds its way in.

Attention to cultural specificities, featuring accessible content, and dealing properly and sensitively with safety can underpin the effective introduction of digital technology into participatory cultural activities with migrant and refugee communities.

4.2.2 Sharing and taking advantage of best practices. Similarly to the perspectives of cultural professionals, the intrinsic complications of engaging with migrant and refugee communities and the unsuitability of 'one-size-fits-all' interventions lead community facilitators to express a great deal of difficulty in both getting a sense of the state-of-the-art of their sector and in determining which best practices they could draw inspiration from. Better access to other professionals' practices is considered "*essential, because this sector is somewhat new and, therefore, people don't work in a systematic way but follow their intuitions*" (educator for migrant and refugee groups at a social cooperative in Italy). The value of other people's experiences is also judged in terms of what these can offer to face common challenges: "*Sharing best practices is really important, because there may be many solutions to the same problem and you can access different solutions only if these are shared. This is also true because, in Europe, different countries host different ethnic groups. For instance, Germany has a lot of migrants from Syria and Iraq, while Italy has a lot from Africa, so sharing practices is very important to get more "richness" in the solutions. So, even though there are cultural specificities, some challenges are all the same, like the language barriers*" (educator, social cooperative, Italy).

The same argument of a supposed lack of veracity in the information that is made available – described by the cultural professionals – is also shared by the community facilitators: "*The problem nowadays is that everything is made to look like everything went well and we have magnificent results. Challenges that haven't been overcome and things that went wrong aren't usually shared, but it would be useful to have access to this sort of information so to avoid doing the same mistake*" (researcher, university, Finland).

Unsurprisingly, starting their reflections from similar standpoints and identified challenges, community facilitators also came to the conclusion that a centralised platform – a unified environment providing them with resources – would be the right way to facilitate the sharing of best practices and the exchanging of ideas between stakeholders. The characteristics of such platforms closely follow the ones identified by cultural professionals: according to the community facilitators, it should host 'yellow pages' of other professionals (individuals and organisations) variously involved in the sector, showcase tools and methodologies used by others in participatory activities with migrant and refugee communities, and past relevant projects and activities to be shared following a spirit of reciprocity and mutual support that the platform should encourage. While the heritage professionals expressed the preference that the platform should host heritage-related material, the community facilitators chose immigration law and policy from a variety of countries.

Even though fostering collaboration between stakeholders is seen by some as a must-have feature, configured through the inclusion of project management and communication tools, other community facilitators are skeptical around the feasibility of achieving actual cooperation through such a platform. This is due to the large variety of stakeholders usually partaking in migrants and refugees' welfare, which includes, among others, central, regional and local governments, non-governmental organisations, foundations and other organisations, holding specific and different *modus operandi* in their professional undertakings.

5 DISCUSSION AND CONCLUSIONS

This study gathered insights about the way in which digital technology could support the work of professionals who aim to engage with disadvantaged groups (migrants and refugees) in participatory cultural heritage activities. Although the findings pertaining to the two sets of professional figures who took part in the study – cultural professionals and community facilitators – were presented separately for clarity and methodological consistence, it is possible to identify noteworthy similarities and significant overlaps, which suggest a set of common understandings and of interrelated practices. Both categories of respondents put emphasis on the needs for communication, mutual sharing, and ensuring safety. These connections in terms of the way in which technology is seen as potentially beneficial to overcome challenges shared by the two sectors enable us to propose the definition of two more general principles.

Firstly, if we jointly consider the ways that cultural professional contemplate overcoming barriers to participation (i.e. through communication tools tailored to the needs of community members as well as a strong focus on transparency and ownership), and the desirability of cultural-specific approaches expressed by community facilitators (i.e. through the deployment of familiar technology as well as a strong focus on accessibility and safety), we can draw the conclusion that, in the mind of these professionals, technology should have a strong community-oriented foundation, rather than a functionality-oriented one. By community, we refer to both sets of professionals that facilitate such endeavours and – more importantly – to the members of disadvantaged groups who should benefit from participating in them. Ideally, how technologically-mediated activities occur should, therefore, be negotiated with community members so as to be mindful of their culture, skills, and interests.

A second important principle that can be drawn is to take advantage of digitally-mediated means to counteract isolation that individual professionals and even organisations face when dealing with community engagement issues. Facilitating collaboration and mutual inspiration across institutions, sharing expertise (even among institutions in different countries, given the international relevance of certain issues) is crucial in order to effectively work with and for disadvantaged groups such as asylum seekers and refugees.

Both these general points resonate with previous work on participatory engagement of vulnerable communities [37, 65] (such as people with chronic illnesses), where establishing safeguards, dialogical means of exchange, and ethical and political considerations in terms of decision making, power, and representation are key factors to consider and address. However, these are relatively novel themes in the heritage domain, where participation supported by digital technologies has been adopted as either a curatorial approach (i.e. community or visitor participation in exhibition design), or an outreach one (i.e. participation as a means of addressing the concerns of – usually local – communities). In the scenario we are exploring, participation in culture and heritage merges these concerns with new ones. The envisioned role that technology could play is characterised in more complex ways. In general, considerations regarding ethics become of paramount importance. As the sector has become more open to external participation and active engagement, heritage professionals are already facing this [42], however, the engagement of migrant and refugee communities will add further complexity. In parallel, community facilitators will become increasingly involved in the cultural domain.

Our study has provided empirical evidence supporting these broad principles, as well as identified further opportunities and barriers around the use of digital technologies for participation in the cultural heritage sector. These insights can be beneficial for those professionals who wish to deploy technology in participatory activities that revolve around cultural heritage and/or the wellbeing of communities of migrants and refugees in a safe and effective way. Even when aspects such as technical feasibility, available resources and, more generally, implementable features shape the decisions around technology development and deployment, it is still necessary to flag community-centric issues in digitally-mediated participation in order to reduce the distance between the lessons learned in the field and the action of future practitioners.

Furthermore, this paper can offer to other researchers involved in disciplines such as community informatics, digital civics, heritage studies, community engagement, and migration studies a basis from which to draw further investigative opportunities around the characteristics that technology should take in certain sensitive settings.

Finally, it is important to mention again the broader context of this study: CultureLabs will take into consideration the opportunities and challenges discussed throughout the paper towards designing and building a platform facilitating participatory activities in the heritage sector involving communities at risk of marginalisation. This will lead us to further research examining and evaluating

the practical use of novel ICT tools in this context. For this reason, we believe that the study we presented in this paper will become, in time, part of a substantial case study of reference for the professional figures we surveyed and interviewed, as well as for researchers in the disciplines we mentioned.

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REFERENCES

[1] Janice Affleck and Thomas Kvan. 2008. A virtual community as the context for discursive interpretation: a role in cultural heritage engagement. *International Journal of Heritage Studies* 14, 3 (April 2008), 268–280. https://doi.org/10.1080/13527250801953751

[2] Khorshed Alam and Sophia Imran. 2015. The digital divide and social inclusion among refugee migrants: a case in regional Australia. *Information Technology & People* 28, 2 (2015), 344–365. https://doi.org/10.1108/ITP-04-2014-0083

[3] Dana Allen-Greil and Matthew MacArthur. 2011. Social media and organizational change. In *Museums and the Web 2011: Proceedings*, Jennifer Trant and David Bearman (Eds.). Archives & Museum Informatics, Toronto. https://www.museumsandtheweb.com/mw2011/papers/social_media_and_organizational_change

[4] Gail Anderson (Ed.). 2004. *Reinventing the Museum. Historical and Contemporary Perspectives on the Paradigm Shift.* AltaMira Press, Oxford.

[5] Antonio Díaz Andrade and Bill Doolin. 2016. Information and communication technology and the social inclusion of refugees. *MIS Quarterly* 40, 2 (2016), 405–416. https://doi.org/10.25300/MISQ/2016/40.2.06

[6] Carmelo Ardito, Maria Francesca Costabile, Rosa Lanzilotti, and Adalberto Lafcadio Simeone. 2010. Combining multimedia resources for an engaging experience of cultural heritage. In *Proceedings of the 2010 ACM Workshop on Social, Adaptive and Personalized Multimedia Interaction and Access (SAPMIA '10)*. ACM Press, New York, NY, 45–48. https://doi.org/10.1145/1878061.1878077

[7] David Beel, Claire Wallace, Gemma Webster, and Hai Nguyen. 2014. The geographies of community history digital archives in rural Scotland. *Scottish Geographical Journal* 131, 3-4 (2014), 201–211. https://doi.org/10.1080/14702541.2014.980839

[8] David Beel, Gemma Webster, Stuart Taylor, Nophadol Jekjantuk, Chris Mellish, and Claire Wallace. 2013. CURIOS: Connecting community heritage through Linked Data. In *Proceedings of DE2013: Open Digital – The Fourth Annual Digital Economy All Hands Meeting*. Salford, United Kingdom.

[9] Mafkereseb Kassahun Bekele, Roberto Pierdicca, Emanuele Frontoni, Eva Savina Malinverni, and James Gain. 2018. A survey of augmented, virtual, and mixed reality for cultural heritage. *Journal on Computing and Cultural Heritage (JOCCH)* 11, 21 (June 2018). https://doi.org/10.1145/3145534

[10] Maria Eugenia Beltrán, Yolanda Ursa, Silvia de los Rios, María Fernanda Cabrera-Umpiérrez, María Teresa Arredondo, Miguel Páramo, Belén Prados, and Lucía María Pérez. 2014. Engaging people with cultural heritage: users' perspective. In *Universal Access in Human-Computer Interaction. Universal Access to Information and Knowledge*, Constantine Stephanidis and Margherita Antona (Eds.). Springler, London, 639–649.

[11] Bronwyn Bevan and Maria Xanthoudaki. 2008. Professional development for museum educators. *Journal of Museum Education* 33, 2 (Nov. 2008), 107–119. https://doi.org/10.1080/10598650.2008.11510592

[12] Graham Black. 2010. Embedding civil engagement in museums. *Museum Management and Curatorship* 25, 2 (May 2010), 129–146. https://doi.org/10.1080/09647771003737257

[13] Janet Blake. 2009. UNESCO's 2003 Convention on intangible cultural heritage: the implications of community involvement in 'safeguarding'. In *Intangible Heritage*, Laurajane Smith and Natsuko Akagawa (Eds.). Routledge, Abingdon, 45–73.

[14] Deidre Brown and George Nicholas. 2008. Protecting indigenous cultural property in the age of digital democracy: institutional and communal responses to Canadian First Nations and Māori heritage concerns. *Journal of Material Culture* 17, 3 (Sept. 2008), 307–324. https://doi.org/10.1177/1359183512454065

[15] Ivana Brstilo and Željka Jelavić. 2010. Culture as a field of possibilities: museum as a means of social integration. *Ethnological Researches* 15 (2010), 161–173. https://hrcak.srce.hr/62376

[16] Luigina Ciolfi, Gabriela Avram, Laura Maye, Nick Dulake, Mark T. Marshall, Dick van Dijk, and Fiona McDermott. 2016. Articulating co-design in museums: reflections on two participatory processes. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '16)*. ACM Press, New York, NY, 13–25. https://doi.org/10.1145/2818048.2819967

[17] Luigina Ciolfi, Areti Damala, Eva Hornecker, Monika Lechner, and Laura Maye (Eds.). 2017. *Cultural Heritage Communities: Technologies and Challenges.* Routledge, Abingdon.

[18] Rachel Clark and Rosie M. Lewis. 2016. Re-configuring inclusion, decolonising practice: digital participation and learning in Black women's community-led heritage. *Journal of Adult and Continuing Education* 22, 2 (Oct. 2016), 135–151. https://doi.org/10.1177/1477971416672323

[19] Elizabeth Crooke. 2006. Heritage. In *Museums and Communities*, Sharon Macdonald (Ed.). Blackwell, Malden, MA, 170–185.

[20] Mathias Czaika and Armando Di Lillo. 2018. The geography of anti-immigrant attitudes across Europe, 2002–2014. *Journal of Ethnic and Migration Studies* 44, 15 (Jan. 2018), 2453–2479. https://doi.org/10.1080/1369183X.2018.1427564

[21] Ron Eglash. 2007. Ethnocomputing with Native American design. In *Information Technology and Indigenous People*, Laurel Evelyn Dyson, Max Hendriks, and Stephen Grant (Eds.). Information Science Publishing, Hershey, PA, 210–219.

[22] Christos Fidas, Christos Sintoris, Nikoleta Yiannoutsou, and Nikolaos Avouris. 2015. A survey on tools for end user authoring of mobile applications for cultural heritage. In *2015 6th International Conference on Information, Intelligence, Systems and Applications (IISA)*. IEEE, 1–5. https://doi.org/10.1109/IISA.2015.7388029

[23] Gerhard Fischer. 2013. End-user development: from creating technologies to transforming cultures. In *End-User Development (IS-EUD 2013)*. Springer, Berlin, 217–222.

[24] Karen E. Fisher, Reem Talhouk, Katya Yefimova, Dalya Al-Shahrabi, Eiad Yafi, Sam Ewald, and Rob Comber. 2017. Za'atari refugee cookbook: relevance, challenges and design considerations. In *Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '17)*. ACM Press, New York, NY, 2576–2583. https://doi.org/10.1145/3027063.3053235

[25] Andrew Flinn. 2007. Community histories, community archives: some opportunities and challenges. *Journal of the Society of Archivists* 28, 2 (2007), 151–176. https://doi.org/10.1080/00379810701611936

[26] Organisation for Economic Co-operation and Development. 2000. *Learning to Bridge the Digital Divide.* OECD Publishing, Paris. https://doi.org/10.1787/9789264187764-en

[27] Hugo Fuks, Heloisa Moura, Debora Cardador, Katia Vega, Wallace Ugulino, and Marcos Barbato. 2012. Collaborative museums: an approach to co-design. In *Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work (CSCW '12)*. ACM Press, New York, NY, 681–684. https://doi.org/10.1145/2145204.2145307

[28] Giuseppe Ghiani, Fabio Paternò, and Lucio Davide Spano. 2009. Cicero Designer: an environment for end-user development of multi-device museum guides. In *End-User Development (IS-EUD 2009)*. Springer, Berlin, 265–274.

[29] Elisa Giaccardi (Ed.). 2012. *Heritage and Social Media. Understanding Heritage in a Participatory Culture.* Routledge, London.

[30] Danilo Giglitto. 2017. *Using Wikis for Intangible Cultural Heritage in Scotland: Suitability and Empowerment.* Ph.D. Dissertation. University of Aberdeen, Aberdeen.

[31] Danilo Giglitto, Shaimaa Lazem, and Anne Preston. 2018. In the eye of the student: an intangible cultural heritage experience, with a human-computer interaction twist. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. ACM Press, New York, NY, Article 290. https://doi.org/10.1145/3173574.3173864

[32] Athina Grammatikopoulou, Sohaib Laraba, Ozan Sahbenderoglu, Kosmas Dimitropoulos, and Nikos Grammalidis. 2018. An adaptive framework for the creation of exergames for intangible cultural heritage (ICH) education. *Journal of Computers in Education* (Aug. 2018). https://doi.org/10.1007/s40692-018-0115-z

[33] Rodney Harrison. 2010. Heritage as social action. In *Understanding Heritage in Practice*, Susie West (Ed.). Manchester University Press, Manchester, 240–276.

[34] Ellen Helsper. 2008. *Digital Inclusion: An Analysis of Social Disadvantage and the Information Society.* Department for Communities and Local Government, London.

[35] Steven Hoelscher. 2006. Heritage. In *A Companion to Museum Studies*, Sharon Macdonald (Ed.). Blackwell, Malden, MA, 198–218.

[36] Chih-Hong Huang and Yi-Ting Huang. 2013. An annales school-based serious game creation framework for Taiwanese indigenous cultural heritage. *Journal on Computing and Cultural Heritage (JOCCH)* 6, 2 (May 2013). https://doi.org/10.1145/2460376.2460380

[37] Liesbeth Huybrechts, Cristiano Storni, Yanki Lee, Selina Schepers, Jessica Schoffelen, and Katrien Dreessen. 2014. *Participation is Risky. Approaches to Joint Creative Processes.* Valiz, Amsterdam.

[38] Serena Iervolino. 2013. Museums, migrant communities, and intercultural dialogue. In *Museums and Communities: Curators, Collections and Collaboration*, Viv Golding and Wayne Modest (Eds.). Bloomsbury Academic, London, 113–129.

[39] Birgit Jentsch. 2007. Migration integration in rural and urban areas of new settlement countries: thematic introduction. *International Journal on Multicultural Societies* 9, 1 (2007), 1–12.

[40] Yasmin Kafai, Kristin Searle, Crîstobal Martinez, and Bryan Brayboy. 2014. Ethnocomputing with electronic textiles: culturally responsive open design

to broaden participation in computing in American indian youth and communities. In *Proceedings of the 45th ACM Technical Symposium on Computer Science Education (SIGCSE '14)*. ACM Press, New York, NY, 241–246. https://doi.org/10.1145/2538862.2538903

[41] Gereon Koch Kapuire, Heike Winschiers-Theophilus, and Edwin Blake. 2015. An insider perspective on community gains: a subjective account of a Namibian rural communities' perception of a long-term participatory design project. *International Journal of Human-Computer Studies* 74 (2015), 121–143. https://doi.org/10.1016/j.ijhcs.2014.10.004

[42] Jenny Kidd. 2019. Digital media ethics and museum communication. In *The Routledge Handbook of Museums, Media and Communication*, Kirsten Drotner, Vince Dziekan, Ross Parry, and Kim Christian Schroder (Eds.). Routledge, London, 193–204.

[43] Stefano Kluzer and Gabriel Rissola. 2009. E-inclusion policies and initiatives in support of employability of migrants and ethnic minorities in Europe. *Information Technologies & International Development* 5, 2 (2009), 67–76.

[44] Jyi-Shane Liu, Mu-Hsi Tseng, and Tze-Kai Huang. 2005. Building digital heritage with teamwork empowerment. *Information Technonology and Libraries* 24, 3 (2005), 130–140. https://doi.org/10.6017/ital.v24i3.3374

[45] Annemaree Lloyd, Mary Anne Kennan, Kim M. Thompson, and Asim Qayyum. 2013. Connecting with new information landscapes: information literacy practices of refugees. *Journal of Documentation* 69, 1 (2013), 121–144. https://doi.org/10.1108/00220411311295351

[46] Federica Mancini. 2015. Incorporating user participation in heritage institutions: approaching institutional strategies in relation to new social media and audience needs. *Journal of New Media and Mass Communication* 2, 1 (2015), 1–15. https://doi.org/10.18488/journal.91/2015.2.1/91.1.1.15

[47] Rhiannon Mason and Zelda Baveystock. 2008. What role can digital heritage play in the re-imagining of national identities? England and its icons. In *Heritage and Identity: Engagement and Demission in the Contemporary World*, Marta Anico and Elsa Peralta (Eds.). Routledge, London, 15–28.

[48] Laura A. Maye, Dominique Bouchard, Gabriela Avram, and Luigina Ciolfi. 2017. Supporting cultural heritage professionals adopting and shaping interactive technologies in museums. In *Proceedings of the 2017 Conference on Designing Interactive Systems (DIS '17)*. ACM Press, New York, NY, 221–232. https://doi.org/10.1145/3064663.3064753

[49] Frances McGettigan, Kevin Burns, and Fiona Candon. 2006. Community empowerment through voluntary input: a case study of Kiltimagh Integrated Resource Development (IRD). In *Cultural Ttourism in a Changing World*, Melanie K. Smith and Mike Robinson (Eds.). Channel View Publications, Clevedon, 124–158.

[50] Manyanga Munyaradzi. 2003. Intangible cultural heritage and the empowerment of local communities: Manyanga (Ntaba Zi Ka Mambo) revisited. In *14th ICOMOS General Assembly and International Symposium: 'Place, memory, meaning: preserving intangible values in monuments and sites'*. http://openarchive.icomos.org/id/eprint/521

[51] William Nitzky. 2013. Community empowerment at the periphery? Participatory approaches to heritage protection in Guizhou, China. In *Cultural Heritage Politics in China*, Tami Blumenfield and Helaine Silverman (Eds.). Springer, New York, NY, 205–232.

[52] Johan Oomen and Lora Aroyo. 2011. Crowdsourcing in the cultural heritage domain: opportunities and challenges. In *Proceedings of the 5th International Conference on Communities and Technologies (C&T '11)*. ACM Press, New York, NY, 138–149. https://doi.org/10.1145/2103354.2103373

[53] Michela Ott, Francesca Maria Dagnino, Francesca Pozzi, and Mauro Tavella. 2014. Widening access to Intangible Cultural Heritage: towards the development of an innovative platform. In *Universal Access in Human-Computer Interaction. Universal Access to Information and Knowledge*, Constantine Stephanidis and Margherita Antona (Eds.). Springler, London, 705–713.

[54] Nazareno Panichella and Maurizio Ambrosini. 2018. Between fears, contacts and family dynamics: the anti-immigrant attitudes in Italy. *Journal of International Migration and Integration* 19, 2 (May 2018), 391–411. https://doi.org/10.1007/s12134-018-0536-6

[55] Ross Parry. 2007. *Recording the Museum. Digital Heritage and the Technologies of Change*. Routledge, Abingdon.

[56] Jahmeilah Roberson and Bonnie Nardi. 2010. Survival needs and social inclusion: technology use among the homeless. In *Proceedings of the 2010 ACM Conference on Computer Supported Cooperative Work (CSCW '10)*. ACM Press, New York, NY, 445–448. https://doi.org/10.1145/1718918.1718993

[57] Iain J.M. Robertson. 2012. *Heritage from Below*. Ashgate, Farnham.

[58] Richard Sandell. 2002. *Museums, Society, Inequality*. Routledge, London.

[59] Nina Simon. 2010. *The Participatory Museum*. Museum 2.0, Santa Cruz, CA.

[60] Jesper Simonsen and Toni Robertson (Eds.). 2012. *Routledge International Handbook of Participatory Design*. Routledge, London.

[61] Laurajane Smith. 2006. *Uses of heritage*. Routledge, Abingdon.

[62] Rachel Charlotte Smith and Ole Sejer Iversen. 2014. Participatory heritage innovation: designing dialogic sites of engagement. *Digital Creativity* 25, 3 (July 2014), 255–268. https://doi.org/10.1080/14626268.2014.904796

[63] Benjamin Sprengart, Anthony Collins, and Judy Kay. 2009. Curator: a design environment for curating tabletop museum experiences. In *Proceedings of the ACM International Conference on Interactive Tabletops and Surfaces (ITS '09)*. ACM Press, New York, NY. https://doi.org/10.1145/1731903.1731946

[64] John Stephens and Reena Tiwari. 2014. Symbolic estates: community identity and empowerment through heritage. *International Journal of Heritage Studies* 21, 1 (May 2014), 99–114. https://doi.org/10.1080/13527258.2014.914964

[65] Cristiano Storni. 2014. The problem of de-sign as conjuring: empowerment-in-use and the politics of seams. In *Proceedings of the 13th Participatory Design Conference: Research Papers – Volume 1 (PDC '14)*. ACM Press, New York, NY, 161–170. https://doi.org/10.1145/2661435.2661436

[66] Georgios Styliaras, Dimiotrios Koukopoulos, and Fotis Lazarinis (Eds.). 2011. *Handbook of Research on Technologies and Cultural Heritage: Applications and Environments: Applications and Environments*. Information Science Reference, New York, NY.

[67] Elizabeth Tait, Marsaili MacLeod David Beel, Claire Wallace, Chris Mellish, and Stuart Taylor. 2013. Linking to the past: An analysis of community digital heritage initiatives. *Aslib Proceedings* 65, 6 (2013), 564–580. https://doi.org/10.1108/AP-05-2013-0039

[68] Gustav Taxén. 2004. Introducing participatory design in museums. In *Proceedings of the 8th Conference on Participatory Design: Artful Integration: Interweaving Media, Materials and Practices – Volume 1 (PDC '04)*. ACM Press, New York, NY, 204–213. https://doi.org/10.1145/1011870.1011894

[69] UNESCO. 2003. Convention for the safeguarding of the intangible cultural heritage. Paris: UNESCO. Retrieved January 29, 2019 from https://unesdoc.unesco.org/ark:/48223/pf0000132540

[70] Chiel van den Akker and Susan Legêne (Eds.). 2006. *Museums in a Digital Culture. How Art and Heritage Become Meaningful*. Amsterdam University Press B.V., Amsterdam.

[71] Mark Warschauer. 2004. *Technology and Social Inclusion: Rethinking the Digital Divide*. MIT Press, London.

[72] Emma Waterton and Laurajane Smith. 2013. *Heritage, communities and archaeology*. A&C Black, London.

[73] Anne Weibert, Konstantin Aal, Nora Oertel Ribeiro, and Volker Wulf. 2017. "This is my story...": storytelling with tangible artifacts among migrant women in Germany. In *Proceedings of the 2017 ACM Conference Companion Publication on Designing Interactive Systems (DIS '17 Companion)*. ACM Press, New York, NY, 144–149. https://doi.org/10.1145/3064857.3079135

[74] Raelene Wilding. 2012. Mediating culture in transnational spaces: an example of young people from refugee backgrounds. *Continuum: Journal of Media & Cultural Studies* 26, 3 (2012), 501–511. https://doi.org/10.1080/10304312.2012.665843

[75] Heike Winschiers-Theophilus, Nicola J. Bidwell, and Edwin Blake. 2012. Community consensus: design beyond participation. *Design Issues* 8, 3 (July 2012), 89–100. https://doi.org/10.1162/DESI_a_00164