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CultureLabs: cultural heritage and digital technology at the service of social innovation

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Abstract. Studies and practice in the cultural field have long acknowledged the importance of participatory approaches for engaging visitors of cultural institutions, however, it is only recently that we are talking about steps to connecting institutional heritage with civic initiatives that can aid social cohesion and community empowerment. In dialogue with ongoing practices in this context, CultureLabs aims to develop novel methodologies and digital tools that can facilitate the organisation and wider deployment of participatory projects around cultural heritage, focusing on the social inclusion of disadvantaged groups, and particularly of migrant communities. As a first step in this process, the CultureLabs team has conducted a series of interviews and surveys with the aim to identify and analyse the organisational needs and lessons learnt by different actors from the cultural, social, educational and public administration fields as well as the needs and viewpoints of different migrant communities. These needs have guided the design of an innovative online platform which seeks to offer a number of services for supporting more efficient and participatory governance of cultural heritage on one hand and for enabling inclusive and creative interactions with digital cultural heritage on the other. The CultureLabs platform will allow multiple and diverse stakeholders to discover and combine different resources and elements of best practices, the “ingredients”, in order to form new “recipes” for social innovation according to their own needs and objectives.

Keywords: participatory approaches, social innovation, cultural heritage, community engagement, social inclusion, digital technologies.

1 CultureLabs overview

CultureLabs (culture-labs.eu) is a three-year Horizon2020 Research and Innovation project which started in April 2018. It is funded under the Horizon 2020 Societal Challenges pillar with the aim to develop novel methodologies and ICT tools that can facilitate the organisation and wider deployment of participatory projects for social innovation through cultural heritage. CultureLabs’ case studies and pilots focus on different migrant communities (refugees, second generation migrants, female migrants) and on approaches that can build bridges between their living culture and mainstream CH. The project is in the process of designing and implementing an open online platform which will make available and searchable a rich pool of resources including best

practices, policies, co-creation methodologies and tools, digital tools, existing participatory projects, as well as novel ideas and approaches that can facilitate social innovation through culture.

The platform is addressed to a wide range of institutional stakeholders (including museums, non-governmental and other civil society organisations, and public administrations), as well as community members (local citizen, migrants of different generations) and aims to enable them to make use of existing shared, and in many cases commonly created, resources, according to their missions and needs, which can greatly vary. **Different resources, the “ingredients”, can be combined in various ways to form a “recipe” that describes the defining elements and the process of carrying out a participatory engagement project** (from crowdsourcing and co-creation workshops to co-curated exhibitions and theatre performances). Among the main objectives of the CultureLabs project is to make ingredients and recipes reusable and adjustable, so that helpful resources and elements from different recipes can be combined and customised to meet different objectives and the needs of different target groups. Collaboration and communication between different actors is encouraged and supported via services that facilitate sharing and co-editing of resources and best practices, forming user groups with different permissions, exchanging ideas, collecting feedback etc.

1.1 Focus of the current paper

Social innovation in and via cultural heritage is an emerging broad new field, which seeks to explore how Cultural Heritage (CH) as a practiced domain can connect to civic society and grassroots initiatives with the aim to meet a variety of social needs and resulting in new means of organisation and cooperation [1]. In this context, CultureLabs seeks to explore the role of digital technology as a facilitator and mediator of participatory approaches in the intersection of CH and social innovation, with a focus on the social inclusion of migrants and refugees. Digital technologies influence the way in which some forms of participation around heritage occur (for example through interactive exhibitions, content sharing, personal stories etc) and can provide means for supporting representation and collaborating with others [2]. At the same time, it is important to take special precautions so that the digital space does not reproduce certain forms of social exclusion or even creates new ones [3].

Situating our study in this complex and multidisciplinary context, in this paper, we would like to focus on the following issues which are relevant to the topics of interest of the 2019 workshop in Cultural Informatics:

- **Needs analysis:** we investigate the needs and user requirements of the intended target groups of the CultureLabs technological platform, considering the viewpoints of a cohort of people coming from different sectors – cultural field, civic society, public administrations – and different social groups – organisations’ members of staff on one hand and members of migrant communities on the other.
- **Evaluation methodology:** given that the project has just completed its first year of operation, hereinafter we outline some distinguishing elements that underpin

the multi-dimensional evaluation methodology to be followed by CultureLabs rather than describing concrete processes, indicators, and evaluation means.

- **Digital technologies for efficient and inclusive collaboration and governance:** the project proposes a set of digital services that can facilitate the collaborative organisation of participatory projects in the field of cultural heritage and beyond, supporting information and ideas exchange, streamlining of activities, sharing of best practices, and communication between different actors. The ultimate goal is to serve the diverse needs of multiple stakeholders while working towards the common goal of social innovation.
- **Digital technologies for inclusive and creative interactions with Cultural Heritage:** the project explores digital tools for the reuse, enrichment and co-creation of digital CH (e.g. collaborative virtual exhibition creation, crowdsourcing campaigns, federated search across multiple repositories, collaborative collection management etc) that can be used by projects aiming at social inclusion and community empowerment.

These issues are not approached as separate topics but viewed in their interconnection, resonating with concerns from user-centered design and theories about the social shaping of technology [4]. In this respect, specific challenges and questions arise. How can the high-level and heterogeneous needs of diverse stakeholders be translated into functional requirements for the technological platform so that it is usable and useful for all? How can the various intended target users be effectively involved in the design of the platform? How can the services offered by the platform meet diverse needs and facilitate the collaboration between actors coming from different sectors and social groups? How can elements from successful recipes for social innovation in culture (and beyond) be tailored to accommodate the objectives of a specific project, organisation, or community group?

1.2 Consortium

The CultureLabs consortium includes actors with different expertise, including cultural professionals from museums with experience in community-oriented approaches, field staff from non-governmental organisations working with migrants, social innovators, researchers from the fields of computing and social sciences, and technical experts. The partners, coming from Greece, the United Kingdom, Finland, Italy, Spain, and Germany, are:

- Institute of Communication and Computer Systems of the National Technical University of Athens – Coordinator (Greece)
- Sheffield Hallam University (UK)
- Museovirasto-Finnish Heritage Agency (Finland)
- People's History Museum (UK)
- Cooperativa Sociale COOSS Marche Onlus (Italy)
- European Forum for Migration Studies (Germany)
- Platoniq CoLaboratory
- Fondazione Sistema Toscana (Italy)
- Singular Logic (Greece)

2 Issues in Humanities

CultureLabs' needs analysis and evaluation methodology follow two parallel paths. The first path concentrates on investigating the needs and practices of institutional stakeholders, primarily CH institutions but also public administrations, and civil organisations with experience in working with groups in risk of marginalisation, particularly migrant and refugee communities. The second path of research is concerned with the social integration/innovation needs and living grassroots heritage of different migrant communities.

At the current stage (end of the first year of the project), the needs analysis regarding migrant communities is still at the stage of data collection (via online and paper questionnaires, informal group discussions and interviews). Therefore, hereinafter, we only focus on the viewpoints of institutional stakeholders, namely members of organisations from the cultural, social, educational and public administration sectors.

2.1 Institutional stakeholders needs analysis and user requirements

The viewpoints of practitioners in the cultural sector as well as of their counterparts in initiatives oriented towards disadvantaged groups can offer very useful insights and lessons in this respect. Museum professionals, artists, people working in NGOs or local administrations who work "on the field" with migrants and other disadvantaged groups often feel that their opinions and experience from their work on the ground are not heard and adequately valued by the leadership of their organisation or policy makers, sometimes leading to feelings of disillusionment and disengagement [5]. Although there have been quite a number of working groups and reports which explore the ways in which cultural institutions are working with migrants and refugees and make helpful recommendations, e.g. [6, 7, 8], more attention should be given to recording and reflecting on the opinions of staff members who do the front-line work in projects with a focus on social inclusion and empowerment using cultural heritage.

The institutional stakeholders' needs analysis aims to contribute towards filling this gap and to complement and add nuanced empirical material and novel insights to on-going discussions and previous findings. In this respect, we can say that it distinguishes itself from previous studies, e.g. [5, 9, 10], in the following ways:

- the broad spectrum of organisations and practitioners considered, not limited to cultural professionals but consolidating the opinions of different actors in the cultural, social, educational and public administration sectors under the converging lens of cultural heritage's role in social inclusion and empowerment
- the multiplicity of needs it considers, heeding very practical and organisation-level issues as well as issues at the policy level
- the particular attention paid to what kinds of technological tools can mitigate barriers and facilitate organisations with different strategies and objectives to efficiently collaborate and organise and implement participatory projects.

The needs analysis was carried out through an online survey with 90 participants from the cultural, social, educational, and public administration sectors and 21 in-depth interviews which explored the practices of several actors, the barriers they face, their need for certain facilitating technologies, and the lessons they have learnt. Additional research dedicated to investigating the needs with respect to digital services and tools and to deriving user requirements for the technological platform has been conducted via an online survey with 66 participants and 24 interviews. Some of the needs and concerns which emerged include:

- need for **collaborative tools** that facilitate sharing of resources, co-working, and exchange of know-how between different actors
- need for services and tools that can document and streamline participatory projects, so that the results, experience, and **knowledge gained by past projects is not lost but rather sustained in a structured way**
- need for tools that can reinforce the replicability and adaptability of good practices so that **past successful projects can be customised to serve different settings and actors**
- need for **impact assessment methods and tools** related to participatory projects in social innovation
- need for easy and efficient **search and access to well-documented and high-quality material** based on specific criteria/filters (not provided by general-purpose or CH-oriented search engines) tailored to the process of organising community-oriented participatory projects. High interest was expressed for co-creation methodologies and tools and information about successful past projects.
- need for tools that can help institutions **gain a better understanding of migrants' needs and viewpoints**
- need for tools that can aid the **mitigation of language barriers**
- need for tools that can facilitate and encourage communication with the target community but also among different relevant stakeholders (e.g. cultural institutions and NGOs supporting migrants) via the **exchange of ideas and feedback collection**.

The results of the needs analysis have been used to inform the user scenarios and use cases that guided the design of the CultureLabs technological platform. The high-level user requirements have been translated into functional and technical requirements to be fulfilled by the platform as outlined in Section 3. In line with the user-centered design and agile principles, stakeholders representing the intended users are involved in the design process of the technical platform and in continuous communication with technical partners, so that early and frequent feedback is taken into account during the development cycles.

2.2 Evaluation methodology

Given that the CultureLabs project has just recently completed its first year, the evaluation methodology, indicators and tools to be used are yet to be decided. However, we

would like to point here to some preliminary concerns regarding the evaluation process to be followed by the project.

For CultureLabs, the objective of the overall infrastructure's evaluation is not limited to measuring "user experience". It is rather a multi-dimensional process -applying to aspects such as usability, usefulness, effectiveness, appropriateness, efficiency, and replicability - and has to take into account:

- i. **The multiplicity and diversity of actors that the infrastructure addresses:** professionals and practitioners from CH institutions, civil society organisations, public administrations, and social enterprises on one side; and the members of disadvantaged communities on the other. The evaluation framework has to be flexible enough so as to track the perceptions of a highly diverse group of users who use the platform for different purposes and start from different motivations.
- ii. **The multiplicity of digital tools offered by the platform** (see also Section 3). The evaluation framework has to be able to measure, among others, the extent to which:
 - the digital services offered by the platform, and especially its openly accessible and searchable pool of various resources, can provide inspiration and contribute to idea fruition, both for actors experienced in participatory approaches as well as for novice ones. For the latter, it will be interesting to measure the motivational effects of the platform.
 - the platform can streamline and support the organisation of new recipes, i.e. participatory projects, for social innovation in the cultural field and beyond
 - the platform can facilitate and even encourage the collaboration among different stakeholders interested in social innovation;
 - the platform facilitates the exchange of ideas, information and feedback between the different actors
 - the platform facilitates the implementation of innovative interactions with digital CH, e.g. the co-creation of digital exhibitions, launching crowdsourcing campaigns, etc, and how these can contribute to social inclusion and community empowerment.
- iii. **The importance of emotions and feelings** related to the pleasure of participating in a "space of dialogue", working together, feeling respected, appreciated, safe, useful etc.

3 Issues in Technology

Figure 1 provides an overview of the main components and functionalities offered by the CultureLabs infrastructure.

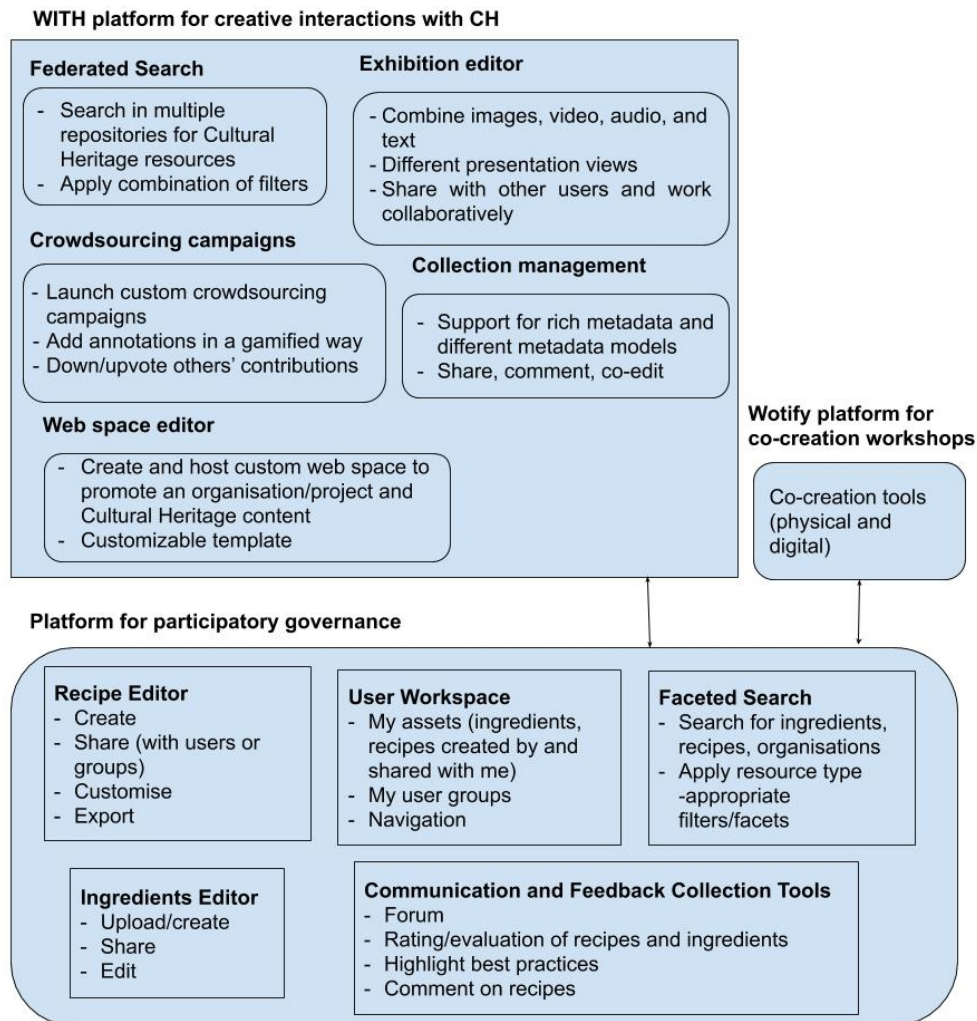


Figure 1. CultureLabs infrastructure overview

The CultureLabs infrastructure combines services from three interconnected platforms:

- The main CultureLabs platform offers a number of services for efficient and inclusive *governance*, in the form of tools that systematise and facilitate the organisation and running of participatory projects
- The WITH platform [11] (withculture.eu and <https://withcrowd.eu>) is an existing platform developed by NTUA that provides access to a rich variety of digital cul-

tural heritage items from different repositories and offers a number of added-value services for the creative reuse and exploitation of such content

- The Wotify platform (<https://wotify.eu>) provides a set of methodologies and physical and digital tools developed by Platoniq for co-creation workshops.

In the following subsections, we focus on some specific functionalities which we believe bring to the fore some interesting technological issues that are relevant to the Cultural Informatics workshop.

3.1 Participatory governance of projects for social innovation in and via cultural heritage: customisation and collaboration

Given that the CultureLabs platform addresses numerous and diverse stakeholders and communities, the offering of **customisation possibilities** stand at its core. The ability “to “reuse and customise existing projects” has emerged as one of the most important user requirements from the online surveys and interviews with stakeholders (see Section 2.1). Customisation here should not be understood as adaptation to *individual/personal* interests but rather from the more complex perspective of an *organisation* or *social group* that is involved in a given participatory project. In this respect, the CultureLabs platform provides diverse ingredients (best practices, policies, digital tools, impact assessment tools, CH resources etc.) and recipes templates that can be appropriated and reused in different settings and by different actors in the cultural and community empowerment domains.

The *Recipe Editor* (see Figure 1) component enables users to create new recipes, i.e. structures that describe how to carry out a participatory project from scratch but also to customise existing ones, offering a high degree of flexibility. By using the Recipe Editor in tandem with the faceted search and navigation services offered by the platform, users can get inspiration from previous similar projects, discover helpful material, and adjust recipes created by others (e.g. modify the steps/activities of the recipe, its ingredients, its target groups, its objectives etc), so as to serve the needs of a new project.

The ability to **work collaboratively on recipes** through sharing and co-editing functionalities, as well as for exchanging ideas, is considered an essential element to be offered by the platform. Recipes and ingredients can be shared with users and user groups. The platform supports different permissions which entail different degrees of collaboration (e.g. just read and comment on a recipe, be able to make edits etc.) while ensuring that parts which the creator wishes to be kept private or unchanged remain as such.

The platform will also support a star-based rating and evaluation functionality which will enable users to give their preference for specific recipes and ingredients. Recipes and ingredients that have received positive feedback from users and/or selected by reliable stakeholders (e.g museums or NGOs with experience in social innovation) will be highlighted as *best practices*.

3.2 Creative reuse and interactions with digital Cultural Heritage

CultureLabs seeks to explore how digital tools that support creative experiences and interactions with CH can be used as an instrumental force towards grassroots CH empowerment, social inclusion, and intercultural dialogue. How can such tools help to open up valuable institutional CH to disadvantaged communities or communities disconnected from mainstream CH? How can they contribute to social integration and to raising awareness about the living CH of marginalised groups or groups disconnected from dominant CH? How can existing tools be extended and adapted to accommodate for the needs of disadvantaged groups (e.g. consider how the language barrier can be overcome via visual narratives)? How can the offered services connect to aspects of tangible and intangible heritage important to migrant communities, e.g. food and drink heritage, music, oral histories, etc?

The WITH platform (see Figure 1) offers a number of services for creative encounters and reuse of digital CH items. A rich variety of functionalities is provided, so that it can match diverse needs, motivations and working ways of the multiple actors considered by the project. Some functionalities are expected to appeal more to certain types of actors and less to other. For instance, functionalities related to collection management are expected to appeal more to cultural heritage professionals. On the other hand, the same functionalities can be used in different settings and serve different objectives. For example, the virtual exhibition editor can be a tool in the hand of a community who wishes to promote digital content they have collected about their living heritage or can be used by a cultural heritage professional who wishes to embed alternative narratives around a museum's digital exhibits. Similarly, a crowdsourcing campaign can be setup with the aim to enrich the metadata of a CH Institution's digital artefacts and a different setup can be used with the aim to improve the skills of certain groups in a playful way, for example in the context of a language course for migrants.

The platform offers several *collaborative capabilities* enabling users to form teams, share their creations with other users or user groups, work collectively on collections and exhibitions, like and comment other users' creations, etc. Its basic components include:

- **Federated search:** Through the search UI, the user can perform advanced search using a number of filters, and discover and retrieve by issuing a single query digital CH from several digital CH resources, such as Europeana, the Digital Public Library of America, the Rijksmuseum, the British Library, the National Library of Australia and other.
- **Collection management:** Via a personal workspace, users can aggregate and organise into collections different types of cultural resources collected from external resources or uploaded by themselves. Users can annotate/tag cultural items and link them with external vocabularies and thesauri.
- **Exhibition Editor:** The editor enables users to tell their own stories by combining heterogeneous material, from videos to audio and text, and presenting them in a visually appealing way.

- **Web space editor:** Through a user-friendly interface, stakeholders can set-up their own web space to display their content in a visually appealing way and provide information about a project and its collaborators. The editor allows customisation with respect to a number of parameters, such as presentation features like color, theme and banner.
- **Crowdsourcing campaigns editor:** The WithCrowd component (<https://with-crowd.eu>) enables CH professionals and other stakeholders to setup and deploy their own custom crowdsourcing web spaces that present end-users with specific challenges, mobilizing and engaging community members to execute useful tasks for the enrichment of selected cultural heritage assets. The crowdsourcing platform supports playful elements such as leaderboards and user voting functionalities.

In the framework of the CultureLabs project, these services will be adapted and extended so as to serve particular needs that will arise especially from the pilots, which will test in practice how digital tools supporting innovative interactions with CH can be used in participatory projects involving different migrant groups. The WITH platform will be interconnected with the main CultureLabs platform so that digital CH items, collections, and exhibitions of WITH can be published as ingredients to the main CultureLabs platform and linked to specific recipes.

4 Open Challenges

Social innovation in and via cultural heritage creates a whole new set of questions and opportunities for humanities and technology, pertaining both to research and practice domains. The issues considered in the current paper only demonstrate a fragment of the complex discourse on how digital technologies can support dialogue around cultural heritage in a way that encompasses a greater and more diverse set of actors [12].

Reflecting on the four main issues of focus identified in Section 1.1 and the perspectives under which these have been investigated by the CultureLabs project, we would like to make the following remarks and open questions, which we propose as possible triggers for thought for the 2019 Cultural Informatics workshop or subsequent discussions. We believe that the exploration of such questions can help us take a renewed look at the role of cultural informatics, going beyond the expert- and visitor-oriented approaches and moving towards embracing a greater and more diverse set of communities and perspectives.

Needs analysis and user-centered design: When considering the needs that digital technologies in the field of cultural heritage seek to address, these are often limited to needs coming either from visitors interested in high-tech experiences or heritage professionals interested in the presentation and preservation of cultural assets. How can the space of digital heritage be augmented and accommodate for the multiple and often diverse needs of actors from different sectors and social groups? What is the role that these actors can have in the design process of digital tools and what perspectives can they contribute?

Evaluation methodology: The broadening of scope in terms of who are recognized as significant beneficiaries and of what kind of aspirations they may have calls us to reconsider the customary user experience measures. What are the dimensions of “experience” that are regarded significant by the different groups, depending on their motivations and needs? What kind of nuances does this diversity of actors and expectations imply for traditional indicators such as utility, usability, stimulation? What kind of assessment methods should be used to gauge the attitudes of multiple intersecting groups?

Digital technology for efficient and inclusive collaboration and governance in the field of cultural heritage: Openness is not only about making cultural heritage assets more accessible by broader groups of people but also about democratising the processes via which these assets (both tangible and intangible) are produced and managed. How can digital technologies create opportunities for different stakeholders to come together and work collaboratively? What kind of tools can help systematise the construction of a collective intelligence for social innovation? And how can this broad body of knowledge be appropriated, reused, and customised to serve different needs and actors in the cultural and community empowerment domains?

Digital technology for inclusive and creative interactions with cultural heritage: If heritage is to be connected to the social and political realities of our time, we should start thinking about how digital technologies can go beyond just demonstrating information and content – even if via immersive, interactive, and personalised experiences – and move towards supporting co-creation and dialogue with groups that have different expectations and can offer different perspectives. What kind of digital designs and technologies can be used to connect and enrich the valuable CH exhibits of museums with grassroots CH and alternative narratives, thus reshaping the way they are interpreted and experienced? How can existing tools be extended and adapted to accommodate for the needs of groups at risk of marginalisation or disconnected from dominant CH?

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