Sharing and Visualizing Collective Memories – Contexts and Strategies for a Participatory Platform

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Abstract. Technology can be designed to strengthen the participatory culture and giving a voice to people through User-Generated Content (UGC). Such practices may also influence the way we engage with places and communities. In this regard, we propose the conceptualization of an online platform to promote participation and preserve audiovisual records of shared experiences. Memories attached to places and cultural events, such as concerts, traditional celebrations and visits to landmarks and exhibitions, are frequently captured on multimedia records, which are often shared online by those who experienced them. The aggregation and correlation of these audiovisual resources, in a participatory platform, may enhance these experiences through forms of presentation based on multiple perspectives, making them collective. To gather insights and make proof of concept the method of exploratory interviews followed by a qualitative content analysis was adopted. Hence, the conceptualization of a digital platform that allows the creation of a living collaborative archive that preserves the uniqueness of each resource, but, in addition, allows an overview and combination of other participants' contributions, was presented to experts within the areas of archives, museology, heritage, ethnography, community projects, cultural events, design, participatory media and digital platforms. This paper presents a segment of the interviews' results concerning relevant use contexts along with recommendation and strategies for collection, visualization and participation to guide the development process of prototypes to be tested with target-users, whining a PhD research.

Keywords: Collective memory · Participatory platform · Experts · Interviews

1 Introduction

This paper aims to present the qualitative results gathered with experts about the concept of a participatory platform to share and visualize audiovisual collective memories, within a PhD research about the role of participation in the 21st century visual culture. In terms of structure, the document comprises six sections: the introduction to the study; the contextualization of the main concepts and authors in terms of theoretical background and related work; the outline of the main goals of the platform and the overall concept; the methodology and objectives of the paper; the presentation of results regarding use contexts and strategies; the discussion of results, opportunities and challenges and; the overview of contributions for future work.

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2 Theoretical Background and Related Work

2.1 User Participation and Digital Storytelling

The increasing possibilities for online participation, by means of User Generated Content (UGC) and life testimonials, are gradually being regarded as relevant contributions for, among others, building collective memories and encouraging user-led practices to safeguard communal legacies [1]. Paved by a *convergence culture* [2], participatory media contribute to build a sense of community, as people actively create and share content around common interests. Participation through UGC enables user control but, at the same time, opens new possibilities for visual presentation, since the same data can be tailored to tell different stories using distinct visualization models and aiming to achieve richer and more compelling stories [3]. Additionally, mobile became a trend as a medium-specific genre, giving rise to many formats based on the coaction between visual codes, narrative, and technical possibilities [4].

Currently, content production uses the affordances of Web 2.0 and mashup technologies [5] to deliver media that combine human and software agency to increase value when exploring physical places. Geolocation services, like Google Maps and other applications based on the individual and community displacements, have mainstreamed digital mapping as a daily practice, applied to tourism, education, gaming and utility services. Locative technologies can be boosters of place-based storytelling and promote real-time awareness, enhancing experiences by triggering contextual information. These mediated geographies can be created by a *collective intelligence* [6], using networks of users that structure and expand meaning within existing information. In this regard, participatory platforms can promote social dynamics around media and operate as means of expression and cohesion for different groups, while also contributing to generate and expand communal archives.

Approaching events as shared constructs amplifies how experiences are enjoyed when they occur, and also motivates keeping records for the future. These digital records (photos, videos, comments) are embedded with emotional value that surpasses their documental role. That is why many social media applications, like Facebook, Instagram or Google Photos, increasingly explore the sense of nostalgia, by sending notifications about past publications to celebrate memories. Such strategies induce the feeling of reliving the moments and the sense of belonging to a community, motivating social engagement. These interactions tend to rely on UGC, which is remixed and replicated to convey group storytelling [7] thus becoming more relatable.

2.2 Visualization Models Applied to Human Computer Interaction (HCI)

Considering the importance of visualization in the concept of the proposed platform is important to consider reference authors in the field of Information Design, such as Edward Tufte, known for detailing principles and models for coding and envisioning information into manageable knowledge [8, 9]. Also, relevant to be mentioned is the subfield of Information Visualization (InfoVis), which was adopted in the field of HCI to describe systems that usually rely on interactive graphics. In this context, Ben Shneiderman [10] introduced the mantra of visualization – "Overview first, zoom and filter, then details on-demand" – that highpoints the importance of maintaining a sense

of context and control over the information to identify and deepen the users' interests. Another important aspect regarding means of attaching emotion to visualization is storytelling, approached by the genre of *narrative visualization* coined by Segel and Heer [3]. Also, the emergence of visualizations with larger data sets has promoted the update of taxonomies [11] to accommodate cutting-edge examples instigated by creative tools. Considering the diversity of genres and purposes, is important to distinguish two major types of visualizations: one that is explanatory and therefore task-oriented; and other that is exploratory, inviting to a contemplative and playful fruition, usually called *casual visualizations* [12], which includes artistic and participatory approaches. To inform the ideation process of the proposed platform the models and principles of the aforementioned reference authors were considered along with a selection of state-of-the-art projects exploring casual visualizations that correlate resources. The projects were distributed in two groups (see Fig. 1): 1) institutional websites and commercial apps inspired by social platforms; 2) artistic and research projects with experimental visualization approaches.

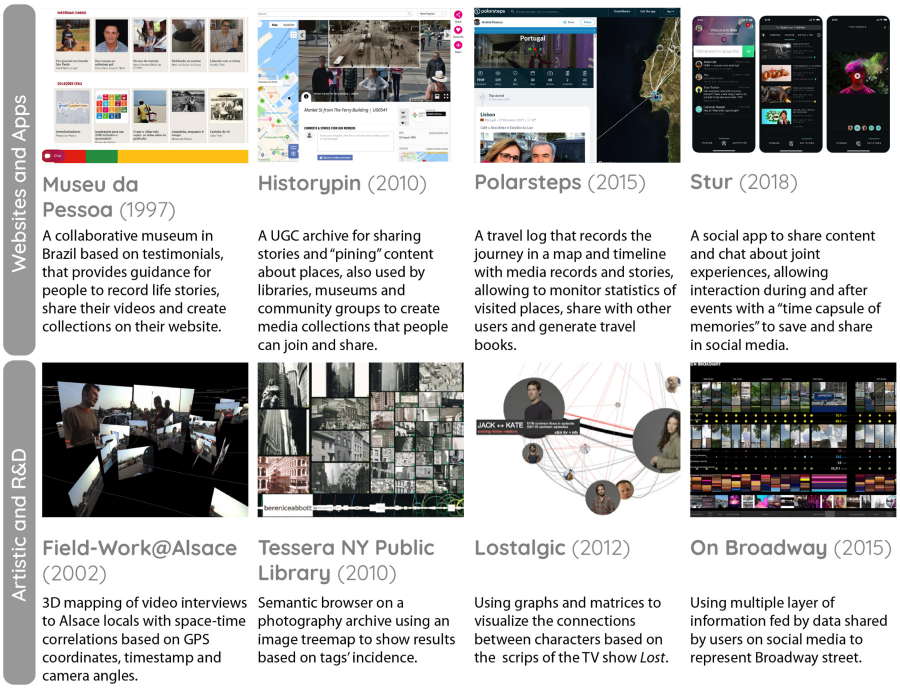


Fig. 1. Groups of selected related work: websites and apps (http://www.museudapessoa.net/pt/home; https://www.historypin.org/en/; https://www.polarsteps.com/; https://www.sturevents.com/) and; artistic and R&D projects (http://www.field-works.net/; Meireles, [11], p. 42; http://intuitionanalytics.com/other/lostalgic/; http://on-broadway.nyc/).

3 The Concept of the Platform

The main goal of the proposed platform is to give autonomy to users to collect and share UGC of collective experiences to create richer narratives based on correlated visualizations (combining, for example, time, geolocation, semantic correlation, networks of users, etc.) aiming to preserve the uniqueness of each resource. It is also aimed to provide an overview of the other participants' contributions to build an expanded and living archive. The proposed concept was subjected to a first stage of evaluation by means of a video presentation to a group of experts (see Fig. 2) followed by a semi-structured interview. The concept was briefly explained with a voiceover: "(1) *Imagine a mobile app that allows you to share records of past or ongoing events with people who have also been there or have relevant information about them…* / (2)*… to obtain visualizations that combine resources from multiple users boosted by social engagement and the creation of new connections between content, to enhance the depiction and get a deeper understanding of the event. As a collaborative living archive, this system aims to generate forms of visualization that are modelled according to users' participation…* / (3)*… and also to generate 'snapshots' that synthesize and evoke the collective memory of that event, which can be saved and shared with others*".

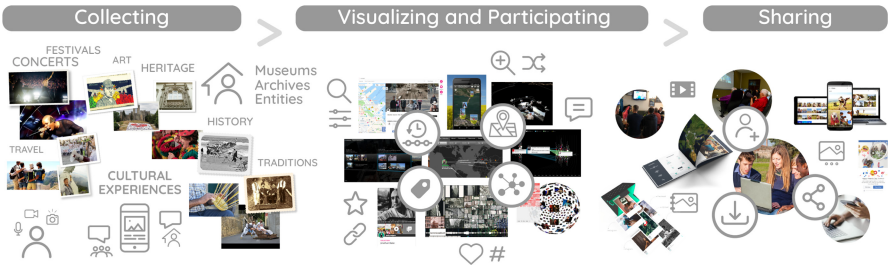


Fig. 2. Screenshots of animated infographics included in the video of the platform concept.

4 Methodology

The current research adopts a Grounded Theory methodology [13] with a Participatory Design approach [14] relying on mixed methods. This paper presents the qualitative data gathered from exploratory interviews with experts towards the systematization of guidelines to the prototype development of a participatory platform for easy collection and correlated semantic presentation of audiovisual records of collective experiences. The identification of a set of visualization models and review of related projects led to the ideation of the platform concept that was presented to a group of experts to gather

qualitative insights through semi-structured interviews, coded and analysed using the software NVivo. The video call interviews took place between June and September 2020 with an approximate duration of 90 min according to a script of 12 questions organized in four groups: 1) about the overall concept of the platform; 2) about the content collection; 3) about the filtering, combination and curation processes; 4) about presentation and visualization approaches along with proposals of features and use contexts. The experts were challenged to brainstorm about the concept in the ideation stage, according to their personal and professional experience, as well as encouraged to freely express opinions and suggestions.

Following the qualitative method to content analysis of Laurence Bardin [15], the analysis dimensions defined in the script were subsequently recoded and regrouped after the reading of the full transcripts, that brought unforeseen aspects mentioned by the experts. On the one hand, there was a vertical and subjective analysis of the discourse of each of the interviewees and the richness of their feedback, references and recommendations. On the other hand, a horizontal and transversal overview identifying the most frequent words associated with themes and comparing the emphasis on specific topics and concerns, using NVivo matrix coding queries. This paper presents a segment of the qualitative data gathered through the interviews, focused on the aggregation of tactics to evoke collective memories and encourage participation, that were systematized in recommendations and strategies, presented in the next section.

4.1 Sample Characterization

The sample comprises eleven experts, between 37 and 55 years old, from which five are male and six are female. The criteria for selecting the experts was based on the significance of their theoretical and practical work in relevant projects in Portugal[1], within the areas of archives, museology, heritage, ethnography, community projects, cultural events, design, participatory media and digital platforms. Figure 3 presents the interviewees identified, with an ID and their profiles, grouped according to areas of expertise that let to the identification of two panels: five specialists are oriented towards humanistic and social science domains in the context of cultural and community dynamics – codified as the panel Culture and Communities (CC); five specialists are inscribed in the field of design, digital art and participatory technologies – codified as the panel Platforms and Participation (PP) and; one of the specialists presents a mixed profile (CC/PP). In addition to gathering a set of complementary contributions that are representative of their field, the definition of two panels intended to verify whether there were differences of opinion according to the area of expertise.

[1] https://arquivodememoria.pt/; https://campus.altice.pt/; http://center.web.ua.pt/; https://cdv.dei.uc.pt/; https://digitalich.memoriamedia.net/; https://gps.pt/u/ffms; https://www.facebook.com/GrETUA.oficial/; https://memoriaparatodos.pt/; https://www.memoriamedia.net/; https://2019.portodesignbiennale.pt/; http://wholewebcatalog.org/; https://institutodehistoriadaarte.wordpress.com/unplace/.

ID	FIELD OF EXPERTISE
	(CC) Culture and Communities Panel
[CC01]	Graduated in editorial studies, cinema and theater, he is an artistic director and cultural programmer of events in an experimental theater company based in a university community.
[CC02]	Historian and full professor, having been Secretary of State for Science, Technology and Higher Education in Portugal. She is the coordinator of several projects with communities, focused on memory, oral history, life testimonies and citizen science.
[CC03]	Social scientist and researcher focused on sociological and ethnographic work with communities. She is a UNESCO consultant for intangible heritage and was the founder of a multimedia archive linked to Portuguese intangible cultural heritage and founder of an international observatory of digital inventories of Intangible Cultural Heritage.
[CC04]	University professor and researcher on the domain of cultural studies, heritage and museology with particular focus on digital art and cultures, having led research projects on web art and online museography. She was director of a national contemporary art museum and is a member of the research network of the Europeana platform and other networks on digital culture and museums.
[CC05]	Curator, university professor and researcher on design history and theory with particular focus on Portuguese visual and material culture. He is the director of a design research unit and the main curator of a national design biennial.
	(CC/PP) Mixed Profile
[CC/PP06]	Designer in an information technology company specialized in the development of museum and heritage management systems, having developed several projects with communities and memory archives. She is a member of Museums and Web research network and a PhD student with research about augmented reality in museums.
	(PP) Platforms and Participation Panel
[PP07]	Designer, university professor and researcher on visual culture and platform studies using network visualization and machine learning techniques.
[PP08]	Designer, university professor and researcher in the field of branding, participatory design and co-creation, collaborating on several projects on creativity and brand activation.
[PP09]	University professor and researcher in the field of participatory media and digital platforms with several projects linked to online communities and participatory dynamics in education.
[PP10]	University professor and researcher in the field of artificial intelligence and machine learning. He is coordinator of a research unit in the field of computational design and information visualization, in which he coordinates several artistic and R&D projects based on locative technologies, big data computing and artificial intelligence.
[PP11]	Designer, digital artist, university lecturer and researcher in the field of new media. Develops cultural programming and web design projects for associations and cultural entities, and artistic interventions using everyday technology (small technology) and content aggregation tools (mashup tools).

Fig. 3. Experts' profile characterization.

5 Results

5.1 Use Contexts and Audience

Departing from the opinions and suggestions of the experts, one of the categories of analysis was subject to an in-depth interpretation, to refine the core concept and identify relevant use contexts. Within the category dedicated to the "I) Overall Concept of the Platform", the following codes were selected: a) "Use Contexts"; b) "User Profiles"; c)

"Needs and Differentiation" and; d) "Challenges". The combined interpretation of these indicators led to the systematization of specific use contexts mentioned by the experts as useful and innovative. Figure 4 summarizes the identified use contexts associated with particular needs and arranged according to their focus and type of participation (more opened or mediated).

TYPOLOGY	Suggestions of USES CONTEXTS and AUDIENCES
	FOCUS: Research and Knowledge
ARCHIVES Based on existing resources and mostly powered by a niche audience	> **Thematic aggregation platform linked to culture and science** that brings together, organizes, makes available in terms of direct access and discovery related resources dispersed on other platforms, not only visual content but also audio resources thus promoting accessibility (e.g. audio description) | AUDIENCE: researchers and specialized audiences [CC04] > **Correlated visualizations of documental collections from institutions** (such museums and archives) to generate debate and instigate diverse readings and depictions (e.g. invite curators and other users to create different paths and perspectives on the collections) | AUDIENCE: researchers and audiences interested in a particular topic [CC: 03, 05; PP: 07, 11]
	FOCUS: Information and Emotion
PLACES Coordinated by a local promoter around place-based resources	> **Territory/cultural mapping** promoted by local agents and expanded by inhabitants and users to offer multiple tangible and intangible experiences on the same content, according to a segmentation of audiences | AUDIENCE: local communities and visitors [PP08] > **Locative and georeferencing tool to collect audiovisual records**, oral testimonies and life stories on the go | AUDIENCE: researchers and communities [CC: 02, 03, 05]
	FOCUS: Emotion and Experience
EVENTS Based on open content sharing including in loco and on the go by different user profiles	> **Platform associated with recurring events**, such as conferences, music festivals and concerts, taking advantage of georeferencing services (e.g. different presentation approaches, stage angles, etc.) and promoting networking among the participants, allowing a quick search for content specific locations, people, previous editions, etc. | AUDIENCE: specialized audiences and fans [PP: 09, 10] > Platform to document and activate participation associated with recurrent events about **traditions and cultural heritage, allowing to explore their evolution over time and establishing connections between different categories of heritage** (e.g. intangible and, tangible such as movable, immovable, natural, etc.) | AUDIENCE: community and local entities, active participants, researchers, stakeholders, visitors, etc. [CC03; CC/PP06] > **Mapping and documenting the process of an event**, from the planning to the records of taking place for future memory (e.g. an exhibition, a concert, a show, etc.) | AUDIENCE: authors, artists, curators, staff, hosts, patrons, sponsors, critics, researchers, educational services, audiences, etc. [CC: 01, 05]

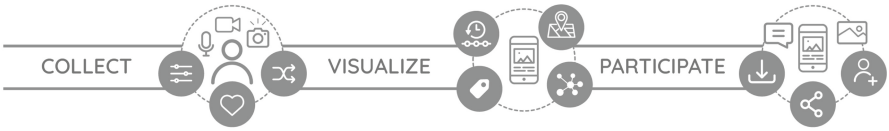
Fig. 4. Systematization of use contexts identified by experts

5.2 Strategies to Collect, Visualize and Participate

Towards guiding the next steps with prototypes' evaluation, three categories of analysis were thoroughly examined and translated into operative recommendations: "II) Content Collection Category" with the following codes: "Interoperability and Metadata", "Copyrights and Privacy" and; "Evocative Resources"; the "III) Content Combination Category" with the codes: "Classification and Curation Systems", "Human vs. Automated Curation" and, "Social Activation and Related Content"; the "IV) Content Presentation Category" including the codes: "Visualization Modes", "Content Flow and Update vs. Memory Fixation", "Visual Storytelling, Emotion and Sense of Collective" and, "User Profiles' Literacy and Generational Preferences".

Figure 5 systematizes the formulated strategies expressed by the experts during the interviews. The three core elements – collect, visualize and participate – are intertwined in the concept of the proposed platform, because the upload of content should be possible during the interaction with other content already shared and, therefore influencing the correlated visualizations. In this sense, the three core elements, as well as the recommendations and strategies, are codependent:

- the identification of the relevant **metadata** is associated with **strategies for content collection**, that highlight some features to include in the input form and data retrieving from the media files shared by users;
- the identification of the most effective **resources** to capture experiences and trigger related memories is associated with **strategies for evocation and visual elicitation**, that address approaches in guiding and encouraging meaningful records and also strategies to their presentation aiming to encapsulate the essence of an experience to evoke similar memories and create a sense of collectiveness;
- the identification of the **presentation formats** mentioned by the experts is related with **strategies for visualization models** to structure the archive of resources and provide several ways of navigating and curating, according to filters of interest and layers of information that highlight the similarities but also the diversity of contributions;
- the identification of existing **motivations and opportunities** is associated with **strategies for joining and participating**, that aim to reduce the activation gap that prevents people to adopt and actively contribute and interact with a new system despite their manifest interest, namely through mediation and activation mechanisms.



Metadata

- **people -** author and who is involved (e.g. tagging);
- **source / context -** where it circulated and what discourses generated (e.g. comments);
- **location -** types of places (e.g. airport, beach), granularity (e.g. country, city, neighborhood, coordinates);
- **time -** temporal references (e.g. season, holiday, 'in the 60s'), granularity (e.g. centuries, years, months, days, time of publication);
- **description -** what it is, why it is being shared and what it means for the community and author;
- **categories / keywords -** suggestion of terms defined and/or already inputted by other users (e.g. thesaurus, hastags).

Strategies for content collection

1. Allow **multiple formats** for users to choose how to **better express**;
2. Provide a **guided and concise form** (4 or 5 fields);
3. Aim for metadata **interoperability** (e.g. IIIF Framework; Dublin Core);
4. Provide **flexibility** but assure **info verification**;
5. Extract **data from the media files** (e.g. EXIF);
6. Use **image vision APIs** (e.g. Google Cloud Vision);
7. Adopt **open access** and **clear disclaimers**.

Media Resources

- **First person testimonials -** authenticity and expressiveness;
- **Mediatic content -** massive and repeated circulation in the media;
- **Sound -** gives the surround and evokes context;
- **Short videos -** avert void moments and being too time consuming;
- **Still image -** more open to several interpretations;
- **Text -** personal meanings and emotions.

Strategies for evocation and visual elicitation

1. Evoke **types of experiences** to trigger related memories;
2. Explore memories of **groups** and **mediatic events** that generated multiple opinions;
3. Trigger **affection** to encourage **qualitative translation of information** (e.g. guiding questions and visual elicitation);
4. Encourage **first person testimonials** (authenticity, accent, body expression);
5. Explore **storytelling** to create **empathy**, **nostalgia** and **appropriation**;
6. Explore a **documental approach** that gives access to the **process** and **multiple sides of a narrative.**

Visual Formats

- **Maps**;
- **Timelines**;
- **Albums** and **Collections**;
- **Media galleries**;
- **Feed and wall model** (e.g. social media profile);
- **Image sequences with reactions** (e.g. stories);
- **Short animations and videos** (e.g. social media memories).

Strategies for visualization models

1. Consider different **goals** according to **user profiles** (informative, playful, exploratory);
2. Provide **several ways of experiencing content** (e.g. filters and visualizations models);
3. Show **diversity** through **multiple points of view**;
4. Explore **layers** of meaning to enrich the content (e.g. **context**, **emotion**, etc.);
5. Explore the shifting between **Zoom-out** (overview) and **Zoom-in** (detail);
6. Balance **automatic presentations** with **users' curation**;
7. Explore both **memory activation** (ephemeral mechanisms) and **memory fixation** (the archive).

Opportunities

- Take advantage of the current **predisposition to digital mediation** amplified by the pandemic;
- Target audiences who want to contribute to the **representation of a place or community** (e.g. locals, fans, researchers, etc.);
- Provide **aggregation and organization** of disperse content shared by audiences with common interests;

Strategies for participating

1. Eliminate cost of adoption by being a **plug-in** (e.g. ticketing or adopted **corporate platforms**);
2. Providing **locative features** to use in **face-to-face events**;
3. Highlight the relevance of **people** to the collective and make **UGC** easily **sharable**;
4. Explore **storytelling** and **social media interaction models** (e.g. immediate, expressive, opened to feedback);
5. Promote **call-to-action events** to activate participation and discussion (e.g. thematic triggers, recall cycles, inviting people to curate and moderate);
6. Use **gamification mechanisms** to attract new users and increase interactions (e.g. give access to extras, offer storage space, attribute reputation badges).

Fig. 5. Recommendations and strategies suggested by the experts to apply in the participatory platform.

6 Discussion of Results

Despite the differentiated profile and the separation of the panels, the eclectic and multidisciplinary sample expressed wide-ranging opinions in their discourse, beyond their domain of expertise. Nevertheless, we highlight the main differences identified between the two panels were:

- The panel Culture and Communities (CC) manifested greater enthusiasm towards the concept, although it placed emphasis on the need for human mediation, which should be carried out by the 'event/project promoters' to guarantee the reliability of the information. Also, this panel pointed the importance of having a guiding structure to avoid disperse and decontextualized information that could generate disinformation and would constitute an obstacle to the application of the platform in historical research and in some institutional contexts. In addition, some elements of the CC panel highlighted the need and potential of such a platform to facilitate the collection of testimonies from communities in loco (many at risk of being lost due to the advanced age of their beholders).
- The panel Platforms and Participation (PP) manifested scepticism about people's adherence to another platform, given the required effort and the cost-benefit face to competitors like social media (already with many followers). Also, in institutional uses, open participation may be problematic and require more regulations that may be interpreted as restrictive and less democratic. Hence, instead of pointing to wider audiences, the PP panel suggested more specialized niche uses (particularly targets that already show appreciation for the emotional and techno-aesthetic dimension of the experience as a differentiating feature).

Nevertheless, both panels emphasized the importance of ensuring the transparency of criteria and mechanisms of the platform towards informed participation. Furthermore, all participants were consensual in avoiding algorithmically biased control mechanisms in favour of self-regulation and peer-reviews. Another relevant topic mentioned by some elements, of both panels, was the contemporary interest in accessing invisible dimensions of processes and events (including the making-of and backstage which allow audiences to connect directly with resources and agents in a non-hierarchical way).

Overall, the use contexts and strategies systematized from the experts' contributions aimed at countering overly closed and imposing systems in favour of shared constructions of meaning from multiple perspectives to enhance scientific cooperation as well as co-creation. Besides the distinguishing feature of aiming to generate correlated and meaningful visualizations from UGC, that may contribute to the depiction of collective memories, we can state that the main opportunity for this platform is related to the general need for content aggregation and exploration. However, despite this opportunity and the findings already described, the experts also mentioned some critical challenges that may compromise the platform's sustainability.

Even with the proper resources to implement and maintain this kind of participatory platform is necessary to be aware of the risk of generating conflicts because collective memory is not consensual and, also, to acknowledge the danger of artificial appropriation of events. In this sense, the purposes of use must consider distinguishing between entertaining scenarios (based on immediate gratification and creative derivation) and scenarios of community production of knowledge. Some degree of compatibility of these instances can be possible but will have to be carefully planned, designed and evaluated with users. In any case, an online digital platform does not necessarily become a living archive. To avoid a quick hype followed by lack of interest is vital to assuring mediation

and activation strategies (complementary to in-person participation in events). For the next stage is prudent to consider testing prototypes with a niche audience from a cohesive group, concerning topics of their interest. It will be more likely they will be committed to providing reliable information and taking an active part in content activation. After the start-up with mobilized groups to feed the platform and gain scale, it will be more favourable to create relevant partnerships to attract institutional uses.

7 Final Considerations and Future Work

The systematization of the qualitative data gathered from related work and the feedback of experts allowed to achieve the objectives of the paper: consolidate the concept, identify use contexts and provide strategies for prototyping a participatory platform to share and visualize audiovisual collective memories. The adopted methodology privileged a participatory design approach by integrating experts during the ideation stage without restricting their opinions with established decisions about the platform interface and features. The goal was to freely identify needs and cultural contexts of use, based on community dynamics generated by the participants (e.g. events like concerts and exhibitions, intangible heritage and traditional celebrations, oral history, and life stories were suggested by the interviewees). Also, some of the main challenges identified by the experts to develop a solution that brings together researchers and communities are: the reliability and contextualization of resources; the transparency regarding the system mechanisms and operations; the sustainability to feed and maintain the system alive without becoming a storage repository; the balance between spontaneous and specialized discourses and; the balance between the design of a simple interface and the features required to make it a useful tool, without neutralizing the emotional drive of capturing meaningful experiences to become collective and cherished memories. Worthy of particular mention is this emotional dimension of the experience and the fact that the sense of collective memory will hardly be consensual, static or well defined. Hence, this will also be a relevant qualitative topic to be explored in focus groups of potential users, to complement and corroborate the experts' insights.

In sum, the operative contributes to guide the prototype development to be tested with users are a set of use contexts (**Archives-driven, focused on Research and Knowledge** – based on existing resources and mostly powered by a niche audience; **Places-driven, focused on Information and Emotion** – coordinated by local promoters; **Events-driven, focused on Emotion and Experience** – Based on open and in loco content sharing by different user profiles) together with recommendations and strategies to guide the development process (relevant **metadata** associated with **strategies for content collection**; effective **resources** to capture experiences associated with **strategies for evocation and visual elicitation**; **presentation formats** related with **strategies for visualization models** and; **motivations and opportunities** associated with **strategies for joining and participating**). Furthermore, we hope these findings may also be helpful for other participatory projects focused on collective experiences combining several resources, that can be preserved, represented and shared as meaningful and insightful memories within communities.

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