Trail Tales: Towards a digital tool for Collective Memory Making

LIESBETH HUYBRECHTS[1], DOLORES VAN DEN EYNDE[2], STEVEN PALMAERS,[3] ELKE KNAPEN[2], GASPER KABENDELA[4] AND JANEPHER KIMARO[4]

ABSTRACT

This paper describes an ongoing project that researches and designs a digital application "TrailTales", that can support Participatory Design processes (Robertson & Simonsen 2012) in case studies we regularly engage with in Belgium and Tanzania to create sustainable and resilient cities. It discusses projects initiated by universities, but searches for direct participation between grassroots communities and public governments to innovate knowledge on participatory urban planning processes. The digital tool "TrailTales" evolved from an existing tool and is evaluated and adjusted to cater to the need of Collective Memory Making. To analyse and evaluate the existing tool, a mix of methods was used, including quantitative methods to analyse digital tools' data, and qualitative methods such as in-depth semi-structured interviews and co-creative/participatory prototyping and testing.

INTRODUCTION

This paper responds to public governments' search for how Circular Urban Economy (CUE) approaches can more effectively be carried out. With CUE processes, governments pursue innovative and sustainable ways to transition their environment to tackle contemporary challenges brought about by climate change (Hallin et al. 2021). Public governments more often tap into the field of Participatory Design (PD) and commission participatory designers to support such sustainable transition processes because of their rich experience with how design can support governments in shaping alternative (power) relations with different actors and stakeholders. In doing so, designers often operate on an in-between level, engaging in "institutioning" processes (Huybrechts, Benesch & Geib 2017).

Based on previous, independent case studies carried out by authors, the need for a collective memory was indicated (Huybrechts et al, 2024). By engaging with communities and grassroots initiatives, it became clear that local on-the-ground knowledge provides essential insights in the needs and challenges. Thus, actively engaging in Collective Memory Making (CMM), and gathering, and documenting this knowledge is key to smoothen future CUE/PD/institutioning processes that might benefit from similar approaches. However, these cases highlighted the need for a well-suited, and useable digital tool to do effectively so.

Therefore, this paper provides insights into an ongoing project that researches and designs a digital tool "Trail Tales", to support such Participatory Design processes (Robertson & Simonsen 2012) in case studies we regularly engage with in Belgium and Tanzania. The principal researcher already developed an existing digital tool. Based on knowledge generated from the use of this tool in previous cases, the paper reveals the deficits and the

[1] Arck/Digital Future Lab. Email liesbeth.huybrechts@uhasselt.be

[2] ArcK
[3] UHasselt, Digital Future Lab
[4] Ardhi University

potentials of the tool for institutioning processes in CUE processes. It poses the question: how can TrailTales, a digital tool, facilitate Collective Memory Making and support institutioning processes?

In conclusion, the paper seeks the needs, opportunities, and challenges for developing a digital tool that is comprehensive and usable as a platform for CMM and gathers and stores valuable information for future CUE/PD/institutioning processes

2. THE NEED FOR A DIGITAL TOOL TO FACILITATE CMM AND SUPPORT SUSTAINABLE TRANSITION PROCESSES

2.1. The rising trend of CUE/PD/institutioning processes

To improve and transition cities to become more sustainable and resilient in a global landscape that needs to respond to climate challenges, (e.g. rising temperatures, extreme weather conditions) Circular Urban Economy (CUE) strategies and ambitions are pursued(Friant, Vermeulen & Salomone 2024). Therein, public governments increasingly seek innovative knowledge creation on participatory urban planning processes and commission Participatory Design (PD) processes in which designers directly mediate between grassroots communities and public governments (Huybrechts et al. 2024). This rising trend can be attributed to the growing recognition by governments of the advantages of engaging with grassroots communities (Jagtap 2022). These processes can be defined as "institutioning":
"a practice of interweaving between—as well as producing—various insides and outsides in participatory processes, by consolidating and challenging existing institutional frames as well

as by forming new ones. Institutioning stresses the promise of PD and Co-Design processes being substantial political practices in which researchers, designers and other actors can play a role in shaping not only our shared public spaces but our shared public institutions (Huybrechts, Benesch and Geib, 2017, p. 158)".

Schäfer, van Es, and Lauriault (2024) argue that there are four main justifications by researchers for closer cooperation with the sector of civil society. The authors point out that the first three impetuses (i.e. vocational impetus(van Dijck, Poell& de Waal 2018), educational impetus (e.g., UNESCO, 2023), and societal impetus (Utrecht University, 2020; Carleton University, 2024) are relevant, but often reproduce a traditional view that knowledge creation starts from researchers and academia, disseminated to society only afterwards. Complementary, the authors extend these three views with a fourth, **epistemic impetus**, where the capacity building derives from insights and evidence from the community and their context.

This corresponds with the idea that, on the one hand, caring responsibilities also exist bottom-up and can be inspired by grassroots initiatives and that, on the other hand, local knowledge provides insights in needs on the ground (Apostolopoulou et al. 2022). This is demonstrated by community members' behaviour when they are dissatisfied with their government's approach to urban transformation, them being directly impacted and feeling the consequences in their daily lives. In response, grassroots initiatives often realise spatial interventions that address the problems community members experience. In order to do so, they self-organise in formal or informal community-led organisations (Huybrechts et al. 2024).

2.2. The need for Collective Memory Making (CMM): insights from previous case studies

We argue that in order to cater to the urgent need to respond to sustainability issues such as communities, governments, and other stakeholders need to pursue. In essence, collective memory implies that futures can be built in a more participatory, collaborative, and sustainable way by collectively remembering the past. It establishes the potential for continuity among the past, present, and future, and enlarges the opportunities for meaningful participation that can shift social and power imbalances to the benefit of CUE processes (Halbwachs 1992; Sandford 2019; Simeone et al. 2020; Bachleitner 2022).

scarcity of material and immaterial resources (Hernberg & Hyysalo 2024) by innovative CUE and PD processes, like institutioning (Huybrechts et al. 2017), actively engaging inCollective Memory Making is a promising and essential action that designers,

Insights from multiple case studies articulated the need for CMM. The development of the tool originated from the use of the tool in a case study to answer the need for collaborative research, situated in the municipality of Houthalen-Helchteren (Belgium). Here, it was used for collaborative design research focussed on the repurposing of a part of the road for bicycle bridge.
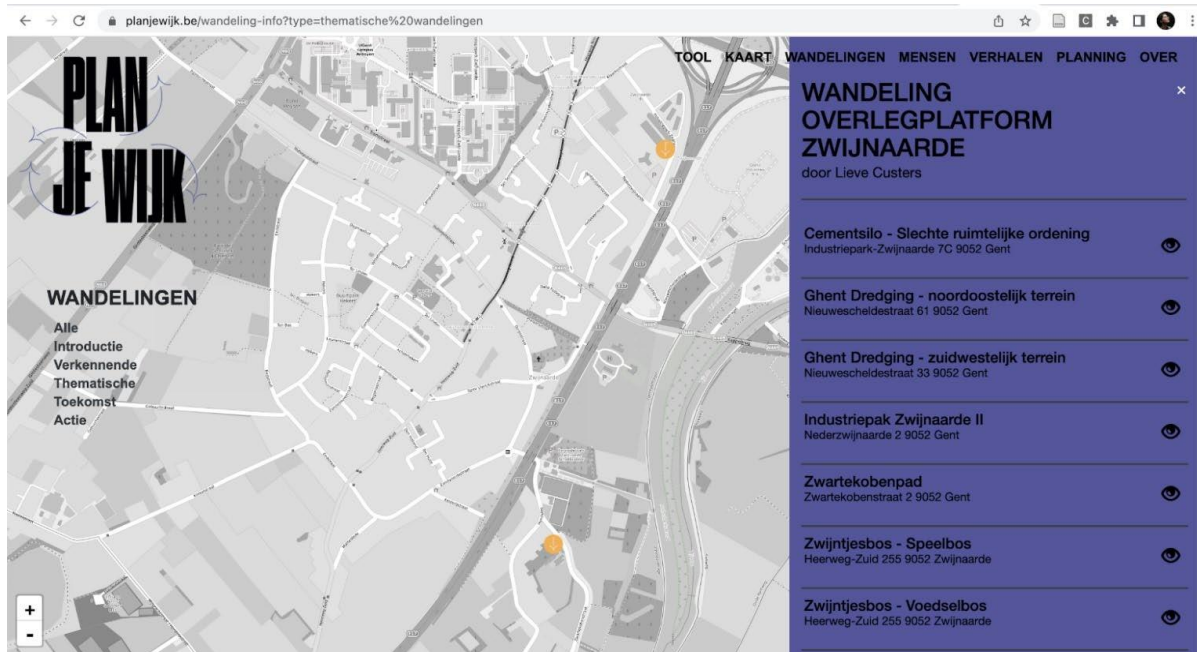

Figure 1. Existing tool

The existing digital tool developed by the principal researcher, is evaluated and redesigned because of its current values in guiding situated participatory processes. The existing app is used on a mobile device with location services, to exchange data with "walking events". The app asks questions to share people's memories of a space and engage with more-than-human actors (e.g., streets, plants, stones) in the experience via text, pictures and audio. Once a user is registered and logged in, after choosing a project the user will be taken to a map where they can add a place and add information about it (a photo, a description and categorize the place). They can also click on an already existing place and add their information in the form of a place review (a photo, a description and placing it in a

category). There are different categories of places that they can use to plan the route:start/end point of the route, place they often visit, place where they like to be; place they do not like to be; place that is not there yet, but that they would like to have, and place where they meet other people.

While it was well-used, the tool still posed some challenges.

1) **Product development challenge:** Gathering **qualitative** insights on workflows, processes and digital habits/dispositions; for both citizens and licensees and **quantitative** data to understand the tools (software) of professionals as well as their preference for use.

2) **Design challenge:** we performed usability testing to refine the flow, information architecture and task efficiency of the platform.

These challenges drove a design research process to further develop the tool for future use in three other case studies (in a joint VLIR/UOS project with Ardhi University) situated in Houthalen-Helchteren (Belgium)andDar es Salaam (Tanzania).

First, we reimagined the use of the tool in another part of the project in Houthalen-Helchteren, where the community posed the question to the government to transform an old pastoral house put up for sale by the municipality into a new community infrastructure and further develop the garden and its links to multiple nature areas. They aimed to create a meeting space to rebuild social and sustainable relationships within their community, damaged by a polluting road that cuts through the municipality, currently being redesigned and rebuilt under the complex project "Noord-Zuid Limburg." Through a process of urban harvesting of materials, in essence materials from obsolete, expropriated infrastructure, such as former houses or

company buildings around the road, that will disappear to make space for the new road design. Harvesting these materials aims to restore the new community infrastructure; the pastoral house, its garden, and the slow roads reconnecting with nature.

Second, we reimagined how the tool could deal with a collaboration among the government, designers, and community in an illegal public open space development conflict in Tegeta, Dar es Salaam, Tanzania. After a long wait for a response from the government, in 2023, a small group of community members organised themselves informally and demolished the structure at night. The institutions' silence demonstrated the developer's power because neither building permits were issued nor stop orders were instituted. The power imbalance and delayed chances of mediation after the reported case led to community action towards a resolution of the land use conflict.

Finally, we reflected on the future use of the tool in a similar collaborative partnership to address budget constraints for a much-needed upgrade of a street road. Mbezi Luis sub-ward is among the eight sub-wards forming the Mbezi ward in Ubungo Municipal Council which is also among five Municipalities within Dar es Salaam region. The sub-ward is located twenty kilometres from the city centre and is one of the fastest growing areas in Dar es Salaam as it is located four kilometres from the new regional bus terminal (Magufuli Regional Bus Terminal) in the Mbezi ward area. Also, the Sub-Ward experiences too much land pressure because its location is directly or indirectly affected by the Bus Rapid Transit (BRT) infrastructure along Morogoro Road. Here, the community took the initiative to redevelop the road in collaboration with governmental actors, such as the local community leader.

When analysing these cases, we learn that these collaborations in collectively repurposing these areas (house, open space and street)

among designers, governments, and communities to address socio-environmental challenges in the present with a future-outlook are strongly hindered by a lack of collective memory on how to tackle socio-environmental challenges. Such collaborations can benefit and be strengthened where necessary by Collective Memory Making (Hallin et al. 2021; Bachleitner 2022). This initiated our search for a digital tool that could support this collective process of CMM through time, not only by documenting the past, but also by stimulating reuse in the future.

2.3. The need for a digital tool and its potential for CMM

The ongoing cases above laid bare the crafty ways for communities to self-organise as grassroots initiatives. These mainly included the use of WhatsApp and email as communication platforms to organise PD processes remotely. Such platforms have proven themselves to be extremely useful in collaborations, but also have their downsides, such as the lack of transparency of what is happening for people not part of the WhatsApp community.

With articulating the epistemic impetus by Schäfer, et al. (2024), the authors underscore that researchers as well as communities can provide new data resources. Computational and digital methodologies enabling, advancing, and facilitating this datafication process, can lead to new kinds of knowledge, widening the perspective on gathering empirical evidence. As a result, more collaborative research and interaction with society's motivation for knowledge creation (epistemic impetus) also contributes and reinforces societal impetus. To support this epistemic impetus, Collective Memory Making, and dialogue with society, there have been experiments with Remote Data Collection Methods (RDCM). Telephone and postal surveys -of both quantitative and qualitative nature- facilitate participation between institutions and communities through

remote collection of data (Tiersma et al. 2022). Currently, in these data collection methods, numeric data still dominates (Mortati, Mullagh & Schmidt 2022). Nonetheless, they demonstrate the potential for institutions to interact with qualitative and situated experiences in the field, as well as gather and disseminate information.

Consequently, in the field of Participatory Design, designers have built experience in capturing, and adding depth and context to data through remote methods (Tiersma et al. 2022) that allow people to participate in their own time and space, to share situated cultural insights. This way of collecting data can lower the threshold for civil society, and other stakeholders, to participate in knowledge creation, also taking their schedules into account rather than only the ones of the researchers.

3. EMPIRICAL RESEARCH: PROTOTYPING AND EVALUATING 'TRAILTALES'

As clarified by the previous section, a digital tool to facilitate Collective Memory Making is needed to more easily generate a memory of resources and people's connections to them within their environment. These resources include civil society-based knowledge, as well as material and natural resources. This motivated us to critically asses our current digital tool to enhance gathering, engaging, and (re-)organising actors and resources into new futures and sustainable processes to address local needs and challenges. This article thus reflects on TrailTales as a digital tool to facilitate CMM to support institutioning processes.

A **mix of methods** was used to tackle our two challenges:

3) **Product development challenge:** Gathering **qualitative** insights on workflows, processes and digital habits/dispositions; for

both citizens and licensees and **quantitative** data to understand the tools (software) of professionals as well as their preference for use.

4)   **Design challenge:** we performed usability testing to refine the flow, information architecture and task efficiency of the platform.

This research describes how we started from an evaluation and redesign of the existing tool developed by the principal author, which enables us to collect stories via text, voice, and video on location, always taking a PD approach (see Figure 1 below). Together with digital research agency Smooth Sailing and the participants in the case studies in Belgium and Dar es Salaam, we thoroughly evaluated the existing tool via a qualitative Participatory Design research, based on desktop research on existing tools, in-depth interviews and an online survey, and a participatory prototyping exercise of the tool in development in two phases. To understand which participants we were looking for in the study, the study was started with a kick-off brainstorming session. A distinction was made between professional actors (governments, study agencies, design agencies and specialised participation agencies) and inhabitants (including individuals and citizen collectives). In the next step of the process, each target group was included in the surveys.

3.1. Phase 1: the exploratory phase

Within the exploratory phase, 22 in-depth interviews were conducted in semi-structured ways with the aim of clearly understanding the general story, opinions, and thoughts on the subject and contextual interviews to go through the platform together. Among the respondents were 11 professional actors with various expertise. 4 Participatory experts: Specialised participatory agencies, 4 Research agencies: social design / communication / spatial planning offices, 2-3 Municipalities. The remaining 11 interviews were conducted with the second type of actors, including 11 Citizens/ Public: 5 Individuals and 6 collectivised groups (parental groups; topic-focused group (bicycle, etc.) who were a mix between citizens who participated in a project related to the existing tool and citizens who use similar platforms. The interviews examined the types of projects, familiarity with the tools and platforms currently in use and their functionalities, the decision-making process, the choice of a type of license, aspects of feedback, reporting and visualisation, etc.

Within this phase, a mapping was made of comparable participation tools, their qualities, user scenarios, and pricing models. This generated insights in trends and needs in participatory processes, nationally and internationally. Consequently, a survey was co-built with the research team after with 40 to 50 responses.

3.2. Phase 2: the concept testing phase

After the first explorations, we entered the concept testing phase. This phase included participatory rapid testing based on wireframes to make meaningful iteration and testing based on clickable prototype for the main flows. Wireframes are graphical representations of an interface and give the user an idea on how new functionalities can look (such as tracing of routes, speech integration etc) (see Figure 2 below). The concept testing phase consisted of two iterations with 5 professionals and 5 citizens were involved.
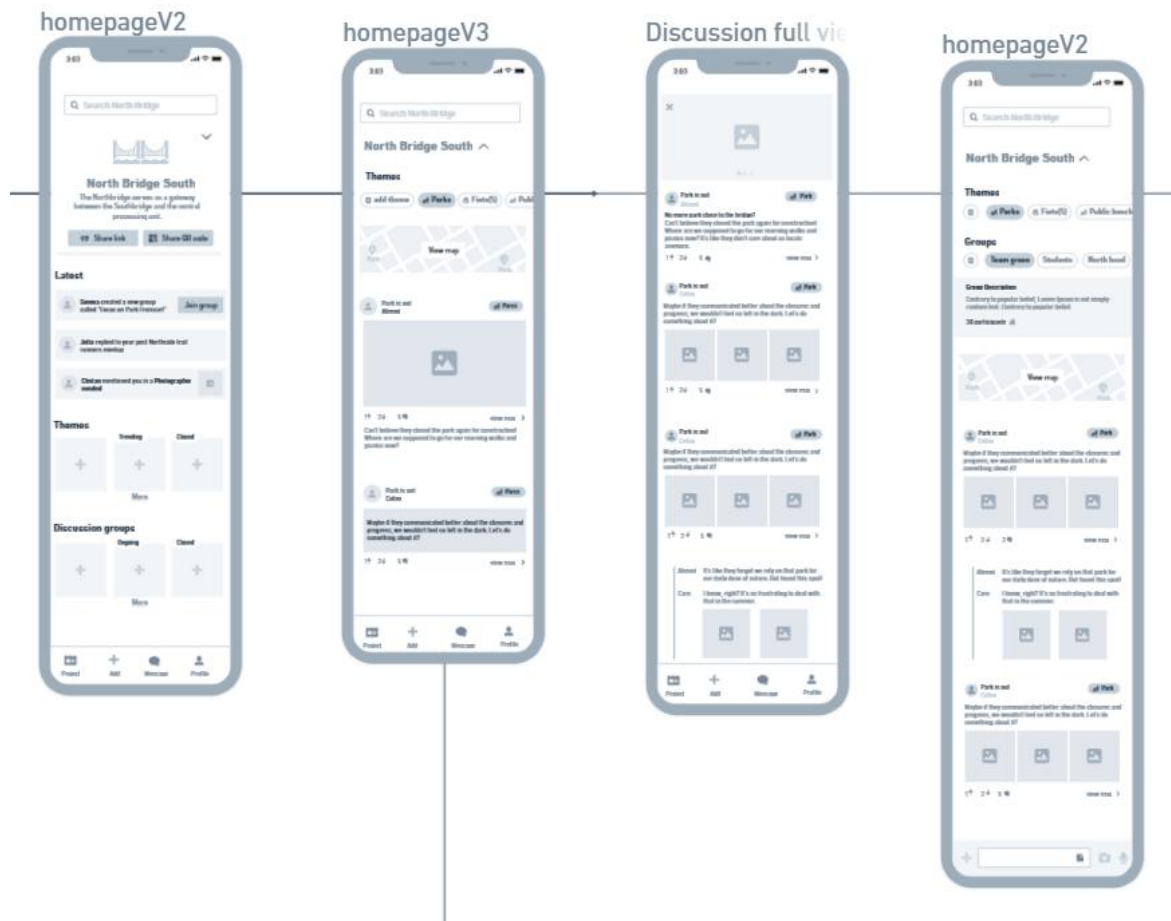
Figure 2. Concept testing of user interface for TrailTales

4. FINDINGS

After (1) the exploratory phase and (2) the concept testing phase, we engaged in data analysis via thematic clustering. The data was analysed via bottom-up thematic clustering in two iterative phases in-between a group of 15 researchers from the research group, coming from different cultural backgrounds, mainly active in the fields of digital design and Participatory Design and Urban Planning. After data analysis participants detected five thematic clusters indicating future challenges for development to integrate the TrailTales tool in their circular design processes. These five thematic clusters will be clarified in the following subsections.

1) Collective Memory Making, knowledge sharing and documentation
2) Mapping daily life
3) Social cohesion and engagement
4) Hybrid fluency: on- and offline
5) Affect and ethics

4.1. Collective Memory Making, knowledge sharing and documentation

Many participants expressed the need for tools supporting Collective Memory Making in ongoing Participatory Design processes, establishing a knowledge hub to consolidate best practices from the past. There was a need to document the complexity of the process, and the involved actors (human and material) over time: e.g. where they are located, collected, stored, and reused in a future design process. The currently used systems (WhatsApp or email) lack transparency for all actors to follow what has happened at which moment in the PD process. They also desired

easy ways to exchange examples of how others did similar projects. As local knowledge gains importance, aligning co-workers who organise locally to gather this knowledge on bottom-up approaches becomes essential, alongside managing and validating citizen expectations.

This documentation and transparency of knowledge is vital for building trust among citizens and licensees, facilitating knowledge sharing and dialogue over time. However, this should be combined with supporting participants in framing and getting acquainted with communication and co-creation techniques. Participants thus wanted to build

capacities and enhance collective learning on how to organise and do these processes. A need was articulated to share via the tool, next to local knowledge, communication and co-creation techniques, crucial for effective participation strategies. As an illustration, some of the questions that the Belgian and Tanzanian participants in the workshops were:

"How might we develop and share best practices to empower officials and citizens to manage better & more equal co-creative participation projects?"

"How might we create a set of principles and guidelines on equal participation and understanding?"

Table 2. Opportunities and challenges for CMM

Opportunities	- Sharing best practices on creating and maintaining social cohesion. - Creating an agreement over approaches and methods. - Engaging citizens in framing exercises in urban settings.
Challenges	- Difficulty to align co-workers in institutional settings on the importance of local knowledge and bottom-up approaches. - Fragmented knowledge creates a necessity for a knowledge hub of shared practices. - With a large amount of feedback, it is difficult to personally make everyone feel valuable. - Most platforms are either focused on data analysis (professionals' side) or citizens feedback input: there is no transparency in how both processes get connected. - The lack of feedback history and overview makes users feel like they're giving invaluable feedback.

4.2. Mapping daily life

The participants indicated that the tools should enable mapping daily life by creating multiple everyday life layers that correspond, display overlaps, and demonstrate the impact of the knowledge gathered per theme or layer. Maps play an important role in representing multiple thematic layers. However, creating accessible and usable maps for both citizens and data analysis for the ones who professionally need to possess the data still presents a real challenge. It is currently difficult to make multilayered maps understandable for citizens

and easy to interact with due to digital technical thresholds. However, utilising maps offers a clear way to correlate citizen input with insights gained from the professionals working with the knowledge gathered via the tools, demonstrating active listening and fostering trust from stakeholders and citizens alike. To illustrate, some experiences shared by the participants:

"How might we create a seamless connection between mapping physical interactions and online input to enable comparable analysis?"

"How might we create a user-friendly digital mapping tool that efficiently transforms our research findings into clear and intuitive visualizations of multilayered realities?"

"How might we efficiently collect data by theme and identify overlaps across multiple layers for analysis & communication?"

"How might we link co-creation methods to physical experiences to translate them into a multilayered & easy-to-analyse digital mapping?"

"How might we create a visually structured mapping on ongoing, relevant and real-time input to facilitate swift reorientation in a project?"

Table 3. Opportunities and challenges for mapping daily life

Opportunities	- Maps can be used to clearly correlate citizen input with results: show you have listened & creating trust. - Maps enable bringing together route creation and storytelling with themes, scenarios, and other layers. Maps support clarity in communication and facilitating analysis. - Maps are central in translating in person insights to digital insights.
Challenges	- There is a difficulty in mapping the offline experiences of citizens to an online platform or to a digital analysis. - There is a difficulty in creating multiple layers in a map which correspond to each other, show the overlaps and show the impact per theme/layer. - It is currently difficult to make it a multilayered map understandable for citizens and easy 'to play with' (digital technical threshold).

4.3. Social cohesion and engagement

Social cohesion was considered as vital for fostering full participation through the tool, a priority for both project leaders and citizens. Current platforms often lack enough motivational triggers and structures for people to collaborate since they often do the activities in their spare time. For them this cohesion and engagement is built on accessibility, alignment, and transparent communication on what is done with knowledge gathered through the tool. Maintaining it requires a strong team presence, incentives, and social validation among team members and citizens. Project leaders are considered to play a crucial role in enabling social validation, fostering lasting impact beyond project completion. Yet, it appeared that sustaining participation without ongoing team support remained a challenge through using the tool. For instance, some of the comments of the Belgian and Tanzanian participants in the workshops were:

"How might we make stakeholders an organic and consistent part of community building?"

"How might we stimulate ongoing, bottom-up community engagement by providing accessible and understandable data or models post-project?"
"How might we design facilitation criteria that effectively incorporate clear language, scenario-based framing, and gamification principles to engage participants in diverse and interactive ways?"

"How might we establish a matchmaking platform to connect individuals with similar ideas and initiatives, fostering community bonds and long-lasting social cohesion?"

"How might we use incentives and social connections to encourage people to work together more effectively?"

Table 4. Opportunities and challenges for social cohesion and engagement

Opportunities	• The participants indicated that the presence of the expert team in the tool is a boost for engagement. • The tool needs incentives and social validation. • The tool needs to create a community through communication. • There is a need for stimulation and empowerment of activities post-project; allowing for a community after the project, in a self-manageable way.
Challenges	• There is a difficulty to find a good alternative to in-person presence. • Citizens have difficulties to broaden their sense of care from their community to their neighbourhood.

4.4. Hybrid fluency: on- and offline

The participants in the study appeared to encounter two main challenges in communication through the tool. First, there is a barrier of low digital literacy, which often requires a multifaceted approach that includes incentives, community building, and the establishment of familiar patterns to enhance engagement. Second, there appeared to be difficulties in bridging the gap between offline experiences and digital platforms, which involves a need for gathering and showcasing experimental approaches to bridge this gap, from co-creation techniques to the use of WhatsApp and gamification. The ideas to make this connection from the participants entailed being part of a live event, with "live sharing of data", WhatsApp integration to enhance familiarity and a strong integration of experts in the community and strong link between digital and physical tools. To demonstrate, some of the responses of the participants in the workshops were:

#Accessibility
"How might we create an interface that integrates a familiar, welcoming tone for the citizens?"

"How might we leverage the ability to see other users' feedback as a driver for engagement?"

"How might we design a mapping tool which correlates citizen input with project outcomes, demonstrating active listening and fostering stakeholder buy-in?"

#Digital literacy
"How might we find alternatives to written documentation (scenarios)?"

"How might we design modular features that promote openness and creativity of use?"

"How might we create trust in digital tools despite low digital literacy?"

#Mixed methods
"How Might We design a solution to streamline feedback from WhatsApp and other communication platforms, organizing it effectively for analysis and visualisation?"

"How might we create structural links between physical and digital tools to ensure qualitative feedback?"

Table 5. Opportunities and challenges for hybrid fluency

Opportunities	- The quality of feedback can be enhanced by establishing robust structural connections between physical and digital tools. - The platform can be seen as a continuation of in-person workshops and activities. - Experimental approaches, from co-creation techniques to technical (e.g. use of WhatsApp, gamification approaches) need to be explored.
Challenges	- Citizens' low digital literacy is a big obstacle in adopting new platforms. - Users tend to trust less platforms they don't know or they don't use on an everyday basis. - Qualitative feedback is highly dependent on physical meetings. - Unfamiliar digital patterns lead to drop out.

4.5. Affect and Ethics

The participants were in need of platforms that supported an explicit reflection on how to engage in participatory processes with attention to ethics, safety and local regulations. The tool should thus allow to involve partners in government, law, tech transfer to look at what is needed to exchange in just ethical and safe ways (structural negotiating). We also learned (see Huybrechts et al, 2025) that the collaboration supported by these environments does not necessarily need to lead to more time or budget-efficient processes, but rather support bringing together humans (local and supralocal participants) and more-than-humans (e.g. materials, places, green areas) in new communal and affective forms. Some of the responses of the participants in the workshops were:

#Collecting feedback
"How might we integrate the community aspect into a feedback input flow?"

"How might we design participation solutions that effectively incorporate scenario-based framing and gamification principles to collect digital feedback and enhance real-world engagement?"

"How might we establish principles on framing which fosters transparent, iterative and aligned understanding among citizens to enhance their engagement?"

"How might we design an online system that effectively helps citizens to build upon each others' ideas in a constructive and inclusive manner?"

"How might we effectively map the identities of project participants to facilitate matchmaking for enhanced social cohesion?"

#Enhancing transparency
"How might we make available other projects to engage citizen's critical abilities?"

"How might we ensure digital platforms are fostering constructive dialogue between actors instead of working in a one-way direction?"

"How might we keep recognition of the value of individual contributions in a large stream of online input?"

"How might we provide citizens with control over the impact of their feedback on projects through an organized overview?"

Table 6. Opportunities and challenges for affect and ethics

Opportunities	- Feedback needs to be actively triggered and looked for. - The platform needs to allow people to build up each other's work. - The platform needs to explore personal exchanges between participants.
Challenges	- Citizens need to be stimulated to exchange constructively. - Participants need to see their own personal contribution in a bigger collaborative setting. - Participants need to retain a feeling of control in a very open-ended process.

5. DISCUSSION

Because the design activities in the three cases often occur outside of the work hours of community members, taking care of the above qualities through the digital environment needs to be supported by a well-structured methodology. The main research gap we found is when to stimulate a strong collaboration between governments and communities and to stimulate an epistemic impetus, the mere provision of digital tools as an environment to support Collective Memory Making was insufficient. It requires the support of an event-based approach and the establishment of the self-organising capabilities of the participating communities via the tool.

First, to support Collective Memory Making the tool required **narrative data-collection** (as addressed in the data analysis via the themes of "Collective Memory Making, knowledge sharing and documentation," "mapping daily life,"): through experiences and stories information on participating actors, materials and good practices from the past and present are collected in relation to the discussed location, with an eye on supporting future collaborations. As indicated in the data analysis above, the participants in the study indicated that this knowledge sharing

required visibility of and workability of the stories (good overview of themes addressed and actions to take); knowledge sharing between participants (both between inhabitants and experts) and mutual learning (not only sharing stories from the field, but also around participatory methods that are used to gather the stories).

Second, we learned that the narrative data collection opportunities of the tool need to be supported/motivated through an **event-based approach**. When looking at institutioning processes and how PD organises collaborative design with communities and public governments, it can be identified that this is often structured as a series of events and that such event-based approaches use events as a tool to bring together different actors with different (disciplinary) backgrounds (Brandt & Eriksen 2010; Brandt &Foverskov 2024). By engaging in collaborative events situated within the place of study, dialogues between different actors are stimulated as well as interaction with the environment in question and its more-than-human actors (e.g. trees, buildings, ...). These events allow the dynamics between human and more-than-human actors to change. Similarly, event-based methodology engages its participants to partake in unconventional, often more informal and jovial settings, which fosters innovation and creativity

and opens up social and spatial relations as well as the future-oriented perspectives on the public space they are present in (Jönsson 2014; McGillivray et al. 2021; Koch & Smith 2024).

Thus, to support hybrid fluency and affective and ethical engagements between inhabitants and professionals tool is in need for events that structure engagements. Since people engage in these processes outside of their usual work contexts, it is important to structure "moments" of collaboration that are engaging and pleasurable to be part of. We observed in the cases that motivations to collaborate in circular economy physical and digital environments, require more research into an event-based methodology. The case studies were structured through events like walks, live projects, street festivals, flea markets, food court events or Wednesday food clubs, which actively involve (and to some extent even create) urban spaces. These events provide public visibility and invitations for others to collaborate, indicating a willingness to expand the space of experimentation within and among community groups. These event-based experiments with neighbourhood and community building need to encompass community and other stakeholder involvement while preserving and expanding the biodiversity of the area. The tool cannot replace, but can strengthen these community events. The data analysis led to suggestions to integrate this event-based approach in the tool in three ways: by integrating Live data (for better accessibility and familiarity, speed up the "exploration" of participatory methods, more qualitative data); through WhatsApp integration (enhancing the trust in digital tools, supporting recruitment & engagement retention, fostering inspiration for both professionals and citizens) and supporting communication (establishing structural link between physical and digital tools, facilitating equal participation, making the expert as an organic part of the community).

Third, there was a need to support the **self-organising potential** of the people using the tools for participatory engagements. Therefore, the events should not only structure participation, but also allow people to learn about how to organise participation, and also, the tool should document best practices and small training modules. Indeed, an important element in the further development and valorisation of TrailTales is the emphasis on the tool's self-organising capacity. TrailTales not only offers value to professionals such as designers and governments but also enables non-experts, such as citizens, to independently inventory and explore spatial issues. This ties in with a growing need to stimulate self-organisation and citizen participation, where citizens are given a more active role in local decision-making and urban development. For governments, TrailTales offers a platform to stimulate self-organisation among citizens in order to create more involvement (e.g. in neighbourhood development, infrastructure projects). To this end, iterative improvements are needed to make the thresholds for using TrailTales as low as possible (intuitive interfaces, options for speech input and simple data visualisation, etc.). In addition, ethical issues and GDPR aspects must also be explored. After all, self-organisation brings challenges in the field of data management and privacy (who has access to which data, protection of personal data, etc.).

Further research is essential to explore the tool in different contexts with attention to development and optimisation of the prototype, the ethical and legal framework and education and training. Based on the participants' input the self-organising capacity of the tool was supported by making community (enhancing communication between the users and communication with experts), enhancing transparency (better visibility on how feedback is used), seeing and reacting to other people's feedback (access to other projects), stimulating engagement

(through similarity of interactions with other known platforms, engagement through multi-media channels, visual clues and accessibility).

6. CONCLUSION

This article further investigates the possibilities of the tool to set up a participatory project to build a community of people who want to participate in the project and to build a collective memory of and future for the needed and available resources. This Collective Memory Making needed support from structuring events as well as the connections of

1 ACKNOWLEDGMENT

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the communities to self-organise these resources to organise the project. The paper reflected on the challenges and opportunities we experienced when researching and designing this tool in a participatory way by exploring their (potential use) in the case studies in Belgium and Tanzania. The tool was designed to stimulate an epistemic impetus, where the capacity building between institutions and communities derives from insights and evidence from the community and their context.

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