



# Developing a digital platform for community-led initiatives: from local agents' needs to interface design

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## Abstract

To identify how digital media are being used by community-led initiatives of the Centro Region of Portugal, and to identify the requirements that a digital platform for mediation between agents in the territory should have, two focus groups were conducted, involving six small-sized community-led initiatives and six larger-sized community-led initiatives. This article details the results of these focus groups, according to the following main categories: use of existing communication and mediation tools; the purpose of use of digital tools; type of experiences prompted by digital tools and attributes and features desired in a digital platform to support community-led initiatives. The results show differences between the use and needs of digital tools by small- and larger-sized initiatives and offer interesting insights to prototype an innovative digital solution, to enhance the actions of community-led initiatives. A reference framework for digital mediation strategies and a mobile app prototype were developed, based on these surveys. The article contributes with an analytical view about the development of digital solutions, which aim to strengthen the relationship among agents of local communities and promote mediation mechanisms among all stakeholders in territorial-based innovation.

**Keywords** Territorial innovation · Community-led initiatives · Digital media · User requirements · Interfaces

## 1 Introduction

Digital environments can support the diffusion of knowledge, promote the sharing of practical experiences and encourage the use of endogenous resources leading to new approaches to territorial development, based on the potential of the local economy (Lira 2005; Tithi et al. 2020).

The great challenge of this study is to identify the local agents' needs towards the definition of requirements of digital solutions that aim to promote networks, stimulating the involvement and collaboration between different agents in the territory and, thus, aiming to promote community-led territorial development. For the design of these digital environments, a deep analysis of the role of digital technologies and mediation is essential, namely regarding the processes of informal participation and the communication strategies of the different agents, to understand the dynamics of civic

involvement of the populations and its potential impact on territorial innovation.

In the context, understanding how collaboration between different territorial agents occurs can help promote the development of networks that encourage regional development. This is particularly relevant, since the involvement and proximity between the different agents in the territory is considered crucial in the creation and dissemination of knowledge, especially tacit knowledge, which comes from practical experience and depends on socio-territorial contexts.

However, the development of digital solutions for community mediation is still a great challenge due to the variety of initiatives and stakeholders' diversity (public institutions, companies, and communities) involved in the territorial-based innovation processes (Bonomi et al. 2017).

This study aims to promote the creation of new digital solutions, which aim to strengthen local agents (citizens, communities, entities) to promote territorial development actions and the consolidation of strategic cooperation networks. It is part of a more comprehensive research work, developed under the CeNTER Program, an interdisciplinary research program, in progress, which started in May 2017 at

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the University of Aveiro. One of the dimensions of the study aims at designing and validating a pilot mediation platform for territorial innovation in the Region Centro of Portugal, considering a survey carried out on the national and international state of the art.

In an attempt to better deepen the knowledge about the mediation strategies and the employment of digital tools used by community-led initiatives, two focus groups were conducted with the leaders of 12 communities/local entities.

The nature of the focus groups was different. The first focus group was carried with stakeholders of small initiatives, located in the Region of Aveiro, Portugal, and the second focus group with stakeholders of larger initiatives, which involve a large number of participants across the country.

The analysis of the results obtained allowed to identify the opinion of the stakeholders concerning various possibilities of implementing a digital platform to support territorial-based innovation, in the area of tourism and health and well-being.

This paper is divided into six parts, including the introduction. The literature review emphasizes the importance of community-led initiatives for the development of the territory and the role of digital technologies in promoting and mediating initiatives promoted by the community. The third part deals with the research methodology adopted—focus group and different stages of this study. The fourth part of this paper presents the main results and findings of this study. The fifth part focuses on the definition of the platform concept and on its functionalities. The last part is the conclusion, which discusses the perspective of the community-led initiatives about the attributes and features that a future digital solution should have, to better support them in conducting their activities.

This work is part of a larger research effort, part of it presented at the 2019 edition of the International Conference on Graphics and Interaction (ICGI 2019) (Silva et al. 2019). This work extends the previous one by adding new ideas in the introduction section, by deepening the presentation of the results of the focus groups, and by including a new section with the presentation of the functional requirements and the main features of the interface of a digital platform (mobile app).

## 2 Background

The community-led initiatives are one of the key factors in the process of developing a territory, enabling it to develop more appropriate strategies and solutions to eliminate barriers to its growth. Involving community-led initiatives in territorial development can provide local communities with effective opportunities to participate in

decision-making in their region's social, economic, cultural and political life (Malek and Costa 2015; Zeng et al. 2019).

From a territorial innovation standpoint, the term “community-led initiative” is not intended to describe a specific institutional framework (Seyfang and Smith 2007), but rather the organization of actions in which entities, communities, and individuals are motivated to cooperate, in search of mutually beneficial solutions. Thus, community-led initiatives aim to promote the sustainable development of the territory, generating new bottom-up solutions adjusted to the local situation and the interests and values of the communities involved (Amorim 2015).

In times of increasing global competition, the use of digital technologies is becoming increasingly important for the development of a region. Digital technologies can offer community-led initiatives several advantages: enabling their members to improve their practice through continuous knowledge creation (Wenger 1999), facilitating innovation as a result of knowledge exchange, experiences and ideas, as well as through the debate on them (Saint-Onge and Wallace 2012; Snyder and Wenger 2010), and allowing for new solutions to local problem solving (Fahey et al. 2007).

Thus, the digital technologies and mediation can increase the empowerment of local communities, promoting engagement with the territory and respect for the various nuances of local cultural identity and reinforcing differentiation between territories (Encalada et al. 2017). In this scenario, digital mediation plays a vital role, allowing the amplification and empowerment of traditional networks and forms of communication (Castells 2000). As mentioned by Scolarì (2015), hypermediation allows creating “the complex network of social production, exchange, and consumption processes that take place in an environment characterized by a large number of social actors, media technologies and technological languages” (p. 1095).

Studies also highlight that in the context of communities, it is essential to develop simple and accessible digital solutions, which allow anyone to easily understand how to interact with the platform, conveying the idea that they are fulfilling their task through interface (Bonomi et al. 2017; Gong 2009). Thus, the interface design is one of the key elements in the process of developing a digital solution aimed at community initiatives. For this, it is necessary that the elements that allow interaction are visually available on the interface and are familiar to users.

Garrett (2011) defines three objectives that must be achieved simultaneously in the design of an interface: i) the paths created must have a meaning and must be generated to facilitate the real behavior of users; ii) the navigation and interaction elements must have a relationship between them and the relationship should be easily understood by the user; iii) a clear relationship must exist between the information

available on the page, its location, and the actions that could be taken.

### 3 Methodology

This study was carried out under the CeNTER Program, which has one of its objectives prototyping and validating a mediation platform for territorial innovation, with a focus on the areas of tourism, health, and well-being.

In the first phase of this investigation, several methodological procedures were carried out, such as i) the systematic and narrative literature review (Silva et al. 2020); ii) mapping of innovative initiatives in the Centro Region of Portugal; iii) benchmarking of social networks, applications, and websites (Martínez-Rolan et al. 2019; Renó et al. 2018); iv) interviews with leaders of local communities/entities (Silva et al. 2018; Tymoshchuk et al. 2019a; Tymoshchuk et al. 2019b).

This article aims to show the organization process and main results of two focus groups that aimed to identify the views of the leaders of the different community-led initiatives on the possibilities for implementing the concept of "territorial-based digital innovation support platform."

According to Bryman (2012), the focus group technique is a method of interviewing in which: "there are several participants (in addition to the moderator/facilitator); there is an emphasis in the questioning on a particular fairly tightly defined topic; the accent is upon interaction within the group and the joint construction of meaning" (p. 502). Morgan (1998) has argued that the typical group size is six to ten members. However, this author recommends smaller groups when participants are likely to have a lot to say on a specific theme or topic.

Lune and Berg (2017) suggest a list of essential ingredients needed for a focus group, which include: i) a clearly defined objective and research problem; ii) consideration of the nature of the group of participants; iii) creation of a positive and constructive atmosphere/relationship; iv) an aware listening facilitator; v) a well-organized and prepared facilitator; vi) definition of flexible structure/direction and with the facilitator's restrained contribution to the discussion; vii) the research assistance of the observer; viii) systematic analysis of the content of the statements made by subjects during the focus group.

In the context of the CeNTER Program, two focus groups were organized, one with small-sized community-led initiatives (FG1-SSI), operating within the municipality of Aveiro (Centro Region of Portugal), and another with larger-sized community-led initiatives (FG2-LSI), with activities spread district- or nation-wide. The focus groups took place at the University of Aveiro (Portugal), the first on October 19th, 2018, and the second on January 17th, 2019. Each focus

group involved six participants from five different initiatives related with tourism, health, and well-being, based in Centro Region of Portugal, who were selected on an availability basis.

The focus groups encompass four areas:

- (i) identification of digital tools that community-led territorial innovation initiatives use in their activities;
- (ii) identification of the purpose of the use of digital tools, in the context of the activities of community-led initiatives;
- (iii) identification of the type of experiences prompted by digital tools, in the context of the activities of community-led initiatives;
- (iv) identification of the attributes and features useful for a digital solution that supports the activities of community-led initiatives.

Both focus groups were facilitated by one researcher and followed the same structure: welcoming the participants and gathering their informed consent; explanation of CeNTER Program goal and focus group objectives; participants' questions about any unclear topic.

The researchers introduced four research questions (RQ) in each of the focus groups:

RQ1: What digital tools do community-led territorial innovation initiatives use in the context of their activities?

RQ2: What purpose(s) does the use of digital tools serve in the context of the activities of the community-led territorial innovation initiatives?

RQ3: What types of experience are triggered by the use of digital tools in the context of the activities of community-led territorial innovation initiatives?

RQ4: What aspects do community-led initiatives value when considering the attributes and features of a digital solution that supports their activities?

Each focus group lasted about 100 min, was recorded in video and audio and later transcribed verbatim. The data transcribed was imported to WebQDA,<sup>1</sup> where it was coded and analyzed. The coding process followed a mixed coding approach (Creswell and Clark 2010), where an initial set of categories was defined based on the research questions, but then changed and evolved according to the codes and categories that emerged during the data analysis. Once there was a first version of the coding tree, it was discussed for improvement with five other researchers of the project.

The initial categories were: the use of mediation and communication tools, purposes of use of digital tools, type of experience prompted by technologies use, and wishes concerning the attributes and features of a technological solution

<sup>1</sup> <https://www.webqda.net/>

to support their activities. In FG2-LSI, a category concerning the need of face-to-face communication emerged.

Two researchers simultaneously performed the coding. If any disagreement arose between the researchers within the coding process, it was discussed and analyzed in the light of the context in which the content had been uttered and a final decision was then taken. Where the same tool/service (e.g., Facebook) was used for a different purpose (e.g., as a dissemination tool vs. as a communication tool), that tool/service was placed under a different category, depending on the context.

## 4 Results and findings

The presentation of results is organized according to the topics introduced in Sect. 3. The results obtained in FG1-SSI are compared with the results of FG2-LSI. Then we situate our study in relation to previous literature.

### 4.1 Comparing small-sized and larger-sized community-led initiatives

#### i) Use of communication and mediation tools

Results indicate that both community-led initiatives have different needs. SSI have a greater need for dissemination and promotion of their activities. LSI instead value the communication dimension the most, arguably because their larger structure demands that they are able to articulate better within their initiative but also with external agents. LSI evidence a clear preference for face-to-face interaction; in-person communication is critical for their activities, in which technology plays a supporting role.

Into what concerns productivity tools, the analysis shows that both types of community-led initiatives use productivity tools for digital storage purposes. However, it is worth noting that a new category of productivity tools emerged for FG2-LSI, a category that includes digital tools that are meant to support collaboration (e.g., Slack, Trello, Asana). Conversely, and not less interesting, LSI still use more traditional forms of communication, i.e., official letters.

Regarding dissemination, we observe that SSI refer to a greater diversity of dissemination platforms and tools (e.g., Instagram, newsletters, public displays). Regular post is also mentioned, as this form of dissemination is more effective in targeting older adults. However, when establishing a comparison between SSI and LSI, data show that both types of initiatives mainly resort to websites and flyers to promote their activities.

Looking into tools for gathering feedback, results show that SSI still collect feedback through paper questionnaires sent by regular post. This may be explained by the fact that these initiatives are closer to their communities, and as such

prefer a more personal type of communication, which lends the process more efficacy in attracting local audiences. It is also noticeable that SSI concern themselves with collecting feedback, arguably in an attempt to develop their reputation and visibility, and, in this way, attract more participants to their activities. Conversely, LSI place their efforts in developing their own certification tools. Furthermore, while SSI are more concerned with developing their credibility, LSI show a greater interest in developing partnerships with entities/agents of trusted and already recognized credibility.

In terms of the context of use, both types of initiatives tend to use digital tools similarly, both when interacting with members within the initiative and when reaching out to external agents.

#### ii) Purpose of use of digital tools

Data show that SSI use digital tools for a diversity of purposes, while LSI mostly focus on four types of purposes. SSI use digital tools to promote the initiative, share information, manage activities within initiative, list events taking place, gather feedback, amplify information reach, keep community members in touch, link up with other agents, and secure endorsement. LSI use digital tools to promote the initiative, manage activities and resources within initiative, share information, and keep community members in touch. Still, the most prevalent purposes of use are identical for both types of community-led initiatives and include the promotion of the initiative, sharing information, and the management of activities within the initiative, regardless of the order of the last two being inverted, with information sharing being the second most prevalent purpose for SSI and management of activities for the LSI.

#### iii) Type of experiences prompted by digital tools

Both types of initiative denote a certain technology weariness, both in terms of the number of tools they manage on a daily basis and the excess of unsorted information. LSI further show disapproval toward the deceptiveness of some digital tools, such as Facebook events, which is one of the reasons why they prefer face-to-face communication. For positive experiences, SSI participants emphasize the simplicity and the efficacy of some tools, while LSI participants highlights the efficacy of direct messaging in reaching a particular contact in an efficient manner.

In the focus group with SSI, participants' comments mostly relate to the agents (e.g., municipalities and civil parishes) that these initiatives need to be articulated with, to carry out their activities. This demonstrates the relevance that the interaction with these agents holds. In this context, it is emphasized that the interaction with civil parishes is characterized by a closer proximity—propinquity [26]—that lends swiftness to the processes. Differently from the SSI, there is not a type of actor that these initiatives refer to more frequently than others.

#### iv) Attributes and features desired in a digital solution

**Table 1** Desirable attributes and features

Categories	FG1-SSI	FG2-LSI
Attributes valued in a digital solution		
Simplicity	4	4
Uniqueness	4	0
Integration of several tools	4	0
Up-to-date content	5	0
Sign-up	5	0
Features valued in a digital solution		
Develop synergies with other agents and peers	16	0
Promote the initiative	15	0
Target specific segments of the audience	10	0
Lend information visibility	10	0
Manage regional events agenda	10	0
Link up with other agents	6	0
Link up with other peers	8	0
Give and receive endorsement	9	0
Optimized use of current technologies	–	10

Means the category only emerged when analyzing FG2-LSI

The ultimate goal of the focus groups was to identify the desired attributes and features for a hypothetical platform to support the activities of community-led initiatives. This section presents the results obtained through the analysis of the FGs. An overview of the results is presented in Table 1.

As shown in Table 1, the focus group conducted with SSI revealed that it is important for participants that a possible future platform would display up-to-date content. This need was usually expressed together with the need for an authentication system that would allow participants to have control over the content displayed, without having to go through any gatekeepers.

In terms of the platform itself, the integration of several tools, namely rating services, was signaled as important, as such integration could mean having to manage fewer tools. Regardless of its final format, participants also emphasized that such a platform would have to be sufficiently unique, it would have to be ‘the platform’ in order to be adopted; yet another ‘regular’ platform would only add to their burden.

Considering the features that a future platform should support, this type of community-led initiatives mentioned: i) developing synergies with other agents and peers; ii) promoting the initiative; iii) targeting specific audience segments; iv) lending information visibility; v) managing regional events agenda; vi) link-up with other agents and peers; and vii) giving and receiving endorsement.

Participants of the FG2-LSI mentioned that behind the use of technologies, interpersonal communication was also valuable to: understand and address market needs; communicate strategic objectives of the initiative; engage community and local partners; create value within communities;

strengthen ties; promote values and institutional culture (Silva et al. 2021).

## 4.2 Findings in context and in relation to literature

This study investigated the practices of both community-led initiatives. However, to get a full understanding of their activities, it would be beneficial to triangulate community-led initiative perspectives with external agents, such as the state, third sector, or the larger community. Furthermore, it is important to highlight that the qualitative nature of this research demands that its results’ generalizability is limited. As discussed in the following paragraphs, results concur to those of previous research lending reliability and robustness to our findings.

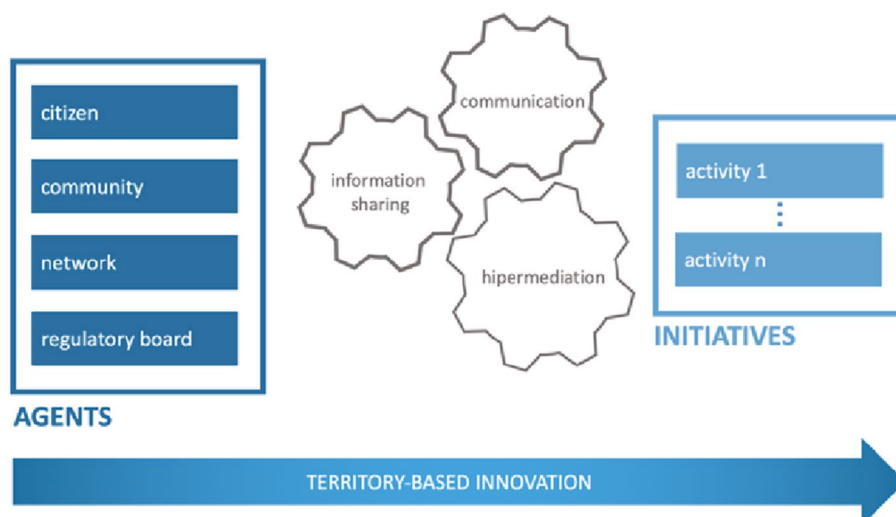
Similar to other studies reporting on community-led initiatives (Bonomi et al. 2017; Van der Schoor et al. 2016; Pohjola and Puusa 2016; Thapa and Sæbø 2016; Ferrari et al. 2015), it is clear that community-led initiatives avail of a breadth of digital tools, from websites to social media, among many others. For example, social media appears to have a central role in supporting community initiatives, both in connecting internal members and in reaching out to external agents. This has been observed in other studies (Ferrari et al. 2015; Kadushin 2012). This strengthens the fact that social media plays an important role in keeping community members in touch (Martiskainen et al. 2018; Pohjola and Puusa 2016) and in supporting scattered communities (Creswell and Clark 2010), namely in finding information and joining events (Komito 2011).

Our results show that although community-led initiatives use new media, traditional media still holds an important role. Other community-led projects have highlighted the importance of more traditional media, such as the television, in reaching out to foreign volunteers (Thapa and Sæbø 2016). This means that one then cannot disregard the importance of traditional media, newspapers and other printed media, as previously studies emphasized (Komito 2011; McCormack 2018). Similarly, it is important to underline the pivotal role of the Internet—the infrastructure on which most digital tools build upon.

Our study also found that digital technology has allowed for new forms of work and communication to develop, namely remote work and communication through social media; similar strategies have been identified in Bonomi et al. (2017), Van der Schoor et al. (2016) and Pohjola and Puusa (2016). Within this scope, it is important to underline the use and preference for freely available software solutions and other readily available tools, which do not require training or a fee. This emerges in other studies (Bonomi et al. 2017; Van der Schoor et al. 2016; Ferrari et al. 2015) and resonates with current trends that



**Fig. 1** The reference framework for digital mediation strategies



emphasize the importance of adapting readily available technology if one is to further promote innovation, namely in rural areas (Carter and Vodden 2018).

Regarding the purposes of use, while previous research lists a large number of purposes that extend from storing and managing information (Bonomi et al. 2017; Van der Schoor et al. 2016; Pohjola and Puusa 2016) to information sharing (McCormack 2018) and the monitoring, managing, and coordination of activities (Bonomi et al. 2017), our study highlights new purposes, such as linking up with peers to develop synergies, namely, to better manage the regional research agenda. These findings present an interesting opportunity for innovating current digital solutions and (re)design them with a view to better support community-led initiatives in pursuing these goals.

## 5 Functional requirements of the proposed digital platform

The synthesis of the information obtained in the previous several stages of the research process (systematic literature review; survey of community initiatives in the Centro Region of Portugal; benchmarking of digital technologies used by community initiatives; interviews with community leaders) merged with the results of the two focus groups and allowed the research team to define the concept of the digital platform. This includes filling communication and interaction gaps identified among the main agents of territorial innovation processes, to make initiatives more open and to stimulate citizens' involvement and their active participation in activities that promote the development of the territory.

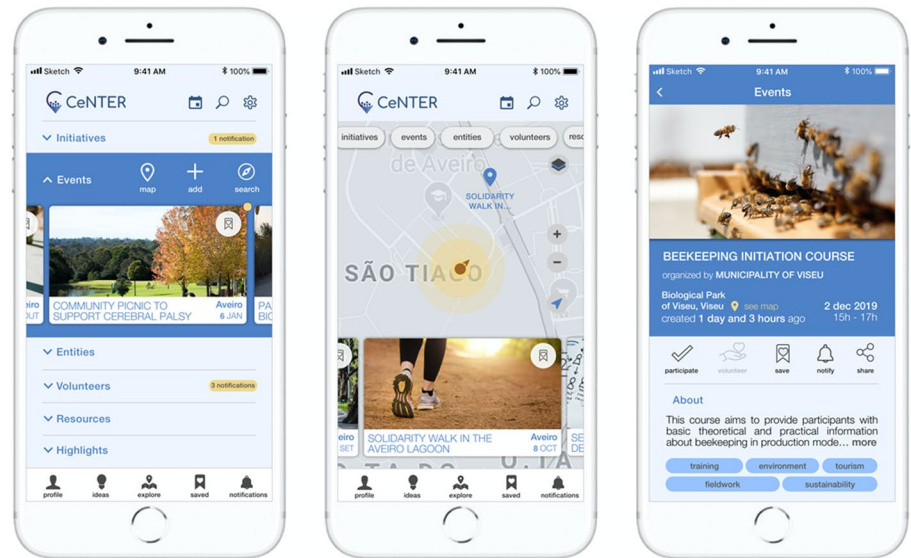
Given this purpose, the main objectives of the platform were defined as follows:

- Promoting mutual knowledge between agents committed to territorial development (citizens, initiatives, entities, etc.).
- Foster interaction, hypermediation, collaboration and cooperation between initiatives/voluntary institutions/individuals/local populations.
- Support the online presence of community-led initiatives.
- Promote the sharing of information and the articulation of activities of the different initiatives.
- Gather and share data related to certification (regulatory entities) and reputation (social networks) of the initiatives.
- Promote the articulation of the platform with other existing platforms (TripAdvisor, Facebook, Google Maps).
- Hypermediate experiences and good practices.
- Promote training actions in the context of community-led initiatives (Renó et al. 2019).

Three main functionalities were proposed: i) information sharing among participants, partners and the general public, allowing to increase the visibility of initiatives and activities; ii) communication, which promotes processes of interaction, cooperation, collaboration, and execution of its objectives, promoting the growth of the initiative itself; iii) hypermediation of innovation processes and the promotion of networks that benefit the civic involvement of populations, in processes of territorial development (Tymoshchuk et al. 2019c) (Figure 1).

The digital platform (mobile app) being developed aims to promote a bottom-up approach to solve community problems, mitigating the identified communication and interaction barriers. The platform will help in the development of activities from creation and sharing of ideals, organization of events and specific activities to the development

**Fig. 2** Sample of screens from the CeNTER platform: (from left to right) main menu, map and details of an event



of community-led initiatives, providing different regional agents with different features, such as:

- Local communities/entities—features that make it possible to publicize their initiative and the events/projects they are developing/planning; create events in conjunction with other initiatives; combine their agendas to avoid over-positioning events; find the volunteers, partners and resources needed to promote your initiatives, etc.
- Public entities—features for disseminating existing projects and support to communities; involvement of local communities in actions promoted by the municipalities; survey of the needs and opinions of the local population; possibility of offering communities human/material resources, clarification/training sessions or giving up public spaces, etc.
- Citizens—the possibility of being aware of events in the region; get involved in different events/projects as participants or volunteers; share resources or knowledge with local communities; share and promote ideas that aim to improve their region, etc.

To this end, the platform will provide the necessary tools for communities to establish networks, involving residents and mobilizing external and internal resources for local activities.

To simultaneously provide simplicity and a user interface with an appealing look and feel, a card-based user interface approach was chosen. This type of interface design aims to provide information in a readable format, easy to navigate, allowing an overview of the application's content, as well as quick access to all information categories (Seifi 2015).

The main screen of the application presents a grid with six main tabs: initiatives; events; entities; volunteers; resources; and highlights, which act as starting points in the application. When opening a tab, the user finds the information displayed in a carousel mode, with cards representing the different units of content.

A card is a rectangular block that contains a small amount of easily understandable information that presents, for example, an initiative, activity or entity. Cards have the essential information (e.g., image, date and time, location) and can be easily manipulated (e.g., discarded and saved as favorites) by gestures like swiping. In this way, browsing the content can be achieved with a minimum amount of effort (Figure 2).

The “Voluntary” and “Resource” tabs have two types of cards (demand and supply) aiming to facilitate mutual assistance among different agents in the territory. The “Highlight” tab presents the initiatives and events that have already occurred and obtained a high rating from the participants. The organizers of these initiatives/events will be encouraged to share key steps for creating these types of events. The icon “ideas” (at the tools bar) allows registered users to share and comment proposals for initiatives/events. In more generic feature options, such as accessing the profile, saved, notifications and research, the application offers features such as a shared agenda that aims to facilitate collaboration between local agents.

According to the objectives of the CeNTER application, one of the key features of the platform is the map, which allows the user to search for places and points of interest on the map or consult and receive notifications about events in a given territory, within a default radius.

The card architecture model goes behind blocks of content presentation and uses the structured interface of a card

to display relevant information from a variety of initiatives/events/entities and deliver personalized information to the user. The application suggests the cards according to the user's profile and location. Registered users can easily consult, share and save the available cards, as well as create and edit their own cards. The application has a small tutorial that seeks to allow anyone to easily understand how to interact with the platform.

In this way, the main purpose of this platform is to encourage the processes of interaction, articulation, and collaboration between different local agents, as well as the construction and diffusion of knowledge, good practices, and innovations relevant to the social and economic development of the region.

Hereafter, two waves of tests were carried out, which included the appreciation of the prototype from various perspectives, allowing a complete evaluation to ensure that the mobile application meets the target audience's needs, and validate the correspondence between the requirements and the features present in the prototype.

In the first evaluation phase, two groups of specialists (five experts in digital technologies and five experts in tourism, health, and well-being) carried out the heuristic evaluation of the prototype (Oliveira et al. 2022).

The second phase of the mobile application prototype assessment was conducted with potential end users (five representatives of community-led initiatives, five representatives of public entities, five representatives of the networks, and five citizens—individual participation) (Oliveira et al. 2021).

The project team implemented a combination of quantitative and qualitative user experience evaluations using the SUS and AttrakDiff scales and the Think-aloud protocol. In this way, the project team collected feedback from the end users about their interaction experience with the prototype.

The two waves of tests with different usability metrics found that end users evaluated the app's functionalities and design positively and intended to use it during their community activities.

User tests highlighted several platform features, such as sharing resources and volunteers, collaborative development of events, sharing ideas, and creating new initiatives based on these ideas. Also, many users reported that these are innovative features, which increase the relevance of this app as an original and valuable option.

## 6 Conclusions and final remarks

This study aims to encourage a territorial-based approach, supported by digital technologies, to identify potentials/problems in local communities. The two focus groups were carried out to identify the opinion of the drivers of the

different community initiatives on the different possibilities of implementing the concept "digital platform to support territorial-based innovation" in the area of tourism and health and welfare.

The research under this study found that a large part of the community-led initiatives, in the area of tourism, health, and well-being of the Centro Region of Portugal, are promoted by non-profit organizations and supported by voluntary participation of populations. It is important to mention that for the existence of these initiatives, it is essential that the participants are encouraged to participate in constant activities that favor the growth of the initiative and their personal growth. The digital technologies can offer tools for these initiatives to share information and build collaborative knowledge, essential for their development.

However, the data collected in this study report that community initiatives still face several challenges in the use of digital technologies within the scope of their activities. These challenges are related to i) excess of unclassified information; ii) the multitude of digital tools force the community to manage to many things (digital messaging services; productivity tools; tools for obtaining feedback, etc.); iii) the complexity of these tools; iv) lack of digital telecommunications equipment and infrastructure, mainly in rural areas; v) the low level of digital skills, especially among senior participants.

The focus group participants mentioned the importance of the platform's mediation functionalities, namely: intermediary action with communities, mapping needs, and resources; the characterization of target audiences; the visibility of its activities; fundraising and volunteers; the incentive to carry out joint projects and articulation with other platforms.

It should also be noted that, for the development of community-led initiatives, it is important that technology and digital mediation assume the role of "an invisible hand". That is, an integral and interactive element of the organizational system, which facilitates interaction and allows aggregation information and communication management appropriate to the needs/interests of the participants.

The focus group participants reported the lack of a digital platform that mediates and facilitates interaction, collaboration, and cooperation between community initiatives, institutions, volunteers, and local populations. To meet these needs, a mobile application, called CeNTER, is under development to encourage interactions between local agents, facilitate communication/collaboration processes and encourage citizens' involvement and participation in initiatives, benefiting the territory development.

In this context, a prototype proposal for a CeNTER mobile application was developed, which aims to enhance cooperation and collaboration between all agents involved in the territory's development process, encourage voluntary



work, and promote community initiatives and endogenous resources in the region.

In the next phase, the project team conducted a series of usability and accessibility tests of the CeNTER mobile application prototype to identify problems that need correction for a better performance of the application use. The analysis of the data collected during these tests indicates good usability and high values of satisfaction and acceptance of the different local agents with the developed prototype. The research team believe that the application developed can play an essential role in promoting new planning and management mechanisms, for a sustainable future of the territory, based on the potential of the local community and the valorization of local endogenous resources.

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**Data availability** The statement was signed by Oksana Tymoshchuk on 3rd of January 2023 and sended to AI & Society using the onlineplatform.

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