

Community-based info-communication for rural territories: participatory collaboration tools for Fontoura

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Abstract | This paper examines how collaborative digital platforms might boost rural tourism and economic growth despite rapid technological change. It addresses how cultural mapping can highlight rural areas and promote stakeholder cooperation. In case studies like Aldeias de Portugal, Rural Move, Arraigo Project, and Red Nacional de Pueblos Acogedores, the study examines how digital connectivity, and good practices empower low-density rural lands. Collaboration using Information and Communication Technologies (ICT) for information exchange and community participation can bridge these barriers and incorporate rural areas into the global information society. Cultural mapping empowers communities and improves tourism by involving inhabitants, tourists, and other stakeholders. This research uses Design-Based Research (DBR) and Design Thinking to create creative rural development solutions. The study uses community culture mapping and stories told by the inhabitants to develop interactive and inclusive tourism experiences for residents and visitors. The research results emphasise collaboration, creativity, and community engagement in using digital technology as relevant drivers for rural development and tourism. The framework proposes a holistic approach designed to engage and meet rural communities' different needs and goals in the digital age in their quest to meet the demands of an ever-changing online world.

Keywords | Local communities, e-tourism, collaboration, historical storytelling, DBR

1. Introduction

In an era marked by swift technological progress and widespread global interconnectivity, rural communities must preserve economic competitiveness and communal sustainability. The complex nature of rural landscapes and the genuine expression of local cultures present significant opportunities for tourism and economic growth. To effectively promote these sectors, it is necessary to design methodologies capable of exploring the potential of collaborative infocommunication activities. This article presents research conducted aimed at designing a framework focused of bridging Information and Communication Technology (ICT) and local rural communities and, by doing so, contributing to highlighting the distinctive characteristics of rural areas and fostering cooperation among various parties for long-term development. The community chosen for the study

conducted and presented in this paper was the parish of Fontoura situated in the Valença Municipality in the Minho region of northwestern Portugal. One of the project's overall goals was to understand how digital connectivity and digitally may promote and support good practices in rural destinations (República Portuguesa, 2016; UNESCO, 2019; Martela, Greve, Rothstein & Saari, 2020; European Network for Rural Development, 2020; McNaughton, Rao & Verma, 2020; Bethune, Buhalis & Miles, 2021; Borges-Tiago, Veríssimo & Tiago, 2022) and how these may become an asset for low-density territories and contribute to community empowerment and self-sufficiency. The study presented included Aldeias de Portugal¹ and Red Nacional de Pueblos Acogedores² as reference case studies. Rural areas are distinguished by their extensive cultural and natural legacy and tightly knit communities. However, rural areas frequently encounter obstacles, such as scarce resources, geographical remoteness, and a digital gap that drastically slows down their integration into the worldwide information society. The researchers involved in the project believe that collaborative e-communication activities involving the use of ICT for exchanging information, engaging the community, and solving problems, offer a chance to overcome some of these disparities and help rural areas gradually merge into new states of visibility and recognition as to their potential and value.

The exploration of collaborative infocommunication strategies in this article is grounded on the acknowledgement that rural development is a complex and multifaceted endeavour, and that it requires a holistic approach that addresses economic, social, and environmental dimensions. Through an in-depth analysis of relevant case studies, best practices, and emerging trends, this article seeks to provide a comprehensive overview of framework believed as useful for stakeholders involved in the promotion and development of rural areas. The strategies proposed herein aim to enhance visibility and establish a sustainable foundation to aid rural communities to thrive in the digital age. The cultural mapping conducted, involved in the framework developed, may be repeated in similar regions of Portugal and Spain. It values community engagement and the collaboration of many individuals, including visitors, tourists, and pilgrims, who contribute to content production and provides the painting of a collective picture of the territory and its multiple resources.

2. Theoretical Framework

Our theoretical framework began by defining the terms community, rural community and virtual community and then analyses the characteristics of a rural community characterised by low literacy rates and lack of digital skills. This research aimed to examine tourism in a specific rural community and these principles were associated with the environment. The etymology of the term "community" can be traced back to Aristotle's use of the term to denote a collective entity that socially binds

¹ <https://www.aldeiasdeportugal.pt/>

² <https://pueblosacogedores.com/>

individuals together, in the sense that society can be seen as indispensable to human existence (Ramos, 2014). Originates from the Latin «*communitas*, "comunidade, companheirismo", de *communis*, "comum, geral, compartilhado por muitos, público" (Azevedo & Adeodato, 2015, p. 43). According to Silva & Hespanhol (2016), the concept of community is a historical and social construct that is constantly evolving and changing. The authors provide a definition of community that goes beyond its geographical boundaries and includes additional areas such as social and political organisation and community values and emotions. A rural community is therefore more than simply a group of people living in rural areas characterised by low population density.

The concept of community at the national level is closely linked to the study of regions characterised by agriculture. When referring to a rural community, the focus is usually on the physical geographical area. In this study, the focus is broadened to include not only individuals but also the totality of the environment, considering both internal resources and available services. In the northern areas of Europe, there is a cultural emphasis on the importance of cohesion for the site, the community and its inhabitants. Creating a sense of community is seen as vital in many contexts of life, as it contributes to the overall well-being and satisfaction of the individual (Martela, Greve, Rothstein & Saari, 2020). Concepts such as culture, citizen, consumer and quality of life are part of the concept of what a community should be.

To promote a cooperative and inclusive environment among the intended beneficiaries, such as tourists and residents, especially the elderly, it is crucial to consider the principles of community. To fully realise the potential of the sector, government agencies should enact public policies for the tourism industry that incorporate principles such as sustainability, inclusivity, media convergence, community and inclusive engagement, collective intelligence, adaptability and openness. According to Jenkins (2006), the dissemination of media content relies heavily on the active participation of consumers, who are now more discerning responsible and aware of the potential risks associated with unplanned destinations.

The concept and practice of Community-Based Tourism³ is an underdeveloped form of tourism, and the cases that exist are associated with coastal and island areas. These destinations promote equality not only in terms of gender but also by creating more cohesive and interdependent areas by utilising bottom-up systems.

The way we see the world is through geospatial and geocological data structures (Neves, 2011), which are to be transformed and made accessible to the public through the creation of interactive digital maps. The term e-tourism in this study is associated with the development and design of

³ <https://www.responsibletravel.com/copy/what-is-community-based-tourism>: «is tourism in which residents [...] invite tourists to visit their communities with the provision of overnight accommodation. Community-based tourism enables the tourist to discover local habitats and wildlife and celebrates and respects traditional cultures, rituals, and wisdom. The community will be aware of the commercial and social value placed on their natural and cultural heritage through tourism, and this will foster community-based conservation of these resources» (Accessed at 07.08.2023)

community, cultural maps and cartography, especially in their digital representation on a web platform, using the InfoVis approach (Lima, 2011). With the power of innovation and the creation of collaborations between supply and demand, tourists and residents' benefit, and the partners develop and innovate for the benefit of tourism, as a driver for the development of territories and rural destinations.

At the European level, the European Network for Rural Development (ENRD) produces various thematic briefing documents as a tool for tourism partners and regional and local management. As well as rural stakeholders in the realisation and implementation of initiatives related to Smart Villages to promote digital transformation in villages and rural areas. Their programme therefore aims to

promote digital transformation in villages and rural areas. [...]. Smart Villages Strategies can help overcome the digital gap by recognizing the different starting points of rural areas and villages and co-designing digital pathways from the bottom-up while at the same time building bridges with essential top-down strategies. (European Network for Rural Development [ENRD], 2020, n.p.)

The most relevant examples for this literature review are two cases that are consistent with our research, one in Portugal linked to ENRD and the other in Spain. The Aldeias de Portugal is a nationwide organisation founded in 1999 as part of the Associação do Turismo de Aldeia (ATA). In 2005, it became part of the Associações de Desenvolvimento Local (ADL). It is an interactive and collaborative network of villages whose principles are based on the LEADER method, and which considers the community and local actors in the development and valorisation of each village (Aldeias de Portugal, 2022). Its mission is the development of rural areas, the valorisation of villages, the promotion and dissemination of local and regional endogenous resources, as well as the provision of services for products from these communities and training activities. We can say that these are genuine areas where the return to origins and the experience of nature give way to the need for well-being and the preservation of the cultural, historical or natural heritage of a given village.







Aldeias de Portugal has different types of offers: "Férias na Aldeia" (Holidays in the village), "Almoce e Jante Connosco" (Have lunch and dinner with us) and "Há Festa na Aldeia"⁴ (There is a party in the village). "Férias na Aldeia" was created to revive the tradition of summer holidays in villages and rural areas. The aim is to promote planned tourist experiences based on what is available in each village in Portugal. The village's best offerings are highly valued, and its characteristic features are emphasised, adding value to local businesses and encouraging the development of a diverse tourist offer.

"Almoce e Jante Connosco" was born from the lack of catering facilities in the areas of the villages of Portugal. It linked five villages spread across the continent: Sistelo (Viana do Castelo), Mazouco (Bragança), Couto do Mosteiro (Viseu), Amareleja (Beja) and São Domingos (Setúbal), villages

⁴ <https://www.hafestanaaldeia.pt/> (Accessed at 17.02.2024)

characterised by increasing desertification and the progressive diminish of services. It is an opportunity to learn about local history and stories while promoting community identity and tourism. This has positive effects on the communities: enhancing cultural heritage by revitalising old recipes, creating micro-enterprises by providing income alternatives for families, promoting quality of life and increasing the number of tourists throughout the year, and reducing seasonality, especially in the low season. There is a route linked to gastronomic tourism, with visits to museums and points of interest in each locality. Another product of Aldeias de Portugal is "Há Festa na Aldeia" which aims to revitalise the territory and its traditions by involving their inhabitants, as opposed to the usual approach of promoting tourism without considering the local community, organisations and local government. The product shows that the local and national products are regarded as meeting high quality standards, mostly because of care and concern nurtured by the people involved in producing and delivering them. The project also has 6 themed tourist routes with different products offered by the villages scattered throughout Portugal, as presented in Table 1:

Table 1 | Classification of the thematic routes in Aldeias de Portugal.

Thematic Routes					
					
Experience & Rurality	History, Art & Spirituality	Nature	Traditional Fairs	Flavours & Traditions	Water-based activities

Source: Mónica Silva.

Most villages have more than one thematic route and more than 120 villages are involved in the project.

The other practical case presented in this study is the Red Nacional de Pueblos Acogedores⁵, a network of small (1 to 500 inhabitants) and medium-sized (500 to 2,000 inhabitants) villages that offer tourist routes that could potentially become areas for digital nomadism (Figure 1).

⁵ <https://pueblosacogedores.com/> (Accessed at 17.02.2024)








Figure 1 | Distribution of the Red Nacional de Pueblos Acogedores, across Spanish territories

Source: Red Nacional de Pueblos Acogedores⁶ (2024, n.p.).








Enrolling to become a member of the community is free and the user can become a teleworker member with numerous benefits. The subject areas covered by the tourism offer are divided into twelve main groups, as shown in Tables 2, 3 and 4.

Table 2 | Classification of the main groups in Red Nacional de Pueblos Acogedores – Information about the Village and Air Quality, Security & Noise.

Information about the village		Air Quality, Security & Noise		
				
Number of Residents	Access functional diversity	Air Quality	Security	Noise

Source: Mónica Silva

Table 3 | Classification of the main groups in Red Nacional de Pueblos Acogedores – Municipal Connections.

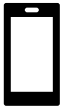




Municipal Connections						
						
Bus connection	Road connection	Train connection	River	Lake	Wetlands	Thermal Baths

Source: Mónica Silva

⁶ <https://pueblosacogedores.com/listado-pueblos/> (Accessed at 18.02.2024)

Almost all the villages have bus and road connections, more the medium villages than the small ones.

Table 4 | Classification of the main groups in Red Nacional de Pueblos Acogedores – Connectivity & Internet Access and Workspaces.

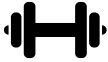












Connectivity & Internet Access			Work Spaces	
				
3G / 4G	Internet	WIFI	Remote Working / Teleworking	Co-living

Source: Mónica Silva

The accommodations and type of costs are available from Hotel, Hostel, Cottage, Camping and Inn, and associated with the possibilities of rented housing, meal cost and desk space cost per week for the three. The user can also have access to the cost of living for the week by a person.

About General Services the same that the inhabitants use are available to the digital nomads and tourists, such as Table 5.







Table 5 | Classification of the main groups in Red Nacional de Pueblos Acogedores – General Services.

General Services						
						
Sports equipment	Social gardens	Cultural Associations	Bar / Restaurant	Library	ATM	Market
						
Petrol Station	Cultural Centre	Health Centre	Education Centre	Post Office	Senior Housing	

Source: Mónica Silva

The Centres – Cultural, Health and Education – are common to almost all the villages, as well as bars/restaurants, Cultural Associations, ATMs and markets. For the Local Services, all villages have local services such as Butchers, Fish Markets, Fruit Shops, Bakeries, Stationery Shops, Hairdressers, Plazas, Convenience Stores and Pharmacies. There are also multiple volunteering initiatives in multiple fields such as ones shown in the table 6:

Table 6 | Classification of the main groups in Red Nacional de Pueblos Acogedores – Volunteering.

Volunteering					
					
Volunteering	Environmental Volunteering	Educational Volunteering	Solidarity Volunteering	Social Volunteering	Gender Volunteering

Source: Mónica Silva

In a nutshell the Red Nacional de Pueblos Acogedores is a great example of project that facilitates the discovery of small towns that provide ideal conditions for remote work and offer recreational activities for leisure.

The experiences analysed although in roughly the same context approach the challenge from different perspectives. While in the Portuguese case, there is a clear touristic intention - favoured by the proximity between the different members of the community - the Spanish case it is mostly concerned with promoting and supporting the digital nomad lifestyle and their needs. We opted to study two other cases: Rural Move⁷, in Portugal, which serves as a platform for rural areas, supporting those who live or want to live, work and/or invest there; and another in Spain, the Arraigo Project⁸. This last project supports and advises people and entrepreneurs seeking to move into rural areas, as well as municipalities and other rural organisations in design, development and implementation of strategies capable of attracting new people and promoting the well-being in their town or region.

To effectively embrace the digital world and capitalise on the new opportunities for collaboration and value creation it is essential to understand the physical world that surrounds the user. This understanding will enable innovation, entrepreneurship and competitiveness (Gretzel, Sigala, Xiang & Koo, 2015). To transform the destination environment and create the essential systems required to deliver these experiences inherent process require working collaboratively. The most effective way to do this is to build on acumen when designing the strategic approach (Bethune, Buhalis & Miles, 2021).

The creation of maps or community mapping in small communities, which includes the involvement of residents, shoppers and tourists, is characterised by its ability to empower the community (Duxbury, 2019), making cultural community mapping (Figure 2) a tool for participation in the planning and development of the community itself.

⁷ <https://ruralmove.org/pt/inicio/> (Accessed at 02.03.2024)

⁸ <https://proyectoarraigo.es/> (Accessed at 02.03.2024)

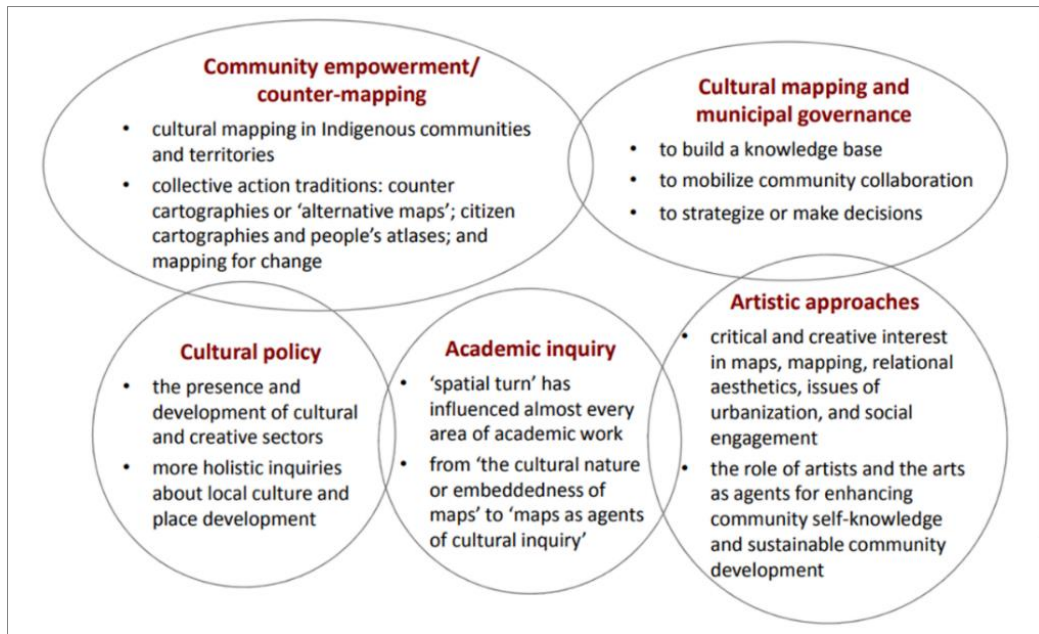


Figure 2 | Guidelines for creating realistic community cultural maps.

Source: Duxbury (2019, n.p).

The project presented in this paper considered the residents as the main actors in the community, in the sense that they connect with the tourists through the content shared and presented in a context. The adoption of Information Visualisation strategies- InfoVis – triggered the creation and aggregation and correlation, collaboration, participation and interaction between the stories, their people and the territory. These activities enabled the improvement of the technology acceptance and adoption by the residents through multiple Community-Centred Design activities. The adopted methodology is further discussed in the following section.

3. Methodology

The methodological approach adopted in our study resorted to a mixed methodological approach, both qualitative and quantitative, focused on the goal of contributing to the design of the already mentioned framework useful for community cultural mapping and helping the territory reach its full potential. It included a systematic review of the literature with a particular focus on infocommunication theory, rural communities with low technological literacy, collaborative cultural mapping and information visualisation. The instruments used included interviews and focus groups - with the elderly people of Fontoura's community to gather stories of the past to preserve them for future sharing as portions of what may be recognized as collective memories - as well as questionnaires – accessible to respondents using QRcodes printed on tourist signs, focused on visitors and pilgrims, as well as a questionnaire answered by Fontoura's residents. In addition, a three-dimensional model was created in the form of a topographic model - at a scale of 1/5000 – later scattered with pins indicating many tourist attractions in the parish of Fontoura. The pins were

marked with different coloured pens that helped to distinguish cultural and natural heritage and some service signs. The questionnaires made available for tourists and pilgrims, from July 2023 to August 2024, collected information relevant for understanding who was travelling through Fontoura and why. It was important to understand the profile and segmentation of visitors in terms of supply and demand, as well as the travel motive and the resources and activities to be explored in that specific rural parish. Understanding issues like collaboration, participation, exchange and visits was considered essential for the creation of an integrated and responsive cooperation model for the municipality of Fontoura. We wanted to combine rural tourism with e-tourism and smart tourism to promote sustainability through economic, social and environmental pillars. Education in this area, for instance, is becoming increasingly important on a cultural level, as teaching and learning activities are essential for maintaining and preserving local identity traits for future generations. Associations, partnership agreements and collaborative efforts may be considered as crucial in cross-border areas such as the one chosen for our study to effectively manage supply and demand, benefiting the territory at both a local and a regional level.

The research focused on Design-Based Research (DBR), which combines empirical research with design-based theories. It can be regarded as an effective method to understand the quality, timing and cause of the phenomenon of educational innovation in practice. DBR is typically kicked-off through the initial assessment of a problem that arises in a particular setting, and this assessment continues throughout the design and implementation phase (Vaezi, Moonaghi & Golbaf, 2019). Design Thinking was applied in our project, first through the Double Diamond model and afterwards updated according to the Framework for Innovation model illustrated in Figure 3.

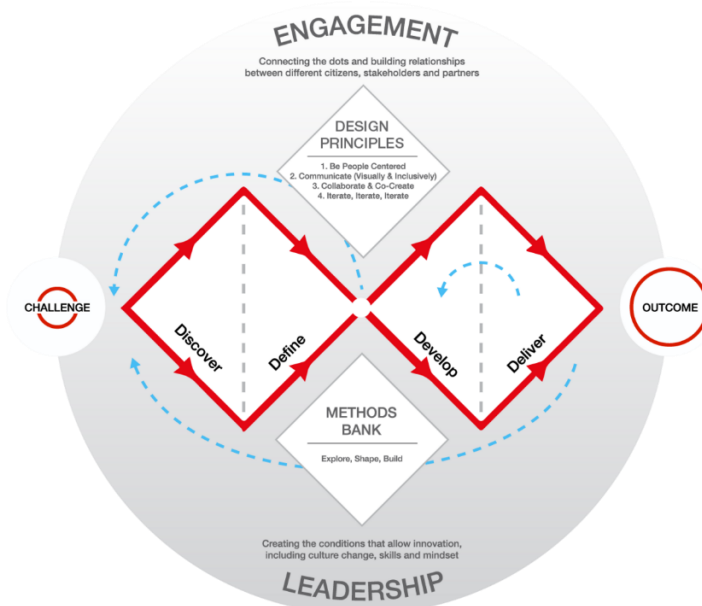


Figure 3. Model Framework for Innovation, upgrade from the Double Diamond model
Source: British Design Council (2024, n.p).

Design Thinking (Figure 4) offers a practical conceptual framework for the decision-making process. The innovation process is broken down into easy steps to guide teams on what to focus on and when.

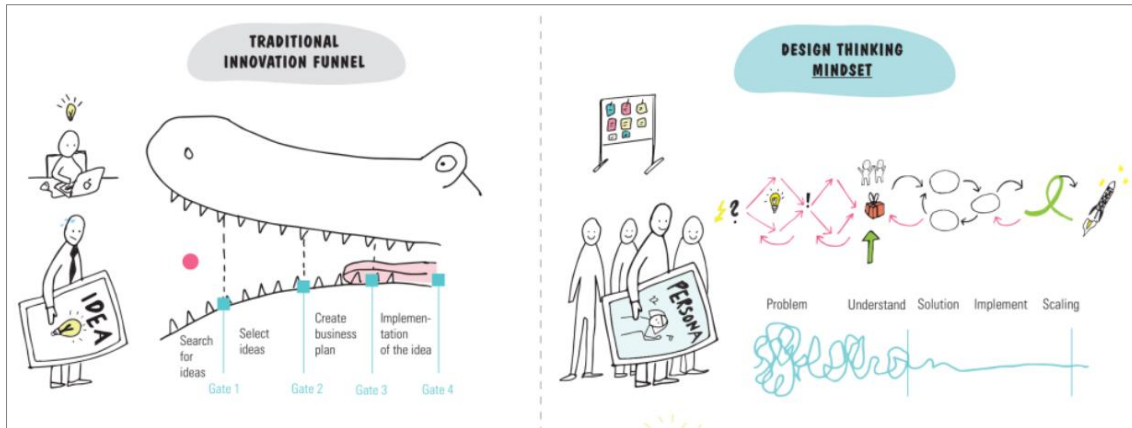


Figure 4 | Model Framework for Innovation, upgrade from the Double Diamond model.

Source: Lewrick, Link & Leifer (2018, p. 314).

Some of the results attained will be presented in the following section.

4. Results

The research conducted focused on the cultural development of the Fontoura community and its potential as a tourism destination. The Cultural mapping accomplished through the application of a framework designed and tested in Fontoura valued interdisciplinary collaboration and participatory planning and community development. The main objective sought out was to find out how local cultural elements such as values, narratives, customs, relationships, memories and rituals enhance the meaning of places and may be used to aid territories and communities in reaching their true potential. It is also used to engage different stakeholders in conversations about the cultural aspects and opportunities of these places (Aliyah, Setioko & Pradoto, 2017). The aim of this study was not only to showcase the full range of cultural, natural and heritage resources available in the community, but also to understand how activities focused on improving tourism services in a particular territory and community can be transferable and replicated in other territories and communities with similar characteristics. The possibility of mapping all these tangible and intangible resources onto a digital territory and the advantages for the parish and the municipality were also considered and discussed throughout the study.

Fontoura has a rich cultural and religious heritage, including chapels, parish churches and manor houses. This study analysed the features capable of increasing the attractiveness and appeal of this parish for tourists and residents. To do so we combined multiple data collection tools and activities that combined provided a clearer picture of Fontoura and the diversity of the resources it has to

offer. Online surveys, interviews and in person storytelling activities were conducted and the data collected granted us the following insights.

As for the online survey we received 120 responses from tourists and pilgrims, while 35 responses were collected from residents. We distributed the surveys for tourists and pilgrims in four languages: Portuguese, Spanish, French and English. Table 7 shows 59 responses in Portuguese from people from Portugal and Brazil, 52 responses in English from multiple nations and 16 responses in French from respondents from France and Belgium.

Table 7 | Profile of tourists and pilgrims by normal residence.

Normal Residence	%
Portugal	46,7%
Rest of Europe	38,3%
USA	9,2%
Brazil	2,5%
Canada	1,7%
Singapore	0,8%
Australia	0,8%

Source: Mónica Silva

The only evident distinctions between tourists, pilgrims, and inhabitants lie in their levels of education. Visitors and pilgrims hold more advanced degrees than locals when comparing the same levels of education (Figure 5).

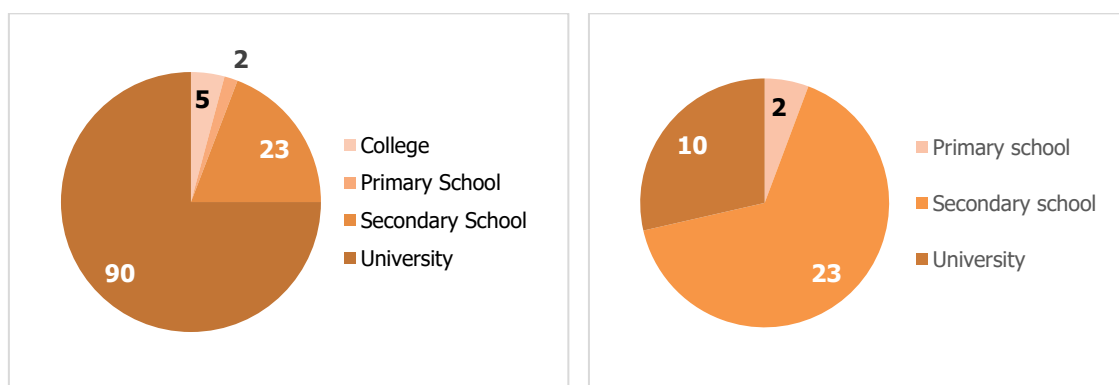


Figure 5 | Level of education: tourists and pilgrims vs Fontoura's inhabitants.

Source: Mónica Silva

To understand how we could introduce a collaborative and participatory platform about Fontoura, we asked tourists, pilgrims and residents if they would like to have access to if such a platform existed. Responses attained (Table 8) were similar as to their positive attitude towards an open access tourist platform.

Table 8 | Opinion of tourists, pilgrims, and inhabitants about a touristic open-access platform.

Respondents Type	Tourists & Pilgrims			Inhabitants		
	Negative opinion	Positive opinion	No opinion	Negative opinion	Positive opinion	No opinion
<i>Affirmations</i>						
<i>Internet is important</i>	5,8%	90,8%	3,3%	---	100%	---
<i>I would use</i>	9,2%	80,0%	10,8%	---	97,1%	2,9%
<i>Texts & audiovisual</i>	4,2%	90,8%	5,0%	2,9%	97,1%	---
<i>Be participative</i>	11,7%	76,7%	11,7%	8,6%	85,7%	5,7%
<i>Be collaborative</i>	13,3%	78,3%	8,3%	2,9%	97,1%	---
<i>With storytelling</i>	10,0%	74,2%	15,8%	2,9%	88,5%	8,6%
<i>With forum</i>	9,2%	78,3%	12,5%	---	91,5%	8,6%

Source: Mónica Silva

Most responses were above 85%, indicating relevant intentions from tourists, pilgrims, and residents of using the site for sharing georeferenced audiovisual content.

As far as the interviews were concerned, the answers focused mainly on Fontoura's cultural and historical heritage, with an emphasis on the importance of preserving the existing mills:

"There used to be a lot of mills in the parish, but today they're all gone. There were two streams and there were more than 30 mills, some for sulphur and others for grinding cereals. I remember some of them exploding. My parents later restored one of them, where the grain was ground." J.M. Another interviewee said that many of the books in the parish house had been lost over time:

"There have been many priests. I remember that when Father Lisboa moved in, five wagons of books [from the Parish House] were taken to Cossourado [a parish in the municipality of Paredes de Coura, which borders Fontoura], in other words, the parish's assets were dispersed. Then only two wagons came back. It is rumoured that many were lost, and the books were also in a poorly protected place." T.G.

In the next two interviews, references were made to the poverty that existed in the parish and that Fontoura was once a very rich territory, both in terms of production and the archaeological remains found in the most mountainous part of the parish:

"The parish was once a very rich area. My parents had a shop, and I still remember the arrival of hot peanuts and chickpeas to put in the drawers. Milk was fetched from Casa Alta because there was no milk like there is today. The lady from Casa Alta, Mrs Cristina, used to come to Mass every Sunday in a buggy, she was the only one in the whole parish to come by transport." T.F.

"We have a lot of archaeological remains from the time of the Greeks in the upper part [the mountainous part of Fontoura]. Some people have found coins and roof tiles from Roman

times. An archaeologist from Braga even came, but then she didn't work. I'd like to see the trails completed and that they take the parish out into the open." R.F.

With the information we acquired, we realised that the best way to create an interactive, collaborative, and open-access tourism platform would be through community cultural mapping, with the creation of stories associated with the moments described by residents and the application of layers by type of heritage, natural, cultural, historical and even cognitive, with mapping, as well as sharing photos.

The 3D model (Figure 6), used for storytelling activities, helped us to use the information collected from interviews more effectively, display heritage places across the region, improve the interactive aspects of storytelling, and trigger memories among senior parish members. This 3D model built by the main researcher created a visual and physical reference that allowed the elderly participants to recognize the Fontoura territory and identify specific heritage locations in the parish.



Figure 6 | 3D plug-in model, made with EVA foam, at 1/5000 scale.

Source: Mónica Silva

By combining the data and the stories collected with these tools and activities the project was able to create cultural map of the multiple types of resources available in Fontoura. This information was then shared online in another stage of the project that will not be covered in this paper.

5. Conclusions

Fontoura has a rich cultural and religious heritage, including chapels, parish churches and manor houses. This study analyses some of the features that may make rural places attractive and appealing

to tourists and inhabitants. Various stakeholders (residents, tourists and pilgrims) were involved to map Fontoura's resources, but further discussion and analysis of the level of involvement and what drives its motivation is still being assessed. Cultural mapping strengthens communities and their values by considering features such as sustainability and inclusiveness. Communities are characterised by identity and authenticity, influenced by location, residents and visitors, and by collaboration between public and private partners. Residents play a critical role in the community by facilitating connections with tourists through the content they develop and source. Engaging communities to collaborate and participate, may be aided by combining in person social interaction, storytelling and ICT particularly in community-centred design efforts within rural areas.

Fontoura has engaged residents to foster and promote a sense of belonging and has also encouraged tourists and the local community to actively contribute as producers and consumers of content about the parish. This approach enables a deeper understanding of communities and their resources by encouraging community shaping through interactive activities and participatory tactics to showcase cultural values with diversity and inclusivity.

We may link, understand, use and reflect on the places in the communities and recognise the resources and attractions in different combined environments in the region. Cultural Mapping may also enable further preservation and conservation of cultural heritage and resources by using ICT as a tool for contributing to a wider sense of community and belonging. Platforms that enable the development of collaborative design using multidimensional and interactive maps that link cultural assets to their significance, incorporating diversity and participatory methods are surely a positive tool worth adopting and adapting to the particularities of each territory and community.

This study has since made significant contributions to other ongoing work in the region and has various potentials for further investigation. A small-scale study will be soon conducted in another sparsely populated and rural location to explore the potential of promoting collaborative and inclusive involvement in the territory's cultural mapping. It is believed that areas equipped with user-centric technological strategies and tools are expected to attract more visitors since they can improve community relationships, visibility and, in some cases the quality of life of whoever lives in or visits those areas.

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