

Digital Platform for Accessibility and Cultural Enhancement of Inner Areas in Italy

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Abstract

Heritage plays a central role in territorial cohesion and development policies, as well as in the activation of urban transformation processes. This interdisciplinary project experiments with a virtual platform to explore small historic centres, enhancing cultural and landscape heritage and promoting inclusive accessibility. The objective is to guarantee the right to know and share this minor heritage, eliminating accessibility barriers and serving as a shared archive for local communities. Focused on Stigliano (MT) in Basilicata, the project aims to preserve memory and local identities in areas affected by depopulation and hydrogeological risk. It also aims to promote cooperation between different levels of government and local actors, also through virtual interactions, and to encourage potential investments. The platform becomes a tool for cultural regeneration, stimulating dialogue on the future of these communities.

Keywords : Inner areas, cultural heritage, digital tools, public engagement, accessibility.

1. Introduction

More than 60 percent of Italy's territory is made up of fragile and poorly accessible rural territories, i.e., inner areas, yet they are home to less than a quarter of the national population and continue to depopulate. These figures are indicative of a clear territorial imbalance impoverishing cultural continuity and integrity, especially in rural areas.

European policies have increasingly focused on social cohesion and cultural enhancement to strengthen these marginalised contexts. Public debates reflect a shift from static conservation to dynamic place-based development, in which cultural and natural heritage – both tangible and intangible – acts as a driver of territorial cohesion and sustainable growth. In Italy, 'inner areas' are defined as areas far from service centres, characterised by systemic inequalities that lead to progressive demographic decline, accelerating depopulation and the impoverishment of local economies (Barca et al., 2014). This weakens the bond between inhabitants and their territory, also threatening the survival of cultural and historical-architectural heritage – a legacy of stratified histories, vernacular architecture, and landscape elements now at risk (Vigotti, 2020).

While the importance of developing services that address the essential needs of the inhabitants of inner areas is well known, there is also a growing recognition of the need to initiate processes of knowledge-building, conservation, and enhancement of territorial capital in its various dimensions – material, cultural, and cognitive – in order to define effective intervention strategies. The Hangzhou Declaration (2013) already addresses the contribution of culture to the social, environmental, and economic pillars of sustainable development, as well as its role in creating sustainable cities and building resilient societies. Although not explicitly stated, the cultural aspect is underlying, transversal, and implicit in all the actions of the 17 goals and 169 targets of the 2030 Agenda. This is because each pillar – environment, society, and economy – has a cultural dimension. Some scholars claim that this lack of explicit recognition has led many conservation-focused projects to concentrate efforts and resources on physical preservation, often at the expense of cultural, social, and intellectual drivers of sustainable management (Vandesande, 2021), and that this approach has frequently proven ineffective. As a result, public participation, community involvement, and civil society engagement are increasingly promoted in the context of heritage interventions to ensure the long-term sustainability of management, valorisation, and development processes (Faro Convention, 2005; Tomka, 2013). In this sense, digital technologies can foster cultural innovation and participation, considering deeper forms of participation that go beyond mere interaction

with predefined content. The idea of democratising heritage (Taylor, Gibson, 2016) through digital access has promoted a number of Europe-wide initiatives and funding programmes for the digitisation of cultural heritage (European Commission, 2019).

In Italy, in line with the Faro Convention and the European Framework for Action on Cultural Heritage, the National Recovery and Resilience Plan (NRRP) of the Ministry of Culture includes, among its investments under Mission 1 (Digitisation, Innovation, Competitiveness, Culture and Tourism) - Component 3 (Tourism and Culture 4.0), a specific measure for the implementation of 'Digital Strategies and Platforms for Cultural Heritage'. These developments represent a valuable opportunity for fragile and marginalised territories, in continuity with what was already envisaged by the National Strategy for Inner Areas (SNAI) during the 2014–2020 programming period. Information management through open and interoperable platforms provides valuable tools for decision-making and heritage monitoring. Indeed, by offering data and digital content to a wide range of users, these platforms promote collaborative networks between stakeholders and open new possibilities for knowledge sharing and cultural innovation. Digital tools allow both physical and virtual accessibility, which is also functional in promoting sustainable forms of cultural tourism; sustainable cultural tourism is indeed one of the pillars for the local development of inland areas, as highlighted by various scholars (Bizzarri, 2024).

The aim of this contribution is to explore how digital resources can significantly support the understanding, protection, and enhancement of cultural heritage, through the conceptualisation and first experimentation of a digital platform in a real case study, i.e. the Italian small town of Stigliano (MT) – leading municipality of the action plan for the inner area "Montagna Materana" – characterised by a rich cultural landscape but also by strong environmental fragility due to hydrogeological instability. The article is structured as follows: Section 2 presents a literature review and a selection of best practices related to the use of digital platforms for the enhancement of cultural heritage, with a focus on inner areas and minor historical centres; Section 3 illustrates the methodological framework for the development of a virtual platform, enabling its replicability, and an initial experiment in a pilot area of Stigliano; Section 4 discusses open issues, including feedback obtained from the pilot case application, implementation possibilities, and the structural limitations identified. Finally, Section 5 reflects on how the experimentation fits into a broader public and scientific debate, as well as on the future scalability and replicability of the research.

2. Literature review and best practices on social digital tools for inner areas

There are several examples of experimentation and application, both institutional and non-institutional, that use digital platforms to enhance cultural heritage and promote sustainable cultural tourism. Although most of these good practices refer to medium-to-large urban contexts or specific heritage institutions (art collections, museums, etc.) and are focused on particular sites (monuments, archaeological areas, historic buildings, rural areas, museums), some experiments address marginal territories and smaller historical centres – together with their tangible and intangible heritage – in a more integrated way, including through the involvement of so-called "heritage communities" (Faro Convention, 2005). The experiences presented below, at European, national, and local levels, were selected for their methodological similarities and alignment of objectives: they all involve the development or use of digital tools and platforms for the valorisation of cultural heritage, both tangible and intangible, in marginal and underrepresented areas, with the active involvement of local communities in the various stages of the knowledge and management process. Digital platform thus becomes a 'space' for exercising shared responsibility in the protection, enhancement, and promotion of collective memory and heritage (Longo et al., 2020), also through virtual interaction between users and the digital environment, as well as among users themselves. Furthermore, some of these initiatives focus on expanding the concepts of accessibility and inclusiveness in smaller historic centres through virtual reality or digital twins (Bacci et al., 2021; Lombardo et al., 2023). However, awareness of the actual effectiveness of these initiatives in producing tangible transformations in public space remains limited (Caselli et al., 2025).

At the European level, the Horizon 2020 Programme has promoted numerous projects in which digitisation, and the enhancement and sharing of cultural, environmental, and social heritage, served as key drivers for reducing territorial and social inequalities, with a focus on rural, mountainous, and peripheral areas. One example is the REACH project (Re-designing Access to Cultural Heritage for a Wider Participation in Preservation. Reuse and Management of European Culture, 2017-2020), a European initiative aimed at creating a Digital Social Platform. Its purpose was to bring together a wide range of stakeholders and audiences and offer meaningful participatory

experiences through pilot projects. One of these focused on rural heritage in Spain, exploring participatory approaches to its conservation, particularly in relation to historical irrigation systems and rural areas affected by change or natural disasters. The project continues the work begun by the FP7 MEMOLA project (Mediterranean Mountainous Landscapes, 2014-2017), which led to the development of a collaborative map of historical irrigation systems¹. The resulting dataset, now available online, is presented to the public as a map; registered users can contribute new entries and comment on existing ones. This approach not only constitutes an example of active community involvement in the process of knowledge production and subsequent “maintenance” of heritage but also highlights the importance of using open online platforms to ensure the visibility and usability of data collected through research projects. It also facilitates collaboration between researchers and civil society in the collection and validation of data, opening new opportunities for cooperation (Toscano, 2018).

In Italy, the National Plan for the Digitisation of Cultural Heritage (PDN) for the five-year period 2022-2026, sub-investment 1.1 of the NRP Culture, defines a platform as “any hardware and software system used to host applications or services and serves as a basis for the development or management of other applications, processes or technologies [...] and may be equipped with different interfaces both for the display of data and for interchange with other platforms”. This includes applications designed with different interfaces and structures to ensure access to cultural heritage and to enable any user to participate in, experience, interact with, disseminate, and reuse public cultural assets. Forms of participation are often activated through online crowdsourcing of ideas, memories, personal stories, and other data (Ridge, 2014), depending on the thematic focus of each initiative. Such is the case, for instance, of the “Archivio Atena” community archive and the “Qui Val di Fiastra” project². The former aims to digitally archive the architectural and cultural heritage of the historic centre of Atena Lucana (SA), to trigger processes of adaptive reuse and urban regeneration by leveraging socio-spatial relationships. The process is based on mutual participatory learning between experts and community members, with the goal of co-identifying shared values through the spatial, social, cultural, and environmental dimensions of the context (Rocca et al., 2023; Somma et al., 2024). The latter project seeks to revitalise the social, economic, and cultural fabric of the municipalities of Ripe San Ginesio, Loro Piceno, and Colmurano (MC) through an integrated strategy of social and cultural regeneration and the creation of a Digital Valley Ecosystem (Giacomelli, Calcagni, 2022). The initiative includes 15 interventions concerning the development of Territorial Infrastructures (networks for slow mobility and enhancement of socio-cultural services), Intangible Infrastructures (an interactive web platform and museum network), Cultural Activation and Events, and the Narrative of the Valley. This reflects a broader intent to promote more inclusive forms of cultural tourism. Nevertheless, such experiences demonstrate that mapping information and making it widely accessible – e.g. through GIS tools – is a way to operationalise and make use of it, both for the sake of knowledge and to stimulate planning that considers local identity and memory. Moreover, these experiences address the need to work on the encoding of heritage, especially intangible heritage. While digital interaction (such as interpretation or expression of values) during the decoding phase has become increasingly polyvocal, the decision about what constitutes “heritage” and what is selected for digitisation (encoding) is not necessarily part of this democratisation (Taylor, Gibson, 2016).

3. Testing a metodological framework for a virtual platform on the pilot case of Stigliano

Within the broad framework of the experiences summarised above, the national research project “GO-IN! Digital Platform for Inner Areas” (funded by Next Generation EU in the framework of the Italian NRRP) explores the application of new digital technologies to the cultural heritage of small historical centres in inner areas for the enhancement of local resources, supporting innovative approaches in tourism, housing, and sustainable mobility (Savi, 2019).

The main objective of this inter-university and interdisciplinary research project is to assess the potential of

1 The collaborative map of historical irrigation systems has the primary goal of making both these productive landscapes and the irrigation communities that manage them visible. This initiative was born in collaboration with the European FP7 MEMOLA project and the Association of Historical and Traditional Irrigation Communities of Andalusia. To support this effort, we have received funding from the Spanish Foundation for Science and Technology (FECYT) within the framework of the participatory science program. <https://regadiohistorico.es/>

2 “Archivio Atena” and “Qui Val di Fiastra”, are a winning projects of the public notice, “Attractivity of the villages”, part of the National Recovery and Resilience Plan (PNRR M1C3) financed by the Next Generation EU.

Web site Archivio Atena: <https://archivioatena.com/> (last accessed: 13/05/2025)

Web site Qui Val di Fiastra: <https://www.quivaldifiastra.com/> (last accessed: 13/05/2025)

3D reality-based models integrated into GIS environments and virtual platforms for the enhancement and conservation of small historical centres in vulnerable contexts. The project aims to develop an innovative and replicable methodological protocol for the creation of a 3D GIS databases and an interoperable virtual platform (Figure 1). The protocol also focuses on evaluating the technical and economic feasibility required for managing and implementing digital systems in contexts that typically lack resources, personnel, and digital skills within public administrations.

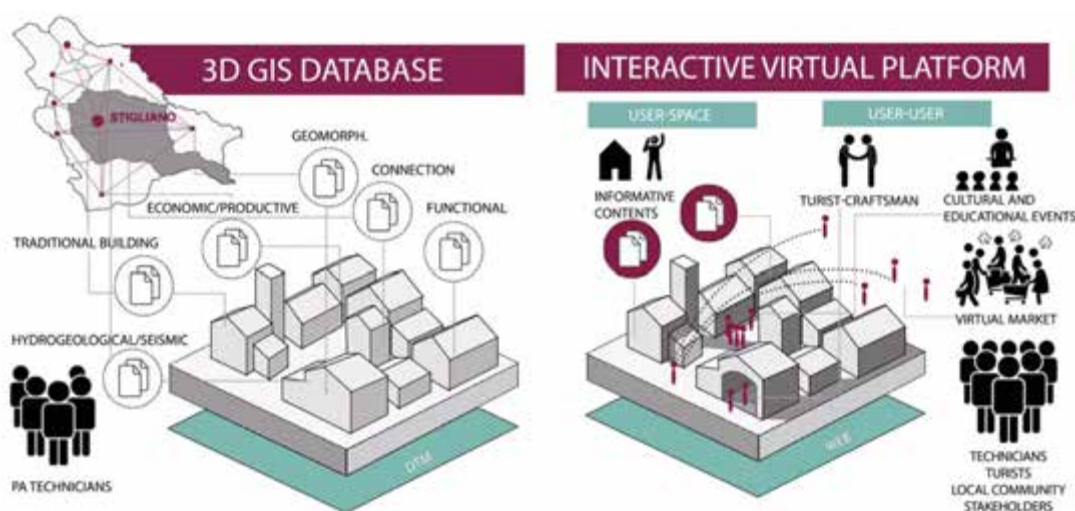


Figure 1. Graphic diagram summarising the objectives of the GO-IN! project. On the left, the 3D GIS database targeted to technicians of the Municipality of Stigliano; on the right, the interactive virtual platform addressed to scientific and non-scientific community. Image produced by DAda Lab, University of Pavia.

This contribution focuses on the development of the interoperable virtual platform, which include a photorealistic 3D model made publicly available online through the project website. The concept is developed starting from the case study of Stigliano, which had been thoroughly documented in the first stages of the GO-IN project.

The platform enables the archiving, processing, and visualisation of open and interoperable data available in various formats (3D models, images, texts, videos, interactive contents, etc.) and collected from diverse sources (traditional archives, digital libraries, real-time content, open dataset databases, open-access research data repositories of scientific results, social networks, etc.). Users, including tourists, will be able to navigate the digital environment, interact with virtual content, and engage with other users. The platform helps guarantee the right of access to culture by removing barriers to accessibility – both physical and informational.

3.1 Contextual Analysis of Stigliano and the Montagna Materana inner area

The experimentation of the virtual platform focuses on the case study of Stigliano (MT) in Basilicata. The region, characterised mainly by small municipalities, comprises four inner areas designated by the SNAI: Montagna Materana, Mercure - Alto Sinni - Val Sarmento, Marmo Platano, and Alto Bradano. Of these, the inland area "Montagna Materana", of which Stigliano is the leading municipality, is described by SNAI as an archipelago of eight "landscape towns"³: Accettura, Aliano, Cirigliano, Craco, Gorgoglione, Oliveto Lucano, San Mauro Forte, and Stigliano (Figure 2). All eight municipalities are considered ultra-peripheral, and the main demographic indices confirm the typical symptoms of demographic contraction, accompanied by a rapid ageing of the population (Figure 3). This leads to a progressive erosion of the everyday infrastructure (Coppola et al. 2021), and of the material and immaterial resources of these areas. Further exacerbating this condition of territorial fragility are widespread forms of hydrogeological instability, which in some municipalities have led to the relocation of parts of the settlement at

3 Area Strategy, pilot project 'Montagna Materana'. Website: www.agenziacoesione.gov.it/strategia-nazionale-aree-interne/regione-basilicata-aree-interne/montagna-materana/ (last accessed: 03/06/2024)

risk to newly built areas, amplifying “dispersions, slights, pains, fractures, dissensions, forms of resistance” (Teti, 2024).

Urban/connective criteria (conditions of isolation from reference service centres), morphological criteria (conditions of geological or hydrogeological risk), and cultural criteria (presence of tangible and intangible cultural heritage) were particularly influential in identifying the case. But that is not all. Among all of them, the municipality of Stigliano was certainly the one that best lent itself to experimentation, because although it is among the municipalities most affected by ageing and by a constant rate of decline – in the last 19 years it has lost 14% of its population – it is still the most demographically significant, with 3,586 inhabitants (as of 1 January 2023). Moreover, although since 2017 Stigliano, together with the other municipalities in the inland area, has signed a convention for the associated exercise of activities and services with the delegation of functions to be exercised in a coordinated manner, it still has a more solid administrative apparatus, with the management of urban and building planning at the municipal level as well as participation in territorial planning at the supra-municipal level. Technical-administrative capacity was considered an essential condition for achieving the objectives that the project had set and for hypothesising possible future developments and further activations.



Centro storico di Accettura



Centro storico di Aliano



Centro storico di Cirigliano



Centro storico di Craco



Centro storico di Gorgoglione



Centro storico di Oliveo Lucano



Centro storico di San Mauro Forte



Centro storico di Stigliano

Figure 2. Aerial photos of the eight municipalities that make-up the 'Montagna Materana' inner area. Authors' elaboration.

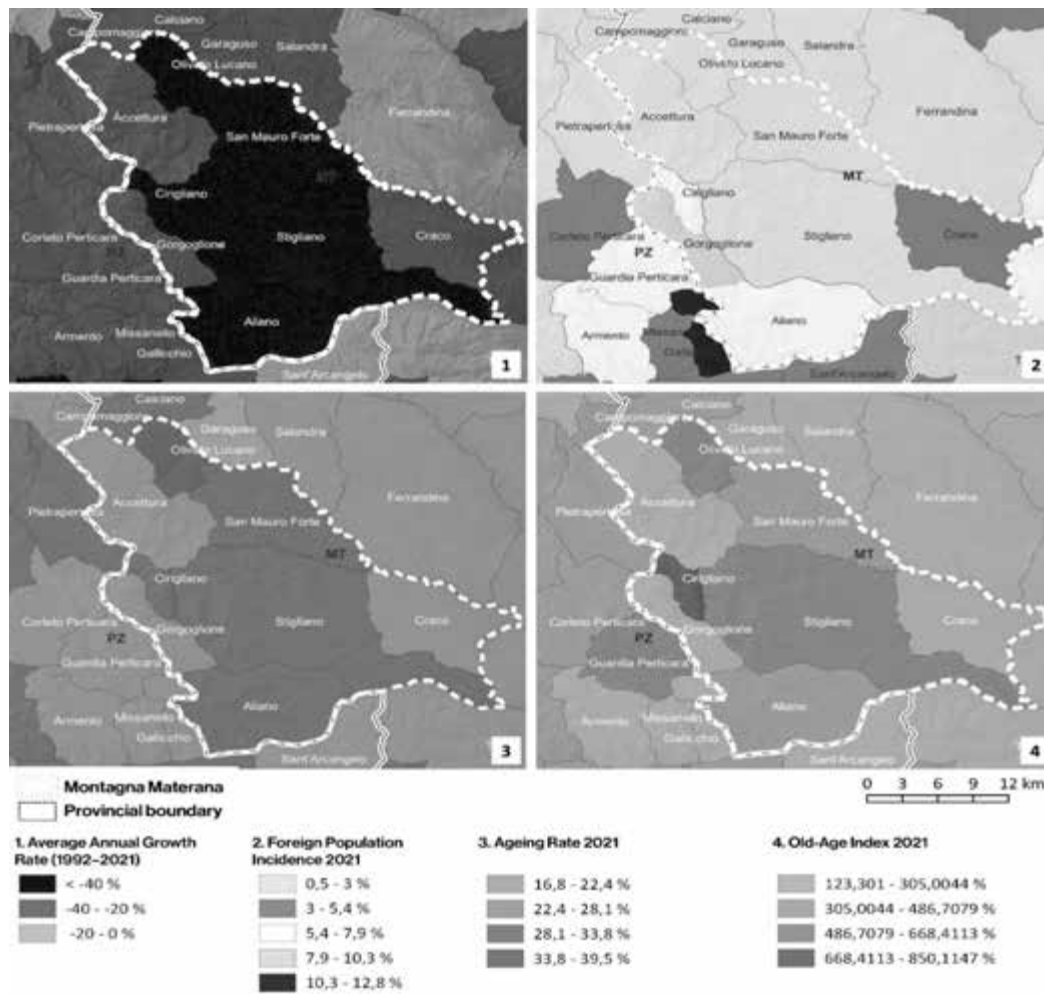


Figure 3. Main demographic indicators: growth rate, incidence of the foreign population, ageing rate, and old-age index. Original elaboration based on Istat data, Statistical Atlas of Municipalities 2021. Authors' elaboration.

In this framework, the experimentation for the GO-IN virtual platform focuses on the portion of the historic centre of Stigliano included in the perimeter of the "Transfer Plan" following the disastrous flood of 1973 and the identification of an area subject to high hydrogeological risk. The area coincides with the oldest part of the settlement, the Rione Terra known as "Chiazza", in which there are sections with severely degraded units that are no longer habitable, including buildings of considerable historical and architectural value (Figure 4). The "Transfer Plan", which has been in force in the area for more than fifty years, prevents any hypothesis of functional recovery/reconversion, consigning the buildings to progressive erosion, accelerated by preventive demolition interventions carried out for public safety reasons.



Figure 4. Collage of photos depicting the Chiazza district of Stigliano. The Mother Church of Santa Maria Assunta stands out within the urban fabric, which is mostly made up of minor historic architecture. The urban voids visible in some of the photos are a direct consequence of preventive demolitions. The historic center overlooks the badland landscape of the Basento valley. Authors' elaboration.

The exposure of historical-artistic artefacts, as well as cultural landscapes, to calamitous environmental events – aggravated by anthropic intervention – highlights the need for new forms and policies for the protection of cultural heritage, both tangible and intangible, and opens up experimentation with new tools for the preservation of knowledge and memory, also taking into account the possibility that this heritage may disappear over time (Parrinello et al. 2024). The project has developed digital documentation of tangible and intangible heritage, analysis of the state of conservation of buildings and open spaces, a census of services and territorial resources, as well as an update of hydrogeological and geomorphological vulnerability assessments. Part of these data will also be included in the virtual platform currently under construction in the framework of the GO-IN project, which will allow their free use.

3.2 The methodological framework for a Virtual Platform

The identification of site-specific needs and resources of the inner area Montagna Materna, Stigliano and the chosen historic neighbourhood helped the conceptualisation of the virtual platform whose main objectives, as

already mentioned, are to integrate and disseminate knowledge on historical and architectural heritage; make information on territorial resources easily accessible; promote a network that connects environmental landscape and cultural assets, small businesses, associations, and local cultural initiatives.

The methodological approach is therefore based on an in-depth, multi-scalar knowledge of the study area and on the principles of making the platform accessible - with freely available content - scalable and reproducible. The proposal involves the creation of a web interface that enables access to digital documentation and interactive contents including a 3D model of the selected historical neighbourhood of Stigliano designed to establish connections and networked routes at multiple scales. This strategic 'node' thus act as a catalyst, trying to extend its impact across a wider territorial extension.

The conceptualisation of the platform is given in the following subsections, which present four main strategic axes, accompanied by a description of the main objectives of each axis, expected results and main tools and procedures to be adopted.

3.2.1 3D digital reconstruction and participatory mapping

The interactive 3D model represents the main innovation of this proposal. This is integrated into an easily navigable web interface, enriching it with informative content and narrative elements that make navigation more engaging. The process starts with a digital survey and 3D modelling, in parallel with designing data architecture - supported by the digital documentation of the site through heritage mapping and cataloguing - multimedia and user interaction methods.

The use of an integrated data acquisition campaign involving both range-based technologies (terrestrial and mobile laser scanners) photogrammetry and image-based tools improves the accessibility of user-digital interaction once the model is published online because the model can be enjoyed from different pint of views: 2D map, 3D perspective, street-level with the guidance of a 2D navigator.

The implementation of the model into a software for the management of interactive 3D models - i.e. 3DVista - allows users to navigate the online space and interact with "hotspots" located on specific objects or areas. The interactive hotspots consist of multimedia content related to the area's cultural and touristic heritage. These contents can be collected through different collaborative mapping tools, as well as, structured and semi-structured interviews.

This phase is preceded by an exploratory effort aimed at engaging different stakeholders and, as much as possible, the local community, in order to identify and bring to light shared, plural, and cultural values. These values may serve as key elements both in shaping visitor itineraries and in constructing a community archive.

3.2.2 Community Digital Archive

The construction of community archives, as previously mentioned, can represent a significant advantage in terms of active involvement in urban regeneration processes (La Rocca et al., 2023). The goal in this case is the construction of an open and evolving archive, accessible online, built together with the community, to document and preserve the cultural heritage of a small town in the internal areas. The process of community involvement and activation begins with the planning of meetings, participatory workshops and focus groups, during which themes and values recognized as shared emerge and are "mapped", subjects bearing knowledge and "interest" for the construction, maintenance and implementation of this tool. The tools used to collect material on the identified themes include the use of more or less structured interviews, the use of questionnaires, participatory mapping and participatory GIS (PGIS), integrating top-down and bottom-up approaches. The database produced is digitized and uploaded to the platform, where it will be freely available for consultation and download. It can be expanded over time by users through forms of online crowdsourcing, subject to appropriate moderation processes. Through the implementation of this system with interactive features such as forums, surveys and the integration of mobile apps for data collection, it can constitute an opportunity not only in terms of memory preservation and support for urban and territorial planning, but also in stimulating the birth of innovative startups, social enterprises, local networks and associations engaged in the territory.

3.2.3 Tourism interaction and immersive storytelling

Mapping this information and making it accessible to all is a way of operationalizing it – making it available not only for general knowledge but also as a tool to support planning efforts, particularly within the framework of cultural-based tourism promotion.

This approach aims to enhance even lesser-known places, creating alternative routes to mainstream circuits. The archive thus becomes an active resource for the development of thematic itineraries that require a methodological framework capable of integrating both expert knowledge and knowledge rooted in the local context. Building on these principles, intangible heritage – such as rituals, dialects, oral histories, and culinary traditions – was also “mapped” through the collection of images and testimonies. To ensure ease of interpretation, the data were organized into thematic clusters and integrated into the 3D model. The grouping follows either a logic of spatial proximity or one of conceptual continuity: in the first case, it is directly highlighted on the model through interactive hotspots; in the second, it is organized within a dropdown menu. The selected thematic layers activate a selective display of hotspots, guiding their exploration according to a defined sequence – either linear or open-ended. The 3D platform includes virtual tours (of both indoor and outdoor spaces) created using 360° photographs, allowing users to immerse themselves and interact with public spaces, historic buildings, handcrafted objects, and artefacts. In this context, the platform will be integrated with physical systems connected to multimedia content (such as QR codes, information panels, and visitor centers), acting as a tool to promote and connect local guides and interactive experiences (e.g., community-recorded audio guides, participatory tours, thematic festivals).

The itineraries may also engage small accommodation facilities, farms, and local producers, helping to create a hybrid network – both physical and digital – that offers immersive experiences, including those related to the region’s traditional products. With the aim of promoting virtual forms of interaction – between user and space, and between users themselves – that also have a tangible impact on the physical world, remote experiences will be developed to complement in-person ones (such as virtual markets, educational events, and outreach activities). This is made possible by activating crowdcasting methods of interactive live streaming, enabling people to participate remotely in live events and interact through text comments and reactions via social media platforms (e.g., YouTube Live, Facebook Live, Instagram Live) or through video conferencing software and interactive remote workshops (Rodriguez-Gil et al., 2018). To enhance interaction with the 3D model, encourage community participation during crowdsourcing phases, and stimulate learning and recognition of this heritage among new generations, the platform can also be integrated with gamification tools (such as hotspots with game logic).

3.2.4 Open digital infrastructure and local governance

The Platform, if conceived as a dynamic digital ecosystem, must ensure the active involvement of the community, particularly in terms of the continuous updating and enrichment of its contents over time. For this reason, it is essential to define in advance the management model to be adopted – one that is as sustainable as possible in relation to the technical, economic, and human capacities of those responsible for its operation. In contexts such as inner or marginal areas, the most sustainable model is one that brings together and fosters dialogue between public administration and local stakeholders – associations, third sector organizations, and community-based actors. On the one hand, it is crucial for a local public authority – either independently or in partnership with others – to take responsibility for the platform’s operational, technical, and legal management, formally recognizing it as part of its institutional digital services and territorial information systems. On the other hand, placing the full burden of management on such small-scale administrations risks quickly slowing down platform updates and development processes. An integrated management model – shared between public, private, third sector, and local community actors – can instead ensure the presence of dedicated and skilled personnel, enhancing the capacity to access funding through national (e.g., PNRR, Borghi, Cultura Digitale) and European programs (e.g., Creative Europe, Interreg, Erasmus+). This approach leverages complementary expertise and the ability to adopt new tools and languages. However, an integrated model also requires a strong coordination structure to avoid dispersing efforts and to mediate between stakeholders whose interests may not always align.

3.3 Pilot application on the case of Stigliano.

Regarding the pilot application in the case of Stigliano, work is still ongoing. The web interface for the 3D platform has been completed, the photogrammetric model has been optimized for remote access and use, and the

selection and insertion of informational content has begun.

More specifically, with respect to the 3D modeling of the site, an integrated data acquisition campaign (Picchio et al., 2024) was conducted, involving both distance-based technologies (terrestrial and mobile laser scanners) and image-based tools (portable reflex cameras, 360-degree cameras, and UAV systems – DJI Phantom Pro and Mavic Mini). After appropriate metric verification and scaling, photogrammetric altimetric data were produced and further decimated using CloudCompare. These data form the basis of the virtual 3D platform. The model was then imported into the 3DVista software and enriched with multimedia content related to the cultural and tourist heritage of the area. This content was collected through collaborative GIS mapping (ArcGIS Survey123 and Field Maps) and semi-structured interviews with local stakeholders.

The GO-IN website (www.goinprin2022.com) was configured as a multidimensional interactive platform designed to provide access to a variety of multimedia content (some of which is available for download) related to the cultural and tourist heritage of the pilot area. It is accessible from smartphones or tablets without the need to download specific applications and is available in both Italian and English. The content is organized into three sections: Home, Resources, and 3D Platform. The 3D Platform is the main component of the website and consists of a 3D model that functions as an interactive interface: by selecting areas, points of interest, or itineraries, users can directly access contextualized content (Figure 5). The platform demo has currently identified five thematic clusters: Historical Architecture, Murals, Rural Culture, Historical Itinerary, and Online Market. In this case, the design of cultural itineraries and the identification of key themes have benefited from the work of the research group at the University of Basilicata in the Montagna Materana area. For many years, this group has carried out research projects involving the active participation of communities, institutions, cultural operators, and citizens. Through workshops, laboratories, and meetings, values, themes, and places linked to collective memory and community identity have been jointly identified.

The inclusion of a dedicated “online marketplace” cluster allows for the networking of local producers, small artisans, and creatives, fostering the creation of shared itineraries, narrative paths, and showcases designed to promote local creativity and diverse forms of cultural and experiential tourism.



Figure 5. 3D Virtual Platform with thematic interactive hotspots visible on the model; on the side, an example of an interior virtual tour – Museum of Rural Life – and an information sheet from the Architectural itinerary. Developed by Metaheritage srl.

4. Discussion on application in the pilot case

The pilot application, although still under development, already provides valuable insights into the opportunities and limitations of implementing a virtual platform in a peripheral and internal area such as Stigliano.

One of the most significant opportunities is the ability to document and preserve a fragile heritage through digitalization – particularly in contexts where material and immaterial cultural assets are at risk of erosion. Building on this premise, initial demonstration tests of the prototype – conducted with the involvement of the municipal administration and both internal and external technical experts – have shown that interactive features are capable of generating renewed curiosity and engagement with a heritage often “unseen” or unrecognized even by the local community. To further enhance this engagement, particular attention has been paid to the integration of game dynamics and an exploratory dimension within the 3D model. The possibility of creating gamified narrative tours, virtual/physical treasure hunts, thematic quizzes, and collective challenges opens up new educational opportunities and fosters intergenerational interaction. These features facilitate connections between traditional knowledge holders and younger generations, helping to create meaningful bridges across age groups. As a result, new actors and stakeholders emerge at both local and territorial levels, including schools, libraries, educators, and students. In parallel, another promising development lies in the creation of a network of local producers and artisans. Within the platform, these stakeholders can narrate the deep connection between land, people, and production – using tools such as historical documentation and digital storytelling, and providing links to their commercial activities. This fosters an integrated vision of cultural and productive heritage.

However, to draw more robust conclusions, further testing will be conducted once the platform is complete. These tests will involve a broader and more diverse user base – students, tourists, and residents of all ages – to assess the clarity, emotional engagement, and overall usability of the digital narratives. The feedback gathered will be integrated into an iterative refinement process, enabling continuous improvement and contextual adaptation of the platform (Camarda, 2021).

That said, the success and longevity of the platform rely heavily on meaningful community involvement through structured participatory and co-design processes. Without this, there is a risk that the outcomes achieved during the research phase may fade at the end of the project. Participation must therefore be designed in relation to the community’s actual capacities, with attention to overcoming a variety of structural and social barriers – including limited human, financial, and infrastructural resources; latent conflicts and misaligned interests among stakeholders; and a general distrust toward time-consuming or politically-driven processes.

In this regard, the choice of participatory techniques and tools for data collection and archiving becomes crucial. When tools are overly technical or not truly collaborative, they may discourage community participation and compromise the platform’s future sustainability – particularly its ongoing maintenance and content updating by local stakeholders.

To address this challenge, and to ensure long-term sustainability, the virtual platform and website will be formally handed over – after testing and evaluation – to the technical department of the Municipality of Stigliano, or to other local, regional, or national bodies. Recognizing the digital skills gap that emerged during the project, a series of tailored training programs is planned for municipal staff, professionals, cultural operators, and young people in training. These courses aim to create a local pool of digitally competent individuals capable of maintaining, enriching, and managing the platform, as well as facilitating participatory content creation and knowledge sharing.

5. Conclusions

The use of digital platforms and systems to revitalize inner and peripheral areas through the enhancement and promotion of their cultural and environmental heritage, as well as their cultural and creative scenes, is becoming increasingly widespread and structured. It has demonstrated a strong potential to stimulate new forms of entrepreneurship.

The ongoing pilot in Stigliano fits within a local context that shows certain potential. The historic center, in fact, receives a moderate influx of tourists only during the summer period, mainly due to cultural promotion activities organized by the public administration and local associations (for example, “AppARTengo” <https://www.appartengo.com/>). However, these initiatives alone are not sufficient to counter the depopulation trend. It is necessary to connect these cultural realities with others operating at the local, national, and even international levels – actors that can act as external enablers (Milone, Paolucci, 2025). The new opportunities that could emerge would benefit both the local community and potential external stakeholders.

At the core of the GO-IN project lies the idea that, through the replicability of the model proposed for Stigliano, it is possible to activate collaborative networks among neighboring territories that are historically interconnected through shared landscape, social, and economic systems. To achieve this, it will be essential to build alliances with the ecosystem of projects, organizations, and cultural programs that have flourished across the region – especially following Matera's designation as European Capital of Culture in 2019, which gave both the city and the region significant international visibility and strengthened their identity as a prominent cultural destination. Moreover, in a broader multi-scalar perspective, this pilot initiative could also contribute to and integrate with a national network of villages aimed at improving economic, ecological-environmental, and welfare systems.

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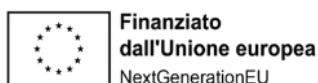
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