A Decision Support System for Cultural and Territorial Infrastructures: A Place-Based and Community-Driven Strategy in Inner Italy

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Abstract. The study presents a methodological approach, characterized by scalability and replicability, aimed at developing a sustainable territorial strategy, supported by a Collaborative Spatial Decision Support System (CSDSS). The main objective is to elaborate a regeneration process for infrastructure and territorial contexts capable of stimulating situated actions within Inner Italy, where urban revitalisation processes grounded in the concept of community archives could be implemented. The CSDSS is tailored towards a place-based and community-driven strategy for the territory of Atena Lucana, in Southern Italy. It unfolds in three interconnected phases: first, a knowledge phase with a comprehensive understanding of the territory through the integration of various data types; second, an evaluative phase including multi-group analysis supported by the SOCRATES method and multi-criteria analysis employing the integration of QGIS and GeoTopsis methods; third, the data output with the formulation of a suitable strategy for territorial sustainability through collaborative decision-making processes.

Keywords: Territorial sustainability · SOCRATES method · GeoTopsis method

1 Introduction

Recent studies and reflections about landscape identify it as a fundamental resource for activating new local development processes, focused on the specificities of the context and capable of including the multiple forms of capital – material and immaterial - that characterise it.

The landscape can be considered the attractive element that gives territories a differential advantage, making it possible to develop change and transition processes, starting with actions aimed at its protection, transformation and regeneration. In this perspective, the processes of hybridisation of its use, non-use and intrinsic values represent an opportunity to face the challenges of regeneration, in which the integration between multiple dimensions, systems of relationships and synergistic and symbiotic bonds among the various tangible and intangible resources can promote new forms of vibrancy and an

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O. Gervasi et al. (Eds.): ICCSA 2024 Workshops, LNCS 14820, pp. 373–387, 2024.
https://doi.org/10.1007/978-3-031-65285-1_24

attractiveness, capable of operationalising the ecological, social, economic and cultural transition [1].

To interpret landscapes as multidimensional and dynamic contexts, adopting an active and proactive approach is essential in defining a multiscale place-based and community-led development model [2, 3].

This perspective allows the landscape to take on an interpretative role of territorial characteristics and contributes to the regeneration of collective memory and community ties, initiating and enhancing innovative models and processes aimed at respecting the integrity of existing values [4, 5]. The recognition of existing values is closely linked to the identification of decision-making opportunities and guides the process of strategic thinking towards Sustainable Territorial Development [6].

The research aims to explore territorial sustainability challenges through a circular and incremental methodological approach focused on developing strategies for specific territorial areas.

The contribution tries to understand how to make strategic choices and public policies deeply rooted in the local context and tailored to different landscapes and socio-economic and cultural contexts, through a values-based perspective. This is particularly relevant in Italy's Inner Areas [7], where historically marginalised territories have made it possible to highlight important critical issues in territorial policies, even on a national scale.

Researchers and professionals working in these territories highlight the relevance of environmental, historical-artistic, social, cultural and intangible resources, often unexplored and underutilised [8–10].

To address the challenges posed by Sustainable Development Goals (SDGs) within the territorial systems, this study has identified three distinct research lines. In particular, the four dimensions of sustainability are associated and interconnected with issues related to the territorial concepts of Resilience [11–13], Vulnerability [14–19], and Attractiveness [20–23].

These three lines are intricately interconnected, not only with each other but also with the four dimensions of sustainability. It is important to recognise that any alterations in one of these aspects have a cascading effect on the others. By concentrating on a territorial scale, we can comprehensively examine the processes and interconnections that underlie each of these themes. By delving into the dynamics and relationships among Resilience, Vulnerability, and Attractiveness, and their interactions with sustainability dimensions, we can gain a clearer picture of how these factors collectively influence and shape the territory, outlining multiple and multidimensional regeneration strategies.

To support the public policymakers in developing place-based and community-driven strategies for transitioning landscapes, the research recognises the necessity to structure an incremental, adaptive, and dynamic methodological approach to understand the system of material and immaterial values that constitute the foundation of Italy's Inner Areas landscape.

Based on these premises, the research aims to define a methodological approach for the construction of a Collaborative Decision Support System (CDSS) for cultural and territorial infrastructures in Italy's Inner Area with particular attention to the municipalities of Atena Lucana, Brienza, and Marsico Nuovo (Campania and Basilicata's Regions).

The research focuses on both the physical - disused railway - and not physical infrastructure - a community archive - which become the basis for thoroughly understanding the case study context and developing a sustainable development strategy. The theme of cultural and territorial infrastructure becomes the tool through which landscapes and people could be reconnected, regenerating the system of human and ecological bonds, promoting underutilised and unexpressed resources of places, and networking different actors towards building a collaborative active strategy oriented towards territorial regeneration.

While studies about disused transport infrastructure have been widely addressed in the literature [24–27], only recently community archives have gained great attention due to their importance in collecting collective identities through oral histories, folk tales, exhibitions, images, and other interactions [28]. Defining community archives is a complex operation. An archive is a collection of documents created during practical, legal, or administrative activities, bound by an original link [29]. Therefore, archives become involuntary and consist not only of the documents themselves but also of the relationships between them.

Scotini [30] argues that the archive is not simply a collection of data, documents, or information but a fundamental practice with the power to give visibility and voice to what has not been archived: a repressed and exiled identity, a memory. A community archive is considered an unresolved operation because it arises from the paradox of something that, while aspiring to be archived, escapes archiving.

Flinn [31] states that community archives are basic documentation, recording, and exploration activities of community heritage where participation, control, and project ownership are essential. This activity may or may not occur in association with formal heritage organisations. Caswell et al. [32] assert that community archives can be an alternative to traditional archives, allowing communities to collectively determine what holds lasting significance to them, influence the shared memory of their history, and manage the narratives surrounding their past.

The main objectives of community-based archives could be grouped around five key points: broad participation in all or most aspects of archival collection; from assessment to description to awareness-raising; shared management of cultural heritage between the archival organisation and the broader community it represents; multiplicity of voices and formats, including non-traditional ones present in traditional archives; the archive and collection as a form of activism; and finally, the changing nature of community and identity. These archives serve as an alternative space for the community to make collective decisions about what is valuable and enduring to them and to control how stories about the past are constructed.

To reconnect both landscape and people and present the opportunities given by the adoption of cultural and territorial infrastructures in the research case study, the contribution is structured as follows: in Sect. 2, the case study of Atena Lucana, Brienza, and Marsico Nuovo are presented; in Sect. 3, the material and methods are described; and Sect. 4 presents conclusions.

2 The Case Study

The municipalities of Atena Lucana, Brienza, and Marsico Nuovo in the provinces of Salerno, Campania Region, and Potenza, Basilicata Region, in Italy (Fig. 1) are chosen as the case study. They are part of the territorial macro-area defined as Inner Areas [33].

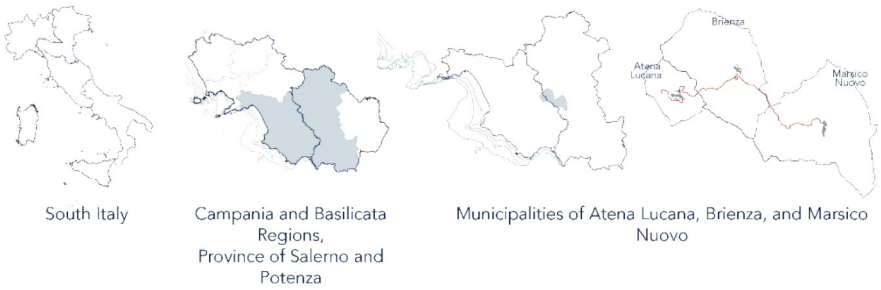

Fig. 1. The Atena Lucana, Brienza and Marsico Nuovo case study

These specific areas are characterised by a process of marginalisation that manifested itself through depopulation phenomena linked to the abandonment of places by the younger segment of the population, which over time moved towards urban centres that offered more services and opportunities in terms of employment and education.

The analysed areas are characterised by a considerable distance from the main urban centres and the essential services (education, health and mobility). At the same time, they are characterised by considerable environmental resources (water resources, agricultural systems, forests, natural landscapes) and cultural assets (archaeological sites, historical settlements, craft centres).

Although Inner Areas can benefit from European and National funding intervention programmes, they suffer an ongoing process of marginalisation, manifested through phenomena of depopulation and abandonment of places, especially by the younger segment of the population, attracted by other centres offering better services and opportunities in terms of employment and education.

The municipality of Brienza is characterised by a medieval village developed all around the Caracciolo Castle. The municipality of Marsico Nuovo is spread on three hills that dominate the Val d'Agri: Civita, the highest with the historic centre that hosts a tangle of alleys and staircases; Portello and Casale, lower, with modern expansion.

Last, the municipality of Atena Lucana is one of the oldest settlements in the Vallo di Diano. Atena Lucana falls within one of the four inner areas of the Campania Region, as it is a sparsely populated area (Eurostat 2011), with high seismic activity and a distance from the Eboli hub between 40' and 75'.

Its dominant position in the valley allows it to have one of the most interesting panoramic centres of the entire Vallo, with a medieval settlement perched on the ancient acropolis. A crucial road junction since Roman times as the intersection point between the ancient Annia and Popilia routes, it still plays a pivotal role today thanks to its proximity to the junction between the A2 Mediterranean and the Val D'Agri fund that connects Campania with Potenza and Taranto.

Recently, the municipality was the winner of the public call Attrazione dei Borghi and thus financed within the resources of the National Plan for Recovery and Resilience (PNRR M13), with a project that envisages the development of a place-based decision-making process to identify and catalogue the most representative dimensions of the territorial heritage.

The three municipalities are connected by an abandoned "Atena Lucana - Marsico Nuovo railway, about 27 km long, inaugurated in 1931 and closed in 1966. It is both the only railway of the "Ferrovie Calabro Lucane connected with Campania and the only one that has been constructed using significant engineering works, such as the Brienza helicoid - which allowed overcoming a considerable elevation to reach the municipality of Marsico Nuovo.

The railway stretch included several stations and stops; among the most important were Atena Lucana Scalo, Atena Lucana, Pozzi, Brienza, Pioppetta, Pergola, Tempa Campitelli, Cappuccini, and Marsico Nuovo. Currently, the railway can only be traced in sections. In particular, the sections between Atena Scalo and Atena Città and between Pozzi and Pergola have disappeared following the modernisation works carried out in the S.S. 598 in the 1970s.

Starting from the reinterpretation of the territorial landscapes and the "Attrazione dei Borghi" project guidelines, the research aims to explore how community archives can serve as cultural infrastructure, interconnected with a territorial system that rethinks the abandoned Atena Lucana-Marsico Nuovo railway.

3 Material and Methods

The research conducted in the inner areas of Atena Lucana, Brienza, and Marsico Nuovo aims to establish a Collaborative Spatial Decision Support System (CSDSS) to enhance the territory's material and immaterial cultural resources. Specifically, the objective is to provide decision-makers with the necessary tools for urban and territorial regeneration processes, facilitating the selection of project interventions or policies that enhance the identity of the selected cultural infrastructures.

In particular, the methodological framework is organised into three main phases (Fig. 2), within which various evaluative approaches and tools are utilised:

- Knowledge Phase;
- Evaluation Phase;
- Data Output Phase.

3.1 Knowledge Phase

In the first phase, the Knowledge phase, four elements relating to the manufactured and natural territory, the railway infrastructure, translations and local culture are explored explicitly to get to know and acquire knowledge of material and non-material elements of the helpful territory for identifying cultural values.

The process of acquiring the territory's material and immaterial elements has been divided into four steps, each with specific objectives and methodologies. Only the comprehensive set of all knowledge provides a clear and complete picture of the territorial

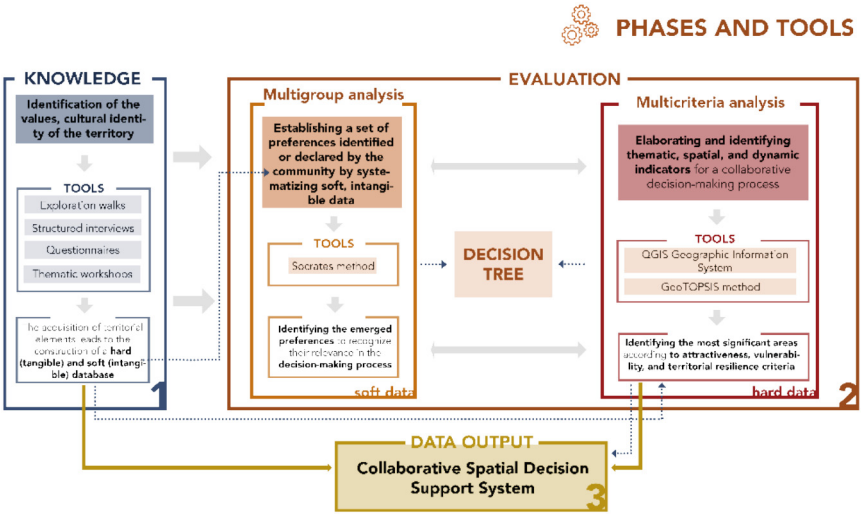

Fig. 2. Methodological approach

reality. The landscape is fully interpreted through direct and everyday experience. However, the different forms of landscape knowledge are characterized by a common framework consistent with how the community perceive and evaluate the landscape itself. This will define the selection of the entire spatial data set that will underlie subsequent evaluation processes.

In particular, the case study is analysed in its entirety through different tools and evaluation approaches:

- Exploratory walks to perceive, get to know and detect strengths and weaknesses of the area;
- Structured interviews, using the CATWOE technique (Customers-Attractors-Worldview-Owner-Environmental), to understand the history and significance of the abandoned railway, to be presented to the community, to understand both the problems that led to its abandonment and the wishes of the community, and identify urban regeneration and cultural solutions that meet the needs of the community.
- A questionnaire to learn about traditions and lifestyles, aimed at residents and non-residents, and characterised by structured questions to identify the values perceived by different local communities. The questionnaire was structured with open-ended and multiple-choice questions and disseminated digitally through the leading social networking channels to engage a wider audience and intercept a multiplicity of complex values;
- Community workshops for the knowledge of cultural resources and values to have moments of confrontation to gather different points of view of the actors involved, which are helpful to understand the local culture, opportunities, and fragilities of the territory.

The analysis of different knowledge approaches begins with the initial steps, logically and substantially, starting from exploratory walks. These walks provide a unique way

to delve into the territory under study, experiencing it, smelling it, listening to it, and making contact with it. The walks have been indispensable for observing the existing conditions and identifying the strengths and weaknesses of the territory. Attention has been mainly focused on the historic centre of Atena Lucana and the former Atena Lucana - Marsico Nuovo railway route. Walking within the historic centre reveals its immense value and relevant importance, overlooking and surrounded by the natural landscape. Three concentric rings make up the entire ancient village, which is an alternation of public space and private space in the houses. Narrow and hardly accessible alleys, cramped. The abandoned railway is a junction point between the three cities but a symbol of missed opportunities and difficulties in this territory. From Atena Lucana to Marsico Nuovo, all the toll booths and stations are clear and identifiable. Four piezometric towers guide the entire route and alternate with typical toll booths' characteristic "outhouses" and external ovens. The untouched nature surrounds what remains of these structures; some are occupied or converted into private residences. Unfortunately, it is not possible to retrace the entire route. Many sections have been cemented over and overshadowed by the road "S.S. 598", buried by modernity.

To understand the abandoned railway issue and explore potential regeneration, involving the community in a structured interview was essential. One-to-one comparisons were conducted using the CATWOE structured interview methodology, which falls within the Soft System Methodology (SSM) and is typically used for solving complex problems. The primary goal of the questionnaire was to define a revitalisation process for the former Atena-Marsico Nuovo railway.

From the responses, a clear desire emerged for the recovery of the old railway line in a wholly naturalistic manner, to create an inter-municipal and interregional connection route capable of attracting schools, sports associations, and social cooperatives. To comprehend the perceived values of the local community and visitors, a questionnaire has been elaborated with open-ended and multiple-choice questions distributed through a multi-platform digital method. This choice was made to engage a broader audience and intercept many complex values. The description and understanding start from the bottom, from the sensations and impressions of individuals, but they have been able to identify indices to support innovative strategies. Understanding which places concentrate values and personal relationships has been the guiding thread throughout the process. The questionnaires were administered to two categories of stakeholders: insiders (those living within the territory) and outsiders (external visitors). The questions were designed to capture the most intangible and shared aspects of the local value scale and were divided into macro groups.

All responses received were processed and represented the proposed question themes. The resulting framework provides a narrative of the territory through the community's subjective values that feed into each other until the definition of a country's identity.

The last tool identified to understand the local culture and grasp development opportunities was active participation in community meetings, which saw the involvement of associations, municipal institutions, the University of Naples Federico II, and the community of Atena Lucana. The meetings took place in Atena Lucana, at the city's

institutional venues, and were moments of active dialogue that provided the opportunity to directly gather different perspectives from the involved actors to understand the territory's vulnerabilities and opportunities.

The process outlined so far has involved robust and active community engagement, which has proven crucial in constructing the database. Indeed, the study acquired through the inclusion of the community in the transformation process has contributed to expanding the community's values and amplifying its potential scope for the future. However, to create a standard filter for processing and interpreting the presented analyses, it is necessary to define - in addition to a shared value system - also a standard symbology that makes the different types of analyses intelligible and can reinterpret them to facilitate comparisons between them. In this sense, an attempt has been made to develop a tripolar reading matrix that, through the concepts of Attractiveness, Vulnerability, and Resilience, provides a scale of preferences among the various design proposals and different levels of analysis; these three concepts were chosen because, for each of them, it is possible to trace strong compatibility with the analysed territorial reality.

3.2 Evaluation Phase

In the second phase, the research focuses on evaluation, which allows for the integration of different approaches and methods. In this phase, a multi-group evaluation is used to identify the preferences expressed by the different actors involved in the process, and a multi-criteria evaluation is used to take into account the different impacts and identify the most satisfactory solutions (Fig. 3).

The aim of this dual analysis lies in the need to have different decision support systems that can offer a multiple and contemporary view of the entire situation analysed; the idea that this methodological choice pursues is to implement a general principle in which it is believed that it is possible to outline a logical reference structure for decision-making problems by organising them according to a model that allows for rational analysis. The chosen approach, therefore, multiscalar and multidimensional, aims to overcome the "limits" of evaluations based solely on preferences expressed by experts or decision-makers. The SOCRATES method – Social multi CRiteria Assessment of European policies – [34] was employed for the multi-group assessment. Through its multi-actor framework, this approach facilitates the management of ex-ante evaluation problems of public policies, enhancing the understanding of the problem's characteristics. The SOCRATES method is significant because it allows for the interpretation of the preferences collected, including the different points of view of the stakeholders involved. At the same time, the multi-criteria analysis is essential for assessing the impact of alternatives, including qualitative and quantitative data. The core of SOCRATES consists of three main components: multi-criteria, equity, and sensitivity analysis. Notably, based on this methodology, a namesake software has been developed, which essentially represents the computer application of a more general theoretical approach defined in the Multi-Criteria Decision Analysis (MCDA), underlying the so-called Social Multi-Criteria Evaluation (SMCE).

The social actors involved in the process were selected taking into account the results of the knowledge phase, and their needs, desires, and preferences were identified and subsequently translated into evaluation criteria. Therefore, in this phase, the data set

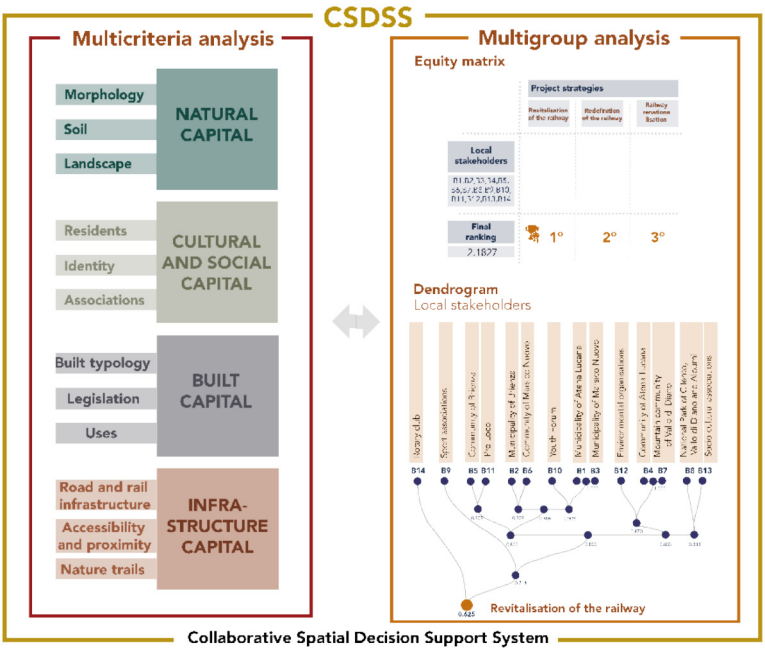

Fig. 3. Multicriterion analysis and multi-group analysis in the Collaborative Spatial Decision Support System

consisting of the results of the cognitive analyses already presented and the mix of quantitative and qualitative information collected was interpreted accurately. Given the complexity of the data collected and, more importantly, the opportunity to structure a standardised and replicable methodology, the open-source SOCRATES platform was used to assess the potential impact of an ex-ante intervention on the former Atena Lucana - Marsico Nuovo railway.

Three alternative projects concerning the abandoned railway were then hypothesised:

1. Comprehensive redevelopment of the entire route;
2. Specific interventions concerning some key elements of the route;
3. No intervention aimed at the renaturalisation of the route.

The multi-criteria analysis of the three alternatives was carried out in terms of four main criteria, corresponding respectively to natural capital, human capital, cultural capital and infrastructure capital. For each of the four dimensions, key objectives have been identified to be achieved through specific actions that can focus on how to improve the abandoned railway. For each of the criteria considered, the impact of the alternative projects was assessed using a qualitative scale, ranging from "very poor" to "very good", with "neutral" as the midpoint.

The results of the multi-criteria assessment of the three alternative projects underline how the comprehensive redevelopment process for the entire railway line would be preferable, able to integrate the specific benefits of a more comprehensive process.

Once the preferred project had been clarified, it was possible to proceed with the "equity analysis", which focused on the evaluation of the alternative projects by the different social actors involved. Each actor was assigned an influence coefficient, calculated based on an influence matrix, which is useful for analysing the relationship between interest and power for each stakeholder.

From this perspective, the possible convergences of interests between the various stakeholders were analysed in order to define acceptable social compromise solutions. Once again, the first project proposal, based on a comprehensive redevelopment of the entire route, appears to be the most attractive design solution, capable of managing potential conflicts and building constructive alliances between the different stakeholders.

The results of the application of the SOCRATES method are the basis for the development of a further assessment, which was useful to verify where it would be preferable to intervene in order to operationalise a territorial sustainability strategy.

This assessment was carried out using the GeoTOPSIS tool in QGIS to spatialise the selected indicators and rank the alternatives according to different criteria consistent with the four forms of capital. Raw data were collected, processed, and examined to develop the reference geodatabase for a comprehensive territorial understanding.

The evaluation process began with the spatialisation of the four criteria identified in the multi-group and multi-criteria analysis, which was used to gain a more conscious and in-depth understanding of the area.

This classification of the mapping of areas and features of the territory was based on the preferences expressed by the community, identifying the perceived values at different scales. Taking into account the four main criteria, the related sub-criteria and the indicators with the specific unit of measurement, the framework of the decision tree was articulated.

The implemented QGIS system allows the combination, manipulation and correlation of different spatial data sets to identify common patterns of elements that inform about the character of the territory; the ultimate goal is to provide a hypothetical decision maker with all the useful and transparent elements for a comprehensive and motivated choice.

Using the GeoTOPSIS tool, the data obtained could be further processed to produce cross-maps combining several indicators.

For this type of territorial analysis, the theoretical reference basis is the construction technique of aggregate measures known by the acronym TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) [35]. The GeoTOPSIS method provides a composite index through which it is possible to derive a ranking regarding the phenomenon under examination. In the examined case study, the GeoTOPSIS method allowed us to define a system of preferences based on geo-referenced data regarding the areas most suitable for territorial transformation processes.

The GeoTOPSIS method can address the potential conflicts between the analysis indicators used, such as those in the economic and social domains, by avoiding such conflicts and simply defining a ranking among possible investment zones. The tool used in this case is based on the normalisation of criteria matrices, ensuring that the criteria are comparable and do not disproportionately influence the results. The result is based on the construction of a decision matrix, which represents the evaluations of the alternatives

in terms of the different normalised criteria. A mathematical algorithm calculates the Euclidean distances from the ideal and anti-ideal solutions, minimising the distance from the solution defined as "ideal" and maximising the distance from the solution defined as "anti-ideal", thus providing a comprehensive map of preferences.

4 Results

The structuring of the methodological process through the knowledge and assessment phases, together with the definition of the hierarchical structure of the decision-making process, allows the development of spatial indicators for each of the criteria identified (natural capital, built capital, infrastructure capital and cultural and social capital) to produce a strategic map. By assigning weights and preferences to each of the selected indicators, and by combining quantitative and qualitative items through GeoTopsis, the result maps allow the identification of intervention areas that are more significant for a sustainable transformation of each analysed capital.

In the analysis conducted on the capital dimensions, assumed as criteria, the following elements were mapped: for natural capital, protected areas, agricultural areas, parks and resident population; for cultural and social capital, the number of institutions, third sector associations, sports associations, total population and employment rate; for built capital, the number of existing buildings in the areas, buildings under construction, ruins, protected and safeguarded properties; finally, for infrastructural capital, transportation infrastructure composed by highways, state highways, secondary roads, mule tracks and trails. Spatialisation of these elements produced specific maps, with darker colours indicating preferred areas of transformation (Fig. 4).

Subsequently, through the comparison of the maps of four capitals, it was possible to delineate a unique cartographic reference and a comprehensive Collaborative Spatial Decision Support System (CSDSS) [36, 37], useful in guiding the structuring of future processes, policies and planning activities, in which main interest areas appear to be those along the former railway path, that continues to be an attractive hub both in terms of interconnection and potential development.

The identification of the overall intervention strategy is based on the combination of the impact assessment carried out through the multi-criteria analysis, the potential of the spatial data processed by QGis and GeoTopsis, and the sociological and human aspects studied through the activities developed with the community and local stakeholders through the multi-group analysis, underlining how the ex-ante evaluation is necessary to identify and develop the spatial planning process and local policies.

The final objective of the process is to find a compromise solution among the possible alternatives, which is not only the most acceptable, but which combines the historical and human resources to safeguard the capacity of the area with the needs of the local institutions to look to a different and more attractive future, in which attractiveness is based on a project for the regeneration of the entire railway line between the municipalities of Atena Lucana and Marsico Nuovo.

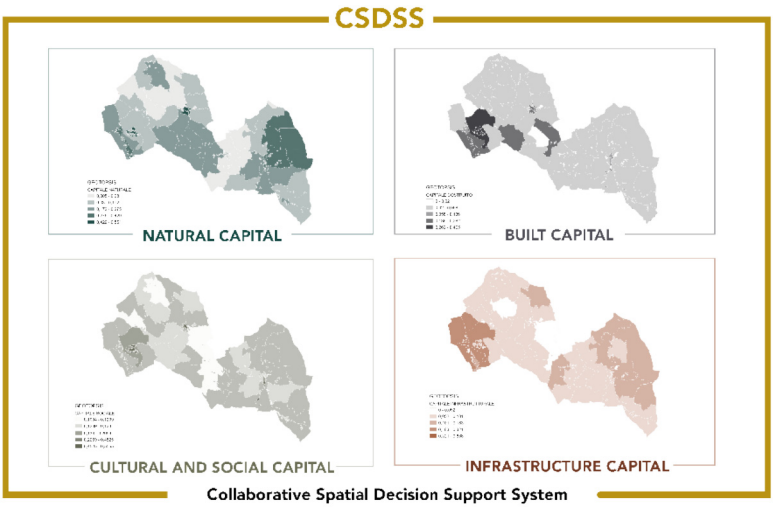

Fig. 4. Maps of the four capital dimensions forming the Collaborative Spatial Decision Support System (CSDSS)

5 Conclusion

The developed contribution has been structured as a starting point, incremental and adaptive, for a collaborative and participatory process on a broader scale, aimed at involving various expertise, different social groups, organisations, and institutions to improve the concreteness of both hard and soft data, as well as the robustness of the evaluation. However, even in this initial experimentation, it is possible to highlight how the community archive and the construction of a georeferenced digital platform emerge as two complementary tools derived from different fields that are handy for addressing sustainability challenges.

The spatialised and dynamic methodological process developed for Atena Lucana, Brienza, and Marsico Nuovo interprets the main characteristics of the territory. It highlights how managing the complexity and heterogeneity of values within a digital platform structured as a decision support system is possible. Different approaches and methodologies have allowed for identifying, describing, and discretising the multidimensional values of the places. The work carried out with the community is an essential part of the process, and the evaluation of intangible assets assumes a key role in analysing the social concept of value in its relationship with spatial data.

The proposed methodology shows that a multidimensional approach, using multi-criteria and multi-group analysis, presents an effective way to discover, acquire, and represent the complex values of the territory. Particular importance is given to the data collection phase and the construction of a flexible and incremental database, where it is possible to exchange information and combine data and indicators to understand the current state and future possibilities of the territorial context.

The study also highlights how GIS methodology, combined with various multi-criteria evaluation methodologies (such as Socrates and GeoTopsis, enabling both qualitative and quantitative data management), can cross complex spatial data. This makes the analysis dynamic and flexible and provides a solid basis for managing the various phases of the decision-making process for marginal territories like Atena Lucana, Brienza, and Marsico Nuovo.

Acknowledgements. This study was carried out within the framework of GRINS - Growing Resilient, INclusive and Sustainable and received funding from the European Union Next-GenerationEU (NATIONAL RECOVERY AND RESILIENCE PLAN (NRRP), MISSION 4, COMPONENT 2, INVESTMENT 1.3 - D.D. 1558 11/10/2022, PE000018, Spoke 7 Territorial sustainability). This manuscript reflects solely the views and opinions of the authors, neither the European Union nor the European Commission can be held responsible (https://www.grins.it/progetto).

Author Contributions. The authors jointly conceived and developed the approach and decided on the overall objective and structure of the paper: Conceptualization, B.G., M.S., M.R., S.S., P.Z., and M.C.; Methodology, B.G., M.S. and M.C.; Software, B.G., M.S.; Validation, B.G., M.S.; Formal Analysis, B.G., M.S.; Investigation, B.G., M.S., M.R., S.S., P.Z.; Data Curation, B.G., M.S.; Writing-Original Draft Preparation, B.G. and M.S; Writing-Review and Editing, B.G., M.S., M.R., S.S., P.Z., and M.C.; Visualization, B.G.and M.S; Supervision, M.C. All authors have read and agreed to the published version of the manuscript.

Disclosure of Interests. The authors have no competing interests to declare relevant to this article's content.

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