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A Decision Support Evaluation Framework for Community-Based Collaborative Urban Regeneration Processes

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Abstract: The current debate on urban regeneration highlights the significance of social innovation and the reuse of cultural heritage to develop new economic and entrepreneurial models, creating value chains and benefits for communities. International and European directives, such as the European Agenda 2030 and the New European Bauhaus, advocate for inclusive and sustainable urbanization, encouraging participatory and circular urban regeneration processes. This study presents a decision support framework for community-based collaborative urban regeneration processes, focusing on the urban area of Reggio Calabria in Southern Italy. In this region, some cultural assets have been reactivated and made accessible, while others remain inactive, underutilized, or abandoned. The research aims to explore how to effectively enhance cultural heritage and promote urban regeneration through a collaborative network strategy. By employing multicriteria analysis, involving the selection and definition of specific criteria and indicators for each site, a priority map is created to facilitate the implementation of regeneration processes. The application of this approach in the urban center of Reggio Calabria demonstrated its effectiveness in revitalizing unused or abandoned cultural heritage, transforming it into a catalyst for urban vibrancy and vitality.

Keywords: urban regeneration; cultural heritage; circular economy; social innovation; multi-method decision-making process; multicriteria analysis

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1. Introduction

Contemporary debates on urban regeneration emphasize social innovation and heritage reuse to foster new economic and entrepreneurial models, thereby creating value chains and positive community impacts [1–4]. Nevertheless, examining sustainable urban regeneration solely through an economic viewpoint is insufficient. While economic factors are indeed vital for the viability and ongoing management of regeneration initiatives, a narrow focus on these aspects can result in neglecting other essential components of sustainability [5]. Urban regeneration refers to the comprehensive endeavor of enhancing and transforming urban spaces through strategic actions and interventions. This process is instrumental in revitalizing cities while simultaneously preserving cultural heritage and promoting sustainable development [1–4]. Recent scientific debate highlights the significance of perceiving heritage as a dynamic system and process. This contemporary view considers heritage not merely as unchanging historical artifacts but as active elements of urban ecosystems that evolve and interact with diverse socio-cultural and economic dimensions [1–4]. Incorporating this systemic perspective into urban regeneration is vital, as it acknowledges heritage as a mutable component that can be effectively utilized through a comprehensive approach [6,7]. A holistic approach to urban regeneration includes economic, environmental, and social dimensions, which are essential for ensuring that regeneration efforts not only conserve but also enhance the cultural fabric, fostering social cohesion and strengthening urban resilience [8–10]. Successful urban transformation necessitates the integration of environmental and social considerations to create urban

spaces that are resilient, equitable, and livable [11–13]. To optimize the effectiveness and sustainability of urban regeneration processes, it is crucial to move beyond a purely economic perspective and adopt a multifaceted approach that includes economic, environmental, and social elements. Only through such a holistic vision can sustainable, equitable, and resilient urban regeneration be achieved, resulting in lasting positive impacts on communities [14].

According to the "World Urbanization Prospects 2018" by UN-DESA, by 2050, 70% of the world's population will live in urban areas. However, these areas regions are expanding their territory at a pace that surpasses their population growth. This observation is crucial in the context of global urbanization as it suggests that cities are not only increasing in population but also in geographical size. This trend carries significant implications for urban planning, land use, and environmental sustainability, thereby influencing the long-term viability of cities [15].

International and European directives, such as the European Agenda 2030 populations [16] and the New European Bauhaus [17], promote inclusive and sustainable urbanization, encouraging participatory urban regeneration processes. Initiatives like the Faro Convention [18], the European Year of Cultural Heritage [19], and the "European Common Data Space for Cultural Heritage" [20] highlight the reuse of heritage as a central element for community-driven regenerative processes in a circular economy [21,22]. The adaptive reuse of building heritage aligns seamlessly with circular economy principles. Rather than demolishing and constructing anew, adaptive reuse extends the lifespan of buildings by repurposing them for new functional uses. This method encompasses restoration, restructuring, and adaptation, optimizing existing resources and fostering sustainable resource management. Numerous studies indicate that reusing historic buildings enhances urban sustainability, as it diminishes environmental impact compared to new construction by conserving materials and minimizing waste [13,23–25].

Community-led urban regeneration processes rely on the active engagement of local residents and stakeholders. This collaborative approach not only enhances the acceptance of interventions but also encourages the adoption of sustainable practices. In this context, the reuse of building heritage can serve as a catalyst for social cohesion and local economic development, creating multifunctional spaces that cater to community needs. Involving the community can result in more innovative and sustainable solutions, promoting responsible consumption practices [21,22,25–28].

Urban models have undergone significant evolution, starting from the concepts of "Smart Cities" [29,30] to "Sharing Cities" [31], "Eco-Cities" [32], and "Co-Cities", culminating in the "15-Minute City" [21]. However, the concept of the "15-Minute City", despite its widespread recognition, is to be considered very limited when applied to complex urban systems in sustainable urban design. From this perspective, it is essential to explore more contemporary and integrated approaches that improve the resilience and sustainability of cities [33].

In the context of contemporary urban regenerations, the shift from top-down dynamics to collaborative processes actively promotes active citizenship through empowerment and capacity-building of local communities [34–36]. While the concept of bottom-up design and community participation originated in the urban planning movements of the 1960s and 1970s [22], the contemporary urban context involves a significant reinterpretation of these practices. Nowadays, these approaches not only seek to incorporate the voices of residents into urban planning but also to foster partnerships among public, private, and civil society stakeholders. This revitalized methodology aims to ensure that urban development decisions are inclusive, addressing the needs and aspirations of local communities while tackling current challenges such as environmental sustainability, social inclusivity, and urban resilience. Examples include the reuse of public heritage like El Campo de Cebada in Madrid and urban gardens such as Tempelhofer Feld in Berlin. Experiments in tactical urbanism, like Spirit Plaza in Detroit, illustrate the holistic transition from spatial requalification to economic, social, and environmental regeneration [37,38].

In urban contexts, heritage involves more than just individual prestigious elements; it constitutes a system of assets and values that define the identity of a place for its inhabitants [39]. Understanding heritage as a system aligns with modern theoretical approaches that highlight the interconnectedness of cultural, social, and economic factors within urban environments. This systemic view enables a more integrated and sustainable approach to urban regeneration, acknowledging heritage assets as active drivers in the evolving urban narrative [8–10]. Achieving comprehensive valorization necessitates a broad vision of the territory, essential for strengthening connections among its physical, cultural, social, and economic components [15]. Such an integrated approach also activates collaborative mechanisms, which are crucial resources for urban regeneration and social innovation [40,41].

Urban regeneration processes at the neighborhood level frequently drive social innovations by converting abandoned urban spaces into laboratories of civic engagement and community creativity [25,42,43]. A systemic understanding of heritage greatly enhances this process by perceiving heritage not merely as something to be preserved but as a dynamic resource that can be revitalized and integrated into the modern urban context. This perspective not only elevates cultural heritage but also promotes integrated and sustainable urban regeneration, generating new economic opportunities and enhancing the quality of life for residents [2,6,44–46]. By recognizing heritage as an integral component of urban ecosystems, heritage preservation can be aligned with broader urban development objectives, creating a synergy that enhances both cultural and socio-economic outcomes. A systemic approach ensures that heritage is seamlessly integrated into the urban fabric, becoming a central element in the planning and implementation of regeneration projects. However, it is also essential to acknowledge that such abandoned spaces can be vulnerable to issues like organized crime. Addressing this duality is crucial, ensuring that regeneration initiatives not only foster civic participation but also enhance public safety and bolster the social resilience of communities. An integrated approach to urban regeneration that combines heritage valorization with sustainable development allows for a comprehensive strategy to tackle contemporary urban challenges, promoting social cohesion, environmental sustainability, and economic resilience [8–10]. This holistic strategy not only mitigates potential negative impacts but also leverages the inherent value of heritage to foster inclusive and resilient urban growth.

The reuse of heritage represents urban-scale social innovation [47], blending human and social capital to empower communities. This study highlights the positive impacts of heritage reuse on urban regeneration, stressing the need for an integrated approach that combines economic, social, and environmental sustainability. Additionally, viewing heritage as a dynamic system highlights the interconnectedness of cultural, social, and economic elements within urban environments. This theoretical framework enhances our understanding of heritage assets as active contributors to urban ecosystems, supporting sustainability and resilience. By recognizing these assets as part of a larger systemic process, urban regeneration efforts can more effectively address the complexities of contemporary urban challenges [2,6]. These processes generate relational and intangible goods, producing new economic values and significant positive impacts. This could result in enhanced social cohesion, lower carbon emissions, and better public health outcomes, highlighting the multifaceted benefits and complexities inherent in urban sustainability efforts. The initial "hopeful monsters" [21] have evolved into established practices, highlighting the need to assess not only social and environmental aspects but also economic value based on the density of social entrepreneurship in urban regeneration areas [48]. Considering economic value is essential for assessing how economically sustainable initiatives and long-term management can enhance the resilience and vitality of urban communities, in alignment with sustainable development goals. This holistic approach to sustainability promotes global sustainability and prevents the entrenchment of unsustainable systems.

Innovation in today's landscape increasingly hinges on connectivity [49]. "Networking" now entails establishing physical and virtual platforms that serve as hubs for identifying intervention priorities amid contemporary economic and social crises. Cultural

heritage (CH) plays a pivotal role by creating essential spaces that shape perceptions and values [50]. These spaces are integral to dynamic urban strategies, influencing new nodes within the multidimensional urban network. Evaluation processes within the CH framework provide a structured approach, offering insights into both specific and comprehensive aspects [51,52], blending quantitative data with qualitative insights.

Finance and entrepreneurship are increasingly involved in urban regeneration and social innovation, seeing "spaces of possibility" [53] as investment opportunities through public–private partnerships to provide collective services and positive impacts. The impact economy [54,55] and impact investing [56] intentionally combine economic returns with social impact [57], sometimes blending market logic with public funding [58].

Evaluation processes are central to urban regeneration, shifting from mere measurement to value creation [59]. Post-war urban transformations focused on economic and environmental impacts, with limited consideration of aspects that mainly included energy, waste, and pollution in relation to human health and the economy. It is only recently that scholars and governments have started to seriously consider biodiversity and nature restoration. Today, it is crucial to acknowledge the multidimensional impacts of sustainability, which includes economic, social, environmental, and cultural dimensions [60]. Historically, assessment systems and government policies did not fully recognize sustainability as a multidimensional concept. However, current policies are progressively revising this approach, striving to incorporate all aspects more equitably and comprehensively in sustainable development strategies.

The evaluator's role now includes guiding regenerative processes, designing adaptive and iterative evaluation systems in a collaborative logic. Reflective practice and co-evaluation [61,62] integrate experiential learning into practical activities through action research [63]. Evaluators support decision-making within processes, promoting inclusive, adaptive, and transformative approaches.

The evaluator becomes a "reflective maker", blending decision-making with evaluation, stimulating critical judgment, and supporting shared decision-making. They must adapt the process contextually, identifying critical issues and potentialities to transform them into strategic directions. This collaborative evaluation integrates stakeholders into the urban regeneration process.

In this context, decision-making processes [64] concerning the enhancement of Cultural Heritage (CH) benefit from multicriteria methods [65–69], which consider various facets of heritage, as well as multi-actor engagement [70–72] involving diverse stakeholders. These methods are adaptable across strategic, tactical, operational, and managerial stages of the enhancement process, serving multiple objectives such as facilitating informed decisions, exploring and identifying viable alternatives, tracking progress, and assessing outcomes.

This study introduces a multi-methodological approach developed through an action-research initiative carried out within the LandEM research laboratory at the Mediterranean University of Reggio Calabria. Its main aim is to formulate a strategy for the sustainable enhancement and revitalization of CH within the urban area of Reggio Calabria, located in Southern Italy. While some assets have been reactivated and are accessible, others remain inactive or underutilized, with some even abandoned. The approach implemented integrates preference elicitation [73,74], engagement of stakeholders and citizens, development of site-specific indicators, and multicriteria analysis. This approach aims to guide the formulation of public policies geared towards regenerating closed, abandoned, or unused heritage sites.

A decision support framework was developed during the investment planning phase with the objective of reinforcing public policies on heritage regeneration. Its purpose was to define intervention priorities for enhancement of assets that were inactive, abandoned, or non-operational.

In detail, the aim is to develop a methodological approach that supports policymakers in decisions on how, where, and when to intervene in the recovery and valorization of existing cultural heritage, integrating hard and soft data to guide choices towards sustain-

able interventions in the short, medium, and long term. The methodological approach was implemented and tested in the urban area of Reggio Calabria.

This paper outlines the methods in Section 2, provides a detailed description of the case study and its unique characteristics in Section 3, presents the results obtained from the application to the case study in Section 4, and discusses these results along with conclusions in Section 5.

2. Materials and Methods

Developing a strategy for the integrated and symbiotic regeneration of closed, abandoned, or disused heritage assets, in order to valorize them within a territorial network, represents a particularly complex challenge. This task requires the adoption of a holistic evaluative approach that synergistically considers a variety of components and perspectives [75]. To this end, this research has developed a multi-methodological decision-making process designed to explore the specific characteristics of the heritage assets under study and to assess their performance using site-specific indicators. The use of multicriteria analysis in this context allows for the comparison of various selected assets, establishing a priority ranking for interventions and developing a strategic map that suggests integrated guidelines to support policy decisions.

The proposed evaluative methodological framework is structured into three main phases: the knowledge process, the evaluation of alternatives, and the strategy definition. This integrated methodology enables addressing the complexity of urban regeneration, valorizing existing heritage with a focus on sustainability and inclusivity, and providing robust and transparent decision support. It provides robust and transparent decision support, structured according to Problem Structuring Methods (PSMs) [76–78]

2.1. Knowledge Process

The knowledge process offers an integrated and in-depth understanding of heritage assets within the urban context under study. Considering heritage as a system, the knowledge process explores how these assets operate within broader urban networks. This approach recognizes the dynamic interactions between heritage and contemporary urban processes, thereby increasing the potential for sustainable and resilient urban regeneration [6,7,79]. Through detailed analysis and systematic data collection, it is possible to identify opportunities and formulate strategies to transform these assets into active and valued resources for the community.

The knowledge process combines contextual analysis with the collection and selection of quantitative (hard data) and qualitative (soft data) information to create an informational matrix that represents the characteristics and peculiarities of the investigated assets. This approach is particularly useful for assessing assets within the urban fabric.

The first phase of the process involves mapping the assets. The analysis considers various environmental and urban aspects, such as infrastructure, public services, green areas, and cultural landmarks. This mapping provides an overview of the current conditions and integrative potential of these assets within the urban context.

The selection and collection of data (hard and soft) is essential to describe the conditions of the assets and identify their potential and critical issues. Hard data include quantitative information collected through direct observations and consultations of historical, textual, and photographic documents. This type of data allows for the assessment of the physical state of the assets and the documentation of their history and current context. Soft qualitative data investigate the perceptions and preferences of stakeholders [49,50,73,74] through questionnaires, in-depth interviews, and expert consultations. The collected perceptions help us to understand the socio-cultural dynamics and opinions of users regarding the studied assets.

The collected data are integrated into a detailed informational matrix that serves as a comprehensive database. The matrix documents the current state of the assets, their historical and cultural value, stakeholder perceptions, and potential for valorization. Additionally,

the matrix provides a solid foundation for making informed decisions about rehabilitation interventions and future management and utilization strategies.

2.2. Evaluation Alternatives

During the alternative evaluation phase, the Weighted Sum Model (WSM) multicriteria analysis method was employed, which is an integral part of Multi-Attribute Value Theory (MAVT) [80]. WSM is one of the most popular and widely used techniques in Multi-Attribute Decision-Making (MADM) [81]. Also known as Weighted Linear Combination (WLC), Simple Additive Weighting (SAW), Factor Evaluation, or the Simple Scoring Method, WSM is renowned for its simplicity and effectiveness in supporting complex decisions [82,83], which often need to consider concomitant but sometimes conflicting aspects.

In decision theory, WSM is likely the simplest decision-making method for evaluating alternatives based on multiple criteria. WSM involves summing the products of the scores and weights of the respective criteria for each alternative. This summation, known as the weighted sum or Weighted Sum Model score, is used to optimize objective functions through different weights. The role of weights is crucial and has been the subject of numerous studies exploring their various potentials and modes of attribution. Additionally, the WSM provides a ranking of alternatives, highlighting their strengths and weaknesses. The adoption of the WSM in alternative evaluation offers a structured and transparent approach to making complex decisions regarding the valorization of heritage assets. With its ability to integrate various criteria and provide a ranking of alternatives, WSM is a powerful tool to ensure informed, balanced, and stakeholder-shared decisions.

The evaluation through the WSM was implemented using the software DEFINITE (DEcisions on a FINITE set of alternatives), version 3.1, developed by Ron Janssen and Marine van Herwijnen in 1987 [82]. This software enhances the quality of the decision-making process and facilitates communication among involved parties by offering graphical tools for a clear and interactive representation of the alternatives and their scores.

The evaluation process consists of five main phases:

1. Definition of Alternatives: established during the knowledge phase.
2. Selection of Evaluation Criteria: identification of relevant criteria for the specific context and for evaluating the performance of the alternatives.
3. Evaluation and Standardization of Scores for Each Alternative: each alternative is assessed against each criterion, and the scores are standardized to ensure a common scale, allowing for direct and accurate comparisons between different alternatives.
4. Weighting of Criteria: setting priorities based on the objectives established in the three identified thematic clusters. The weights of the criteria, reflecting stakeholders' priorities, are determined through consultations or participatory methods.
5. Evaluation of Alternatives and Final Ranking: determined by calculating the total score of each alternative, obtained by multiplying the standardized scores for each criterion with their assigned weight and summing the weighted scores of all criteria. The alternative with the highest overall score is considered the most advantageous. The total sum of weighted scores, also known as the priority index, identifies the most effective and promising option in each thematic cluster, fundamental for structuring a strategy that optimizes benefits and achieves established objectives.

2.3. Development of the Strategy and Priority Map

The strategy development phase for regenerating the assets identified during the knowledge process employs a collaborative and participatory approach, rigorously tested in the field. This method aims to actively involve all stakeholders, ensuring that the definition of asset valorization is inclusive and participatory.

The process is based on the final results of the multicriteria evaluation, which are then spatialized using a Geographic Information System (GIS). GIS spatialization enables the creation of a priority map that visualizes the overall scores of various alternatives. This map establishes a clear, understandable, and easily communicable territorial hierarchy.

The priority map not only represents the results of the multicriteria analysis for each asset but also integrates insights and preferences from citizens collected during the knowledge phase, thereby serving as a crucial means to communicate outcomes from each phase of the process, establishing a robust basis for formulating the regeneration strategy.

Interpreting the priority map is the starting point for identifying possible future scenarios. These scenarios are developed through a co-creation process, ensuring that the identified opportunities are shared and supported with the active involvement of all stakeholders [80,84–87]. Co-creation facilitates continuous dialog between local administrations, citizens, experts, and other stakeholders, promoting an integrated and participatory approach to urban regeneration.

The strategy development phase for regeneration is an integrated and dynamic process that combines technical analysis with community involvement to develop shared and sustainable solutions for asset valorization. By activating a co-creation process, continuous dialog is promoted among local administrations, citizens, experts, and other stakeholders. This dialog is essential to achieve the following:

- Sustainably valorize assets: ensuring that heritage regeneration preserves and enhances the cultural and historical value of the assets.
- Promote social inclusion and community cohesion: facilitating the participation of diverse social groups and ensuring the equitable distribution of the benefits of regeneration.
- Stimulate local economic development: creating new economic opportunities and improving quality of life through the innovative and sustainable use of regenerated assets.

In summary, the collaborative and participatory approach to the cultural heritage regeneration strategy represents an effective model for addressing the challenges of heritage valorization. This model is effective as it utilizes Problem Structuring Methods [75–77], a comprehensive and multi-methodological evaluative approach designed to address complex problems typical of strategic decision-making and public policies, providing guidelines to support political decisions during the initial stages of planning and feasibility. The model's effectiveness is further enhanced by its collaborative and participatory approach, involving a diverse range of stakeholders such as citizens, experts, local administrations, and other interested parties. This inclusivity ensures that varied needs, preferences, and local knowledge are incorporated into the regeneration process. Active stakeholder participation fosters a sense of ownership and responsibility, increasing the acceptance and long-term success of projects. The evaluative process also employs a self-learning approach, engaging users and consumers during the co-design and co-evaluation phases. While many individuals may initially have limited knowledge of sustainability and sustainable design, their active involvement allows them to continuously learn and gain awareness, thereby enhancing the community's capacity to effectively participate in and support sustainable decisions. Since this study was developed in the initial phase of programming and planning interventions on cultural heritage, the primary outcome is the formulation of key guidelines to support policy decisions. As the study progresses and moves into subsequent phases of regeneration, more detailed analyses, studies, and evaluations will be required. These efforts will include criteria that assess aspects such as eco-positive adaptation and nature-friendly development.

3. The Case Study

The urban area of Reggio Calabria serves as the testing ground for our methodological approach. This central portion of the territory is characterized by a dense concentration of heritage assets that strongly delineate the urban landscape. These heritage assets are classified into three thematic clusters, each of which uniquely contributes to the city's architectural and cultural identity, thereby shaping the urban landscape. Cluster A includes active and usable assets, such as theaters, cinemas, museums, and historic palaces that have been reactivated and are currently accessible. These assets not only preserve cultural heritage but also actively enhance the urban landscape by serving as hubs of cultural and

social activity, thereby reinforcing the city's vibrant character. Cluster B consists of inactive or underutilized historic assets, such as theaters and cinemas, that are potentially usable for new purposes. Although these assets are currently inactive, they still play a significant role in defining the urban landscape through their historical and architectural presence and hold potential for future revitalization, which could further enrich the urban fabric. Cluster C comprises non-operational cultural assets. These neglected assets, though currently contributing to urban blight, represent significant opportunities for regeneration. Their revitalization could substantially contribute to the urban landscape by converting these spaces into active, valuable components of the city (Figure 1).

Figure 1. Map of heritage assets in the urban area of Reggio Calabria.

It is worth noting that these properties have diversified ownership and management, ranging from public administration to private entities, thus creating significant fragmentation in the opportunities for shared management of the heritage. Faced with this scenario, this study aims to enhance the intrinsic values of these properties through a network approach, aimed at developing a strategy for their valorization. The objective is to facilitate and guide the decision-making process of public policies towards an integrated network strategy, capable of identifying intervention priorities based on the conditions of the properties, as well as the needs of the local communities.

By emphasizing the distinct roles and potential of each cluster, this study highlights how these heritage assets collectively influence and shape the urban landscape of Reggio Calabria, thereby strengthening the city's cultural and architectural identity.

4. Results

The following sections present the results derived from the implementation of the proposed methodology, highlighting how this approach can effectively support the development of targeted public policies aimed at regenerating the existing cultural heritage. The methodology provides a structured and detailed framework that allows policymakers to identify priorities and plan interventions based on solid evidence. This approach facilitates the enhancement of assets with the aim of creating an integrated network of assets with synergistic and complementary uses, promoting sustainable and shared urban regeneration capable of meeting the needs of the community and improving accessibility to cultural heritage.

4.1. Knowledge Process

The knowledge process integrates contextual understanding with both quantitative (hard data) and qualitative (soft data) information gathering and selection, forming a comprehensive matrix that delineates the characteristics of the assessed heritage assets.

Initially, a mapping of the identified assets was conducted to pinpoint their locations and main structural features. Following this, key stakeholders were identified, and both quantitative and qualitative data were collected to gain insights into the conditions of the assets, highlighting their potential and challenges. This also included understanding how these assets are currently perceived by citizens and local stakeholders.

Quantitative data (hard data) encompassed essential information for identifying specific characteristics of the mapped assets. Qualitative data (soft data), on the other hand, delved into intangible attributes such as stakeholder perceptions and preferences. To gather these qualitative insights, a stakeholder map was created through an institutional analysis, identifying significant actors including the public administration and the Metropolitan City of Reggio Calabria, social and cultural associations, public institutions, asset owners and managers, entrepreneurs, tourism entities, merchants, students, and residents of the historic center. These groups were engaged in various stages of the process, from data collection to the co-creation of scenarios.

The contextual analysis included direct observations and photographic surveys to assess the condition of structures and surfaces, identifying valuable elements. Additionally, the size of the buildings, the presence of service spaces, architectural and sensory barriers, and the availability of water, electrical, and sanitary services were evaluated.

Document consultation allowed for the reconstruction of the historical background of the assets, providing a better understanding of their characteristics and their relationship with the context. This involved analyzing urban plans, constraint maps, seismic risk maps, and property deeds, as well as guidelines for overcoming architectural barriers in places of cultural interest.

To deepen the understanding of perceptions and relationships between stakeholders and assets, as well as expert opinions, deliberative evaluation techniques were employed to elicit preferences:

- An online survey to gather insights on the connections between spaces and citizens;

- In-depth interviews with asset owners and managers, as well as urban center residents, to investigate the frequency of space openings, types of activities conducted, and feelings of belonging, security, and hospitality;
- Expert consultations through interviews and focus groups to analyze the current state of the buildings and their historical, architectural, social, environmental, and economic components, involving specialists from the 'Mediterranean' University of Reggio Calabria.

The comprehensive and multifaceted knowledge process resulted in the creation of an extensive database that aggregated various information categories for each asset, organized into five main classifications:

- Architecture: data regarding the current state condition of the asset (foundation era, presence of constraints, conservation status, presence of valuable elements, floor plan type);
- Usability: elements influencing the usability of the asset (surface area, service spaces, positioning of the main entrances, the presence of architectural barriers, connections to electricity and water networks, availability of healthcare services, accessibility to the asset);
- Perception of Residents: attachment to the place, feeling of welcome, sense of security;
- Management and Utilization: information on the nature of the property owners and managers, frequency of use, types of reuse activities, variety of uses, presence of profit or non-profit activities and functions;
- Urban Context: information on the surrounding context (proximity to transportation lines, parking facilities, and cultural sites, accessibility from the road for persons with disabilities, proximity to squares, green areas, and schools, and density of commercial activities and location relative to the city center).

From this database, an information matrix was created for each analyzed asset, serving as the foundation for selecting and defining specific criteria and indicators. This matrix represents the output of the first phase of the methodological approach, enabling the progression to the second phase of evaluating alternatives through multicriteria analysis.

The selection of criteria and indicators was grounded in a thorough review of the current literature, focusing on contemporary frameworks for urban regeneration and holistic approaches to cultural heritage. These frameworks underscore the interconnectedness of various urban components and emphasize the importance of using cohesive evaluation criteria [8,9]. Moreover, the evaluation criteria represent a preliminary selection based on a comprehensive analysis of the relevant literature. This review has identified several pivotal aspects essential for evaluating the efficacy of urban regeneration alternatives in a heritage context [6,7,79].

4.2. Evaluation Alternatives

The evaluation of alternatives utilized the Weighted Sum Method (WSM) multicriteria analysis, selected for its simplicity in ensuring replicability and scalability across various decision-making contexts, and for its ease of interpretation by policymakers.

Starting from the WSM evaluation method and the identified decision support software DEFINITE 2.0, the evaluation process of the alternatives was structured into several steps. The implementation of the DEFINITE software systematically guides the expert through a series of rounds of interactive evaluation and uses an optimization approach to integrate all the information provided by the experts into a complete set of value functions. Moreover, the software uses graphical tools to interpret the results and facilitate communication among the various stakeholders involved in the decision-making process [54,59].

The process of evaluating alternatives comprises the following steps:

1. Identification of alternatives: The alternative are represented by the different cultural assets, classified and compared based on their characteristics and their regeneration potential. Specifically, the cultural assets are classified into three main thematic clusters. For

each cluster, a specific objective is associated with a pursuit in the enhancement strategy (Figure 2).

Cluster A includes active and usable assets, identified as key drivers to be strengthened for adaptive uses in the short term. These assets include theaters, cinemas, museums, and historic palaces that are currently accessible and actively contribute to the urban landscape. By maintaining and enhancing these resources, the urban environment is continually enriched, supporting a dynamic cultural milieu. These assets not only preserve cultural heritage but also foster vibrant social interactions and community engagement, serving as hubs for cultural and social activities. Their ongoing utilization and adaptive reuse are crucial for sustaining a lively and evolving urban landscape, ensuring that the city's cultural and architectural identity remains robust and relevant. Moreover, the strategic focus on these assets aims to maximize their potential, encouraging innovative uses that can adapt to changing needs and contexts, thereby promoting sustainable urban development.

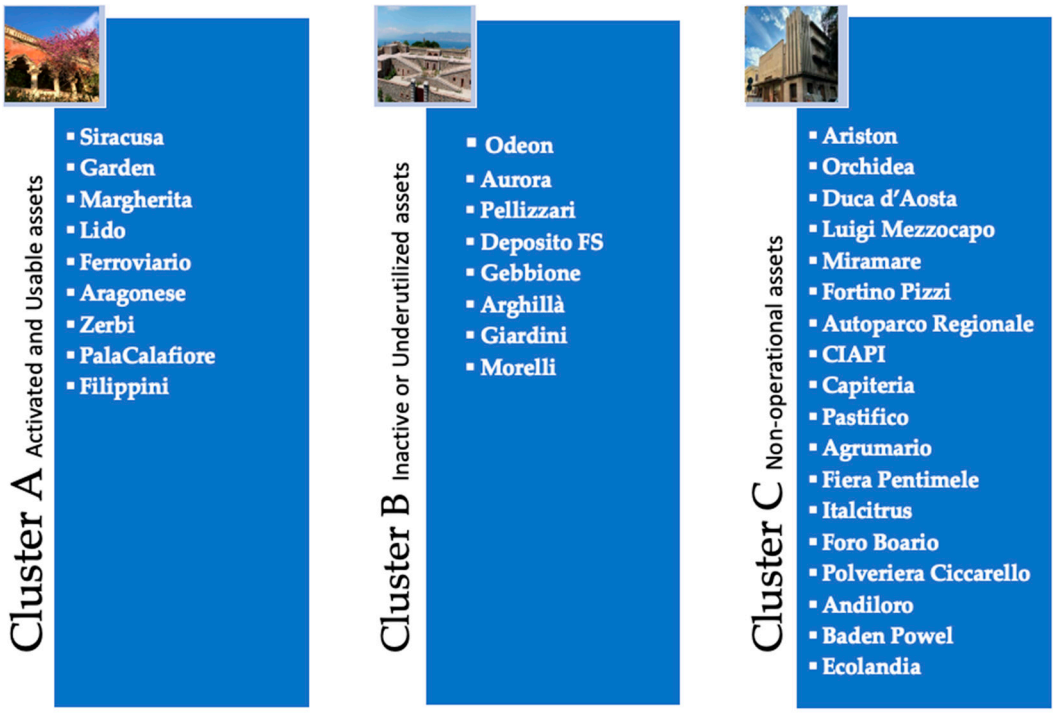

Figure 2. Cluster classification of cultural heritage.

Cluster B comprises inactive or underutilized assets that significantly define the urban landscape through their historical and architectural presence. These include historic buildings, theaters, and cinemas, which, despite their current inactivity, hold significant potential for reuse and revitalization. Their architectural and historical value provides a basis for transforming them into vibrant cultural and social centers, enriching the urban fabric and fostering community engagement and interaction. Revitalizing these assets through adaptive reuse projects that respect their historical significance while incorporating modern functionalities can enhance the city's aesthetic and cultural landscape, stimulate economic growth, and promote social cohesion. The strategic focus on reactivating Cluster B assets aligns with broader urban development goals of sustainable growth and cultural preservation. By identifying and implementing appropriate management models and innovative uses, these assets can become key components in the city's ongoing evolution, contributing to a more cohesive, dynamic, and culturally rich urban landscape.

Cluster C includes non-operational cultural assets requiring significant interventions. These assets, including abandoned historic buildings, theaters, and other cultural sites, currently contribute to urban decay. However, their restoration represents a substantial opportunity for regeneration. If restored, they could become complementary and syner-

gistic with the other assets of Clusters A and B in the long term, transforming themselves into active and valuable components of the city. Their revitalization and transformation would not only improve the aesthetic and cultural environment, but also strengthen the socio-economic infrastructure of the city, but could foster greater community engagement, attract tourism, and stimulate local economic development. The restoration and adaptive reuse of these heritage assets can ensure that these historically significant sites continue to contribute to cultural identity and community vitality, promoting sustainable urban growth and development.

In summary, the categorization of assets into these three thematic clusters facilitates a strategic and targeted approach to urban regeneration. This structured approach ensures that each category of asset, from active and usable ones in Cluster A to historically significant but inactive assets in Cluster B and non-operational cultural assets in Cluster C, is enhanced according to its unique attributes. By leveraging the potential contribution of each cluster, urban regeneration efforts can effectively contribute to sustainable and circular urban development goals, enhancing the city's cultural heritage, economic vitality, and overall urban fabric.

2. Selection of criteria and indicators: After identifying the alternatives, it was essential to proceed with the selection of criteria and the development of indicators to evaluate the performance of each asset. This phase involved both qualitative and quantitative considerations, integrating citizen preferences with expert opinions. For each cluster and its related objectives, a decision tree was structured into criteria and indicators, expressed through qualitative and quantitative assessment scales.

The selection of five criteria and twenty-four indicators, described below, was conducted in collaboration with field experts, considering the information gathered in the database and synthesized in the information matrix. This approach enabled the expression of the specific characteristics of the assets and their integration into the context, ensuring a comprehensive and accurate evaluation.

Criteria and Indicators:

Quality of Architecture: This criterion was structured to evaluate the architectural quality of the assets. The selected indicators include the following:

- Foundation period: determines the historical period of construction, providing crucial information on the historical and cultural value.
- Protection constraints: identifies the existence of legal and regulatory constraints that protect the asset, influencing the possibilities of intervention and use.
- Conservation status: analyzes the structural and surface conditions of the asset, assessing the level of degradation and intervention needs.
- Valuable elements: identifies the presence of significant architectural features such as monumental elements, frescoes, and historical furnishings that contribute to the asset's aesthetic and cultural value.

Usability and Accessibility: This criterion assesses the characteristics of the assets that determine its degree of usability and accessibility through the following indicators:

- Usability: refers to the extent to which an asset can be used effectively and accessed by users.
- Architectural barriers: analyzes the presence of physical obstacles (distances, heights, ramps) that may limit accessibility.
- Sensory barriers: considers visual and auditory obstacles that may affect accessibility for individuals with sensory disabilities.
- Toilet and electrical services: verifies the availability of essential infrastructure such as toilet, electricity, and sanitary facilities, fundamental for the asset's functionality.
- Service spaces: evaluates the presence and quality of support spaces such as offices, meeting rooms, and other service facilities.
- Dimensions: measures the total area and available spaces, indicating the asset's capacity to host various activities.

Activities and Functions: This criterion assesses how assets are utilized, incorporating indicators such as the following:

- Opening frequency: measures how often the asset is accessible to the public, indicating the level of utilization.
- Type of activities: classifies the activities performed (social, cultural, economic) to understand the variety and impact of current functions.
- Profit activities, for the potential implementation of revenue-generating initiatives.
- Variety of intended uses: evaluates the diversification of activities the asset can host, promoting multifunctional use.

Urban context quality: This criterion analyzes the quality of the environment in which the assets are located, using the following indicators:

- Accessibility of paths for disabled people: analyzes the accessibility of surrounding paths for people with disabilities.
- Proximity to public transportation: measures the proximity to public transport networks, facilitating accessibility.
- Proximity to parking: evaluates the availability of parking spaces nearby, improving accessibility for visitors.
- Proximity to squares and green areas: measures the closeness to public open spaces that can enrich the visitor experience.
- Density of commercial activities: considers the presence of commercial activities in the context, improving the economic vitality of the area.
- Proximity to educational services: evaluates the closeness to schools and educational institutions, enhancing the educational role of the asset.
- Proximity to cultural points of interest: considers the closeness to museums, theaters, and other cultural sites that can enhance the asset's attractiveness.

Perception and relationship: This criterion evaluates the relationship between citizens and cultural heritage through the following qualitative indicators:

- Attachment to the Place: measures the degree of affection and connection citizens have with the asset.
- Perceived Safety: detects the perceived safety in the vicinity of the asset.
- Perceived Welcoming: evaluates how welcomed and comfortable citizens feel in the area.

The measurement scales used for the indicators are nominal, ordinal and binary:

- Qualitative Scale (−−−/+++): expresses quality judgments at various levels, from high (+++) to low (−−−), with "0" for moderate.
- Binary Scale (Yes/No): indicates the presence or absence of a specific condition.
- Ratio Scale (year, ml, sqm): measures relevant quantitative aspects such as time, distance, and area.

3. Evaluation and Standardization.

For each indicator measured with binary or ratio scales, it was determined whether it represents a cost (c) or benefit (b), indicating whether the variation in its dimension signifies an advantage or disadvantage relative to the set objective.

The alternatives within the respective clusters were evaluated using the values expressed by the involved stakeholders, based on the defined criteria and indicators. Through the DEFINITE 2.0 software, three effect matrices (one for each cluster) were developed (Figure 3), allowing for the standardization of scores for each alternative, facilitating the comparability of judgments and promoting informed and strategic decision-making.

	c/b	Unit	Siracusa	Garden	Margherita	Lido	Ferroviario	Aragonese	Zerbi	Palacafiore	Filippini
Quality of Architecture											
Foundation period	c	years	1000	100	1000	1600	900	700	1500	1900	1000
Protection constraints	b	binary	yes	yes	yes	yes	yes	yes	no	yes	no
Conservation status		--/++	++	++	++	++	++	++	-	++	+
Valuable elements		---/+++	+	+	++	++	++	+++	++	++	+
Usability and Accessibility											
Usability	b	binary	yes	yes	yes	yes	yes	yes	yes	yes	yes
Architectural barriers		---/+++	++	++	+++	+++	+++	+	++	+++	++
Sensory barriers		---/+++	+	+	+	+	+	+	+	+	+
Toilet and electrical	b	binary	yes	yes	yes	yes	yes	yes	no	yes	yes
Service spaces		---/+++	+++	+++	+++	+++	+++	+	++	+++	-
Dimensions	b	m^2	4000	700	3600	900	1800	370	235	900	40
Activities and Functions											
Opening frequency		---/+++	+++	++	++	+++	++	++	+++	+++	++
Type of activities	b	binary	yes	yes	yes	no	yes	yes	yes	no	yes
Profit activities	b	binary	yes	no	yes	yes	no	no	no	yes	no
Variety of intended uses		---/+++	+++	++	+	+	+	+	+++	+	+
Urban context quality											
Accessibility of paths for the disabled		---/+++	+	+	+	++	+	++	++	++	++
Proximity to public transportation	c	m	270	250	20	250	20	220	130	250	350
Proximity to parking		---/+++	++	++	++	++	++	++	++	++	+
Proximity to squares and green areas	c	m	5	100	200	10	150	5	5	10	5
Density of commercial activities	c	m	400	600	250	320	220	300	800	320	420
Proximity to educational services	c	m	++	++	+	++	+	++	++	++	++
Proximity to cultural points of interest		---/+++	+++	+++	++	+++	+++	+++	+++	+++	+++
Perception and relationship											
Attachment to the Place		---/+++	+	+	+	+	+	+++	+++	+	+
Perceived Safety		---/+++	++	-	+	++	+	++	++	++	++
Perceived Welcoming		---/+++	++	+	+	++	+	+	++	++	+

Figure 3. Effect matrix: Cluster A.

4. Weighting of Criteria. The subsequent step involved assigning weights to the criteria to establish their relative priority in line with the predefined objectives for each of the three thematic clusters. Specifically, for each cluster of assets, a different order of importance was determined using the expected value technique, consistent with the identified specific objectives.

- Weight Assignment Process: A focus group was organized, comprising experts in relevant fields such as architecture, urban planning, and socio-economic development, to facilitate a deliberative and interactive process. This process ensured that the weighting reflected the strategic priorities and specific conditions associated with each cluster of assets. Through structured deliberations, the experts discussed the relative importance of each criterion, considering both qualitative and quantitative data. Techniques such as the Delphi method and consensus workshops were employed to ensure a thorough and balanced weighting process.
- Calculation of Weights: The expected value technique was applied to calculate the weights, ensuring that the assigned weights accurately reflected the experts' consensus on the relative importance of each criterion. The calculated weights were reviewed and adjusted as necessary to ensure alignment with the strategic objectives and practical realities of each cluster.

The weighting of criteria provided a structured and quantified basis for evaluating the assets within each thematic cluster. By ensuring that the criteria were weighted according to their relative importance, the process facilitated a more nuanced and objective assessment of each asset's potential and strategic value. This approach allowed for the development of targeted strategies for the effective use and optimization of assets, promoting sustainable and context-sensitive urban regeneration.

The integration of expert judgment through a deliberative and interactive process ensured that the weighting was robust and reflected diverse perspectives, enhancing the overall reliability and validity of the evaluation framework. This methodology not only

supported informed decision-making but also fostered a collaborative and participatory approach to urban planning and asset management.

For Cluster A, which encompasses active and usable assets, the criteria "Usage and activity" and "Perception" were considered equally important. This decision was made because the specific goal was to identify leading assets and factors to strengthen in the network to activate adaptive uses in the short term. In second place, the criteria "Urban Context" and "Usability" were ranked, also considered equally important. The "Architecture" criterion was classified in third place.

For Cluster B, including inactive or underutilized assets, equal importance was assigned to the criteria "Usability" and "Architecture". This decision was made as the specific goal was to identify assets to activate and develop management models to promote new medium-term uses. In second place, we find the criteria "Urban Context" and "Perception", while the "Usage and activity" criterion was assigned to third place, as the buildings identified in this cluster were unused.

For Cluster C, comprising non-operational cultural assets, the order of importance was fairly assigned to the criteria "Architecture" and "Urban Context". This decision aligns with the specific goal of identifying priority assets requiring restoration actions to develop a program of synergistic and complementary uses to those already activated, in the long term. In second place, the criteria "Usability" and "Perception" were placed, while the "Usage and activity" criterion was positioned in third place.

5. Evaluation and Ranking of Alternatives: The evaluation of alternatives was conducted by leveraging the input from the engaged stakeholders, based on the established criteria and indicators. To facilitate comparability, the scores for each alternative were standardized. The total score for each alternative was computed by multiplying the standardized scores by their respective weights and summing the weighted scores across all criteria.

The final outcome of the evaluation process is a ranking of the alternatives for each cluster, from the most favorable to the least favorable, according to their overall performance and the priorities assigned to each criterion (Figure 4). This ranking forms the basis for the subsequent phase of developing asset valorization strategies, which involves mapping the ranking spatially into a "priority map" and defining potential scenarios to implement a collaborative strategy.

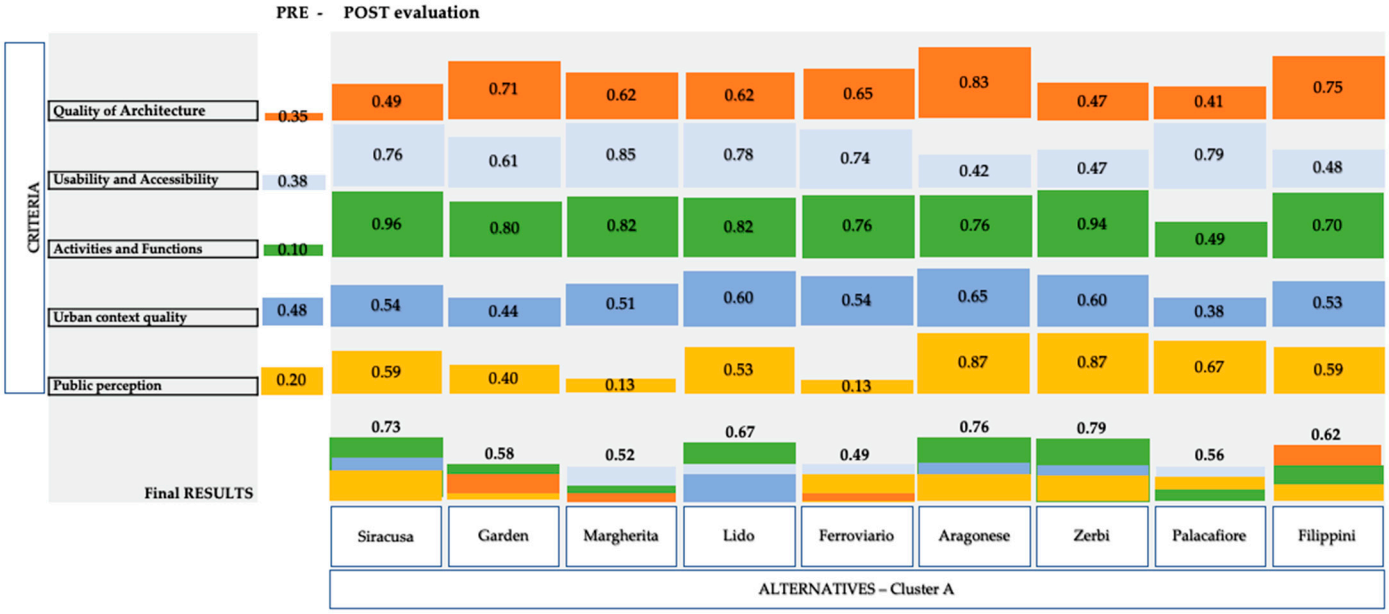

Figure 4. Custer A—ranking alternatives.

The outcomes of the evaluation process provide a framework for project development and strategic thinking, where collaborative processes are essential for defining short-, medium-, and long-term heritage valorization strategies.

Specifically, the rankings reveal that within Cluster A (activate and usable assets), the highest rank is occupied by Villa Zerbi, reutilized through the initiation of an adaptive reuse process centered on cultural activities, followed closely by Aragonese. Figure 4 illustrates the change in absolute and relative indices resulting from a comparison of the performance of the cultural asset pre- and post-adaptive reuse intervention. The significant increase in the priority index for Villa Zerbi is closely tied to the relative index changes in the criteria "Perception" and "Usage and Activity", driven by the activation of a living lab focused on raising awareness about reuse methods for the asset. The lab's implementation of new uses has effectively enhanced citizen "Perception" and improved the overall "Urban Context" surrounding the property.

Conversely, Ferroviario, currently repurposed as a street food venue, ranks last in the Cluster A classification. The selection of criteria and indicators has disadvantaged assets such as this one, which are inaccessible to the public, underscoring their limited alignment with cultural valorization principles within the network. The software visualizes this relationship using a donut chart, demonstrating the impact of each criterion on the total index based on assigned weights for each cluster.

The weighting diagram, Figure 4, shows that "Public Perception" and "Activities and Functions" are the most influential criteria in Cluster A, significantly affecting the relative indices of individual alternatives.

4.3. Development of the Strategy and Priority Map

The transformation of the results from the multicriteria analysis into a spatial representation using a GIS enabled the creation of a priority map. This graphic map integrated the performance indices obtained from the rankings, overlaying them onto the urban cartography of Reggio Calabria. The map facilitates the visualization of the performance of different localized alternatives, highlighting priority indices, contextual potentials, and context perceptions (represented on a color scale from red to green) (Figure 5).

The analysis of the priority map revealed that assets with the lowest rankings in their respective clusters (indicated with a numerical value in red) are often located in more problematic urban contexts and are perceived negatively by citizens. In particular, two of the three assets with the lowest rankings are situated in the northern part of the city center, an area characterized by morphological and social complexity, with scarce proximity services, commercial activities, and public transport.

Based on these results, it was essential to share the emerging data with previously identified stakeholders and new potential stakeholders, initiating a co-design phase. This collaborative process supported policymakers' decisions, making the intervention strategies operational. The sharing phase was structured into two main stages:

Sharing the Priority Map: The priority map was presented to the municipal administration, the metropolitan city, the managers of the already reactivated spaces, and the property owners, both public and private. In a focus group facilitated by experts, two intervention scenarios were devised: Scenario A proposes a short-term plan to physically link the assets within Cluster A, while Scenario B outlines a medium- to long-term strategy aimed at connecting buildings across all three clusters along transversal axes. This approach aims to foster synergies between abandoned and already reactivated assets, thereby enhancing the urban axes where they are situated.

In both scenarios, the former "Villa Zerbi" serves as a central point in the strategy, exemplifying best practices in reuse to activate the network (Figure 6).

Figure 5. Priority map.

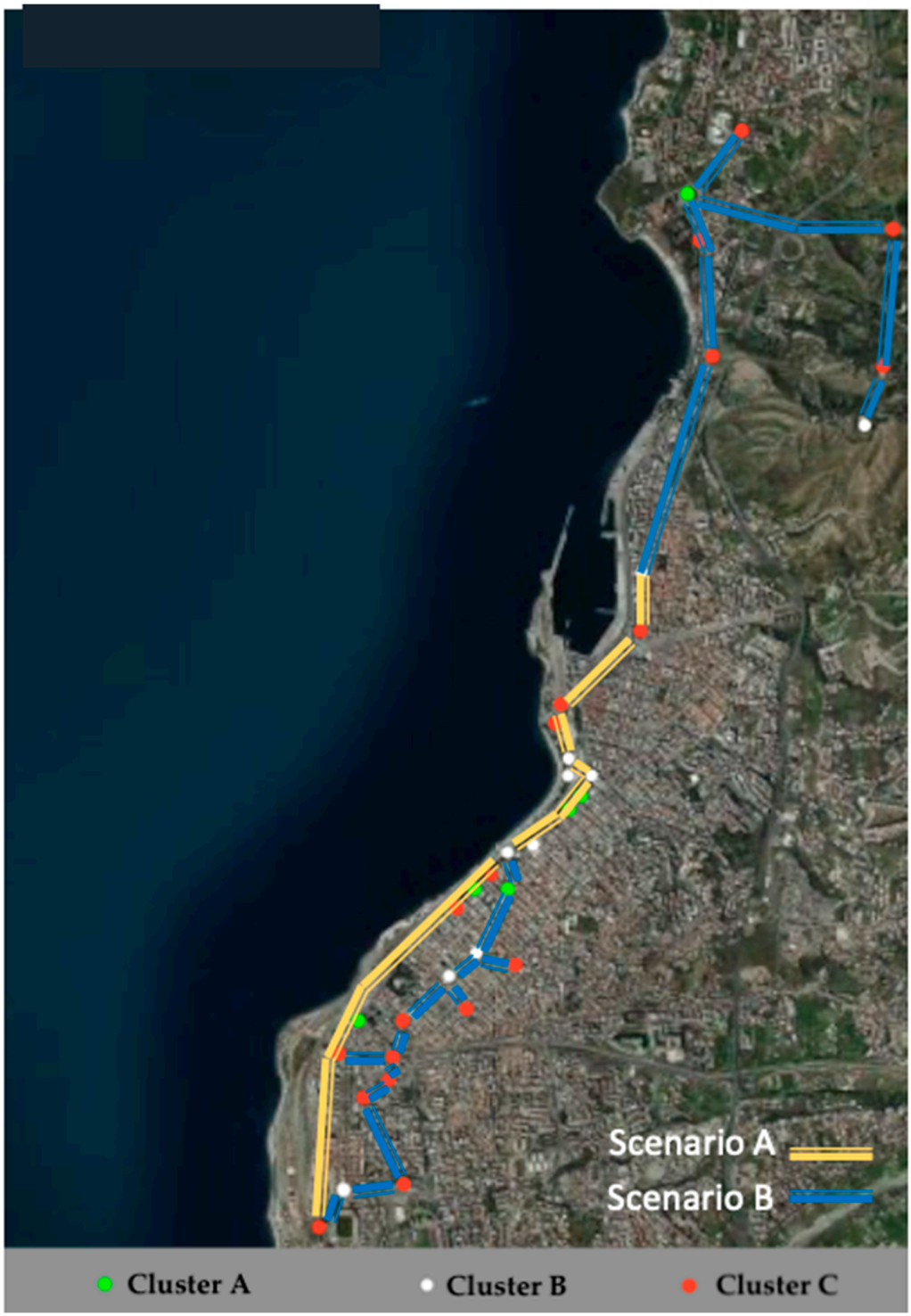

Figure 6. Scenarios.

Planning tactical urbanism actions. Following placemaking principles, actions were planned along the axes identified by the strategy to focus attention not only on the assets of interest but also on their surrounding context. The interaction with various stakeholders was conducted using the co-creation methodological approach, previously tested in similar strategic urban regeneration projects [42–46], through deliberative, co-evaluation, and co-design techniques. Within heritage-focused urban regeneration, it is essential to clearly define the roles of different stakeholders to maintain an organized and effective process throughout both the initial planning stages and the subsequent implementation

phases of the regeneration strategy. The primary stakeholders engaged in this process are the following:

Decision-makers: This group includes government officials, urban planners, and policymakers who have the authority to make strategic decisions regarding urban planning in the regeneration process. Their role involves defining the legal and policy framework, allocating resources, and ensuring that regeneration projects align with broader urban development objectives [81,82].

Key Players: This group includes architects, heritage conservation experts, and developers who are integral to both the planning and execution of regeneration initiatives. Their responsibility is to craft and carry out projects that harmonize the preservation of cultural heritage with modern urban requirements, ensuring that the interventions are both sustainable and attuned to cultural sensitivities [83,84].

Stakeholders (affected people): These include local communities, cultural associations, businesses, and non-governmental organizations (NGOs) who have an interest in the regeneration process. Their involvement is crucial for providing valuable input and feedback through participatory methods, ensuring that the projects align with the community's needs and aspirations. Engaging these stakeholders fosters social cohesion and is key to the long-term success of the regeneration initiatives [85,88].

Clearly defining the roles of these stakeholders guarantees their appropriate participation and ensures that the regeneration process is both inclusive and thorough. The diverse perspectives brought by these groups not only strengthen the legitimacy of the projects but also lead to more innovative and resilient urban solutions. This collaborative approach is grounded in the principles of collaborative governance, which highlight the significance of involving multiple stakeholders to achieve sustainable urban development [81–85,88,89].

In particular, the following steps were developed from Scenarios A and B:

Co-exploration phase: Through video interviews, public assemblies, and urban walks, the tangible and intangible values of the territory were explored and mapped with the resident and temporary communities. Scenario A aimed to share experiences of already active assets and evaluate their effects on citizens and the context, while Scenario B aimed to acquaint citizens with the city's abandoned heritage. This phase initiated a dialog between public and private entities, facilitating the sharing of practices between managers and owners of reactivated assets.

Co-design and co-evaluation phase: Through brainstorming, focus groups, and design and artistic workshops, residents and students collaborated in designing material and immaterial interventions. For Scenario A, the characteristics of the urban path were identified and co-designed to connect the active assets. For Scenario B, co-design focused on the residual public spaces near the abandoned assets. Co-evaluation guided the design decisions to define the outcomes to be achieved.

Co-testing phase: Activities were conducted to create temporary installations in neglected areas along the identified urban axes from the scenarios. Community members and university students participated in building urban elements, such as near the former "Caserma Luigi Mezzacapo," fostering engagement and collaboration.

These tactical urbanism actions rapidly transformed public spaces into devices for sharing and extending the regenerative strategy. The ongoing process has energized stakeholders, fostering enthusiastic interest and active participation from citizens, private entities, associations, and public administrations around the intervention sites.

5. Conclusions and Discussion

The decision support framework for collaborative community-based urban regeneration processes developed in this research project represents a significant step in managing and enhancing abandoned, unused, and underutilized cultural heritage. By adopting a multi-phase structured methodology, it has been possible to develop a decision support framework intended for policymakers and stakeholders involved in urban regeneration processes.

The project demonstrates how it is possible to create a synergistic network of places, actions, and actors by integrating both material and immaterial interventions to support the planning of temporary reuse and structural recovery interventions. One of the project's key tools, the priority map, effectively communicates the criticalities and potentials of the territory, allowing for the prioritization of cultural assets from which an incremental enhancement strategy can be activated, highlighting possible intervention priorities within an overall strategy. A crucial aspect of the project is the creation of physical and digital connections between cultural assets, contributing to the formation of a recognizable territorial identity and the construction of an intangible network among professionals, managers, and property owners. This process has facilitated the identification of a shared management model, promoting innovative reuse activities and sustainability opportunities. Furthermore, viewing heritage as a dynamic system provides a robust framework for urban regeneration. This systemic perspective highlights the interconnectedness of cultural, social, and economic factors, allowing for more effective management and utilization of heritage assets as integral components of urban ecosystems. By adopting this approach, the project aligns with the objective of fostering a synergistic network and enhances strategies for sustainable urban development. It acknowledges the evolving role of heritage within the broader urban landscape, thereby strengthening the overall effectiveness of regeneration efforts [2,3].

Future research will focus on further developing and refining the decision support framework. The first step will be expanding the collaborative digital platform, integrating an open GIS system, and adopting multi-objective decision support systems. This platform aims to facilitate online community engagement, promote active stakeholder participation, and provide effective decision support for short-, medium-, and long-term planning of interventions.

It will also be essential to broaden the identified criteria to include the primary dimensions of cultural heritage: social, cultural, environmental, and economic. This approach will enable a comprehensive consideration of the heritage's value, fostering integrated and sustainable enhancement [6].

Another relevant aspect will be analyzing the impacts generated by the activated network of cultural assets, evaluating how they affect the urban and social context and contribute to creating new, consolidated, and resilient communities [4].

The analysis of the themes emerging from the investigation of values and impacts in community-based urban regeneration and social innovation processes, specifically the reuse of cultural heritage, has highlighted the need for new forms of economy and entrepreneurship. This research explored ways to coordinate and support policies from the initial phase to the co-governance of complex processes, addressing the need to generate significant social impacts [2].

This systemic view of heritage enables the identification and prioritization of interventions that consider the complex interrelations among various urban elements. It emphasizes the necessity of a holistic approach in urban regeneration, where heritage assets are not just preserved but actively woven into the urban fabric. This integration supports social innovation and enhances community resilience, ensuring that heritage plays a dynamic role in shaping and enriching the urban environment [6].

The answers to the research questions, through field experimentation and the activation of case studies, led to the definition of a methodological proposal. This proposal outlines the operational steps necessary to structure a collaborative urban regeneration process, supported by an evaluative framework characterized by reflexivity, adaptability, evolvability, and transformability.

The co-evaluation process aims to sustain a collaborative decision-making process that, step by step, operationally supports the choices that need to be made for the implementation of interventions [90–92].

Reflexivity within the evaluative framework entails a significant commitment to learning from experience. Reflexive evaluation involves the continuous transformation of

acquired knowledge, adapting evaluative practices and approaches to guide and support the decision-making process. This dynamic process ensures that stakeholders critically examine their assumptions and actions, fostering a deeper understanding of the impact of interventions.

Adaptability within the evaluative framework enables it to effectively address evolving conditions and emerging contexts. This flexibility allows the evaluation process to be modified in response to new information, changes in stakeholder needs, or unexpected challenges, ensuring that it remains pertinent and efficient over time. By incorporating adaptability, the framework supports iterative refinement, enhancing the ability to achieve the goals of urban regeneration, particularly as the program progresses and becomes more complex.

Evolvability refers to the framework's ability to integrate new insights and innovations, thereby perpetually enhancing the evaluative process. This characteristic ensures that the framework remains dynamic and responsive, adapting to emerging trends, technologies, and methodologies. As a result, it maintains its effectiveness and relevance across various contexts, continually refining its approach to meet evolving needs and challenges.

Transformability involves not just incremental enhancements but also driving substantial changes within the community and urban environment, especially as the project advances. It fosters a profound rethinking of urban regeneration strategies and their implementation. Within this framework, activities such as data collection, indicator development, and monitoring are pivotal; they act as catalysts for decision-making and actively engage communities in the evaluative process. These elements are far from mere technicalities; they are essential parts of a reflexive, adaptable, and evolving framework that ensures that evaluation leads to actionable insights and supports ongoing progress and improvement.

The strategic dimension is fundamental to achieving the objectives of evaluation and "capability building" for the stakeholders involved, enabling critical and reflective communities. The reflective approach identifies problems and, through active research, proposes solutions, requiring a design commitment that brings the evaluator into a new "maker" dimension. This dimension emphasizes the evaluator's role in co-creating solutions with stakeholders, fostering a sense of ownership and shared responsibility.

Flexibility and adaptability are essential characteristics of the evaluative process, allowing techniques and approaches to be tailored to the specificities of the context and the involved communities. This continuous, dynamic, and iterative process promotes understanding and orienting future actions, ensuring that the evaluative framework can respond to and shape the evolving needs of the urban regeneration process.

However, some critical issues emerge. The stakeholders must overcome roles and prejudices to achieve shared goals, integrating research with action and transcending disciplinary boundaries. The transformative dimension requires lean and participatory analytical tools, while the cyclicality and flexibility of the evaluative process require resources and acceptance of uncertainty. Addressing these challenges is crucial for the success of the evaluative framework and the overall urban regeneration strategy.

In conclusion, the new evaluative era in urban regeneration requires redefining the role of evaluation and the evaluator as reflective and operational professionals. The evaluator must follow the process in the field, adapt techniques and tools, manage concrete challenges, and transform considerations into immediate responses, ensuring that the process adapts to changing needs. Evaluation, seen as a tool for capability building and accountability, promotes the implementation and institutionalization of regeneration processes, transforming the evaluative experience into a shared reflection and transformation journey.

Evaluation, when viewed as a tool for enhancing capacity and fostering accountability, facilitates the implementation and institutionalization of regeneration initiatives, turning the evaluative process into a collaborative journey of reflection and change. While adaptive management is a well-established concept, this study distinguishes itself by incorporating a multifaceted approach that integrates reflexivity, adaptability, evolvability, and transformability within the evaluation framework. This approach, bolstered by tools such as

Geographic Information Systems (GIS) and multicriteria analysis (MCA), offers a nuanced and dynamic strategy that extends beyond traditional methods [90]. This approach ensures that the evaluation framework is responsive, evolving, and capable of delivering meaningful, sustainable, and integrated outcomes.

The research emphasizes continuous stakeholder engagement, phased implementation, and the use of GISs and MCA to develop a flexible and responsive evaluation framework. This methodology not only adapts to evolving needs but also grows with ongoing feedback, making it more effective than conventional approaches.

Although the process involves a thorough evaluation, it ultimately simplifies decision-making by reducing uncertainties and focusing on well-informed interventions. This approach directs investments toward projects with the greatest public value, thereby enhancing overall efficiency. This research does not solely prioritize financial expenditures but aims to align investment decisions with broader, multidimensional urban regeneration goals.

The evaluation framework promotes genuine sustainability by assessing projects holistically, considering their long-term social, economic, and environmental impacts. Advanced tools and the active, voluntary participation of the community in continuous co-creation and co-evaluation ensure that sustainability is embedded in every phase of the evaluation process [93].

In conclusion, this research redefines the role of evaluation in urban regeneration by advocating for a dynamic, participatory, and adaptive approach. It ensures that regeneration strategies are not only effective and sustainable but also inclusive and capable of delivering lasting benefits to urban communities [94,95].

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Institutional Review Board Statement: Ethical review and approval were waived for this study, as the in-depth interviews, focus groups, and online survey aimed to gather general information about the connections between cultural heritage spaces and citizens without collecting any sensitive personal information. Consequently, there was no risk to participants, and no personal data were collected or analyzed.

Informed Consent Statement: Informed consent was obtained from all subjects involved in this study.

Data Availability Statement: All the figures contained in the document are the author's personal elaborations and therefore do not have any copyright issues. Additionally, in line with MDPI's Research Data Policies, the authors will make the data and all research-related materials available upon request to interested researchers.

Conflicts of Interest: The author declares no conflicts of interest.

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