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How to Assess Urban Regeneration Proposals by Considering Conflicting Values

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Abstract: Urban regeneration has to be based on rigorous methodological frameworks able to find a balance among preservation instances, economic development, urban quality and the well-being of the population. Considering these premises, this research is focused on the definition of the decision-aiding process for the reuse of an abandoned health care facility with several historic buildings. Both public and private interests have been taken into consideration, since they play an important role for the urban regeneration project and for the definition of urban regeneration policies. Given the complexity of this issue, the evaluation process has been structured by combining different methodologies to support the policy cycle: Stakeholder Analysis, to identify the actors engaged (Social sustainability); Nara Grid for the values elicitation of the Built Cultural Heritage (Cultural and environmental sustainability); and the subsequent definition of different sustainable scenarios evaluated by the Discounted Cash Flow Analysis (Economic sustainability). Four alternatives have been assessed with the support of a Multi-Criteria Analysis (MCA) aimed at defining the most balanced one considering heritage significance retention and urban regeneration. This work contributes to the literature on soft OR by exploring interactions among different stakeholders and addresses policy instances by providing a transparent methodology based on value elicitation.

Keywords: territorial health center; urban regeneration; Multi-Criteria Analysis; built cultural heritage; values

1. Introduction

The complexity present in decision problems is given by the coexistence of sometimes conflicting values elicited by stakeholders involved in the process [1]. To overcome and facilitate complex and uncertain situations, Problem Structuring Methods (PSMs) are widely used by soft OR scholars [2] in order to support the interaction among stakeholders [3] in managing ill-structured problems [4,5].

When the problem has to face an urban regeneration processes, the complexity is the result of the contribution of different dimensions and layers embedded, such as urban, cultural, social and economic [6]. Moreover, these urban interventions not only have interdependent actors with individual and common goals, but they are also the result of public and private interest and internal political dynamics [7]. What deserves to be further analyzed in this context concerns the externalities generated by these processes from which the community can benefit and that can have positive effects by improving the general well-being of the area, also considering the economic side [6]. In fact, as has been suggested by [8], problems concerning architecture choices are characterized by direct consequences on both the territory and the society. In addition, when the urban regeneration process is placed in a context characterized by cultural heritage, the complexity is the result of tangible and intangible

values that deserve to be preserved and maximized [9]. The role and power of cultural policy and cultural heritage in promoting and driving urban regeneration programs [10–13] by the recognition of strategies able to integrate both conservation and innovation has been widely discussed. According to [11], the key to a sustainable and successful process is given both from a balance between public and private parties and from the reconciliation between tradition and innovation. In detail, [13] recognized the presence of four different approaches aimed at enhancing cultural heritage that are able to support city regeneration:

1. policy to develop high-profile projects: aimed at attracting private investment and to redesign the image of the city;
2. policy to promote cultural policymaking: aimed at promoting bottom-up revitalization processes;
3. policy for cultural industries: aimed at exploiting arts and artists to design and promote cultural quarters with a high concentration of cultural and entertainment facilities;
4. policy for urban heritage: aimed at fostering the potentialities of historical resources by developing tourism activities and conserving the sense of place.

This complexity and the presence of conflicting preferences makes decision support methods structured to collect information by the stakeholders involved necessary, in order to better shape the problem [8]. The objective of the current contribution is to present the results of a case study based on the regeneration of a disused area in the Municipality of Vimercate (MB), Italy, where several dimensions have been taken into consideration. In detail, the paper aims at developing an evaluation process structured by combining different methodologies in order to support the Decision Maker (DM) in taking complex decisions when conflicting values are involved. Values engaged in the process consider both tangible (Functional and Economic Sustainability) and intangible aspects (Environmental and Socio-Cultural Sustainability). Another aspect considered in the research has been the investigation of the most suitable location for the new territorial health center within the areas of the "former hospital of Vimercate" to promote its urban development; indeed, the site hosts an abandoned health care facility and historic buildings. In fact, in this context, it is important to explore not only how the design of the project can achieve the objective of the work but also how different combinations of functions can better exploit the potentialities of the area. Complementarity and compatibility are two key concepts analyzed in order to develop a conscious *mixitè* by boosting both the attractiveness of investment, considering the economic dimension, and limiting the presence of incompatible uses to protect sensitive users, considering the social dimension. Here, private and public interests play a strategic role in the definition of its regeneration process and, as has already been stressed by [8], these kind of interventions are able to shape both the society and the territory, which implies that the decisions should be transparent and justified in order to be communicated to the citizens involved.

This paper is organized into five sections. The first part presents the theoretical background of the methodological framework proposed by explaining its main phases; the case study aims at illustrating the area where the project has to be developed; in the third section, the methods are explained and then, in the fourth section, the results are presented and discussed. In the last section, the policy implications and potentialities of the approach proposed are further explained and validated.

2. Methodological Approach

The evaluation framework proposed combines different methodologies in order to include several aspects in the analysis and with the aim to consider the multi-dimensional characteristics of the problem. In detail, as has been represented in Figure 1, the approach is structured according to three phases: i) intelligence, ii) design and iii) decision [14]. In the i) intelligence phase, the state of the art is analyzed by considering the actors involved, the current situation of the BCH and by investigating real case studies. In the ii) design phase, a set of alternatives is proposed as the result of the previous analysis, and to conclude, in the iii) decision phase, alternatives are evaluated.

In detail, considering the first phase, it is important to highlight how the Stakeholders Analysis allows understanding and prioritizing actors engaged in the process; in fact, by performing the power/interest matrix, it has been possible to clarify which actors deserve to be mostly satisfied since they have a direct relation with the project [15]. Once identified, the categories of actors with a key role in the decision problem, their needs and expectations have been elicited [16]; this phase is strategic in order to design alternatives in the second phase that are able to represent and meet their demands. This step has been combined with the Nara Grid, aimed at defining artistic, historic, social, scientific/cultural and economic values expressed by the built cultural heritage (BCH) [17], and able to identify most compatible uses for each building considering its typology. The last method of the intelligence phase implies a comparative analysis of case studies, where existing territorial health centers have been deeply investigated in order to fully comprehend their functional aspects, both intrinsic and extrinsic.

The output of the first phase, becomes the object of investigation of the second one. In fact, the three analyses previously described, combined together, resulted in the design of a set of alternatives aimed at regenerating the area under analysis by considering all the aspects elicited in the introduction. The alternatives considered have been obtained by the interaction with the actors involved, compliance with the regulations and the limits given by the conservation and use of historical buildings and their level of authenticity.

The last phase concerned the evaluation of alternatives generated. It has been carried on, first of all, under an economic point of view, performing a Discounted Cash Flow (DCF) analysis and afterwards under a multi-dimensional point of view, with the support of the Multi-Criteria Analysis (MCA). In detail, a value tree divided into criteria and sub-criteria has been developed in order to assess which one, among the set of alternatives, was the most satisfying by considering the following dimensions: 1. Functional Sustainability; 2. Socio-Cultural Sustainability; 3. Environmental Sustainability; 4. Economic Sustainability. Moreover, a Sensitivity Analysis has been performed in order to validate the results obtained. The methodological flowchart described is a first attempt to combine multi-disciplinary methodologies belonging to different fields of research with the aim to not disregard any important dimensions.

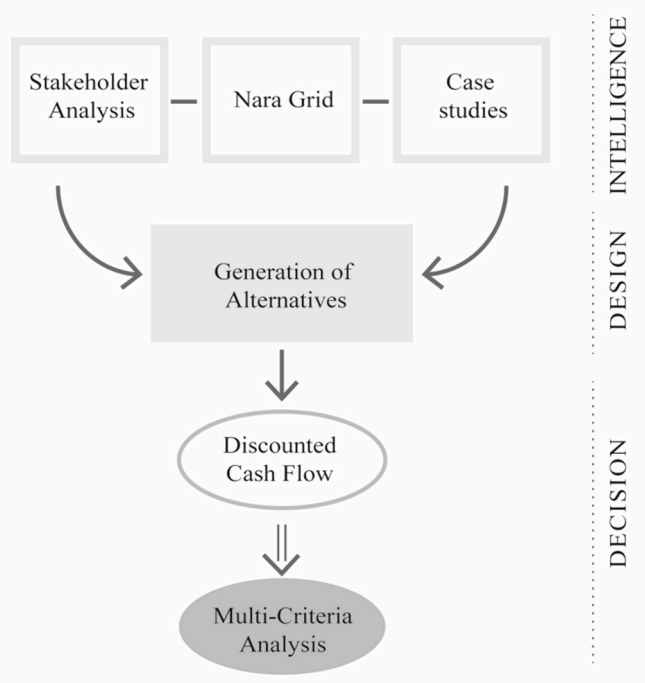

Figure 1. Methodological flowchart.

3. Case Study

Given the aim of the research to define the most suitable location, inside the site of the "former hospital of Vimercate", for a new territorial health center by considering the urban regeneration, the BCH and the economic attractiveness of the development, it is necessary to understand the context of where the area is located. In fact, the site analyzed in the context of this paper, and a priori identified by the Municipality to host this intervention, is located in the city of Vimercate (MB), in the Lombardy region, 25 km far from Milan, Italy (Figure 2).

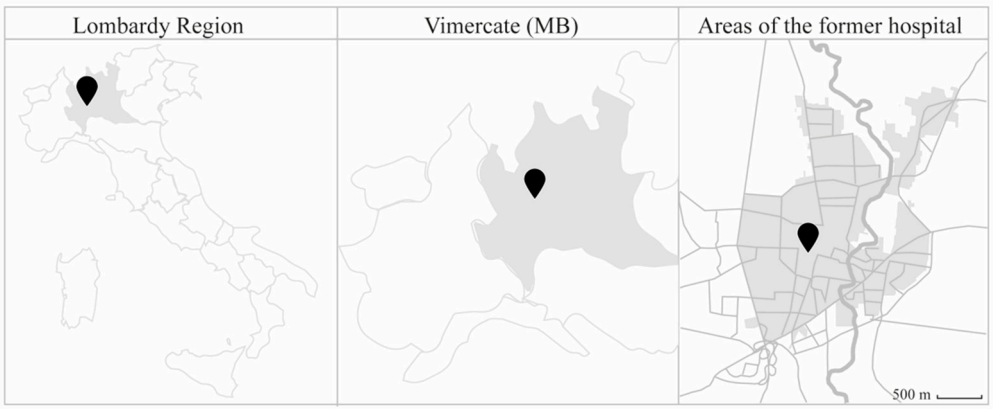

Figure 2. Location of the area.

The area of the "former hospital" consists of two parts: in the first, there is a large building called a mono block, some service buildings and three small villas; in the second, there are some historic buildings and a church. Currently it emerges that only two buildings are used, and they host a psycho-social center and the house of the chaplain.

The analysis detected its central position with respect to the municipal territory and its importance as part of the historical fabric of the city.

The analysis of the context allowed to focus in detail on:

- investigating the accessibility and identifying existing services;
- exploring the historical stratification of the area and of its buildings.

For what concerns the first focus, the area is accessible, by both private and public transport, and it is also well served by main services, e.g., schools, post offices, supermarkets, restaurants, while it is not very close to green areas and public offices.

The second focus underlined its high historical value since it is in proximity to the ancient core of the city; in fact, there are buildings characterizing the ancient nucleus of the town that are of medieval origin, which also determines the perception of continuity with the historic center.

4. Multi-Dimensional Evaluation

In this section, the methodological approach previously presented is applied to the case study. In detail, it is organized by following the structure proposed by [14] concerning the division of a decision problem in three main stages.

4.1. Intelligence Phase

This part considers a deep analysis of the state of the art, which means understanding the actors involved, the current state of the area and the existing case studies.

4.1.1. Stakeholder Analysis

It is important to underline that the area is part of a broader Urban Development Agreement (UDA) signed between the Lombardy Region, the Hospital of Vimercate—the current owner of the area—and the Municipality. Moreover, several developers can be identified as interested in investing in its regeneration and others can also be considered since they are affected by the impact of the project. It is possible to mention people living nearby the site, the entire population of the Municipality of Vimercate, local traders and the University Politecnico di Milano, the support of which has been requested by the Municipal Administration in order to conduct research about the proposal of an urban regeneration model. In Figure 3, the matrix of power/interest [15] is presented, considering different roles played by the stakeholders previously identified and their interest in this intervention.

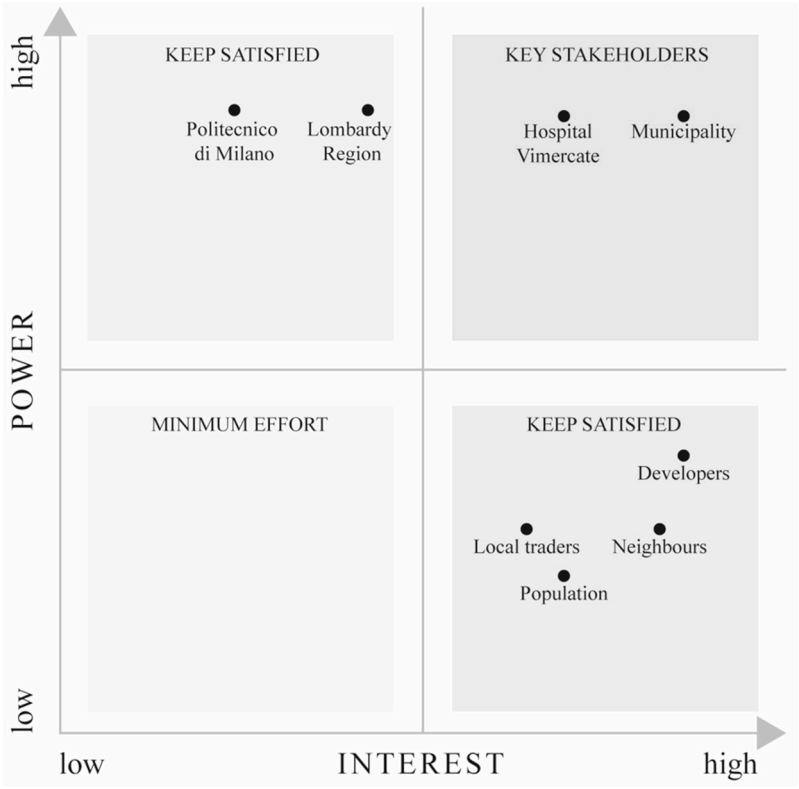

Figure 3. The matrix of power/interest developed.

The position of different stakeholders is in relation to the case study analyzed and depends on the different consultations organized. Since the Municipality is in charge of the final decision and the Hospital of Vimercate is the owner of the area, they have been identified as key stakeholders. Furthermore, since in Italy decisions about health management are taken by regions, the Lombardy Region holds much power, but its interest lays in its bureaucratic role. Politecnico di Milano has a relevant role since it is in charge of developing a feasibility study and evaluating different scenarios; its decision can strongly affect the key stakeholders, but it does not have a specific interest on this case study, while developers, local traders, neighbors and the population of the Municipality of Vimercate have a strong interest in this specific project since it is going to affect their daily life, but they have lower power in influencing the final decision. The position of developers is higher compared to the other "keep satisfied" actors, for what concerns the power since they manage economic resources [15].

4.1.2. Nara Grid

To define the threshold of transformability and compatibility with a range of uses and functions suitable for urban regeneration, an analytic approach has been implemented based on a broader understanding of the cultural values to be protected and the related strategies.

The Nara Grid has been developed based on the Nara Documents on Authenticity [18] to support in evaluating the multi-layered concept of authenticity [19,20]. This methodology has been implemented in order to identify the systemic relations of the area with the building fabric. In detail, for each historic building located inside the site under evaluation, a qualitative table has been developed aimed to define their performance against the artistic, historic, social, scientific/cultural and economic values. To fulfil the description, a detailed survey and investigation of the historic buildings was also required, leading to recognition of some of the buildings and the relics of the medieval hospital—that is a value definitely worth protecting and taking into account in the urban policies.

The analysis enabled the highlighting of the potential of the BCH in order to inspire functions, which could be more feasible in the regeneration process, because of the easy match of the functional requirements with the actual performances offered by historic buildings. Thus, among the selected scenarios, it has been possible to design alternatives oriented to consider profitable facilities with limited transformation required in order to minimize the cost, while enhancing the conservation of the authentic historical structures.

4.1.3. Case Studies

Ten territorial health centers in the national context and seven in the European context have been analyzed in order to underline best practices and to elicit intrinsic and extrinsic characteristics to consider [21]. The sample has been selected by considering the year of the projects—in fact the most recent ones have been chosen—and those placed in a territorial context comparable to the Municipality of Vimercate. In detail, the investigation allowed us to elicit important criteria able to support the design phase, both regarding the location and the outdoor spaces, e.g., accessibility, proximity to residential areas, proximity to green areas, flexibility, etc., and regarding the indoor spaces, e.g., harmonization with context, accesses, architectural barriers, flexibility of the structure, natural light, etc. This part allowed us to understand how territorial health centers should be designed and in which context they can be located. In fact, this analysis gave us the possibility to develop a comparative table where both intrinsic and extrinsic characteristics have been evaluated to assess trends and best practices and specifically pros and cons, with the aim to frame notions to guide the design and the location phase.

4.2. Design Phase

The previous phase supported the generation of different alternatives [22,23]. They have been agreed with the Municipality and with the parties involved in the enhancement of the area; in particular, they have been designed with the possibility of recovering and using the buildings that housed the former hospital or with the possibility of creating a new building to accommodate the new territorial health centers.

Alternatives have been generated by eliciting the needs and expectations of stakeholders engaged in the decision problem, trying to satisfy the main important ones identified through the matrix of power/interest, by the transformability threshold detected for each building according to the function to allocate and by the criteria to consider during the design phase, resulting from the investigation of existing case studies.

In detail, four alternatives, in addition to the business as usual scenario, have been generated:

- Scenario_0: Existing situation;
- Scenario_1: Masterplan proposed by the UDA, territorial health centers located on the ground and first floors of the former hospital building;

- Scenario_2: Territorial health centers located on the first and second floors of the former hospital building;
- Scenario_3: Territorial health centers located in a new building close to the villas in C. Battisti street;
- Scenario_4: Territorial health centers located in a new building close to the entrance of Ospedale street.

In Figure 4, it is moreover possible to understand other functions characterizing each scenario and, selected together with the Municipality, in order to regenerate the whole area.

Figure 4. Masterplan of scenarios defined.

4.3. Decision Phase

The first phase of the evaluation of the alternatives developed considered the economic dimension, while the second one multi-dimensional aspects.

4.3.1. Discounted Cash Flow Analysis (DCF)

A DCF analysis has been performed by considering the value generated by each intervention. It has to be specified that the analysis has been carried out on a desktop in a parametric form and could be further explored by better defining the functions, also in relation to the indications of the Administrations involved. The results will be also presented in Table 2, but it is possible to highlight that Scenario 2 and 3 performed with a higher value given by their functional mix, followed by Scenario 1 and Scenario 0. Since the area is actually abandoned, it does not generate value.

4.3.2. Multi-Criteria Analysis

Considering the coexistence of different objectives, which have been elicited by the needs and expectations of the actors involved, and by considering values expressed by the BCH, it has been decided to perform an MCA in order to take into consideration this complexity [24]. The decision problem has been structured into four criteria, further divided into sub-criteria. The framework has been developed by both taking into account the final objective of selecting the most sustainable project and combining phases developed during the intelligence phase.

Table 1 presents the value tree defined and there is also information about the nature of the sub-criteria selected.

Table 1. Value tree.

Criteria	Sub-criteria	Nature
1. Functional Sustainability	1.1 Flexibility	qualitative
	1.2 Usability/Accessibility	qualitative
	1.3 Buffer and common space	qualitative
	1.4 Transformability index	qualitative
2. Socio-Cultural Sustainability	2.1 Functional mix	qualitative
	2.2 Social Attractiveness	qualitative
	2.3 Aggregation spaces	qualitative
3. Environmental Sustainability	3.1 Harmonization with the context	qualitative
	3.2 Energetic quality	qualitative
	3.3 Consistency with constraints	qualitative
4. Economic Sustainability	4.1 Construction cost	quantitative
	4.2 Maintenance cost	qualitative
	4.3 Profitability of the intervention	quantitative

Each criterion has been defined regarding the purpose to achieve in order to be satisfied, while for each sub-criterion, a three-part evaluation sheet has been prepared and divided into:

- objective: to describe what has to be pursued;
- score: to explain how the sub-criterion is measured;
- evaluation of alternatives: a score is assigned to each scenario by considering the description previously provided.

In detail, 1. Functional Sustainability specifically takes into account the characteristics of the structure that will host the territorial health center; in fact, 1.1 Flexibility analyses the ability of the structure to modify its configuration over time according to the needs, therefore the availability of outdoor spaces for future expansions; 1.2 Usability/Accessibility evaluates the easy access to the building by all users, with particular reference to people with disabilities; 1.3 Buffer and common spaces considers the presence of an area in front of the building that allows to facilitate the passage between its interior and exterior area; 1.4 Transformability index is the ability of the structure to modify its internal configuration over time as needed. Then, 2. Socio-cultural Sustainability investigates the functional program of different scenarios; 2.1 Functional mix promotes the coexistence of several functions; 2.2 Social attractiveness is aimed at involving all age groups of the population through the creation of specific functions; 2.3 Aggregation spaces focuses on the creation of open spaces designed to facilitate interaction and living in the open air. Then, 3. Environmental Sustainability considers the external and internal spaces of the territorial health center, with a focus on the design solutions envisaged; 3.1 Harmonization with the context aims at minimizing the interference of

the new project with the context; 3.2 Energetic quality evaluates the orientation of the building, the predisposition to accommodate photovoltaic panels and the ratio between the surface and the volume; 3.3 Consistency with constraints takes into consideration the regulations in place in the area. The last criterion, 4. Economic Sustainability, measures the feasibility of the intervention; in fact, 4.1 Construction cost assesses the ex-novo works, the recovery works and the services that will be set up there; 4.2 Maintenance cost considers in a qualitative way the costs for the maintenance of the intervention; 4.3 Profitability of the intervention evaluates the market value generated by different projects.

Given this framework, the alternatives previously generated have been measured and their performances are presented in Table 2 where it is possible to visualize, moreover, the U.M. selected and if the performance has to be maximized (benefit) or minimized (cost).

Table 2. Performance matrix.

Criteria	Sub-criteria	U.M.	Cost/ Benefit	Scen_0	Scen_1	Scen_1	Scen_3	Scen_4
1. Functional Sustainability	1.1 Flexibility	+/−	B	−	0	0	+	0
	1.2 Usability/Accessibility	+/−	B	−	0	−	+	−
	1.3 Buffer and common space	+/−	B	−	0	0	+	0
	1.4 Transformability index	+/−	B	−	0	0	+	+
2. Socio-cultural Sustainability	2.1 Functional mix	+/−	B	−	0	+	+	+
	2.2 Social Attractiveness	+/−	B	−	0	+	+	+
	2.3 Aggregation spaces	+/−	B	−	+	+	+	+
3. Environmental Sustainability	3.1 Harmonization with the context	+/−	B	0	−	+	+	+
	3.2 Energetic quality	+/−	B	−	0	0	0	0
	3.3 Consistency with constraints	+/−	B	+	−	0	0	0
4. Economic Sustainability	4.1 Construction cost	€/sqm	C	0.00	1,905.00	1,965.00	2,011.00	2,011.00
	4.2 Maintenance cost	+/−	B	−	−	−	0	0
	4.3 Profitability of the intervention	€	B	0.00	4,200,000	8,741,156	10,200,000	10,200,000

Notes: + = high; 0 = medium; − = low.

Given the qualitative and quantitative nature of the different sub-criteria and, consequently, the lack of homogeneity of the units of measurement and of the scoring scales, the performances have been standardized with the aim of using the same a-dimensional scale between 0 and 1 for all the values. Consequently, each sub-criterion has been evaluated by means of a specific performance scale appropriate to the object of the evaluation and then standardized in a range from 0 (the worst performance) to 1 (the best performance) in order to be compared synergistically in the final evaluation of the alternatives. The value functions have been discussed with experts with specific knowledge about the procedure to develop during a focus group and it has been decided to use the maximum standardization that means:

$$stadardized\ score = \frac{score}{highest\ score} \quad (1)$$

if the value has to be maximized (benefit), while:

$$stadardized\ score = -\frac{score}{highest\ score} + 1 \quad (2)$$

if the value has to be minimized (cost) [25].

The Multi-Criteria Analysis has been carried out with the support of the DEFINITE software (decisions on a finite set of alternatives) [26]. Once the problem has been structured, alternatives measured according to the value tree defined and performances standardized, the next phase, involved in the procedure selected concerns criteria weights elicitation. In order to assign weights to the

defined criteria and sub-criteria, one round of questionnaires has been administered to a selected group of experts. In detail, for the criteria, a group of eight experts have been selected, who answered individually to the questionnaire, while for the sub-criteria, only one expert answered for each macro area. The choice of experts has been based on their previous experiences on the proposed topic. The method applied for the weights elicitation has been the point allocation [27]; in fact, the experts have been asked to allocate 100 points among the criteria or sub-criteria proposed, assigning a higher number of points to criteria or sub-criteria with a higher importance. The results of the interaction have been then aggregated in order to obtain a unique weighing (Table 3).

Table 3. Weights assigned by experts.

Criteria	Weights_1	Sub-criteria	Weights_2
1. Functional Sustainability	32%	1.1 Flexibility	18%
		1.2 Usability/ Accessibility	5%
		1.3 Buffer and common space	56%
		1.4 Transformability index	21%
2. Socio-cultural Sustainability	15%	2.1 Functional mix	32%
		2.2 Social Attractiveness	46%
		2.3 Aggregation spaces	22%
3. Environmental Sustainability	14%	3.1 Harmonization with the context	20%
		3.2 Energetic quality	60%
		3.3 Consistency with constraints	20%
4. Economic Sustainability	39%	4.1 Construction cost	10%
		4.2 Maintenance cost	26%
		4.3 Profitability of the intervention	64%

In order to solve the problem, the Multi Attribute Value Theory (MAVT) [28] has been applied. The method allows to handle both qualitative and quantitative data by analyzing a finite set of alternatives [29]. Since there were no specific thresholds to respect, it has been chosen to aggregate standardized scores and weights by the use of an additive method as the MAVT—this means a bad performance is compensated by a good one.

5. Results

Figure 5 shows both the partial results obtained for each criterion and the overall results. The ranking is the result of the weighted sum of the scores of each alternative multiplied by the influence assigned by the experts to criteria and sub-criteria. According to the defined decision framework, the most suitable alternative is Scenario_3, followed by Scenario_4, Scenario_2, Scenario_1 and Scenario_0.

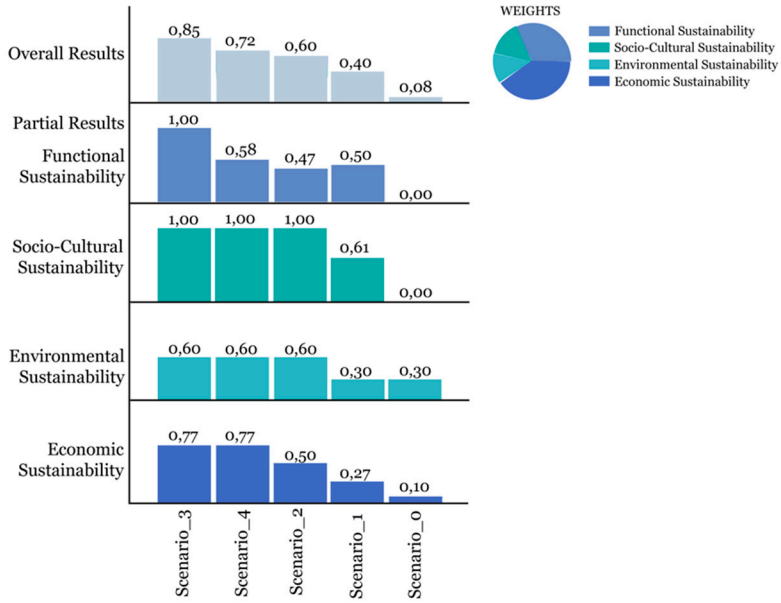

Figure 5. Partial and Overall results.

By reading the results, it is possible to highlight some considerations:

- Scenario_3 had an overall score of 85%. The criteria Functional Sustainability and Socio-Cultural Sustainability obtained the maximum score, 100%. Environmental Sustainability obtained a score of 60%, as with Scenario_4 and Scenario_2. Economic Sustainability maintained a priority position with respect to the other scenarios (77%), together with Scenario_4. From this picture, a propensity to select this alternative emerges as the most suitable for the urban regeneration of the area and for the location of the territorial health center; in particular, this tendency has been underlined by the partial scores and in particular under the Functional Sustainability point of view.
- Scenario_4 obtained an overall score of 72%, while Functional Sustainability obtained a score of 58%; 100% for Socio-Cultural Sustainability; 60% for Environmental Sustainability and 77% for Economic Sustainability. From this picture, a propensity of this hypothesis to a greater Socio-Cultural Sustainability emerges, placing criticalities on Functional Sustainability.
- Scenario_2 obtained an overall score of 60% for Socio-Cultural Sustainability and Environmental Sustainability obtained a good evaluation, as with Scenario_3 and Scenario_4, whereas Functional Sustainability obtained a lower score (47%). From this picture, functional criticality for what concerns its suitability in locating the territorial health center at the first and second floors of the former hospital building emerges.
- Scenario_1 obtained an overall score of 40%, while Functional Sustainability obtained a score of 50%; 61% for Socio-Cultural Sustainability; 30% for Environmental Sustainability and 27% for Economic Sustainability. From this picture, criticalities for all the criteria involved in the analysis emerges.
- Scenario_0 obtained the lowest score in all the criteria involved and can be disregarded from the evaluation.

This result is also confirmed by performing a sensitivity analysis. In fact, Figure 6 shows the results obtained by changing the weights assigned to the four criteria, and four different perspectives are illustrated by the "What if" Scenario.

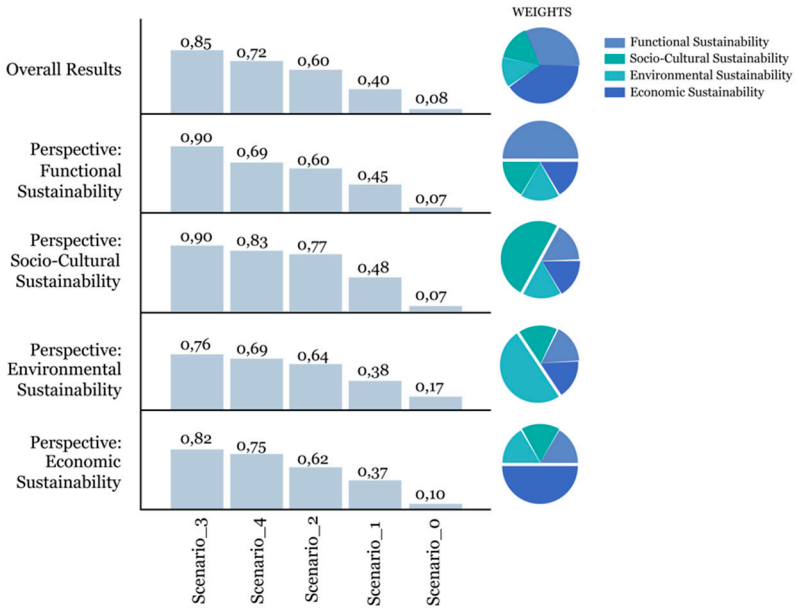

Figure 6. "What if" Scenario

Despite changes in the influence assigned, the rank obtained is stable and robust; in fact, the alternatives maintain the same position. Given the complexity and multi-dimensionality of the decision-making framework, it is important to verify the sensitivity of the result to possible changes.

The sensitivity analysis is a fundamental step in the MCA that is able to improve the quality of the decision and it is a powerful tool when embedded in all the phases of a decision-making process, assigning a higher accuracy to the evaluation [30,31]. In fact, rankings are often conditional, given the uncertainty of data, criteria and also weights, since DMs are not always aware about their preferences. In particular, when multiple stakeholders are involved, it is difficult to select the best procedure to aggregate their weights and to elicit them [32,33]. The role of the sensitivity analysis is strategic in this context for the validation of the output and to reduce the uncertainty.

According to the results obtained, further confirmed by the sensitivity analysis, and trying to provide an answer to the research question stated in the introduction, it is possible to underline the following remarks:

- it is suggested the location of the health functions in new buildings given by the flexibility of its internal spaces and the possibility to provide and design external areas both to be accessed by users and in case of future expansions;
- the location of health functions in a protected area promotes both the privacy of the patients and the compatibility of different functions. In fact, given the high *mixitè* provided by different alternatives, it is fundamental to understand how they can be combined to preserve the well-being of people and the livability of the neighborhood;
- the complementarity of functions identified and the analysis of their compatibility in the Scenario_3, increase the attractiveness of the area and, moreover, its value.

6. Conclusions

The methodology proposed aimed at supporting the DM in the selection of the most suitable scenario for an urban regeneration that involves the location of a territorial health center and the enhancement of the BCH. One of the main focuses of the contribution has been to present a multi-methodological approach and to explain each phase by illustrating how it has been developed. In fact, when multiple stakeholders are involved, multiple and sometimes conflicting values and expectations are at stake and it is fundamental to understand which are the most urgent to satisfy.

At the same time, when the process of regeneration embeds tangible cultural values and intangible values, the support of a robust method able to elicit them and to recognize which have to be maximized or implemented and which are the most critical becomes strategic. In fact, both the approaches stated in the intelligence phase, together with the analysis of existing case studies, are functional to the generation of alternatives. These are the results of a strict cooperation with the actors involved and of a strict comprehension of values carried on by the BCH. Moreover, the combination of the DCF Analysis with the MCA for the evaluation of alternatives, given their transparency and robust methods, supports the DM in understanding the feasibility of the projects with their strengths and weaknesses. The final decision is, moreover, enhanced by the sensitivity analysis able to validate the results obtained.

The methodology and the approach proposed, if applied appropriately, could moreover facilitate the interaction and the satisfaction of both public and private parties and improve the policy-making process. In fact, since it is supported by evidence, it could lead to the concept of Evidence-Based Policy Making, where the consensus about policies is obtained through evidences [34]. Following this idea and by the active participation of many different actors, the DM is even more justified in taking a final decision. The policy implication becomes fundamental considering the context of application described in this paper since the location of a territorial health center is also evaluated. This public service is aimed at serving the population and, in the current scenario of increasing urbanization, health facilities play an important role as urban elements that can trigger and stimulate benefits throughout the territory [35]. Their location can also strongly affect the success of the whole project and may have negative impacts in several respects, such as patient well-being and the service's efficiency [36].

The methodology is able to consider all the aspects recognized as urgent to investigate and could facilitate the whole decision process, contributing to the literature on soft OR and covering all the four different approaches aimed at enhancing the cultural heritage and able to support city regeneration described in the introduction. Moreover, this first attempt could be investigated and different MCA approaches can be explored in order to better understand which is the most suitable one in this context. For example, if the DM has a deeper knowledge of the project and owns more information, it could be possible to test the aggregation by defining thresholds of acceptability (partially compensatory or non-compensatory methods) or by applying other additive models. In addition, the topic regarding the possible uses of historical buildings could be facilitated by exploring the methodology proposed by [37].

Given these conclusions, it is possible to perceive the flexibility of the methodology proposed and the iterative nature of the process. In fact, according to the case study, to the context of application and to the stakeholders involved and their values, a different path can be processed considering the general framework previously shaped.

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