A Co-governance Process for the Adaptive Reuse of Cultural Heritage: The Experience of St. Michael Cloister in Anacapri

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Abstract. The paper presents an action research process focused on exploring the potential of a hybrid evaluation methodology for urban, social, and cultural regeneration projects involving cultural heritage. Implemented in Anacapri, Italy, the In.Kiostro decision-making process suggests a proposal for the adaptive reuse of the former of St Michael Cloister, an under-utilised cultural asset. The methodological approach, articulated in five phases, integrates the Quintuple Helix co-governance model and the Social Multi-Criteria Evaluation (SMCE) approach, developing an inclusive co-design platform. The co-governance model, rooted in the collaborative city concept, emphasises multi-level integration to engage a diverse group of stakeholders representing community interests and to recognise established values to enhance cultural heritage and promote a heritage community. The proposed methodology facilitates an interactive decision-making process through multi-criteria and multi-group analysis to identify preferred alternative scenarios and manage local conflicts, generating new complex values.

Keywords: Heritage community · Adaptive reuse · Integrated evaluation · Quintuple Helix · SOCRATES method

1 Introduction

In reflecting on the future of our cities and their transformative strategies, it is crucial to explore how to design them according to a methodological approach capable of capturing and interpreting the complex economic and non-economic values of the context in which we operate. This complexity can be explored by understanding and monitoring the social, environmental, and economic impacts [1] of project proposals by implementing

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appropriate decision-making strategies based on integrated evaluation. The development of collective choices is based on the knowledge of the multidimensional values that characterise a context, identifying possible project alternatives while considering both the potential impacts and the conflicts that need to be managed, integrating the Sustainable Development Goals (SDGs) [2] and adopting a place-based approach that focuses on active community involvement.

In general, Europe is moving towards models of inclusion and sustainability that emphasize citizen well-being [3, 4] and require community participation in decision-making processes. Such participation is now a consolidated, indispensable, and determining condition for the success of the design process. The community is central to its ability to inject into the decision-making process the specific knowledge and needs that are crucial for the formulation of project scenarios that are aligned with the real contexts in which they operate. Furthermore, when considering the future of the Italian urban landscape, it is essential to reflect on the existing cultural heritage and, in general, the propulsive role that culture can play in the transition to sustainable socio-economic models. Many international contributions are supporting this thesis [5, 6].

The reactivation of existing heritage through participatory design processes allows for the aggregation of new Heritage Communities [7] and facilitates the reappropriation and reassignment of values to the complex disused architectural palimpsest that permeates Italian urban landscapes. This reactivation can contribute to building a network of cultural outposts of resilience. Exploring the transformative opportunities that develop around existing heritage means looking at stakeholders, with particular attention to the third sector and, more generally, the cultural entrepreneurship sector [8], which has been a rapidly growing sector in Italy in recent years [9].

In this perspective, a specific interpretation of the social context is functional and allows us to imagine the intervention area as a productive environment in which five actor platforms collaborate in the formulation and co-definition of collective choices [10]. Through a specific interpretation of this model, it is possible to highlight the crucial role of the community and cultural promoters.

This paper explores the opportunities of integrating the Collaborative City model [10] and the Social Multi-Criteria Evaluation (SMCE) [11] approach through an adaptive, iterative, and dynamic decision-making process, developing a hybrid evaluation methodology capable of facilitating culture-led urban and social regeneration processes. The implementation of the methodology in the context of Anacapri, in Southern Italy, through the development of an adaptive reuse project for the former St. Michael's Cloister, allows us to highlight potential and critical issues and to improve the process through continuous updates and feedback.

The paper is structured as follows: Sect. 2 deepens the methodological approach (2.1) and the tools used to define a multi-value, incremental, and adaptive decision-making process (2.2); Sect. 3 describes the case study, focusing on the former St. Michael's Cloister and the results obtained; Sect. 4 presents the co-design phase in detail (4.1) and the decision-making strategy (4.2); finally, Sect. 5 describes the methodology outcomes (5.1) and the research perspectives (5.2).

2 Materials and Methods

2.1 Co-governance Models and Social Evaluation

Building and designing social, cultural, and urban innovation requires the integration of institutional, cognitive, and entrepreneurial resources [12], combining heterogeneous knowledge and multidisciplinary skills in the decision-making process. In this perspective, a relevant question concerns understanding which actor platforms should be integrated and how to develop a governance model capable of interpreting the complexity of the socio-urban context in which we operate in an inclusive way.

The Quintuple Helix innovation model [13], introduced for adding the perspective of the "natural environments of society", represents the suitable decision context able to overcome the limits of the previous helix. Indeed, the Triple Helix innovation model focuses on university-industry-government relations, emphasizing knowledge production and innovation; and the Quadruple Helix includes the Triple Helix by combining as a fourth helix the "media-based and culture-based public" and "civil society" [14], and encouraging the interaction between the knowledge society and the knowledge democracy. The Quintuple Helix stresses the necessary socio-ecological transition of society and economy, considering the natural environments of society and the economy as drivers for knowledge production and innovation, supporting the formation of a win-win strategy between ecology, knowledge, and innovation, and promoting synergies between economy, society, and democracy [14]. The Quintuple Helix approach is particularly relevant today, in a society that places the community at the centre as an essential resource for social innovation and the transition towards inclusive, innovative, and sustainable city models [4]. Indeed, the Quintuple Helix includes the socio-cultural and environmental dimensions of the decision-making problem in the formulation of collective choices, highlighting the close correlation between the dimensions and the territorial actors in the construction of collective choices [15].

The helix model's evolution allows to elaborate some considerations [16] about the possibility of imagining an alphabet of n-helices from which to draw, developing site-specific interpretative models on a *case-by-case* basis, which include the different dimensions based on the characteristics of the context. The risk of taking the model to the extreme is an impoverishment and a loss of meaning of the model itself. Nevertheless, a specific interpretation of the Quintuple Helix model, recently formulated, is very interesting, through which the city is read as a platform of urban co-governance in which the various actors collaborate for the co-formulation of decision-making scenarios and the co-management of the city [17].

The model of the *collaborative city* or "Co-city", explicitly designed to put the socio-cultural dimension at the centre, is based on the close relation between technological, institutional and economic innovation and social innovation, based on three principles: sharing, collaboration and poly-centrism [10]. A decisive role is assigned to *civil society,* which is divided into two distinct segments: *organized civil society* and the *unorganized public* [18].

Starting from the Co-City Model, which reinterprets the Quintuple Helix model, for the enhancement of cultural heritage [19], the opportunity to consider *civil society* divided into two segments was explored: the *socio-cultural ecosystem* and *active civil*

society. The first nucleus includes third-sector entities that operate specifically in the field of social and cultural innovation. The second nucleus is made up of stakeholders representing the community that is not necessarily present in an organized form, expressive of different knowledge of the territory. The two groups collaborate in the formulation of choices alongside *institutional*, *cognitive* and *entrepreneurial* resources and allow the activation of a collaborative governance model capable of integrating plural roles, interests and knowledge.

The proposed study is developed in line with the reflections of the action research [20] and presents the elaboration and implementation of a hybrid, replicable and scalable methodological approach, aimed at the enhancement of cultural heritage, interpreting the social context of reference as a co-governance platform, where five actors participate and collaborate in the co-formulation and co-evaluation of collective choices [16]. The methodology developed represents a specific interpretation and extension of the SMCE approach [11] to support the decision-making process aimed at the development of shared design choices, able to contribute to the construction of a new *heritage community* around a cultural asset that is abandoned and/or used inappropriately.

The Social Multi-Criteria Evaluation (SMCE) approach [21] allows for the structuring of a replicable methodology that facilitates the implementation of urban and social regeneration processes for the enhancement of cultural assets, contributing to the development of innovative sustainable models. Specifically, the approach makes it possible to structure an adaptive methodology which, by integrating multi-criteria and multi-group evaluations in an iterative logic, considers the qualitative and quantitative knowledge acquired and enhances the requests made by the community involved. In this way, it is possible to outline a compromise solution shared by stakeholders, able to reduce conflicts and to include different preferences.

The SMCE approach makes it possible to structure a project path between transparent and equitable, favouring the co-design of a preferable alternative, and allowing the activation of a process of collaboration and cooperation between stakeholders through multi-group evaluation. In addition, through multi-criteria evaluation, the SMCE makes it possible to assign decisive importance to specific dimensions that structure the decision-making problem, taking into account the characteristics of the context and how they may affect the decision-making process.

The integration of the Quintuple Helix model in the SMCE approach and the use of multiple tools for the analysis of stakeholders and the system of relationships that characterizes them makes it possible to improve the engagement of territorial actors, enabling the elaboration of projects that adhere to and respond to the needs of the community.

2.2 The Methodological Approach: Phases, Steps and Tools

The methodological process (Fig. 1) is articulated into five phases, which develop in an iterative, adaptive and dynamic way and which outline a co-governance model, supported by different steps and specific tools for each phase: 1) Co-exploration; 2) Identification; 3) Co-evaluation; 4) Selection; 5) Project and Testing.

As part of the elaboration of the *Co-exploration phase*, necessary for the construction of the basic knowledge of the territory, the integration between *hard* and *soft data* is

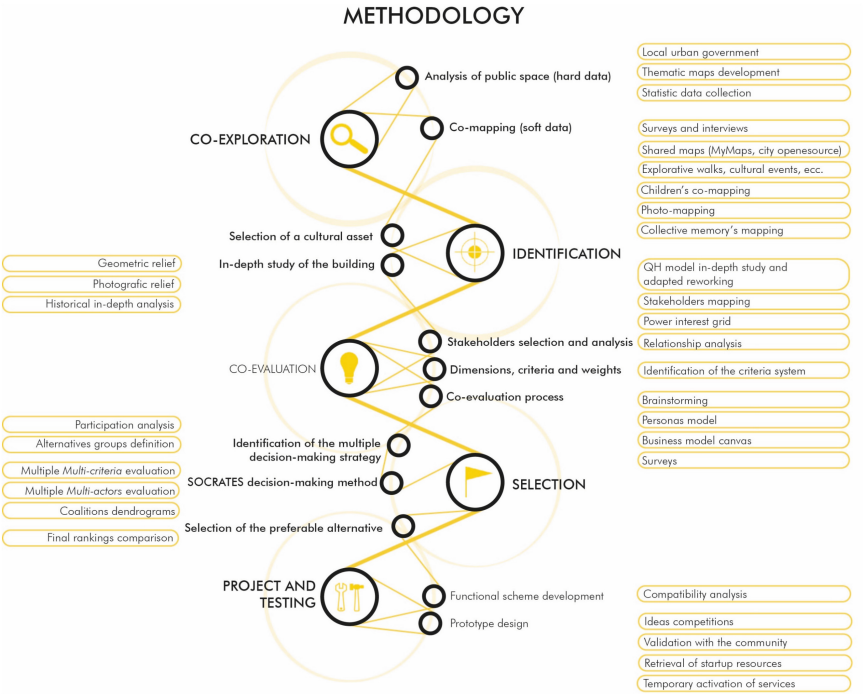

Fig. 1. The methodological process: phases, steps, tools

essential. The hard data can be systematized through the analysis of the context (quality, typology, prevailing users, etc.), elaborating multiple *thematic maps* capable of explaining the different territorial and urban, social, cultural and economic components. These data can be collected by exploring the main platforms for disseminating statistical information [22] as well as through the survey of the urban context, through the in-depth analysis of territorial governance tools. The urban planning study, however, must be integrated by qualitative investigations, crucial to developing the complex knowledge system. Soft data can be collected in many ways. The most popular and simple technique is the dissemination of *surveys and interviews* to the population as the first form of community involvement in the process. The data collected through the *survey* describe the *subjective-perceptual* aspects and the *intangible* value elements that are fundamental for understanding the complexity of an urban environment and its community. In addition, the different forms of *urban trekking* are an interesting way to co-explore the city [23, 24]. Another interesting contribution can be offered by the photography of the city, through the organization of photography workshops or contests. In this sense, the use of photography as a co-mapping tool is interesting because of the multiple opportunities given by digital collaborative mapping platforms [25]. In this context, other ways of co-investigating the urban space can make children and young people gaze at the centre [26, 27]. The urban space understanding also passes through the knowledge of its historical memory. Indeed, the collection and geolocation of the past's evidence - in their various forms (photographs, documents, works, etc.) – is a stimulating way to explore the city.

This makes it possible to develop a deep knowledge of the socio-urban environment, looking at the collective memory as an essential value in design processes. Community archives, in this sense, are an experimentation that must necessarily be considered [28]. Finally, the use of GIS facilitates the systematization of this knowledge, giving rise to a multi-layered and multi-meaning knowledge, that integrates qualitative-quantitative data and that allows to identification of the characterizing issues. For these different tools, it should be emphasized the different temporal dimension that characterizes their implementation. The construction of a truly in-depth and deep knowledge of a territory is subject to a slow evolution, with a co-design process of continuous integration over time.

The *Identification phase* is related to the selection of an architectural asset, which has emerged as significant for the community and takes into account the needs expressed by the community itself in the Co-exploration phase. Therefore, starting from the results of the first phase, it is possible to rationalize the choice, selecting a cultural asset where the desires and aspirations of the community converge, and in which the favourable conditions already exist to host a process of regeneration. This choice should make it possible to select those assets without planning, forgotten by territorial governance, to facilitate the grafting of new enhancement processes starting from the recognition of the architectural, urban and historical values and the role they have had over time for the community, improving the level of awareness. The conclusion of the second phase, integrated with the results of the first, allows a critical interpretation of the opportunities for regeneration and innovation of the cultural asset, analysed concerning the context and the system of relationships that have been generated over time.

In the *Co-evaluation phase*, some significant tools can be identified to develop the evaluation process as part of the co-design of reuse strategies [29]. Specifically, a participatory process should always start with *Stakeholder Mapping and Analysis* [30] to be involved, in line with the chosen co-governance model. The use of the *Power-Interest Grid* [31] also makes it possible to visualize the relationship between *power* and *interest* of the various stakeholders active in the area (Thamma Reddi, 2023) and identify different strategies for involving stakeholders in the *Co-design phase*. Another tool to support stakeholder analysis is *network analysis* [32] through which it is possible to read the relationships between the various actors involved. The types of relationships (virtuous or conflictual) are crucial for understanding the opportunities to activate alliances and the risk of generating conflicts. On a local scale, it can be useful to map both the institutional relationships between the various stakeholders involved, as well as the personal ones, since the latter generally tends to influence the former. If *brainstorming* [33] represents the key tool in collective participation operations, another useful tool for the co-identification of needs can be represented by the *personas model* tool [34], through which the typical users of the products, services or projects to be developed are imagined and defined, in a human-centred logic. Another relevant tool is represented by the *business model canvas* [35, 36], able to highlight the managerial, economic and sustainability aspects of the project idea, emphasizing the key resources, quantifying the costs and benefits, and identifying the possible users of the process who may be involved in the reuse project. Submitting the business model canvas to stakeholders means making them aware of the complexity of project management, inducing them to imagine concrete

and plausible, as well as innovative, solutions, and supporting building a collaborative decision context based on the willingness to work together for common shared goals.

With regards to the *Selection phase* an essential role is played by the *Multi-Criteria* and *Multi-Group Analysis* developed according to the *SMCE* approach, applied in many cases as a methodological tool useful for guiding decisions [37]. The literature on the SMCE approach shows that only a small number of cases concern urban regeneration issues. In addition, in most trials, the most widely used method is the Novel Approach to Imprecise Assessment and Decision Environments (NAIADE) [38]. A recent evolution of NAIADE is the SOCRATES method [39], which integrates mixed qualitative and quantitative information, allowing carrying out multi-criteria analysis, equity or multi-group analysis and sensitivity analysis (local and global) [40, 41]. As far as multi-criteria analysis is concerned, SOCRATES requires the definition of *dimensions* and *criteria.* The method also provides for the attribution of specific *weights*, proportional to the criteria that describe the impact on the specific dimensions. The possibility of introducing weights is also found in equity analysis, through which the preferences expressed by stakeholders concerning alternatives are collected and systematized. The SOCRATES method also allows a synthetic reading of the distances of the positions taken by the stakeholders during the evaluation phase, through the construction of the dendrogram of the coalitions, which supports the identification of the preferable choice expression of the consensus reached among the different stakeholders involved in the decision-making process.

The *Selection phase* consists of the identification of the decision-making strategy, supported by the SMCE approach and the SOCRATES method, through which multi-criteria and multi-group evaluations are conducted. The construction of the impact matrix and the equity matrix allows us to verify the preferability of the alternatives, taking into account both the ability of these to respond to the various dimensions of the problem and the level of satisfaction of the stakeholders.

Finally, through the *Project and testing phase*, the preferred functional address is validated in terms of the spatial and temporal compatibility of the selected functions. At this stage, the preferable functional articulation for the cultural asset can be transformed into a temporary set-up project, to be validated with the community. The temporary set-up project and its implementation can be preparatory to the experimentation and validation of the scenario identified through the reopening of the asset for an experimental period. Temporariness, in its many forms, is conceived as a tool for the reactivation of the cultural asset in the long term, through the concrete validation of the innovative uses, chosen by the stakeholders. The co-design and co-construction of the equipment suitable for carrying out the activities in the building can be an interesting way to start the aggregation of a new community for the building. This makes it possible to co-prepare the asset to welcome experimentation, involving the local community (activists, young people, associations, etc.) and the sectoral community (universities, architecture students, makers, collectives, etc.). This temporary experimentation of uses and scenarios aligns with the *living lab* approach [28], which is expected to be the direction of future action-research steps, in line with ongoing experiments in similar urban and architectural contexts [42].

3 The Case Study

The territory of Anacapri, on the island of Capri, was the context of experimentation. The Blue Island is characterized by its environmental peculiarities, which justify its strong tourist attraction. The latter, in the space of a century, has led to a substantial transformation of the local economic structure, which today is based almost exclusively on the tourism sector.

This transformation has generated a varied and complex set of imbalances, about the strong extrinsic pressure that affects the summer months, the on/off dichotomy that characterizes the cycle of the tourist season, incoming work tourism (which affects the employees of accommodation facilities) and outgoing (young people who leave the island for study or work), housing deprivation (caused by uncontrolled *overtourism*, the constraint regime and the application of short-sighted local policies). The strong attractiveness of the island has produced the gentrification of the inhabitants and the emptying of the historic centre of Capri, as well as a growing localized inflation highlighted by the dynamics of the real estate market. These issues have a profound social and environmental impact and fuel numerous conflicts in the local community worried about the risk that the island could become an artificial scenario [43]. Anacapri has been partially protected from these phenomena and, to this day, still retains a strong sense of community and a segment of entrepreneurship based on local craftsmanship and family business. Many elements contribute to defining Anacapri as a territory that favourably turns to sustainable transition through territorial regeneration; nevertheless, the absence of prudent political choices and the presence of strong extrinsic pressures are rapidly transforming this context as well, impoverishing it of its identity.

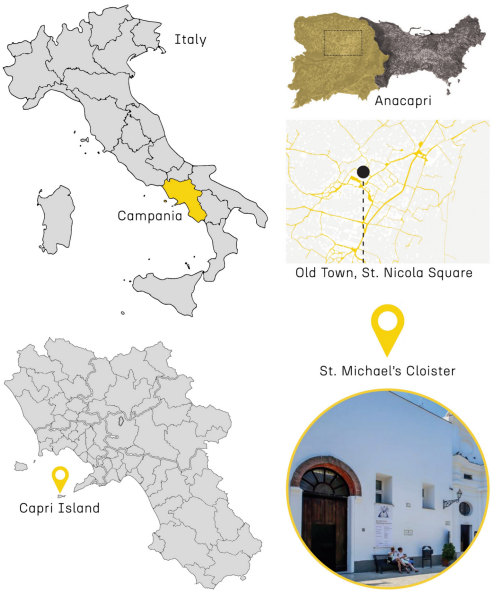

Fig. 2. St. Michael Cloister's territorial framework

In general, many policies have recently been developed to preserve the island, particularly from an environmental point of view. On the other hand, there are few programmatic initiatives relating to the cultural dimension. On the merits of the case study, the Co-exploration phase allowed the identification of an under-utilized cultural asset in which to implement the co-design process and activate an innovative co-governance model.

The former St. Michael Cloister (Fig. 2) is a cultural asset owned by the municipality which, during the co-mapping phase, has been reported by the community as one of the priority assets on which to intervene. This property enjoys particularly relevant spatial, urban and historical characteristics. Its adaptive reuse can contribute to the aggregation of a new heritage community, to the regeneration of the neighbourhood and to the creation of new forms of co-management and innovative social entrepreneurship culture-led, based on the enhancement of existing heritage.

4 The In.Kiostro Decision-Making Process

The results of the experimentation, the so-called In.Kiostro decision-making process, are described with specific attention to the alternative formulation and Co-evaluation phase (4.1) and the Selection phase (4.2), with the identification of the preferable alternative scenario.

4.1 Alternatives Formulation and Co-evaluation

The first part of the *Co-evaluation* phase has been dedicated to the elaboration of three design alternatives ($Ap_{1–3}$), bearers of as many general visions of enhancement with new possible scenarios for the adaptive reuse of the Cloister, synthesis of the thematic issues that emerged in the Co-exploration phase. The three alternatives thus formalized, therefore, represented three decision-making contexts that the community enriched with meaning and significance, identifying the actions that could make the scenarios operational. Based on the obvious spatial problems related to the aggregation of young people, the first scenario made it possible to imagine in the cloister a new point of reference for the youth community. A second scenario has been identified starting from the presence of an inter-generational community that the Cloister could network. In this sense, a community's point is the second proposal that has been made explicit. Finally, considering the tourist-cultural potential of the Monumental Church of St. Michael, the historical route that links it to the Cloister, and the tourist attractiveness of the site, for the third scenario a tourist-cultural function has been identified, which sees the Cloister as a point of cultural promotion and social innovation of a tourist nature.

The second group of *alternatives* ($Af_{1–10}$) was developed by disaggregating the functions, identified by stakeholders during the co-design phase, and identifying specific actions. The evaluation of the disaggregated functions made it possible to understand the preference expressed for the three scenarios, the significance and relevance of the specific actions of the alternative scenarios, and to verify the presence of redundant or peculiar actions in the three different project scenarios.

Afterwards, a system of criteria was structured to evaluate the projects developed in the Co-design phase. The system of criteria considers four significant dimensions for the context of Anacapri, to which a proportional weight differentiated according to the importance recognized by stakeholders has been assigned: Social dimension; Tourist-cultural dimension; Economic dimension; and Environmental dimension. At the same time, stakeholder mapping and analysis was drafted, including:

a. *the identification of the stakeholders* referred to each co-governance helix;
b. *the stakeholders analysis*, through the mapping of missions, areas of intervention and possible relations with the Cloister, and to understand the general characteristics of the group of stakeholders involved;
c. *the power-interest analysis*, developed through a *Power-Interest Grid* (*PIG)*;
d. *the network analysis*, through which the institutional and personal relationships between the stakeholders involved have been identified.

In this regard, the positioning of stakeholders on the PIG is particularly interesting. The analysis was very useful to visualize the ability of stakeholders to influence the implementation of the proposed project, as well as the interest that stakeholders have shown concerning the participatory process. Before proceeding with the division of stakeholders into working groups, a weight proportional to the role assumed by each was assigned, based on the surveys carried out in the first phase. The highest percentage weight was assigned to decision-makers and, considering the results of the PIG, the other weights were assigned reflecting the interactions between skills and influence level. The analysis and proportional weighting made it possible to divide the stakeholders into three working groups balanced in terms of age, level of education and skills, interest and decision-making power. The three groups were decisive for the design definition and significance of the three proposals. The members of each table collaborated in the formulation of one of the three proposals as part of a workshop organized through the focus group technique. The division of the participants into the three tables allowed the immediate dissipation of the existing conflicts between them and triggered an interesting and virtuous mechanism of competition between stakeholders who usually collaborate. The next step was the design, organization and implementation of the *In.Kiostro.Lab* co-design workshop, which was held in February 2023 at the Cloister of San Michele. To build a workshop that would facilitate interaction between stakeholders, some gamification techniques were applied to build an enabling context for the understanding and carrying out of the Missions by the participants. It is essential to underline that, to obtain quality data and conspicuous participation, it was necessary to apply a careful strategy of raising awareness among stakeholders through direct contact with the people involved. The workshop was articulated in a program of actions organized in such a way as to involve and guide the participants, building the conditions favourable to interaction and collaboration: a) Welcoming; b) Guided tour of the building; c) Presentation of the activities; d) Brainstorming; e) Team Work; f) Sharing and discussion. The workshop required the production of numerous graphic materials to support the interactions, as well as the creation of a temporary set-up project for the building. It is interesting to note how the decision-making process, already in its preliminary phase, has allowed the implementation of an innovative way of temporarily reusing the building (Fig. 3).



Fig. 3. The co-design workshop *In.Kiostro.Lab*

4.2 Selection of the Preferable Alternative

The elaboration of the main issues that emerged in the Co-evaluation phase made it possible to construct a multiple decision-making problem (Fig. 4). Indeed, together with the evaluation of the design alternatives ($Ap_{1–3}$), an assessment of the individual functional components ($Af_{1–10}$) was equipped. The need to integrate this second double evaluation can be understood if we consider the redundancy of some functions proposed by the stakeholders in the three projects elaborated. The implementation of the SMCE approach allowed for an effective integration of all the issues at stake and the use of the SOCRATES method facilitated the identification of the preferable scenario.

The *multi-criteria analysis*, carried out for both design and functional alternatives, highlighted the ability of the alternatives to meet the previously defined criteria through the assignment of a *qualitative* score on a scale of seven points, corresponding to seven linguistic judgments. As regards the assessment of $Ap_{1–3}$, the *impact matrix* was structured in three columns and twenty-five rows. In the case of the individual functional components valuation, the resulting matrix consists of ten columns and twenty-five rows ($C_{n(m)}$). As far as the *multi-criterion analysis* of $Ap_{1–3}$ is concerned, for example, in *the frequency matrix,* there is a clear preference for *In.kiostro.young* (Ap_3) *alternative, which* obtains preferability in 60% of cases. Compared to the *multi-criteria analysis* referred to the $Af_{1–10}$, the functional proposals *Neighbourhood Concierge, Info-point, Eventopia, and Bar Bistrot* are the winners.

The *multi-group analysis* - also carried out for both $Ap_{1–3}$ and $Af_{1–10}$ - highlighted the ability of the alternatives to satisfy the needs of the stakeholders involved. Data on participants' preferences were collected through a *post-workshop survey*, which was

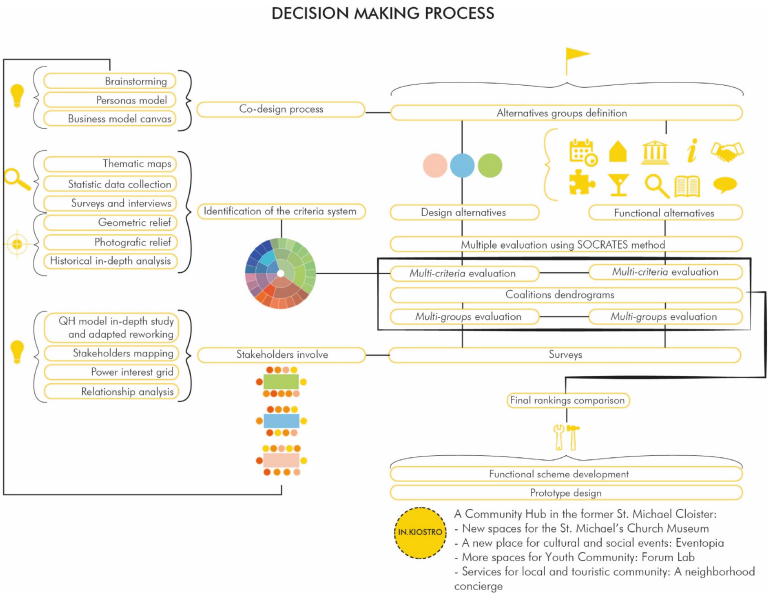

Fig. 4. The decision-making process developed for *In.Kiostro* evaluation

administered only after the revision and redefinition of the decision problem. In this case, the results are influenced by the assignment of differentiated *weights* to stakeholders *($G_{1–18}$)*. The multi-group matrix of *$Af_{1–10}$* was constructed by asking stakeholders to indicate their preference ranking to the ten alternatives (1st–10th), therefore using an ordinal scale (where the lower numerical value corresponds to the best position in the ranking, and therefore the best evaluation) while the one referring to *$Ap_{1–3}$* was built by asking stakeholders to assign a *linguistic rating* on a scale of seven points (good-bad) to each functional alternative. The result of the *coalition's dendrograms* (Fig. 5) also allows us to understand the proximity/distance assumed by the stakeholders during the evaluation process.

The carrying out of multiple evaluations has made it possible to highlight - as the number of alternatives increases - a greater difficulty for actors to create strong coalitions. Credibility values are significantly lowered. Finally, the deduced frequency of the preferability of the functional alternatives that emerged from the four evaluations made it possible to identify a preferable compromise solution, which collects and integrates the functions present in the preferable *Young project proposa*l and some functions considered preferable by stakeholders in the evaluation of $Af_{1–10}$.

4.3 Results

The partial results of the experiment carried out, related to the temporary use project for the cloister, open a critical analysis of the tools chosen and outline the direction of future research steps. The implementation of the methodological process has allowed the achievement of multiple objectives, the deepening of theoretical and operational

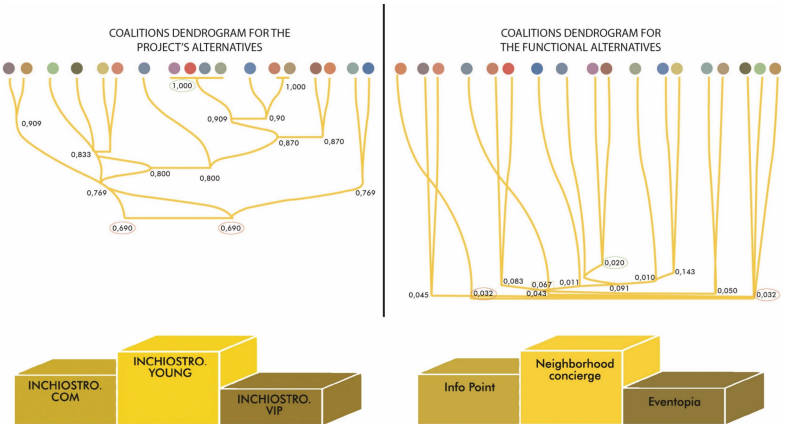

Fig. 5. Actor's dendrograms and final rankings.

considerations, as well as the activation of a concrete consultation with the decision-makers for the reopening of the Cloister. The implemented process makes it possible to formulate a compromise design solution between the design alternatives, considering four functional strategies: a) Connection to the Monumental Church of St. Michael the Archangel (museum); b) Opening of *Eventopia;* c) Activation of a *Neighborhood Concierge;* d) Extension of the *Forum Lab.* At the same time, a new scenario is outlined for the Cloister which sees it in a network with the neighbouring Monumental Church of St. Michael the Archangel, according to which the property could provide some services such as ticketing, the sales area, and refreshments. This would make it possible to restore the historical and functional continuity of two sister works of art. It would also make it possible to interpret the phenomenon of tourism as a driving force for regeneration, through the establishment of innovative management, considering culture and tourism as essential for regeneration and social integration. In addition, some of the spaces are imagined hosting numerous cultural promotion activities, through the *Eventopia* proposal: a space co-managed by local non-profits for shows, events, exhibitions, debates, workshops, etc. This makes it possible to inhabit the building all year round, giving it an aggregative and cultural resilience value. Furthermore, some rooms are directed to the service of the community through the opening of a *Neighborhood Concierge*, where some functions dedicated to citizens and tourists can be activated. Finally, the proposal extends the spaces of the *Forum Lab* and the services provided in them, with particular attention to the youth community. Regarding the temporary use of the Cloister, two aspects are underlined: the first refers to the implementation of the methodology and how this has allowed an innovative use of the Cloister already in the co-design phase; the second refers to the project outcomes and the proposal for experimental use of the cultural asset, through the co-construction of a temporary installation to test in a period of one year. The development of the co-design phase inside the Cloister required the creation of a temporary installation project, that allowed stakeholders to inhabit the property unexpectedly and innovatively, facilitating the success of the co-design. Temporariness, therefore, is confirmed to be a very important tool for the implementation of co-design

processes. Among the objectives achieved were the activation of ongoing consultation with decision-makers on the reopening of the site, and a growing awareness among some stakeholders of the opportunities that the Cloister could offer if reactivated. The process highlights the driving role that the Cloister could play, both from an urban point of view, in relation to St Nicholas Square and the many public buildings that overlook it, and from a social point of view, in promoting the integration of the communities that inhabit the neighbourhood.

5 Discussion and Conclusions

The use of the SMCE approach, integrated with the interpretation of the socio-urban environment as a Co-City Quintuple Helix, allows the formalisation of a hybrid and replicable methodology for a co-governance process. The Quintuple Helix makes it possible to involve in the decision-making process a truly representative group of stakeholders, making the outcomes more responsive to the real needs of the territory. The *In.Kiostro* action-research process underlines the role played by culture, in its spatial declination (existing cultural heritage) and social interpretation (cultural promoters). At the same time, the implementation of different tools, especially during the Co-exploration phase, makes it possible to collect the needs of the community by integrating them into the knowledge and analysis of the territory, spatializing formal/informal uses and the prevailing subjective and perceptive aspects. The construction of a deep knowledge of community needs emphasized the temporal variable role, supporting the development of practices and processes with different durations and adopting an iterative, adaptive, and dynamic approach, allowing incremental knowledge in the Co-evaluation phase of design choices. In addition, the brainstorming tool makes it possible to collect and visualise all the proposals, rank them and identify a few salient themes that form the core of the co-design phase. At the same time, the business model canvas stands out for its ability to engage stakeholders in a co-design process that considers economic aspects and facilitates the development of innovative and operational proposals. In addition, the personas model allows us to focus on the end users and their needs, and the power-interest grid supports the visualisation and classification of stakeholders according to the power and interest they potentially have in the design process and is a relevant tool for identifying the weight of stakeholders in the decision-making process.

Considering the Selection phase, in dealing with complex decision-making problems, the selection of appropriate evaluation methods is essential, and SOCRATES allows the inclusion of a multi-dimensional process into the assessment. This method, indeed, facilitates the systematizing of qualitative and quantitative information in an integrated way, interpreting its heterogeneity into a coherent system. Moreover, the use of open-source software makes it possible to carry out research characterized by continuous integrations, facilitating the updating of final rankings. In perspective, the SOCRATES method could be implemented in the co-evaluation of a preferable design alternative, testing the dynamism and adaptability of the method, which can potentially be applied to different design scales and levels of detail.

Finally, referring to the Project and testing phase, many opportunities have not yet been explored, which allow, among other things, to outline future research. Among

these, given the ongoing consultation with the decision-makers, the discussion of the results with the stakeholders, the acceptance of the proposal with the necessary additions and the stipulation of an agreement between the various actors involved, it is possible to imagine further actions aimed at expanding the network, raising awareness of the local community for the feeling of re-appropriation, experimenting with the chosen uses and, finally, the definitive reactivation of the asset being researched. All these actions (self-construction, competitions of ideas, experimental programming, etc.) find their place in the conceptual framework of the *living lab,* activated in the last phase of the methodological process.

In.Kiostro's decision-making process is based on the interpretation of temporariness as a privileged tool for urban and social regeneration, since it makes it possible to trigger virtuous socio-spatial dynamics that are capable of self-regeneration and, in the long term, of becoming permanent. In this sense, it represents one of the most important partial results of the research carried out so far, since it is confirmed as an indispensable tool for the first and necessary form of reappropriation of the cultural heritage and its reactivation. A critical revision of the tools chosen contributes to support the definition of a new role of the designer-facilitator, who must equip himself with new skills and abilities (technical, relational, etc.) to design, manage and implement a design process capable of producing innovative and operational results.

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References

1. Elkington, J.: Cannibals with Forks: Triple Bottom Line of 21st Century Business. Capstone Publishing Ltd., Chichester (1998)
2. United Nations. Transforming our world: The 2030 Agenda for Sustainable Development. United Nations General Assembly, A/RES/70/1 (2015)
3. ISTAT. BES 2022 - Il Benessere Equo e Sostenibile in Italia. Creative Commons (2023)
4. European Commission. Carta delle città europee per uno sviluppo durevole e sostenibile. Aalborg (1994)
5. European Commission. Cultural Gems. Tratto da (2018). https://cultural-gems.jrc.ec.europa.eu/homepage

6. European Union. Cultural and Creative Cities Monitor. Publications Office of the European Union, Luxemburg (2023)
7. Consiglio d'Europa. Convenzione di Faro (2005)
8. Tricarico, L., Jones, Z.M., Daldanise, G.: Platform spaces: when culture and the arts intersect territorial development and social innovation, a view from the Italian context. J. Urban Aff. **44**(4–5), 545–566 (2022)
9. Unioncamere, & Symbola. Io Sono Cultura - Rapporto 2023 (2023)
10. Iaione, C.: The CO-City: sharing, collaborating, and commoning in the city. Am. J. Econ. e Sociologia **75**(2), 415 (2016)
11. Leydesdorff, L., Etzkowitz, H.: Universities and the Global Knowledge Economy: A Triple Helix of University-Industry-Government Relations. Thomson Learning (1997)
12. Carayannis, E., Campbell, D.F.: The Quintuple Helix innovation model: global warming as a challenge and driver for innovation. J. Innov. Entrepreneurship **1**, 2 (2012)
13. Carayannis, E., Campbell, D.F.: 'Mode 3' and 'Quadruple Helix': toward a 21st century fractal innovation ecosystem. Int. J. Technol. Manage. **46**, 201–234 (2009)
14. Forte, F.: Architectural quality and evaluation: a reading in the European frameworkǀQualità architettonica e valutazione: Una lettura nel quadro europeo. Valori e valutazioni **23**, 37–45 (2019)
15. Leydesdorff, L.: The Triple HeliQuadruple Helix, …, and an N-tuple of Helices: explanatory models for analyzing the knowledge-based economy? J. Knowl. Econ. **3**, 25–35 (2011)
16. Iaione, C., De Nictolis, E.: La quintupla elica come approccio alla governance dell'innovazione sociale. In: Montanari, L.M. (A cura di), I luoghi dell'innovazione sociale (Prima ed., pp. 75–89). Quaderni Fondazione G. Brodolini, Roma (2016)
17. Rose, C.M.: The comedy of the commons: custom, commerce, and inherently public property. Univ. Chicago Law Rev. **53**, 711 (1986)
18. Cerreta, M., Daldanise, G., Di Girasole, E., Torre, C.: A cultural heritage low entropy enhancement approach: an ex post evaluation of creative practices. Sustainability (Switzerland), 1–22 (2021)
19. Lewin, K.: Action research and minority problems. J. Soc. Issues 34–46 (1946)
20. Munda, G.: Social Multi-Criteria Evaluation for a Sustainable Economy. Springer, Cham (2008). https://doi.org/10.1007/978-3-540-73703-2
21. ISTAT. Anacapri. Tratto da 8mila Census: ottomilacensus.istat.it (2011)
22. Make Way. City. Tratto da Jane's Walk: janeswalk.org (2006)
23. Cuntò, S.M., Muccio, E., Sacco, S., Zizzania, P.: A collaborative spatial decision support system for assessing transformative potential of minimum ecological units (MEUs) in a circular regeneration perspective. In: Gervasi, O., et al. (eds.) Computational Science and Its Applications – ICCSA 2023 Workshops. ICCSA 2023. LNCS (including subseries LNAI and LNBI), vol. 14112, pp. 235–252. Springer, Cham (2023).
24. Cerreta, M., Panaro, S., Cannatella, D.: Multidimensional spatial decision-making process: local shared values in action. In: Murgante, B., et al. (eds.) Computational Science and Its Applications – ICCSA 2012. ICCSA 2012. LNCS (PART 2) (including subseries LNAI and LNBI), vol. 7334, pp. 54–70. Springer, Heidelberg (2012). https://doi.org/10.1007/978-3-642-31075-1_5
25. Olivieri, A.: Bambini e Spazio Pubblico. Milano: Dipartimento di Architettura e Pianificazione del Politecnico di Milano (2001)
26. Città di Roma. Mappa della Città Educante. Roma (2023)
27. La Rocca, L., Mazzarella, C., Regalbuto, S., Somma, M., Imbriaco, A.: Community archive as place-based decision-making process: a proposal for the "Archivio Atena". In: Gervasi, O., et al. (eds.) Computational Science and Its Applications – ICCSA 2023 Workshops, ICCSA 2023. LNCS (including subseries LNAI and LNBI). LNCS, vol. 14108, pp. 209–225. Springer, Cham (2023). https://doi.org/10.1007/978-3-031-37117-2_16

28. Cerreta, M., La Rocca, L., Daldanise, G., Panaro, S.: Triggering active communities for cultural creative cities: the "Hack the City" play ReCH mission in the Salerno Historic Centre (Italy). Sustainability **13**, 11877 (2021)
29. Pronti, A., Nobile, G., Pagliarino, E.: La Stakeholder Analysis per la gestione dei beni comuni e le risorse naturali: metodologie e letteratura. Quaderni IRCrES-CNR **3**(4), 3–28 (2018). https://doi.org/10.23760/2499-6661.2018.015
30. Ackermann, F., Eden, C.: Strategic management of stakeholders: theory and practice. Long Range Plann. **44**, 179–196 (2011)
31. Wasserman, S., Faust, K.: Social Network Analysis: Methods and Applications. Cambridge University Press, Cambridge (1994)
32. Osborn, A.F.: Applied Imagination. Scribner Editore (1979)
33. Blomkvist, S.: The User as a personality. Using Personas as a tool for design. Topic 4 "The blurred user". Theoretical perspectives in Human-Computer Interaction – IPLab (2002)
34. Cooper, A.: The Inmates Are Running the Asylum: Why High Tech Products Drive Us Crazy and How to Restore the Sanity. Sams, U.S.A (1999)
35. Osterwalder, A., Pigneur, Y.: Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Wiley, New York (2010)
36. Cerreta, M., Daldanise, G.: Community Branding (Co-Bra): a collaborative decision making process for urban regeneration. In: Gervasi, O., et al. (eds.) Computational Science and Its Applications – ICCSA 2017. ICCSA 2017. LNCS, vol. 10406, pp. 730–746. Springer, Cham (2017). https://doi.org/10.1007/978-3-319-62398-6_52
37. Etxano, I., Villalba-Eguiluz, U.: Twenty-five years of social multi-criteria evaluation (SMCE) in the search for sustainability: analysis of case studies. Ecol. Econ. **188**, 107131 (2021)
38. Munda, G.: The Naiade method. In: Contributions to Economics Series: Multicriteria Evaluation in a Fuzzy Environment, pp. 131–148. Physica-Verlag, Heidelberg (1995)
39. Munda, G., Azzini, I., Cerreta, M., Ostlaender, N.: SOCRATES Manual - ISBN 978-92-76-59331-7. Publications Office of the European Union, Luxemburg (2022)
40. Daldanise, G., Cerreta, M.: An innovative Social Multi-Criteria Evaluation methodology for ex-ante impact assessment of urban policy options: East Naples case study. CNR Explora (2023)
41. Ventre, S., Cerreta, M.: Participatory art and co-creation methodology in the "Viale delle Metamorfosi" project. In: Gervasi, O., et al. (eds.) Computational Science and Its Applications – ICCSA 2023 Workshops. ICCSA 2023. LNCS, vol. 14108, pp. 277–294. Springer, Cham (2023)
42. Cerreta, M., Elefante, A., La Rocca, L.: A creative living lab for the adaptive reuse of the Morticelli Church: the SSMOLL project. Sustainability **12**(24), 10561 (2020)
43. MacCannell, D.: Il turista. Una nuova teoria della classe agiata. UTET Università (2012)