

The Integrated Evaluation as a Driving Tool for Cultural-Heritage Enhancement Strategies



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Abstract The paper shows the setting up of an integrated evaluation process to identify a sustainable enhancement strategy for a particularly significant territory in southern Italy that expresses the concept of Historic Urban Landscape (HUL) proposed by the UNESCO. The evaluation process is flexible to adapt to the specificity of complex contexts, to enable interaction with heterogeneous knowledge and to capture local values associated with the particular dimensions of a multi-scalar system. The evaluation is defined as a multidimensional, dynamic, incremental and cyclical learning process, which combines evaluation techniques integrated with public-participation techniques in order to delineate shared and transparent intervention strategies. Through a shared observation process of the context have been identified the values and resources, the key stakeholder categories and their preferences. Selecting context-aware actions enables us to reduce the conflicts by transforming them into synergies, recognizing as essential the components of a constantly evolving, multidimensional and complex landscape in which various systems of values and relationships interact. A ‘tailor-made’ multi-methodological approach that is enables the combination of the approaches of the Soft-System Methodology, Multi-Criteria Analysis and Multi-Group Analysis with the purpose of identifying the components of the perceived scenario and developing a strategic map able to put in network a system of micro actions, material and immaterial, sensitive to context specificities.

Keywords Cultural heritage • Cultural development policies • Historic Urban Landscape (HUL) • Adaptive decision making process • Multicriteria-multi-group analysis • Stakeholder analysis

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1 Introduction

Structuring a decision-making process, well-structured in its various phases, involves delineating a methodological path that identifies the guidelines for building a valuation approach that helps to understand the dimensions and characteristics of the issues involved.

This is done while recognizing that in practice it is not always possible to maximize all goals simultaneously and that maximizing a goal involves almost always minimizing the others. Through multi-criteria evaluations, it is possible to recognize the centrality of the conflict and to find more satisfactory solutions for its resolution. In this sense, it is essential that the approach to assessments be of an “integrated” type, because it is able to consider various options that involve impacts on various sectors and, at the same time, “participatory”, another word that implies the involvement of the various community sectors in decision making. The integrated evaluations can be defined as a structured process to be able to face complex questions using the knowledge coming from various disciplines and elaborated by the same stakeholder involved in the decisions. It involves, therefore, multidisciplinary approaches, in which the various dimensions of the value can conflict with each other and in themselves, among the various groups, in space and at the same time. To structure a decisional process according to an integrated approach means to face the “complexity”, taking account the possibility of the self-organization, of the nonlinear dynamics, of the discontinuous behaviors inherent to complex systems, individualizing a methodological structure of reference. Through the application of differentiated approaches, it is possible to overcome the “limits” of evaluations based exclusively on priorities and preferences expressed by decision makers or “experts”, also considering priorities and preferences what the community can express well. Through the combined use of decision-support systems and multi-criteria methods, it is possible to structure an MCDSS (Multi-criteria Decision Support System) (Saaty 1980; Zeleny 1982; Roy 1985; Nijkamp et al. 1990) that makes possible the study of the complexity of human decisions by building a flexible environment, in which individual learning in decision making plays a decisive role. It’s possible, therefore, to understand the operational implications of the theoretical principles, outlining a path to enable construction and evaluation of possible intervention strategies.

With the aim of outlining an integrated approach to programming and the choice of interventions that can trigger local development processes as drivers for the enhancement of the landscaping and cultural heritage that are present in the territory (Calabrò and Della Spina 2013; Calabrò et al. 2015; Calabrò 2017), it is possible to define a decision-making path whose essential assumption is to recognize that the area in question is characterized by a high degree of complexity, where non-maximizable requirements are contemplated, such as the protection of the environmental system, the protection of historical-cultural values, organizational-institutional and economic-financial sustainability, the improvement of the connectivity between the local networks between them and with the interior,

the improvement of the accessibility, the structuring of an integrated transport network, and the enhancement of the management and security efficiency (Della Spina and Calabrò 2008).

In the present contribution, in order to identify a sustainable enhancement strategy for a territorial area comprising the 27n municipalities in the province of Crotona, a particularly significant area in southern Italy with a cultural and landscaping system of considerable interest and a deeply-rooted agricultural tradition, a multi-methodological evaluation process was structured to support the development of alternative intervention strategies. The study was conducted during the development of a project to participate in a MiBACT's ministerial contest, by applying techniques and experimental approaches to a real case.

From the definition of the Historic Urban Landscape (HUL) (UNESCO 2011), it was thorough the theme of the landscape as a "common good", expression of a complex landscape in which persist the values the characterize the HUL. The theme of the landscape as a "common good" is a field of investigation and experimentation for an innovative model of local development that can be activated activate for the area study. The HUL definition is the most recent contribution to the international debate on the identification, conservation, enhancement and management of cultural heritage. It can be seen how sensitivity to conservation problems has been gradually extended from a timely protection concept to a wider consideration of the urban environment, to arrive at a principle of global protection and integrated conservation. The concept of HUL can be interpreted as the result of a stratification of complex values that include: topography of the site; the geomorphology, hydrology and natural characteristics; the built environment, both historical and contemporary; the infrastructures; the models of land use and space organization; the perceptions and visual relations; the social and cultural practices; the economic processes; and the intangible dimensions property of heritage in relation to specific identities.

Taking these considerations into account, we propose an approach to the territory that is based on the transformation of areas in crisis into areas of new opportunities starting from the redevelopment and enhancement of the Urban History Landscape.

The contribution develops a decision-support system that, starting from the identification of the specificities and complexities of the Urban History Landscape, identifies a context-aware enhancement strategy, aimed at building new values, tangible and intangible. The evaluation process implemented through a multi-methodological approach, complements the contribution of various fields of knowledge, and is based on sharing the responsibilities between the various stakeholder and the concertation of the choices through the complementarity between experiences and competences from different domains.

In the first part, we introduce the methodological path, identifying the phases, the techniques used and the results obtained; in the second, the results are analyzed and the research perspectives are identified.

2 Integrated Evaluations and Decision-Making Processes: A Methodological Path

The methodological path has been structured to identify a decision-making process that can involve and identify the relationships between various stakeholder in order to build shared and sustainable enhancement strategies. The proposed methodological path has been structured to enable the interaction of various techniques selected to delineate a dynamic, flexible and adaptive decision-support system, attentive to the specificities of the context and oriented to the development of intervention strategies based on expert knowledge and common knowledge and on recognized and shared values. The experimental approach was designed according to an incremental path in which, taking into account the characteristics of the territory and the relevant issues, were selected the most appropriate analysis and evaluation techniques capable of supporting the needs of the decision-making process from emerging characteristics. In particular, considering the Urban History Landscape being investigated, as an expression of everyday-life practices, of the relationships and links between the specific context and who lives it, have been selected the techniques for each of the decision-making process that are coherent with the Thinking Systems approach (Bánáthy 2000; Jackson 2003; Checkland and Poulter 2006; Ackoff 2010) applied to problem solving.

The structured methodological path consists of three main phases:

1. **Analysis problematic context:** it consists in the participatory observation of the context through awareness of the existing values that belong to various and multiple dimensions, tangible and intangible, hard and soft, objective and subjective, of use and non-use and intrinsic (Nijkamp and Fusco Girard 1997; Fusco Girard 2010). The collection and processing of hard and soft data result from the combination of two types of analysis: *Hard Systems Analysis (HAS)* and *Soft Systems Analysis (SSA)*. The collection of hard and soft data and the application of the *HAS* and *SSA* analysis require accurate selection of information starting from reliable and up-to-date sources, as well as the availability of identified stakeholder to collaborate in the decision-making process and to become protagonists for the decisions. In particular, the *HAS* makes it possible to produce a cognitive framework consisting mainly of quantitative information. In this particular case, the appropriate indicators were selected, structured according to a grid that identifies the thematic area, the environmental theme, the class of indicators, the coverage (territorial and temporal) and the data source. The construction of indicators has been carried out with reference to specific thematic areas such as: society, economy, tourism, transport, infrastructure, landscape, cultural heritage, local productions, and services. The useful information to structure the indicators was obtained from national, regional, provincial and municipal databases of public and private institutions that operate in the examined territory, and considering the variations from the latest census of 2011 to the current date. At the same time, by *SSA* analysis, the selection of

soft data has been structured from an Institutional Analysis (De Marchi et al. 2000; Funtowicz et al. 2002), useful in identifying the relevant stakeholder for the context under consideration, and an analysis of the points views and of the perceptions of the various stakeholder categories. The institutional analysis, from some of the considerations emerging from the selection of hard data, allowed the identification of the stakeholder map, divided into three main categories: promoters, operators, and users. The analysis of views and perceptions has been structured by submitting to the stakeholder one semi-structured interviews and organizing some appropriate focus groups for the most some important topics (see point 2). The results from the analyses have been decoded and interpreted to identify the resources, potentialities and significant criticalities of the territory. In this phase, we used the Ishikawa diagram (Wittwer 2009), which can identify the most likely causes of a given problem, it is also called a cause-effect or fishbone diagram (Gupta et al. 2007), which has allowed us to classify criticisms and potentials based on their relevance, highlighted through an appropriate evaluation scale (high relevance, medium relevance, low relevance), to which a color scale was matched.

2. **The elaboration of the perception of problems, preferences and possible solutions of the community** was structured through the application of Strategic Options Development and Analysis (SODA) (Eden and Simpson 1989). The method makes possible the elaboration of cognitive maps from the verbal protocol of an interview, that enabling the structuring, from a point of view formal and methodological, of the contents of the interviews and to analyze in an appropriate manner the qualitative data. To elaborate the cognitive maps means representing a system of concepts and identifying the relationships between them, in order to communicate the nature of the decision-making problem in question and its related implications.

In order to identify the stakeholder's points of view, we conducted in-depth interviews with the help of the CATWOE method (Rosenhead and Mingers 2001), a specific technique for aiding the decision of the SSA (Checkland 1981). The CATWOE method is a useful tool for structuring the interview and for exploring the decision-making problem from multiple points of view. In the specific case, to the eight interpretative questions identified with the CATWOE model have been associated a typology of concept (criticality, potentiality, actions, future visions, obstacles, actors, environmental limits) and one identifying color. Thus, for each stakeholder group (institutions, hoteliers, restaurateurs and traders, experts, associations, farmers, tourists, citizens), was developed the relative cognitive mapping using the Decision Explorer 3.1 software. Through two appropriate analyses: domain analysis and central analysis and comparing the results, it has been possible to structure of preferences explained by the various stakeholder involved and to identify the components of the future scenario. Detected preferences help us to outline the components of valorization scenarios of Urban Landscape called "Pythagoras", identifying the future shared visions.

3. **The evaluation of scenario:** For the evaluation of preferable future visions for the Pythagoras' Urban History Landscape, has been applied the Analytic Network Process (ANP), a multicriteria evaluation method created by T. L. Saaty (Saaty 1980, 2000; Saaty and Vargas 2006) in order to overcome the linear structure of the traditional evaluation methods and to articulate a more dynamic framework, able to consider the complex interactions that characterize the reality. This is a method of supporting decisions that, in addition to the possibility of considering different types of data (quantitative and qualitative), offers the opportunity to assign various weights to the identified criteria, to manage the conflicts between objectives and to deduce the priorities between alternative options. In the ANP method, each decision problem is structured as a network of the elements organized in groups according to multiple reports of the influences. This configuration enables us to find a structure able to incorporate interdependence relationships and feedback. Considering the existence of feedback, in fact, not only alternatives may depend on the criteria, as in a usual hierarchy, but the criteria may depend on the alternatives and by other elements considerations thought significant for the decision-making problem (Della Spina et al. 2016). In addition, the method also enables the stakeholders and their points of view to be included in the network. The first step in the application of the ANP consists of structuring a hierarchy that is able to represent simply, but at the same time explicitly, the terms of the problem. In particular, first was identified a five-level hierarchical organization (Fig. 1) and, second, the elements (or clusters) of the problem were networked by identifying the connections between them (Fig. 2). After completing the construction of the model, the evaluation was done by applying the comparison to pairs, which allows us to express the judgment preference considering the links between the various elements of the network. Judgments are expressed through the "Saaty's fundamental scale".

The decoding of the interviews aimed at identifying the future visions of the Pythagoras' Urban Historic Landscape which incorporates in the selection four sustainable valorization alternatives: "Pythagoras' urban historical landscape: natural and cultural park"; "Pythagoras' urban history landscape: houses the tourist"; "Pythagoras' Urban History Landscape: natural museum"; "Pythagoras' Urban History Landscape: artistic pole".

What emerges, therefore, is a concept of integrated development of the landscape, whose material and immaterial elements, which therefore comprise the complexity and reflect the characteristics of the HUL concept, contribute together to the structuring of future development strategies. The four visions have common goals, identified from the analysis of the cognitive framework and community preferences, from the criticalities and potentialities that emerge and from the same goals for the future vision of the whole Pythagoras' territory. Also in this case have been identified some macro topics, in the context of which are explained the objectives: culture, tourism, local economies, environment and landscape, mobility, costs and revenues. In general, the four visions aspire to activate a development process in which the local system become

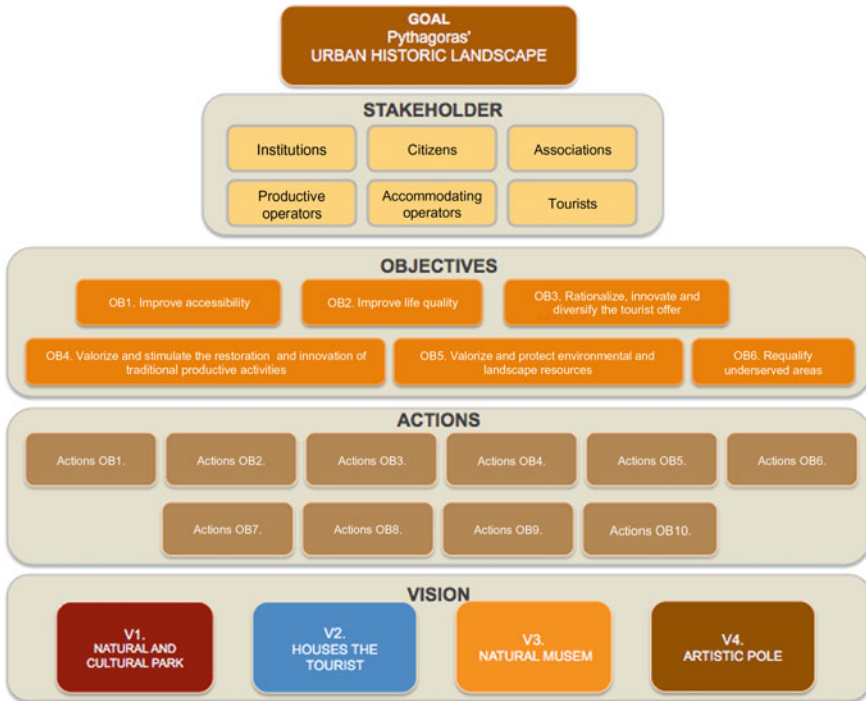


Fig. 1 Pythagoras' urban history landscape: the hierarchical structure

self-sustainable and vital, to invest in creativity, on the innovation and knowledge, essential ingredients for valorization processes, i.e., why they are not interpreted as simple aestheticism of the city's physical-space scenario (Fusco Girard 2012). If goals and actions are in common to the four future perspectives visions, the weight that the actions assume in each of the visions are substantially different. For each vision, we have constructed the relative strategic maps, in which are identified the interventions. In addition, Financial Analysis was performed on each vision, in which the results were considered as additional criteria to be taken into account for multi-criteria evaluation.

The first vision, "Pythagoras' Urban Historical Landscape: natural and cultural park", sees the territory as keeper of history, traditions, local knowledge to learn and to know along the paths and through ancient buildings. It is a path of knowledge, with a significance didactic-educational value. The functions that will host the ancient buildings will be mainly related to museums and didactic activities.

The second vision, "Pythagoras' Urban History Landscape: houses the tourist", will be oriented towards satisfying the needs of the tourist; it will host hotels, restaurants, farmhouses and provide specific didactic activities for the tourist.

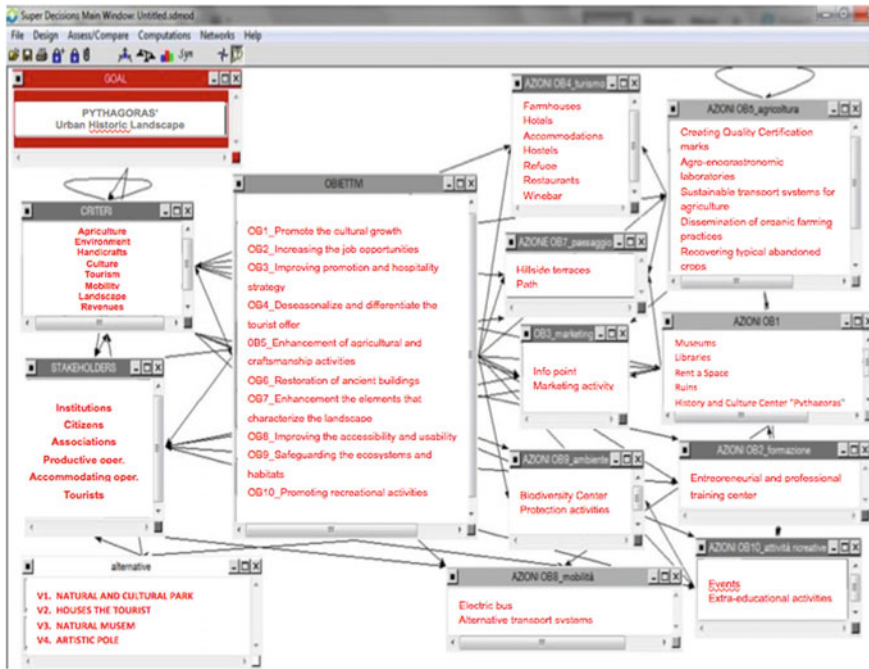


Fig. 2 Pythagoras’ urban history landscape: the network structure

In part, the buildings will host also museum activities and a professional training center and entrepreneurial one in the tourism sector.

The third vision, “Pythagoras’ Urban History Landscape: natural museum”, aims to leave unaltered as much as possible the state of the places. In fact, it arises from the desire to fully protect the environmental heritage by minimizing interventions. Buildings next to the center will host administrative activities, management, a museum and a training center. The other buildings will be left mainly in the state of ruin, after appropriate conservation restoration work.

The fourth vision, “Pythagoras’ Urban History Landscape: artistic pole”, transforms the territory into a center of artistic and craftsmanship, to recover the ancient function of the country’s productive heart. The buildings will host workshops linked above all to the tradition, and, at the same time, will trigger processes of production innovation. The citizens will be personally invited to participate actively in the organization and management of the entire system.

Through the application of the ANP, the preferred alternative between those evaluated is the “Pythagoras’ Urban History Landscape: artistic pole” (34.2%), followed by “Pythagoras’ Urban Historical Landscape: natural and cultural park” (27.5%), “Pythagoras’ Urban History Landscape: natural museum” (19.7%) and “Pythagoras’ Urban History Landscape: houses the tourist” (13.5%) (Fig. 3).

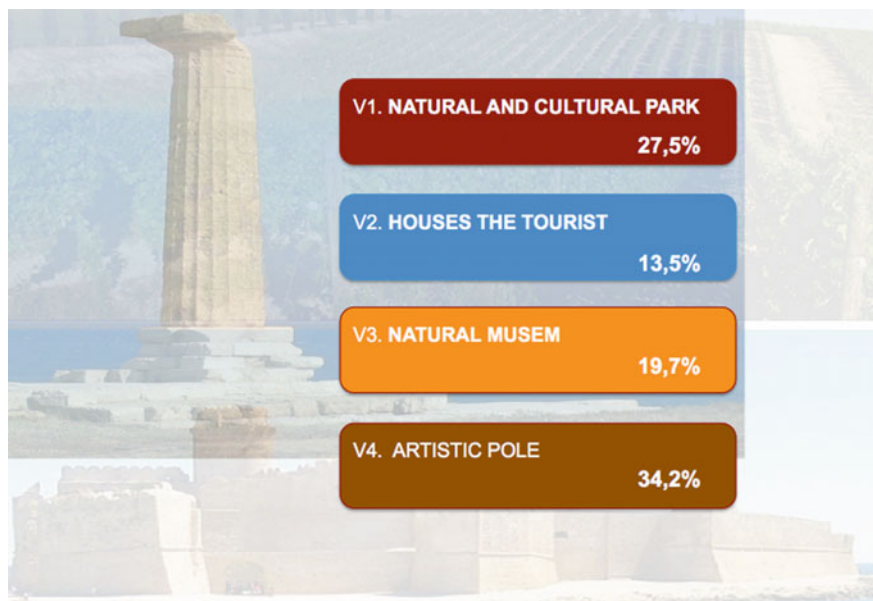


Fig. 3 Pythagoras' urban history landscape: the results of the evaluation with the ANP method

The vision “Pythagoras’ Urban History Landscape: artistic pole” is an opportunity to highlight the characters of the Urban Historic Landscape by activating a process of local regeneration through a network of relationships, materials and immaterial, between ancient traditions and new uses, in which art, in its many variations, assumes a propulsive and driving role.

3 Conclusions

The study explored the potentialities of an integrated approach to the development of territorial valorization strategies sensitive to the specificities of the multiple values and of the complex resources that characterize the Pythagoras’ Urban History Landscape. The experience thus structured has allowed us to verify how can be translated integrated assessment approaches into complex evaluation systems, which are able to support the design of shared and transparent planning and design choices, according to a bottom-up approach (Concilio 2010; Della Spina et al. 2015). The combined application of various methods and techniques, also coming from disciplines not necessarily within the evaluation, enable us to tackle complex decision making, which is characterized by multiple variables and a high level of uncertainty.

In such decision-making contexts, it is necessary to configure an incremental and cyclical process of evaluation, characterized by continuous feedback and constant

interactions, useful for delineating a conscious and shared project of transformation and valorization, coherent with the principles of the HUL approach. In the course of experimentation, the application of an integrated and multi-methodological approach has allowed to take into account the features of the Urban Historical Landscape under study, the various multidimensional components, the tangible and intangible relations system, and the relative perception of the stakeholders, identifying the weights and identifying the various priorities, selecting actions attentive to context, able to reflect the evolutions of an interactive and dynamic dialogue between the communities, local know-how and experts (Calabrò and Della Spina 2014). At the same time, it is possible to identify some critical issues that are due in some cases to specificities of the context, and in others to the application of the evaluation techniques. The collection of the hard and soft data requires a careful selection of reliable and updated sources, as well as the availability of the stakeholders identified to collaborate in decision making and to become protagonists in building decisions. The application of the SODA approach with the elaboration of the cognitive maps enable identification of shared-preference cognitive maps, although they require long implementation and processing times. In addition, the individual points of view obtained from in-depth interviews, through the CATWOE method, should be integrated with appropriate focus groups or forums, where the various stakeholders can discuss them and together identify shared preferences. An another critical issue regards the evaluation with the ANP method, which should not be restricted to the expert knowledge only, but it should make possible an effective interaction between various fields of knowledge and points of view. The use of the ANP approach in an assembly of stakeholders would allow making explicit the preferences and activate an incremental evaluation that enables us increasingly to address the conflicts and to build converging coalitions towards shared visions.

Through a flexible and adaptive methodology path, combining complex evaluation techniques and stakeholder involvement techniques, it is possible to build valorization strategies and promote good governance processes, capable of enhancing the local deliberative democracy by activating effective collaboration between promoters, operators and users (Calabrò et al. 2013).

The choices' effectiveness is related to the ability to integrate various sector policies, but also from the consensus that will be devised for intervention alternatives (Nijkamp and Fusco Girard 1997). The success of the path will also depend on the degree of integration that can be achieved through concertation/participation/coordination processes that are in line with sustainable development strategies. This factor implies a large capacity for the coordination of public institutions and the promotion of "good" initiatives with the involvement of private and private-social stakeholders. With the support of integrated assessment approaches, it is possible to start a systemic and active form of preparation for change; they enable building shared actions in a long-term vision in order to develop and build public decision-making effectively.

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