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Human Smart Landscape: An Adaptive and Synergistic Approach for the "National Park of Cilento, Vallo di Diano and Alburni"

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Abstract

The concept of human smart landscape introduces a perspective of research where the landscape identifies a complex system of relationships among the various smart dimensions (smart economy, smart mobility, smart environment, smart people, smart living, smart governance) and different interpretative approaches, overcoming the consideration of territory as a physical–geometrical reality at the service of economic aspects. The paper, starting from the evolution of the landscape's concept, focuses on the management of its complexity in the transformation processes included in the dynamic context of the landscape's cultural values and in the development strategies designed to support and strengthen these values. A multidimensional methodological framework, oriented to the evaluation and valorisation of landscape complex values, has been structured and tested in the National Park of Cilento, Vallo di Diano and Alburni (Italy).
Keywords: Cultural landscape; Complex values; Collaborative decision-making process

1. Introduction

In recent years growing relevance of the spatial dimension and specificity of the "territory" concept in the economic, social and political sciences can be considered an effect of the globalisation of economies, communications and transportation and the consequent expansion of the global market and businesses, together with administrative decentralisation. A greater competition among regions, both in urban and rural areas, increases the need to secure investments according to the attractiveness of their territories, based on the presence of local human,

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cultural, and social capital. Indeed, in contemporary regional development, the competitiveness of a region in attracting economic investments and the health of the local community are closely interrelated. A business needs a successful community, not only to create a demand for its products, but also to provide critical public assets and a supportive environment. At the same time, a community needs a successful business environment to provide jobs and wealth creation opportunities for its citizens. This interdependence implies that policies and spatial planning can play a vital role, because competitive advantages for individual regions are derived from their ability to produce new values through the combination of tangible and intangible components (De Groot et al., 2010; Fagerholm et al., 2012). Therefore, landscape, natural resources, cultural heritage, local traditional economic activities, and the social and cultural milieu stand out as important local resources that may enable a region to be competitive in the global market, to be attractive and to improve quality of life. Balancing these issues is a relevant challenge in order to build regional sustainable future visions. The relationship between landscape, attractiveness of a region and quality of life supports the identification of the concept of place-based well-being. According to the Historic Urban Landscape (HUL) concept by UNESCO and the European Landscape Convention, it is possible to refer to the landscape as "context" in order to emphasise the systemic behaviour of several factors (economic, social, cultural) involved, as well as the related complexity. In the European Landscape Convention, landscape is a certain portion of the territory, as perceived by people whose characteristics are derived from continuous human–nature interaction, where quality of life is a concept measured in terms of well-being. This is, nowadays, recognised as a multidimensional variable. Beyond the traditional approach of GDP, in several studies and international reports, the measurement of well-being includes the physical and perceptual quality of the environment as one of the dimensions of quality of life (Fusco Girard, 2014). In Section 2, the human smart landscape concept is introduced, considering the relevance of values, relationships and places. In Section 3, the stages of the methodological approach are explored relative to its application to the selected case study. Finally, in Section 4, we draw some conclusions on the methodological approach and on possible future developments in research.

2. Human smart landscape: A perspective of research

According to the definition of the Historic Urban Landscape (HUL) proposed by UNESCO (2011), the landscape is a dynamic system, in continual evolution, whose bound is not traceable or defined. This interpretation suggests an open and dynamic idea of landscape, based on a relationship system between tangible (physical infrastructure and services) and intangible (cultural and social networks) components, as well as an integrated and innovative approach to its identification, evaluation, conservation and management. The research in the HUL field aims to identify knowledge and evaluation tools of the landscape that are flexible, dynamic, adaptable to different contexts and are able to start the processes of transformation of the places while respecting their identity values. This concept of landscape is close to the logic of the smart city promoted by the EU, according to which, improving the knowledge of territories and producing open innovation are at the bottom of intelligent and efficient management of the city. The interaction between tangible and intangible components allows for developing the concept of "smart landscape" as a complex context that is careful of social cohesion, creativity and quality of life, encouraging the design of the spaces and infrastructure by reducing the waste of resources, recovering cultural and environmental heritage in a sustainable way, creating synergies among the natural, rural and urban areas, using ecological networks, enhancing the various forms of culture in a conscious way, and the using the attractiveness of landscape to improve the quality of uses and relationships. In this perspective, the "human smart landscape" becomes a purpose of innovative bottom-up processes, developing models for landscape intelligent management. These models put people at the centre and promote the use of technology according to the local conditions and needs of citizens, implementing micro-actions, based on social innovation, local knowledge, creative-development models, new technologies and infrastructure systems. The smart domains (smart economy, smart mobility, smart environment, smart people, smart living, smart governance), with explicit reference to landscape, highlight the need for integrated actions in designing spaces and infrastructures, while reducing resource consumption, recovering and enhancing cultural and environmental assets, and building synergies among natural, rural and urban areas. Starting from the conceptualisation of the human smart landscape approach, we propose a methodology for multidimensional landscape evaluation through the design of a Collaborative-Decision Support System (C-SSD) for context-aware planning strategies in order to acquire knowledge about the local quality of life and landscape resources and to study their time evolution, the relationships

between landscape and quality of life and to what extent the landscape can affect the quality of life or its perception by the local community. In addition, the strategies can be used to develop and evaluate scenarios for smart policies.

3. A Living Lab for the National Park of Cilento, Vallo di Diano and Alburni

The National Park of Cilento, Vallo di Diano and Alburni, in southern Italy is where the experimentation of a Living Laboratory (Living Lab) has been implemented for the identification and testing of endogenous development models (Fig. 1). This experience is part of the research project "Cilento Labscape: An integrated model for the activation of a Living Lab in the National Park of Cilento, Vallo di Diano and Alburni", funded by FARO Program 2012–2014 "Funding for the Start of Original Research", University of Naples Federico II. This proposal seeks to formulate an innovative approach that integrates the concept of the Living Lab and the complex meaning of smart landscape by structuring a model of interpretation and evaluation of landscape cultural values, which can be implemented for the enhancement of the National Park of Cilento, Vallo di Diano and Alburni. This park is listed as a UNESCO World Heritage Site, MAB-UNESCO List of Biosphere Reserves. It is a Geopark and a member of the UNESCO HELP-BASIN network. In this territorial context, a complex and multidimensional landscape system can be found, where multiple systems of relationships interact and potentially regenerate themselves, becoming catalysts of positive processes. The living labs are open innovation settings that take place in real life situations in which the active involvement of end-users allows for the co-creation of actions of new services, products and social infrastructures (ENoLL – European Network of Living Labs). The Cilento Labscape Living Lab aims to build a Public, Private, People partnership in the national park through the activation of a network of on-site thematic workshops, where expert and common knowledge are integrated, highlighting the needs and developing and/or transforming scenarios. The workshops activate some "small experiments" that are put on the network and are powered on the web thanks to a dedicated platform, according to a dynamic process of mutual and incremental learning.
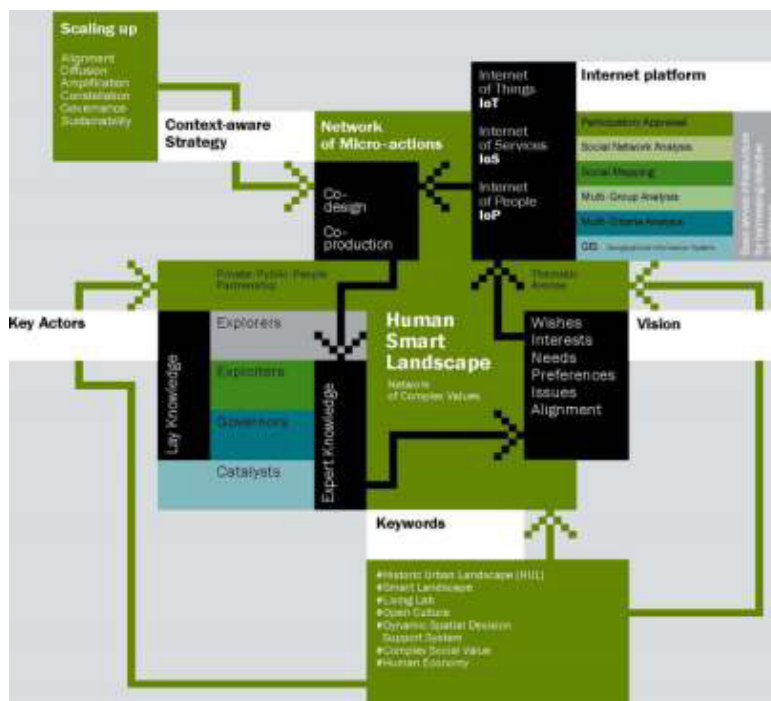

Fig. 1. Cilento Labscape: The methodological approach.

The geological, environmental, historical and cultural analyses show that the national park is an area of great cultural and natural interest that the local community does not know or fully exploit. Some groups of entrepreneurs and local associations are therefore experimenting with innovative and sustainable ways to promote, use and exploit the resources of the park. The research project, Cilento Labscape, starts with a comparison of these realities to discover local needs from which these experiments are a part of, and also aims to co-evaluate, co-design and test using place-based solutions.

Six territorial workshops, activated in various marginal areas of the park, are used to build a network of living labs, starting from the specificity of every context. In each workshop, the inhabitants (*insiders*) of the municipalities involved are confronted with specific users (*outsiders*) to stimulate the development of innovative valorisation proposals for local resources. One of the emerging resources is the Mediterranean diet, conceived as an integral part of the Cilento lifestyle and is an expression of local landscape. The Mediterranean diet is able to combine ingredients and local agricultural products that have significant local economic value, including recipes and cooking methods of each place, shared meals, celebrations and traditions. It is an engine of the social fabric of the Mediterranean countries and the food industry, conceived as a factor of economic and social development, but is also an expression of a cultural and socio-economic vital identity. Starting with the framework outlined so far, the methodological approach proposes an adaptive and synergistic evaluation process with the aim of identifying the perceived values of the landscape resources of the National Park of Cilento, Vallo di Diano and Alburni, and to explore, co-evaluate, co-design and co-produce (Pollitt et al., 2006) a network of micro-actions able to define a context-aware strategy (Cerreta and Diappi, 2014). An adaptive and synergistic evaluation framework stimulates more creative thinking, where landscape is conceived as an inter-connected and emergent, multi-functional and multi-value resource, and then, the services provided by the landscape itself are inter-connected and co-evolutionary. Then, the evaluation process links to social deliberation, capacity and collaboration building, and social learning processes, and a synergistic approach to evaluation helps to find "win-win-win" opportunities (Fusco Girard, 2011; Ravetz, 2014). According to the above perspective, the landscape is considered a complex learning system of interactive actions, influenced by dynamic processes within networks, including different stakeholders, where a system of actions, actors, values and processes enables a community to transform information and perceptions into valued knowledge, which in turn increases its long run adaptive capacity. This framework supports the identification of four categories of actors that take part in a complex landscape learning system (Iandoli et al., 2012): the explorers that explore the boundaries of knowledge, producing new ideas, methods, and techniques, the exploiters that are able to transform knowledge into value for the market, the catalysts who are the mediators of innovation and are facilitators in the complex process of transfer, adaptation and utilisation of knowledge, and the governors that manage the process. The introduction of the preferences of social groups allows for the structuring of a multi-group decision problem for the scenarios' simulation of landscape enhancement, where the scenario mapping is functional to the construction of a network of municipalities, identifying leader municipalities (*high ranking*), bridges municipalities (*medium ranking*) and isolates municipalities (*low ranking*).

In particular, through Participatory Appraisal, Social Network Analysis (SNA), Social Mapping, Multi-Criteria Analysis (MCA), Multi-Group Analysis (MGA) and Geographic Information Systems (GIS), a Collaborative-Decision Support System (C-SSD) is structured for the integrated assessment of the human smart landscape, which is aimed at the analysis of the change of quality of life over time, the identification of relevant factors, the construction of composite indicators for the evaluation of the human smart landscape at municipal scale, the identification of clusters of municipalities and a correlation between the quality of life and the presence of homogeneous landscape areas, and scenario simulations for landscape valorisation, taking into account the point of view of different stakeholder coalitions.

4. Conclusions

Landscape, as an inclusive concept, allows for overcoming the fundamental division between nature and culture, incorporating the idea that assessments of natural values are a cultural construct. Values are one and the same with the values of the context's resources and those of the stakeholders involved in the decision-making process (Cerreta, 2010; Brown et al., 2012). The creation of valorisation alternatives and decisions involves interdependent values that guide interdependent and interconnected decisions. The relationship between multiple forms of knowledge and

multidimensional values is fluid, dynamic and incremental, requiring continuous interaction among/with local stakeholders and decision-makers. This relationship develops progressively through continuous feedback loops, thus activating and maintaining learning mechanisms. At the same time, the attention to the organisation of complex, hierarchical systems and ecological thinking shifts from a small-scale view to a multi-scale view of landscape, recognising that biotic and abiotic processes can develop self-organising, mutually reinforcing relationships. According Gunderson and Holling (2002), we can consider landscape as open complex adaptive system, including ecological, social, and economic systems that show cross-scale structures resulting from positive, self-reinforcing organisation of scale-specific processes. These processes form adaptive cycles, whereby each cycle operates at distinct ranges of spatio-temporal scales (Stephenson, 2007; 2008), mutually reinforcing relationships (Stephenson et al., 2004). The concept of the human smart landscape also includes social and cultural practices and values, economic processes and intangible dimensions related to diversity and identity characteristics of a specific context. This concept provides the basis for a comprehensive and integrated approach for the identification, assessment, conservation and management of the landscape within an overall sustainable development framework, aimed at preserving the quality of the human environment, enhancing the productive and sustainable use of spaces, while also recognising their dynamic character, and promoting social and functional diversity. This assumption formed the basis for developing a comprehensive, integrated and sustainable identification, assessment, conservation and management of the landscape, as well as the identification of an endogenous development model that is capable of stimulating new circuits of value. In addition, the use of information technology and communications (ITC) works for stimulating relationships that are capable of implementing social, human or environmental capital, as well as identifying and driving solutions that can improve quality of life, thanks to the citizens' engagement in landscape management. Cilento Labscape represents a collaborative testing methodology for the development and promotion of the landscape's resources of the National Park of Cilento and Vallo di Diano and Alburni.

References

Brown, G., Reed, P., Harris, C., 2012. Testing a Place-based Theory for Environmental Evaluation: An Alaska Case Study. Applied Geography 22, 49–76.

Cerreta, M., 2010. Thinking through Complex Values. In: Cerreta, M., Concilio, G., Monno, V. (Eds), Making Strategies in Spatial Planning. Knowledge and Values, vol. 9, Springer, Dordrecht, 381–404.

Cerreta, M., Diappi, L., 2014. Adaptive Evaluations in Complex Contexts. Introduction. Scienze Regionali – Italian Journal of Regional Science 13, 5–22.

De Groot, R., Alkemade, R., Braat, L., Hein, L., Willemen, L., 2010. Challenges in Integrating the Concept of Ecosystem Services and Values in Landscape Planning, Management and Decision-making. Ecological Complexity 7, 260–272.

Fagerholm, N., Käyhkö, N., Ndumbaro, F., Khamis, M., 2012. Community Stakeholders' Knowledge in Landscape Assessment – Mapping Indicators for Landscape Services. Ecological Indicators 18, 421–433.

Fusco Girard, L., 2011. Multidimensional Evaluation Processes to Manage Creative, Resilient and Sustainable City. Aestimum 59, 123–139.

Fusco Girard, L., 2014. The Role of Cultural Urban Landscape towards a New Urban Economics: New Structural Assets For Increasing Economic Productivity Through Hybrid Processes. Housing Policies and Urban Economics 1, 3–27.

Gunderson, L. H., Holling, C. S. (eds), 2002. Panarchy: Understanding Transformations in Human and Natural Systems. Island Press, Washington, D.C., USA.

Iandoli, L., Ponsiglione, C., Marchione, E., Zollo, G., 2012. Knowledge Exchange Processes in Industrial Districts and the Emergence of Networks. Central European Journal of Operations Research 20, 231–250.

Pollitt, C., Bouckaert, G., Löffler, E., 2006. Making Quality Sustainable: Co-design, Co-decide, Co-produce, Co-evaluate. Report of the Scientific rapporteurs, 4QC – 4th Quality Conference for Public Administrations in the EU Making Quality Sustainable, 27–29 September 2006, Tampere.

Ravetz, J. 2014. Valuation and Evaluation in Complex Real Systems: A Synergistic Mapping and Policy Template. BDC 14(2), 251–266.

Stephenson, J., 2007. Many Perceptions, One Landscape. Landscape Review 11 (2), 9–30.

Stephenson, J., 2008. The Cultural Values Model: An Integrated Approach to Values in Landscapes. Landscape and Urban Planning 84, 127–139.

Stephenson, J., Bauchop, H., Petchey, P., 2004. Bannockburn Heritage Landscape Study. Department of Conservation, Wellington, NZ.