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Matera: city of nature, city of culture, city of regeneration. Towards a landscape-based and culture-based urban circular economy¹

Each city is a living organism with its own dynamics. Cities, as complex dynamic and adaptive systems, are able of self-organization/self-management. There are many causes of the decline of cities today (poverty, unemployment, etc.) that interdepend on the others in continuous retroactive processes. The general proposal of this paper refers to a key word: "regeneration" as revitalization of the activities in the perspective of the circular economy/city. The aim is to explore how an urban circular economy can be implemented through a cultural landscape-based approach, analysing the case study of Matera (Italy) and assuming the interdependence between a specific landscape and the circular economy/city models. The aim is to understand how to transform a millennial experience of underdevelopment into a dynamic development perspective.

1. Introduction

Each city is a living organism (Geddes, 1915) and it has (like all living organisms) its own dynamics. Cities born, grow, stabilize, become "stagnant", decline, and die.

Being as a living system, that is a complex dynamic and adaptive system, they are capable of self-organization/self-management. They are subject to different forces: economic, social, political, cultural forces, etc. Their combination determines the "fate" of the city, in generating feedback processes in which "virtuous" ones intertwine with "vicious" ones.

In general, in the urban transformation processes a part of the pattern of the city remains unchanged (permanence) over time (as the historical center) when other parts are subject to significant changes.

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The historical center represents the memory of the urban system, its specific identity. Conserving/valorizing the historic center means taking care of the collective memory of the city system.

There are many causes of the decline of cities: population aging, poverty, unemployment, lack of attractive capacity, degradation of building and infrastructure assets, decline in production activities, catastrophic events, poor sanitary conditions. Each of these causes interdepends on the others in continuous retroactive processes.

Once declining processes are activated, vicious circuits are triggered that, from the environmental level, affect, for example, the social and then the economic one (and so on), accelerating the process of degradation itself.

How to stop, or delay, or reverse these decline processes? How to face the increasing accelerated entropy?

The general proposal of this paper refers to a key word: “regeneration” as a revitalization of the activities in the perspective of the circular economy/city. Circular economy/city can attract circle virtuous processes.

The aim of this paper is to explore, in particular, how an urban circular economy can be implemented through a cultural landscape-based approach, analysing the case study of Matera (Italy) recognized as European Capital of Culture (ECoC) 2019, and assuming interdependence/relationship between a specific landscape and the circular economy/city models: these models reshape the profile of the landscape.

The characters of Matera is here identified according to the UNESCO Historic Urban Landscape approach (UNESCO, 2011) and its Complex Social Value (CSV: the use values and the intrinsic value) (Fusco Girard, 1987; Fusco Girard and Nijkamp, 1997). The Complex Social Value, usually applied in cultural heritage studies, integrates the concept of Total Economic Value including the “intrinsic” component, a non-economic value that is recognized by the community as a “permanent value” during the long time.

The maximization of the search of the more satisfying compromise between “intrinsic value” and many use values of the landscape can be identified as the final goal of an urban circular economy. In this perspective, relevant business and social initiatives in Matera have been explored, which integrate economic viability with landscape regeneration and the realization of positive social, environmental and cultural impacts, with all resulting impacts in terms of localization capacity and attractiveness for new activities.

After the analysis of the circular economy/city concept and the landscape approach (§2), the city of Matera and its historic, cultural and natural values are described and examined (§3) in order to guide the choice among different alternative strategic projects for the regeneration of the city (§4), necessarily assessed by an integrated evaluation approach (§5). Then, “enabling factors” for the Matera system regeneration and conservation, and in general for the regeneration of the cities, as the participation of local community (§6), new business and financial models (§7) and culture (§8) are analysed.

2. Circular Economy, Culture and Landscape as intertwined concepts

The implementation of the circular economy model modifies the existing landscape. For example, the symbiotic organization in Kalundborg has generated a landscape characterized by specific connective infrastructures. In turn, a specific landscape determines particular attention to a circular organization of economic processes, in a game of reciprocal complex interdependences. Economic circular processes reduce negative impacts on the natural and built environment/landscape and, at the same time, on the differential and Marxian rent, thus avoiding/reducing the over-use and under-use/waste of natural and man-made capitals.

2.1 Agenda 2030, New Urban Agenda and New European Agenda for Culture

Approving the 2030 Agenda goals in New York in 2015 (United Nations, 2015), all countries of the world have shared a vision of the future that should guide the choices during the XXI century.

It is recognized that the challenge of the XXI century is essentially an ethical challenge, that is connected to a reduction of ecological and social poverty.

Most of the goals of the 2030 Agenda can be realized in urban and extra-urban territory. The fight against poverty, the lack of food, water, energy, the production of wealth in a sustainable (or less) way, health/well-being etc. are realized (or not) in the city/countryside system.

The New Urban Agenda (NUA) (United Nations, 2016), the outcome document of the Habitat III conference (held in Quito in 2016), represents the “territorialization” of the objectives of the 2030 Agenda, in particular of the objectives specified in the following table (Table 1).

The New Urban Agenda defines the global urbanization strategy for the next two decades. This document should be interpreted as an extension of the 2030 Agenda for Sustainable Development, as Joan Clos (Secretary-General of the conference and Executive Director of the UN Human Settlements Programme, UN-Habitat) told participants at the closing session. It defines an urbanization model, a set of priorities and strategies that consider the evolving patterns of the new century. It recognizes culture and cultural heritage as an important factor of the urban sustainable development (§§ 10, 15, 24, 26, 38, 45, 60, 66, 67, 124, 125).

In fact, the point 10 of Quito Declaration reports that “culture and cultural diversity are sources of enrichment for humankind and provide an important contribution to the sustainable development of cities, human settlements and citizens”. “Culture should be taken into account to promote and implement sustainable consumption and production patterns” (point 10). There are many points highlighting the role of cultural heritage (both tangible and intangible) in the urban sustainable development. In the point 38 of “Transformative Commitments”, the role of cultural and natural heritage “in rehabilitating and revitalizing urban areas, and in strengthening social participation and the exercise of citizenship” is recognized. Culture is considered a key element in the “humanization” of cities

Table 1. SDGs linked to the New Urban Agenda (“territorialisation” of 2030 Agenda).

SDG 1 no poverty	End poverty in all its forms everywhere
SDG 2 no hunger	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
SDG 3 health/wellbeing	Ensure healthy lives and promote well-being for all at all ages
SDG 7 sustainable energy	Ensure access to affordable, reliable, sustainable and modern energy for all
SDG 8 sustainable economic growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
SDG 9 resilient infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
SDG 10 reduced inequalities	Reduce inequality within and among countries
SDG 11 inclusive, safe, resilient and sustainable cities	Make cities and human settlements inclusive, safe, resilient and sustainable
SDG 12 responsible production and consumption	Ensure sustainable consumption and production patterns
SDG 13 climate change	Take urgent action to combat climate change and its impacts

and human settlements (point 26). Points 45 and 60 of NUA highlight the role of cultural heritage in developing vibrant, sustainable and inclusive urban economies, and in sustaining and supporting urban economies to progressively transit to higher productivity. In the Effective Implementation section there are three points of the “Planning and managing urban spatial development” paragraph that make explicitly reference to cultural heritage/landscape (point 67). For example, the point 124 includes “culture as a priority component of urban plans and strategies in the adoption of planning instruments, including master plans, zoning guidelines, building codes, coastal management policies, and strategic development policies that safeguard a diverse range of tangible and intangible cultural heritage and landscapes” and the necessity to “protect them from potential disruptive impacts of urban development”. Cultural heritage is recognized as leverage for sustainable urban development. It has an important role in stimulating participation and responsibility, too (point 125). This item of the New Urban Agenda includes also the promotion of “innovative and sustainable use of architectural monuments and sites with the intention of value creation, through respectful restoration and adaptation”.

The Pact of Amsterdam (European Union, 2016) includes in the European Union priorities the circular economy model and the “place-led” strategic approach.

The new European Agenda for Culture (European Commission, 2018a) underlines the role of cultural heritage as a leverage of a common identity, social co-

hesion and wellbeing/health, as well as creating economic value and stimulating creativity. But it highlights also the importance of promoting active citizenship (§1, §6.2).

Here, we want to underline that the implementation of most of the SDGs, of the objectives of the NUA and the Pact of Amsterdam depends first of all on the ability to promote circular economy processes on a micro, meso and macro scale.

2.2 *The paradigm shift*

The paradigm shift evoked in several paragraphs of the NUA can be interpreted as a paradigm towards the humanization of the city. This is the real stake today. What are the contents of this “new humanism”?

Humanism represents a perspective that, referring to the notion of humanity, evokes a set of values. More specifically, the humanization project enhances trust in the critical intelligence of the human beings, but also in his emotional intelligence (i.e. benevolence, compassion, reciprocity); recognizes human beings as social subjects: they are relational subjects that, by their very nature, are inclined to cooperation/collaboration and not only to competition.

The challenge of humanization is now associated with the capacity to simultaneously reduce poverty and inequality conditions, to preserve the vitality of natural ecosystems and to guarantee inclusive economic growth and wellbeing in the future. The traditional values of humanism (freedom, justice, inclusion, prosperity) are therefore enriched in a broader perspective in the space (including marginal/poor people and natural ecosystems) and over time (including future generations).

The circular economy is the key towards this “new humanism”. The human scale city (i.e. the city of humanization, “of the human being for human being” - Lazzati, 2000) can be interpreted as the city that valorizes the local identity, its memory, its cultural heritage/ landscape, often located in its “places”; valorizes its public spaces, making them as catalysts for relationships/bonds, through the care and management of their inhabitants; enhances the cooperative capacity of citizens; realizes processes of real democratic participation in self-management and self-government (based on the principle of subsidiarity); invests in the solidarity economy and in the economy of relationships; invests in the ecological economy, through circularization and symbiosis processes; invests in human and social capitals, that is on training/education, and therefore on creativity; realizes a redistribution of wealth, reducing poverty.

The city of the new humanism is above all the incubating city of synergies and symbioses, which does not waste, but valorizes its different forms of capital (natural, man-made, human, social capitals). At the same time, in the time of digital technologies, AI, IoT, etc., cultural heritage is the entrance point for facing this human challenge, because it can become an effective “connective infrastructure” among past, present and future.

2.3 The Landscape approach

The achievement of the goals of the 2030 Agenda and the New Urban Agenda evokes the landscape perspective in many paragraphs. It offers a unifying, systemic, holistic view for interpreting reality and its transformations in an overall more desirable direction.

The landscape is the result of a hybridization process between the “work” of nature and the “work” of man.

All the challenges of our time are reflected in the landscape, from social inequalities to climate change, to migratory flows. The landscape identifies the state of health of a territory or a city (Nocca and Fusco Girard, 2018). The winning values or losing interests of a society can be “read” through the landscape: the culture of a community, the relationships between man and nature can be read through it. By incorporating values, but also instances, hopes and ideas, the landscape represents an element of identity, expression of a circular relationship between human beings and nature. It represents the context in which everyone is included: the landscape therefore represents a complex and synthetic indicator of sustainability (or in-sustainability) of an urban/territorial/regional system.

It represents the reality perceived by each subject that, at the same time, becomes the foundation of a collective vision in which community and scientific knowledge are integrated.

A disciplinary hybridization is required for interpreting this landscape: among different scientific disciplines and between the latter and community knowledge. The landscape perspective, being centered on subjective perception, is therefore anthropocentric and humanistic.

This approach based on the landscape is coherent with the new emerging paradigms: the humanistic and the ecological paradigms. In fact, as said before, the landscape is the reality perceived by each subject that lives a space, but then becomes a collective vision. This perspective is also consistent with the UNESCO approach (UNESCO, 2011), that is a unifying approach to the landscape (in which different perspectives converge and with respect to which it is possible to interpret the landscape system as a prism or lens), which offers and obliges a systemic vision of reality and its transformation, that is inclusive of all the complex interdependencies between natural and man-made components and subjects that live them.

The implementation of a local development strategy and the above mentioned objectives, related to the model of urban economy and circular cities, require a multidimensional approach that concerns together economy, ecology, society, territory, technology, institutions. Therefore a holistic-systemic approach is fundamental.

2.4 The Historic Urban Landscape Approach

The systemic notion of Historic Urban Landscape (HUL) proposed by UNESCO (UNESCO, 2011) is an example of the interpretation of the “active conservation” of the landscape that integrates (under certain conditions) with economic

development in a holistic/systemic perspective. The role of both tangible and intangible components (the relationship between society and nature) is recognized, in line with the Burra Charter (1979-2013). It also recognizes the fundamental role of the local community in governance, going beyond the conventional relationship between public and private, replacing the traditional top-down approach with a top-down and bottom-up circular cooperative perspective.

A high quality landscape contributes to urban productivity because it becomes an “attractive force” for different activities. This means that cultural heritage/landscape should be interpreted as a resource for local and regional economic development, being able to produce new jobs, to stimulate the localization of creative activities, to contribute to social inclusion and cohesion (Nocca and Fusco Girard, 2018; Nocca, 2017).

The issue related to the admissible limits for changing arises from HUL, and thus the problem of the compatibility between intrinsic values (values linked to history and collective memory) and new use values (that is the problem related to the suitable “choices”). These choices are characterized by the existing different values and by their conflicts. Therefore, the implementation of HUL approach requires integrated evaluation tools (§10) to facilitate decision-making processes (§§ 24, 25) regarding landscape transformation proposals (§26).

The Heritage Impact Assessment, the Social Impact Assessment and the Environmental Impact Assessment are here explicitly evoked to compare alternative change proposals. They are linked to the relationship between new and old assets.

Different forms of landscape can be recognized: natural, cultural man-made, social, economic, human landscapes. These different forms of landscape constitute the “complex landscape”.

However, the implementation of the aforementioned UNESCO HUL approach is possible in the perspective of the circular economy. Both the circular economy and cultural heritage conservation aim to extend the useful life of resources over time as long as possible; so, heritage conservation is achieved more effectively through processes of circular economy (Fusco Girard *et al.*, 2018; Fusco Girard and Angrisano, 2019).

Many European Capitals of Culture cities are moving towards the search for forms of integration between the circular economy in the industrial/logistic field and the tourism/cultural economy.

The above is determining a new focus on the forms of interdependence between cultural landscape regeneration and the circular economy.

Here, the functional reuse of the cultural heritage is interpreted as the entry point for implementing HUL, towards the circular economy/city model.

2.5 Towards a new economy: the circular economy

If it is true that the wealth of a country/region is increasingly represented by the wealth produced in its cities, it is equally true that cities are also great generators of entropy: they are the most considerable source of pollution, environmen-

tal degradation and destabilization of climate, which negatively affect health and well-being. They are the places where maximum energy consumption and pollution, as well as the conditions of social fragmentation, are concentrated.

The circular economy model, promoted by governments and entrepreneurial subjects to transform the current economic model into a sustainable production-consumption model, considers, among other principles, the “decoupling” of economic growth from the negative impacts on the natural ecosystem and the “closing cycles” through the reuse, recycling, and reduction of resources extracted from nature for human uses.

The circular economy model is defined as a “regenerative model”, that is able to re-generate the resources necessary for its functioning, not only material ones (food, water, energy, materials for industrial production, building materials, etc.), but also of intangible ones (re-generation of knowledge, relationships, cultural values, etc.).

This regenerative model can be intentionally applied to urban development in synergy with the development of the extra-urban territory, which can be considered as the necessary “ecological support” to the city (whose quality is fundamental for the health and well-being of the community).

The circular economy is born to achieve greater efficiency and productivity. But it is also, at the same time, the economy of cooperation, solidarity, co-evolution and of the long term. The circular economy is based, for example, on common goods that require management practices based on the cooperation/collaboration/coordination of the different subjects, opening to a vision of independent of use values, of “in and for themselves values” (that is the “intrinsic values”) as well as the coproduction of economic use and market values.

The circular economy model is reflected in the circular city model (Figure 1) that is originally focused only on a new urban metabolism.

2.6 The circular city model

Cities have historically been organized to receive and consume resources from surrounding rural and natural areas, in close proximity. In the global economy, on the other hand, the resources consumed in cities come also from areas that are very distant from the final place of consumption (even on an inter-continental scale).

While the globalization of knowledge, also due to digital tools, can be considered a process capable of generating positive economic and socio-cultural impacts (without producing significant negative environmental impacts), the globalization of processes of extraction, transformation, consumption and waste of more and more de-territorialized material resources has generated a difficult control on the extraction and transformation of material resources, as well as on the management of post-consumer waste.

A circular city is a city that reduces the amount of inputs because it is able to re-use materials, energy, water, nutrients, etc. On the other side, it does not leave its natural capital, man-made and even human and social capitals in a state of abandonment, underutilisation, or waste (Ellen MacArthur Foundation, 2015; Ma-

rin and De Meulder, 2018; Koenders and de Vries, 2015; Prendeville *et al.*, 2018; Sukhdev *et al.*, 2018). On the contrary, it valorizes these four different forms of capital (Fusco Girard and Nocca, 2018).

The attributes of a circular city are many and they are related to the construction sector (i.e. flexibility and adaptability of urban environment - spaces, buildings and infrastructures; construction chain characterized by efficient dismantling and separation; etc.), to the energy sector, to the food sector (i.e. linked to the reduction of food waste; valuing food waste and food surplus; maximising use of urban space for food growing; etc.), to closed resource loops, integrated planning, smart use of public spaces, reduction of underused buildings and spaces, promotion of industrial ecology and symbioses, etc. (Fusco Girard and Nocca, 2018).

The production and consumption models, as well as the socio-organizational models of society, have shaped the “form” and structure of the territories, producing “cultural landscapes” in some cases of exceptional beauty, coming from the action and synergy of the man with nature.

Therefore, it is possible to expect (and guide) a new transformation/evolution of the territory and the cities with the adoption of circular organizational and economic models.

First of all, in order to apply a circular regenerative model to urban/territorial development, it is necessary to identify and build synergies and complementarities between urban and extra-urban/rural areas, to “close the circle” of the production and consumption models at local and regional level. The reduction of the so-called “ecological footprint” of cities is achievable by implementing re-locating production-consumption models (Zeleny, 2010) and, at the same time, reducing the need for primary environmental resources through the development of innovative technologies and materials, also reducing production costs and marketing of waste products and recycling.

This re-localization and circular regeneration, if applied to the territory, should include the reuse and regeneration of cultural and landscape resources, as well as the valorization of local social, cultural, economic and environmental resources, with the aim of “re-balancing” urban, extra-urban and rural development, involving villages, small municipalities and medium size cities in terms of improving opportunities and quality of life.

It is possible to recognize many landscapes generated by circular economy processes, as the terraced landscapes, or the “Trulli- Alberobello landscape”, or the Matera urban landscape.

Here the landscape of the city of Matera, as European Capital for Culture in 2019, is considered.

3. The methodology for identifying new development strategies: the Matera city system

A particular urban landscape corresponds to the circular organizational structure. Matera is emblematic of the unifying approach of the landscape as a “prism”

in which all the different perspectives converge with respect to which it is possible to interpret the overall urban system.

How to modernize the urban/territorial system of Matera characterized by a particular combination of different systems, valorizing today the resulting landscape, of particular strength/identity, in such a way as to meet the needs of local society respecting, at the same time, the overall ecosystem? In other words, ensuring an evolutionary dynamic of the urban/territorial system coherent with its age-old history and identity, in the perspective of a new post-economic paradigm, that is the ecology paradigm, based on participation, cooperation and self-organization? (Fusco Girard *et al.*, 2018).

The regeneration of the Matera urban territorial system “asses through” the elaboration of a creative and adaptive strategy able of integrating the new with the ancient (as recalled by HUL, §22).

Cultural heritage and landscape valorization through adaptive/functional reuse contributes to improve the quality of the places and therefore to attract new functions/activities and new businesses, especially in the field of knowledge and creativity.

Different steps are required:

- 1) identification of the landscape characteristic values and their evolution during the time, according to the HUL approach;
- 2) identification of the “intrinsic value” (a component of the Complex Social Value) of the Matera landscape system. The “intrinsic value” becomes the foundation of any adaptive reuse and urban regeneration project. It has to be taken into account in any regeneration alternative because it is configured as a “vector” that orients the transformations of the urban historical landscape;
- 3) identification of use values (existing and potential), of social values (the circular relationships with the local community, etc.), other independent of use values;
- 4) forecast and evaluation of all different impacts of each alternative in terms of change of the complex value of the Historic Urban Landscape, through a new Heritage Impact Assessment (HIA);
- 5) interaction and discussion with local communities and all stakeholders for modifying the outcomes of the above steps or for proposing compensation/integration;
- 6) identification of different potential alternative for HUL transformations of an action plan with strategic projects and of new shared indicators and methods for the evaluation of the above value components of the historic circular landscape of Matera (and its change).

3.1 *Historic, cultural and natural values of Matera landscape system*

The “City of the Sassi”: in this way Matera is defined, a city of about 60,000 inhabitants located in the Basilicata Region (Italy). Matera is internationally known for its “Sassi”, prehistoric caves carved into the rock, perhaps one of the first human settlements in Italy.

The Sassi were the first site in southern Italy (and the sixth in Italy) to be recognized as a World Heritage Site by UNESCO on December 9th 1993. They were the first site to be called "Cultural Landscape".

The Sassi and the Park of the Rupestrian Churches of Matera, in fact, have been recognized as an "outstanding example of a rock-cut settlement, adapted perfectly to its geomorphological setting and ecosystem and exhibiting continuity over more than two millennia". They are an "outstanding example of an architectural ensemble and landscape illustrating a number of significant stages in human history" and representing "an outstanding example of a traditional human settlement and land-use showing the evolution of a culture which has maintained a harmonious relationship with its natural environment over time" (www.whc.unesco.org).

Until the end of the eighteenth century, the Sassi maintained a regime of substantial stability thanks to man/nature co-evolutionary processes, such as water conservation and the reuse of spaces and waste. Then, the situation changed due to the demographic increase and the pastoralist crisis. The Sassi were expanded to accommodate increasingly large families and became a "mess" of overcrowded and dirty houses in which the minimum sanitary conditions were completely lacking, starting with the lack of sewage and running water. In the Sassi people and animals lived together in increasingly critical hygienic-sanitary conditions: diseases began to spread increasing the mortality rate, above all of children and the elderly.

These tragic conditions in which the inhabitants of Matera lived, strongly denounced by Carlo Levi, let the Sassi named as "Shame of Italy" (attributed in 1948 by Palmiro Togliatti, the leader of the Italian Communist Party).

In May 1952, the "Special Law for the displacement of the Sassi" (De Gasperi) was issued. The Sassi were practically emptied and therefore they became a "ghost town" bordering the new city. Degradation and abandonment took the place of life in the caves and churches, while the city expanded into new neighbourhoods according to the Urban Development Plan.

Nevertheless, the beauty and singularity of the Sassi began to attract the attention of external subjects. For example, several national and international film productions chose those unhealthy caverns as locations for their screenplays (for example, "The Gospel according to Matthew" by director Pier Paolo Pasolini, "The Passion" by director Mel Gibson).

Between the '70s and '80s a series of socio-economic studies were started to understand which the role of the Sassi should be in the future. The Special Law no. 771 of 1986 represented the first step for the return of inhabitants in the Sassi, as it enabled citizens to come back to the old districts in tufa to make them live again, reversing the previous flow towards the new neighbourhoods.

The recognition of the Sassi as World Heritage Site (1993) represented a further incentive to the rehabilitation and requalification processes of the Sassi.

In the same caves where once people lived with animals and died of malaria, craftsmen, B&B, restaurants, "cave houses", museums, etc. began to arise.

On 17th October 2014, the city of Matera has been recognized as European Capital of Culture for 2019. Since then, the tourist demand has significantly increased.

But how is it possible to guarantee an effective sustainable development strategy? An inclusive strategy able to satisfy everyone's needs starting from health and well-being? How to avoid processes of mere "toustification"? What limits for changing?

It is necessary to identify new forms of economy that are able to go beyond the real estate economy. The latter, through the engine of rent, has been the protagonist of recent years (affecting local tourism and its activities), determining also "waste" of territory. We need to go beyond the economy of marginality towards new forms of economy, as the knowledge, creativity and cooperation economies, starting from the recognition of the "intrinsic value" of the landscape. Transformations that do not conflict with the result of millenarian natural and social processes are necessary: transformations in which nature and culture do not diverge.

3.2 The complex landscape system of Matera as an example of historic circular city: the intrinsic value

In the history of the city of Matera some forms of circular economy already existed. The water conservation system is an example. Taking advantage of the surrounding territory, composed mainly of tufa (a magmatic rock "easily" workable), in this area man has been able to excavate, in addition to housing, ducts and tanks for water supply to the houses of the Sassi. The cisterns were private, that is inside houses, or larger in order to supply whole neighbourhoods.

This does not represent the only form of circular economy that can be found in the history of the city of Matera. In fact, because of the extreme poverty characterizing the city, families were forced to eliminate any form of waste, minimizing waste and recycling and reusing them (www.wikimatera.it).

The houses developed in the rock with deep underground rooms and they opened out onto terraces and hanging gardens. The total integration among the natural framework, the immense excavation work and the in-view constructions makes the Sassi of Matera an extraordinary example of symbiosis between the site and human intervention.

The Sassi of Matera are a long-lasting example of the ability to create architectures and cities with few means and adequate use of local resources.

The difficult situation in which Matera was located pushed the populations to adopt "new" strategies for using the territory to survive.

The scarcity of resources, the need to appropriately use them, the economy of land and water, the control of the sun and wind energy have driven the organization of the Sassi of Matera. The terraces and shelters of transhumant agropastoralism, the archaic methods for storing the products, for collecting the water and forcing them into the garden, on the clearing in front of the cave to the cistern (fulcrum of the neighbourhood organization), constituted the still identifiable matrix on which the urban fabric of the city of Matera grew (Fusco Girard *et al.*, 2018 BDC), ensuring conditions of substantial systemic resilience over time.

The cisterns, in fact, which far exceed the inhabited caves and the need for drinking water, testify to the organization of the agricultural gardens carved in

stone. Subsequently, the extension of the housing use subtracted space from agriculture and many of the cavities of the cisterns, used only for domestic water, were transformed into houses.

The need for lighting was decisive for the shape of the excavation and, together with the use of caves to collect water by gravity, it determined its course not completely horizontal, but on a slope as it progresses deeper. The inclination of the path between the hypogeum spaces allows solar rays to penetrate to the bottom and facilitates aeration. It is possible that the excavation itself was carried out following the projection of the sun on the bottom of the wall (Laureano, 2012).

Every surface was exploited to cultivate gardens, anticipating urban agriculture which is a characteristic of the circular economy/city.

3.2.1 Matera among history, nature and culture

Matera is the city of secular coevolution between man, nature and culture; where a particular culture has given a unique form to the city, to the dynamic relationship between inhabitants and the natural/built environment; where the community has created its own environment which, in turn, has “informed” life, the choices of people and society.

Matera is not only a city of the ecological economy, in which the economy has for centuries been incorporated into the more general context of ecology (i.e. the economy of nature), but it is also a city of social ecology and cultural ecology. Neighbourhood relations have given spatial shape to the same types of buildings and their organization around common living spaces (open spaces, gardens, etc.). The symbiotic relationship between man and nature finds a reflection in the coevolutionary, cooperative, solidary relationships among different subjects, creating specific micro-communities. It is the city where the triangular relationship among nature, society and culture represents the foundation of the value of its resulting systemic landscape (Figure 2).

These interrelationships among nature, society and culture have in fact produced a very particular landscape, where each single component interacts and interdepends with the others: the Matera landscape expresses the particular reciprocal relationship between nature and society through culture.

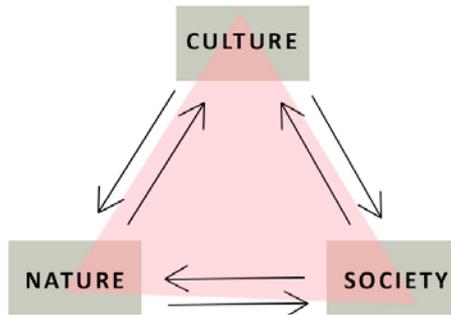
This landscape is the reflection of an absolutely unique urban organization: it is its “intrinsic value”.

The “intrinsic value” is an essential value that a site/landscape/cultural heritage has because it is able of expressing the elements of permanence in the continuous urban/territorial dynamic.

The formulation of the “intrinsic value” has recently been taken up in the document of the European Commission (Access to Culture 2017) regarding the dual dimension of culture as a value “in and for itself”, distinguished it from instrumental value (such as economic and social values).

The “intrinsic value” is therefore linked to the “spirit of places” (Norberg-Schulz, 1989) and to the knowledge embedded in a certain site that reflects a centuries-old (if not even millennial) history that has given physical-spatial form

Figure 2. Triangular relationship among nature, society and culture in the systemic landscape.



to the relationship between man and nature, generating a specific identity. It expresses the sense of belonging of a place to a community, and vice-versa. The “intrinsic value” emerges in particular in the religious architecture heritage (i.e. convents, abbeys, cathedrals, sacred sites) and survives even when a cultural asset is no longer used. It expresses the creativity, the diversity power, the essential structure of a site which on its turn structures the context in a reciprocal relationship. One outcome of the “intrinsic value” is the beauty itself of the site/landscape which is not only linked to the balance of the components but to the harmony of the whole system.

Being the result of a social “construction” of meaning, the “intrinsic value” interpretation and evaluation require the participation of the local community in its various components. Therefore, a neo-positivist approach is not possible. A participatory communicative dialogic process is required that can also lead to the identification of different coexisting “intrinsic values”, even if characterized by common elements.

The role of “intrinsic value” is to drive the development of a site, of a historical center, of a city. But it also contributes to identify a direction for its use and management. In this sense, by offering a perspective to the new local valorization and regeneration strategies, the intrinsic value is the foundation on which to articulate any new use value (or combination of multiple use values) connected to the a new project/strategy. In this way, the new project is in continuity with a territorial urban history and offers the “energy” for a creative synthesis, for hybridization between memory and innovation.

“Intrinsic value” offers the insuperable limit in managing change.

Historically, the notion of “intrinsic value” draws its foundation from the ecological economy (Turner, 1992). Actually, Ruskin and Morris had already introduced this notion (Ruskin, 1989; Morris, 1889), later evoked from Riegel as the memory-value (Riegel, 1903). It was the Burra Charter (1979-2013) that opened the perspective of the intrinsic value in the cultural heritage conservation.

In ecological economics, the notion of intrinsic value is linked to the self-regeneration capacity of a system: to its self-organization capacity, to self-sustainability, to self-sufficiency linked to the “glue” or primary value (Turner *et al.*, 2003). It is the foundation of the instrumental economic values. The system receives from

its surrounding context wealth, materials, waste from other natural systems, etc. that are processed through circle loops. In this way, the system is able to sustain also other elements: it is “useful” in ecological, social, economic dimensions.

This is its generative capacity. The self-sustainability, auto-poietic capacity reflects the “intrinsic value” of the system.

The “in and for itself” value of the Sassi landscape can be expressed first of all through indicators reflecting the intensity of the circular processes in the urban flow of water, energy, materials, etc. In this perspective, this “in and for itself” value is configured as a component of the “intrinsic value” to be conserved and valorized in the regeneration of Matera because it represents the memory itself of the urban system. This “intrinsic value” has given a physical-spatial form to the urban structure and has configured its specific identity, generating in turn specific economic, social environmental and cultural values regarding different subjects, with complex interviewed networks between causes and effects.

Today we need to re-interpret this systemic perspective on different levels and insert it in the HUL approach proposed by UNESCO.

3.2.2 Matera: which new use values?

The question is therefore: what is the modernization proposal consistent with its millennial history and identity, that is with its “intrinsic value”, founded on the paradigm of post-economic ecology: on participation, cooperation and self-organization?

What modernization project based on soft technologies, consistent with a thousand-year history, with an ecological economy that reflects the slow rhythms of nature and that promotes better possibilities of living can be proposed? What regeneration project that goes beyond the tourism sector - more or less sustainable - and that is capable of declining the cultural dimension in all the urban sectorial policies can be proposed?

The general thesis here proposed is that it is necessary to develop new functions, new use values for the development/regeneration of Matera consistent with a “humanistic” vision based on coevolutive relationships between man/man and man/nature, that reflect and give continuity to its particular identity (organizational structure) that has generated a unique landscape.

These new functions have to be framed in the perspective of an “ecological economy” to preserve the environment and ecosystem quality in producing (and redistributing) wealth.

More precisely, they are connected to a local economic basis characterized by processes of “circular economy”.

The purpose of the closing the cycles (production of cycles), formulated for the first time in 1971 by Barry Commoner in *The Closing Circle* (Commoner, 1971), is fundamental in the definition of the ecological paradigm, but has found only partial concretization today. One of the solutions to the challenges of our time is the implementation of models characterizing the natural systems that offer efficient management, production and consumption models (Pauli, 2014).

The “traditional” economy has contributed to the degradation of many cultural landscapes and individual cultural assets/sites; it has caused damage to the environment, to health, to the social system. In sum, the traditional economy has been a source of high entropy. The new “circular economy” is able to valorize the cultural heritage/landscape and, at the same time, to generate economic prosperity, being a coevolutive and cooperative economy. It is necessary to trigger organizational and entrepreneurial processes that are able to promote a system of relationships, generator of symbiotic bonds. The circular economy is, in short, a reducer of entropy speed in different dimensions (Georgescu-Roegen, 1971).

The proposed modernization project should be based on use values that promote a new society/nature symbiosis.

For example, some of these use values are linked to the enhancement of all “common goods” located in the urban territorial system starting from cultural heritage, natural ecosystems, biodiversity, landscape, able to promote decentralization, self-organization, self-management.

Common goods are configured as a hybrid between state and market; they represent the unifying principle through which it is possible to manage the relationship between nature and culture, between ecology and society. The notion of common goods integrates the “I” and the “We”, the subjective and the collective, the subjective and the natural, reconfiguring the values of modernity in a perspective of “relational rationality” that represents the foundation of the perspective of a new Humanism, which opens to the notion of common good (that is the notion of the general interest). Examples of common goods are Earth, forests, water, natural ecosystems, landscape, cultural heritage.

Cultural heritage considered as “common good” encourages the creation of a “community of relationships”, which represents an important element in determining the quality of life, but also in the generation of new chains of economic value. This community is a social community and also an ecological community.

The above perspective suggests a proposal for new use values within the framework of the “circular city” model, as a physical/territorial reflection of an urban economy based on the circularization of production and consumption models, on reuse, recycling, regeneration of different forms of capital and renewable energy, in order to reduce the consumption of scarce natural resources.

3.2.3 Matera European Capital of Culture 2019: the relationship with the other ECoC cities

In choosing the new use values, it is possible to refer to the other ECoC cities experiences, even if, compared to the other cities previously selected, Matera represents a “novelty”.

In fact, all the cities selected in the past years as European Capitals of Culture (ECoC) are much richer economically. Matera has a much lower per capita income. Many ECoC cities are also metropolitan cities (about 42% of the ECoC cities is characterized by a population over 500,000 inhabitants - the threshold recognized

by ESPON, the European Observation Network for Territorial Development and Cohesion in 2007, for metropolitan cities). Matera has about 60,000 inhabitants. In addition, many ECoC cities (around 50%) are coastal/port cities that trade with other port cities.

Matera is, instead, a city that belongs to the geography of “internal” territories, in general much less involved in development processes. Furthermore, it is not included in the so-called “east/west or north/south European corridors”. Nor does it have particular infrastructures such as airports/ports.

These are all new elements compared to the other EcoC: Matera, unlike the others, seems to appear as a city of marginality, underdevelopment, poverty.

The GDP of Matera is 43% lower than that of Bologna (which is € 38,200) and about 33% compared to that of Milan (which is € 49,800). Furthermore, the GDP of Matera is about 25% of that of Amsterdam, about 41% of that of Antwerp, about 48% of that of Rome, about 61% of Liverpool, about 57% of that of Lisbon, about 55% of that of Turin, about 46% of that of Florence.

In short, the other ECoC represent totally different cities and development models. The model that in general is emerging from the new ECoC is referred to an overall circular organization of economic processes, which is not only related to waste management, but to the entire economic system: moving from experiences of industrial symbiosis to the activation of more general processes of circular economy between city and port system, through the identification of specific functions/use values.

For example, in the ECoC port cities of Liverpool, Rotterdam, Amsterdam, Lisbon, Antwerp, Aarhus, etc. the symbiotic/circular relationship between port areas and cities, that is between logistics economy and cultural/creative/tourist economy, is increasingly growing.

The city of Rotterdam (ECoC in 2001) has the most important port in the European Union with a flourishing logistics activity. The challenge is to promote a local economic basis also based on knowledge, creative industry and cultural activities. In other words, the perspective is to put the port economy and the knowledge/culture economy into synergy.

For 15 years, the city has integrated port activities attracting investments and talents also through the redevelopment of public spaces, starting mainly from the year of recognition as European Capital of Culture.

The creative factory is a former grain silos that has been transformed into an incubator of creative activities and a co-working space (making it one of the largest co-working spaces in the European Union). More than 70 creative activities are located here together with specialized services to activate partnerships among different institutions. The impacts on employment are absolutely relevant for improving the well-being and health of the community.

Another example is the Rotterdam Media Commission which aims to promote the development of media (cinema, music, e-learning, etc.) in the Multihelix perspective, also involving the creative sectors as design, architecture, etc. The Campus Research Design Manufacturing of the University is a further example: a new partnership has been promoted with the Port Authority, oriented towards regen-

eration. About 240 jobs have been created; about 170 of them are located within the port area, with the result also of increasing its attractiveness.

The city of Amsterdam (ECoC in 1987) has a Plan for the arts and culture that is integrated with the development strategy of the port area. Amsterdam pursues the goal of becoming the most dynamic creative hub of the European Union, encouraging the transfer of knowledge, entrepreneurial skills and innovation (www.amsterdam.nl).

The Triplehelix model (Etzkowitz, 2008) finds its realization through a “Think-Tank” with the Creative Leadership program. There are also intensive courses for start-ups that, only in 2012, have been about 50. Amsterdam is at the forefront of the “circular cities”, with a lot of initiatives at different scales, some of which are still experimental; others already running.

The city of Antwerp (ECoC in 1993) has one of the largest ports in the European Union that has always played a central role both in the city’s history and in its economic dynamics. Today it is configured as an engine of the circular economy. The port has become the place where waste from the most different areas are imported and from which recycled or regenerated materials are exported.

But, since 1993, it has invested in the sector of the culture and knowledge economy, on the valorization of cultural and artistic heritage. An extensive redevelopment program concerns the old port and its ancient district (ISLET). A pilot project within this area is the Red Star Line Museum, located in a warehouse within the port area, as well as the Mass which is the new museum of the city.

The city of Lisbon (ECoC in 1994), after the designation of European Capital of Culture, has continued to invest in cultural strategies to face the economic crisis. A Local Agenda 21 for Culture has also been developed (www.agenda21culture.net). The Gallery of Urban Art (GAU) is a project that the city has launched for the enhancement of public spaces and as a place of “street art” in the high Barrio, in continuity with the projects of public art already promoted.

The city of Aarhus (ECoC in 1997) has the largest container port in Denmark and the logistics economy is a driver of the urban economy. Its recognition as European Capital of Culture has contributed to its reconfiguration as an international center of the knowledge economy (www.aarhus2017.dk). Its University, which is in the ranking of the first 100 Universities in the world, is an example. Aarhus is increasingly becoming a city specialized in architecture and design. Art, culture and creativity are the fundamental components of the new local development strategy that is causing a change in the same physical spatial arrangement.

The Museum of Arts, the Museum of the Old City and the Ethnographic Museum are the main attractions of a growing cultural tourism with significant direct, indirect and induced impacts on the city. Through the Re-Think Cultural Laboratory the city is investing in the research for innovative solutions that integrate the tourism economy with the knowledge economy. At the same time, the largest low-energy building in Denmark (38,000 square meters) has been built along the waterfront.

The city of Liverpool (ECoC in 2008) after 2008 is engaged in the activation of synergies among local sectorial policies in order to achieve greater productivity

(Garcia *et al.*, 2010). The 2014-2018 Action Plan derives from the recognition as European Capital of Culture and is set up as a generator of economic development starting from artistic activities. The impact assessment is expressed by the recognition that each pound invested in the city in the cultural sector has generated around 12 pounds in the urban economy. The strength of Liverpool's success is to involve citizens in urban regeneration processes through a high density of activated social and civil networks. Recently the city is moving in the direction of promoting a circular economy under the stimulus of the local Chamber of Commerce.

3.2.4 Hypotheses of new use values

The choice of new use values that can be deduced from good practices of adaptive reuse (consistent in particular with the Burra Charter) refers to functions such as museums, research and education activities, public libraries, cultural and community centers, cultural and creative clusters/industries, incubators, ICT clusters, etc.

The Burra Charter suggests valorizing the relationship between communities and places through participation and involvement of the local community.

Matera has been for centuries the city of the circular economy. It has in fact realized the organizational model that richer cities only today are realizing. It is the city of the secular circular economy that has anticipated the "circular city" which today is inspiring many ECoC cities: Amsterdam, London, Paris, etc.

As already underlined, in the city of Matera the circular economy is characterized by a millenary history of organization of urban processes that has guaranteed resilience during the past.

This represents - despite the differences above mentioned - an element of continuity and assonance between many ECoC cities and Matera: the reference to a new/albeit millenarian model represented by the circular economy. This element of continuity/analogy (which raises the question of how to transfer the circular economy from the industrial-logistic sector to the generally more backward sectors, that is to the sectors prevailing in the areas of marginality such as agriculture, agri-food, zootechnics, etc.) represents the "intrinsic value" around which to draw up regeneration prospective today: it represents the "vector" that should orient urban and economic development (i.e. the particular way in which the various forms of capital are related to each other).

This means that the proposal of regeneration of Matera is not only a problem of conservation of the stones, of the physical/natural system, that is of the natural and man-made capitals, but first of all of the organizational structure of the city itself. It is not only referred to the conservation of the status quo, but of maintaining as far as possible this organizational structure of the city which represents its particular identity. It finds its foundation in the circular model.

This specificity/identity that reflects creativity of ancient generations has to be creatively reinterpreted in the transformation/regeneration project. This circular organizational structure expresses the "intrinsic value" of the city that for millenia has shaped it, in analogy to the "intrinsic value" of natural ecosystems.

The “intrinsic value” of Matera, a reflection of the overall organizational structure characterizing its history, is linked to the water, energy, material, food, and waste cycles: it is linked to the culture of recycling/reuse. This has ensured strengthens of a connective relationship among land, physical-spatial structure and inhabitants, with the self-reproduction over time of this organizational structure (city as a living system, characterized by circular/cyclic processes). This autopoietic organizational capacity in ecological systems that identifies the so-called “intrinsic value” (Turner, 1992) now should be able to become generative of new economic, social, environmental, cultural values.

In the ecological economy, the “intrinsic value” is interpreted as “primary value” that exists independently from the presence of the human being; that is, independently from the usefulness for the human-social system. Here, the “intrinsic value” has to be interpreted in a way that does not coincide with this definition, but represents an “extension” in the context of the dynamic, complex and adaptive system that is the city with its landscape.

It represents also a way of thinking in a circular logic, that overcomes the linear rationality, much more attentive to changing contexts, conditions, circumstances.

However, it represents the foundation of any new use value, that is of any “hybridization” between different use values, because it expresses what constant/permanent is during the different transformations that have occurred over the centuries/millennia. It is a value to which it is no possible to give up managing changes.

It is necessary, in fact, to understand how to translate today this circular economic model to a dignified level, better of the mere survival. What alternative use values? Which use values that can be transformed into exchange values?

This “permanence” over time justifies the adjective “intrinsic” because it represents the “essential value” that has “connected” social, natural and man-made capitals.

A creative hybridization between the “intrinsic value” (which reflects the “spirit of places”) and the possibilities of innovation for improving the quality of life is necessary. This hybridization project cannot ignore some general conditions.

3.2.5. Conserving the historic cultural landscape of Matera for development

The Urban Agenda for EU (Pact of Amsterdam) repeatedly stresses the need for close cooperation between the city and the territory, in a polycentric development perspective, through a “place-based” and “people-based” approach (§§12.3 and 12.8).

The strategic actions are implemented through different projects, from mobility to services, from reuse of cultural assets to productive activities, cultural activities, etc.

Here we interpret the functional reuse of heritage as the entrance point for a change of the urban landscape that moves towards the implementation of the circular economy model in Matera.

To achieve the above, it is necessary to assume the city/territory as a whole system.

It is possible to start from the new opportunities offered by some regional laws, also because the tourist/receptive function should be interpreted in a “broader” perspective and in the general context of the Parks network (in which many villages - “borghi” - are included).

The Law no.158 of 6th October 2017 on “Measures for the support and development of small municipalities, as well as provisions for the redevelopment and recovery of the historic centers of these municipalities” can represent an entry point for the implementation of a circular economy between urban, extra-urban and rural areas, and in particular in the area of Matera, characterized by numerous villages with a rural character.

Therefore, in a “systemic” and synergic logic, typical of the circular economy, the recovery of the historical centers of small municipalities considered as an economic, social, cultural and environmental resource (for example as places of new social entrepreneurship and/or widespread hotels for the promotion of slow and “circular” tourism) is absolutely consistent. Thus, it represents the first step.

The Widespread Hotel (“Albergo Diffuso”) is a well-known innovative concept of hospitality (“network”) capable of generating simultaneously cultural and economic wealth. It is a tourist accommodation establishment located in the historic center of the city, consisting of several buildings close together and able to provide hotel services.

The model of the widespread hotel is in line with the concept of the “circular tourism” (Fusco Girard and Nocca, 2017), as it focuses on the recovery, preservation and valorization of the territory and its traditions and peculiarities. It is a development model of the territory that does not produce further environmental impacts as it recovers and reuses existing historical buildings without construct anything new. It contributes to strengthen the sense of community and to enhance the typical products by “immersing” the tourist in the territory. The valorisation of the territory and its typical local products is one of the main characteristics of the widespread hotel.

The above should be combined, in turn, with the recycling of rainwater and the transformation of organic waste into biogas, to be used again - for example - in local restaurants or in residential areas. Through clean and low-cost technologies, rainwater filtering is carried out also through the use of particular plants, as well as mechanical filters, thus being able to be used both in irrigation and as a contribution for cooling/reducing the temperature and for drinking use. There are hundreds species among the bacteria, animals and plants that have the ability to purify water (Pauli, 2014). The waste transformation and reuse produce quantifiable value in jobs and economic profits.

From the coffee ground, for example, mushrooms can be produced (which, at the beginning of the XXI century, were the second best-selling consumer good in the world): “new life” has given to waste transforming it into “nutrition” for the production of another good. This represents an important opportunity, considering that after the entire process for producing coffee (from the plantation to the cup of the bar) only 0.2% is consumed, while the 99.8 % becomes waste. The transformation of coffee grounds into mushrooms also pro-

duces new jobs, as demonstrated by some practices in Amsterdam and San Francisco (Pauli, 2014).

Furthermore, a Dutch Hospitality in Netherlands (Green Recycled Organics - GRO), for example, is focusing on upcycling used coffee grounds to high value food products. In particular, it uses coffee grounds of hotels and restaurants as organic source for the oyster mushroom production (van Rheede, 2012). The produced mushrooms are harvested and then they return (after 6 weeks) to the restaurants to be used. This concept aims to optimize the logistics and supply chain and to minimize additional transports.

Urban agriculture is a traditional function of the circular economy already existing in the ancient Matera city organization. It realizes the closure of the loops, guarantees the short supply chain and eliminates the intermediations (often illegal).

Urban green, parks, forests etc. also have the important role of sequestering CO₂ and particulates, thus assuming a fundamental role in the contribution to health, that is the central heart of urban regeneration (Agenda 2030 and NUA insist on the role of health and well-being of the inhabitants). In the circularization of the processes there is not enough reference to the “depollution” of the air, which instead is source of numerous diseases.

Urban green contributes to the improvement of air quality (one square metre of Green Roof can filter approximately 0.2 kg aerosol dust and smog particles per year, www.igra-world.com), meets the need for green spaces of the inhabitants and improves the quality of life as a result of social bonds that arise from these spaces/places. Urban agriculture should be integrated in the enhancement of agricultural activities and those of the neighbouring territory.

The recent Law 141/2015 promotes the role of cooperative/social enterprises. They play a relevant role in implementing the circular model.

The greening of the city and agriculture can represent an improvement for comfort in general (reducing the use of energy producing economic benefit), but also a concrete solution to the challenges of global warming, as they contribute to filter and purify the air and compensate for the overheating generated by the city (COP21).

The green economy activities represent a further fundamental perspective that should characterize the functional reuse of the Sassi and the new productive activities.

4. The evaluation of impacts of each alternative strategic project for Historic Landscape conservation/regeneration

We refer to the “Social Complex Value” (SCV) (Fusco Girard, 1987; Fusco Girard and Nijkamp, 1997) as the combination of use values (assessed considering the impacts of each function) and “intrinsic value”. The challenge is to evaluate this complex historic socio-ecological system of Matera, taking into account the “intrinsic value” of this cultural landscape as well as the “instrumental values” for local communities (ecosystem services – provisioning, regulation and maintenance, cultural services (TEEB, 2010).

Even if it is true that cultural heritage/landscape is a human product, created by human beings for satisfying human needs, starting from the city of Matera (and other similar historic cultural landscapes) we can learn that centuries of human interaction with nature (through a circular organization, that is promoting synergies between man and ecosystem) have generated a value that goes beyond simple services provision and enjoyment. It has generated an “intrinsic value” that provides also a lesson of “circularity” to present and future generations. Based on these considerations, it is necessary to make the evaluation framework operational to support decision-making processes and the Matera HUL management through the circular economy model.

4.1 Indicators for assessing alternative strategic projects for managing changes of historic urban landscape

Each of the alternative strategic projects for landscape conservation/regeneration should be evaluated through an appropriate system of indicators. The adaptive reuse of the cultural heritage and of the whole landscape system should refer to the ability to promote an “environment” characterized by symbiotic processes. In other words, the system of indicators should help to verify if, how, to what extent and for whom an improvement in the quality of the landscape has been produced, as a result of new relationships, coming from the new proposals.

It is therefore necessary to highlight if, to what extent and for whom, the increase in physical and spatial quality has determined a variation in the attractiveness of the site, with reference to the location of new public, private, mixed functions (public spaces, urbanization equipment, social housing, etc.) and not only tourist functions. New activities belonging to the creative economy sector (according to the UNESCO definition) and the cultural economy, as well as to the service sector and for enhancing the quality of life for inhabitants, can be placed. In this way, it is possible to increase the productivity of the functional reuse in terms of “boosting” of new activities in a specific area.

This increasing in attractiveness may also be due to the location of new art and architecture works that contribute to intensify local use values, also generating micro-communities (“friends of the Church” place, “friends of museum”, etc.). Empirical evidence confirms that creative/productive activities prefer historic districts/assets for their localization (Smit, 2011; Bullen and Love, 2011; Conejos *et al.*, 2011; Della Lucia e Trunfiob, 2018; Hani *et al.*, 2012; Esmailpoorarabia *et al.*, 2018).

Furthermore, it can reflect the ability to activate partnerships not only in the public-private sector, but also to involve the third sector between state and market (i.e. between the public and private sectors: solidarity economy companies, cooperatives, etc.). This symbiotic/synergistic “atmosphere” refers to the circular processes that the impacts of reuse can determine on different levels (economic, social, environmental levels).

Some indicators for the evaluation in the perspective of circularity can be the following (Fusco Girard *et al.*, 2012):

- Amount of avoided emissions (i.e. CO₂) due to a better use of resources by shifting to renewable resources and materials on the total emissions;
- Amount of avoided waste due to a better use of resources by designing on the total waste;
- Amount of recycled waste on total waste;
- Contributing to better use of resources (% of reuse of resources);
- Number of different stakeholders involved in projects of landscape regeneration to get together and share win-win-win solutions;
- Number of new business opportunities through social cooperative enterprises (on the total new business opportunities);
- Percentage of funding from local foundations and banks that are reinvested at local level/year;
- Number of innovative public procurements for supporting local production activities;
- Regeneration of economic activities (% of economic value created that is invested in innovative activities) on the total number of activities;
- Density of networks among companies (n. of voluntary agreements/year);
- Number of industrial production activities that invest in circular economy: in reuse, recycling and regenerating resources on the total number of activities;
- Number of new university spin-off/year;
- Number of cooperative/social enterprises with innovative sustainable circular business models (on the total number of enterprises);
- Density of networks among public authorities, enterprises and research centres (number of);
- Experiences of self-organization capacities: % of people involved in forums, public arenas, participative processes/year;
- Sqm of implemented public spaces and surfaces on the total public spaces;
- Number of projects involving the third sector on the total thriving projects;
- Number of donors/10.000 inhabitants;
- Number of by-products exchanged among enterprises on the total number of enterprises;
- Percentage of plastic, metals, glass reused, recycled and regenerated (on the total waste amount);
- Number of associations, NGOs, charities etc./100.000 inhabitants ;
- Number of people involved in fair commerce;
- Percentage of people involved in specific urban laboratories (Living Labs, etc.);
- Revenue flows coming from management model ensuring economic/financial self-sustainability;
- Financial private capital (percentage) on total financing sources;
- Number of public, private and social partnership (cooperation between stakeholders);
- Number of crowdfunding projects/private donations on total financing budget;
- Percentage of contribution of the third sector, NGO, foundations, associations, etc. on the total amount of investments in landscape valorization/regeneration projects;

- Number of new jobs created;
- Number of projects for reusing cultural heritage through new uses in the long term horizon;
- Number of creative and cultural new activities (in ICT, IoT, AI, science and arts, cosmetic, pharmaceutical research, innovative technology, etc.) coming from investments in landscape valorization/regeneration projects on total economic activities;
- Increase in number of visitors in the year;
- Increase in real estate values;
- Increase of local products and events due to landscape valorization/regeneration projects.

The above indicators, together with the conventional ones for assessing externalities (Angrisano *et al.*, 2017), can be useful for evaluating the impacts due to the transformation of the cultural historic landscape coming from specific strategic projects (See Figure 3).

They are also useful for the reformulation of the procedures of the Heritage Impact Assessment (HIA) proposed by UNESCO/ICOMOS (2011).

5. Towards integrated methods for the evaluation in the circular economy perspective

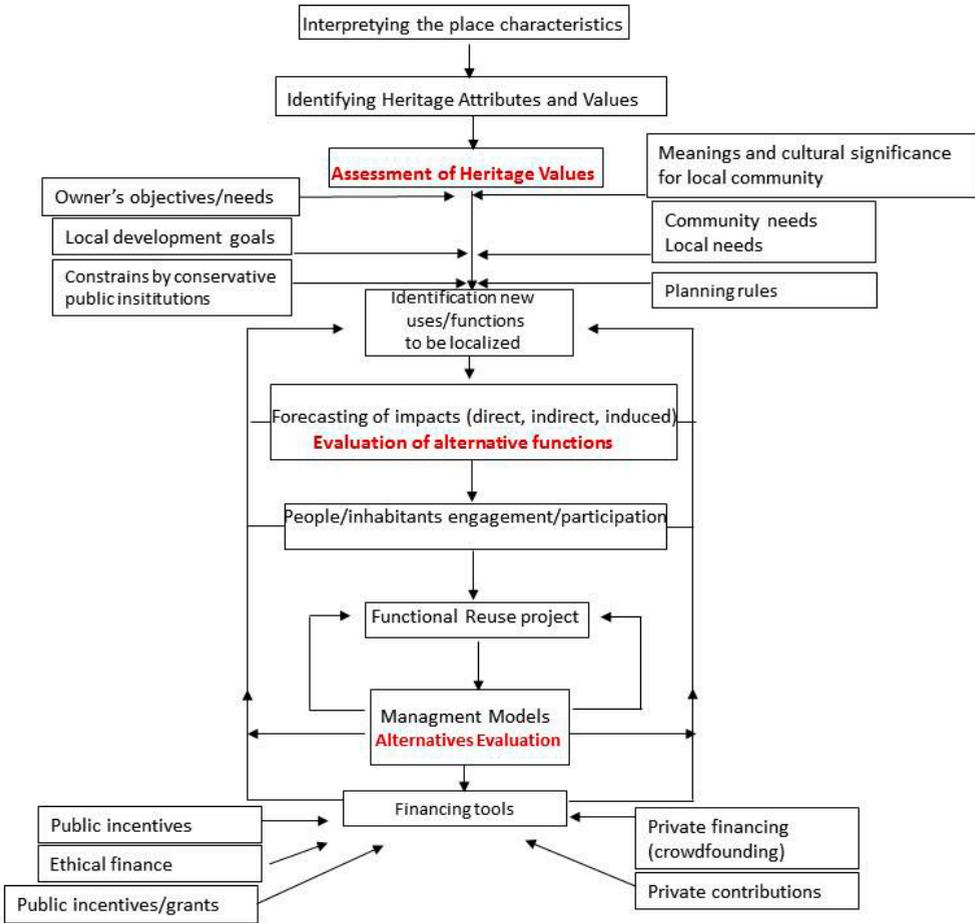
The above re-orientates the direction of any project aimed at the regeneration of Matera, which should include the perspective of the circular model.

We can assume that circular economic systems have the ability of conserving/developing “intrinsic value” over time, by strengthening the relationships between man, community and ecosystems. New evaluation framework to evaluate the circularity of the landscape system should be elaborated in order to support decisions related to heritage conservation/transformation, considering the specific attributes of the functional reuse.

The attributes of functional reuse in the perspective of the circular economy are the following:

1. activation of a symbiotic relationship with the natural ecosystem and the social system: between cultural heritage and its context, based on mutual complementary systemic interdependencies, both social and environmental;
2. the autopoietic (that is re-generative) capacity of many activities localized in the cultural asset (which interdepends with its context);
3. the activation of an interaction network and formal, informal, direct, indirect, induced connections between the refunctionalized cultural asset and other (more or less) neighbouring activities.
4. savings in the consumption of all natural, energy, etc. resources for the use of cultural heritage, thus minimizing entropy.
5. the activation of synergistic and cooperative processes between activities and subjects involved in a dynamic and adaptive perspective.
6. the capacity for self-financing coming from some functions, localized without dependence on external public contributions.

Figure 3. The logical framework of the cultural historic landscape transformation.



These attributes correspond to specific evaluation criteria and therefore specific indicators (see CLIC survey, www.clicproject.eu).

5.1 The evaluation of different impacts of each alternative in terms of change of the complex values of HUL

An evaluation framework is defined by goals, objectives and criteria (Gravagnuolo *et al.*, 2018). As a consequence, integrated quantitative and qualitative, multi-criteria and multi-group assessments in the short, medium and long term are required.

Economic circular processes reduce negative impacts on the environment and, at the same time, on the differential and Marxian rent, thus avoiding/reducing the use of natural and man-made capital (Fusco Girard and Nocca, 2018).

In particular, the circular economy has impacts on the real estate market as (Fusco Girard and Nocca, 2018):

- the reduction of underused land/spaces thanks to the circular economy principles implementation; it reduces the rent in city center because of the redistributive phenomena;
- the more the building/space functions are flexible, the more the real estate value increases as the adaptation costs are reduced in the long term;
- the use of renewable resources produces a reduction in management costs. The use of materials that allow improving the comfort inside the buildings has positive impacts on the health and well-being of people living there determining, consequently, a plus real estate value.

Evaluation methods are needed to integrate the variation of local metabolism with changes in well-being of inhabitants, with changes in economic, social and environmental conditions.

Actually, if we move from the micro to the meso scale and to the macro scale, we need to integrate the above with evaluation tools from Life Cycle Assessment (Björklund; 2012) to the Material Flow Analysis (Hendriks *et al.*, 2000) to the Energy Material Flux to the ecosystem evaluation services (Maes, 2013) to the more general Metabolic Impact Assessment (Ruas *et al.*, 2017).

Evaluation methods able to reflect also the long time, to incorporate not only economic and financial benefits, but also the impacts perceived on a subjective level (in addition to incorporating the intrinsic value) are necessary in any functional reuse interpreted in the perspective of the circular model.

A framework for the evaluation of Matera should include, thus, the circularity of materials flows, energy and water flows, as well as historic-cultural aspects and socio-economic processes, expressing the centuries-long adaptation and development of local communities in the ecosystem.

The evaluation methods to be used should be “people-oriented”. They should evaluate the variations of well-being for the different social subjects starting from the consideration of their well-being conditions. The BES indicators proposed by ISTAT (2018) should be added.

The concepts of the circular economy and circular city can be used to evaluate the “intrinsic values” of the complex landscape system of Matera, highlighting the circularity of the Matera historic-cultural landscape system in analogy with the circularity of natural systems.

To express the intrinsic circularity of the Matera landscape system, a set of criteria can be proposed, in order to identify the critical aspects that describe its qualities/characteristics to be evaluated (Zeleny, 1982).

The example of Matera is emblematic of how historic-cultural value can be interpreted as an entry point for assessing the “intrinsic value”, not only offering an instrumental one (use values or different tangible and intangible services that cultural landscape provides to human communities).

This concept of historic-cultural value as “intrinsic value” has decision-making implications that have been already explored.

6. The participation of local community

The community participation is expressed first of all in the process of identifying and interpreting the “intrinsic values”.

The “intrinsic value” of cultural heritage has recently been evoked in the Communication “Towards an integrated approach to cultural heritage” by the European Commission (2014) as a value different from the economic and social values. Economic value is defined as instrumental value because it contributes to the creation of value, of employment, and generates many external effects also in other sectors, from the touristic to cultural/creative industry, etc. as highlighted by some EcoC experiences.

The social value of cultural heritage is interpreted in the light of its ability to contribute (thanks to specific social impacts) to the regeneration of the sense of belonging, of inclusion, of active citizenship; to social cohesion, to the regeneration of micro-communities, and more generally of a relational culture, capable of reducing the social degradation of decaying urban areas, above all thanks to processes of real involvement of the local community in the redevelopment and management choices (community-oriented management), trying to bring back the inhabitants of a territory to their common cultural roots. The social value is also connected to the ability of the heritage to open new “horizons of meaning”, perspectives of social justice, collective memory and sense of identity, as well as aesthetic emotions and sense of psychological well-being.

The adjective “intrinsic” is also included in the recent EU document “Access to Culture” (2017) on the dual dimension of culture.

The meaning of “intrinsic” is referred to the “value in itself”, connected to identities, to hopes and beliefs, to the customs and values, even spiritual, of a community. Therefore, as already underlined, the “intrinsic value” represents the essential value of a place, of a landscape perceived and interpreted by a community: it is a value in itself, which must be distinguished from instrumental values such as economic, social, environmental values, etc. It is connected, as already stated, to knowledge, to the “spirit of places” (Hosagrahar *et al.*, 2016) and to its intangible components that have shaped the tangible space/landscape; to the elements of permanence that have characterized a place despite the transformations, determining its particular atmosphere.

The city of Matera, with its capillary rainwater capturing, storage and reuse system, its residencies built inside the mountain (Sassi) optimizing the use of all available resources (stones, soil, solar energy, heat, water), and its dramatic landscape can be considered an example of circular socio-ecological system, where no form of waste was produced.

The co-existence of man and nature for centuries in Matera has created not only a socio-economic system (functional for local communities until the XX century, then in decay), but also a landscape whose value is independent from human “use” or enjoyment. The historic cultural-natural landscape of Matera expresses the “intrinsic value” of centuries of human history in complete symbiosis with nature, that sustained the urban life, through the generative capacity coming from the re-generative system capacity.

In analogy with natural systems, this Matera “landscape system” has historically metabolized local resources (stones, soils, rainwater, solar energy) to create and use the resources needed for life and development of local species and human communities.

In Matera, more than in other historic places, it is possible to observe the symbiosis between human communities and natural environment, being human communities integral part of the natural site.

In Matera, ecosystems have not only an instrumental value as provider of potential “services” for people, in a human/culture-centric perspective. Nature and human communities have developed in symbiosis: the self-regenerative ecosystem has provided the particular development conditions that determined the historic socio-economic system and cultural landscape of Matera, generating economic, social, environmental, cultural values.

In other terms, in Matera the “ecosystems are not only a passive resource or determinant of human action, but they also play a causative role”. “Man is part of the ecosystem and what he/she does happens in interaction with this system - in this sense human culture also arises through interaction with nature” (Domaradzka, 2018; Common and Stagl, 2012; Stagl, 2004).

Each social group can perceive this “intrinsic value” according to its particular perspective. But, probably, there are common elements in these differences which express deep roots, a reflection of centuries-old and millennial history, and which today represent a form of potential energy to guide the regeneration of an area/site.

The role of “intrinsic value” is essentially to contribute to manage change in the historic urban landscape, identifying not only the type of coherent functional reuse for a given cultural asset, with its intrinsic history, but above all to orient local development, both in its tangible and intangible components, thus combining the conservation of the roots with a dynamic and creative perspective, in a circular logic.

The alternative valorization solutions are identified for guaranteeing - by a participative process - ancient and new, memory and future, creativity of past generations and creativity of current generations, through a process of community critical discernment. It modifies the priorities resulting from purely technical and economic approaches.

In light of the above, the “intrinsic value” becomes the foundation of any reuse/ regeneration project attentive to the history/tradition/memory and also to the needs of the local community, capable of an authentic propulsive energy, mediating between memory and innovation.

The different focus groups, the open forums, the delphi procedures, the deliberative arenas, the living labs are the dialogic-communicative processes through which to verify if and how much the “intrinsic value” is perceived today by the different stakeholders. An operational problem can be expressed in these terms: how much is this “intrinsic value” really perceived by the different stakeholders?

Assuming the Matera landscape in a constructivist and not neo-positivist perspective (in which the social component plays a fundamental role in identifying the memory, identity and authenticity elements by integrating expert and civic

knowledge) (UNESCO, 2011), the SCV helps in choosing in a context characterized by plural interests, values, objectives and constraints. But, above all, it allows place-making processes and promotion of its attractiveness, as already highlighted, offering the direction/orientation for a new development strategy of the Matera system, considered as an ancient center, historical city and extra-urban territory (and also in the “management of change” of this system). Substantially, it interprets those intangible elements that have shaped the physical space and the landscape itself.

7. The circular economy: business and financial models

7.1 *The new business models*

The circular model for the regeneration of Matera concerns not only public governance, but also, and above all, the business world that should take the opportunity offered by the European Year of Culture to re-orient their business models, thus avoiding new inefficiencies in the use of resources, which has generated so much entropy.

Indeed, the circular economy offers a new perspective through which to interpret the relationship between producers, consumers, society and environment.

Since the industrial revolution of 250 years ago, the circular economy represents the most important opportunity to transform the production and consumption systems. In other words, it is a real “revolution”.

But the circular economy model is not considered in all its potential by the business world that has not yet transformed its business models in order to reduce costs, reduce energy and materials used, reduce greenhouse gas emissions, improving competitive advantage, triggering innovative capacities within them, organizing cooperative/collaborative relationships with other business entities, with consumers, with their employees, with public institutions, with the territory.

The interpretation of the enterprise in the circular economy perspective is the enterprise that “imitates” nature. It behaves like a living organism.

The above requires a systemic and holistic vision. This means it shifts the focus from the assessments of physical (natural/manufactured) capital to the human/social capital that makes it work. It shifts attention to those who work in the company, to their well-being, vision, values, even to their creative capacity.

Furthermore, the above also focuses on the relationship between the business and the context: social and environmental context. But, at the same time, the above determines a different vision: the enterprise as a complex and adaptive system cannot be managed with a mechanistic (not very flexible/rigid) approach, as in the interpretations of the traditional capitalism. The company co-evolves with its own context, characterized by symbiotic processes (and therefore assonant to the processes of living organisms) and tends to introduce processes of decentralization and self-organization, which allow it to be more adaptable to change. This moves the business model towards a perspective that overcomes the paradigm of

economic rationality (everything that is useful is valuable), towards a bio-eco-centric paradigm, which connects the company to the ecological, social and economic systems.

The circular economy evokes a non-mechanistic/non-linear way of thinking, that is not based on the simple cause-effect relationship. But it obliges us to evaluate the many interdependencies with continuous and reciprocal feed-back processes.

The new circular business models aim at ensuring greater economic productivity, but at the same time they produce social and environmental values (jobs, etc.).

These values produced as output (for example social one) in turn become inputs in the management of the company.

In short, the final objective is not only to produce profit, but also to consider all the negative impacts resulting from the production of the aforementioned profit, trying to minimize them, assuming the processes of the economy of nature as its own model.

All this has a series of consequences. The circular enterprise becomes the enterprise capable of symbiotic processes with its own territory, also characterized by regenerative/autopoietic processes and therefore by a generative capacity. Another consequence is the adoption of a metric that is not only quantitative, but also qualitative, with the introduction of a new indicators system.

The focus is no longer just to “create value” in a multidimensional perspective, but also to ensure that this value is preserved over time as long as possible, somehow recoverable at the end of the product life cycle and does not involve conflicts beyond a certain threshold with the external company system.

In short, the new business models in the circular economy perspective aim at creating, conserving and recovering values in the best way over time (Achterberg *et al.*, 2016)

However, the process of creating value is linked to the integration among all the different forms of capital, from tangible to intangible ones.

Recyclable goods and materials are produced in the circular business models, extending the useful life of the products as much as possible, shifting the attention from the ownership of goods to their use by consumers.

More specifically, the following types of circular businesses can be distinguished by the company:

1. only what is recycled is produced;
2. waste are no longer generated because they become by-products to be used in other production cycles (even outside the company);
3. we use only resources and materials from renewable sources or from reuse/recycling (even thanks to the incentives of public procurement);
4. the company withdraws its own product at the end of the useful life cycle to re-use it (partly or in full) in a new production process;
5. we produce goods characterized by a useful life extended over time and the business is realized through maintenance, functional integration, restyling, etc.
6. the product of the company becomes a service to be enjoyed no longer

through the transfer of the title of ownership, but through leasing/fruition relationships, etc.

7.2 *The new financial models*

Already on March/May 2018, the European Commission (European Commission, 2018b) called for a new role for the financial system to transform it from a speculative sector to a sector that contributes to the economic, social and environmental sustainability.

The above means that the investments “for a greener and clearer economy” have to be selected not only on the basis of financial indicators, but also economic, ecological and social indicators.

In particular, the European Commission has in fact re-established the investments and business choice criteria in the perspective of the circular economy, not only considering “returns” in the different “dimensions”.

The above is combined with new forms of financing, from crowdfunding to social bonds, to microfinance, microcredit, to social impact finance, to green bonds.

A particular form of financing to be tested is represented by forms of “value capture”, already applied in many European and non-European countries. For example, with the Community Infrastructure Levy, with the Tax Increment Financing, with the Betterment Levy rates of plus real estate value generated can be “gotten back”.

The experiments show that the problems of identifying the border within which to recover these plus-values, the relative percentages of transfer of these plus values to the public sector, their spatial and temporal distribution can be the cause of a dispute that can significantly be reduced through forms of participation (that are represented by experimental tools or covenants in public/private/social partnerships).

The need to provide for integrated multi-criteria qualitative and multi-group assessments in the short, medium and long term derives from the above.

8. The role of culture in the regeneration of the urban territorial system of Matera: towards a human centered circular economy

The paradigm shift evoked in the New Urban Agenda in terms of promoting humanization processes (referred to § 26) is closely connected with the role of culture for the regeneration of the urban system of Matera.

The human and social capitals play a key role in implementing the circular model. Its implementation depends on the human behaviours, on choices of people: on their lifestyles, on their culture.

Putting the human being at the core of the circular city model requires investments in research, but also investments in culture for changing mindset and life-

styles by bottom-up. This challenge requires specific strategic development plans, financial tools, etc. but also a *Strategic Plan for Culture* (Fusco Girard and Nocca, 2018). This Strategic Plan for Culture is grounded on enhancing competence and the capacity of critical thinking by each subject, stimulating a circular way of thinking. This circular/relational rationality improves responsibility. Considering that responsibility is based on evaluation of impacts of each action and that critical thinking is the pre-condition for responsibility, the key characteristic of the Strategic Plan for Culture is to be recognized in the evaluation capacity by each citizen.

The circular economy evokes an “ancient idea”, which characterized the culture of past generations: nothing is discarded/wasted, but everything is thrown in; everything is put again in the circuit. But it is proposed in a totally new context that requires an absolutely creative/original work.

In this perspective, a significant strengthening of all educational, training and communication institutions is necessary in Matera city Capital of Culture. An important role has to be given to the academic institution (University of Basilicata) and the school system. The University is called not only to attract and train talents in the professional and/or scientific fields, but it is also called to train “citizens”, that is subjects capable of clear critical discernment and able of taking responsibility for their own choices.

Any proposal configured by an approach in terms of Humanization should assume the centrality of the *cultural project* that enhances circular relationship among the single subject with others, with the community; the community with other social groups, and these with nature. This relational dimension is absolutely essential for implementing a real perspective of co-evolution, co-existence, cooperation.

9. Conclusions: from the circular economy to the systemic rationality

The hypotheses proposed here for the regeneration of Matera are aimed at implementing the circular city model as a spatial/territorial reflection of the circular urban economy model. It reflects the “intrinsic value” that has been connoted over centuries/millennia.

In this way we avoid the banalization of a touristification process founded on the “revival” of the real estate rent as an engine for local development. Matera Smart City is not only interpreted as a place for the implementation of new digital technologies, but here smartness coincides with circularization: Matera Smart City is the city of the circular economy that guarantees efficiency, resilience and cooperative synergies together.

The regeneration of Matera is therefore not only linked to a proposal for tourist-cultural relaunch, nor for local development based only on the Experience Economy (Pine and Gilmore, 1999; Pine *et al.*, 2000), nor (yet) on the promotion of social and solidarity enterprises (between public and private), but finds its foundation in the proposal of regeneration of Matera based on the circular economy/city model. It suggests a perspective that is not only related to development of a geo-

graphically marginal area, but starting from the “intrinsic value” of historic urban landscape in symbiosis with nature.

Circular economy and the culture of circularization are the fundamental conditions to promote Matera as a “sustainable, resilient, safe and inclusive city” (goal 11 of the 2030 Agenda) and more particularly to realize Matera as the “city of humanization” in the XXI century, towards the “New Humanism”.

This regeneration project moves towards the humanistic perspective: it should therefore be configured as based on the ability to multiply relationships that, becoming consolidated, become bonds triggering new processes of value creation. The centrality of the relational dimension should be at the basis of the different solutions. Humanism is interpreted as a vision that “ties together” people, people and nature. These last interdependence bonds were not felt during the Renaissance Humanism, in which nature was “subjugated”. Today we must re-learn from nature and its circular processes that represent the “intrinsic value” of the city, the memory of the Matera system. The “intrinsic value” is configured as the “limit to change”, in reference to the UNESCO HUL approach.

It guarantees a high quality landscape that becomes an attractive force in the competition between cities and territories: that is, a comparative advantage in the localization of new investments, especially in the “creative” sector.

The construction of a high quality urban landscape represents an objective/interest of all social actors. But it does not refer only to the adaptive reuse of individual elements of the landscape, but it also concerns the human and social landscape.

We need to build networks of alliances between different stakeholders of civil society to sustain a demand for change.

The different institutions (local, regional and national ones) must be reminded of their responsibility.

In short, the circular model proposes, and in turn is based on, a culture that reduces the speed of entropy in its different forms.

Cultural heritage considered as “common good” encourages the creation of a “community of relationships”, which is an important element in determining the quality of life, but also for the generation of new chains of economic value. The circular economy is also the economy of the community. It is the economy that is based (and in turn promotes) on cooperative, collaborative and solidarity values. This is the great challenge of the regeneration of Matera: the ability to regenerate today its “connective infrastructure”, the regeneration of the community through the implementation of cultural memory and the celebration of memory. It needs to reproduce “Usness”, that is the capacity to interpret rights/needs in a relational perspective. It is fundamental when there is a progressive weakening (or even the dissolution) of the “connective infrastructures” that hold together a society/city, under the pressure of particular interests that tend to prevail over the general interest by determining fragmentation in the society, with a serious risk of entropic crisis.

The regeneration of Matera is therefore not only linked to a mere proposal of tourism-cultural relaunch, nor of local development based on creative activi-

ties and innovative industries, but it finds its foundation in the regeneration of the local community. This local community is continually evoked, but it is strongly weakened: it is not already “given”, but “must be built”.

In short, the regeneration strategy ultimately finds its basis in the “*regeneration of the local community*”, consistent with the role of the “neighbourhood as a *piazza* of integration”, a mutual exchange of aggregation that is part of the urban historical tradition.

This is the great challenge of the regeneration of Matera: the capacity to regenerate today its “connective infrastructure”, the regeneration of community relations through the updating of cultural memory and its celebration.

This “circular regeneration” strategy involves not only public institutions, but also enterprises. Many innovative activities, hubs of start-ups, incubators of innovative activities can find their best localization in the historic asset, thus creating the principle of territorial symbiosis, autopoiesis and generative capacity.

This model, consistent with the HUL approach, and even before with the Bursa Charter, encourages the creation of a “community of relationships”. This means to be able to promote a *civil culture*: moving from the centrality of the “I” and from indifference towards others, to the recognition of “We”: to cooperation, collaboration, symbiosis, which evoke “circularization” (Fusco Girard and Gravagnuolo, 2017). It means, therefore, to promote the triggering of an authentic cultural revolution that should characterize the regeneration project of Matera European Capital of Culture.

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