

# BDC

Università degli Studi di Napoli Federico II

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### **Circular City and Cultural Heritage Interplay**



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Università degli Studi di Napoli Federico II

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## Indice/Index

- 7 Editorial  
*Luigi Fusco Girard*
- 11 The circular economy approach for the  
regeneration of Torre Annunziata port area  
*Mariarosaria Angrisano, Luigi Fusco Girard*
- 23 A big data dashboard architecture for a  
computable intelligent city  
*Karima Kourtiti, Peter Nijkamp*
- 35 Circular economy and cultural  
heritage/landscape regeneration.  
Circular business, financing and governance  
models for a competitive Europe  
*Luigi Fusco Girard, Antonia Gravagnuolo*
- 53 Towards a circular port-city development  
model: a pilot study in Pozzuoli, Italy  
*Francesca Nocca, Antonia Gravagnuolo*
- 83 Rapid urbanization and heritage conservation  
in Indian cities  
*Patrizia Riganti*
- 99 L'economia circolare: una sfida culturale per le  
città portuali creative  
*Maria Di Palma*
- 125 Ecosistemi urbani e cambiamento climatico:  
quali approcci valutativi?  
*Silvia Iodice*
- 141 Rigenerazione urbana e area portuale: il  
progetto di architettura per l'area ex Magazzini  
Generali a Napoli  
*Stefania Regalbuto*





**CIRCULAR ECONOMY AND CULTURAL HERITAGE/LANDSCAPE REGENERATION. CIRCULAR BUSINESS, FINANCING AND GOVERNANCE MODELS FOR A COMPETITIVE EUROPE***Luigi Fusco Girard, Antonia Gravagnuolo***Abstract**

This paper explores the concept of circular economy and how it can be applied to cultural heritage and landscape regeneration, stimulating the experimentation of new circular business, financing and governance models in heritage conservation. Abandoned and underused heritage represent a resource that can enhance territorial multidimensional productivity, producing economic, social and environmental value. To turn under-exploited heritage from a social cost into a resource for sustainable development, while restoring and safeguarding its cultural and historical values, new evaluation tools are required to produce evidence of the costs and benefits of conservation options. The paper provides an overview of evaluation tools for the assessment of the impacts of heritage regeneration, drawing a pathway for research on cultural and natural heritage as driver of sustainable growth.

Keywords: circular economy, cultural heritage, circular city

**ECONOMIA CIRCOLARE E RIGENERAZIONE DEL PATRIMONIO/PAESAGGIO CULTURALE. MODELLI DI BUSINESS, FINANZIAMENTO E GOVERNANCE CIRCOLARI PER UN'EUROPA COMPETITIVA****Sommario**

Questo articolo esplora il concetto di economia circolare e come può essere applicato alla rigenerazione del patrimonio e paesaggio culturale, stimolando la sperimentazione di nuovi modelli circolari di business, finanziamento e governance nel settore della conservazione. Il patrimonio culturale abbandonato e sotto-utilizzato rappresenta una risorsa in grado di produrre valore economico, sociale e ambientale. Per trasformare il patrimonio sotto-utilizzato da costo sociale a risorsa per lo sviluppo sostenibile del territorio, è necessario sviluppare nuovi strumenti valutativi in grado di cogliere i costi e i benefici nelle opzioni di conservazione. Il paper fornisce un quadro degli strumenti per la valutazione degli impatti della rigenerazione e delinea un percorso di ricerca sul patrimonio culturale e naturale come motore di crescita sostenibile.

Parole chiave: economia circolare, patrimonio culturale, città circolare

## 1. Introduction

Culture, cultural heritage and cultural landscape (which include natural preservation (European Parliament, 2017). They can drive a new European development model based on the circularization of processes (the circular economy) (European Commission, 2014a; 2015a; 2017). The circular economy model exploits synergies in the business/financing sector, in the social, cultural and institutional dimension through innovative public-private-civic partnerships for the management of commons, and environmental synergies through adaptive reuse of buildings and landscapes, of their embodied energy and local materials.

The circular economy represents a pathway to sustainability, promoting a development model that “decouples growth from resource constraints” (Ellen MacArthur Foundation, 2015), internalizing negative environmental and social externalities, or reducing them through innovative production-consumption models and business models (Ellen MacArthur Foundation, 2014). A circular development model is also “regenerative”: this means that not only negative externalities are reduced, but also positive environmental, social (and cultural) impacts are produced to benefit the society as a whole (Wijkman and Skånberg, 2015). The implementation of this model requires diversified action at the macro, meso and micro level (Ghisellini *et al.*, 2016), the macro level referring to governmental action (laws, regulations, taxes and incentives) (European Commission, 2015a; Yuan, Bi, Moriguchi, 2008), while micro level refers to the scale of the single actor and enterprise business model. The meso level refers to the relationships between actors, especially enterprises in industrial ecology and industrial symbiosis studies (Boons *et al.*, 2011; Chertow, 2000; 2008; Dong and Fujita, 2015; Jacobsen, 2008) and eco-industrial parks (Shi *et al.*, 2010; Yu *et al.*, 2015) while in other studies it is linked to the scale of the city/territory considering the relationships and synergies between territorial actors (Chen *et al.*, 2012; van Berkel *et al.*, 2009).

Many European cities and regions are developing their strategies for the circular economy (Amsterdam, Paris, London, Glasgow, Kalundborg, Rotterdam, Brussels, Lille, etc.), stressing the role of territorial actors and synergies to deliver new services and products and sustainable, “circular” production-consumption strategies, with the aim of boosting sustainable economic growth while enhancing the environment and social benefit (European Commission, 2015a). While most of the strategic plans for the circular city are focused on waste management and industrial symbiosis, recent studies focus on the social and institutional dimensions as key to achieve a “full” circular development (Moreau *et al.*, 2017).

The circular economy concept has been often linked to the concept of sustainability in scholarly literature (Geissdoerfer *et al.*, 2017). However, the definition of sustainability can be still challenging, since scientific studies often do not consider “culture” as a key dimension and fourth pillar of sustainability (CHCfE Consortium, 2015). Culture, cultural heritage and landscape are considered as key resources for sustainable development in Europe (European Commission, 2014b; 2015b; European Parliament, 2017). The BES evaluation framework (Sustainable and Equitable Wellbeing) developed by the Italian National Institute for Statistics (ISTAT) identifies that the quality of the landscape as an “indicator” of wealth and wellbeing (ISTAT, 2015). Thus, it can be argued that the multidimensional benefits expected by the implementation of a circular economy development model can be “measured” using the landscape “beauty” as a complex indicator, correlated to environmental wealth, enhanced wellbeing and human health.

Strategic investments are needed to implement the circular economy model, both through policies aimed at re-orienting producers and consumers behaviours, and through bottom-up definition of new industrial relationships, business models, social corporate responsibility. It is more and more clear that investments in cultural heritage produce positive impacts in the economic, social, cultural and environmental dimensions. A regenerative development model, as proposed in the circular economy European policy documents, can be achieved introducing culture as one strategic area of investment.

The unique beauty of European cultural landscapes is an attractor of investments and economic activities linked to tourism, but also to cultural and creative industry, traditional “bio” food production, artistic creation, and are a reason for cultural identity, social cohesion and wellbeing. Their beauty is able to stimulate new relationships and a renewed responsibility, which entails the responsibility towards the “other” man and towards the environment.

Beauty, economy and fairness could become pillars of the circular economic model through which Europe will realize sustainable development.

The approach proposed by Faro Convention on the Value of Cultural Heritage for Society (Council of Europe, 2005) introduced the idea of “heritage community”, pointing out the ability of cultural heritage to make communities.

Cultural heritage can produce wealth both directly, through use values, which meet demand and supply, both indirectly, through relational values, which get the foundation of symbiotic processes and in turn generate added economic, social and environmental values. In this way, cultural heritage can subvert the negative dynamics, which affect our times, by producing synergies and symbiosis, tackling the loss of relations, and by regenerating common memories and knowledge, addressing the loss of local identity driven by globalization process. Local communities are fundamental in cultural heritage, as they contribute both to understand and to share its complex values, reinforcing their perception and enhancing the real availability to pay for conservation (Fusco Girard, 2014).

In the framework of the UN-Agenda 2030, the regeneration of cultural landscape, supported by circular relationship between city and countryside, is critical to achieve most of the SDGs (Hosagrahar *et al.*, 2016; UN-Habitat, 2015). In fact, the major issues of sustainability lie in the landscape: poverty and social inequality, distribution and consumption of resources, production of waste, climate change, loss of biodiversity.

Acting on landscape is not only possible to regenerate cultural heritage, but to deal in a structural way the main challenges of our time too. This requires the development of approaches, methods and technical tools that are the result of new scientific knowledge, which pushes for reconfiguration of didactic paths, scientific research and the same vocational training.

“The challenge of sustainability is won or lost in the city” has been repeatedly noted (United Nations, 2016b). Indeed, the New Urban Agenda proposed to Quito by UN Habitat suggests a series of indications to achieve sustainable development in the concrete space of cities. This New Urban Agenda, while reaffirming the call to the category of responsibility, introduces the idea of civic responsibility (par. 156), after emphasizing the central role of culture (par. 124) (United Nations, 2017). The aim of this paper is to review the current concept of circular economy, linking it with culture, cultural heritage and landscape as fundamental drivers of sustainability. Section 2 highlights the role of cultural heritage and landscape for achieving a “full circle” economy and society. Section 3 proposes a set of

innovative business, financing and governance models for cultural heritage regeneration in the perspective of the CE (Circular Economy), able to link the short-term payback of investments to longer-term multidimensional benefits for society. Section 4 reviews recent studies on evaluation tools for integrated impact assessment of cultural heritage/landscape regeneration projects, including qualitative and subjective evaluation tools related to wellbeing. Finally, Section 4 briefly discusses how the cultural dimension can be introduced in the framework of the circular economy, and highlights the actions needed to implement a European model of circular economy through the regeneration/reuse of cultural heritage and landscape.

## **2. Cultural heritage and landscape regeneration: challenges and opportunities towards a European model of circular territorial development**

The characteristics of cultural heritage and landscape pose significant challenges for its governance (Pereira Roders, 2016; Rojas, 2016). Long since cultural heritage is considered as a resource for local development strategies. But there are some contradictions. The sites recognized as cultural heritage are increasing, while the costs for functional maintenance/reuse are growing, public resources available are becoming scarcer, and private actors are increasingly focused on the short time for payback (European Commission, 2014b). The consequence is that there is a growing risk that the decay of heritage increases year by year, because lack of funding support. This means first of all the loss of the socio-cultural memory. But also an economic cost.

Cultural heritage can be considered an economic good (de la Torre and Mason, 1998; Nijkamp, 2012; Ost, 2016). Cultural heritage, as a non-renewable capital, is "linked" to the economy (Ost, 2009; 2013) because economics refers to the management of scarce and non-renewable resources; for these reasons, heritage conservation is also an economic choice (Vecco, 2007). This capital has an intrinsic value but also some instrumental ones: it is necessary to adopt a holistic approach to its evaluation, characterized by the integration of use and non-use values.

Cultural heritage can be viewed as a "common good" (Angrisano *et al.*, 2016). Its valorisation can be achieved through new management models, able to foster the relationships in micro-communities and to activate an aesthetic "care community": a sense, meanings, values community that recognises the intimate qualities of heritage and contributes to economic, inclusive, resilient development. Without financing channels, the decay of European heritage and landscape will increase, until its irreversible loss.

As common good, cultural heritage has a Complex Value (Fusco Girard, 1987; Fusco Girard and Nijkamp, 1997), which depends on its value for all stakeholders, including future generations. The Complex Value includes the intrinsic value as the expression of the need of keeping relevant parts of material heritage as it represents a symbol of common and shared characteristics rooted in the history of a community. The complex value includes:

1. a use-value, which depends on its localization (e.g. real estate values), state of conservation (related to costs), re-functioning possibilities (economically productive/non-productive functions), branding (attractiveness for tourism/local use);
2. an independent-of-use value, which is linked to its historic-cultural significance, symbolic value for the community, local identity that it expresses/conveys, and its value for future generation.

Although the economic value directly created by cultural heritage conservation could be

low for traditional investment appraisal, the most advanced approaches in cultural economic theory demonstrates how the economic value is created indirectly, through shared meanings that glue together persons and chains.

The regeneration and valorisation of the European cultural and natural heritage requires huge investments.

Cultural heritage is an example of hybrid resource between market and public institutions, general interest and specific interest, collective and personal; cultural landscape is a hybrid between nature and culture. The perspective of cultural heritage as a “commons” opens up the conservation scenario to new innovative forms of business, financing and governance, abler to conserve/valorise the heritage together with the social and natural environment through the subsidiarity principle.

Innovation is here interpreted in the perspective of the circular economy. Commons and circular economy are interrelated: the circular economy offers a co-evolutive perspective in conservation/management of the heritage, imitating nature auto-poietic processes.

The circular economy expresses the new capitalist model (4.0), because:

- it takes into account/incorporates the external effects on the natural and social environment in generating economic wealth;
- it expresses a form of co-evolutionary capitalism that makes integration of environmental, social, development goals (Porter and Kramer, 2011);
- it projects the conventional economy in a multi-dimensional space in which, therefore, economic, ecological and social values coexist;
- it modifies and enriches the very notion of value towards a Complex economic, ecologic and social value (Complex Value);
- it modifies the project of investment/project/plan that necessarily becomes systemic;
- technological innovation fosters innovation reducing costs/enhancing performances.

This requires hybrid trans-disciplinary approaches able to combine millennial traditional knowledge with scientific knowledge, develop multistakeholder win-win business, financing and governance models, inclusive planning and decision-making. The circular paradigm is assumed here not only for the economic grow but also for promoting the human development paradigm, without “waste of people”.

It projects the capitalist economy in a *multidimensional* space in which, therefore, economic, ecological and social values coexist. It is modified and enriched the very notion of value (Complex Social Value). The CE is a central political project for Europe, as it offers the potential to set a strong perspective on renewed competitiveness, positive economic development, and job creation (Morgan and Mitchell, 2015). The circular economy vision for a competitive Europe, makes strong cases for business models centred on re-use, rather than consumption of ecological resources, and regenerative practices that have, on top of economic advantages, beneficial impacts for society as a whole (Ellen MacArthur Foundation, 2015).

It is modified the project of investment/planning that necessarily becomes systemic. Technological innovation is introduced to foster innovation in other sectors.

### **3. Circular business, financing and governance models for cultural heritage regeneration in the perspective of the CE**

The circular economy has three main characteristics:

1. it is oriented to enlarge the lifetime of goods, assigning them new functions (in a long

time perspective);

2. it is based on synergies/symbioses between actors in fostering closed loops of value creation: economic wealth is created through multiplying of relationships;
3. it enhances the productivity, decoupling wealth production from negative environmental impacts.

These characteristics are features of cultural heritage as well. In fact, cultural heritage has an ideally infinite lifetime, which should be guaranteed through reuse/recover; and it has the ability of creating relationships, cooperation and bonds within economic, institutional and community actors in the local territorial level, in a positive game perspective. Public institutions, enterprises and local community implement circular processes, which enhance the circular economy, the wellbeing perception and the perceived quality of life.

The entry points for the realization of forms of circular economy can be the following;

1. in cities that have already experienced forms of sharing economy/zero waste economy;
2. in cities that promote the tourist economy as an economic base, being the tourist economy predominantly linear and unable to take into account the value capture, etc.;
3. in the disused port areas, where there is an industrial heritage of particular interest;
4. interventions of enhancement in historic centers of small towns, because here there is still a form of culture antithetical to that of disposable (culture of reuse conservation). In addition, it is easier to promote forms of interpersonal/inter subjective synergies.

The closed loop is the key principle of the circular economy model. Circular models can be applied not only to industrial processes, but also to financing, business and governance models, creating synergies between multiple actors, reducing the use of resources and reusing/regenerating values, capitals and knowledge.

The regeneration of abandoned or underused cultural heritage/landscape realizes operationally the circular economy, reducing land consumption and allowing the preservation of ecosystem services. It is an integral part of the circular development model, realizing in practice many circuits of the theoretical model:

- the reduction of materials use - reducing the need of new land and buildings;
- reuse and shared use of existing goods with new functions;
- maintenance of existing goods (buildings, cultural landscape) ensuring longer life;
- energy recovery - valorising the embodied energy and using renewable energy sources;
- re-creation of value through the use of parts of existing (ancient, historical) buildings (refurbishing/remanufacturing).

The circular economy needs to be implemented on rational circular business model for entrepreneurs, public institutions (cities) and social actors (associations, etc.).

The innovation is in the research of creative hybrid business models able to integrate traditional business centered on profit maximization with social and environmental productivity. This kind of hybridization includes also the profit and non-profit, traditional and social enterprise, repositioning business in a social/cultural and environmental perspective (Bannik *et al.*, 2017; Jackson and Harji, 2014). Short loops are at the core of social – environmental business, financing and governance models. They regard in different ways traditional entrepreneurs, public institutions and social actors (Schaltegger *et al.*, 2014; 2016):

- examples of circular business models are related to Social and cooperative enterprise models, with the simultaneous reduction of costs through circularization of processes and creation of social, cultural and economic value (Dalberg Global Development

Advisors, 2014). Also, to “ESCo-like” models, to Public/private/social partnerships, assuming (also) a long term time perspective, attentive to non-use values, to intrinsic values, and not only to use and market values (Direct and indirect users are interested to use and market values; Future users/generations are interested to non-use and intrinsic values);

- circular governance models are related to the juridical and cultural recognition of the category of “commons”, which has an impressive potential in fostering shared care and responsibility toward heritage, particularly at local level - see for example the Emilia Romagna Italian regional legislation on “shared management of commons” (Michiara, 2016);
- circular financial models are related to multi-stakeholder win-win solutions of social-public-private partnerships, which should include a well-balanced mix of diverse financial mechanisms (Center for Global Development and Social Finance, 2013).

The fundamental thesis here is that economic/financial, business and governance circular models can be successfully applied to cultural heritage/landscape regeneration, interpreted as particular examples of hybrid resource (between market and state, personal and collective interest, use value and exchange value). The circular processes are here interpreted also in terms of reuse of knowledge: city/territories produced specific knowledge (skills, meanings, glue relationships) that can be re-used for producing new values in an indefinite, continuous perspective.

The consequences can be read on different levels:

- design/planning of conservation;
- changes in management;
- changes in the use;
- changes in the evaluation between alternatives.

In particular, the changes on the design/planning of requalification refer to the need to highlight the contribution of conservation to the closure of the cycles and to promote short circuits of proximity. It refers not only to the research of multi-functionality and simultaneously of the maximum flexibility, but also to the identification of forms of selective demolition or “creative destruction” (Ost and Carpentier, 2017), reduction of waste transport costs, recovery of all unused/under-used spaces and their transformation into places of circular economy: co-working, co-housing, commons management, therefore in proximity spaces; maximization of complex social value in the long term: attention to the impacts of requalification with only tourist function that does not keep the intrinsic characteristics of the heritage in the long time. Attention to the recovery of the relationship between tourism and the recovery of waste products (closure of production-consumption-waste cycles).

#### **4. The need of new evaluation tools to integrate heritage regeneration into the circular economy development model**

The integration of CH (Cultural Heritage) into CE requires the development of new metrics that embody the traditional economic analysis in multidimensional innovative forms (Fusco Girard and Gravagnuolo, 2017; Throsby, 2016), namely through multi-criteria and multidimensional evaluation frameworks that consider costs and benefits for all actors and stakeholders involved, including their perception of the “complex value” of the cultural heritage/landscape (Rypkema *et al.*, 2011; Heritage Lottery Fund, 2016). This approach,

which requires economic methodological innovations, is in line with current conservation practices relying on the Historic Urban Landscape recommendation (UNESCO, 2011; 2016a; 2016b).

To authorize the upgrading/enhancement of cultural heritage, it is necessary an evaluation model that highlights the flow of incomes/revenues that come from the introduction on the market of second-hand products, by repair processes; quantity of by-products and waste products which have been reused.

It is clear the need to develop new indicators to evaluate/express the degree of circularization of a project related to a singular cultural object, the area in which it is inserted, the entire historic center, capable of expressing what mentioned above (reduction of consumption, etc.), and to highlight the relationship with the external not urbanized environment (urban agriculture of proximity or on the roof itself ....). The above needs to include models that incorporate uncertainty in the estimation of the traditional indicators (NPV).

The circular economy (that allows the conservation of use-values for an indefinite period – through the regeneration of resources) generates economic benefits in terms of increase of productivity, social benefits in terms of employment and minor costs of access to goods, also thanks to social enterprise, and ecological benefits in terms of reduction of greenhouse gases and resource consumption.

Circular economy is founded on cooperation, synergies, symbioses: on relational values.

Circular economy is thus able to integrate concretely *beauty, economy and fairness* because it conserves the quality of the natural/cultural environment, producing new jobs and economic wealth. Values are not only given, but also produced by community in a virtuous spiral process over time.

Cultural and Natural Capital are both assets for the implementation of a new development model based on the circular economy. Circular and synergistic approaches for equitable cities and territories must be implemented to overcome the financial-economic crisis and the increasing social and political unrest in Europe, promoting the regeneration of relationships and social bonds able to enhance city/territory multidimensional productivity. The civil economy, solidarity economy, circular economy are effective ways to overcome the social and environmental fragmentation and enhance fairness, beauty and cultural and ecological diversity as a resource for economic growth and wellbeing.

Cultural heritage/landscape has a use-value and a value in itself. Both kinds of value must be exploited to turn tangible and intangible heritage into drivers of sustainable growth.

Adopting a circular and synergistic model means to be able to understand the complex relationships (synergies and conflicts) between multiple values - and the role, needs and contribution of all stakeholders (value providers and beneficiaries), valorising all resources in no-waste/CO<sub>2</sub>/no-exclusion/no-impoverishment circular/synergistic value chains.

#### **4.1 Evaluation tools for the assessment of multidimensional impacts of cultural heritage and landscape regeneration**

The identity and uniqueness of cities, the *genius loci* that they express, and their wealth and cultural diversity are fundamental factors for the subjective well-being of the residents and the attractiveness of the territory for the location of entrepreneurial activities, in particular in the creative and cultural sector. Attractiveness is determined by the presence of a cultural “landscape”, which expresses the historical relationship between man and his natural



environment, and which includes cultural heritage, tangible and intangible, and natural heritage.

Landscape and cultural heritage are therefore considered fundamental resources for sustainable local development (Hosagrahar *et al.*, 2016; United Nations, 2015; 2016a), whose valorisation can attract investments and economic development and generate important social, cultural and environmental benefits (European Commission, 2014b; 2015b). Many experiences have shown how the conservation, regeneration and enhancement of cultural heritage can produce significant multidimensional impacts (Licciardi and Amirtahmasebi, 2012; Fusco Girard *et al.*, 2015; Angrisano *et al.*, 2016; Historic England, 2016a; 2016b; UNESCO, 2016b; Gravagnuolo and Fusco Girard, 2017). Nevertheless, the need to balance the needs of transformation and development of the territory with the preservation of historical and cultural values poses a series of challenges. The overcoming of these difficulties lies in the construction of evaluation tools suitable for the management of transformations in contexts of historical, cultural and landscape value.

Recent research on the assessment of the impacts of regeneration of cultural heritage has partly focused on the definition of multidimensional categories and indicators, able to capture the direct, indirect and induced effects of investments in cultural heritage (Angrisano *et al.*, 2016; Fusco Girard *et al.*, 2015; Gravagnuolo and Fusco Girard, 2017; Sacco and Teti, 2017), partly on the detection and analysis of data through the monitoring and ex-post evaluation of specific projects (AMION and Locum consulting, 2010; DCMS, 2014; ECORYS, 2015; Heritage Lottery Fund, 2015; Historic England, 2015; 2016a). In both cases, the construction of an indicator-based Information System (IS) represents a fundamental phase of development of the evaluation model. A defined IS has not been developed for the application of the HUL approach, but several recent studies have proposed and tested indicators for the assessment of the economic, social, cultural and environmental impacts of conservation and valorization of cultural heritage.

The recent European project “Cultural Heritage Counts for Europe” (CHCfE) has collected a series of studies, reports and research demonstrating how, through quantitative and qualitative indicators, it is possible to measure and evaluate the multidimensional impacts of conservation and enhancement of cultural heritage (CHCfE Consortium, 2015).

Based on concrete experiences of regeneration of cultural heritage in different contexts, CHCfE proposes a matrix for the evaluation of economic impacts, which includes cultural tourism, the creation of jobs directly and indirectly, the construction sector specialized in recovery, restoration and maintenance of cultural heritage, the real estate sector and the attraction of new investments. Recent research identifies a positive correlation between the presence of cultural heritage and the attraction of creative industries (Heritage Lottery Fund, 2013) and private investments (Trowers and Hamlin, 2016).

Social impacts, which include improving the well-being and quality of life of residents and visitors to cultural sites, have been analysed in several UK based reports (Heritage Lottery Fund, 2016; Historic England, 2016a; Ipsos MORI, 2009; Visit England, 2015). For the first time, the Italian approach of the BES at national level introduced landscape and cultural heritage as key elements of well-being, using an integrated set of subjective indicators of perception, detected through annual statistical surveys on the population, objective-quantitative indicators referring to the endowment of landscape goods and services, and qualitative indicators relating to the state of conservation and integrity of historical landscapes and cultural heritage; moreover, the BES uses additional qualitative

indicators in relation to the capacity of landscape governance, measured on the basis of expert judgment. This evaluation model includes the models of esteem estimation based on the integration of objective and subjective approaches (Ballas, 2013). Significant impacts of culture and cultural heritage are also detectable on human health and psychological well-being (Sacco, 2011). It is more and more demonstrated that the participation in cultural activities has an impact on human health, reducing costs for the community and increasing the perception of wellbeing. Similarly, landscape beauty, by enhancing the relationships between people and places, people and stones, people and environment, has an impact on human health (mental and physical). The linkage between landscape beauty and human health has not been explored, though positive correlations can be found. If participation in cultural activities has a significant impact on psychological well-being, “second only to the absence of serious chronic diseases, and clearly superior to the common socio-economic-demographic variables (age, gender, place of residence, employment, etc.)” (Sacco and Teti, 2017), and if the living environment is one of the fundamental “social determinants” of well-being and human health (Jackson, 2003; WHO, 2011), it is possible to hypothesize an impact of the landscape and cultural heritage on human health; this field of research is completely open to theoretical contributions and experiments (Angrisano *et al.*, 2016; Carone *et al.*, 2017).

The environmental impacts of the recovery of cultural heritage have been analysed in particular by AMION and Locum consulting (2010), highlighting that the demolition of historic buildings uses more energy than that required for redevelopment. In addition, the study reports data on waste produced in the demolition sector, which represents a significant amount of waste generated in the United Kingdom. The conservation of buildings and of the historical landscape can therefore represent an integral part of the transition strategies towards a circular economy (Angrisano *et al.*, 2016).

The “*Cultural Heritage Counts for Europe*” project (CHCfE Consortium, 2015) has collected and analysed existing evidence-based research and case studies regarding the economic, social, cultural and environmental impacts of cultural heritage, in order to assess the “complex value” of cultural heritage. The precondition is that cultural heritage has an economic value that can be assessed and increased (Licciardi and Amirtahmasebi, 2012). CHCfE Key findings show how adopting a holistic approach adds value when measuring the impact of cultural heritage on employment, identity, regional attractiveness, creativity and innovation, economic contribution, climate change, quality of life, education and lifelong learning, and social cohesion. It is one of the most exhaustive analyses of the current situation in Europe, based on a collection of practical cases, academic perspectives, and recommendations. Currently available and accessible data within EU Members States can be considered as useful resources for academics, practitioners and policy makers.

The methodology of CHCfE is aimed at producing evidence base of the impacts of cultural heritage in the four interrelated dimensions of sustainability: economic, environmental, social, cultural. The three levels of analysis, macro, meso and micro, should be taken as an entry point to shape the methodology of analysis. In the macro level, the literature review carried out by CHCfE on theory and indicators for impact assessment has been analysed. The meso level entails an analysis of the research that has been done across Europe demonstrating the wide-ranging impacts of cultural heritage at local, regional, national, and European levels. This result should be an entry point for the development of an integrated evaluation framework linking CH and CE, also addressing the micro level, reporting on

local practices of immovable cultural heritage regeneration that have produced an impact in one or more of the four sustainability domains.

The measurements of the impacts produced by interventions on cultural heritage and the development of appropriate indicators are crucial in order to start virtuous processes to enhance cultural heritage and to analyse the economic, cultural, social and environmental impacts produced by CH regeneration.

A tool for assessing the visual-perceptive and cultural impacts of urban development in contexts of exceptional historical-cultural value has been proposed by ICOMOS with the Guide on Heritage Impact Assessment (HIA) (ICOMOS, 2011). The HIA methodology attributes a qualitative judgment to the individual impacts that transformation projects generate on the attributes of cultural heritage, with the aim of integrating the need for conservation and transmission of historical-cultural values with the needs of transformation and development of the territories. It is a fundamental tool to understand the impacts of projects on the integrity and authenticity of cultural heritage. This guide has some strengths. It recognizes the multiple values of cultural heritage and the close relationship between the study area and the immediately adjacent area (buffer zone). This is very important in a local development perspective. In the ICOMOS Guide the assessment of environmental impacts is unrelated to the assessment of impacts on cultural heritage. It is an important aspect because the environmental assessments do not necessarily include all the parameters necessary for cultural heritage evaluation. The Heritage Impact Assessment is mainly based on the evaluation of visual impacts; it evaluates impacts on cultural heritage, but it is important to evaluate also impacts from cultural heritage on the entire city/territory system. Visual evaluation alone is inconsistent with the complex and multidimensional Historic Urban Landscape approach. The main emphasis is on cultural attributes, while the emphasis on the economic value of cultural heritage is very weak. Consequently, the HIA method does not adequately capture all the attributes. The ICOMOS Guide recognizes the importance of the inclusion of cultural heritage management in the traditional planning, policies and programs. It recognizes cultural landscape management not as an isolated activity, but as an activity to be integrated into development policies. The field of application allows for greater citizen participation and including of their interests and needs. The use of new technologies to map cultural sites is very important both to keep track of changes and as interactive tool to support decisions.

Stakeholders' analysis and a revised Community Impact Evaluation approach allows the understanding of synergies and conflicts between different values (economic, social, environmental and cultural) and can help finding creative win-win solutions.

The generation of value of cultural heritage occurs in the encounter between citizens and heritage (Greffé, 2016). The CIE method (Lichfield, 1996), can be adopted when there is the necessity of carrying out an impact analysis related to the whole community, checking the effects of a program, a plan or a project according to social and economic sustainability, therefore taking into account not only the economic perspective, but the whole revenue of the community, going beyond the cost-benefit analysis. An example is given in Table 1.

Stakeholders' analysis and a revised Community Impact Evaluation approach allows the understanding of synergies and conflicts between different values (economic, social, environmental and cultural) and can help finding creative win-win solutions.

**Tab. 1 – Community sectors and related heritage-objectives**

Community sectors	Objectives
Services cooperative company	Return on Investment
Public Institutions (education, cultural)	Enhancement of use values
Users of public facilities (students, teachers, employees, etc.)	Comfort enhancement, availability of better environment
Citizens	Return on eventual investments made
Municipality, province and region governments	Return on investment
	Decrease of management costs
	Enhancement of urban facilities
Economic actors	Increase of production/profit
Bank, Ethical Bank, Companies and cooperatives of the third sector	Return of invested capitals
Community at large	Promotion of initiatives
	Enhancement of environmental conditions
	Increase of economic activities
	Increase of employment
Private /public sector working on maintenance/conservation	Coordinating activities and resources
	Certification and standards
	Efficiency enhancement (info sharing and info management-improving segmentation supply)
Future generations	Availability of quality environment

Source: (adapted from Fusco Girard and Nijkamp, 2004)

A comprehensive matrix for integrated evaluation of heritage regeneration projects would include the following categories of indicators (adapted from Angrisano *et al.*, 2016; Fusco Girard *et al.*, 2015; Gravagnuolo and Fusco Girard, 2017):

- tourism and Recreation (cultural events and residents' use of heritage);
- creative and cultural activities;
- innovative activities;
- typical food local productions;
- environment and Natural Capital (natural heritage, cultural landscapes);
- territorial and Social Cohesion;
- local and regional governance (spatial planning, regional development strategies);
- real estate;
- land use/Functions;
- welfare/wellbeing;
- cultural value of properties/landscape;
- public financial return.

Finally, the definition of cultural heritage includes that of cultural landscape, known as the cultural properties that represent the combined works of nature and men (World Heritage Committee). The benefits people obtain from ecosystems, known as Ecosystem Services, can be divided in four categories and as far as cultural and landscape heritage are concerned, cultural services are taken into account. They have been defined by the

Millennium Ecosystem Assessment as “the nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences” (MEA, 2003). These kind of services have been rarely quantified and integrated in management plans (de Groot *et al.*, 2010) and in particular they have been seldom evaluated using economic indicators such as real estate prices.

The evaluation of environmental impacts and the sustainability of the new project is fundamental, striving to the transition to a circular economy while facilitating ecosystem conservation, regeneration, restoration and resilience in the face of new and emerging challenges.

## 5. Conclusions

Culture has a central role in the achievement of sustainable development: without a culture of responsibility, the Goals of the UN 2030 Agenda for Sustainable Development remain unattained (Hosagrahar *et al.*, 2016; UNESCO, 2016a).

Europe offers the perfect ground for a circular economy to truly take shape and for launching disruptive models. It “represents a unique opportunity but it will require true vision and leadership” (Laurent Auguste *et al.*, 2015).

The production of new knowledge on the multidimensional benefits of heritage and landscape regeneration and the promotion of a culture of responsibility for the achievement of Sustainable Development are here proposed as necessary conditions to implement a “full circle” economy in Europe.

The regeneration of the city certainly requires technical and technological innovations. But it also requires the regeneration of the “civil culture” of its inhabitants. A key question to be posed to research institutions is how can we think of building a society/city where people work together, live together, cooperate to achieve common goals, if there is no civil education/training? If we do not promote diffusion of ideas on building active citizenship, attention to the common good, self-organization, subsidiarity. If there is no direction, a shared common sense?

In this regard, the University “Third Mission” integrates the traditional one of vocational training and scientific training. It refers to the fruitful collaboration between universities and society/city/territory. It relates to virtuous “circularity” between the so-called “ivory tower” and the city, and concerns not only technological transfer, the creation of innovations that are interlinked with social demand, but also the production of public goods, the management of common goods.

To implement this vision, the European Year of Cultural Heritage 2018 advocated by the European Parliament and the Council, and Civil Society Organizations from across Europe, can become a comprehensive laboratory, experimenting *in vivo* a hybrid approach, in which cultural heritage becomes engine of new micro-communities. Cultural heritage, which in past came from the integration between art and built environment becomes driver of new forms of communication between culture and community, regenerating both the material culture, giving it new life, both social bonds, rebuilding a climate of trust and cooperation.

Key stakeholder should be involved in this process:

- business sector (new uses/services/products related to cultural and natural heritage);
- financial sector (impact investing);
- institutional sector (commons management, “heritage as commons”);
- professional sector (design for adaptive reuse of cultural heritage);

- ICT-TECH sector (new technologies and data-driven innovation, including citizen generated data).

Through knowledge production and a renewed civil culture, new business opportunities can be exploited. New *circular* financing models can be experimented, particularly in the field of impact financing, as well as new *circular* governance models, based on the notion of “heritage as commons”, starting from the Italian experimentations of municipal civic agreements for commons management.

Two actions need to be developed:

- the advancement of scientific research on heritage multidimensional impacts;
- the cultural commitment towards a renewed civil culture and civic responsibility.

An open field of research is related to the exploration of the positive correlations between *landscape beauty* and *human health*, producing evidence through applied research of the great and complex benefits arising from landscape regeneration: enhancement of physical and mental health of people, enhancement of personal and community wellbeing, promotion of the well-living as a European model of “human” development rooted in culture.

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