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Towards the Implementation of the Science of the City

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TOWARDS AN ECONOMIC IMPACT ASSESSMENT FRAMEWORK FOR HISTORIC URBAN LANDSCAPE CONSERVATION AND REGENERATION PROJECTS

Luigi Fusco Girard, Antonia Gravagnuolo, Francesca Nocca, Mariarosaria Angrisano, Martina Bosone

Abstract

The Historic Urban Landscape (HUL) approach recognizes the landscape as a "living heritage" that reflects changes in society and contributes to local well-being. Investments in HUL conservation can improve overall urban productivity, generating multidimensional benefits and contributing to the achievement of Sustainable Development Goals. The aim of this paper is to demonstrate how investments in HUL conservation/regeneration can enhance the economic performance of cities and regions. A set of 17 case studies of HUL regeneration has been analysed to select relevant indicators for the assessment of the multidimensional impacts of culture-led regeneration projects. Indicators have been grouped into six categories of impacts that could be used in a multicriteria assessment framework for the impact assessment of HUL conservation/regeneration projects.

Keywords: Historic Urban Landscape, economic performance, multicriteria evaluation

VERSO UN MODELLO DI VALUTAZIONE DEGLI IMPATTI ECONOMICI PER I PROGETTI DI CONSERVAZIONE E RIGENERAZIONE DEL PAESAGGIO STORICO URBANO

Sommario

Il Paesaggio Storico Urbano (HUL) è un "patrimonio vivente", che riflette i cambiamenti della società e contribuisce al benessere locale. Gli investimenti nella conservazione del paesaggio possono aumentare la produttività urbana, generando benefici multidimensionali e contribuendo al raggiungimento di uno sviluppo sostenibile globale. L'obiettivo di questo studio è dimostrare che gli investimenti in conservazione/rigenerazione possono migliorare le performance economiche del territorio. 17 casi di rigenerazione del patrimonio culturale sono stati analizzati selezionando gli indicatori rilevanti per la valutazione degli impatti multidimensionali. Gli indicatori, raggruppati in sei categorie, potranno essere utilizzati all'interno di una metodologia valutativa multicriteriale per la valutazione degli impatti dei progetti di conservazione / rigenerazione del Paesaggio Storico Urbano.

Parole chiave: Paesaggio Storico Urbano, performance economica, valutazione multicriterio

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1. Introduction

The Historic Urban Landscape (HUL) is the most recent approach to conservation, protection and valorisation of Cultural Heritage (CH) (UNESCO, 2013). Going beyond the geographical and geomorphological scope, the Historic Urban Landscape is defined as the «historic layering of cultural and natural values and attributes» (art. 8) (UNESCO, 2011), incorporating the intangible dimension of heritage and the related economic processes. This approach recognizes the landscape as a "living heritage", an "organism" made of complex characters, relationships and multidimensional inter-relationships (Veldpaus and Pereira Roders, 2014). In the last decades, the attention to the "monument" has been shifted towards the recognition of the importance of social, cultural and economic processes in the conservation of urban areas (UNESCO, 2011, art. 4). It determines the increasing relationships between conservation and development: they can be put in a mutual symbiosis (Greffe, 2005; Greffe, 2009). The UNESCO approach explicitly recognizes the contribution of landscape conservation to sustainable development. Impacts on local economy can be made evident through the use of performance indicators, which are fundamental tools to attract the financial resources necessary for urban regeneration. Furthermore, the international debate around Sustainable Development Goals (SDGs) recently highlighted the role of CH for sustainable development (United Nations, 2015a). The UN-Habitat New Urban Agenda (UN-Habitat, 2014) explicitly recognizes that HUL is a key element of successful urban development processes, especially in rapid urbanization contexts.

The objective of this study is to analyse relevant case studies based on a literature review regarding cities that invested in Historic Urban Landscape conservation/regeneration, in order to select performance indicators. The multidimensional benefits (cultural, social, environmental, economic) produced by HUL demonstrate the convenience of investments in the medium-long term. A set of economic performance indicators has been selected to demonstrate the economic convenience of HUL conservation and valorisation projects in different contexts. Empirical evidence is provided to show how investments in HUL conservation can produce employment and enhance social cohesion and city resilience, contributing to the achievement of SDGs. In the first section of this study it is discussed the role of culture-related performance indicators in the current international debate on SDGs (Loewe and Rippin, 2015). In the second section, relevant case studies are analyzed for the selection of economic performance indicators. The last section concerns a critical analysis of resulting indicators towards the development of an evaluation framework for the impact assessment of HUL conservation/regeneration projects.

2. The role of HUL in the implementation of SDGs

The 2030 Sustainable Development Agenda has been defined as a plan of action for people, planet and prosperity (United Nations, 2015a), based on 17 Sustainable Development Goals (SDGs) and 169 targets coming out from the Millennium Development Goals (MDGs).

The economic, social and environmental dimensions of sustainable development are addressed at a global institutional level to achieve prosperity and peace, gender equality, health and equal opportunities for people. These objectives are extremely challenging, and the monitoring of goals achievement through appropriate indicators is a priority.

The recent list of 100 Global Monitoring Indicators proposed by the Sustainable Development Knowledge Platform (United Nations, 2015a) is a fundamental tool to monitor the achievement of the goals. Historic Urban Landscape and, more generally

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Cultural Heritage (CH), are weakly considered as important factors of sustainable development: they are explicitly mentioned only once in the Goal 11 («make cities and human settlements inclusive, safe, resilient and sustainable»), particularly in the target 11.4, regarding «strengthen efforts to protect and safeguard the world's cultural and natural heritage».
For this target (11.4 of SDGs), the first documents on performance indicators produced in June 2015 by United Nations proposed three indicators (United Nations, 2015b):

- indicator 86 about Red List Index;
- indicator 87 about Protected areas overlay with biodiversity;
- Complementary National Indicator 11.3 about the percentage of cities with more than 100,000 inhabitants that are implementing risk reduction and resilience strategies informed by international frameworks (such as forthcoming Hyogo-2 framework).

Table 1 – Indicators related to Target 11.4 of Sustainable Development Goals

11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.3. Percentage of cities with more than 100,000 inhabitants that are implementing risk reduction and resilience strategies informed by international frameworks (such as forthcoming Hyogo-2 framework)
	86. Red List Index
	87. Protected areas overlay with biodiversity

Source: Fusco Girard et al. (2015)

It is clear that the indicators linked to the heritage conservation topic are focused on ecological/environmental issues (risk reduction, Red List Index and protected areas for biodiversity conservation); they are a considerable part of the conservation challenge, but they do not include any consideration on the role of HUL in sustainable development. Despite the notion of resilience has been mentioned in the Complementary National Indicator n. 11.3, this is to be interpreted as the adaptation and mitigation capacity related to climate change, with particular reference to the Hyogo-2 framework (UNISDR, 2005).
Although the first indicator list lacked of considerations on CH in cities, a step forward has been made by the UN-Habitat New Urban Agenda, which highlighted the role of Historic Urban Heritage/Landscape for the achievement of many SDGs. The role of HUL in local development processes has been recognized, as «cultural urban heritage/landscape provides quality, sense and meanings to the urbanization processes, promoting the implementation of "places" as attractive (economic/social/cultural) spaces in the city/metropolitan areas, where many plus values are produced» (UN-Habitat, 2014, p. 49).
It has been recognised that Urban Heritage contributes to:

- the poverty reduction;
- the city health;
- the regeneration of local economy (fostering innovative activities and the local creative economy) and local employment (in particular in sustainable tourism activities/investments);
- the resilience of urban system and infrastructure;

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- make cities more resilient, inclusive, safe and sustainable.

It has been assumed that HUL conservation/regeneration contributes directly and indirectly to:

- *goal 1*. End poverty in all its forms everywhere (improving resilience to economic, social and environmental shocks);
- *goal 8*. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (fostering resilient local economies based on endogenous resources);
- *goal 11*. Make cities and human settlements inclusive, safe, resilient and sustainable (improving material and immaterial cultural values and enhancing social cohesion, sense of community and well-being).

Moreover, UN-Habitat City Prosperity Initiative (CPI) highlights the importance of sound public spaces within the city, especially in poor urban contexts, through the adoption of an aggregated Quality of Life indicator based on the vitality of public spaces.

Thus, it is widely recognized that Historic Urban Landscape conservation/regeneration can foster sustainable development.

The global discussion following the SDGs indicators proposal, that involved researchers and institutions worldwide, produced a progress in the elaboration of the indicator set. The revision list processed in August 2015 (United Nations, 2015b) contains additional indicators that take into consideration the contribution of cultural heritage to sustainable development. Suggested indicators for the target 11.4 are shown in Table 2.

Table 2 – Suggested indicators list related to Cultural Heritage/sites for monitoring SDGs

Goal/Target	Suggested indicator	Interlinkages with other Targets
11.4	Share of national (or municipal) budget which is dedicated to preservation, protection and conservation of national cultural and natural heritage including World Heritage sites	8.9, 11,7, 12.b
11.4.1	Percentage of budget provided for maintaining cultural and natural heritage	8.9.1, 8.9.2, 11.7.1, 12.b.1, 12.b.2
11.4.2	Percentage of urban area and percentage of historical/cultural sites accorded protected status	8.9.1, 8.9.2, 12.b.1, 12.b.2

Source: Fusco Girard et al. (2015)

IUCN suggests the use of "World Heritage Outlook ratings" as an indicator of heritage conservation, while UNESCO proposes to use the "Number and Percentage of the labour force that holds a heritage occupation or is employed in the heritage sector", using data from the Cultural Employment Survey launched in 2015.

The interlinkages with other targets show also a progress in the discussion about the role recognized to Cultural Heritage, as Goal 8 and Goal 12 have been directly linked with it. The revision of the Goal 12, particularly, considers three more Targets, as shown in Table 3 and Table 4. Interlinkages with Target 8.9 (by 2030 Agenda, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products)

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consider indicators such as tourism direct GDP (indicator 8.9.1) and tourism consumption (indicator 8.9.2), proposed by UNWTO, WB, and ICAD.

Table 3 – Revision of Goal 12 of SDGs

Target proposal	Description
12.a	Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production
12.b	Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products
12.c	Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities

Source: Fusco Girard et al. (2015)

Table 4 – Suggested indicators for Target 12.b of the SDGs revision List

Indicator	Description
12.b.1	Percentage of the destinations with a sustainable tourism strategy/action plan, with agreed monitoring, development control and evaluation arrangement
12.b.2	Adopted national legislation to integrate sustainability objectives in tourism operations (BBB)

Source: Fusco Girard et al. (2015)

Thus, the economic contribution of Historic Urban Landscape to sustainable development has been linked primarily to tourism related to economic activities, which are relatively easy to obtain at the national level. Nevertheless, tourism cannot be considered as the only economic impact of HUL conservation/regeneration. This study analyses a set of good practices that demonstrate the multidimensional impacts of conservation actions on local sustainable development.

There is the urgent need for economic multidimensional indicators through which assessing the contribution of HUL to SDGs. We consider the disaggregation of data at the sub-national level as a key open question. Some indicators are provided with disaggregation methods at the regional level, but the overall ongoing discussion on monitoring issues is based on national data and indicators. Although Sustainable Development Goals are

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globally identified and agreed, sustainable development in the current post-globalization context can only be achieved at the local level (Zeleny, 2010).
In the last decades, cities acquired an enormous importance in the development of Nations. Cities produce the wealth of Nations but also cultural, social, economic and environmental deprivation (Fusco Girard, 2014a). Thus, sustainable development can be achieved and monitored in cities, paying particular attention to the multidimensional impacts of conservation actions.

3. Impact assessment of HUL conservation/regeneration in the economic perspective
Historic Urban Landscape conservation is an effective catalyst for stimulating local and regional economies (Licciardi and Amirtahmasebi, 2012; Luxen, 2010).
The best and good practices of HUL regeneration demonstrate that it produces important economic impacts (Nypan, 2005), but empirical evidence is needed to demonstrate the multiplier effects of investments and to attract funding from the private and private-social sector. Indicators are needed to assess the value of benefits produced by HUL conservation/regeneration actions and to monitor and benchmark case studies in the perspective of a comprehensive economic assessment framework. In order to manage changes in an effective and transparent way, it is necessary to identify key indicators, which can synthesize complex values of HUL and express the variations in terms of the benefits produced. «Heritage performance as a contributor to economic values can be measured by indicators, which are today consistently used as an integrated approach for measuring and monitoring cities. They are considered a perfect tool to test city performances.
Indicators are used to communicate information and to make predictions on future performance. They can simplify the interpretation of complex systems and help decision makers. The use of indicators does not substitute for the use of database, however it is a very pragmatic approach when direct documentation would be too costly and time intensive. Heritage indicators also express how economic value may be consistent with Sustainable Development Goals» (Ost, 2010, p. 250).
The selection of indicators should take into consideration the objectives, specific conditions of the place, socio-economic conditions and political choices and preferences, with the result that each indicator should be relevant to the evaluation process.
The processing of a database of good and best practices has the purpose of supporting the construction of multidimensional matrices that can produce empirical evidence on economic impacts of HUL conservation/regeneration.
The indicators, which express quantitatively the economic benefits of HUL conservation actions, have been grouped into six broad economic categories of impact related to:
- tourism and recreation;
- creative and innovative activities;
- typical local productions;
- environment and Natural Capital;
- community and social cohesion;
- real estate.

Cost-benefit analysis can be used to measure impacts, but all values (not only economic values) must be taken into account to assess the real impacts of investments in HUL conservation (Fig. 1).

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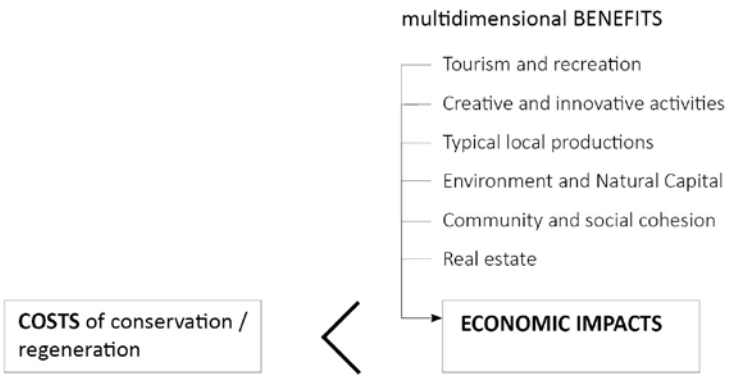
Fig. 1 – Costs and benefits of HUL conservation/regeneration



Source: Fusco Girard et al. (2015)

Table 5 – Case studies analysed

Case study	Country	Costs
Alto Douro Region	Portugal, Europe	No costs reported
Bath	Uk, Europe	€ 637.000
Lamole, Chianti	Italy, Europe	€ 143.458
Bologna	Italy, Europe	€ 300,00
Doñana National Park	Spain, Europe	€ 1.9 M
Škocjan Caves	Slovenia, Europe	€ 1.4 M
Virunga National Park	Democratic Republic of Congo, Africa	No costs reported
Kazimierz, Krakow	Poland, Europe	No costs reported
Lille	France, Europe	€ 73.65 M
Skopje	Macedonia, Europe	€ 5.1 M
Toronto	Canada, North America	€ 1625,0 M
Marrakesh	Morocco, Africa	No costs reported
Oaxaca De Juarez	Mexico, South America	€ 11.972,85
Salvador De Bahia	Brazil, South America	€ 10,7 M
Tblisi	Georgia, Middle East	€ 4,0 M
Valparaiso	Chile, South America	€ 65,2 M
Zanzibar	Tanzania, Africa	€ 33,95 M

Source: Fusco Girard et al. (2015)

The set of indicators for each category, listed below, have been selected starting from 17 case studies of cities that enhanced HUL: 9 in Europe, 3 in Africa, 3 in South America, 1 in North America and 1 in the Middle East (Table 5).
The 17 case studies are selected on about 50 case studies previously analysed. Before selecting the 17 case studies, the work was to analyse each case study, producing a short summary for each one. Starting from these summaries, just 17 case studies have been chosen on the following criteria: presence of cultural or natural heritage of Outstanding Universal Value (OUV) or recognized at regional/national level and subject of conservation/regeneration programs in the last fifteen years; heterogeneity in geographical location; heterogeneity in socio-economic context; availability of data and reliable and sufficient complete reports.
The Alto Douro region is located in Portugal and it is a cultural landscape of high natural and historic/cultural value. The well-known Porto wine has been produced in this landscape for centuries, and the site is listed in the UNESCO World Heritage List (Gomes and Pinto, 2013). The economic impacts of cultural landscape conservation are reviewed by Landorf (2009) and Loureço-Gomes (2009), particularly related to tourism. Performance indicators are selected with regard to these studies.
The city of Bath is located in the south of England on the River Avon, recognized for the Roman and medieval town, which is a World Heritage Site since 1987. The UNESCO site has led economic, social and cultural benefits to the city. Funding for the redevelopment of the ancient Roman city were £ 154.6 million, through which it was made a great deal of activity for the city, such as schools, training schools, universities and the redevelopment of the historic buildings (Orbasli, 2010).
The territory of Lamole, in the Chianti cultural landscape of Italian Tuscany Region is a wine terraced landscape that has been recovered by a local wine company, investing private resources. The financial-economic assessment processed by Torquati and Giacché (2012; 2013) shows how investments in HUL regeneration can be profitable for private bodies. Selected indicators are related, among others, to the Internal Profit Rate of the economic activity, the financial break-even point of the investment and to the "cost of landscape regeneration" related to total costs (Torquati *et al.*, 2011).
The case of Bologna (Italy) reveals how the local community can contribute to the regeneration of the Historic Urban Landscape. The main monument of the city, the Portico of San Luca, has been restored through a crowdfunding campaign, promoted by the municipality and local associations (Pais *et al.*, 2014).
The economic benefits of natural heritage in different UNESCO World Heritage sites have been analysed by IUCN (2014) applying the ecosystem services approach (MEA, 2005; TEEB, 2010). The cases of Doñana National Park in Spain, Škocjan Caves in Slovenia and Virunga National Park in the Democratic Republic of Congo (Africa) have been selected to demonstrate that ecosystem services, particularly cultural services, can and should be integrated in the performance assessment processes. The economics of ecosystem services cannot be ignored when assessing costs and benefits of HUL regeneration.
The study of the Škocjan Caves Regional Parkwas carried out by Actum (2011) and produces a monetary valuation estimate for the ecosystem services delivered by the park. In this case, recreation/tourism is the main economic benefit of heritage conservation, but cultural values are not negligible. The approach adopted for the economic analysis of Doñana (IUCN, 2014) involved the collation of existing studies. Depending on the

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ecosystem service concerned, the studies had used either market price or contingent valuation methods. In this case, the economic benefits of cultural (aesthetic) services are estimated as higher than recreation/tourism services.

In the case of Virunga National Park, the study for WWF (Dalberg, 2013) identifies ecosystem services to be included in each value category. In this case, the potential benefits of heritage conservation and valorisation are assessed through monetary techniques, resulting that a possible cultural and touristic valorisation of the site could exponentially multiply non-use and use values of the site.

The city of Kazimierz, in Poland, was affected by the catastrophic consequences of World Wars, entire neighbourhoods were destroyed. Towards the end of the twentieth century has been launched a program of recovery and reconstruction of the city, particularly synagogues, bars, art galleries and museums. The redevelopment project has been structured through specific objectives, including the regeneration of the most deprived sections of the city (Murzyn, 2006). The benefits of conservation have been assessed both in economic and social terms (Labadi, 2008).

The city of Lille in France has experienced a great development following its nomination in 2004 as "European Capital of Culture". The city is characterized by a great cultural diversity and it is known as a multiethnic city. The deterioration of the city was evident especially in brownfield sites. A large redevelopment project for the historical centre has been implemented. A feasibility study has been done to quantify the real economic benefits of the intervention, in terms of increased employment, new business, higher wages and increased tourism (Roland *et al.*, 2004).

The case of Skopje, in Macedonia, is focused on reducing poverty through cultural heritage conservation, encouraging the use of cultural assets as an engine for private sector growth (Throsby, 2012). The goal of the large redevelopment of the waterfront of Toronto was to restore the identity of a key area of the city. 30 hectares of brownfield sites have been rehabilitated near the old town (Ogilvie D, 2009). The project involved the construction of green areas, with the goal of reducing CO_2 emissions. The project was funded by both public and private partners (HR&A Advisors, 2010).

In Marrakesh the ancient medina has been recovered to ensure the preservation of the existing heritage. The economic potential of the Medinas has been investigated through the assessment of the positive impacts of sustainable tourism, the promotion of handicrafts, cultural activities, and the hospitality industry. The basic residents' needs have been addressed through investment strategies centred on the improvement of housing conditions, access to basic infrastructure, public services and job creation (Bigio, 2010).

The city of Oaxaca, in Mexico, is characterized by a mixed urban structure, where architectural styles, urban layout, geographical obstacles, public spaces and different functions are combined in a uniquely vibrant city. The main objectives of the cultural heritage regeneration project were the revitalization of the area and the promotion of the residents' participation in the program design and implementation (Quartesan and Romis, 2010).

In Salvador de Bahia (Brazil) the regeneration project tackles one of the most physically and socially deteriorated areas of the historic centre, that is home to a large low-income population. The aims were to provide housing for low-income families and to transform several buildings of major historical value into cultural centres (Mendes Zancheti and Gabriel, 2010).

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In Tbilisi (Georgia) the objectives of the World Bank project were the promotion of cultural heritage, the improvement of its management, the revival of tourism economy and the generation of social cohesion and national identity. The overall objective of this investment is to promote employment, poverty reduction, and economic development more generally using cultural heritage as an asset (Throsby, 2012).
The program realized in Valparaiso (Chile) has the objective of supporting the economic reactivation of the city for the benefit of its population, by financing activities directed to the restoration and preservation of the cultural heritage of the city. Seaside location and the presence of a large number of important universities have been factors of success for this cultural heritage regeneration project (Trivelli and Nishimura, 2010).
Zanzibar is part of the United Republic of Tanzania, the Stone Town, also note as Mji Mkongwe ("old city" in Swahili), is the old part of the capital of Zanzibar. Stone Town is one of the cities of great historical importance of oriental Africa and it is a UNESCO World Heritage Site.
The architectural patrimony of Stone Town is to a large extent in decline, also because of the friability of the local stone with which big part of the buildings is built, and despite a special Authority of Maintenance has been constituted. Of the around 1600 buildings that constitute the city, only a 10% around it are maintained.
The Zanzibar Strategy for Growth and Reduction of Poverty (ZSGRP) is the Revolutionary Government of Zanzibar's (RGoZ) development road map to meet the Zanzibar Vision 2020 objectives, aimed at eradicating absolute poverty in Zanzibar by the year 2020.
The strategy coincides with the attainment of the Millennium Development Goals (MDGs) by 2015 (United Nations, 2015c) and recognizes the need to develop institutions and methods to support rapid expansion of services across the islands.
The Project Development Objective is to improve access to urban services in Zanzibar and conserve the physical cultural heritage. The economic impacts of this project are reviewed in a document of World Bank (World Bank, 2015).
The indicators for each category have been selected with regard to the good practices analysed during the research. A specific table of indicators has been processed for each category of impacts.

4. Tourism and recreation

The investment in Historic Urban Landscape conservation/regeneration has positive impacts on tourism: there is a direct relationship between tourism and economic growth (Coccossis and Nijkamp, 1995); thus, tourism related to HUL can be considered a "productive factor".
Most impact evaluation studies on cultural development projects focus on tourism as it produces more evident and immediate economic impacts. Museums, convention centers, exhibition areas, parks, hotels and infrastructure, are "attractors" able to translate productively city's energies.
Tourism is a sector able to turn cultural/creative values into "money". The comparison of case studies confirms that the tourism sector is the one provided with as many data and indicators as possible, and therefore more detailed and comparable data. Three sub-categories have been identified: *employment* in the tourism sector, *touristic demand* and *touristic supply*. For each category, a set of indicators is provided (Table 6).

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Table 6 – Tourism and recreation impact indicators

Sub-category	Indicator	Unit measure
Employment	N. of new jobs in touristic sector	n./year
Employment	Percentage of employed population related to tourism sector	%
Employment	Percentage of the total workforce employed in hotels	%
Employment	Average number of jobs in touristic activities (hotels, restaurants, shops)	n./year or n/days or n./week or n./month
Employment	Monthly salary	€/month
Employment	Percentage of hotels' contribution to tourism sector income	%
Employment	Percentage of hotels' contribution to tourism sector total revenues	%
Touristic Demand	N. of visitors per year	n/year
Touristic Demand	N. of visitors/expenditure made by each	n./€
Touristic Demand	Average length of stay	n.nights/person/year
Touristic Demand	Occupancy rate	%
Touristic Demand	Average growth rate of number of nights and guests	%
Touristic Demand	Internationalization (percentage of international tourists)	%
Touristic Demand	N. of one-day trips	n. trips/year
Touristic Demand	Percentage of crowding in restaurants during holidays	%
Touristic Demand	Average number of daily users in stores	n./day
Touristic Demand	Average daily expenditure of users in stores	€/day
Touristic Demand	Average number of daily users in restaurants	n./day
Touristic Demand	Average daily expenditure of users in restaurants	€/day
Touristic Demand	Number of airline passengers	n./years
Touristic Demand	Number of adult visitors to museums	n./day
Touristic Supply	Percentage of fixed assets related to the tourism sector	%
Touristic Supply	Average annual growth in Touristic Units and rooms	%
Touristic Supply	Average growth of touristic sector	%
Touristic Supply	N. of new touristic shops	n/year
Touristic Supply	N. of touristic residences in rural space	n. units/year
Touristic Supply	Growth of service and infrastructures	%
Touristic Supply	Growth of catering sector	%
Touristic Supply	N. of hotels	n.

Sub-category	Indicator	Unit measure
Touristic Supply	N. of hotel rooms	n.
Touristic Supply	N. of hotel beds	n.
Touristic Supply	N. of new travel agencies	n.
Touristic Supply	N. of airlines operating at the airport	n.
Touristic Supply	N. of new public underground parking lots	n.
Touristic Supply	N. of commercial licenses	n.

5. Creative and innovative activities

Productivity, competitiveness and attractiveness of cities and regions are improved through innovations (Florida, 2002), based on local resources, that is, on human and social capital. Cities invest in cultural infrastructures as a catalyst to support local development and employment: science parks, cultural districts and research centers. Sub-categories have been identified: creative firms, cultural demand, cultural supply, employment in creative and innovative activities (Table 7).

Table 7 – Creative and innovative activities impact indicators

Sub-category	Indicator	Unit measure
Creative Firms	N. of new handcraft shops	n./year
Creative Firms	N. of craft producers	n.
Creative Firms	N. of antique stores/second hand bookshops	n.
Cultural Demand	Visitors stay for temporary cultural events	%
Cultural Demand	N. of adult visitors for cultural reason	n./year
Cultural Demand	N. of participants in cultural events	n./year
Cultural Demand	N. of schoolchildren taking part in the cultural events	n/year
Cultural Demand	Perception of cultural benefits	qualitative
Cultural Demand	Visitors' Willingness to Make a One-Time Contribution to Heritage Restoration	%
Cultural Supply	N. of Cultural Events per year and their impacts	n./year
Cultural Supply	Growth of cultural events	%
Cultural Supply	N. of cultural institutions	n.
Cultural Supply	Growth of creative activities	%
Cultural Supply	N. of volunteers	n./year
Cultural Supply	Attraction of new investments in Cultural Heritage	€
Cultural Supply	N. archives	n.
Cultural Supply	N. libraries	n.

Sub-category	Indicator	Unit measure
Cultural Supply	N. movie theatres	n.
Cultural Supply	N. art galleries	n.
Cultural Supply	N. museums	n.
Cultural Supply	N. theatres	n.
Cultural Supply	N. of cultural facilities	n.
Employment	Jobs created in the short term in cultural activities	n.
Employment	N. of artists taking part in cultural activities	n/year

6. Typical local productions

The Historic Urban Landscape conservation/regeneration has positive impacts on craft and industrial economy. Often in the historic centers of cities are located productive activities that are (although they could represent a threat to the historic urban landscape) a source of economic vitality. The benefits of industrial economy and craft are quantified, for example, by the percentage of average lifespan of industries and companies, the percentage of formal and informal activities on the sites. These indicators on the health of the enterprises indicate the vitality of businesses in the historic center of cities. Indicators related to typical local productions have been collected from case studies. They are here classified in sub-categories: economic vitality, production of goods, typical productions (Table 8). The analysis of economic activities related to craft and traditional products, based on indicators at the local level, can produce empirical evidence of the benefits of HUL conservation / regeneration. This contributes directly to sustainable development enhancing the resilience of local economies.

Table 8 – Typical local productions indicators

Sub-category	Indicator	Unit measure
Economic Vitality	Average of companies lifespan	%
Economic Vitality	Percentage of industries (distribution of buildings)	%
Economic Vitality	Percentage of formal/informal activities	%
Production of Goods	N. of new industrial activities	n./year
Typical Productions	Employment distribution in production sector	%
Typical Productions	Annual growth rate of traditional production (wine)	%
Typical Productions	Average value of traditional production per hectare	€/ha
Typical Productions	Selling price of traditional products (without VAT)	€
Typical Productions	Net present value of economic activity	€
Typical Productions	Internal profit rate of economic activity	%
Typical Productions	N. of artisan units	n.

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7. Environment and natural capital

The economic impacts of Historic Urban Landscape conservation/regeneration can be captured by environmental/ecological economics (Common and Stagl, 2005) (Table 9). The presence of green areas produces economic as well as environmental benefits, in terms of cost savings (avoided cost).

Table 9 – Environment and natural capital indicators

Sub-category	Indicator	Unit measure
Ecosystem Preservation	Economic value of ecosystem services (regulating and maintenance)	€ Net Present Value
Ecosystem Preservation	Attraction of new investments in ecosystem preservation	€
Ecosystem Preservation	Avoided damages from ecosystem/land preservation	€
Ecosystem Preservation	Benefits from preservation of greenfield (ecosystem services evaluation)	Ha
Ecosystem Preservation	Benefits from preservation of agricultural land (ecosystem services evaluation)	€
Green Areas and Facilities	Attraction of new investments for enhancement of green areas	€
Green Areas and Facilities	Avoided costs of traffic congestion for the community (due to lost productivity)	€ / year
Green Areas and Facilities	Avoided cost of traffic congestion for the community (due to the reduction of economic activity)	€ / year
Green Areas and Facilities	Avoided cost of congestion per resident (thanks to new mass transit, pedestrian and bicycle routes)	€ / resident / year
Pollution Reduction	Attraction of new investment in infrastructure to reduce pollution	€

Source: Fusco Girard et al. (2015)

These positive impacts are related to health benefits (ability to perform physical activities, air quality), the reduction of water pollution, hydrogeological benefits (e.g. protection against landslides, mudslides, floods), control of soil erosion and water runoff (the creation and management of green areas can increase the permeable surfaces and the absorption of water by soil and vegetation, enhancing the entire water cycle), the elimination of overloading of sewerage system, reduction of noise pollution, control of micro-climate (the vegetation acts as a controller of the temperature and relative humidity of the air), air purification (the vegetation plays a filtering action for dust and gas). Green areas are also places for recreation, for sports, for walking, for creative activities, thus enhancing economic attractiveness of places. Research published in the journal Environmental Pollution has analyzed the amount of carbon stored by the trees in the urban cities of several American states: across the US territory, trees, urban and not, absorb 22.7 billion

tons of carbon (Nowak *et al.*, 2013). In most of the case studies, the benefits of the economic benefits of environmental and Natural Capital preservation have not been reported. The lack of data on these benefits does not imply their absence: it is clear, for example, the reduction of CO_2 linked to the enhancement of green spaces and the economic benefits related to the saving of a certain amount of CO_2. However, since the economic benefits of such category are mostly indirect, they are very often overlooked in the assessment practice. The impacts can be quantified, for example, by avoided costs of traffic congestion due to the improvement of pedestrian, bicycle and mass transport routes. The indicators are often based on existing data, but official data and evaluation programs are required to better integrate ecosystem assessment in public planning and budgeting allocation.

8. Community and social cohesion

The Historic Urban Landscape conservation/regeneration has positive impacts on the social capital, revitalizing the social fabric and creating synergies/relationships and links among the different systems of the community (Fusco Girard, 1987; 2013b). A more inclusive and integrated society can be achieved through the establishment of associations, crowdfunding projects and social enterprises related to the cultural heritage conservation / regeneration (Macdonald and Cheong, 2014). They are able to contribute to local economic productivity (Bruni, 2006; Bruni and Zamagni, 2004) (Table 10).

Table 10 – Community and social cohesion indicators

Sub-category	Indicator	Unit measure
Social Care	Number of individuals receiving social care	n.
Social Cohesion	New funds to support activities of a non-profit organization	€
Social Cohesion	Perception of personal safety	qualitative
Social Cohesion	Number of association/10000 inhabitants	n.
Sharing/Collaborative Economy	N. of new cooperative enterprises	n.
Sharing/ Collaborative Economy	N. of participants in crowdfunding initiatives	n.
Sharing/ Collaborative Economy	Amount of money crowdsourced through crowdfunding campaigns	€

Source: Fusco Girard et al. (2015)

Networks and partnerships, increasing the quality of life, are able to make the urban landscape more attractive. Several international studies (e.g. OECD Better Life Index, OECD index Social Cohesion, Social Cohesion and Reconciliation (SCORE) Index; Markus, 2014) have focused on these indicators, but the economic impacts resulting from increased social cohesion are rarely assessed. The social impacts of heritage conservation have been assessed only in some cases. Three sub-categories have been identified: *social care*, with the analysis of the costs saved by improving socio-economic conditions of the population; *social cohesion*, with the amount of funds for non-profit organizations, increase

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of use values by improving the perception of safety in diverse locations; *sharing/collaborative economy*, which identifies the number of new cooperative enterprises before and after the intervention.

A specific research has been conducted to identify the innovation underway in the recovery of Historic Urban Landscape. The collaborative, sharing and social/civil/solidarity economy is currently being applied in Italian cities such as Bologna and Milano (Galliano and Scopelliti, 2015). A good example is the ICity-Rate report (Forum PA, 2015), which identifies 72 performance indicators to monitor the "smartness" of Italian Cities. Among these indicators, the report identifies an interesting indicator of Sharing Economy that is related to the percentage of coworking services, time banks and Solidarity Purchase Groups (GAS, Gruppi di Acquisto Solidale) in each city. This could be used, but also integrated to measure the "collaboration" rate of each city in the management and conservation of Historic Urban Landscape.

The case of the crowdsourced recovery of the main cultural heritage in Bologna (Italy) is particularly significant. "A step to St. Luke" is the Italian crowdfunding initiative launched in 2013 for the city of Bologna with the goal of collecting 300,000 Euros needed for the restoration of the world's longest Portico, the arcade of St. Luke that connects seamlessly the heart of the city at the top of the Colle della Guardia.

Through crowdfunding, the method of raising funds on the web, citizens had the opportunity to contribute to a project according to their means. In the case of Bologna, the target set for the maintenance of the work damaged by subsidence and subsidence of the soil, especially in the hilly stretch, was reached with 339.743 euros and 7,111 supporters.

The arcades of Bologna are a symbol of the city and represent the hospitality, the outdoor seating area, a place for socializing. For anyone who has attended Bologna, the Portico of St. Luke has always acquired a personal meaning. Almost 4 km long, it connects Bologna historic centre at the top of the Colle della Guardia where the Basilica lays and it is part of the local life, which is why the Municipality of Bologna has decided to resort to crowdfunding for its restoration. Civic Crowdfunding goes well in initiatives involving a symbol, a place that can encompasses multiple meanings and ideas.

It is the first case in Italy in which a public authority, the Municipality of Bologna, decided to use the crowdfunding for the restoration of a public good, putting the first "chip" of 100,000 euro. The Committee for the restoration of the Portico of St. Luke and the technical support of Ginger, a young territorial crowdfunding company, supported the initiative. That fact is even more remarkable considering that the object of the campaign was the restoration of a cultural property. The result was made possible by leveraging the strengths of crowdfunding, throughout the campaign period, which in its territorial connotation relies even more on transparency, trust, sharing and collaboration. The goal of "A Step to St. Luke" was not only to raise funds but also to communicate with the emergency of its recovery issues, bringing the portico of St. Luke to the city and the city to the public good, to take care of a symbolic common good.

Like any crowdfunding campaign, the "rewards" were critical to the success of the initiative. "Frog statues" created by artists of Cracking Art Group have become the symbol of the crowdfunding campaign. Chosen from more than 2,000 people, the frogs have invaded homes, shop windows and even the walls of some buildings in the city, a further enhancement to the project Re-Generation: with colorful frogs it is revealed the attention

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and willingness to safeguard art and historical values of the Italian artistic heritage. Cracking Art leads through the formula "art regenerates the art".
In addition to the frogs, other rewards have been given to participants: "A recipe #persanluca" (a donation of € 5 to receive a video-recipe by a grandmother from Bologna); "(Re) discover San Luca", tour against a donation of € 10; 100% San Luca. A donation of € 100 enabled citizens to join the club of donors 100% and to post on the website a testimony by a photo or video. The "Adopt a fresco" initiative is a donation of € 300 contribution to the "fixing" of one of the frescoes on the portico. Businesses also found in crowdfunding an innovative marketing and communication field who collimated with their desire to make a concrete action in favor of their own city. In this perspective there is also the possibility, for major donors, to opt for the reward "Adopt an arch" that has allowed, in the face of a significant contribution, to restore an entire arch of the Portico of San Luca, affixing a plaque for commemoration of donor. "A step to St. Luke" was not only a fundraising campaign, but a real movement of active citizenship which saw the involvement of many different components of society in Bologna. This happened because the Portico is a symbol for all: institutions, citizens, businesses, schools and associations (Pais *et al*., 2014).
More indicators could be proposed for this category, such as the sharing of population participating in crowdfunding campaigns, or the share of local enterprises that demonstrate interest in supporting the recovery of the cultural heritage. The economic impacts of this kind of community support to CH should be further explored, having there currently lack of data and systematized studies on the real impacts of these experiences.

9. Real estate

The real estate market is positively influenced by investments in Cultural Heritage: usually, in the areas of intervention or in the surrounding areas real estate values increase.
Historical and monumental buildings provide housing services, services for the city government (e.g. historic town hall), cultural services (e.g. museums, art centers, and entertainment). The real estate market values are therefore market indicators that show individual and collective demand for the use of the built Cultural Heritage.
The increase in real estate value could have negative impacts (i.e. gentrification): locals and young people cannot afford the real estate market; a high number of residential units remains non-occupied for most of the year; the "new owners" take low interest in the maintenance of houses and land; "touch and go" tourism increases. Keeping heritage buildings in active use is a good strategy for maintenance.
The case studies analyzed show that vacant heritage buildings keeps advantage of the extraordinary adaptability for new uses, reducing costs of maintenance. In the re-use/regeneration of historic buildings lies a huge economic potential in terms of employment and income. Approximately 28% of investments in the European construction sector in 2014 has been used for rehabilitation and maintenance of buildings (European Construction Industry Federation, 2015). Adaptive reuse of historical fabrics has a huge economic potential. "Keeping alive" a building, respecting its identity and integrity, is a good way to protect it. Furthermore, the direct benefits for the owners (increase of property value) can be turned into tax revenues for the public. The sub-categories identified for the assessment are "employment" in the real estate sector, "real estate values, urban growth, urban renewal", each of them comprising lots of economic potentially economic indicators (Table 11).

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Table 11 - Real estate economic indicators

Sub-category	Indicator	Unit measure
Employment	Growth of employment within real estate and neighbourhood development	%
Real Estate Values	Average price of apartments	€/sqm
Real Estate Values	Increase in private land value	€
Real Estate Values	Increase in public land value (due to infrastructure development)	% and €
Real Estate Values	Percentage of Increase in property values	%/year
Real Estate Values	Evolution of ownership and rental structures	%
Real Estate Values	Volume of transactions in the real estate market	€
Real Estate Values	Number of office spaces	n.
Real Estate Values	Price of properties (estimate)	€/year
Real Estate Values	N. of commercial units	n.
Real Estate Values	Value of historic buildings	€/sqm
Real Estate Values	Value of buildings in the surroundings	€/ sqm
Real Estate Values	Rent values for commercial-use properties	€
Real Estate Values	Rent values for residential properties	€
Real Estate Values	Average monthly rent	€
Real Estate Values	Average market value	€
Real Estate Values	Average value of property transactions	€
Urban Growth	Residential development	N. of new residential units
Urban Growth	Ha of permitted for a change in land use	Ha
Urban Growth	Square feet of commercial development	Sq. feet
Urban Growth	Property taxes gained from commercial development (municipal)	€
Urban Growth	Property taxes gained from commercial development (provincial and federal)	€
Urban Growth	Ha of open spaces and recreation areas	Ha
Urban Growth	Increase in municipal taxes	€ / year
Urban Growth	N. of new construction activities and new permits	n. of permits
Urban Reneweal	Number of construction, restoration and adaptation works undertaken on historic buildings	n. of works
Urban Reneweal	Re-functionalization of historic buildings	%
Urban Reneweal	Housing vacancy rate	%
Urban Reneweal	Percentage of well-preserved buildings	%

Source: Fusco Girard et al. (2015)

10. Discussion: evidences from case studies

The selection of case studies, and the analysis of data and indicators emerged in diverse contexts and experiences, has been a fundamental step towards the construction of an impact assessment matrix based on empirical evidence and hybrid knowledge. Regarding the specific case studies, more considerations can be made.

It could be noted that the benefits of tourism are expressed mainly by indicators concerning the tourist flows. The indicators that recur most frequently are related to the number of tourists visiting the site (i.e. Oaxaca, Marrakesh), the average daily expenditure of tourists (i.e. Oaxaca, Marrakesh, Salvador de Bahia, Tbilisi), the average length of stay and accommodation (i.e. Tbilisi), the increase in percentage of workers in the tourism sector (i.e. Marrakesh), the number of new touristic services (i.e. accommodation, commercial activities), the number of new jobs. In many cases, tourism is considered as an important source of revenue, providing an economic profit to the original investment, but it could have negative impacts on the heritage itself. It is clear that an excessive number of tourists can turn benefits into costs, reducing the quality of the site (for example, if the flow of visitors in an archaeological area is excessive, it becomes a threat to the integrity, authenticity and quality of the site).

In some case studies, there are indicators concerning the contribution of cultural activities to GDP: for example in Oaxaca it is indicated that the tourism sector contributes to GDP for a percentage of 10.35%.

In the analyzed case studies some indicators linked to the tourism sector are neglected. For example, data relating to the transport sector not often emerge: the increase in the number of parking and/or public transport serving the area of the project can be a significant indicator because it is an expression of an increase/decrease in tourism demand. Data concerning these indicators emerged, for example, in the case studies of Marrakech and Valparaiso: it is evaluated respectively the number of new airlines serving the airport of the city (which doubled in only three years) and the number of parking spaces at the service of the old town. A significant indicator of the economic benefits related to tourism economy is the increase in business activities (increase of business licenses, increase in employment). For example, the employment rate in restaurants, cafés, shops in Skopje is considerably increased with reference to the period pre and post 2005 (year of the investment): from an average number of 3 employees per business in Restaurants, Cafés, Shops (pre-2005) to an average number of 5.2 (post-2005).

In the case of Alto Douro, Portugal, the impacts of tourism have been analysed in a period of 10 years approximately, from 2001 to 2010 and in comparison with the performance of the Northern Region. In this case, the UNESCO label did not contribute as much to the touristic performances of Alto Douro, based on data from this case study. It is to be noted that the period of observation includes the economic crisis of 2008, which influences the overall economic performance. Nevertheless, an interesting data remains the increase of cruise ships passengers, touristic residences in rural spaces and the n. of one-day trips to Alto Douro from the control station of Oporto. The monitoring of such indicators could enhance policy choices identifying the strongest economic sectors related to HUL, attracting investors and improving local economic vitality. In the case of Natural Parks (Doñana, Škocjan Caves and Virunga National Park), the estimated monetary value of recreation and tourism is very high related to other ecosystem services. In Doñana, it

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represents the 26% of all ecosystem services, while in the Škocjan Caves the estimated value is around 85% of all ecosystem services.
The Virunga National Park represents a particular case: the socio-political local situation does not allow the estimation of the value of current tourism services, but the potential monetary value based on benefit transfer methods has been estimated for this African site, resulting in the 33% of all potential services provided in this site, considering also fishery, hydro-electric power, carbon sequestration, erosion control and other ecosystem services.
The positive impacts confirming the benefits of HUL conservation/regeneration are not related only to the tourism sector but they refer also to other categories.
It is significant to note that the tourism economy is the one that has the greatest number of indicators and data, but actually it represents only a part of all benefits. The tourism sector alone is no guarantee of the preservation and development of the Historic Urban Landscape. In fact, in some case studies the increase of the number of tourists is strictly related to a decrease of the residents. Therefore, investments should not have as main goals the increase of tourism, but the improvement of residents living conditions that, in turn, in a circular vision, are a source of tourist attraction: life quality and tourist attractiveness are, therefore, in a symbiotic and circular relationship. If you do it for the locals, the tourist will come; if you do it for the tourist, only the tourists will come (Rypkema, 2011).
Craft and traditional food and drink products represent an important sector in Historic Urban Landscapes, particularly in Cultural Landscapes, where agricultural activities shape landscape forms and uses. Indicators on economic activities in cultural landscapes applied at a larger scale (not only one company) could produce a significant evidence of the economic benefits produced by cultural landscape (employment, added value of products, avoided costs of land maintenance, indirect benefits of recreation services such as cultural and gastronomic tourism).
In Salvador de Bahia the percentage of average lifespan of industries and companies and the percentage of formal and informal activities on the site are indicated: there is a big percentage (more than 30%) of companies in operation for more than 10 years since they were established.
In the case of Lamole farm, in the Chianti wine region in Italy, as well as in Alto Douro, traditional wine production is a fundamental source of revenue for local community. In the Lamole farm a private company decided to invest in the recovery of Cultural Landscape obtaining good results in terms of profitability. The financial-economic analysis undertaken by Torquati and Giacché (2013) uses financial indicators to demonstrate the attractiveness of investments in landscape regeneration (Current Net Value, Internal Profit Rate, Financial Break-Even point). The analysis of economic activities related to craft and traditional products, based on indicators at the local level, can produce empirical evidence of the benefits of HUL conservation/regeneration. This contributes directly to sustainable development enhancing the resilience of local economies.
In Marrakesh, there are a lot of creative activities and the Expo Riad Art is an outstanding example of the vitality in this fields. The city has an unrivalled capacity for innovation and this is particularly evident in its production of crafted goods, which is among the most innovative and varied in the world. In the case of Marrakech, artisans were able to regenerate the old market and create new types of product. Artisans that work in a renovated fondouk recycle and rework brass ashtrays into decorative soap dishes, or a basket maker, creatively diversifying the product range.

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Cultural heritage can also accommodate incubators of innovation/entrepreneurship, thus historic quarters can often be defined as creative districts. Creative activities, enhancing the sense of identity and social capital, stimulate the Entrepreneurial attitude linked to innovative local products (Fusco Girard, 2013b).
In some cases, indicators focus on the participation in cultural events, but not enough data on local participation and integration in the organization of cultural events are collected.
The increase of outdoor media and new ICT, such as screens, cameras and human-computer interactions has been growing rapidly over the last years (Veenstra, 2013; de Lange and de Waal, 2013). Nowadays, to imagine modern cities without media technologies is impossible. The effect of those technologies on the enjoyment of HUL can be considerable. The enjoyment of CH can be enhanced through these technologies (Kuyper and van Bussel, 2013), actively involving citizens and visitors. The case studies examined do not show indicators related to the use of ICT tools for the knowledge and fruition of Cultural Heritage, thus, this aspect should be integrated in a comprehensive assessment framework. There are interesting applications of the use of ICT for Cultural Heritage that increase the awareness of citizens and tourists. The use of mobile devices applications or social GPS/GIS tools can implement the use, enjoyment and management of HUL. Indicators should be developed to monitor the economic benefits produced by ICT tools related to Historic Urban Landscape.
The benefits of the increase of real estate values are controversial. Sometimes, it could have negative impacts, as the phenomenon of gentrification in the city of Salvador de Bahia. In the city of Valparaiso, the productive conversion of buildings has been, without doubt, a successful economic real estate phenomenon, but it has also constituted a threat to the quality of life for the residents, and to the intangible heritage. The increase of vacant housing rate in Valparaiso highlights that some dwellings are bought as second residences and are not permanently occupied.
On the contrary, the city of Oaxaca seems not to have suffered a process of gentrification. The city of Oaxaca draws its vitality and its attractiveness through the presence of a variety of activities (mixed-use) that makes the inner city alive every day and at all hours of the day. The residents do not abandoned the inner city and it has meant that real estate prices never dropped (although actually the properties price is increased) and consequently the public spaces and buildings did not deteriorate or descend into obsolescence.
In other cases, the historic center has lost some of its residents because the projects were mainly focused on tourism and commercial activities related to it.
Indicators related to the environmental benefits are rarely presented in the analysis of impact of investments in cultural heritage. It denotes a lacking of awareness about the real benefits that these investments are able to produce in these categories. The indicators related to the category of creative/cultural activities should be integrated with the recent outcomes of the research about ecosystem services (TEEB, 2010), with particular reference to the cultural services categories: tourism/recreation services, aesthetic, education, conservation of local tradition, identity, spiritual.
The studies about the economic value of ecosystem services are fundamental to analyze the benefits produced by HUL regeneration. For example, in the agricultural landscape, the conservation of the landscape functionality and productivity contribute to the economic vitality of the sites. In fact, it avoids costs due to the natural damages and disasters and, at the same times, it is able to regenerate cultural values and enhance the territorial resilience,

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both natural and cultural. The value of the typical local productions (industrial economy and craft) represents a substantial contribute to the local economies, making the economy more resilient. This has a strict relation to the Goals 1,8,12 of the SDGs.
Indicators related to social cohesion are almost absent in the analysis of the sustainability of the cities. These indicators could be successfully applied to Historic Urban Landscape, as some experiences show (i.e. Portico of Bologna). The experience of Bologna shows how the cultural heritage regeneration is able to produce both economic and social benefits, in terms of social cohesion. Some indicators can be proposed to quantify these benefits:

- Community participation to the common goods management;
- n. of crowdfunding project launched;
- n. of crowdfunding project completed;
- average donation per person;
- n. of "reward" allocated;
- n. of local company involved;
- n. of banking and community foundations.

These indicators related to the collaborative regeneration project could be valuable indicators of economic and social vitality of a city.
An important tool, currently experimented as financial tool for public bodies, is the emission of Social or Municipal Impact Bonds; these bonds are aimed to support particular project able to produce a benefit for the community. This benefit can be monetized through economic evaluation tools, such as the SROI, Social Return On Investment (The SROI Network, 2012).
The municipal bond is a possible way for individuals and companies to invest directly in the places and civic projects they care about. Currently operating as a donation-based crowdfunding platform designed for civic projects, ICT services of municipal bonds let citizens earn by investing little amounts. Applying crowdfunding and p2p to the year municipal securities market, municipal bonds can re-aligns value capture with value creation, democratizing a capital market while creating efficiency for issuers.
Municipal bonds provide tax exemption from federal taxes and many state and local taxes, depending on the laws of each state. Municipal securities consist of both short-term issues (often called notes, which typically mature in one year or less) and long-term issues (commonly known as bonds, which mature in more than one year). Short-term notes are used by an issuer to raise money for a variety of reasons: in anticipation of future revenues such as taxes, state or federal aid payments, and future bond issuances; to cover irregular cash flows; meet unanticipated deficits; and raise immediate capital for projects until long-term financing can be arranged. Bonds are usually sold to finance capital projects over the longer term. The two basic types of municipal bonds are:

- general obligation bonds: Principal and interest are secured by the full faith and credit of the issuer and usually supported by either the issuer's unlimited or limited taxing power. In many cases, general obligation bonds are voter-approved;
- revenue bonds: Principal and interest are secured by revenues derived from tolls, charges or rents from the facility built with the proceeds of the bond issue. Public projects financed by revenue bonds include toll roads, bridges, airports, water and sewage treatment facilities, hospitals and subsidized housing.

Special authorities or ICT collaborative services issue many of these bonds.

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The amount and value of municipal bonds can be applied to heritage conservation and it could represent a useful indicator of economic vitality.
Some indicators proposed related to the social economy category are:
- n. of HUL regeneration project financed through municipal bonds;
- n. of released bonds;
- area of HUL regenerated through municipal bond/crowdfunding project.

The advantage of community participation through direct financing of projects (and not through a direct taxation) is the creation of new social relationships, stronger bonds with the place, thus Social Complex Value (Fusco Girard and Nijkamp, 1997; Fusco Girard, 2013a; Fusco Girard, 2014), going beyond the mere economic evaluation.
Therefore, it is evident that Historic Urban Landscape conservation/regeneration is able to produce a fundamental contribute to the achievement of SDGs, if it is evaluated through appropriate indicators. These proposed indicators are able to highlight a greater contribution of HUL conservation/regeneration than the contribution coming out from the current indicators.
Case studies demonstrated that investments in Historic Urban Landscape conservation/regeneration can be profitable from an economic perspective, especially in the medium-long term, producing positive impacts to be assessed in multiple dimensions. Following the ongoing research on the economics of cultural heritage (Charter of Brussels, 2009), this study aims to identify an assessment framework for the evaluation of economic benefits of HUL conservation/regeneration. Future perspectives of the research are presented in the next Section.

11. Conclusion: towards a comprehensive economic impact assessment framework

Starting from the analysis of case studies, and therefore from concrete experiences, the economic assessment matrix of the impacts of Historic Urban Landscape conservation/regeneration has been processed. In the case studies analyzed, these impacts are evaluated considering data extracted from statistical sources, interviews, written sources and, only in some cases, from the application of evaluation methods.
It is possible to use the monetary valuation techniques to determine the economic impact of investment in Cultural Heritage, but it is not sufficient to evaluate the convenience of HUL conservation/regeneration because some of the impacts are not monetized. Furthermore, often the evaluation methods used do not provide an accurate estimate, i.e. not comparing costs and benefits of the interventions, and often it is not possible to identify data related to the period pre and post project, thus, it is difficult to assess the real impacts of the intervention.
Currently, the only operative tool available for the assessment of impacts of different projects on Cultural Heritage (included HUL) is the Heritage Impact Assessment (ICOMOS, 2011). This is a fundamental tool to understand the impacts of projects on the integrity and authenticity of cultural heritage (Pereira Roders *et al.*, 2013), but it does not include an economic perspective.
Although cultural heritage conservation is a priority, the economic resources to invest in restoration projects are limited. Thus, the demonstrations of the economic benefits of conservation are extremely important (European Commission, 2014). The multidimensional benefit categories and the indicators identified in this study (the economic assessment matrix) represent the basis of a comprehensive framework for the economic impact

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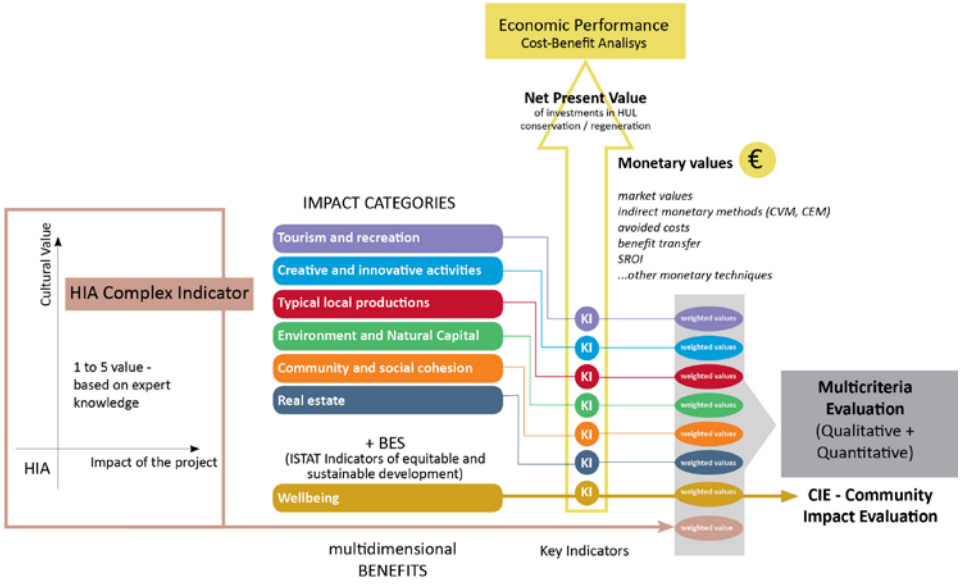
assessment of HUL conservation/regeneration. Key indicators will be identified in order to select the most usable, coherent and comprehensive set of indicators, which can be transformed into monetary indicators for economic evaluations. Social cohesion and the civil and collaborative/sharing economy are considered as an integral part of the evaluation framework, as they are able to produce positive impacts both in the economic and conservation perspective. The overall assessment framework is showed in figure 2.

Fig. 2 -The Social/Economic Heritage Impact Assessment framework (SEHIA) for the operationalization of HUL approach



The proposed assessment framework has two significant outputs, represented by the Economic Performance and the Multicriteria Evaluation. Key indicators, available for each category of impacts, can be monetized using different techniques (direct market pricing, avoided costs, contingent valuation and others), resulting in the monetary value produced by HUL conservation/regeneration projects. This value should be compared to the investment and maintenance costs, actualizing the result in the Net Present Value of the investment. The economic performance is only one of the outputs of the methodology. A multicriteria evaluation, based on heterogeneous values of key indicators, can be structured based on the impact categories. This process can integrate the Heritage Impact Assessment using a 1 to 5 weighted value (based on the expert judgement on the project impacts on the cultural heritage), providing a comprehensive impact assessment.

Moreover, the use of weighted values allows the interaction with stakeholders, including their preferences revealed through questionnaires, interviews and other ICT tools.
Historic Urban Landscape can reveal the "wealth" of the city and enhance the well-being of communities. Thus, the framework is proposed as a new tool to assess the economic impacts of cultural heritage conservation/transformation/regeneration, allowing interdisciplinary research and collaboration among stakeholders, using the category of the Historic Urban Landscape as a complex indicator of urban sustainability.

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