CLIC·

Circular models Leveraging Investments in Cultural heritage adaptive reuse

D6.20
CLIC edited book

2018 EUROPEAN YEAR OF CULTURAL HERITAGE
#EuropeForCulture

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Abstract

The CLIC scientific book aims to share the approach, methods, tools, experimentations, conclusions and recommendations of the Horizon 2020 CLIC research conducted between 2017 and 2021, addressing the international scientific community as well as practitioners. It is published by Springer, international scientific publisher. The book is organized into three main Sections: 1. theoretical foundation; 2. experimentation and tools; 3. interpretation and guidelines. Each Section includes chapters developed from CLIC partners, as well as contributions from external researchers of high international profile. The book is edited by prof. Luigi Fusco Girard, CLIC Scientific Coordinator, and Dr. Antonia Gravagnuolo, CLIC co-coordinator, both affiliated with CNR IRISS, Coordinating institution. This document includes the information on the final scientific book that will be published in its full content after the conclusion of the project research activities, providing a complete, clear and robust overview of the CLIC research for scientists, practitioners and the general public.

Partners involved in the document

Participant No	Participant organisation name	Short Name	Check if involved
1 Coordinator	CONSIGLIO NAZIONALE DELLE RICERCHE	IRISS CNR	X
2	UPPSALA UNIVERSITET	UU	X
3	HAUTE ÉCOLE ICHEC - ECAM - ISFSC	ICHEC	X
5	TECHNISCHE UNIVERSITEIT EINDHOVEN	TU/e	X
6	UNIVERSITY OF PORTSMOUTH HIGHER EDUCATION CORPORATION	UOP	X
7	UNIVERZA V NOVI GORICI	ETCAEH	X
8	WIRTSCHAFTSUNIVERSITAT WIEN	WU	X
9	UNIWERSYTET WARSZAWSKI	UNIWARSAW	X
10	ICLEI EUROPEAN SECRETARIAT GMBH	ICLEI	X
11	FACILITYLIVE OPCO SRL	FacilityLive	X
12	VASTRA GOTALANDS LANS LANDSTING	VGR	X
13	GRAD RIJEKA-GRADSKO VIJECE	RIJ	X
14	COMUNE DI SALERNO	SA	X
15	STICHTING PAKHUIS DE ZWIJGER	PAK	X
16	INIZIATIVA CUBE	INI	X
17	TECHNOLOGICAL UNIVERSITY DUBLIN	TU Dublin	X

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1   Description of the Project

The overarching goal of CLIC trans-disciplinary research project is to identify evaluation tools to test, implement, validate and share innovative "circular" financing, business and governance models for systemic adaptive reuse of cultural heritage and landscape, demonstrating the economic, social, environmental convenience, in terms of long lasting economic, cultural and environmental wealth.

The characteristics of cultural heritage and landscape pose significant challenges for its governance. Cultural heritage is a "common good", which enjoyment cannot be denied to citizens, although many buildings and landscape structures are privately owned. Furthermore, the large economic resources needed for recovery and maintenance of heritage goods are rarely available to the private owner, often charged of the additional cost of non-use due to limited degree of transformation allowed. The existing governance arrangements currently involve limited stakeholders concerning for the historic, aesthetic or religious sociocultural values, severely restricting the use of the heritage properties, and charge the central government of conservation costs. The approach of regulatory and planning tools throughout European countries has been to preserve cultural heritage by preventing transformation of buildings or areas having historic-cultural significance.

"The current monument-based, full protection, and government-financed approach that restricts the use of protected properties and relies almost entirely on public funds is incapable of tackling the vast urban heritage of most communities and of sustaining conservation efforts in the long term" (Rojas, 2016). To turn cultural heritage and landscape into a resource, instead of a cost for the community, the structures of authority, institutions and financial arrangements should be adjusted to ensure larger stakeholders' involvement in decision-making, attract private investments and facilitate cooperation between community actors, public institutions, property owners, informal users and producers (Rojas, 2016). The risk is that without financing channels the decay of European heritage and landscape will increase, until its irreversible loss.

Flexible, transparent and inclusive tools to manage change are required to leverage the potential of cultural heritage for Europe, fostering adaptive reuse of cultural heritage / landscape. Tools for management of change should consider costs and benefits at the local level and for all stakeholders, including future generations, and should take into account the cultural, social, environmental and economic costs of disrepair through neglect, compared to the benefits obtained through diverse scenarios of transformation / integrated conservation.

Costs and values of cultural heritage adaptive reuse have to be compared in a multidimensional space: the relationship between costs and "complex values" influences the willingness to invest in the functional recovery of cultural heritage and landscape. Therefore, it is necessary to clarify what is intended for the value of cultural heritage. The higher the perceived value for potential actors, the higher the willingness to take the risk of investment. This "complex value" of cultural heritage depends on the intrinsic characteristics, but also from extrinsic (context) characters.

Investment costs are related to the materials, technologies and techniques to be used to preserve the cultural value of the heritage / landscape, and to maintenance / management / operating costs. The willingness to invest, the same value done, increases with the reduction of costs. Then, the social cost of abandonment – and eventual irreversible loss of heritage – must be included in the investment choice.

The investment gap in cultural heritage and landscape regeneration can be addressed through careful evaluation of costs, complex values and impacts of adaptive reuse, providing critical evidence

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of the wealth of jobs, social, cultural, environmental and economic returns on the investment in cultural heritage.

1.1 CLIC Specific objectives

The scopes of CLIC project will be achieved through a set of specific, measurable, achievable, realistic and time-constrained (SMART) specific objectives:

Objective 1 - To synthesize existing knowledge on best practices of cultural heritage adaptive reuse making it accessible to researchers, policy makers, entrepreneurs and civil society organizations, also with direct dialogue with their promoters;

Objective 2 - To provide a holistic ex-post evaluation of the economic, social, cultural and environmental impacts of cultural heritage adaptive reuse, stressing on the importance of appropriate conservation and maintenance approaches able to highlight the integrity and authenticity of heritage;

Objective 3 - To provide EU-wide participated policy guidelines to overcome existing cultural, social, economic, institutional, legal, regulatory and administrative barriers and bottlenecks for cultural heritage systemic adaptive reuse;

Objective 4 - To develop and test innovative governance models and a set of evidence-based, participative, usable, scalable and replicable decision support evaluation tools to improve policy and management options/choices on cultural heritage systemic adaptive reuse, in the perspective of the circular economy;

Objective 5 - To analyse hybrid financing and business models that promote circularity through shared value creation, and assess their feasibility, bankability and robustness for cultural heritage adaptive reuse;

Objective 6 - To validate the CLIC circular financing, business and governance practical tools in 4 European cities / territories representative of different geographic, historic, cultural and political contexts;

Objective 7 - To contribute to operationalise the management change of the cultural landscape also in implementing the UNESCO Recommendation on Historic Urban Landscape;

Objective 8 - To re-connect fragmented landscapes, through functions, infrastructures, visual relations at macro and micro scale;

Objective 9 - To design and implement a stakeholders-oriented Knowledge and Information Hub to make tools and information accessible, useful and usable and test them with policy-makers, entrepreneurs, investment funds and civil society organizations;

Objective 10 - To contribute to the creation of new jobs and skills in the circular economy through cultural heritage adaptive reuse, boosting startups and sustainable hybrid businesses and empowering local communities and stakeholders through public-private-social cooperation models.

Objective 11 - To contribute to the monitoring and implementation of SDGs (especially Target 11.4) and the New Urban Agenda, creating operational synergies with global initiatives of UN-Habitat, UNESCO/ICOMOS and the World Urban Campaign.

All partners have wide experience in developing and testing CLIC proposed tools, ensuring the effective and time-constrained achievement of all the above-mentioned specific goals. The integration of sectorial knowledge, tools and methods will be achieved through a trans-disciplinary

approach promoting partners and stakeholders' cooperation, co-creation of knowledge and co-delivery of outcomes.

The expected impacts of the project are the following:

- Validation of integrated approaches and strategies for cultural heritage adaptive re-use, comprising innovative finance with high leverage capacity, business models and institutional and governance arrangements that foster multi-stakeholder involvement, citizens' and communities' engagement and empowerment;

- New investments and market opportunities in adaptive re-use of cultural heritage, also stimulating the creation of start-ups;

- An enabling context for the development and wide deployment of new technologies, techniques and expertise enhancing industrial competitiveness and contributing to economic growth, new skills and jobs;

- Innovative adaptive re-use models that are culturally, socially and economically inclusive;

- Contribution to implementing the Sustainable Development Goals (SDGs) (Goals 1, 15, 11 particularly) and the United Nations New Urban Agenda.

2   Introduction

The CLIC scientific book aims to share the approach, methods, tools, experimentations, conclusions and recommendations of the Horizon 2020 CLIC research conducted between 2017 and 2021, addressing the international scientific community as well as practitioners. It is published by Springer, international scientific publisher. Springer is a leading global scientific, technical and medical portfolio, providing researchers in academia, scientific institutions and corporate R&D departments with quality content through innovative information, products and services.

The book is organized into three main Sections:

1. theoretical foundation;

2. experimentation and tools;

3. interpretation and guidelines.

Each Section includes chapters developed from CLIC partners, as well as contributions from external researchers of high international profile. The book is edited by prof. Luigi Fusco Girard, CLIC Scientific Coordinator, and Dr. Antonia Gravagnuolo, CLIC co-coordinator, both affiliated with CNR IRISS, Coordinating institution. It is here acknowledged the preparation work conducted by TU/e partner providing coordinator contact and initial description of the book to the publisher.

This document includes the information on the final scientific book that will be published in its full content after the conclusion of the project research activities, providing a complete, clear and robust overview of the CLIC research for scientists, practitioners and the general public.

2.1   Document structure

The document is structured as follows:

Section 1 included the description of the project;

Section 2 provided the introduction and structure of this document;

Section 3 describes the overall contents and target audience of the book;

Section 4 provides the detailed table of contents of the book;

Section 5 provides technical information and Open Access information;

Annex 1 includes information about the scientific book publication by Springer publisher.

3   CLIC scientific book contents

This Section describes the contents of the book, format and audience.

3.1   Title

CLIC - Circular Models for Cultural Heritage Adaptive Reuse

3.2   Synopsis

Cultural heritage is a driver for sustainable development in cities. As an economic and cultural asset, it boosts economic growth, enhances urban livability, and contributes to environmental adaptability. In addition, the reuse of abandoned and underused cultural heritage and landscapes is a practical substitute to demolition, bypassing the wasteful processes of demolition and new construction prolonging the cultural heritage lifespan. Adaptive reuse of cultural heritage can thus be instrumental to circularize the flows of energy, raw-materials, human and cultural capital, and hence, it plays a significant role in the transition towards circular economy. Complementary to its environmental benefit, adaptive reuse brings forth substantial economic, social and cultural advantages by reusing historic buildings, sites and landscapes attached meaning and values by a wide range of citizens and actors.

The existing governance structures and operational systems concerning reuse of cultural heritage and landscapes are still highly limited in the involvement of relevant stakeholders to the decision making process. Regulatory and planning tools are not flexible enough to allow sustainable and circular transformation processes, and are restricted in the financial resources and funding arrangements that mostly rely on public funds. Therefore, to turn cultural heritage and landscapes into a resource, instead of a cost for the collectivity, the structures of authority, institutions and financial arrangements should be adjusted. This adjustment needs to ensure larger stakeholders' involvement in decision-making, to attract private investments, and to facilitate cooperation between community actors, public institutions, property owners, informal users and producers. In addition, to manage change, flexible, transparent and inclusive tools are required, thus leveraging the potential of cultural heritage to foster adaptive reuse practices.

This timely book thus aims to address this gap in existing knowledge from a circular economy and sustainable development perspective, and to introduce innovative economic, environmental and governance models and evaluation tools tested and validated for adaptive reuse within the "CLIC - Circular models Leveraging Investments in Cultural Heritage Adaptive Reuse" project funded by the European Horizon 2020 Research & Innovation Action Program. The CLIC project is a trans-disciplinary research project bringing together expertise from disciplines such as heritage studies, regeneration and urban development, business management, economics, ecology and social sciences. This research responds to the European Societal Challenge 5 'Climate action, environment, resource efficiency and raw materials', aimed at achieving resource efficient and climate change resilient economy and society through systemic innovation. The CLIC project also aims to unlock public and private investments in solutions for a more resource efficient, greener and more competitive economy as a key part of smart, inclusive and sustainable growth strategy for Europe and worldwide.

In this context, this book comes to fore as a fundamental key reading for scholars, professionals and policy makers, demonstrating how the adaptive reuse of cultural heritage, in a systemic

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perspective, has the potential to stimulate growth, sustainable development, social regeneration, welfare, jobs, income, and livability of urban / territorial settings: to implement the circular economy model. It also provides innovative models and a circular toolkit for financing, reusing and managing cultural heritage based on research outcomes and implementation of experimental models in four pilot European territories covered as case studies.

3.3 Format

This book will take the form of an edited volume consisting of 20 chapters, with case studies and additional boxes of short case and tool descriptions, written by the CLIC project consortium partners, including established scholars, inter-governmental organizations and administrators at regional, city and local levels.

The book will be divided into three main sections, dedicated to theoretical foundations, experimentation and tools, and interpretation and guidelines, respectively. The sections will be preceded by the introduction provided by the book editors, that will provide an overview of the CLIC EU Horizon2020 project, its objectives, research and innovation actions, and outcomes. The introductory chapter will be followed by the proceeding three sections.

The first section is dedicated to the theoretical foundation of circular "human-centred" adaptive reuse of cultural heritage. It will present the theoretical context, and will outline the aims, significance and structure of the book. The second section includes 4 sub-sections: Evaluation, Barriers & bottlenecks, Circular governance, Circular business and financing models. These innovative models and toolkit include a set of evaluation tools to identify indicators, impact assessment and spillover effects, and circular business, economic and governance models, as well as environmental strategies. The Evaluation section goes through the review of the current knowledge and practice and builds a common framework to support the adaptive reuse of cultural heritage, by linking adaptive reuse to the circular economy concept, strategies and approaches, through an empirical analysis of different practices. This will be followed by a multi-level barrier assessment to identify the existing challenges and introduce the circular "human-centred" adaptive reuse of cultural heritage within the Historic Urban Landscape approach. The Circular governance and Circular business and financing models sections focus on the innovative circular models, tools and strategies developed, tested and validated as part of the CLIC project, with a focus on case studies in the four European pilot cities/region. The case studies will be written in collaboration with the city/region administrators, and the researchers and institutions involved in the demonstration activities. The book will then be concluded by a conclusion section with a final chapter written by the book editors, summarizing the main outcomes, reflecting upon the significance of the findings and lessons learnt and recommending the future work.

3.4 Audience

This book will be a key reading for all professionals, administrators / policy makers, scholars and students interested and involved in heritage studies, heritage economics, business and management school, social sciences and environmental sciences. It can also be a reference for the general public approaching cultural heritage, adaptive reuse and circular economy, this audience can approach these domains specifically through the boxes, the case studies and partially the section on the knowledge building.

In particular it will be of interest to:

1. **Heritage professionals, planners, policy makers and practitioners** working in local, regional and national administrations, as well as national and international governmental and non-governmental organizations and city networks, such as UNESCO, ICOMOS, IUCN, ICCROM and the World Bank. There is also a growing area of work for professionals and experts focusing on the circular economy and adoption of Sustainable Development Goals at regional and local levels, such as Ellen MacArthur Foundation.

2. **Scholars and researchers** working in related fields (built environment, urban studies, cultural heritage, management and business administration, economics, environmental studies and sustainability).

3. **Students** on Masters and PhD programs studying planning, heritage conservation and management, circular economy and sustainable development. There is a growing number of international educational programs and studies focusing on architectural and urban regeneration, and building renovation.

4. **Administrators, decision makers, developers, business owners, local organizations and other stakeholders** participating in the decision-making and management of cultural heritage worldwide or approaching these domains.

4   CLIC scientific book detailed table of contents

4.1   Preface

The **Preface** will be provided by prof. Pier Luigi Sacco, Head of Venice Office and Senior Advisor at OECD Centre for Entrepreneurship, SMEs, Regions & Cities.

A general introduction will be provided by Jyoti Hosagrahar, UNESCO Deputy Director for the World Heritage Centre.

4.2   Introduction

Chapter 1. CLIC EU Horizon2020 R&I Project: Circular models leveraging investments in cultural heritage adaptive reuse

Authors: Luigi Fusco Girard, Antonia Gravagnuolo – CNR IRISS

The introduction chapter will be dedicated to the CLIC EU Horizon 2020 R&I Project, presenting its approach, overall aim and objectives, outcomes, models and contribution to the European Horizon framework. It will introduce the book, its objectives, audience and format.

4.3   Section 1: Theoretical Foundations

The first section of the book develops a common framework starting from robust theoretical foundations of multicriteria evaluation in the field of cultural heritage conservation. The adaptive re-use of cultural heritage is presented as the entry point for the circular economy strategy in cities and regions. A structured review of scientific literature in cultural heritage adaptive reuse completes this overview on theoretical foundations and opens to the analysis of best practices of cultural heritage adaptive reuse (CHAR) in a circular economy perspective, revealing and discussing differences and similarities between European countries, territorial scales, cultural heritage typologies, cultural, social and regulatory contexts and environmental conditions.

Chapter 2. The circular "human-centred" adaptive reuse of cultural heritage: theoretical foundations

Authors: Luigi Fusco Girard – CNR IRISS

The chapter will provide the theoretical foundations that allow to identify the adaptive reuse of abandoned cultural heritage as driver of circular economy implementation at urban and territorial level, leveraging the potential of its "intrinsic value" for the generation of new use values in a circular economy perspective. This introduction will include the historic context of evaluations for cultural heritage, from 1967-68 experimental studies related to Bath, Chester and other heritage sites to Nathaniel Lichfield studies.

Chapter 3. Circularity assessment through ex-post evaluation of best practices

Authors: Antonia Gravagnuolo, Immacolata Vellecco, Luigi Fusco Girard, Natale Carlo Lauro – CNR IRISS

This chapter presents the CLIC model of circular "human-centred" adaptive reuse of cultural heritage, and its application in ex-post evaluation through best practices survey and analysis conducted identifying successful business and management models, financial mechanisms and governance arrangements targeting specific heritage typologies in Europe, resulting in the assessment of their overall circularity performances.

Box. Innovative data management and data sharing: the CLIC Knowledge and Information Hub (FacilityLive)

The Box presents the platform of best practices "CLIC Knowledge and Information Hub" developed by FacilityLive. The platform includes relevant information on more than 120 cultural heritage adaptive reuse projects and it is developed applying a novel data management technology patented by FacilityLive, allowing intelligent data collection, sharing and interpretation. Each best practice is complemented with a circularity performance index that includes the "building blocks" of circular adaptive reuse as developed by CLIC.

4.4 Section 2: Experimentation and tools for the adaptive reuse of cultural heritage in the perspective of the circular economy model

This section focuses on experimentation and tools, particularly evaluation tools, for the adaptive reuse of cultural heritage and landscape in a circular "human-centred" perspective. It includes the experimentation of governance and management models in CLIC pilot cities and regions.

4.4.1 Section 2.1 - Evaluation (CNR IRISS)

Chapter 4. The CLIC impact assessment framework for circular "human-centred" adaptive reuse of cultural heritage

Authors: Luigi Fusco Girard, Antonia Gravagnuolo, Martina Bosone, Silvia Iodice, Pasquale De Toro – CNR IRISS

This chapter develops an indicator framework able to support the ex-ante and ex-post assessment of for circular "human-centred" adaptive reuse of cultural heritage, applied in the CLIC pilot case studies through the DSS. The multidimensional indicators about impacts of cultural heritage are both quantitative and qualitative indicators and they refer to different scales from the single building to the urban scale.

Chapter 5. Social Sustainability Framework for measuring socio-cultural impacts of cultural heritage adaptive reuse

Authors: Agata Żbikowska, Magdalena Roszczyńska-Kurasińska, Bartosz Ślosarski, Anna Domaradzka

Socio-cultural context is a crucial factor in successful implementation of circularity framework, especially in the case of cultural heritage projects that relate to local identity, shared history and place attachment (Roszczyńska-Kurasińska et al. 2021). Enabling the behavioural change (Argyris 1996) among community members allows for the introduction of the main tenets of circular economy,

which must be realized not only through changes in build environment or emergence of new business models, but in stakeholders' everyday choices and overall mindset.

It is an important challenge to enable change as well as measure it, to make sure that the impact of circular interventions is socially sustainable (Missimer et al. 2017), and the accompanying ideas are embraced by local community. Societal and cultural factors can be enabling in bringing in new ideas and helping the circular processes took off, but just as well they may become main barriers in successful implementation. Fear of change, existing habits and traditions are not always a fertile ground for fostering circular solutions (Eagle 1999). To the contrary, some of the studied examples of cultural heritage adaptive re-use highlight existing social barriers that cause those projects to grow in a certain isolation from the local community and hinder their potential positive impacts on the grassroots level. On the other hand, some investments in circular re-adaptation resulted in unforeseen positive results and spill-over effects that increased the wellbeing of local communities (Roszczynska-Kurasinska et al. 2019). While socio-cultural factors remain crucial for an overall success of circular economy, they are also the most elusive and understudied. This created an interesting challenge, which we address here by defining the scope of potential social impacts, but also distinguishing specific features of local communities that may be decisive to successful circular projects implementation.

This chapter is focused on revising the existing theoretical frameworks as well as wellbeing and sustainability indicators to propose valid tools for assessing the socio-cultural impact of adaptive reuse investments in the cultural heritage field. We start with a macro level review of the existing and widely used measures of wellbeing, to look for potential indicators related to cultural heritage. Further examining the specificity of adaptive re-use, we focus on relation between adaptive reuse projects and local communities. We explore the potential features of sustainable community could be and test possibilities of measuring it.

Chapter 6. Economic spillovers of cultural heritage adaptive reuse at regional level

Authors: Christer Gustafsson, Jermina Stanojev – UU

This chapter presents a research on cross-sectorial cooperation, with a multi-problem-oriented approach. It focuses on local and regional spillover effects of investments in conservation of cultural heritage and on finding an adequate way of studying the manifold relations and judgements involved. This results in a set of data to be integrated in the CLIC multidimensional impact indicator set for the assessment of adaptive reuse circular models.

Chapter 7. The CLIC multicriteria and multi-scalar Decision Support System to implement circular economy in cultural heritage

Authors: Simona Panaro, Salvatore Greco, Alessio Ishizaka– UoP

This chapter presents the CLIC Decision Support including the methodology and the multicriteria evaluation model. The chapter highlights the flexibility of the tool and the possibility of involving diverse stakeholders in a step-by-step process to support transparent and informed decision making at different stages of the adaptive reuse process. The theoretical and methodological part will be complemented by two practical Boxes in which the implementation of the tool in two CLIC pilot cities will be briefly presented.

4.4.2   Section 2.2 - Barriers and Bottlenecks. The Concepts of Adaptive Reuse and Historic Urban landscape in the Circular Economy Perspective (TU/e, UNG)

Chapter 8. The Intimate Circular Dimension of Heritage Conservation and Historic Urban Landscape

Authors: Saša Dobricic, Marco Acri, Jukka Jokilehto

The CLIC project highlighted the spectrum of possible connections between cultural heritage adaptive reuse and circular economy, displaying the incredible potentials for a sustainable regeneration of European urbanised areas. Since its very beginning, however, it seemed clear that regardless of centuries of debates on the concept of conservation, the understanding on the basic notions were very different from country to country, letting potentially erroneous openings in the conservation practice, provoked by often superficial interpretations of reality as well as pressures from short term global market waves.

Based on an extensive literature review on heritage and historic urban landscape preservation, this chapter concentrates on the very intimate historic relationship between cultural heritage production and preservation and circular economy, doing parallelisms between the past and the present. Stressing on this intimate relationship facilitate the understanding of the importance of heritage conservation. In particular, the chapter will be addressing the new and old paradigms in preservation, with an important emphasis on the concepts of authenticity and integrity, that must be seen as reference guiding principles when dealing with adaptive reuse, conservation and restoration, but also with cultural and historic urban landscape, with the scope to set clear fundamentals for new planning and governance frameworks.

Chapter 9. Intangible Matters: cultural heritage as a driver for circular economy

Authors: Marco Acri, Xavier Greffe, Saša Dobričić

Decades of linear economy have contributed to the weakening of the embedded intangible dimension in the production and preservation of cultural heritage, with consequent loss of tangible communicative competence of things. As a rule, the production of cultural heritage and it reuse practice rely on the reactivation of spatial and temporal residuals, considering obsolescence as a value and not as a lack, thus opening new imaginary for circular economy. By investigating the redesign grammar of intangible performative aspects that drive the co-work of designers-craftsmen and clients-users, this paper aims at recommending the reactivation of an alternative scenario where innovation is implemented within cultivation. Therefore, a new experiential register of actions recognisable in care, maintenance, repair, tailor made, proximity and re-design, which is capable to nourish the circular loop and give back to intangible its very, intimate meaning of being "intact, inviable, sacred": a constant driver of acceptable change. Moreover, this paper reveals our capacity of inhabiting as skill of rearranging and recontextualizing the residual dimension of things. As cultural heritage testifies, relieving the history, the lifecycle, that obsolete or non performing embodies, we make a first step towards circular and resilient development narratives.

Chapter 10. Adaptive reuse of cultural heritage: barrier assessment and policy-related guidelines

Authors: Deniz Ikiz Kaya, Nadia Pintossi, Ana Pereira Roders – TU/e

As a cultural and economic asset that can be regenerated, adaptive reuse of cultural heri-tage has been acknowledged as a driver to the transition towards circular economy. Ad-aptive reuse can be regarded unviable due to a number predominant challenges identi-fied as part of this study, which include governance-related issues arising from lack of col-laboration and participation, financial constraints, and social and legislative barriers. This study aims to identify the barriers to adaptive reuse, examine the solutions and instru-ments to tackle them and to assess related multi-level policy enablers that support adap-tive reuse practices based on their usefulness and feasibility at varying local contexts. For this purpose, we first engaged with stakeholders from the four CLIC pilots through HUL workshops and identified the main barriers. The underlying parameters of the identified barriers also served as an initiative for formulating solutions and a complex set of toolkit recommendation to tackle these challenges. Followed by a semi-systematic review, we identified 18 policy enablers that can be adopted at three levels: European, national, and local. To investigate how a variety of local stakeholders from the CLIC cases evaluate the usefulness and feasibility of these enablers for their individual local contexts, an online survey was conducted. The findings showed that almost all the enablers were assessed to be useful and feasible, but their degree of adaptability changes significantly. These evi-dence-based results can inform future policies at multiple-levels that will accelerate and scale up circular actions through adaptive reuse.

Chapter 11. Empirical analysis on the implementation of CLIC instruments and models: assessment on local feasibility, usefulness and barriers

Authors: Deniz Ikiz Kaya, Nadia Pintossi, Ana Pereira

This Box focuses on the nine innovative circular tools and models developed by CLIC partners to implement the UNESCO Historic Urban Landscape Recommendation through cultural heritage adaptive reuse in cities and regions. The innovative tools were tested to a certain extend in the pilots. It investigates the local feasibility and adaptability of each instrument in the local contexts of the pilots individually, and assesses their usefulness to promote circularity based upon the perspectives of the relevant national and local stakeholders. The results contribute to the project-long assessment of the project outputs and informs the decision makers about the future transferability and adaptability of these instruments in other local contexts.

4.4.3   Section 2.3 - Circular Governance (ICLEI)

Chapter 12. Circular governance models for cultural heritage adaptive reuse

Authors: Cristina Garzillo, Alexandru Matei

This chapter describes the circular governance models for adaptive reuse of cultural heritage and their identification. These models, collectively called Custodian Governance Models, are the Public Custodian, the Community Custodian and the Private Custodian for the Common Good. This chapter also illustrates the Heritage Innovation Partnership model and the process that brought the pilots participating in such partnerships to develop local action plans as blueprints for adaptive reuse

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of cultural heritage. Each pilot city/region of the CLIC project will be covered. The Boxes will include a short introduction of the case studies in CLIC cities/region, discuss their existing administrative, financial and governance structures, and will present their individual local action plans for further replication in other cities and regions.

Chapter 13. Enhancing opportunities for collaboration and funding through data management: CLIC Knowledge and Information Hub

Authors: Gabriella Monteleone – FacilityLive

This Chapter describes how clear and transparent data, managed through the innovative data management system developed by FacilityLive, can enhance opportunities for collaboration between diverse stakeholders and help increase funding for cultural heritage.

Data on cultural heritage in European countries are not easily available. Sectorial databases directly and indirectly related to cultural heritage resources have been developed by different bodies: EU Institutes for Statistics (e.g. Eurobarometer for extensive surveys), Central governments, National Institutes for Statistics, Religious bodies (e.g. the Catholic Church), Municipal institutions; Foundations, Universities and Research centres, local Professionals associations and Civil Society Organizations (CSOs). Additional databases are provided by past and ongoing EU funded projects. Data gathering, access and use / management pose many difficulties to potential end-users / producers of data.

A data revolution is taking place in our world (Habitat III, 2016). More data are produced today than ever before, from a multitude of sources. Geo-spatial monitoring, citizen-generated and crowd-sourced data, and big data, are increasingly available in real time and complement official statistics. The data is no longer structured and in relational formats, but *unstructured and heterogeneous* and the nature of these heterogeneous data has no limits. Access to relevant data has become a non-trivial task for the user. The private sector, academia, and civil society are using this growing variety of data to make profits, inform research, drive innovation, and support advocacy. In this scenario an effective and precise search solution is required that ensures knowledge of what information is available, and provides a quick retrieval of that information. The solution should provide a quality user experience that is naturally intuitive and the entire process effortless.

Enhancing accessibility and capacity to use data for decision-making is strongly advocated in the New Urban Agenda for sustainable urban / territorial development (see Habitat III events on Data Revolution). Integrated and coordinated data generated through collaborative, participatory processes are essential to planning and monitoring cities in the 21th Century, and empowering citizens. Partnering across sectors to harness the explosion of available data, technologies, skills, and opportunities to connect multiple data sources is essential to unlocking data for evidence-based decision making (U.S. Department of State, 2016).

One of the objectives of the CLIC project is to strengthen efforts to harness data for heritage management in EU regions, developing participatory mapping, unified access to heritage-related databases, data visualization, citizen-generated data. New technology for information management can empower local governments and citizens, enabling cooperation processes based on trust, transparency and engagement in decision-making. Citizens become "prosumers": heritage prosumers, data prosumers, decision prosumers (Ritzer and Jurgenson, 2010). Technology can boost local heritage-led economies reducing costs of adaptive re-use processes and creating new markets for useful services that enhance the quality of life.

FacilityLive is committed in creating an impact in the market of information technology by providing methodologies, expertise, a novel patented technology and an enabling platform for heritage-related data management, delivering this impact in the city of Salerno through a pilot implementation. The pilot application is available on the CLIC Knowledge and Information Hub and its demo is available for stakeholders across Europe.

The ambition is to use and further develop highly innovative data and information technology to enable cooperation between multiple stakeholders and inform their investment and management choices.

4.4.4 Section 2.4 - Circular Business Models and Financial Instruments (ICHEC)

Chapter 14. Circular business model for cultural heritage adaptive reuse. An iterative journey

Authors: Ruba Saleh, Christian Ost

The Circular Business Model (CBM) was conceived by the authors as a co-design process during which stakeholders in CLIC Pilots proposed reuse ideas/solutions to specific heritage assets in relation to their territorial needs and available resources. During the co-design workshops, participants tested the CBM desirability; identified partnerships, users and beneficiaries and made sure that the social, environmental and economic impacts are sustainable. The adapted canvas builds on an iterative process starting with a documentation and analysis of the existing economic landscape and perceptions mapping and ends up with a tailored CBM for a specific asset. The CBM represents a concrete innovative tool aimed at synergizing urban conservation and the circular agenda while fulfilling the philosophy of human-centered cities.

Chapter 15. Business Models for Cultural Heritage Adaptive Reuse

Authors: Immacolata Vellecco, Assunta Martone – CNR IRISS

Literature on business models is a pillar of management research and its recent contributions have broadened traditional frameworks to include sustainability and circular economy issues. However, contributions focused on business models of cultural heritage have always been scarce; moreover, most of the studies on adaptive reuse of cultural heritage are based on the analysis of individual assets. A few studies make in-depth analysis of the business model and they hardly produce generalizable results, due to the idiosyncratic nature of cultural heritage and its link with the cultural, social, environmental and economic context, that makes it difficult to replicate the process and decisions of reuse (in structural and managerial terms).

This work uses the method of multiple case-studies (a qualitative analysis of 34 cases of reuse) that include structures of different nature (lighthouses, monasteries and churches, forts and castles, industrial buildings, and minor buildings), as well as rural and urban cases. The analysis mainly focus the pattern of "original use"/"new use", linking the cases to the four pillars of sustainable conservation (economic, social, environmental, cultural), also highlighting the different type of actors involved (public, private, social) and their role in supporting the reuse project.

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As a result, the work identifies some generalizable business models for adaptive reuse of cultural heritage. The description of each model (tourism attraction, innovation hub, identity symbol, temporary use) considers the necessary resources, strengths and weaknesses in terms of economic, social, cultural and environmental sustainability and the opportunities for applying the principles of the circular economy.

Chapter 16. Key Learnings from the "Kultur-Token" Sustainable Business Modelling Case Study

Authors: Gillian Foster – WU

Insights and practical recommendations derived from the sustainable business modeling study of a non-adaptive reuse project in Vienna, Austria are applied to the European Union Horizon 2020 research project "Circular models Leveraging Investments in Cultural heritage adaptive reuse" (CLIC). The Kultur-Token is a unique valorization of cultural and cultural heritage assets to encourage low-carbon mobility and reduce carbon dioxide emissions. To derive outcomes for CLIC, the current article explores parallels between CLIC and the Kultur-Token through a retrospective discussion of the case study's research philosophy, goals, and methods. The article summarizes key lessons learned and recommendations for sustainable business modelling in the context of circular adaptive reuse of cultural heritage projects, like those of CLIC partners and beyond.

Chapter 17. Investment Leverage for Adaptive Reuse of Cultural Heritage

Authors: Tracy Pickerill – TUDublin

Cultural heritage adaptive reuse investment strategies involve long-term investment horizons, that necessitate the integration of sustainable finance. This chapter presents an integrated panoptic toolkit of financial (grant, tax, debt & equity) and non-financial (regulation, real estate, risk mitigation, risk performance, capacity building, impact metric and digital network) instruments designed to leverage capital investment and engender collaborative partnerships to encourage private investment capital to flow to grass-roots adaptive reuse activities, including:

- Adaptive reuse, refurbishment and energy retrofit of cultural built heritage structures;
- Protection and management of natural eco-systems;
- Socio-cultural community enterprise activities.

Cultural heritage adaptive reuse activities embody circular economy dimensions, that engender social, cultural, environmental and economic regeneration, within the global value chain. Individual financial instruments, within the toolkit, such as debt and equity tools, are not new and some have a long association within traditional capital markets. What is new, is a framework for the deployment of blended 'hybrid' instruments, pooled within diverse multidisciplinary collaborative fund structures, to encourage intentional and measurable impact investment returns. Risk adjusted investment return metrics include the analysis of socio-cultural and environmental impact returns in unison with market based financial returns (including in some cases, below market returns such as capital preservation). Consideration of the financial landscape, with regard to capital investment leverage is as much about understanding the motivations of participants to engage in the capital markets, as about innovations in financial instruments to safeguard cultural heritage values. Tangible built heritage is a finite resource. Many obsolete built heritage assets are impacted by market failure and persistent investment barriers which in turn negatively impact human well-being. Grassroots

communities, undertaking cultural heritage activities in deprived urban neighborhoods and isolated rural communities, often lack the financial track record, entrepreneurial capacity and network infrastructure to overcome exclusion from traditional capital markets. The ultimate choice and design of hybrid 'blended' and 'pooled' financial instrument combinations, from the toolkit, will change from building to building (and neighborhood to neighborhood) but must always take account of the need to protect local communities and ecosystems in parallel with saving vulnerable cultural heritage resources, in line with circular economy transitionary ambitions. In other words, effective sustainable cultural heritage finance strategies must ensure that capital allocation decisions serve people and not the other way around.

Chapter 18. Circular financing mechanisms for Adaptive Reuse of Cultural Heritage

Authors: Ivo Allegro, Aliona Lupu

Cultural heritage, intended as a "common good" belonging to each citizen, traditionally receives funding from public sector, primarily for the purpose of its preservation and without the aim to exploit it economically. In a period of increasing pressure on public budgets, this approach activates the perverse spiral of increasingly inadequate investments because of scarce available resources in the hands of the public decision-maker. Different scales of investment, adaptability of assets for new uses, attractiveness of urban areas, as well as ownership and governance structures, determine the adoption of different financing mechanisms for the cultural heritage valorisation. This chapter describes the three financing mechanisms developed under the CLIC project specifically relevant for the adaptive reuse of cultural heritage (ARCH). The proposal of the financing mechanisms aims at providing an intense impulse towards sustainable financing of circular ARCH to preserve the cultural shared value for people and achieve the Sustainable Development Goals (SDGs) locally. An opportunity in the deployment of the mentioned financing mechanisms can come from the synergies between private patient capitals and European, national and regional public funds and, in particular, through new exploitation ways of ESIFs.

Chapter 19. Heritage-led entrepreneurial ecosystems: skills and role of startups and innovation

Authors: Antonia Gravagnuolo, Aliona Lupu, Jermina Stanojev

This Chapter focuses on the results of the CLIC Startup Competition describing its approach and methodology, and presenting the startups taking part within three main topics: Circular Tourism, Circular and creative cities and regions, Circular creative industries and social innovation. These startups will participate in a mentoring programme in which they will develop their circular business models and related business plans to grow and scale-up as next generation circular startups in the heritage sector. The results of the mentoring activity will be included in this chapter.

4.5 Section 3: Interpretation and Guidelines (CNR IRISS)

Chapter 20. Conclusions and guidelines

Authors: Luigi Fusco Girard, Antonia Gravagnuolo

The objective is to provide critical reflections on the CLIC project results and formulate a set of policy-related guidelines to tackle CHAR challenges in order to support the adaptive re-use of cultural heritage as entry point for circular "human-centred" cities and regions.

5 Technical information

5.1 Editors

Profile Author / Editor 1: **Prof Luigi Fusco Girard** is Emeritus Professor at the University of Naples Federico II and Scientific Coordinator of the Horizon 2020 CLIC project at the CNR IRISS Institute for Research on Innovation and Services for Development, National Research Council, Italy. Professor in environmental economics and evaluation methods for cultural heritage for over 40 years, he has coordinated national and international research projects on the role of cultural heritage for sustainable development. He is currently President of ISCEC-ICOMOS International Scientific Committee on Economics of Conservation of ICOMOS and Director of the Urban Regeneration Hub affiliated with UN-Habitat. His research interests include multicriteria and multidimensional evaluation methods, sustainable urban and territorial development and circular economy models for cultural heritage adaptive reuse.

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5.2 Keywords

- o Keyword 1: Circular economy
- o Keyword 2: Adaptive reuse
- o Keyword 3: Cultural heritage
- o Keyword 4: Evaluation
- o Keyword 5: Sustainability
- o Keyword 6: Historic urban landscape
- o Keyword 7: Circular city
- o Keyword 8: Circular governance
- o Keyword 9: Circular business model
- o Keyword 10: Heritage conservation

o Keyword 11: Urban regeneration

o Keyword 12: Civic engagement

5.3 Unique Selling points

o Unique Selling Point 1: Original theoretical framework linking adaptive reuse of cultural heritage to the circular economy context.

o Unique Selling Point 2: Innovative evaluation tools and Innovative circular governance, financial and business models for adaptive reuse of cultural heritage

o Unique Selling Point 3: Original case studies presented as demonstration areas where these innovative tools and models are tested and validated

5.4 Open Access

According to the Open Data Research Pilot and the Open Access dissemination guidelines for Horizon 2020, the CLIC scientific book will be published Open Access through the contract agreement signed with Springer, adopting the "Gold Open Access" modality.

Acronyms

[APC]	[Author Processing Changes]
[API]	[Application Programming Interface]
[CC]	[Creative Commons]
[DMP]	[Data Management Plan]
[DOI]	[Digital Objective Identifier]
[DS]	[Data Sets]
[FAIR]	[Findable, Accessible, Interoperable and Reusable]
[GA]	[Grant Agreement]
[HUL]	[Historic Urban Landscape]
[OA]	[Open Access]
[OpenAIRE]	[Open Access Infrastructure for Research in Europe]
[ORDP]	[Open Data Research Pilot]
[PC]	[Project Coordinator]
[PM]	[Project Manager]
[PMT]	[Project Management Team]
[SDGs]	[Sustainable Development Goals]
[SR]	[Scientific Responsible]
[WP]	[Work Packages]

Annex 1 – Springer Open Access agreement

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