

# Advancing Urban Regeneration Projects for Sustainable Development and Intellectual Capital

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**Abstract:** The study aims to investigate how urban regeneration projects contribute to achieving sustainable development through an intellectual capital (IC) perspective for driving growth within urban communities and improving quality of life. Literature has shown that urban regeneration projects help support urban change. The IC helps drive sustainable development and competitiveness of regions, cities and communities. Urban regeneration projects contribute to better quality of life and drive social and economic renewal of urban communities. This exploratory study proposes a research framework addressed to join urban regeneration projects with IC view on cities and urban communities. This paper can contribute to the extant literature focused on the relationship between urban regeneration processes and the role of intellectual capital as driver of sustainable development. This qualitative study, using a multiple case study methodology, provides a comparative analysis of two urban regeneration projects that help the redevelopment of urban environments and support human and social capital within communities. The findings show that urban regeneration projects significantly contribute to revitalising urban spaces, supporting the components of IC that drive social and economic growth of communities.

**Keywords:** urban regeneration projects, sustainable development, intellectual capital

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## 1. Introduction

Today, urban regeneration is advancing as a key issue for urban change and sustainability. Promoting urban regeneration projects helps rethink a second life for marginalised urban spaces and declining neighbourhoods. Urban regeneration projects help for sustainable urban development without compromising the natural environment by equally managing social, environmental and economic dimensions (Korkmaz and Balaban, 2020). Sustainable urban regeneration projects concern economic, social, environmental and physical issues (Yau and Chan, 2009). Neighbourhoods do matter for neighbourhood satisfaction (Neal, 2021). Urban regeneration projects help to address a pathway for sustainable neighbourhood (Blanco, Raskin and Clergeau, 2022). As a means for urban policy (Griffiths, 1995), urban regeneration projects help drive urban change and development, improving economic and social conditions of urban spaces (Roberts and Sykes, 2000). Specifically, urban regeneration supports sustainable development, improving urban healthy growth and quality of life, and environmental regeneration (Couch and Denneman, 2000). Promoting sustainable development relies on urban regeneration projects that support social capital and community engagement (Kim, Newman and Jang, 2020; McDonald, Malys and Maliene, 2009; Deakin and Allwinckle, 2007) and empower the community to actively contribute to local transformation (Piber, Demartini and Biondi, 2019). Achieving sustainable urban development relies on urban regeneration projects that revitalise villages and neighbourhoods as communities,

driving partnerships and collaborative ways for social and economic innovation (Neal, 2003; Evans and Jones, 2008; Banks and Shenton, 2001), strengthening local community participation (Cento Bull and Jones, 2006).

Understanding how urban regeneration processes contribute to sustainable urban development helps to address the fourth stage of intellectual capital (IC) within social ecosystems (Dumay, 2013). The component parts of IC concern human, relational and organisational resources as emerging within urban regeneration processes that contribute to building social capital and shaping healthy and safe communities. IC helps to drive organisations, communities and cities to support for sustainable development. IC plays a key role for urban competitiveness, reputation and sustainability (Alfaro-Navarro, López-Ruiz and Peña, 2017). The future of IC develops within urban ecosystems. IC is the major factor for economic growth within communities (Dumay, 2013; Bonfour and Edvinsson, 2005; Stähle and Bonfour, 2008). IC supports for urban community development within knowledge economy (Bonfour and Edvinsson, 2005). Recently, the IC scholarly perspective is looking at the fourth stage of IC that focuses on the benefits for regions, communities and cities within knowledge economies (Charzkel, 2006), and «combines human, relational and structural capital into a new vision that considers the social aspect of IC» (Secundo, Del Vecchio, Dumay and Passiante, 2017, p. 8). Following the fourth stage of IC, the knowledge is emerging by the dialogue between the organisations and their ecosystems (Bonfour and Edvinsson, 2005; Dumay and Garanina, 2013).

This study aims to investigate how urban regeneration projects contribute to shaping sustainable urban development pathways and advancing IC perspective. For this reason, the following research question (RQ) was formulated. RQ: can urban regeneration pathways have a direct impact on the development of IC within the urban context? Using a multiple case study methodology, in this qualitative study two case studies in the Southern Italy (Campania and Calabria Regions) have been analysed and compared. While some studies focus on the role of IC within urban communities and cities, and exam how urban regeneration processes contribute to urban development and social capital, only few studies combine both an urban regeneration view and IC perspective in understanding the dynamics of urban regeneration pathways as drivers of urban development by urban projects of redevelopment and social renewal within urban environments and neighbourhoods.

The remainder of the study is structured as follows. Section 2 provides a literature review and background on urban regeneration meaning and IC perspective. Section 3 briefly describes the methodology adopted. In the Section 4 short description and main results about the two case studies investigated are presented and discussed. Finally, Section 5 outlines main implications and conclusions.

## **2. Literature review**

### **2.1 Urban regeneration and sustainability**

Urban regeneration helps drive urban policy and growth (Griffiths, 1995) to solve urban problems, enhance community participation and reinforce social capital (Cento Bull and Jones, 2006), enabling collective public-private actors' efforts to improve the quality of life within communities. Urban regeneration is viewed as a long-term, strategic and continuous process driving urban change and development (Roberts and Sykes, 2000), fostering social sustainability, community development, innovation and communication (Evans and Jones, 2008).

Achieving sustainable development goals relies on revitalising villages and neighbourhoods, reinforcing the community meaning and social capital within urban settlements (Neal, 2003). Urban regeneration initiatives contribute to sustainable development for healthy growth and quality of life improvements (Couch and Denneman, 2000). Urban regeneration projects support participatory and community engagement within urban spaces (Biondi *et al.*, 2020). Sustainable urban regeneration processes improve quality of life and develop urban growth, driving social and organisational capacity through collaborative spaces involving public and private actors (Healey, 1995). Urban regeneration projects open up to social capital development, civic value and community participation, making environmentally-friendly settlements as villages and neighbourhoods, following a community-led view for sustainable urban transformation (Deakin, 2009; Deakin and Allwinckle, 2007). Creative urban regeneration helps to develop hub of innovation and creativity (Da Cunha and Selada, 2009). Viewing sustainability as a shared territory supports multi-actor commitment and stakeholder creativity in order to develop «long-term regeneration project which has kept all of its major stakeholders on-board while radically transforming social, economic, and environmental standards» (Evans and Jones, 2008, p. 1428). Urban regeneration projects support social cohesion, enabling a participatory framework, empowering the community

to actively participate in the local transformation process, supporting social capital building, innovation issues and local stakeholder engagement (Piber, Demartini and Biondi, 2019). Smart urban regeneration projects develop on local identity, territorial vision, collaboration and dialogue within communities (Huston, Rahimzad and Parsa, 2015). The academic debate on urban regeneration is still in infancy and with a multidisciplinary approach. In fact, an increasing number of studies focused on critical success factors for urban regeneration projects (Yu and Kwon, 2011; Mavi and Standing, 2018) and on public-private collaboration (Calabrò and Della Spina, 2019). Consequently, this variety of perspectives causes difficulties in framing the phenomenon. At the same time, there is a literature gap on the role of IC in the urban regeneration project.

## **2.2 Intellectual capital within urban environments**

IC embraces any valuable intangible resource gained through experience and learning to produce further wealth (Marr and Moustaghfir, 2005). IC develops in some components (Marr, 2007): skills and competencies of people (human capital); relationships with customers and other stakeholders (relationship capital); organisational culture, routines and practices (structural capital). IC refers to hidden values of individuals, enterprises, institutions, local communities as potential sources of value creation consisting of intangible resources available that provide future benefits (Bontis, 2004). While the third stage of IC focuses on strong organisations, and the value incorporates worth and importance of services for stakeholders (Dumay, 2009), «the fourth stage concentrates on building strong economic, social and environmental ecosystems» (Dumay, 2013, p. 8) and «combines human, relational and structural capital into a new vision that considers the social aspect of IC» (Secundo, Del Vecchio, Dumay and Passiante, p. 8), enabling organisations to evolve in a sustainable way. The knowledge created by communities develops within social ecosystems (Dumay and Garanina, 2013). The IC view for communities, regions and cities strengthens the collective action within and around organisations (Bonfour, 2005). Investing in knowledge assets to drive value creation processes helps to restore the social relationships' value and develop knowledge capital of communities and collective intelligence within social systems, fostering intangible resources to develop social growth and cohesion of communities (Bounfour and Edvinsson, 2005). Managing IC helps drive community development, social and economic growth of cities and regions. IC plays a key role in advancing sustainable development (Secundo, Ndou, Del Vecchio and Pascale, 2020). Managing IC helps drive value creation and enable intangible assets within urban spaces (Viedma, 2004). IC is viewed as a driver of sustainability and urban competitiveness (Matos and Vairinhos, 2017; Stähle and Bounfour, 2008), improving quality of life and developing communities (Alfaro-Navarro, López-Ruiz and Peña, 2019). IC is a critical factor for urban competitiveness. Human capital (individual and collective competences, and community social values), relational capital (community and organisations' networking, city partnership and image) and structural capital (organisational resources, processes and innovation) are the components of IC framework for cities (Uziene, 2013). Literature highlights the role of IC for urban spaces but does not clearly analyse how urban communities help advance an IC view to social and economic growth.

## **3. Methodology**

This qualitative and exploratory study adopts a multiple case study methodology (Yin, 2009), indeed, two case studies emerging from urban regeneration projects developed in the Southern Italy (Campania and Calabria Regions) have been investigated describing the process through which the phenomena take place (Taylor et al. 2011). To investigate and compare the two specific experiences we use several techniques to collect data and information. Specifically, primary and secondary data sources have been used, we collect data and information through websites, archival data analysis (internal documentation, reports, etc.), social network page analysis and in-depth interviews (members of the board of directors interviewed via the Google MEET platform). Regarding the in-depth interviews, we carry out semi-structured interviews, where we prepared a list of predetermined questions based on previous studies, mentioned above, on the topic investigated, that is specific question regarding ways, actions and measures for promoting urban regeneration following IC view. Also, during the interviews to the main actors involved in both urban regeneration projects, that is the main coordinator for each project and the responsible persons for each organisation involved in both projects as organisational units with regards to specific network collaboration created. Data collection and information about the case studies under observation occurred in 2018 and 2022. This procedure helps to describe the process through which urban regeneration and IC can develop. Analysing case studies helps to clarify both the similarities and differences in the approach used in the two urban regeneration projects and the variety of solutions leading to social and economic issues that enable urban development towards sustainability. Specifically, the methodology based on case studies refers to research concerning the relationships between the issues drawn by urban regeneration projects and the impact on IC as related to urban development and benefits for communities (McDonald, Malys and Maliene, 2009; Piber, Demartini and Biondi, 2019). Indeed, analysing a case study helps to clarify the role of

urban regeneration projects for advancing sustainable urban development (Korkmaz and Balaban, 2020). Studying a case drawn by urban neighbourhood aims to highlight regeneration strategies and interventions. Case studies help to outline the advancements in urban regeneration planning and implementation (Schenkel, 2015). This technique helps to ensure appreciable information and develop a deep understanding of the cases study in addition to leading to sound scientific conclusions. It is also a tool for doing evaluation (Yin, 2009; Reischauer, 2015). Following Yin’s (2009) guidelines that ensure the regularity of the construct, planning, and execution of the case study, this methodology aims to provide a comprehensive understanding of the phenomenon at hand without the rigidity of a predefined structure for observations and analysis.

#### 4. Case study analysis: description and results

##### 4.1 Case studies

###### 4.1.1 Case study NPO “XXX”

In January 2018, the non-profit organisation “XXX” (NPO “XXX”) was founded by the initiative of three under 35-year-olds. The association’s headquarters is in a small historical village in the hinterland of one of the Southern Italian regions. Historical village has a population of over 7,000 inhabitants with an average age of over 62 (demoistat, demo.istat.it). Historical village consists of an urban agglomeration made up of four rural communities. The social and economic context of the historical village is characterised by a socially weak population, both for territorial requirements and for socio-health assistance. NPO “XXX” was created with the aim of assisting and taking care of the “weak” sections of the population (elderly, disabled and poor) through the enhancement of culture. In June 2018, he was granted a concession by the religious authorities of places in a historical building. The historical building is characterised as a partially used building complex. Some parts of the property have historical value, as they date back to the beginning of the last century. The places granted to the NPO “XXX” had been in disuse for over 15 years, and therefore, not used for any activity. It has now been revalued in some parts and made available again to the community.

Two places are for the exclusive use of NPO “XXX”. The first place is 20 sqm and the second is 8 sqm. The places managed by the NPO “XXX” have been equipped with various technological assets and equipment (e.g., 3D printers, PC workstations, laser engraver, cutting plotter, CNC milling machine). The NPO “XXX” has additional places available in common with the religious authority (e.g., meeting room). Within this historical building, the NPO “XXX” has launched various training activities with the aim of carrying out activities to promote culture and the recovery of arts and crafts through the use of the most advanced technologies. The various training activities allowed the non-profit organisation to significantly increase the number of members and especially the number of beneficiaries of the activities. The training courses are created and managed by members and volunteers.

The training courses were held in the premises made available to the ecclesiastical authority. During the Lockdown phase, the NPO “XXX” produced Personal Protective Devices using its own equipment and a group of volunteers from the historical village (Table 1). Specifically, over 1000 plexiglass visors and ear protectors were produced using the 3d printer.

**Table 1:** The main training activities carried out by the NPO “XXX”

Training activity denomination	Main contents	Target	Training hours	Technological assets
<b>Robotics engineering</b>	Arduino-based open-source robot design	12-15 years old	12 hours in three days	Arduino micro controller, Thinkercad Circuit, Modules for sensors and various electronic components, Robot kits
<b>Arduino</b>	Introduction to micro controllers, electronics and electrical engineering to use Arduino	University students	6 hours in two days	Arduino micro controller, Thinkercad Circuit, Sensor modules and various electronic components
<b>Welding base</b>	Introduction to electrical engineering, electronics and Printed Circuit Board Manufacturing Process	University students	4 hours in one days	Welding Equipment and Accessories

<b>Graphic (Beginner level)</b>	Basic Photoshop commands, interface and main tools for creating graphics and advertising posters.	High school students	8 hours in two days	Photoshop Software
<b>3D printing</b>	3D object design with Thinkercad and Cura. Transfer to 3D printer and realization of the print.	No condition	8 hours in two days	3D printer, 3D pens, 3d design software

Source: own elaboration

#### 4.1.2 Case study SMAC Project

The activities of SMAC Project have begun in March 2022. SMAC, the project’s name, indicates School Museum of Ceramic Art for emphasising the recovery and reuse of the old building of the former Art school of Calitri, partially renovated with public funds.

SMAC born for providing specialist knowledge for the protection, enhancement and innovation of local traditions linked to the production of terracotta and ceramics, for supporting the development of national and international markets through the driver of the “Città della Ceramica” (City of Ceramics), with a synergistic approach with respect to the production context local.

Calitri is a small historical village on top of the hills of High Irpinia (Italy, Campania region), with about 4.000 inhabitants. The Antico Borgo is in the oldest section of the village, at the top of which are the remains of a castle that predates the 12th century. The Borgo is a labyrinth of historic houses that have, over the centuries, been built into the hillside. Following the earthquake in November 1980, its inhabitants have started to leave the area and the Borgo has only been partially rebuilt. For the clays present in the soils of its territory, this area has seen a proliferation of the work of potters since the IV century B.C. The first local artisans were highly educated and respected people, and those who made pottery stood out in a special class. They were called “Faenzari” because they came from the village of Faenza. Unfortunately, with the great emigration, this millenary practice has gradually disappeared and, to date, there are few laboratories that produce the processing of this material. Despite this, the trend of recent years has seen an increasingly frequent return to these ancient traditions.

Smac is a fablab, a collaborative space that, also thanks to the training courses present, allows makers to live experiences of co-design and production of products. In this collaborative space, users can study or collaborate in various co-working initiatives, such as to encourage the birth of digital startups or 3D crafts, and offers a series of services for the community.

Within SMAC take place and self-construction and co-design experiences for the continuous redevelopment of the building. This place will be the subject of analysis and study in order to place this experience, with proposals for re-setting and redevelopment of internal and external spaces, not only in the training field but also as an example of urban regeneration. In fact, self-construction and co-design are of the elements of greater protection and safeguarding of projects, investments and sustainability of the initiatives implemented especially in fragile communities.

One of the project’s aims is to bring out the heritage of handcrafted products, created by professors and students of the former Art school of Calitri since 1959, and share it with the local community, through participatory action by students and citizens.

Moreover, the SMAC acts as knowledge intermediaries, contributing to the enhancement and protection of local manufacturing traditions, linked in particular to the production of terracotta and ceramics, through the definition of actions aimed at the creation, sharing and preservation of knowledge and the development of relationships with institutions, professionals, hobbyists and sector operators. SMAC allows enhancing traditions, processing techniques linked to ancient crafts and local knowledge that generally are transmitted between generations through the sharing of working practices.

The SMAC has undertaken further initiatives aimed at enhancing the local context such the definition of tourist routes for improving knowledge of the places of art, terracotta and ceramics of Calitri, providing e-bikes for users, in line with the objective’s environmental sustainability as well as cultural enhancement of the territory.

The training activities offered by the SMAC aim to train the figure of the Designer 4.0. Through a multidisciplinary course, divided into theoretical-practical modules and innovation workshops, students will deepen the historical, anthropological, aesthetic aspects of local productions, will develop methodological and practical aspects of traditional and digital design and production, with the advanced methods and tools of visual communication, from graphics, to photography, to video-making.

Finally, the SMAC also provides an area with free access with co-working stations and areas for leisure and socialization of users, which will find expression in bars and space for accommodating cultural events. The future development of the activities provides a municipal library on production of terracotta and ceramics and a communication centre of the design product.

Therefore, the SMAC Calitri aims to become a hub of the City of Ceramics, acting as a driver for urban, economic, and social regeneration.

**Table 2:** The main services offered by the SMAC Project.

<b>Services for the community</b>	<b>Description</b>
<b>Self-construction and co-design experiences</b>	The old building of the ex Art school of Calitri, today named SMAC, will be the subject of analysis and study with proposals for re-setting and redevelopment of internal and external spaces.
<b>Cultural heritage enhancement</b>	Enhancement of the ceramics made since 1959 by professor and students of the former art school
<b>Preservation of knowledge and practices</b>	Local manufacturing traditions, linked to the production of terracotta and ceramics, are preserved through the sharing of working practices.
<b>Local context enhancement</b>	A tourist-thematic itinerary with e-bikes that allows knowing place of art and ceramics
<b>Training activities for Designer 4.0</b>	The knowledge transfer takes place through practical and theoretical activities, in which the learner performs the direct actions of knowledge, such as cataloging, transfer of objects, their analysis, acquiring collateral notions to the objects but necessary for their enhancement.
<b>Events</b>	Thematic exhibitions, multimedia productions, urban graphics projects, performances, etc. Students, citizens and other local realities will be involved according to the activities that will be identified.
<b>Co-working and socialization</b>	Co-working stations where makers can live experiences of co-design and production of products, and spaces of aggregation for citizens

Source: own elaboration

## 5. Discussion and conclusions

The regeneration projects for the case studies investigated have been developed in very small historical villages in the Southern Italy. As social infrastructures both projects contribute to more sustainable local development, following an integrated vision and action (Roberts, 2000). Both experiences focus on the development, preservation, and transfer of knowledge about local practices and traditions of the specific territory, “ceramics art” (handcrafted art), strengthening the local identity within the community. Moreover, these projects offer a varied range of services to meet several social needs within small villages characterised by geographical, economic and social isolation, and typically geographically dispersed micro-enterprises and a limited supply of essential services. These municipalities are not easily accessible and far from urban centres and infrastructures, being located in mountainous areas or on the smaller islands, which characterise most of the Italian territory. However, historical villages help preserve historical-cultural heritage and landscape, promoting alternative lifestyles and fostering the development of innovative economic and social models between tradition and contemporaneity. Findings show that these projects allow to remove (or reduce) some factors of social hardship such as the absence of meeting places, access to basic services (health, education and mobility), urban decay and the inadequacy of network infrastructures for Internet access. These factors generally characterise the most disadvantaged areas, such as the municipalities of the rural areas and small villages.

Furthermore, the results show that urban regeneration projects help driving IC as an enabler of sustainable development, supporting the growth of human, social, cultural, and organisational capital within urban communities. Urban regeneration pathways can trigger the diffusion of new IC through the launch of training

projects. Urban regeneration projects contribute both to new knowledge assets for the development of IC within communities and drive social and economic issues within communities, improving the quality. Urban regeneration projects work as training centres of human capital. The study can provide social, organisational, and managerial implications. Urban regeneration projects support local community involvement and development, reinforcing social capital. Urban regeneration projects help to enable knowledge sources and organisational capabilities that involve all the stakeholders and the organisations involved in the urban regeneration process. Successful urban regeneration relies on public-private partnerships as organisational and collaborative frameworks that support urban development and regeneration strategies. This study presents some limitations. First of all, it is a first step of a multi-step analysis on ongoing project. In fact, the SMAC project has not yet started. Thereby, the expected results of this project focus on developing source and competences that relate urban regeneration to social and economic growth and IC capital. Thereby, some trends are emerging. The pathway leading to urban regeneration as an engine of social and economic sustainable development is still in infancy too. Further research perspectives imply to consider more case studies in the analysis and develop much more in-depth interviews with actors involved in urban regeneration projects.

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