

# Digital District for Design Innovation. A Site-Specific Project for Inclusive Urban Regeneration in Genoa's Historic Centre

**Luca Parodi**

Università degli Studi di Genova

luca.parodi@unige.it

ORCID 0000-0002-8136-576X

Copyright © 2025  
diid disegno industriale  
industrial design  
CC BY-NC-SA

## Abstract

This contribution examines the role of digital innovation in enhancing cultural heritage through the development of a digital Metadistrict in the historic center of Genoa, Italy. Building on a major urban renewal project led by the Department of Architecture and Design at the Università degli Studi di Genova in the late 20th century, this study explores how past transformations inform contemporary strategies for cultural and urban regeneration. The project, initiated under the guidance of architect Ignazio Gardella, revitalized part of the historic city center by promoting the reappropriation of public space and cultural employment. Today, leveraging smart technologies, the new initiative seeks to create a sustainable cultural district while preserving the area's authenticity. This learning contributes to research on digital transitions in cultural heritage management, proposing an innovative model for integrating smart technologies into urban regeneration.

## Keywords

Cultural identity  
Digitalization  
Urban regeneration  
Local valorization  
Inclusion



**Fig. 1**  
Aerial view of the historic centre of Genoa, one of the largest medieval historic centres in Europe and the most densely populated (Credits: Emerson Aonzo).

The digitization of cultural heritage has transformed how historical urban environments are preserved and experienced, fostering new forms of engagement through immersive and interactive technologies. While digital tools are widely studied in heritage preservation, their role in regenerating historic city centers — especially those less affected by mass tourism, such as Genoa's historic centre — remains underexplored. This contribution examines how digital innovation can support the regeneration of Genoa's UNESCO-listed Historic Centre by proposing a Cultural Metadistrict, a sustainable model that integrates emerging technologies with community engagement.

Beyond preservation, this approach aims to create inclusive, culturally vibrant urban spaces that stimulate innovation and social interaction. As Belfiore and Bennett (2020) highlight, cultural projects play a crucial role in revitalizing communities, strengthening local economies, and fostering a shared sense of identity. Rather than viewing the historic city as a static collection of monuments, this study presents it as a dynamic entity enriched by digital technologies. Tools such as Augmented Reality (AR), Virtual Real-

ity (VR), and digital archiving offer innovative ways to interact with heritage (Floridi, 2020).

Using Genoa as a case study, this research contributes to the discourse on digital heritage and urban regeneration, proposing a balanced integration of technology, conservation, and community involvement.

Sustainable urban regeneration has become central to contemporary urban planning, addressing global challenges such as pollution, population growth, and climate change. Beyond physical redevelopment, it requires a holistic approach that integrates environmental, social, and economic dimensions (Ricci, 2006). Recent studies emphasize the need to consider both tangible and intangible heritage in regeneration efforts. Beauty in architecture and urban landscapes is not merely an aesthetic but an experiential and contextual phenomenon. Thus, regeneration should not only restore urban spaces, but also foster cul-

tural and social interactions. However, these processes must balance economic growth with social sustainability to avoid gentrification, which can disrupt communities and erode local identity (Sennett, 2008). Instead, inclusive regeneration promotes accessibility, active citizenship, and cultural preservation (Dean, Trillo & Lee, 2022).

The rise of smart cities has introduced new paradigms in urban design, integrating digital technologies to optimize resources, enhance quality of life, and promote sustainability. However, smart urban development must respect historical and social contexts. Scholars argue that smart cities should not only drive efficiency, but also support cultural vitality (Kukreja, Singh, Kaur, & Bajwa, 2024) and integrate citizen participation (Floridi, 2020). The active participation of local stakeholders is crucial to aligning regeneration projects with community needs and values. Only through an integrated vision that prioritizes cultural heritage, social well-being, and sustainability can cities create inclusive, livable, and resilient urban spaces.

Through a qualitative research design methodology, this contribution aims to explore the intersection of digital innovation and urban regeneration, focusing on how digital tools — such as interactive maps, Augmented Reality (AR), and digital platforms — enhance cultural heritage and urban life in Genoa's historic centre. The research employs a multi-method approach, integrating: case study analysis (examining key urban regeneration initiatives in Genoa that integrate digital tools for heritage conservation and accessibility); semi-structured interviews (conducted with urban planners, architects, designers, and administrators, they provide insights into how digital tools support community engagement, heritage preservation, and inclusivity); direct observation (fieldwork was carried out in the historic centre to analyze the implementation of digital tools and their impact on residents, visitors, and public space dynamics).

The study aligns with Italy's National Recovery and Resilience Plan (PNRR), particularly M1C3 - Investment 3.3, which promotes the digitalization of cultural heritage (Ministry of Culture, 2021). By assessing ongoing digital initiatives, the research examines how tech-

nology can preserve historical authenticity while fostering sustainability and participation. Genoa's UNESCO-listed Historic Centre presents a complex yet valuable setting for investigating the balance between conservation and innovation. Despite its architectural and cultural wealth, perceptions of neglect and marginalization have often overshadowed its heritage value. Digital technologies can counter this by making history more accessible and engaging through immersive storytelling and interactive experiences.

One significant initiative in this context is the Genoa Design District, launched in 2018, which leverages design as a driver of urban regeneration (Balletti & Soppa, 2005). Events such as the BeDesign Week foster community participation and social inclusion, positioning Genoa within the international design landscape while promoting a sustainable and innovation-driven urban vision.

While the study is ongoing, initial findings suggest that the integration of digital technologies in the regeneration of Genoa's historic centre is beginning to reshape perceptions of heritage and enhance its experience for both locals and visitors. Preliminary results highlight key areas where Augmented Reality (AR), interactive mapping, and digital archiving are positively impacting urban regeneration and cultural preservation.

**Increased Engagement with Heritage.** Digital tools, particularly AR applications, have enabled visitors to engage more deeply with Genoa's cultural heritage. By overlaying historical scenes and figures onto the city's landscape, these technologies allow users to 'step into' the city's history in a dynamic way. This approach encourages tourists to explore lesser-known areas, moving beyond the focus on iconic landmarks. Balzani et al. (2024) support these findings, noting that digital tools enhance cultural awareness and engagement, particularly in heritage conservation.

**Improved Accessibility.** Digital mapping tools are enhancing access to Genoa's cultural and historical resources, offering easy-to-follow guides that help visitors discover hidden historical sites. These tools have led to the creation of new walking itineraries, increasing foot traffic in underappreciated areas. This aligns with Balletti and Soppa's (2005) discussions on how



**Fig. 2**  
Detail of the fountain in Piazza De Ferrari, the beating heart of the city and the core of the Design District discussed in the paper (Credits: Emerson Aonzo).



**Fig. 3**  
Typical street artists and street vendors, present in all the streets of the historic center (Credits: Emerson Aonzo).



**Fig. 4**  
View of the city from the port. In addition to the dock area, which is the subject of several urban regeneration projects, the multiple urban layers that have developed over time are clearly visible (Credits: Emerson Aonzo).



Fig. 5  
 Palazzo Reale, hall of  
 Mirrors at the Royal Pal-  
 ace of Genoa, set up with  
 the exhibition “Diary of a  
 Designer. Sixty-nine Days  
 in the Sign of Vito Nesta”,  
 curated by Alessandro  
 Valenti and Luca Parodi.  
 Genoa Design Week 2021  
 (Credits: Andrea Pedretti).

well-executed digital mapping fosters both cultural engagement and sustainable tourism.

Community Engagement and Social Sustainability. Local stakeholders report positive responses to the digital tools, particularly in terms of an increased sense of ownership and pride among residents. Participatory design methods have ensured that digital technologies align with local needs and cultural values. These initiatives also facilitate dialogue among communities, local authorities, and heritage experts, supporting community-driven regeneration that prevents displacement and gentrification. This approach mirrors Lupu’s (2009) emphasis on the importance of community engagement in heritage design and preservation.

Challenges to Authenticity and Preservation. Despite the positive outcomes, concerns have been raised about the authenticity of historical sites. Some stakeholders express concerns about potential ‘digital distortion’ and the balance between innovation and preservation. The literature, including Gambardella (2020), highlights the need to ensure that technological interventions enhance rather than overshadow the cultural and architectural integrity of heritage sites.

Initial Insights into Economic and Social Impacts. Although comprehensive economic data is not yet available, early feedback suggests that digital heritage tools are contributing to the revitalization of neglected urban areas. Local businesses have reported

increased tourist interest in Genoa’s Cultural Metadistrict, stimulating economic growth in sectors such as hospitality and tourism. The focus on social sustainability is also evident, with local stakeholders emphasizing equitable growth and the importance of ensuring that the benefits of regeneration are distributed fairly, as suggested by Branzi (2019).

The Cultural Metadistrict project in Genoa illustrates how digital technologies can foster both social sustainability and cultural participation. When implemented thoughtfully, digital technologies not only preserve, but also enhance the understanding of local history, without compromising the authenticity of heritage. In this way, digitalization does not replace the physical experience but integrates it, strengthening the bond between people and their urban environment. However, the study underscores the importance of achieving a balance between digital innovation and the preservation of cultural integrity. Digital technologies should be contextualized within the cultural heritage narrative, avoiding the risk of overshadowing the authenticity of historic sites. This approach is essential for maintaining collective memory and promoting a regeneration process that respects the past while embracing the future.

Another critical aspect is the active participation of local communities in regeneration projects. It is crucial that the design and



**Fig. 6**  
Palazzo Reale, Detail of the King's Room at the Royal Palace of Genoa, set up with the exhibition "Diary of a Designer. Sixty-nine Days in the Sign of Vito Nesta", curated by Alessandro Valenti and Luca Parodi. Genoa Design Week 2021 (© Andrea Pedretti).

**Fig. 7**  
Installation of the exhibition Containers, at the Dock of the Old Port of Genoa, curated by Simona Finessi. Genoa Design Week 2025 (© Marzio Villari).

management of technological interventions result from an inclusive process involving residents in defining the solutions. Such an approach fosters social cohesion and ensures that technologies meet the specific needs of local populations, avoiding potential social exclusion. As the Cultural Metadistrict project is still under development, the concrete results of this hybrid experimentation, which blends digital and analog elements, will only be observable in the coming months. The adoption and integration of these technologies require a period of testing before meaningful data on visitor behaviour, community participation, and the effectiveness of implemented solutions can be gathered. This development phase will also allow for the evaluation of the long-

term impact of these technologies and their potential contribution to the economic and social sustainability of the historic centre.

While the Genoa case study provides valuable insights, further research is needed to assess how these dynamics might be applied to other cities with distinct historical and cultural contexts. Moreover, exploring the long-term impacts of digital technologies on local economies, tourist and community engagement remains a critical area for further investigation. Future studies could also investigate the role of digital heritage tools in addressing challenges such as gentrification, ensuring that regeneration projects do not inadvertently displace local populations but rather work to strengthen community ties.

**Luca Parodi**  
Ph.D., research fellow at the Department Architecture and Design, Università degli Studi di Genova. He works and teaches in the areas of product, interior and furniture design. His research interest focuses on understanding the cultural position and role of designers in relation to local heritage and contemporary production. He is a member of the ADI – Handmade in Italy commission and his investigation focuses on the link between product and cultural transformations.

## References

- Balletti, F., Soppa S. (2005) *Paesaggio in evoluzione. Identificazione, interpretazione, progetto*. Franco Angeli.
- Balzani, M., Maietti, F., Montuori, M., & Raco, F. (2024). *Built heritage in post-disaster scenarios: Improving resilience and awareness towards preservation, risk mitigation, and governance strategies*. CRC Press.
- Branzi, A. (2019). *The Big Book of Design*. 24 ORE Cultura.
- Belfiore, E., & Bennett, O. (2020). *The social impact of the arts: An intellectual history*. Oxford University Press.
- Dean, K., Trillo, C., & Lee, A. (2022). Urban regeneration and sustainable development. In *Sustainable Urban Regeneration* (pp. 112-133). Springer.
- Floridi, L. (2020). *The Fourth Revolution: How the Infosphere is Transforming the World*. Raffaello Cortina Editore.
- Gambardella, C. (2020). *Handmade in Italy*. Altralinea edizioni.
- Kukreja, V., Singh, A., Kaur, D., & Bajwa, J. K. (2024). *Digital Cultural Heritage: Challenges, Solutions, and Future Directions*. Springer.
- Lupo, E. (2009). *Il design per i beni culturali*. FrancoAngeli.
- Ricci, M. (2006). Ignazio Gardella. Facoltà di Architettura di Genova, 1975-1989. In G. De Rita, L. Prato, & M. G. Pavin (Eds.), *Omaggio alla Bellezza*. Gangemi Editore.
- Sennet, R. (2008). *The Craftsman*. Yale University Press.