Revitalization of Heritage Buildings Through Digital Placemaking: A Case Study of The Kebon Rojo Post Office Surabaya

Anak Agung Gde Satyananda Prakasyawardana*, Bambang Soemardiono, Sarah Cahyadini

Department of Architecture, Faculty of Civil Planning and Geo-Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

Corresponding e-mail*: bbsoem@arch.its.ac.id

Abstract. Over time, significant changes in social, economic, and cultural aspects have profoundly influenced the function and meaning of heritage buildings. Additionally, these buildings often undergo functional changes while retaining their historical form, posing challenges in preserving their architectural authenticity and historical value. These factors threaten the existence of heritage buildings. The concepts of digital placemaking and the Soft City theory offer a potential approach to supporting the preservation of heritage buildings by emphasizing community engagement and the revitalization of historical values without compromising their physical authenticity. This study employs literature reviews and precedent analysis to explore how digital technology and adaptive design can meet user needs while preserving the cultural and historical significance of buildings. As a case study, the Kebon Rojo Post Office in Surabaya is analyzed through interviews and data synthesis to illustrate the application of Soft City principles, such as optimizing the balance between open and enclosed spaces and utilizing digital technology to create interactive experiences. The combination of digital placemaking and Soft City principles can generate hybrid spaces that enrich emotional and sensory connections, encourage flexibility, and enhance community inclusivity. This approach integrates physical and digital elements to revitalize heritage buildings, ensuring their continued relevance in a modern urban context. Additionally, this study highlights digital interventions such as augmented reality, adaptive lighting, and interactive digital platforms as effective tools for reinforcing the cultural and historical values of heritage sites. These technologies enable more dynamic and interactive user engagement, revitalizing heritage buildings without compromising their architectural authenticity in the digital era.

Keywords: digital placemaking, soft city, kebon rojo post office

1. Introduction

The advancement of digital technology has had a significant impact on various aspects of human life, including how we interact with physical environments. This transformation has created new opportunities to redesign existing spaces, making them more dynamic, interactive, and meaningful. However, many heritage buildings, which hold high historical and cultural value, face major challenges in preservation efforts. These buildings are often neglected, receive little attention, and deteriorate over time due to a lack of maintenance. Yet, if properly managed, they can make a significant contribution to a city's identity, tourism, and cultural experiences.

Surabaya is one of the cities with many heritage buildings, one of which is The Kebon Rojo Post Office. This building is not only a colonial architectural heritage with high historical value but also holds important stories from the various functions it has served. It has a long historical background. Initially, it was built as a government building to serve as the regent's office in Surabaya. Over time, it was repurposed into a school called Hoogere Burgerschool (HBS) and later transformed again during the Japanese occupation into a Japanese military camp.

However, during the November 10 uprising in Surabaya, the building was reclaimed and eventually repurposed as a post office, a function it continues to serve today.

Currently, The Kebon Rojo Post Office in Surabaya has evolved into a public facility incorporating the concept of placemaking, thanks to the innovative ideas of architect Jacob Gatot Sura. Under its new name, Posbloc Surabaya, this heritage building has been transformed into a multifunctional space utilized by the local community for various activities such as music concerts, art exhibitions, and creative bazaars. One example is ArtSub, an event showcasing local artworks that serves as a platform for artists to create and engage with the public. Today, Posbloc Surabaya functions not only as a historical landmark but also as a vibrant center for social, cultural, and creative activities, reflecting the successful integration of cultural heritage preservation with modern societal needs.

a) Definition of Placemaking

Placemaking is one solution for developing or revitalizing public spaces to make them more meaningful and engaging. The term "placemaking" itself comes from the word "place," which is formed through activity, form, and meaning. Through the placemaking concept, underutilized or neglected areas can be transformed into more attractive, functional, and engaging spaces.

Community involvement is crucial in implementing placemaking, as every community has unique characteristics and needs. Collaborating with the local community helps maximize the existing potential by incorporating their aspirations and ideas. Additionally, involving the community fosters a sense of ownership and emotional connection, encouraging them to help maintain and care for the area.

b) Definition of Digital Placemaking

The advancement of digital technology has had a significant impact on various aspects of human life, including how we interact with physical environments. With the aid of digital technology, the concept of placemaking has evolved into hybrid space, where human experiences in a given environment are shaped through technology, introducing a multidimensional dimension. According to Gonsalves (2023), digital placemaking integrates physical and digital elements to create more interactive and meaningful experiences for communities or users. By combining technology with community engagement, we can design environments that are more responsive to residents' needs. This approach goes beyond visual aesthetics, emphasizing functionality and experience, making public spaces more vibrant and meaningful. As technology continues to advance, it is essential to explore the potential of digital placemaking in enhancing the quality of public spaces and urban life.

One significant concept within digital placemaking is the soft city, which applies digital placemaking principles on a broader scale by leveraging digital technology to connect various areas, including urban and rural spaces. As explained by William J. Mitchell, the soft city focuses on creating a digitally connected environment (infobahn), transforming spatial and temporal relationships. This concept consists of three main elements: 1) Bitsphere, which encompasses digitally mediated spaces and interconnected artifacts; 2) Telepresence, which enables digital interactions to replace physical presence; 3) Infobahn, which fosters seamless digital connectivity, altering perceptions of space and time. With a top-down approach emphasizing adaptability and urban connectivity, the soft city theory represents a more advanced and innovative evolution of digital placemaking.

The primary objective of this study is to design a scheme that enables heritage buildings, such as The Kebon Rojo Post Office, to adapt to user needs without altering their structural mass. Through the integration of digital technology, this design aims to create a rich and immersive

spatial experience, revitalizing the building's social, cultural, and historical functions while supporting the sustainability of an inclusive and interactive urban environment.

2. Methods

The research method used in this study is a qualitative approach, incorporating literature reviews and precedent studies. A qualitative approach was chosen because this research focuses on gaining an in-depth understanding of concepts and the implementation of theories in spatial design, particularly in relation to digital placemaking and the soft city. In qualitative research, data is collected through an extensive literature review and an in-depth analysis of relevant case studies to better understand the phenomenon under study.

The literature review is a key component of this research, where the researcher examines relevant theories, fundamental concepts, and expert perspectives that form the foundation of placemaking, digital placemaking, and soft city. This process aims to identify the core principles underlying these concepts and how they can be applied in the design of public spaces and heritage buildings. The reviewed literature includes various sources, such as books, academic articles, and previous studies that discuss the evolution of these theories and their applications in the context of modern urbanization.

Additionally, precedent studies play a crucial role in this qualitative approach, as the researcher analyzes examples of spaces that have successfully implemented placemaking and soft city concepts. These studies involve case analyses of locations that have effectively integrated digital technology and principles of flexibility and responsiveness in urban design. By comparing and analyzing the successes and challenges faced in implementing these concepts across different locations, the researcher can draw conclusions regarding the potential application of these theories to heritage buildings, such as The Kebon Rojo Post Office in Surabaya.

Through literature reviews and precedent studies, this research aims to provide broader and deeper insights into how technology and design principles can revitalize heritage buildings while meeting the needs of modern society.

3. Discussion
a) Positioning Soft City Theory Towards Digital Placemaking

There are two key references that can be used to develop the digital placemaking theory: the soft city theory by William J. Mitchell and David Sim. According to William J. Mitchell, the soft city refers to the idea of creating a digitally connected environment through an information network (infobahn), which has the capability to transform space and time. Meanwhile, David Sim's perspective on the soft city concept emphasizes the importance of building urban environments that are comfortable for their inhabitants. The soft city concept aims to enhance quality of life through design that prioritizes social interaction, mobility ease, and functional diversity.

David Sim's soft city theory includes several key principles: 1) Large Scale to Small Scale – Prioritizing the transition from large-scale to small-scale spaces to create a more intimate and accessible urban experience; 2) From Open Space to Enclosure – Providing open spaces balanced with enclosing elements that offer a sense of safety and comfort; 3) From Stacking to Layering – Encouraging layered and integrated urban design instead of rigid vertical stacking; 4) From Stand-Alone to Joined-Up – Connecting various city elements to create better integration and facilitate interaction and mobility among residents; 5) From Monofunctional to Multifunctional – Designing spaces with multiple functions, allowing for various activities to take place in a single location.
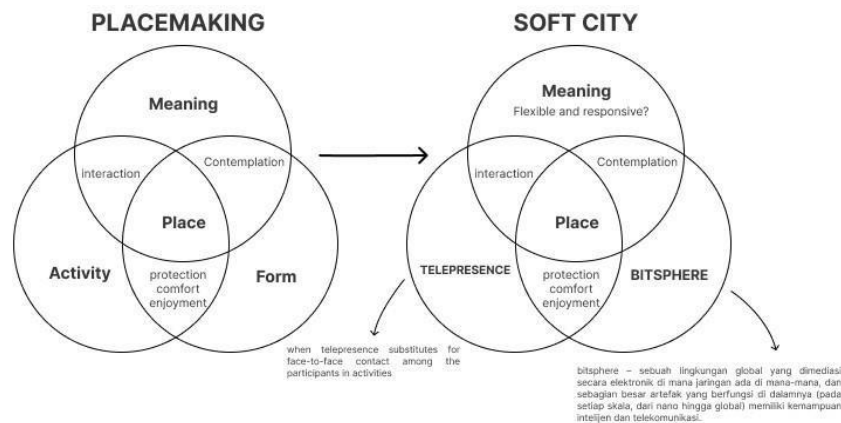
Figure 3.1 The Relationship between Digital Placemaking and Soft City
(Sim, 2019; Mitchell, 1996)

This concept expands accessibility and community participation, allowing residents to contribute to the development of public spaces through digital platforms that facilitate dialogue between citizens and the government. The integration of physical and digital spaces creates a multidimensional experience, where the boundaries between the two become increasingly blurred, enabling users to engage with the city both physically and virtually. Mitchell also emphasizes the importance of empowering local communities through digital technology, both in the creation and management of physical and virtual spaces.

Table 3.1 The principle of soft city in relation to digital placemaking (Sim, 2019; Mitchell, 1996)

Digital Placemaking		Soft City			
		Meaningful Environment	Adaptive Design	Radical Strategy	Connections Organized
Place-making	**Activity**	**Interacting with everyone** by keeping up with developments with the help of digital technology.	**Exploring** how the built environment can **adapt and respond** to changes and developments.	**Creating spaces** that collaborate with **local communities** to understand their needs and aspirations.	**Interacting with everyone** by keeping up with developments with the help of **digital technology**.
	Form	**A place/environment** designed to **enhance quality of life** in line with technological advancements.	**A space that can respond** to technological developments with the help of **digital technology**.	**An innovative and transformative space** for designing public spaces and digital technology that can **reshape how we interact** with the environment.	**Integrating digital technology and media** to create **innovative and transformative public spaces**.
	Meaning	**An environment** that fulfills **functional needs** and creates meaning between the **real and virtual worlds**.	**Flexible and responsive**.	**A place** created by a **community** to express **identity** with the help of **technology**.	**A connected and interactive space** where users can engage and interact with **technology and**

					the physical environment to create a **rich and immersive experience**.

b) Soft City Integration in Heritage Buildings

Digital placemaking is an approach that utilizes digital technology to transform spaces into meaningful, interactive, and relevant places for their users. In the context of heritage buildings, this approach plays a crucial role in bridging cultural heritage from the past with the needs and experiences of contemporary society. By leveraging technology, heritage buildings can not only be preserved but also revitalized as dynamic and functional spaces for the community.

One of its primary functions is to preserve cultural values, where technology provides opportunities for visitors to gain a deeper understanding of the history and significance of heritage buildings, even allowing for the reconstruction of lost elements. Additionally, digital placemaking offers interactive experiences through features such as digital maps, virtual guides, and location-based games, making heritage sites more engaging and accessible to people of all ages.

One example of a heritage site in Surabaya that applies soft city theory is The Kebon Rojo Post Office area. The building and its surroundings are no longer just a post office, but have been repurposed as a public space that accommodates various community activities, including art, cultural events, bazaars, and exhibitions that involve local residents. This aligns with the core principles of the soft city theory.

The Kebon Rojo Post Office area has adopted the "From Open Space to Enclosure" principle by utilizing its surrounding open spaces, such as gardens, for community activities and events. Elements like low fences, trees, and natural canopies create a sense of security and reduce noise pollution while maintaining visual accessibility to the heritage site. The post office building itself serves as an enclosure that frames the activities around it, reinforcing its identity as a centralized public space.
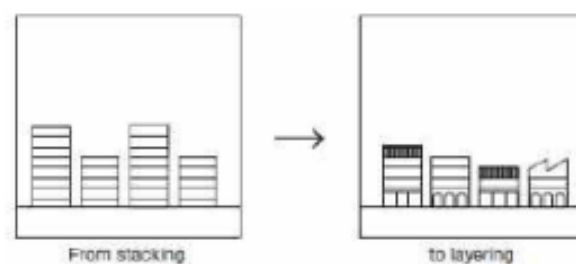

Figure 3.2 The Principle of "From Stacking to Layering" (Sim, 2019)

The "From Stacking to Layering" principle is reflected in the current function of the post office, which is no longer solely a postal service facility but also incorporates multiple layers of functions, such as art exhibitions, bazaars, and cultural events. This layering enables the flexible use of both outdoor and interior spaces for various activities, seamlessly integrating formal functions with the informal activities of the community.

Figure 3.3 Application of the principle of "From Stacking to Layering" (Sim, 2019)

The "From Stand-Alone to Joined Up" principle is also applied through the physical and visual connectivity of this area with other urban spaces. This is supported by community programs that actively involve residents, fostering the integration of urban elements to enhance mobility and interaction within the city.
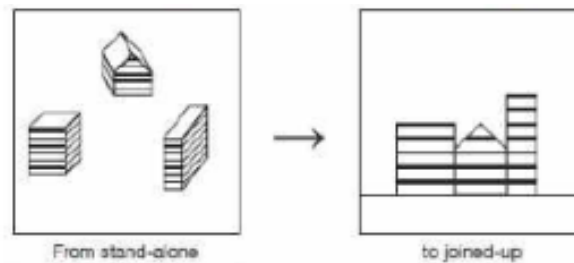

Figure 3.4 The Principle of "From Stand-Alone to Joined Up" (Sim, 2019)

Previously, this building was only intended as a post office. As time progresses, this building is also used as a forum for the local community to carry out various activities ranging from music concerts, exhibitions and others.
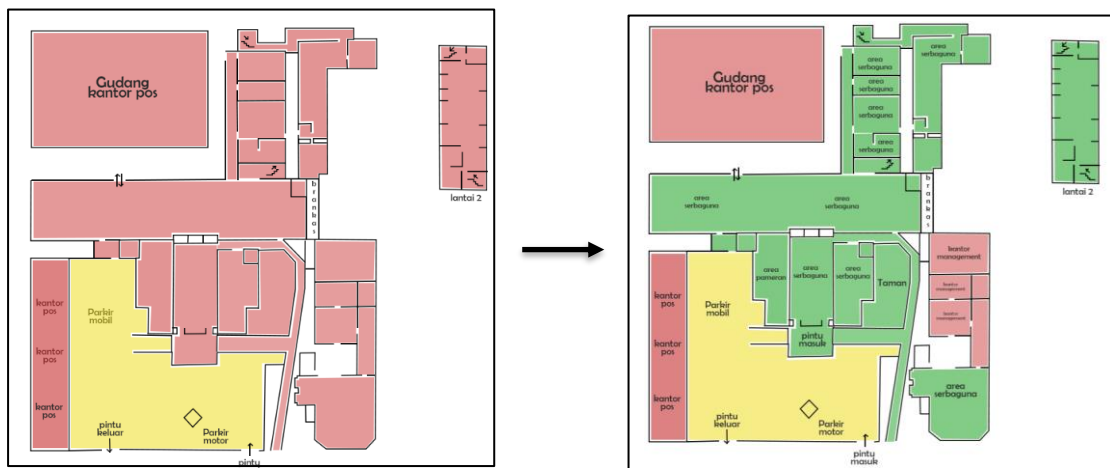

Figure 3.5 Application of the principle of "From Stand-Alone to Joined Up" (Sim, 2019)

The "From Monofunctional to Multifunctional" principle is clearly reflected in the transformation of this area from a traditional post office into a multifunctional space for various activities, such as local bazaars, art exhibitions, and cultural festivals. This combination of functions enhances the area's appeal as an inclusive community activity hub.
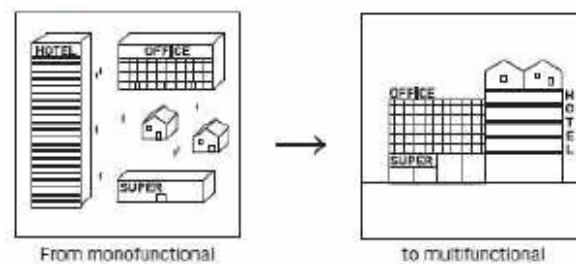
Figure 3.6 The Principle of "From Monofunctional to Multifunctional" (Sim, 2019)

c) Problems of Space Shape in Heritage Buildings

Technology can enhance sensory experiences through elements such as sound installations, adaptive lighting, and other multisensory features, deepening visitors' emotional connections with historical buildings. Additionally, digital placemaking expands inclusivity by providing digital access for those unable to visit heritage sites in person.

In some cases, digital placemaking enables functional changes in heritage buildings without compromising their historical value. For instance, unused spaces can be activated for cultural events, digital exhibitions, or interactive art installations that resonate with the site's heritage. However, one of the main challenges in heritage conservation is the limited ability to alter physical structures. Therefore, innovative approaches are required to optimize activities and enrich the building's significance while preserving its architectural integrity.

In this context, a combination of digital placemaking and the Soft City theory presents an effective solution. Digital placemaking revitalizes heritage buildings by integrating technology to create interactive experiences, allowing for new activities without altering the physical structure. Meanwhile, Soft City principles introduce flexibility and responsiveness into the strategy. Inactive spaces within heritage buildings can be repurposed for contemporary activities, such as interactive art installations or community events, all while preserving their authenticity. Soft City also prioritizes social connectivity, creating inclusive and multifunctional spaces. As a result, heritage buildings remain relevant to modern community needs.

4. Conclusion

The role of digital technology in digital placemaking presents a significant opportunity to revitalize heritage buildings, ensuring their relevance to modern society while preserving their historical value. Through this approach, The Kebon Rojo Post Office in Surabaya can be reimagined as a dynamic, multifunctional, and interactive public space. By adopting Soft City principles, such as creating safe and comfortable environments and layered functionality, digital placemaking enhances visitor experiences through technology while also fostering community engagement and bridging the past with the present.

In the case of The Kebon Rojo Post Office's transformation into Posbloc Surabaya, this evolution demonstrates that heritage buildings can serve as hubs for social, cultural, and creative activities, contributing to the city's identity. This approach provides a real-world example of how heritage conservation can synergize with technological innovation to create inclusive, interactive, and sustainable spaces—while simultaneously strengthening cultural values within the context of modernization.

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