

Reuse of Public Heritage Buildings: Analysis of the Successful Practices and Identification of the Obstacle

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Abstract

The rapid pace of urbanization has brought to the forefront the critical need for adaptive reuse of public heritage buildings, highlighting the often-overlooked potential to contribute to social sustainability. These historic structures are not just remnants of the past, but also represent essential components of urban culture and the social fabric that binds communities together. While existing efforts in protection and renovation have been instrumental in safeguarding public heritage buildings, they frequently fall short of fully leveraging their capacity to enrich urban life by fostering cultural vibrancy, strengthening community identity, and promoting social cohesion. This research addresses the pressing need for a more systematic approach to adaptive reuse, focusing specifically on the efforts that can promote social sustainability within historical urban areas. Despite the recognized importance of adaptive reuse, a significant gap remains in understanding the effective integration of heritage buildings into the dynamics of contemporary urban life. Due to this, this research employs a mixed-methods approach, combining an extensive review of existing literature with detailed case studies. Also, this research evaluates current conditions, assesses policies, identifies key challenges, and highlights best practices for adaptive reuse. Based on the discussions, this research aims to propose actionable strategies that go beyond mere preservation, ensuring these heritage buildings actively contribute to the development of sustainable and socially cohesive urban environments. Furthermore, this research also seeks to transform public heritage buildings into living assets that continue to shape and enhance the cultural and social identities of the communities.

Keywords

Heritage Buildings, Protection, Renovation, Social Sustainability,

1. Introduction

Social sustainability is one of the three foundational pillars of sustainable development, working in tandem with economic and environmental sustainability. It centers on improving and maintaining the social structures, relationships, and systems that support the well-being and fulfillment of both individuals and communities. As (Rahdari et al., 2016) explain, social sustainability ensures that every individual has access to opportunities for leading meaningful lives by addressing essential needs such as food, water, housing, education, and healthcare. Furthermore, cultural heritage, diversity, and traditions are also vital components of social sustainability, as they enrich societies and encourage intercultural dialogue (Soini & Birkeland, 2014; El Faouri & Sibley, 2024). By respecting and preserving cultural identities, communities can create vibrant environments where diverse voices are not only heard but celebrated, contributing to a more cohesive and inclusive social environment.

Public heritage buildings are invaluable assets, providing tangible links to the past while embodying the historical, cultural, and architectural identity. The heritage buildings act as symbols of continuity, bridging generations through their stories, craftsmanship, and cultural significance. Protecting and repurposing the public heritage buildings ensures they remain relevant and accessible, addressing modern needs without compromising the heritage value. As highlighted by (Hani et al., 2012), heritage buildings often serve as educational landmarks, offering insights into history, traditions, and societal evolution. Architecturally, heritage buildings are also masterpieces that showcase unique styles, materials, and techniques, reflecting the innovation and craftsmanship of the past period. Economically, as (Amro & Ammar, 2024) suggest, restoring heritage buildings can boost tourism, generate revenue, and drive local economic growth. Revitalized public heritage buildings breathe new life into neglected areas, transforming the areas into vibrant urban hubs. In general, preservation also aligns with sustainable development goals by reducing demolition waste and conserving resources, offering significant environmental benefits. By maintaining these buildings, communities protect their shared heritage while fostering educational, economic, and environmental progress.

Although the reuse of public heritage buildings is widely recognized as vital, many urban cities face significant challenges in successfully transforming these sites. Key obstacles include policy inefficiencies, financial constraints, misaligned priorities, and inadequate community involvement. Over-commercialization often undermines the authenticity and cultural value of heritage sites, as seen in Pingyao Ancient City (Tang et al., 2019; Zhang et al., 2021; Libin & Jiayi, 2024; Liang et al., 2022), where tourism has overshadowed local needs and eroded

traditional elements. Financial constraints, including high restoration costs, discourage investment in less prominent sites, leaving smaller cities and lesser-known landmarks underfunded. Insufficient policy support, marked by fragmented and poorly enforced regulations, creates bureaucratic hurdles that deter adaptive reuse efforts. Additionally, rising property values from reuse projects can lead to gentrification, displacing local residents and businesses while disrupting community identity. A lack of public awareness and advocacy further exacerbates neglect, as a limited understanding of heritage value and competing urban development priorities hinder effective reuse initiatives.

This research focuses on three representative examples of reused public heritage building projects in mainland China: the Beijing 798 Art District, Shanghai Tianzifang, and Guangzhou Red Brick Factory, as outlined in **Table 1**. These projects serve as typical exemplifications to explore the broader implications of adaptive reuse on the social, economic, and cultural sustainability of historic districts. The research seeks to evaluate the effectiveness of existing policies and practices for adaptive reuse in promoting the sustainable development of public heritage buildings in mainland China. It delves into the opportunities and challenges associated with repurposing these structures, identifying obstacles that hinder their successful integration into modern urban environments.

Table 1. Cases of public heritage projects.

Project name	Representative description
Beijing 798 Art District	A Model of Adaptive Reuse
Shanghai Tianzifang	A Blend of Heritage and Modernity
Guangzhou Red Brick Factory	A Creative Hub in a Historic Space

Through detailed analysis, the research aims to offer practical strategies and suggestions to enhance the social sustainability of public heritage buildings. These recommendations are intended as actionable guidelines for decision-makers and urban planners, ensuring that public heritage buildings continue to serve as vibrant, functional components of contemporary cities. Additionally, this research aspires to contribute valuable insights for future studies, reinforcing efforts to achieve urban sustainability. By bridging historical preservation with modern urban demands, the findings are expected to advance both the theoretical understanding and practical application of adaptive reuse in public heritage conservation and urban development.

2. Discussions of the Reuse Projects

Beijing 798 Art District, Shanghai Tianzifang, and Guangzhou Red Brick Factory exemplify the successful adaptive reuse of public heritage buildings in China, balancing historical preservation, modern functionality, and economic revitalization. Each site reflects unique approaches to conserving history, while 798 Art District retains its Bauhaus-style architecture from its military-industrial past, transforming

it into a creative hub while preserving its structural authenticity. Tianzifang was a former residential area with iconic Shikumen architecture, that merges historical charm with modern commerce, celebrating the cultural identity of Shanghai. The Red Brick Factory was a ceramics plant, that has preserved its industrial aesthetic while evolving into a vibrant cultural and artistic center. These transformations showcase the seamless integration of historical and cultural elements into contemporary spaces.

From a modern-use perspective, these sites illustrate innovative repurposing. The 798 Art District thrives as a contemporary art hub with galleries, studios, cafés, and boutiques, attracting artists and visitors worldwide. Tianzifang is reimagined as a lively mix of small shops, art studios, and eateries, harmonizing residential and commercial uses. Similarly, the Red Brick Factory offers versatile spaces for exhibitions, community events, and cultural gatherings, blending traditional architecture with modern functions. Economically, these projects have spurred local commerce, supported entrepreneurs, and enhanced global recognition, fostering cultural exchange and sustainability. They underscore how adaptive reuse can minimize environmental impact, aligning heritage conservation with urban planning and sustainability goals while exemplifying the transition of China toward culturally rich urban development.

2.1. Beijing 798 Art District

The Beijing 798 Art District, situated in the Dashanzi area of Chaoyang District, has gained global recognition as a vibrant cultural and creative hub. It stands as a prime example of how industrial heritage can be successfully repurposed to serve modern cultural and artistic needs. As **Figure 1(a)** shows, originally constructed in the 1950s as a military-industrial factory complex, the site has undergone a remarkable transformation, becoming a celebrated enclave for contemporary art.



(a) 798 Art District in 1950s



(b) 798 Art District after reuse

Figure 1. Reuse comparison of Beijing 798 Art District.

This district is more than a collection of galleries and studios, it symbolizes the harmonious blending of historical preservation and modern creativity. As (Dai et al., 2015) indicate, the retention of its Bauhaus-inspired architecture, juxtaposed with innovative art installations, highlights the potential of adaptive reuse in preserving heritage while fostering new forms of expression. The 798 Art District not only attracts artists and tourists but also plays a significant role in Beijing's cultural identity, contributing to its reputation as an international art destination.

Referring to the research of (Yin et al., 2015), the Beijing 798 Art District traces its origins to the 1950s, when it was constructed as part of the "Joint Factory 718," a significant collaboration between China and East Germany during the era of socialist industrialization. The factory was established to produce electronics for both military and civilian applications, reflecting the technological and industrial priorities of the time. Architecturally, the complex embodies the principles of Bauhaus design, characterized by functionality and simplicity, as **Figure 1(b)** shows. Its spacious interiors, high ceilings, and abundant natural light were meticulously planned to optimize industrial productivity. These features, initially intended for manufacturing purposes, have since become ideal for hosting art exhibitions and creative activities, lending the district its distinctive aesthetic appeal. This historical backdrop not only highlights the district's industrial heritage but also illustrates its transformation into a cultural landmark (Zhang et al., 2019). The adaptive reuse of the site preserves its architectural and historical integrity while reimagining its purpose to align with contemporary cultural and artistic needs, making the 798 Art District a compelling symbol of Beijing's evolution.

By the 1980s, the factory at the heart of what is now the Beijing 798 Art District experienced a significant decline due to economic reforms and technological advancements as (Chen & Xu, 2017) indicate, rendering its operations obsolete. Many buildings were abandoned, leaving the site underutilized and vulnerable to demolition during Beijing's wave of urban redevelopment. However, in the late

1990s, the site began to take on a new life. Artists and cultural entrepreneurs, drawn by the affordability and distinctive architectural features of the factory spaces, started renting these abandoned buildings for studios and galleries (Yang & Qian, 2024). The spacious interiors and high ceilings, originally designed for industrial production, proved ideal for large-scale art installations and creative workspaces. What started as an organic movement of artists reclaiming unused spaces gradually transformed into a thriving creative cluster. Contemporary artists, designers, and galleries flocked to the area, establishing it as a hub for cultural innovation. Recognizing its growing significance, the government and private investors stepped in to support its development. They initiated efforts to preserve the original industrial architecture, carefully adapting the site for artistic and commercial purposes. This transformation not only saved the factory complex from demolition but also redefined it as a symbol of cultural revitalization. Today, the Beijing 798 Art District stands as a testament to the power of adaptive reuse, merging historical preservation with contemporary creativity to create a vibrant cultural destination.

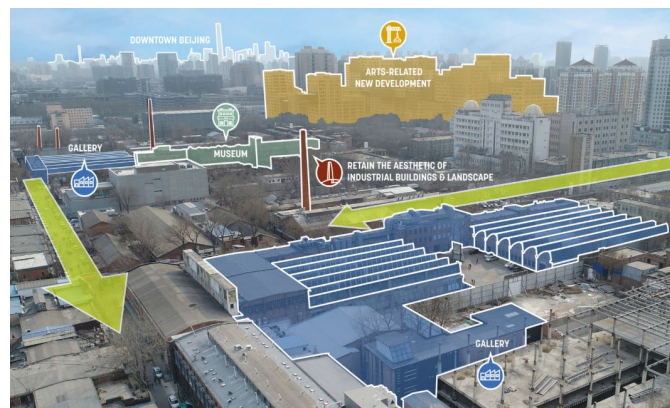


Figure 2. Eclectic mix design of Beijing 798 Art District.

The buildings of the Beijing 798 Art District maintain their original Bauhaus-inspired design, characterized by large windows, open layouts, and an industrial aesthetic that celebrates functionality and simplicity. This architectural foundation, combined with modern artistic interventions, creates a visually captivating environment where raw industrial features coexist with contemporary creativity. Referring to **Figure 2**, the district is designed with an eclectic mix of art galleries, museums, design studios, cultural spaces, and creative offices. Its vibrant atmosphere is further enhanced by public art installations, sculptures, and graffiti art that evolve continuously, contributing to its dynamic and ever-changing landscape. According to the research of (Liu et al., 2013), the 798 Art District regularly hosts various cultural events, including art exhibitions, film screenings, fashion shows, and festivals. One of its flagship events, the annual Beijing 798 Art Festival, draws international attention, solidifying the district's reputation as a global cultural hotspot. Nowadays, the 798 Art District stands as a symbol of Beijing's

contemporary art scene and creative industries. It serves as a platform for both emerging and established artists, providing opportunities for cultural exchange and innovation. Through its blend of historical preservation and artistic reinvention, the district not only celebrates creativity but also reinforces its role as a beacon of cultural vibrancy in modern Beijing.

The 798 Art District has become one of the most prominent tourist destinations in Beijing City, attracting millions of visitors each year (Morgner, 2014). Its popularity has significantly boosted economic development in the surrounding area, benefiting local businesses, hospitality services, and other industries. The district provides a lively public space where locals and tourists alike can connect with art and culture, fostering a sense of community and shared experience. This success exemplifies the power of adaptive reuse, showing how heritage preservation can seamlessly align with the demands of modern urban life. The transformation of the abandoned industrial site into a dynamic cultural hub highlights the potential to retain architectural heritage while cultivating a flourishing creative ecosystem.

The 798 Art District has emerged as a model for sustainable urban development. By balancing artistic integrity, community engagement, and economic growth, it demonstrates how historic spaces can be revitalized to serve contemporary needs without losing their historical essence. On a global scale, the district stands as a pivotal example of how adaptive reuse can turn forgotten industrial sites into thriving cultural landmarks, inspiring similar projects worldwide.

2.2. Shanghai Tianzifang

Shanghai Tianzifang is a cherished cultural and commercial landmark that embodies the seamless integration of historical charm with contemporary urban life that situated in the heart of the Former French Concession in the Huangpu District. The area is renowned for its intricate maze of narrow alleyways and iconic Shikumen-style buildings, which are a unique blend of Western and Chinese architectural elements from the early 20th century, and Tianzifang has become a major attraction for locals and tourists alike nowadays.

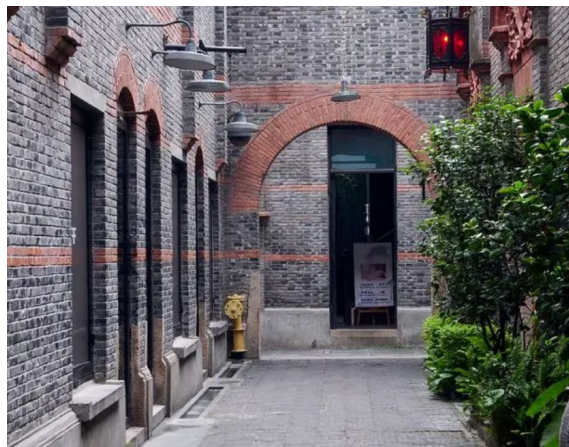


Figure 3. Stone gatehouses in Shanghai Tianzifang. (Shikumen)

Tianzifang originated in the 1930s, and it was initially developed as a residential area for middle-class families. As (Yu & Zou, 2023) indicate, its architectural identity is defined by Shikumen, a distinctive style unique to Shanghai that merges the spatial characteristics of traditional Chinese courtyard homes with the structural design of Western townhouses. Narrow lanes and iconic stone gatehouses characterize the neighborhood, as shown in **Figure 3**, representing a vital part of Shanghai's historical urban landscape. However, by the late 20th century, the pressures of rapid urbanization and modern development resulted in the decline of Tianzifang (Han & Zhong, 2015). Many of its Shikumen buildings fell into disrepair, losing their vibrancy and original purpose. By the early 2000s, large-scale redevelopment projects threatened the area with demolition, putting its architectural and cultural heritage at risk. This precarious situation set the stage for a turning point in Tianzifang's story, as efforts to preserve and revitalize its historic character began to emerge, transforming the area into the cultural and creative hub it is today.

According to the research of (Fang et al., 2021), the transformation of Tianzifang into a cultural hub began in 1998 when renowned artist Chen Yifei established his studio in the area. His decision to work in Tianzifang drew attention to its historical and cultural value, inspiring a wave of artists, designers, and entrepreneurs to follow suit. These creatives recognized the potential of the district's unique Shikumen architecture and labyrinthine alleyways as a canvas for cultural innovation. The revitalization of Tianzifang was not solely driven by artists. Local residents, cultural advocates, and preservationists joined forces to campaign for the conservation of the district. Their grassroots efforts highlighted the importance of maintaining Tianzifang's distinctive character and historical significance. Recognizing the value of heritage preservation, the government also stepped in, prioritizing adaptive reuse over demolition (Yu et al., 2014). This collaboration between the community and the authorities ensured that Tianzifang retained its architectural charm while evolving into a thriving cultural and creative enclave.



Figure 4. Reuse design planning of Tianzifang.

Tianzifang retains its authentic Shikumen architecture, with the original narrow alleyways and stone gatehouses preserved to maintain the district's historical allure. Modern upgrades, including improved lighting and structural reinforcements, have been implemented to ensure the safety and functionality of the space without compromising its traditional charm (Jie et al., 2012). The district is a dynamic mix of old and new nowadays, hosting a variety of art galleries, design studios, boutique shops, cafes, and bars, alongside residential spaces, as **Figure 4** illustrates (Ding, 2023). This eclectic combination caters to a wide range of visitors, offering a unique experience that blends the nostalgia of Shanghai's past with the vibrancy of contemporary urban culture. Tianzifang has also become a hub for creative expression. Its thriving art scene is characterized by exhibitions, workshops, and pop-up events that celebrate both local and international talent. By preserving its architectural heritage and fostering innovation, Tianzifang has successfully evolved into a cultural landmark that bridges history and modernity, appealing to locals and tourists alike.

Tianzifang plays a vital role in preserving Shanghai's architectural and cultural heritage, acting as a living museum where visitors can immerse themselves in the city's historical Shikumen buildings. This preservation effort allows both locals and tourists to experience a tangible connection to Shanghai's past, making the district a cornerstone of cultural appreciation. Economically, Tianzifang has emerged as a thriving hub, attracting domestic and international tourists in large numbers (Yung et al., 2014). Its popularity generates substantial revenue for local businesses, ranging from art studios and boutique shops to cafes and bars. The district has also spurred the growth of creative industries, providing job opportunities for local residents and contributing to Shanghai's overall economic vitality. The revitalization of Tianzifang has also had a profound social impact. Local residents, many of whom have chosen to remain in the area, take pride in their neighborhood's transformation. The adaptive reuse of the district has enabled traditional lifestyles to coexist harmoniously with modern commercial activity, fostering a unique sense of community and continuity. By balancing preservation with innovation, Tianzifang stands as a model of how urban renewal can enrich both cultural heritage and economic prosperity.

2.3. Guangzhou Red Brick Factory

The Guangzhou Red Brick Factory, affectionately known as "Hongzhuan Chang," stands as a notable example of industrial heritage repurposed to serve contemporary needs. Originally established in the 20th century as a brick-making facility, the factory played a crucial role in the industrial development of Guangzhou. It has been revitalized into a vibrant cultural and creative hub nowadays, seamlessly blending the industrial legacy with the modern artistic innovation of the city. The Guangzhou Red Brick Factory is located in the Haizhu District, the site retains its historical charm, showcasing the industrial architecture of its past while embracing a new identity as a space for cultural exploration and community engagement.

The transformation of the Red Brick Factory exemplifies the potential of adaptive reuse, demonstrating how once-functional industrial spaces can evolve into dynamic venues that foster artistic expression and creative industries while satisfying the cultural, social, and economic needs of the present, the Red Brick Factory has become a symbol of sustainable urban renewal.



Figure 5. Guangzhou Red Brick Factory.

The Guangzhou Red Brick Factory was established in the mid-20th century during a period of rapid industrialization in China. It played a significant role in supporting the urban expansion of Guangzhou by producing essential construction materials. As **Figure 5** shows, its striking red-brick buildings, designed with a utilitarian aesthetic, became architectural icons of the city's industrial era, reflecting the functionality and practicality of the time. However, as industrial restructuring and modernization swept through China in the late 20th century, the operations of the factory came to a halt. Without its original purpose, the site was left to deteriorate, falling into neglect and becoming a forgotten fragment of Guangzhou's rich industrial history. Despite its decline, the distinctive red-brick structures remained a symbol of the transformative industrial era of the city, setting the stage for its eventual rediscovery and revitalization as a cultural landmark (Zhou et al., 2014).



Figure 6. Plan of Guangzhou Red Brick Factory.

In the early 2000s, the Guangzhou Red Brick Factory underwent a significant transformation, spearheaded by local government initiatives and cultural advocates who saw its potential for adaptive reuse (Zhou et al., 2014; Liu, 2017; Zielke & Waibel, 2015). The goal was to preserve the distinctive industrial architecture of the Red Brick Factory while reimagining its purpose to align with contemporary cultural and creative needs. As (Tan & Altröck, 2024) indicate, the government and stakeholders invited artists, designers, and cultural organizations to repurpose the historic factory spaces into studios, galleries, and workshops. This collaboration infused the site with energy and innovation, breathing new life into its aging structures. Referring to **Figure 6**, the adaptive reuse initiative successfully blended preservation with modernization, allowing the Red Brick Factory to emerge as a dynamic hub for contemporary art and design.

The Guangzhou Red Brick Factory skillfully balances its industrial heritage with modern functionality. The original red-brick walls, tall chimneys, and expansive factory spaces have been carefully preserved, maintaining the historic character, and modern design elements, such as sleek glass facades and minimalist interiors, have been thoughtfully integrated, creating a striking juxtaposition of old and new that highlights its architectural evolution (Zhong et al., 2024). The factory serves as a versatile cultural hub, housing art galleries, design studios, cultural event spaces, cafes, and co-working areas, as **Figure 6** illustrates. The Guangzhou Red Brick Factory has become a vibrant venue for exhibitions, music performances, and workshops, attracting both local residents and visitors. This diversity of functions has solidified the site's role as a dynamic space for artistic and creative expression. Including landscaped gardens and outdoor event areas adds another layer to its appeal, and the green and open spaces create a welcoming, community-friendly environment where people can gather, relax, and engage with the site.

The reuse of the Guangzhou Red Brick Factory has had a profound social and economic impact. By preserving its distinctive industrial architecture, the project has safeguarded a vital part of the industrial heritage of Guangzhou, turning the site into a living monument that bridges the past and present. The factory now serves as a vibrant platform for showcasing contemporary art and cultural innovation, seamlessly blending historical significance with modern creativity. Economically, the revitalized site has become a magnet for local businesses, creative enterprises, and tourism (Zielke & Waibel, 2014). It has drawn art collectors, entrepreneurs, and cultural enthusiasts, significantly contributing to the local economy. The dynamic atmosphere of the factory has also spurred the growth of surrounding neighborhoods, enhancing its role as a cultural and economic hub within Guangzhou. Equally important is the role of the factory in fostering community engagement (Luo et al., 2016). The adaptive reuse project has created inclusive spaces for public interaction, such as art workshops, open-air events, and exhibitions. These initiatives actively involve local residents and creatives, enabling them to shape and enrich the cultural identity of the Red Brick Factory.

2.4. Summarization

A comparative analysis of three notable cases in this research (Beijing 798 Art District, Shanghai Tianzifang, and Guangzhou Red Brick Factory) offers valuable insights into the reuse of public heritage buildings, as summarized in **Table 2**. The summarization highlights the challenges, successes, and recurring themes observed across these projects, providing a robust framework for understanding the dynamics of heritage building reuse in China. By examining these cases in detail, this research aims to shed light on how such projects can be effectively implemented, considering the unique cultural, social, and economic contexts of the region.

Table 2. Comparative analysis.

Aspect	798 Art District	Tianzifang	Red Brick Factory	Comparative Insights
Original Function	Military-industrial complex	Residential Shikumen housing	Industrial ceramics factory	All three repurposed industrial or residential heritage sites into cultural hubs.
Transformation Purpose	Contemporary art and cultural hub	Boutique shopping, art studios, and dining	Artistic and cultural center	Each site serves as a space for creativity, commerce, and social interaction.
Architectural Preservation	Retains Bauhaus-style industrial architecture	Preserves Shikumen stone-gate style	Maintains red-brick industrial aesthetic	Strong emphasis on architectural integrity to retain cultural heritage.
Community Engagement	Attracts artists, art enthusiasts, and tourists	Supports small businesses and local artisans	Engages artists and cultural practitioners	All three foster local and international community involvement.
Economic Impact	Global art destination driving tourism and commerce	Revitalized a residential area into a tourist hotspot	Boosts the local economy through cultural events	Significant contributors to urban economic growth and tourism.
Sustainability	Adaptive reuse of industrial buildings	Reuse of existing Shikumen homes	Adaptive use of a disused factory	All demonstrate sustainable urban development by repurposing existing structures.
Challenges	Gentrification, rising costs for artists	Over-commercialization, loss of authenticity	Balancing industrial aesthetics with modern use	Common challenges include balancing preservation, commercialization, and inclusivity.
Successes	International recognition as a creative hub	Vibrant mix of culture and commerce	Unique artistic identity in a growing city	All are highly successful in blending historical preservation with modern urban needs.

Referring to the discussion in **Table 2**, adaptive reuse projects like Beijing 798 Art District, Shanghai Tianzifang, and Guangzhou Red Brick Factory face shared challenges in balancing heritage preservation with modernization. Gentrification emerges as a key concern, as rising costs often displace the original creative

communities or residents, eroding the cultural diversity that initially defined these spaces. Similarly, over-commercialization risks transforming these heritage sites into tourist traps, overshadowing their historical and cultural significance. Another challenge is maintaining the architectural integrity of the original structures while integrating modern infrastructure and functionality, requiring a careful and often delicate approach.

Despite these challenges, these projects have achieved significant successes, transforming underutilized or declining areas into vibrant economic and cultural hubs. They have revitalized local economies by attracting businesses, tourists, and creative talent while establishing themselves as iconic symbols of urban renewal. Additionally, their emphasis on sustainability, particularly through the reuse of existing structures, reduces the environmental footprint of urban development, showcasing how heritage preservation can align with modern ecological priorities.

Furthermore, common themes across these initiatives include cultural innovation, where creative industries breathe new life into heritage spaces without losing their historical identity. These projects prioritize community-centric design, creating spaces that serve both local residents and global visitors. They also underscore the importance of urban sustainability, highlighting how adaptive reuse can contribute to the long-term health and vitality of cities. By addressing their challenges while leveraging their successes, these projects have become benchmarks for adaptive reuse practices in China and globally.

3. Analysis of Sustainability

3.1. Social, Economic, and Cultural Impacts

The adaptive reuse of public heritage buildings generates significant social, economic, and cultural impacts by balancing preservation with contemporary needs (Foster, 2020; De Medici et al., 2019; Foster & Kreinin, 2020; Ferretti et al., 2014). Regarding the aspect of social impacts, the adaptive reuse of heritage buildings generates profound social benefits, making them vital assets in urban and community development. One of the key social impacts is the preservation of community identity. These buildings serve as tangible links to the history of the community and cultural heritage, representing its shared experiences and values. By preserving and repurposing these landmarks, residents can connect with their roots, fostering a deep sense of pride and belonging. This connection strengthens the community's collective identity, ensuring that its historical essence is passed on to future generations. Moreover, public engagement is significantly enhanced through the reuse of heritage sites. Transformed into dynamic spaces, these buildings often host public events, art exhibitions, and workshops. These activities bring together individuals from diverse backgrounds, fostering social cohesion and creating opportunities for meaningful interaction, and the spaces become community hubs where culture and creativity thrive.

On the other hand, the adaptive reuse of heritage buildings also contributes to an improved quality of life for local residents. By providing recreational and

cultural facilities like galleries, parks, and community centers, these spaces become inclusive and accessible areas where people can relax, socialize, and engage in enriching activities. Their presence in urban areas makes neighborhoods more vibrant and livable, enhancing the overall well-being of the community. Furthermore, heritage buildings play an essential role in education and awareness. Often described as “living museums,” they provide immersive experiences that educate the public about history, architecture, and culture. Visitors and locals alike gain valuable insights into their shared cultural heritage, learning the importance of preserving these assets for future generations. This educational function not only informs but also inspires individuals to value and protect the historical treasures of the community. Due to this, the reuse of heritage buildings fosters a strong sense of identity, encourages social connections, enhances urban living, and serves as a powerful educational tool, making it a cornerstone of sustainable social development.

For the aspect of economic impacts, the adaptive reuse of heritage buildings has substantial economic benefits, contributing to the prosperity and sustainability of local economies. Tourism revenue is one of the most prominent economic advantages of repurposed heritage buildings, and these structures often become major tourist attractions due to their historical, architectural, and cultural significance. They draw both domestic and international visitors, generating significant revenue for local businesses in sectors like hospitality, retail, dining, and transportation. The influx of tourists also spurs the development of complementary services and infrastructure, amplifying the economic impact. Furthermore, another significant outcome is job creation. The restoration and maintenance of heritage buildings require skilled labor, which generates employment opportunities in construction, conservation, and related fields. Furthermore, the operation of these sites as cultural or commercial spaces fosters entrepreneurship and innovation. Galleries, workshops, and events hosted at these locations provide a platform for creative industries, enabling individuals and small businesses to thrive.

Heritage reuse also drives urban revitalization, breathing new life into neglected or declining neighborhoods. By transforming abandoned or underutilized spaces into vibrant hubs of activity, these projects attract investments and stimulate local economies. Surrounding property values often increase, encouraging further development and enhancing the overall appeal of the area. This ripple effect can lead to long-term economic stability and growth for communities. Moreover, the practice of adaptive reuse also promotes cost efficiency and sustainability. By preserving and reusing existing structures, communities reduce the need for new construction, which conserves resources and minimizes construction waste. This approach aligns with sustainable development principles, offering long-term economic benefits while reducing environmental impact. Additionally, the preservation of historic architecture often proves to be a more cost-effective strategy compared to demolition and rebuilding. Due to this, repurposing heritage buildings is an economically advantageous practice. It bolsters tourism, creates jobs,

revitalizes urban areas, and promotes sustainable and cost-efficient development, demonstrating the financial viability of heritage conservation in modern economies.

Regarding the aspect of cultural impacts, the adaptive reuse of heritage buildings has profound cultural impacts, safeguarding historical value while creating opportunities for innovation and intercultural dialogue. One of the most significant cultural benefits is the preservation of cultural heritage. Adaptive reuse ensures that the unique architectural and cultural elements of heritage buildings are protected and celebrated rather than lost during modernization efforts because these structures serve as living monuments, connecting contemporary society with its historical roots. By maintaining their historical value, communities ensure that future generations can appreciate and learn from their shared heritage. Furthermore, heritage reuse also drives cultural innovation. By introducing modern functions, such as art galleries, co-working spaces, and cultural hubs, these buildings become dynamic spaces where traditional and contemporary cultures coexist. This integration fosters creativity, encouraging artists, designers, and cultural practitioners to reimagine how heritage can be experienced and appreciated in the modern era.

Additionally, repurposed heritage buildings provide critical support for creative industries. Many of these spaces are transformed into design studios, cultural organizations, and performance venues, offering a platform for local talent and creative enterprises. The activities hosted within these buildings contribute to the cultural vibrancy of the region, enriching the local cultural scene and fostering a strong sense of community engagement. Moreover, another significant cultural impact is the promotion of cultural exchange. Heritage sites frequently host events, exhibitions, and festivals that attract diverse audiences from various cultural backgrounds, and these activities create opportunities for intercultural dialogue, broadening understanding and appreciation of global traditions. By enhancing the global visibility of local arts and traditions, these buildings become vital centers for showcasing the richness of cultural diversity. Due to this, the adaptive reuse of heritage buildings serves as a cultural bridge, preserving historical value while fostering innovation, supporting creative industries, and promoting cultural exchange. These transformations ensure that heritage remains relevant and accessible in an ever-changing world, enriching society on multiple levels.

The adaptive reuse of public heritage buildings demonstrates the integrated impact of social, economic, and cultural synergies, creating a ripple effect that transforms communities and fosters sustainable urban development.

For example, when a heritage site is repurposed into a cultural hub, it serves multiple purposes simultaneously. Economically, such transformations attract tourism, generating revenue for local businesses in hospitality, retail, and related sectors. Socially, these hubs encourage inclusion by providing spaces for community events, workshops, and recreational activities that bring people together.

Culturally, they preserve and celebrate traditional art forms and heritage elements, ensuring they remain a living part of modern society.

Similarly, the adaptive reuse of an abandoned industrial site into a creative district revitalizes entire neighborhoods. Economically, it stimulates the local economy by attracting investments, fostering entrepreneurship, and creating job opportunities. Socially, these creative districts provide vibrant spaces where residents can interact, collaborate, and enjoy a better quality of urban life. Culturally, they become centers for exchange, hosting exhibitions, festivals, and performances that blend local traditions with global influences, thereby enhancing the cultural profile of the area.

This integrated approach exemplifies sustainable urban development, balancing the need for historical preservation with the demands of modern urban life. Adaptive reuse not only conserves resources by utilizing existing structures but also fosters long-term benefits for society. It brings heritage to the forefront of urban renewal, proving that these sites can serve as catalysts for growth, innovation, and social cohesion. In conclusion, the adaptive reuse of public heritage buildings showcases the powerful interconnectedness of social, economic, and cultural impacts, and these transformations illustrate how preserving the past can actively shape vibrant, sustainable, and inclusive futures.

3.2. Obstacle Identification

The reuse of heritage buildings offers a vital means to preserve cultural identity and promote sustainable urban development. However, implementing adaptive reuse projects is often fraught with challenges (Pintossi et al., 2021; Pintossi et al., 2023a; Pintossi et al., 2023b; Othman & Mahmoud, 2022; Shan et al., 2022). These obstacles can be categorized into economic, regulatory, technical, social, and cultural dimensions, making the process complex and multidimensional, as **Figure 7** illustrates.

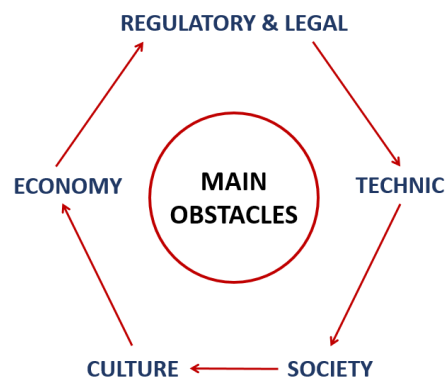


Figure 7. Obstacles to public heritage reusing.

Economic challenges pose significant barriers to the successful adaptive reuse of heritage buildings, and these challenges often stem from the financial demands

of restoration, limited incentives for investment, and the difficulty of balancing profitability with preservation. The restoration of heritage buildings is frequently a costly endeavor due to their age and deteriorated condition, and restoring original materials and preserving intricate architectural details require skilled labor and specialized techniques, significantly increasing expenses. In regions with limited economic resources, securing sufficient funding for such projects becomes even more difficult, often leaving many heritage sites neglected or underutilized.

Moreover, the financial support mechanisms, such as tax relief, subsidies, or grants, are often insufficient to encourage private investment in adaptive reuse. Because a lot of developers may view heritage projects as less attractive compared to new construction, which typically offers higher profit margins, the lack of robust policies or incentives to support the preservation of cultural heritage further discourages stakeholders from undertaking these projects. More than that, achieving commercial success can be particularly challenging for heritage sites located in remote or less visited areas. Due to this, without steady foot traffic or a strong market demand, these sites struggle to attract businesses and generate revenue. Conversely, the drive to ensure the financial viability of heritage sites often results in over-commercialization in urban areas, a trend evident in adaptive reuse projects like Beijing 798 Art District, Shanghai Tianzifang, and Guangzhou Red Brick Factory, where economic priorities sometimes overshadow cultural and historical authenticity. This often compromises the cultural and historical authenticity of the buildings, turning them into overly commercialized spaces that lose their heritage significance. These economic hurdles highlight the need for a more strategic approach to adaptive reuse, and strengthening financial incentives, fostering public-private partnerships, and developing sustainable business models can help address these challenges. Additionally, policies must balance economic goals with the preservation of cultural and historical integrity to ensure that adaptive reuse projects remain both viable and meaningful in the long term.

Regarding the aspect of regulatory and legal, adaptive reuse of heritage buildings often faces significant regulatory and legal challenges, while these obstacles stem from the intricacies of legal frameworks, inconsistencies in policy enforcement, and tensions between urban development and preservation efforts (Ikiz Kaya et al., 2021). Navigating the legal and bureaucratic processes involved in heritage reuse can be a daunting task because the projects must often comply with regulations from multiple agencies with overlapping jurisdictions, creating confusion and delays. In general, lengthy approval processes discourage stakeholders and hinder timely project execution. Without streamlined procedures, the complexity of compliance becomes a significant barrier, especially for small-scale developers or communities with limited resources. Also, the enforcement of heritage preservation laws varies widely between regions, leading to disparities in how these laws are applied. In some areas, weak enforcement allows heritage buildings to deteriorate due to neglect or unauthorized modifications, and loopholes in regulations may enable developers to bypass preservation requirements, prioritizing

profit over the protection of cultural assets. These inconsistencies undermine the effectiveness of preservation policies and jeopardize the integrity of heritage sites.

Many previous research emphasize that urban expansion and infrastructure development often conflict with the goals of heritage preservation (Othman & Mahmoud, 2022; Shan et al., 2022; Ikiz Kaya et al., 2021). As cities grow, the demand for new construction frequently takes precedence over protecting historical buildings, and policymakers face the difficult task of balancing modernization with the preservation of historical assets. In some cases, heritage buildings are demolished or significantly altered to accommodate development projects, erasing irreplaceable cultural and historical landmarks. Due to the issues of the regulatory and legal, addressing these challenges requires a coordinated approach. Simplifying regulatory frameworks, ensuring consistent enforcement, and fostering dialogue between preservation advocates and urban planners are essential steps, while governments and stakeholders must work together to create policies that integrate heritage preservation into broader development strategies, ensuring that cultural assets are protected while accommodating urban growth.

The adaptive reuse of heritage buildings presents various technical challenges that complicate restoration and redevelopment efforts, and these challenges require specialized expertise and innovative approaches to ensure that historical integrity is preserved while meeting contemporary standards and functional requirements. In general, many heritage buildings suffer from aging and deterioration, often resulting in compromised structural conditions, while restoring these structures requires specialized engineering techniques and materials to reinforce stability without altering their historical essence. Meeting modern safety codes, such as seismic retrofitting and fire safety compliance, adds another layer of complexity. Therefore, balancing structural integrity with preservation goals demands meticulous planning and execution. Also, including the utilizations as offices, cultural centers, or residential spaces, converting heritage buildings to serve current needs presents technical difficulties. Modern utilities like plumbing, electrical systems, and climate control must be incorporated seamlessly without damaging or obscuring historical features, while innovative design solutions are required to blend old and new elements harmoniously. For example, hidden installations and modular systems are often used to minimize visual disruption while enhancing functionality.

Furthermore, a shortage of skilled professionals is also an issue for the reuse of public heritage buildings as a limited pool of skilled professionals with expertise in heritage conservation poses a significant obstacle (D'Oca et al., 2018). Including stone masonry, woodwork, or plastering, traditional construction techniques, and materials require specialized knowledge that is increasingly rare, while the lack of trained architects, engineers, and craftsmen familiar with heritage restoration often results in delays, higher costs, or substandard work that can compromise the authenticity of restored buildings. Due to this, to address these technical challenges, investment in training programs for conservation specialists and the

development of innovative restoration technologies is essential, while collaboration between engineers, architects, and cultural heritage experts can yield practical solutions that uphold the values of preservation while adapting heritage sites to meet modern demands.

The adaptive reuse of heritage buildings often encounters significant social challenges that can hinder project success and diminish community benefits, while addressing these challenges requires careful planning, inclusive decision-making, and effective public engagement. Referring to community resistance is a significant social issue in adaptive reuse projects like Beijing 798 Art District, Shanghai Tianzifang, and Guangzhou Red Brick Factory. Local communities often oppose these initiatives due to concerns about gentrification, potential displacement, or limited access to spaces they view as integral to their cultural identity. As a result, this resistance is often amplified when residents feel excluded from the planning process, leading to mistrust and alienation. Due to this, engaging communities early and incorporating their perspectives into redevelopment plans can help mitigate resistance by ensuring projects align with local needs and values. Moreover, adaptive reuse projects frequently increase property values in surrounding areas, attracting wealthier residents and businesses while pricing out lower-income communities, and this process disrupts the social fabric of neighborhoods, eroding long-standing relationships and cultural practices. The loss of affordable housing and traditional small businesses exacerbates social inequalities, undermining the inclusive goals of heritage preservation.

Additionally, limited public awareness is also a significant issue for the reuse of public heritage buildings as a lack of understanding about the cultural, historical, and economic significance of heritage buildings often results in public apathy or opposition (Yung et al., 2017). Without widespread advocacy, heritage preservation initiatives struggle to gain support, making it difficult to secure funding or justify adaptive reuse projects. Therefore, public education campaigns, heritage tours, and community workshops can help raise awareness and foster appreciation for the value of preserving historic structures. Overcoming these social challenges involves fostering community participation, implementing policies to prevent displacement, and promoting the shared benefits of heritage preservation. By prioritizing inclusivity and equity, adaptive reuse projects can transform heritage sites into assets that enhance social cohesion and improve the quality of life for all stakeholders.

As **Figure 7** indicates, the adaptive reuse of heritage buildings also faces critical cultural challenges that can undermine their historical significance and communal value, while addressing these issues requires a nuanced approach that respects both tangible and intangible aspects of cultural heritage. Most significantly, over-commercialization or poorly executed modifications can diminish the historical and cultural essence of heritage buildings. For example, excessive branding or inappropriate modern alterations may overshadow the original character of the heritage sites. Balancing modernization with preservation is a complex but vital

endeavor to ensure that the site remains true to its historical roots while serving contemporary purposes, and careful design and planning are essential to retain the cultural authenticity of repurposed spaces. On the other hand, while reuse projects often prioritize physical structures, they sometimes overlook intangible heritage, such as traditional practices, community narratives, and artisanal crafts associated with the heritage site. This oversight can dilute the cultural depth of the project, reducing its ability to fully convey the historical and social context of the area. Due to this, initiatives like storytelling sessions, craft exhibitions, and cultural workshops can enrich the project by integrating intangible elements into the adaptive reuse framework.

Also, because heritage sites often embody diverse cultural histories, especially in multicultural regions, failing to acknowledge or respect these varied narratives can lead to controversies or the marginalization of certain groups. For instance, adaptive reuse projects that favor one cultural perspective while ignoring others risk alienating sections of the community. Inclusive planning processes and stakeholder engagement are critical to ensure that projects honor all cultural dimensions of the site, fostering a sense of shared ownership and pride. Therefore, by addressing these cultural challenges, adaptive reuse projects can achieve greater resonance with local communities, safeguarding the holistic value of heritage buildings while enabling them to thrive in modern contexts.

3.3. Discussion of International Reuses

The adaptive reuse of public heritage buildings is a matter of international significance, transcending regional boundaries to address shared concerns of cultural preservation and sustainable urban development. In this research, successful examples from around the world provide invaluable lessons and strategies that can inform similar projects in China. To highlight this, **Table 3** presents actual projects of exemplary heritage reuse projects from the United Kingdom, the United States, and Japan, and these cases demonstrate diverse and innovative approaches to revitalizing historic structures, ensuring their functionality in modern contexts while safeguarding their cultural and historical significance.

Table 3. International public heritage reuse projects.

Name of Country	Location	Project name
United Kingdom	London	The Tate Modern
United States	New York	The High Line
Japan	Kyoto	Kyoto Railway Museum

As the first case in **Table 3**, the Tate Modern in London is a flagship example of adaptive reuse, showcasing how industrial heritage can be revitalized into a globally significant cultural institution. This transformation, completed in 2000, highlights the creative and functional potential of reimagining disused spaces to meet contemporary cultural and social needs.



(a) Bankside Power Station in 1953s



(b) Tate Modern in London

Figure 8. The reuse project of Tate Modern.

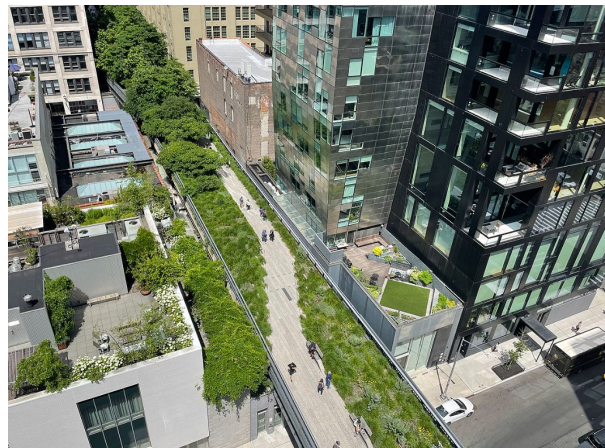
The Tate Modern in London was originally constructed as the Bankside Power Station as **Figure 8(a)** shows, the oil-fired plant ceased operations due to shifts in energy production. Rather than allowing this imposing structure to fall into disrepair, it was repurposed into the Tate Modern, now one of the most celebrated contemporary art museums worldwide, as **Figure 8(b)** shows. The Tate Modern in London was designed by Herzog & de Meuron, the adaptive reuse project retained the industrial character of the building, while the key elements such as the brick facade and towering chimney were preserved, and innovative features were introduced to modernize the space (Castro, 2021; Shin, 2024). Also, the Turbine Hall, a vast central area, was reimagined as an iconic exhibition space capable of hosting monumental art installations, becoming a signature attraction of the museum. By blending architectural innovation, sustainability, and cultural significance, the Tate Modern has set a global benchmark for adaptive reuse, and it demonstrates how heritage buildings can transcend their original purpose to become enduring symbols of creative and sustainable urban development.

Referring to the second case, as **Table 3** illustrates, the High Line in New York

City is a celebrated example of adaptive reuse that turns an elevated freight railway into a thriving linear park and cultural destination. Opened in phases beginning in 2009, the project showcases how urban renewal can preserve history while meeting contemporary community and environmental needs.



(a) High Line railroad in 1930s



(b) High Line in New York City

Figure 9. The reuse project of High Line.

Referring to **Figure 9(a)**, the High Line was originally built as an elevated freight railway line, but the structure had fallen into disuse by the late 20th century, becoming a derelict remnant of the industrial past in New York City. Instead of demolition, city planners and local advocates championed its transformation, breathing new life into the structure, as **Figure 9(b)** shows. The design of the High Line led by James Corner Field Operations and Diller Scofidio + Renfro, seamlessly integrates natural and historical elements, while sections of the railway tracks were artfully incorporated into the landscaping, celebrating the site's industrial heritage (Loughran, 2016). Also, Pathways, seating, and green spaces feature carefully curated native and drought-resistant plants, mimicking the wild vegetation that had grown on the abandoned tracks (Steiner, 2011; Gulrud & Steiner, 2019). Moreover, extensive public consultations ensured that the project aligned with community aspirations, making the High Line a space shaped by and

for the people, and this participatory approach fostered a sense of ownership among residents and stakeholders. Sustainable construction practices that minimize environmental impact while reusing existing structures, and through its thoughtful design, cultural significance, and community focus, the High Line stands as an enduring example of how adaptive reuse can transform neglected spaces into vibrant urban assets, balancing preservation, sustainability, and modern functionality.

For real practice in Asian countries such as Japan, the third case in **Table 3** illustrates the Kyoto Railway Museum exemplifies the dedication of Japan to preserve its industrial heritage while creating an engaging and modern cultural destination (Sato, 2006). As **Figure 10** shows, this railway museum opened in its current form in 2016, the museum occupies the site of the historic Umekoji Steam Locomotive Depot, seamlessly blending preservation, education, and tourism.



(a) Kyoto Station in 1914s



(b) Kyoto Railway Museum

Figure 10. The reuse project of High Line.

The Kyoto Railway Museum centers around its iconic roundhouse, designated an important cultural property of Japan, serving as a vivid reminder of the national railway legacy. This historic structure is complemented by modern exhibition spaces that showcase historical trains, including steam locomotives and early electric models, and feature interactive exhibits on railway technologies and

innovations. Also, hands-on experiences, such as train simulators, deepen the appreciation of railway engineering and its societal impact on visitors. Beyond being a repository of artifacts, the museum connects local communities to their transportation heritage through workshops, special events, and school programs, fostering learning and curiosity for all ages (Ito & Chiba, 2001). As a testament to adaptive reuse, the museum blends historical preservation with modern engagement, celebrating the industrial heritage of Japan while enhancing cultural tourism and ensuring its railway legacy inspires future generations.

3.4. Challenges and Criticisms

Prominent examples of heritage building reuse in China, such as Beijing 798 Art District, Shanghai Tianzifang, and Guangzhou Red Brick Factory, have demonstrated significant success in blending historical preservation with modern functionality. As explored in Chapter 2, these projects highlight innovative approaches to revitalizing heritage sites, contributing to cultural vibrancy, economic growth, and social engagement. However, challenges and criticisms persist with each project facing unique obstacles. Drawing parallels with international examples like the Tate Modern in the United Kingdom, the High Line in the United States, and the Kyoto Railway Museum in Japan underscores the multifaceted nature of adaptive reuse. Each of these cases illustrates how adaptive reuse requires a delicate balance between preserving historical authenticity and embracing modernization to meet contemporary needs. The Tate Modern transformed an industrial power station into a globally renowned art gallery, blending industrial heritage with modern cultural innovation. The High Line repurposed an abandoned elevated railway into a vibrant urban park, demonstrating how public engagement and sustainable design can reinvigorate neglected spaces. Similarly, the Kyoto Railway Museum harmonizes historical preservation with cutting-edge exhibitions to celebrate the rich rail history of Japan while providing a modern visitor experience. These examples offer valuable lessons in managing community involvement to ensure that the local population remains integral to the success of the reuse projects, as well as navigating regulatory and bureaucratic challenges to achieve long-term sustainability and cultural relevance. By examining these international cases, adaptive reuse projects can adopt strategies that address common hurdles while respecting the unique cultural and historical context of each site.

Although the Beijing 798 Art District while celebrated as a vibrant cultural hub, faces several challenges and criticisms. Referring to the research of (Li et al., 2017), over-commercialization has significantly altered its original character, as rising property values and the influx of luxury shops and high-end cafes have displaced some of the pioneering artists who initially shaped the creative identity of the district, and this shift raises concerns about the potential loss of authenticity and cultural essence. Additionally, balancing the preservation of its industrial heritage with the demands of modernization poses a persistent challenge. Efforts to sustain the cultural significance of the district while ensuring its economic viability

highlight the complex interplay between heritage conservation and commercial development. Therefore, addressing these issues is crucial to maintaining the district's role as a meaningful space for artistic expression and community engagement.

Shanghai Tianzifang despite its success as a revitalized heritage district, faces notable challenges and criticisms. Similar to the criticism of Beijing 798 Art District, over-commercialization has become a pressing issue, with rising rents and property values displacing long-time residents and small businesses that once defined the charm of the area as the research of (Yoon & Ro, 2013) indicates. Moreover, the popularity of this district has also led to overcrowding, especially during peak tourist seasons, straining infrastructure, and raising concerns about sustainability (Padovani, 2019). Due to this, managing this influx of visitors while ensuring the well-being of the local community remains a critical challenge. Furthermore, the increasing presence of modern retail chains and generic souvenir shops threatens the unique character and cultural identity of Tianzifang, and balancing economic growth with cultural preservation and community needs is essential to safeguard the authenticity and appeal of the district.

Moreover, the Guangzhou Red Brick Factory also faces several challenges and criticisms related to its adaptive reuse as a cultural and creative hub. Balancing heritage preservation with commercialization is a key concern, as the influx of commercial establishments risks overshadowing the cultural and historical significance of the factory. Many critics have also highlighted issues of accessibility and inclusivity, arguing that the offerings of the factory often cater primarily to affluent audiences, potentially excluding lower-income communities from fully engaging with the space (Huang et al., 2022; Sanchiz, 2022; Chang, 2021). Also, ensuring long-term sustainability is another significant challenge, as maintaining a balance between cultural integrity and economic viability requires ongoing effort, innovation, and adaptive strategies. Therefore, addressing these concerns is crucial to preserving the factory's value as a heritage site while fostering an inclusive and sustainable future.

4. Conclusion

The adaptive reuse of public heritage buildings is a crucial approach to preserving cultural identity while addressing the demands of modern urban development, while by repurposing these buildings, cities can maintain their historical character and contribute to sustainable development. This research explores the reuse of heritage buildings in China mainland, focusing on projects like Beijing 798 Art District, Shanghai Tianzifang, and Guangzhou Red Brick Factory, while this research highlights the integration of social, economic, and cultural sustainability into heritage conservation, showcasing the multifaceted benefits for communities and urban environments. Additionally, this research also explores the social, economic, and cultural impacts of such reuse while addressing challenges and criticisms. Drawing comparisons with international examples, such as the Tate

Modern, the High Line, and the Kyoto Railway Museum, this research also provides a comprehensive analysis of the obstacles faced by these projects in China mainland and the implications for future adaptive reuse initiatives.

This research emphasizes that adaptive reuse projects play a crucial role in promoting cultural sustainability by preserving the historical and cultural significance of heritage buildings for future generations. By transforming these structures into contemporary spaces for commercial, residential, or cultural purposes, communities can maintain their unique architectural identity and sense of place, and this approach strengthens the connection between residents and their environment, fostering cultural continuity. As cultural landmarks, heritage buildings encapsulate the history, traditions, and collective memory of the community, and the preservation ensures that these cultural narratives are upheld, allowing future generations to engage with and learn from their historical context.

Economic sustainability is also a component of adaptive reuse, as such projects can invigorate local economies through tourism, job creation, and support for small businesses. By transforming heritage sites into dynamic, multifunctional spaces, these initiatives attract visitors seeking authentic cultural experiences, boosting the tourism industry. Additionally, adaptive reuse fosters opportunities for local entrepreneurs by integrating residential, commercial, and cultural functions, creating thriving mixed-use environments. This approach not only enhances the economic potential of heritage areas but also ensures long-term sustainable growth, making these historic buildings both financially viable and culturally valuable.

Adaptive reuse also fosters vibrant and inclusive communities by transforming heritage buildings into spaces that address diverse social needs, and executed projects can enhance public spaces, provide affordable housing, and offer cultural amenities, improving residents quality of life. Also, by encouraging social interaction and strengthening community bonds, adaptive reuse contributes to social sustainability. Furthermore, it also ensures inclusivity in urban development, benefiting underrepresented groups and creating opportunities for broad-based participation in regeneration efforts.

The adaptive reuse of public heritage buildings provides significant benefits by addressing social, economic, and cultural needs while advancing environmental sustainability. By repurposing existing structures, this practice minimizes carbon emissions associated with demolition and new construction, playing a vital role in achieving carbon neutrality and aligning with sustainable urban development goals. It preserves historical and cultural heritage while fostering resource efficiency and revitalizing urban landscapes. Overcoming challenges such as economic constraints, regulatory hurdles, and social sensitivities further demonstrates its transformative potential for communities. Additionally, the long-term monitoring and evaluation of reuse projects are crucial for understanding their sustained social, cultural, and economic impacts, and the insights in this research are expected to offer valuable reference into long-term monitoring and evaluation

research to enhance adaptive reuse practices, contributing to a more comprehensive understanding of the sustainable reuse in creating resource-efficient and culturally vibrant urbanized society.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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