Research Article

Sustainability of Historical Buildings Through Reuse Projects: A Case Study of the Kadıköy District in Istanbul

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Abstract

This research focuses on the preservation and adaptive reuse of historic structures. It emphasizes the importance of conserving cultural and historical heritage, suggesting that assigning new functions to these buildings contributes to sustainability. The study progresses through successful examples of adaptive reuse of historical buildings acquired by the Kadıköy Municipality, addressing spatial, cultural, and legal dimensions. It underscores the importance of preserving the architectural characteristics, spatial organizations, and surroundings of these buildings when assigning new functions. The research advocates for minimal intervention principles in adaptive reuse projects, ensuring the historical and cultural values of the buildings are considered. Furthermore, it highlights that these projects should not only focus on physical restoration but also faster social and cultural interaction. Adaptive reuse projects in the Kadıköy region have been developed in line with these principles, creating active and functional spaces that respond to community needs. These projects successfully demonstrate how the preservation and active use of historical buildings can contribute to regional and cultural sustainability. Finally, the research addresses the challenges encountered in the preservation and adaptive reuse of historical buildings in Turkey, discussing legal, economic, and technical issues, and offers suggestions for effective strategies in this field. The aim is to increase awareness and develop efficient strategies for the preservation of Turkey's historical structures.

Keywords: Adaptive Reuse, Cultural Heritage, Conservation, Historic Buildings, Istanbul, Kadıköy, Planning, Restoration, Spatial Memory, Sustainability.

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Araştırma Makalesi

Tarihi Yapıların Sürdürülebilirliği Açısından Yeniden İşlevlendirme Projeleri Üzerine İstanbul Kadıköy Bölgesi Örneği

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Özet

Bu araştırma, tarihi yapıların korunması ve yeniden işlevlendirilmesine odaklanmıştır. Bu çalışmada, kültürel ve tarihsel mirasın korunmasının önemi vurgulanırken, bu yapılara yeni işlevler yüklenerek kullanılmalarının sürdürülebilirliğe katkı sağlayacağı belirtilmiştir. Araştırma, Kadıköy Belediyesi tarafından kamulaştırılan tarihi yapıların başarılı yeniden işlevlendirme örnekleri üzerinden ilerlemekte ve bu süreçte mekânsal, kültürel ve hukuki boyutları ele almaktadır. Araştırmada, tarihi yapılara yeni işlevler verilirken, yapıların mimari özelliklerinin, mekânsal organizasyonlarının ve çevrelerinin korunmasının önemi üzerinde durulmuştur. Yapılan yeniden işlevlendirme çalışmalarının, yapıların tarihsel ve kültürel değerlerini göz önünde bulundurarak, minimum müdahale prensibiyle gerçekleştirilmesi gerektiği vurgulanmıştır. Ayrıca, bu projelerin sadece fiziksel restorasyonu değil, aynı zamanda sosyal ve kültürel etkileşimi de desteklemesi gerektiği belirtilmiştir. Kadıköy bölgesinde yapılan yeniden işlevlendirme projeleri, bu prensiplere uygun şekilde geliştirilmiş ve toplumun ihtiyaçlarına cevap veren, aktif ve kullanışlı mekânlar yaratılmıştır. Bu projeler, tarihi yapıların korunması ve aktif kullanımının, bölgesel ve kültürel sürdürülebilirliğe katkıda bulunabileceğini başarılı bir şekilde göstermektedir. Son olarak, araştırma Türkiye'deki tarihi yapıların korunması ve yeniden işlevlendirilmesi konusunda karşılaşılan zorlukları ve bu süreçteki yasal, ekonomik ve teknik sorunları ele alarak, bu alandaki çözüm yollarına dair öneriler sunmaktadır. Araştırma, bu konuda farkındalığı artırma ve Türkiye'deki tarihi yapıların korunması için etkili stratejiler geliştirme amacını taşımaktadır.

Anahtar Kelimeler: İstanbul, Kadıköy, Koruma, Kültürel Miras, Mekânsal Bellek, Planlama, Restorasyon, Sürdürülebilirlik, Tarihi Yapılar, Yeniden İşlevlendirme.

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INTRODUCTION

The principle "form follows function" emphasizes the interrelation of function and form in architectural design. This fundamental rule in architecture primarily involves identifying the requirements of structures and then designing spaces, volumes, and structural dimensions to suit these needs. This process requires consideration of various factors such as cultural awareness, technology, and material selections.

In this conceptual framework, the adaptive reuse of historical buildings in the Kadıköy district of Istanbul holds special importance. Historical structures reflect the cultural diversity of societies and connect the past to the present. Preserving their authenticity while addressing contemporary needs is vital for their continuity.

The cultural memory of societies is formed not only in abstract ideas but also in spaces. Therefore, the contribution of historic buildings to spatial memory plays a crucial role in maintaining the link between the past and the present. The conservation of historic buildings is a matter of not only local but also international significance, involving international institutions and principles for the preservation of cultural heritage.

Sustainability holds a central role in the preservation of historic buildings. It promotes the conscientious use of resources and ecological practices. The sustainability of historic buildings encompasses the preservation of both their intangible and tangible attributes. Istanbul's rich historical and cultural heritage, particularly in the Kadıköy region, is of special interest due to its historical significance and the variety of civilizations it has hosted.

This study aims to examine adaptive reuse projects of historic buildings in the Kadıköy area and investigate how these projects contribute to the collective memory. It will also explore the methods used in the conservation of these structures and the impact of these methods on social memory.

Conceptual Framework
The Concept of Sustainability

The concept of sustainability has evolved into an approach that necessitates a holistic consideration of economic, social, and environmental factors. Initially perceived with a narrow perspective in certain segments of society, it has transformed into a mandate requiring collaborative action across all sectors of the community. Sustainability aims to address global issues such as ecosystem degradation, depletion of fossil fuels, and the increase in greenhouse gases (Türkmen, 2019, p. 5; Kara and Şimşek, 2016, p. 245-269).

Developing alongside concepts like clean production and environmentally sensitive technology in the 1990s, sustainability has become a crucial aspect of ecology, emphasizing the importance of preserving biological diversity (Türkmen, 2019, p. 5). It aims to harmonize with nature and adopt solutions that inflict minimal damage on the environment (Güneş and Demirarslan, 2020, p. 81-99).

The Amsterdam Declaration of 1975 underlined the significance of sustainability in the preservation and adaptive reuse of historic structures, asserting that this approach has become a preferred method of conservation worldwide (Saraç, 2017, p. 1). In architecture and construction, sustainability transcends mere energy consumption control and encompasses all factors that could impact the environment (Türkmen, 2019, p. 21).

Sustainable architecture focuses on minimizing environmentally harmful factors, utilizing renewable energy sources, preferring recyclable materials, and transforming environmental factors positively (Gökdağ, 2019, p. 2). In this context, international organizations granting green building certifications contribute to the proliferation of sustainable architecture (Gökdağ, 2019, p. 2).

The 1987 report "Our Common Future" by the Brundtland Commission established a significant link between sustainable progress and urbanization, proposing solutions to issues such as poverty, consumption of environmental resources, and uncontrolled urban growth (Tosun, 2009, p. 1-14).

The sustainable urbanization approach encompasses land use planning, urban design, housing, transportation, environmental conservation and restoration, energy and material usage, green architecture and construction, equity and environmental justice, economic development, and population (Tosun, 2009, p. 1-14). This approach emphasizes the need for resource transformation and adaptive reuse, highlighted by the concept of sustainable urban renewal, in response to population growth (Alagöz, 2015).

In conclusion, sustainability is a comprehensive and multidimensional concept that seeks to balance environmental, economic, and social factors while meeting the needs of today without compromising the ability of future generations. This concept plays a vital role in architecture and urban planning, as well as in the preservation and management of historical cultural heritage (Kuşçuoğlu and Taş, 2017, p. 58-67).

Sustainability in Historic Buildings

Sustainability in historic buildings carries the purpose of preserving and transmitting the cultural and historical heritage of societies to future generations. Historic structures have suffered various damages due to factors like historical events, wars, political changes, natural disasters, and environmental impacts. The preservation of these buildings falls under the management responsibility of their societies, with laws and scientific data providing guidelines to support conservation and sustainability (Temiz, 2009, p. 11; Urak, 2002, p. 45-62).

Historic buildings, by showcasing the architectural trends of their eras, offer significant insights into architectural history. Revitalizing these functionally obsolete structures with new purposes within the scope of sustainability plays a critical role in preserving cultural heritage. When assigning new functions, it is essential to avoid harming the physical and spiritual characteristics of the building and to preserve its internal organization (Pekol, 2010, p. 22).

Interdisciplinary collaboration in architectural projects enhances the environmental and cultural impacts of the buildings. Preserving historic buildings facilitates understanding of past techniques and methods, and transforming these buildings into ecological designs is significant for sustainable development. In this process, factors like energy consumption, waste management, and material selection of the buildings should be considered (Gökdağ, 2019, p. 3; Çoban, 2019, p. 20).

The preservation of cultural heritage enables societies to understand their shared past and shape their future. Organizations like UNESCO and ICOMOS classify cultural heritage into tangible and intangible elements. Tangible cultural heritage includes movable and immovable cultural assets (Kuşçuoğlu and Taş, 2017, p. 58-67). The conservation of historic buildings contributes to preserving the identities of cities and enhancing tourism potential. However, structural

changes in historical areas and the wear and tear caused by tourism can lead to deviations from the conservation goal (Duman, 2019, p. 101).

Sustainability in historic buildings signifies maintaining the connection between the past and the future and ensuring the cultural continuity of society. The preservation of these structures provides an opportunity to safeguard and express the historical and cultural identity of communities (Saraç, 2017, p. 16; Altan and Özsoy, 2017, P.642). While the adaptive reuse of historic buildings offers numerous economic, social, and cultural benefits, this process emphasizes designs that are user-oriented, environmentally friendly, and sustainable (Altan and Özsoy, 2017, p .634-654).

The sustainability of historic buildings is a vital tool in preserving cultural heritage and strengthening the bond between societies and their past. In this process, environmental sensitivity, conservation disciplines, cultural values, and the needs of the community should be taken into account in planning.

Adaptive Reuse in Historic Buildings

Adaptive reuse in historic buildings plays a crucial role in preserving cultural assets and adapting them to contemporary societal needs. According to the Law on the Conservation of Cultural and Natural Properties (1983), cultural assets are tangible and intangible assets related to science, culture, religion, and fine arts from prehistoric and historical periods (Yıldırım, 2016, p. 5). Adaptive reuse enables historic buildings to be adapted to changing conditions of the era and societal needs (Arabacıoğlu and Aydemir, 2007, p. 204-212).

The concept of adaptive reuse was first addressed in the 1931 Carta Del Restauro, emphasizing the need for new functions of a building to align with its original purpose. Later, this approach was further developed in the 1964 Venice Charter and the 1975 Amsterdam Declaration, highlighting the need for historic buildings to be conserved in harmony with their environments. In Turkey, legislation regarding the preservation of historical and cultural assets was formalized in 2005 (Abacı, 2018, p.18).

Adaptive reuse encompasses two fundamental concepts: 'reprogramming' and 're-architecture.' Reprogramming refers to the rearrangement of space, while re-architecture involves interventions in a building considering the style and techniques of its era (Selçuk, 2006, p. 10). When assigning new functions to historic buildings, structural and spatial compatibility must be considered, and spaces accessible to everyone should be created following universal design principles.

Adaptive reuse in historic buildings is crucial for preserving cultural heritage and maintaining the connection with a community's cultural memory. Architectural movements like post-modernism have adopted similar principles in their approach to historic buildings (Pekol, 2010, p. 12). The conservation of historic buildings is also significant in preserving the identity and symbolic values of cities. Adaptive reuse is valuable not only for its economic benefits but also for its social and cultural contributions. In this process, preserving the original characteristics of the buildings and ensuring that interventions are reversible is crucial (Abacı, 2018, p. 2; Bilal, 2018, p. 5).

The adaptive reuse process in historic buildings encompasses two main concepts: "reprogramming" and "re-architecture." Reprogramming involves rearranging the space to suit its new use, while re-architecture refers to interventions made in the building, taking into account its historical style and techniques (Selçuk, 2006,

p. 10-11). In assigning new functions to historic buildings, structural and spatial compatibility must be considered, and interventions that could damage the building should be minimized (Altınoluk, 1998, p. 55).

Technical analyses in the interior spaces of historic buildings cover areas such as lighting, installations, and air conditioning. Integrating contemporary additions in a way that is compatible with the building's circulation axis is important (Dedeoğlu, 2019, p. 77-103). The interventions made after adaptive reuse should meet user needs without harming the building and contribute to its sustainability (Aydın and Yaldız, 2010, p. 1-22).

Fundamental factors to consider in the adaptive reuse process include architectural and spatial values, as well as social and environmental factors (Yıldırım, 2016, p. 21). The structural values and spatial arrangements of buildings play a significant role in the re-functioning process. Additions and modifications made during this process should be carried out in a way that preserves the building's character (Kılıç, 2015, p. 8-9).

Adaptive reuse plays a critical role in preserving cultural heritage and maintaining the connection with a community's cultural memory. Assigning suitable new functions and conserving historic buildings offer both economic and socio-cultural benefits. Adaptive reuse enhances the sustainability of historic buildings and ensures their transmission to future generations (Abacı, 2018, p. 12; Selçuk, 2006, p. 26).

Adaptive Reuse Criteria
Historical Factors

In the process of adaptive reuse of historical buildings, historical factors play a significant role. When assigning new functions to historical buildings, the past, present, and future should be considered together, and an awareness of the historical environment should be created. Historical buildings are considered as a part of the social memory, reflecting the social, cultural, economic, and architectural characteristics of the period in which they were built (Kaşlı, 2009, p. 14-15).

In adaptive reuse projects, historical analysis forms the basis of the design. A historical reference system is established by considering the building's history, its place in architectural history, decorative embellishments, architectural elements, and technical features (Kılıç, 2015, p. 11-12). Riegl (1903) emphasizes the age, historical and artistic values, and usage values of historical buildings. In assigning new functions, the harmony between the historical value and contemporary value of the building should be ensured, and highlighting the historical value is important (Kılıç, 2015, p. 11-12).

The success of adaptive reuse depends on the compatibility of the new function assigned to the building with its historical and architectural features. The original function provides an important reference point and determines which technical features are suitable for the building (Kılıç, 2015, p. 16). Therefore, difficulties may arise in changing the function of a building initially designed as a museum.
Assigning new functions to historical buildings provides both material and spiritual gains. During this process, the preservation and transmission of historical and cultural values to future generations are fundamental. Adaptively reused buildings not only create new meanings and values at the structural level but also make their mark in history at the regional level (Arabacıoğlu and Aydemir, 2007, p. 204-212).

In conclusion, careful consideration of historical factors in the adaptive reuse process of historical buildings plays a crucial role in efforts to preserve their historical and cultural heritage and adapt to contemporary societal needs. Considering the past, current status, and future potential of these buildings is critical in giving new life to historical buildings while preserving their original values.

Environmental Factors

In the process of adaptive reuse of historical buildings, environmental factors play a crucial role in redefining the relationship between the buildings and their communities and surroundings. Over time, historical buildings may become unable to meet changing environmental needs. Therefore, adapting these buildings to meet contemporary environmental requirements is necessary (Kaşlı, 2009, p. 26; Yıldırım, 2016, p. 17).

Ensuring the continuity of historical buildings by adapting to environmental changes requires considering the building and its environment as a whole. Evaluating the interventions to the building together with environmental conditions facilitates not only the preservation of historical and cultural continuity but also the fulfillment of social needs (Kaşlı, 2009, p. 16; Korkut, 2019, p. 9).

Alsaç (1992) states that environmental conditions significantly impact architectural structures. Interventions suitable for slowing down and minimizing the wear and tear of buildings integrated with their environment over time are essential (Yıldırım, 2016, p. 17). Historical buildings are directly related to environmental factors, and the functions assigned to these buildings can change with evolving needs. Replacing functions that are no longer needed with new ones that meet the needs of the contemporary era can ensure the sustainability of these buildings (Yıldırım, 2016, p. 19).

Adaptive reuse is vital for the continuation of the community's cultural memory and the preservation of the environmental texture. This method, especially applied to prevent large industrial structures from becoming defunct, provides not only material benefits but also environmental and cultural gains (Aydın and Yıldız, 2010, p. 1-22; Saraç, 2017, p. 20). Instead of constructing new buildings, transforming existing ones is not only economically beneficial but also reduces the environmental damage caused by construction processes (Gökdağ, 2019, p. 80).

In conclusion, environmental factors in the adaptive reuse process of historical buildings are critical in redefining their relationship with the environment and in aligning with the cultural and social needs of the community. This process not only supports the preservation and environmental sustainability of historical buildings but also ensures the transmission of cultural heritage to future generations.

Physical Factors

In the process of repurposing historic buildings, physical factors are crucial elements that affect the building's cultural value and its relationship with the environment. Article 9 of The Burra Charter emphasizes that the location of a building is part of its cultural value and the relationship between the building and its surroundings influences the culture.

Changes in the physical environment and the transformation of the social environment are intertwined. Historic buildings, being part of the urban fabric, should not be considered in isolation. Cities represent a whole, and buildings

represent parts of this whole. When approaching historic buildings, it is important to consider their spatial relationship with the city (Kılıç, 2015, p. 17).

The tectonic characteristics, geometric forms, and spatial forces of a building form the basis of the physical assessment. This assessment is conducted through the building mass, facade, plan, section, and interior views. Space organization expresses the connections between buildings and plays a significant role in the repurposing process (Kılıç, 2015, p. 18).

The plan organization of a building can vary as single-zoned, repetitive zoned, or complex types. The compatibility of the new function with the old function and the preservation of space organization should be evaluated considering the intervention limitations in registered buildings (Altınoluk, 1998, p. 75). Whether the space required for the new function is available in the existing structure and the building's structural system are critical factors in determining the new function.

In the process of repurposing historic buildings, physical factors should be considered to ensure the preservation of the building's historical and cultural value, the harmony with the environment, and the successful integration of the new function. These factors directly affect the building's current and potential use, sustainability, and social impact.

Legal Restrictions and Determinants

Legal restrictions and determinants play a significant role in the preservation and sustainable use of historic buildings during the repurposing process. International declarations, charters, national laws, and local regulations ensure that interventions are made without harming the identity and historical value of these buildings. In Turkey, this legal framework is defined by the Law on the Conservation of Cultural and Natural Property and related regulations.

Legal determinants aim for any intervention in the building to be minimal, preserving the structural integrity and identity of the building. It is also emphasized that the interventions should be reversible and flexible, allowing for future interventions. Materials added to the building or artefact later should be distinct, contributing to the preservation and understanding of the building's original features (Abacı, 2018, p. 29).

In the repurposing process, it is necessary for buildings to comply with current legal and regulatory requirements, especially safety-related regulations like earthquake codes. However, these regulations can affect the spatial organization and aesthetic characteristics of historic buildings, hence careful planning and implementation of interventions are crucial (Selçuk, 2006, p. 34).

In the repurposing of historic buildings, legal restrictions and determinants play a key role in preserving the physical, cultural, and historical integrity of the buildings while meeting safety and usability standards. In this process, the minimal and reversible nature of interventions, considering the historical and cultural context, is vital for ensuring sustainable preservation.

Repurposing and Sustainability

Repurposing plays a vital role in preserving and ensuring the sustainability of historic architectural structures. In this process, preserving the original architectural and cultural values of the building is fundamental. Repurposing rehabilitates structures that have lost their initial functions, reintegrating them into society and preserving them for future generations, thus transforming buildings from merely

visual objects into livable spaces. Ensuring that these structures harmonize with the community is crucial during this process.

Article 5 of the Venice Charter states that the preservation of buildings of historical value is facilitated by their use for the benefit of society. It emphasizes that the newly assigned functions should be applied without disturbing the architectural plan and decorative elements of the building (Abacı, 2018, p. 40). In sustainable architectural practices, revitalizing buildings whose usage life has ended with new functions contributes to sustainability by reducing environmental impacts and preserving cultural heritage.

In the repurposing process, considering the building and its environment together and preserving the connection between the improvements made and the environment are important. Environmentally compatible landscaping and the design of social spaces make the surroundings of the building vibrant and interactive. Spaces that are accepted and preferred by users can become sustainable spaces (Çoban, 2019, p. 21). In line with changing social structures and needs, the renewal of spaces that have lost their function is crucial in preserving the cultural and historical heritage of cities. Considering cities as living organisms, the modernization of structures within them in a way that suits contemporary conditions requires a holistic and interconnected approach (Ürük, 2020, p. 165-186). The repurposing process ensures the sustainable preservation of historic structures and, while reintegrating these buildings into society, it preserves their architectural and cultural values, supporting the continuity of the city's historical texture and cultural memory.

The Contribution of Repurposing Historic Structures to Spatial Memory

The repurposing of historic structures significantly contributes to urban and social memory. The Turkish Language Association defines "memory" as the ability to consciously store experienced events and learned information in the mind. Urban memory, on the other hand, forms over time through the accumulation of events in the social consciousness and is intertwined with the city's structure.

Historic structures are parts of a societal memory reflecting the social, cultural, and economic characteristics of their communities. From the 1970s, with humanist and postmodern approaches, the concepts of "place, people, and memory" have come to the forefront, aiming to adapt historic structures to contemporary needs and to transmit the characteristics of the period to future generations (İncedere, 2019, p. 51; Dedehayır, 2010, p. 26).

The preservation of historic environments is considered crucial for a society's historical consciousness and cultural continuity. Historic structures, throughout their historical processes, collect all events experienced by the city, functioning as a kind of document and enriching the urban memory with aesthetic values (Pekol, 2010, p. 33; Dedeoğlu, 2019, p. 77-103).

In the repurposing process, it's essential to preserve the aesthetic and cultural values of historic structures, catering to the needs and visual preferences of users. The materials used in the design of buildings, colours, descriptive features, and their harmony create an aesthetic value appreciated and perceived positively by users (Güner and Giritli, 2004, p. 19-30).

In conclusion, the repurposing of historic structures strengthens social memory, preserves urban identity, and contributes to the sustainability of cultural heritage. While this process is carried out specifically for buildings, it is essential that it also

maintains the integrity of the general urban fabric and aligns with strategic urban planning (Yenel, 2015, p. 54-77).

Repurposing of Historic Structures for Sustainability

The repurposing of historic structures for sustainability is an essential strategy for preserving cultural heritage and addressing contemporary societal needs. These structures, reflecting the life ways, social, economic, and cultural values of past eras, necessitate the conveyance of their cultural heritage significance to the community.

While technological advancements and urbanization threaten the fabric of historic structures, changing societal needs make adapting these structures functionally challenging. Physical improvements and applying new functions to maintain their connection with society are required. Preserving and reusing existing structures is a more sustainable approach than building new ones. Regular maintenance and minimal intervention are ecological and environment-friendly approaches. Sustainability in material sourcing should also be considered in preservation decisions (Orbaşlı, 2008, p. 61).

Cervellati asserts that structures can retain their values over time, even amidst changes, as long as they adhere to their original forms. Repurposing necessitates finding functions that can maintain these old forms (Kuban, 2016, p. 306). Historic structures and their surroundings should be assessed for spatial characteristics, architectural techniques, styles, and plan schemes. Typological definitions should consider structural systems, construction techniques, materials, and dimensional characteristics (Kuban, 2016, p. 303).

Repurposing historic structures ensures temporal and spatial continuity through environmental modifications and modern necessities such as lighting and heating. Each project is specific to the structure, aiding in the appreciation of historical periods. Applications that appeal to the senses can make the integration of historical fabric enjoyable (Durukan, 2020, p. 195-210; Yenel, 2015, p. 54-77).

This perspective underlines that repurposing historic structures is a significant strategy that supports both physical and cultural sustainability, preserving community historical consciousness and cultural heritage.

Repurposing historic structures for sustainability is a crucial approach to preserving architectural heritage and responding to contemporary societal needs. As historic structures reflect the social, economic, and cultural values of past periods, their preservation as part of cultural heritage is necessary for community transmission. Technological advancements, urbanization, and changing societal dynamics that threaten the fabric of these structures are countered by repurposing, ensuring both their preservation and continued societal connection.

Issues such as heritage problems, financial constraints, and biases against conservation methods are frequent barriers in the preservation of historic structures in Turkey. Hence, raising awareness about conservation in society and transmitting cultural heritage is a responsibility for everyone (Çelebi and Gültekin, 2007, p. 30-36; Kaşlı, 2009, p. 11-12).

Repurposing historic structures, by assigning new functions, minimizes environmental impact while ensuring the transmission of their embodied histories to future generations. This process should consider the structure's environment,

analysis, and characteristics, and employ sensible functions accepted by society (Urak, 2002, p. 45-62; Aydın and Yaldız, 2010, p. 1-22). Adaptation processes can enhance environmental and service features, but interventions should not harm the originality of the structure and should be mindful of preserving the historical fabric (Abacı, 2018, p. 36).

In the adaptations applied to historic structures, the organization of space, supporting systems, building elements, and material selections are crucial. When assigning new functions, designs should be carried out without harming the existing support system or building elements and without distorting the character and authenticity of the historic structure (Alsaç,1992, p. 86-87).

Repurposing supports the concept of sustainability by maintaining and protecting historic structures in a social and cultural context. Adaptation to the continuously evolving dynamics of society and the environment makes repurposing an effective strategy for preserving and transmitting cultural heritage.

In Turkey, the sustainability and repurposing of historic structures have gained new dimensions, especially since the 2000s. The "Law No. 5366 on the Renewal and Preservation of Deteriorated Historical and Cultural Immovable Properties," enacted in 2005, defined 'deteriorated' areas within conservation sites as renewal areas. However, this law contains inconsistencies with the conservation law and has led to the change in status of conservation sites, resulting in physical space-focused projects that neglect the social environment. This situation has led to consequences such as the empowerment of Renewal Boards instead of Conservation Area Boards and the ineffectiveness of conservation zoning plans in these areas (Tan and Arabacıoğlu, 2020, p. 204-216).

The sustainability of historic environments is directly linked to situations requiring repurposing due to social and economic changes. However, incorrect interventions can disrupt the historical fabric and lead to the formation of identity-less social structures. Especially in globally recognized historic cities like Istanbul, modernization has led to the loss of historical characteristics, and deliberate actions like fires have damaged historical fabrics. Since the 1970s, with the increasing awareness of preserving historical values, newly created living spaces in cities have become urban formations lacking aesthetic and social values, distant from past relationships between nature-buildings and humans-structures. This situation has resulted in the creation of environments that have lost their meaning and traditional characteristics (Arabacıoğlu and Aydemir, 2007, p. 204-212).

The process of conserving and repurposing historic structures contributes to the sustainable development of cities and the transmission of cultural heritage to society. In this process, considering the physical, historical, and social dimensions of structures plays a crucial role in preserving cultural values for future generations and creating a sustainable urban fabric.

REPURPOSING EXAMPLE FROM THE KADIKÖY DISTRICT OF ISTANBUL

History of Kadıköy District

Located on the Anatolian side of Istanbul, Kadıköy's foundation dates back even before the establishment of Istanbul itself. Historically, the area was first known as Chalcedon. According to Greek history, the city of Chalcedon was founded 17 years before Megarians established Istanbul. It was also established in the area presently known as Kurbağalıdere. Initially, Phoenicians migrated to the area. The name Chalcedon is thought to have originated from the word

'Karkidon', meaning city, or possibly due to the copper mines in the region. Evliya Çelebi mentions that around 600 vineyards existed in the area during the reign of Sultan Murat IV. The district's aesthetic value was enhanced by the affluent class through the construction of mansions, mosques, schools, and fountains (Kolbay, 2010, p. 4-5).

Kadıköy Municipality, originally a branch of the Istanbul Municipality, became a district municipality under the Istanbul Metropolitan Municipality after a reorganization in 1984. Located in the southwest of the Anatolian Side, Kadıköy is bordered by the Marmara Sea to the west and south, Üsküdar to the north, and Ataşehir and Maltepe districts to the east. As of 2020, the population of Kadıköy district is 481,983. While Kadıköy is perceived as a socio-economically affluent area, it also hosts many people from less prosperous backgrounds. Historically, there have been many individuals with minimal economic means but owning property in the region. Despite this, Kadıköy is distinguished from other districts with its above-average socio-economic and cultural development and unique institutions and perspectives (Küçük, 2018, p. 198-217).

Anadolu Yakası, or the Anatolian side of Istanbul, is prominent in terms of spatial and visual transformation. Before World War II, areas like Kızıltoprak, Feneryolu, Fenerbahçe, Kalamış, Erenköy, Kozyatağı, Bostancı, and the higher altitudes of Yakacık, known for their expansive gardens and mansions owned by Ottoman elites, have transformed into densely populated areas. Despite efforts to maintain social status in areas close to the sea, such as around Bağdat Avenue, these regions have lost connection with their past. They have evolved into modern urban landscapes with high-rise buildings reaching up to 20 floors, grid-patterned streets, luxury shops, and the loss of historic trees along the coastline. Today, the historical connection of the Kadıköy region with Istanbul is preserved in a few documents, museums, some mansions, gardens with remaining pine trees, and in the names of neighbourhoods (Kuban, 2020, p. 315).

Kadıköy, located on the Anatolian side of Istanbul, boasts a history that predates the city's own establishment. Initially named Chalcedon, Kadıköy was established as a settlement area by the Phoenicians, 17 years before the Megarians founded Istanbul. The name Chalcedon is thought to be derived from either the copper mines in the area or the word 'Karkidon', meaning city. Evliya Çelebi notes that there were about 600 vineyards in the region during the reign of Sultan Murat IV. The affluent residents' mansions, mosques, schools, and fountains have added distinct aesthetic values to Kadıköy (Kolbay, 2010, p. 4-5).

Following a reorganization in 1984, the Kadıköy Municipality became a district municipality under the Istanbul Metropolitan Municipality. Surrounded by the Marmara Sea to the west and south, Üsküdar to the north, and Ataşehir and Maltepe districts to the east, Kadıköy had a population of 481,983 in 2020. Despite being perceived as socio-economically affluent; it also houses individuals from less prosperous backgrounds, distinguishing it from other districts with its higher socio-economic and cultural development (Küçük, 2018, p. 198-217).

Kadıköy plays a significant role in the spatial and visual transformation of Istanbul's Anatolian side. Areas like Kızıltoprak, Feneryolu, Fenerbahçe, Kalamış, Erenköy, Kozyatağı, Bostancı, which hosted mansions with extensive gardens of the Ottoman elite before World War II, have now transformed into densely populated areas. Despite efforts to maintain social status, regions near the sea, such as around Bağdat Avenue, have partially lost their historical connection due to high-rise buildings, luxury stores, and changed street structures. The historical connection of Kadıköy with Istanbul is preserved in documents, some

preserved mansions, certain gardens, and neighbourhood names (Kuban, 2020, p. 315).

According to Küçük's 2018 study, Khalkedon in the Anatolian side of Istanbul, historically known as Kadıköy, served as a granary, healing, and retreat area for Byzantion/Dersaadet throughout the Ancient and Middle Ages, and even into the Early Modern Period. Despite its coastline, it never developed into a bustling commercial port. External factors, including embargoes from neighbouring Byzantium, hindered Khalkedon's development, leading to a lack of capital accumulation. The area showed stagnation in urbanization and architecture during both the Eastern Roman and Ottoman periods (Kütükçü, 2018, p. 13-14).

During the Ottoman era, Hızır Bey, Istanbul's first judge, was assigned to the Kadıköy Region as an arpalık (a type of feudal territory). In the time of Fatih Sultan Mehmed, there was a plan to build a mosque larger than Hagia Sophia. However, upon realizing that the constructed mosque was not larger, Fatih punished the architect, reflecting the period's adherence to the rule of law and justice. By the time of Sultan Murat IV, Kadıköy was renowned for its palaces, vineyards, and gardens. Evliya Çelebi, in his Seyahatname, writes of six hundred vineyards in Kadıköy during this period. The palaces and windmills in the Yeldeğirmeni area attracted people from other parts of Istanbul, making Kadıköy a gathering place for intellectuals from this period onwards (Kütükçü, 2018, p. 15-16; Akerman, 2009, p. 16).
The research continues with examples of repurposing from the Kadıköy district of Istanbul.

The Example of Sustainable Reuse of Eglisia Notre Dame Du Rosaire Church as Yeldeğirmeni Art Centre

The historical texture of the Yeldeğirmeni district began to take shape with the construction of the Ayrılık Çeşmesi in 1600 and the Osman Ağa Mosque in 1612. These structures laid the foundation for the development of a settlement in the area (Çolpan and Erkan, 2016, p. 83-93).

During the Ottoman period, the lifting of restrictions on non-Muslims between 1789-1807 following Sultan Selim III's reforms significantly influenced the economic structure of society and the development of Kadıköy. A group known as the 'Levantine', primarily engaged in trade, played a major role in the development of Kadıköy. In neighbourhoods such as Rasimpaşa, Moda, Bahariye, Altıyol, Yoğurtçu, Erenköy, and Bostancı, where Levantines were predominantly residing, buildings were constructed to suit their religious beliefs and cultural values. Notable among these buildings were the French Girls' and Boys' School, Hemdat Israel Synagogue, and Ayia Yorgi Church (Tarkay, 2010, p. 38).

Significant urban changes occurred in Istanbul following the works of the İntizam-ı Şehir Commission established in 1856. New regulations were implemented in areas like roads, sidewalks, lighting, sanitation, and waste management, marking a transformation in the city's classic appearance. In 1857, 14 municipal districts were established in Istanbul, with Eyüp, Üsküdar, and Kadıköy each having their own municipalities (Tarkay, 2010, p. 33).

The historical building located on İskele Street in Rasimpaşa Neighbourhood of Yeldeğirmeni is recorded to have been constructed in 1895 as a church, monastery, and school. The Notre Dame du Rosaire church was opened by French nuns to serve as the chapel of the Sainte-Euphemie Girls' School (now Kemal Atatürk High School) (Arısoy, 2014, p. 115).

Figure.1- Notre Dame du Rosaire church - Cultural Center (Bilgin, 2014, p.112)

"In 1913, Notre Dame Du Rosaire Church housed 20 nuns and 360 students. In the major fire of 1911, the monastery and church sections suffered damage, but the school building remained relatively unharmed. The church closed in the 1930s, and the school building was transferred to the Ministry of Education in 1935. The church, which fell into disuse from the 1950s, contains valuable stained-glass windows, wall and ceiling frescoes (Atılgan, 2017, p. 43). In the 1960s, the church's lower floor was used as a hall by Kemal Atatürk School, but post-restoration, the hall was halved, with part of it planned as toilets (Atılgan, 2017, p. 45). The monastery and school buildings, used as a sports hall in the 1980s, were in poor condition. The building, with a meeting hall accessible from the school's inner courtyard and a balcony for women (Figure 4), remains impressively lavish to this day (Atılgan, 2007, p. 30).

In 1981, Yeldeğirmeni area was declared a conservation area by the Monuments High Council and the No. V Preservation Board. The targeted conservation plans for the area were approved by the Istanbul No. II Preservation Board in 1996, with regional boundaries reviewed in 1998. In 1999, the area was evacuated due to damage from an earthquake. Within Rasimpaşa, where Yeldeğirmeni is located, there are 184 structures registered by the High Council for Conservation and the Istanbul Regional Preservation Board. The aim of prospective projects is to preserve the existing neighbourhood culture and structure, designing the environment as a whole. Hence, the projects are shaped as neighbourhood renewal rather than urban transformation. It is decided that the real owners of the region are its residents, and solutions should be based on their demands (Şahin, 2013, p. 33). The most crucial point in transformation concepts is to include the environment in planning. Transformations actively involving the local community are critical for the continuity of spaces."

Figure.2- Women's Department (Atılgan, 2007, p.30)

Figure.3- Interior of the church. The photo on the left is 2007, the photo on the right is 2014 (Atılgan, 2017, p.45)

Kadıköy Municipality purchased the 19th-century French Eglisia Notre Dame du Rosarie Catholic Church from its owner François Xavier Jacob for eight hundred thousand liras. After the restoration of the church, it was planned to be used for ceremonies and concerts. The church, which will also function as a museum, can serve as a place of worship. In 1979, the Conservation Board decided that the church had lost its 'worship characteristic', leading to a restoration decision. After the new function was assigned, the option of worship was planned to be added additionally.

The historical structure, built thanks to the rights granted during the Tanzimat Period, is considered an architectural monument. In 2007, the hall of the church was reinforced with steel beams and columns. The long-abandoned church was purchased by Kadıköy Municipality in 2012 and restored in 2014, transforming it into an art centre. Yeldeğirmeni Art Centre opened on March 14, 2014, hosting various art events. The "Live Your Street" event organized activities such as painting, puppet, and coffee workshops, and theatrical performances in the area. It was awarded the "Project Award" in the 2011 "Historical and Cultural Heritage Conservation Project Implementation Encouragement Competition" by the Union of Historical Towns. The centre, while being an ideal venue for classical music concerts, also hosts cinema screenings and exhibitions.

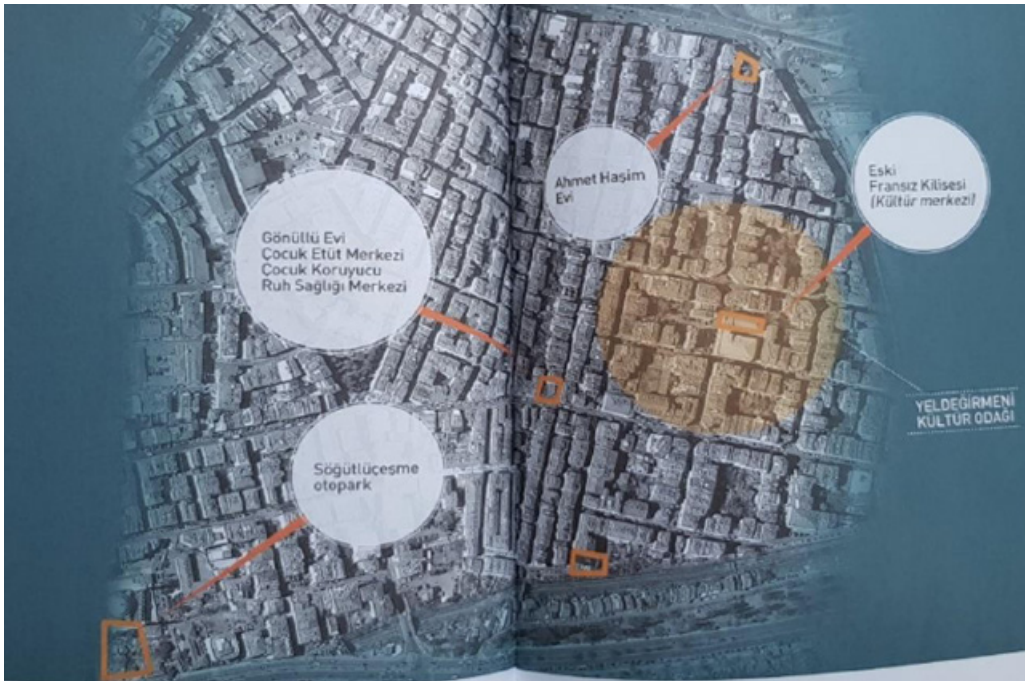

Figure.4- Old French Church - Cultural Center (Bilgin, 2014, p.115)

The Yeldeğirmeni district in Kadıköy has been a significant settlement on Istanbul's Anatolian side since the Ottoman period. Renowned for its historical and social fabric, this area has hosted various communities throughout different eras. Named after the windmills that utilized the wind in the area, Yeldeğirmeni was a centre for meeting the palace's flour needs during the Ottoman era.

Until the 20th century, Yeldeğirmeni continued to exist as a neighbourhood with cultural diversity, home to Jewish, Muslim, Greek, and Armenian populations. In the early years of the Republic, the Turkish and Jewish populations were of equal number, with Armenians and Greeks as minorities. Today, actively used synagogues, mosques, and Greek churches in the area reflect the historical and cultural diversity of the region.

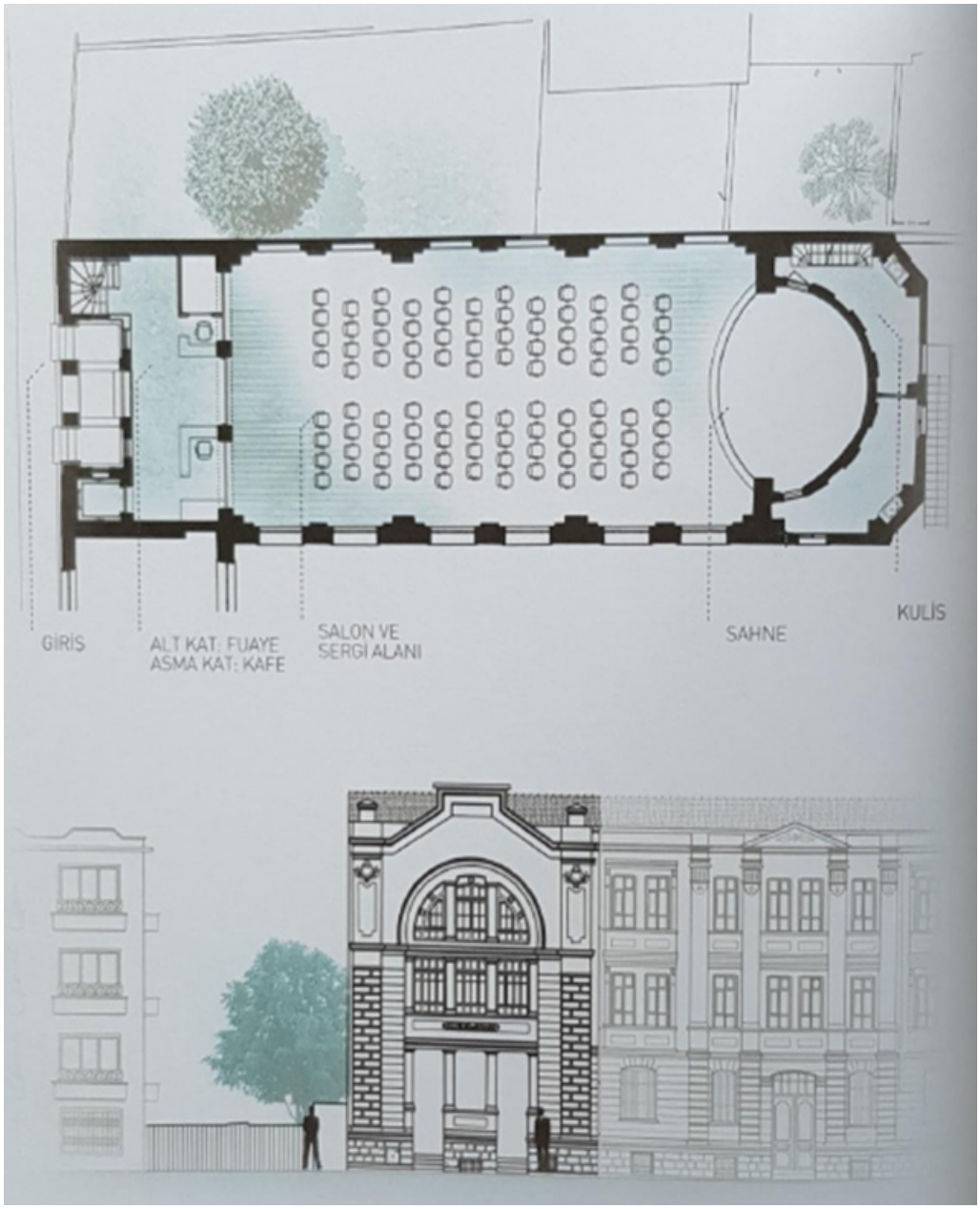

Figure.5- Yeldeğirmeni Art Center Plan (Bilgin, 2014, p.114)

Bahariye and Moda are other key centres influencing Yeldeğirmeni's social and cultural structure. Cultural facilities such as cinemas, theatres, exhibition halls in these areas have significantly contributed to Kadıköy's cultural life. Additionally, the Moda Sea Club, since 1935, has been a major centre for cultural and sporting activities.

Iskele Street is a significant part of Yeldeğirmeni, where various structures like historic apartments, religious buildings, and educational institutions are located. These include the Saint Euphemie French School (now Kemal Atatürk Middle School), the Eglisia ND Du Rosarie Church, the German School (Osmangazi Elementary School), and the Rasimpaşa Mosque. The location of Iskele Street, suitable for land, sea, and rail transportation, has contributed to the economic and social vibrancy of the area.

The Yeldeğirmeni area has been a neighbourhood inhabited by Greek, Jewish, and Muslim communities since the 19th century, where apartment buildings first appeared in Kadıköy. The area saw increased apartment construction from the

1950s, a rise in crime rates after the 1980s, and gained diversity. In the 2000s, the area became popular among university students and artists.

The Yeldeğirmeni Art Centre was opened following the restoration of a 119-year-old building by Kadıköy Municipality, contributing significantly to the cultural life of the area by hosting artistic activities.

Figure.6- Eglisia Notre Dame Du Rosaire Church-Yeldeğirmeni Art Center (https://planetaestambul.com/2019/07/09/notre-dame-du-rosaire/)

Figure.7- Eglisia Notre Dame Du Rosaire Church-Yeldeğirmeni Art Center (https://planetaestambul.com/2019/07/09/notre-dame-du-rosaire/)

Figure.8- Sign showing the entrance of Notre Dame du Rosaire church (https://planetaestambul.com/2019/07/09/notre-dame-du-rosaire

Figure.9- Front Facade of Notre Dame du Rosaire Church (planetaestambul.com)

CONCLUSION AND RECOMMENDATIONS

Sustainability, rooted in the awareness of limited societal resources, is a pivotal concept influencing various realms from construction technologies to energy resources. At the building scale, sustainability is intricately linked with these concepts, with the method of repurposing historical buildings gaining significant importance in this context. The preservation procedures applied to historical structures focus on improving their physical integrity yet leaving them functionless turns them into mere visual objects. Assigning new functions to these buildings, responsive to modern needs and considerate of environmental factors, is essential for spatial sustainability.

In selecting functions for historical buildings, changing life conditions and values must be considered, ensuring minimal intervention and relevance of the chosen functions in the future. Since historical structures reflect a society's cultural heritage, their preservation and transmission to future generations are of great importance. In repurposing projects, interventions should be carried out without damaging the original fabric of the building and within the confines of legal limitations.

The selection of new functions for historical buildings necessitates the evaluation of historical, environmental, physical, and legal factors. In Turkey, owners of historical buildings can intervene within the criteria set by relevant authorities. Interventions in registered buildings are evaluated within the scope of restoration, yet this can lead to legal and financial obligations that often result in owners abandoning the buildings. Therefore, restoration and repurposing of historical buildings are crucial for both cultural heritage preservation and societal progress.

Repurposed historical buildings require a careful analysis of their existing spatial organization, location, and environment. The original architectural features, period characteristics, spatial properties, circulation areas, and structural systems of historical buildings must be preserved. Principles set by international organizations serve as a primary guide in the preservation of historical buildings, encompassing interventions that maintain the original textures. The reversibility of interventions and distinguishability from the original identity are critical. Ensuring that any intervention does not harm the building's original fabric is fundamental.

The decision-making process for a historical building's new function is directly linked to its preservation. The suitability of the assigned function, meeting user needs, and environmental interaction are vital. Restoration requires interdisciplinary work, taking into account the period characteristics and space identities of the building. Preserving the building's spatial layout and interior architectural features is critical for the success of restoration projects. The role of interior designers in these projects contributes significantly through space analysis and implementation of designs. Since conservation science requires an interdisciplinary approach, architects and interior designers play fundamental roles in this process.

In summary, repurposing historical buildings involves preserving their original fabric, selecting appropriate functions, and implementing restoration projects with an interdisciplinary approach. These are key factors in maintaining cultural heritage and ensuring sustainability.

The process of repurposing the Notre Dame Du Rosaire Church aimed to provide a function for the building where communities can gather and host cultural and

social events. This process redefined the building not just as a historical object but as an active space within the community.

While Turkey's heritage in the field of preservation dates back to the Ottoman era, the concept of preservation began to develop in a modern sense when the Supreme Board of Real Monuments and Antiquities adopted the Venice Charter in 1967. The notion of the "urban conservation area," introduced two years before the Amsterdam Declaration of 1975, emphasized the evaluation of historical buildings not in isolation but in conjunction with their surroundings. However, erroneous restoration practices and changing political authorities have led to shifts in approaches to implementation, supervision, and preservation, resulting in significant challenges in the preservation of historical buildings.

In the repurposing of historical buildings, the use of materials and construction techniques should align with the period-specific architectural features of the buildings. Aesthetic and rhythm, as perceived by users, affect the monumental status of historical buildings in the public's mind. Preserving the sense of monumentality and the existing historical fabric is crucial in newly repurposed historical buildings.

Rather than adopting a freeze-in-time preservation approach, repurposed historical environments should be conceived as active spaces compatible with the benefits of modern technology. Historically, these designed structures contribute culturally and economically to the city and country. Especially when repurposed structures align with the needs of society, they play a vital role in preserving cultural values and ensuring the sustainability of such preservation. The examined buildings in the research have been repurposed with functions that the region culturally lacked. For example, the conversion of the Municipality building into a library is an example of this approach.

Preservation of historical and cultural values emphasizes the consideration of both abstract and tangible elements as a whole. In sustainable preservation projects, it is crucial to keep these structures not only physically but also actively engaged with the economic and social development of society. The repurposing of historical spaces acquired by Kadıköy Municipality aligns with these principles. This approach ensures that buildings are preferred by users not just for their visual impact but also for addressing societal needs.

In preservation projects in Turkey, challenges such as a lack of expertise and the approval of projects before reaching sufficient maturity are present. Regular maintenance and inspection are critical for the sustainability of projects in preserving historical buildings. Particularly in a city as historically and strategically significant as Istanbul, the preservation of heritage becomes a global responsibility, not just a local one. The financial obligations associated with preservation efforts often make it impractical for property owners to implement them, emphasizing the importance of legal and regulatory mechanisms. Municipalities playing a pioneering role in preservation and repurposing can be effective in preserving cultural values and the spatial memory of the community for future generations.

The projects undertaken by Kadıköy Municipality in acquiring and repurposing spaces have been designed in accordance with the needs of the community and adhere to general principles. These projects serve as important examples in terms of the sustainability of the cultural, historical, and spatial memory of the community.

Conflict of Interest

No conflict of interest was declared by the authors.

Authors' Contributions

The authors contributed equally to the study.

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