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THE INDUSTRIAL HERITAGE OF GREECE: A REVIEW OF THE 20TH CENTURY THROUGH QUALITATIVE COMBINED ANALYSIS

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Abstract

This paper examines industrial heritage, beginning with the emergence of industrial archaeology in Europe as a response to the large-scale destruction of historic industrial buildings. It further analyses how this international trend was transferred—albeit in a temporally delayed manner—to Greece, where state indifference and processes of deindustrialization initially led to the devaluation of more recent industrial monuments. Through four case studies (the Matsaggos Tobacco Factory, Technopolis, Lavrion, and Papastratos), different models of reuse are analyzed, including cultural, academic, and private-led approaches. The findings indicate that adaptive reuse is recognized as a best practice for achieving sustainability in industrial heritage conservation. However, its application in the Greek context requires careful planning to prevent urban exclusion, while ensuring a balance between economic development and the preservation of historical memory.

Keywords: Industrial Heritage, Industrial Archaeology, Adaptive Reuse, Deindustrialization, Urban Regeneration, Cultural Management, Greek Industry.

EL PATRIMONIO INDUSTRIAL DE GRECIA: UNA REVISIÓN DEL SIGLO XX A TRAVÉS DE UN ANÁLISIS CUALITATIVO COMBINADO

Resumen

Este artículo examina el patrimonio industrial, comenzando por el surgimiento de la arqueología industrial en Europa como respuesta a la destrucción a gran escala de edificios industriales históricos. Asimismo, analiza cómo esta tendencia internacional se trasladó —aunque con cierto desfase temporal— a Grecia, donde la indiferencia institucional y los

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procesos de desindustrialización condujeron inicialmente a la desvalorización de los monumentos industriales más recientes.

A través de cuatro estudios de caso (la Fábrica de Tabacos Matsaggos, Technopolis, Lavrion y Papastratos), se analizan diferentes modelos de reutilización, entre los que se incluyen iniciativas de carácter cultural, académico y privado. Los resultados indican que la reutilización adaptativa se reconoce como una buena práctica para lograr la sostenibilidad en la conservación del patrimonio industrial. Sin embargo, su aplicación en el contexto griego requiere una planificación cuidadosa que evite la exclusión urbana y, al mismo tiempo, garantice un equilibrio entre el desarrollo económico y la preservación de la memoria histórica.

Palabras clave: Patrimonio industrial, arqueología industrial, reutilización adaptativa, desindustrialización, regeneración urbana, gestión cultural, industria griega.

1. INTRODUCTION

The concept of Industrial Heritage has become an integral component of modern cultural identity and has attracted increasing scholarly attention in recent decades (i.e. Smith, 2006; Harrison, 2013; Swensen & Granberg, 2024). At the heart of this discussion lies the distinction between the heritage itself and Industrial Archaeology. While Industrial Heritage refers to the tangible and intangible remains of our industrial past, Industrial Archaeology constitutes the academic discipline dedicated to studying, interpreting, and documenting these remains within their historical and social context (Palmer & Neaverson, 1998). This academic documentation serves as the foundation for effective Industrial Heritage Management, ensuring that the preservation and valorization of such sites conducted through systematic and sustainable strategies (Alfrey & Putnam, 1992; Douet, 2013). Beyond simple building shells, this field examines the totality of the industrial landscape—from machinery to workers' settlements—which, possess deep architectural and historical value (Vafaie et al., 2023). Today, the focus has moved from mere designation to sustainable adaptation and reuse. Reintegrating industrial shells into the urban fabric saves resources and energy while keeping collective memory alive (i.e. Mergos & Patsavos, 2020; Gharaati et al., 2023; Mısırlısoy & Günçe, 2016). Nevertheless, transforming production sites into leisure spaces carries the risk of altering their original character (Hadjimichalis, 2014; Karadimitriou et al., 2021).

Overall, this study examines the evolution of industrial heritage in Greece, focusing on its historical development, its role in urban regeneration, and the ways in which adaptive reuse has been integrated into contemporary urban planning practices. Consequently, the main question this study aims to answer is how industrial heritage is reused in the Greek context, and what different models of reuse emerge from the examined case studies.

The analysis is structured as follows: The second section that follows presents the relationship between Industrial Heritage and Industrial Archaeology, while the third section, discusses the Adaptive Reuse and how it's related to Collective Memory. The Industrial Heritage of Greece is presented on fourth section, while the fifth examines in brief how industrial heritage transformed in 20th century. Section sixth presents methodology and research questions, while section seventh the cases studies. Section eighth follows with the comparative analysis, while section ninth provides answers to research questions. Finally, the last section concludes.

2. DEFINE THE RELATIONSHIP BETWEEN INDUSTRIAL HERITAGE AND INDUSTRIAL ARCHAEOLOGY

The recognition of industrial heritage as an object of research and protection did not emerge suddenly but is linked to a gradual shift in the way cultural heritage has been understood after the Second World War (Storm, 2008; Douet, 2013). As Europe faced extensive processes of deindustrialization, many factories, mines, and infrastructures were abandoned or demolished. This loss highlighted the need for immediate documentation, as many elements of modern history were at risk of being lost before they could be studied (Palmer & Neaverson, 1998).

Within this context, the formation of Industrial Archaeology and Industrial Heritage, possess significant differences. Industrial Archaeology appeared first as a scientific field seeking to address a significant gap in historiography. It focuses on the systematic study of the material remains of the industrial era. We can define it as the field that examines the material traces of industrial activity, aiming to understand the technological, productive, and social processes of the past (Buchanan, 2000).

As early as the 1950s, Rix emphasized the need to record factories, machinery, and technological installations that were rapidly disappearing (Rix, 1955). Later, Buchanan stressed the importance of studying the industrial era, pointing out that it had been neglected compared to other historical periods (Buchanan, 2000). As he notes, Industrial Archaeology developed in order to fill this gap, focusing on the study of the material remains of the age of steam and mechanization, which had previously been largely overlooked. In its early stages, Industrial Archaeology had a primarily documentary character, focusing on the recording, mapping, and interpretation of industrial installations and technological systems (Alfrey & Putnam, 1992).

Over time, as knowledge in this field increased and society became more aware, the way industrial remains were perceived also changed. They were no longer seen merely as objects of study but began to be recognized as elements of cultural value (Stratton & Trinder, 2000). Within this framework, the concept of Industrial Heritage emerged, extending the field beyond study to include protection and reuse.

The relationship between Industrial Archaeology and Industrial Heritage can therefore be understood as an evolving process: the former provided the scientific foundation through research and documentation, while the latter expanded the field by incorporating the dimensions of value, protection, and reuse. In other words, Industrial Archaeology functions as a knowledge base, while Industrial Heritage operates as an applied field of cultural management.

3. ADAPTIVE REUSE AND COLLECTIVE MEMORY

Adaptive Reuse constitutes a key management tool. It essentially refers to the process of adapting old or abandoned buildings to new sites, without losing their historical and architectural identity. According to Plevoets and Van Cleempoel (2014), it is not simply a form of "recycling" industrial shells, but a strategy for sustainable development that extends the life cycle of buildings. At the same time, the reuse of industrial sites is linked to the development of cultural and industrial tourism, as these spaces are transformed into accessible sites that attract public interest and contribute to the local economy (Harfst et al., 2021). In this way, industrial heritage acquires a new and active role, functioning not only as a carrier of memory, but also as a resource for development.

However, the importance of reuse is not limited to the physical preservation of buildings. Industrial sites also connected to Collective Memory. This concept refers to the shared experiences and memories of members of a society, which contribute to shaping its identity (Halbwachs, 1992). In the case of industrial heritage, factories and production sites are linked to work, everyday life, and the history of entire communities (Cosson, 2012; Strangleman et al., 2013).

Reuse, therefore, also functions as a way of preserving this memory. Through their transformation into cultural spaces, museums, or public infrastructures, these sites continue to be part of social life, while maintaining their connection to the past (Storm, 2008; Xie, 2015). At the same time, this process contributes to sustainable urban development and the revitalization of degraded areas (Vafaie et al., 2023; Gharaati et al., 2023).

At the international level, there are several examples that illustrate how industrial heritage can be effectively utilized in practice [i.e *IBA Emscher Park* and *Landschaftspark Duisburg-Nord,* Germany, *Tate Modern,* UK, *Gasometer Vienna,* Austria, *Lingotto Fiat,* Italy, *798 Art District*, Beijing, China] (Latz, 2001; Shaw, 2002; Evans, 2009; Currier, 2008**).** In most cases, this does not simply involve the preservation of old buildings, but rather their meaningful reuse, allowing them to acquire a new role within the contemporary urban environment, to tourism and education (Xie, 2015).

4. THE GREEK INDUSTRY IN THE 20TH CENTURY IN BRIEF

In contrast to the Western European model of mass industrialization (18th-19th centuries), Greece followed a more gradual and uneven path, determined by geopolitical instabilities, a lack of coal, and an economy oriented primarily toward trade and shipping (Agriantoni, 1986). Nonetheless, during the 20th century, industry served as the main lever for urbanization and social transformation in the country (Iordanoglou, 2020).

4.1 The First Period of Development (1900-1922)

In the early 20th century, Greek industry began to acquire a more structured and organized form (Alogoskoufis, 2021). Activity was concentrated mainly in port cities that already possessed infrastructure, creating the first industrial centers. Piraeus, for example, undoubtedly emerged as the country's industrial center; by 1920, it accounted for 45% of Greece's industrial power (Belavilas and Petrou, 2022). Large factories and machine shops attracted thousands of workers from the hinterland (Belavilas, 2021). Concurrently, significant centers developed in the periphery. Ermoupoli on Syros (shipyards, tanneries) and Volos (tobacco, metallurgy) constituted strong poles (Leontidou, 1990a; Kostis, 2018). In Eleusis, the founding of the "Titan" cement factory in 1902 and the "Kronos" distillery signaled the city's transformation into an industrial zone (Cheirchanteri & Tsikos, 2025).

4.2 The Asia Minor Catastrophe and the Interwar Period (1922-1940)

The Asia Minor Catastrophe and the arrival of 1.5 million refugees dramatically altered the economic map of Greece (Mazower, 2000; Alogoskoufis 2021). The refugees were not merely a "burden" for the state; they provided cheap labor as well as technical expertise, particularly in textiles and carpet-making (Arapoglou & Spyrellis, 2024). New settlements such as Nea Ionia, Drapetsona, and Kokkinia developed around factories, creating an unbreakable link between residence and work (Agriantoni, 1986). According to Leontidou, this period is characterized by "spontaneous industrialization," where small workshops rapidly evolved into industrial units within the urban fabric (Leontidou, 1990b).

4.3 Post-War Reconstruction and the "Take-off" (1950-1973)

Following the destruction of WWII and the Civil War, Greece entered a trajectory of reconstruction (Alogoskoufis, 2021). The period 1950-1973 is often referred to as the "Greek economic miracle," with growth rates reaching 7% annually in the context of the broader post-war economic expansion at the international level (Iordanoglou, 2020; Pantazelos et al., 2025). The state assumed a central role in this development, founding the Public Power Corporation (DEI) in 1950. Concurrently, through the construction of large lignite units (Ptolemaida, Megalopolis) and hydroelectric dams, it ensured cheap energy—a prerequisite for heavy industry (Kostis, 2018). Furthermore, in the 1960s, with the encouragement of foreign investment, massive complexes were created, such as the Aspropyrgos Refineries, Halyvourgiki, and Aluminium of Greece. Industrial production exceeded agricultural contribution to the GDP for the first time (Iordanoglou, 2020).

4.4 Deindustrialization (1970–1990)

From the 1970s, the situation changed radically and became a widespread international phenomenon (Rodrik, 2016), while Greece followed a similar trajectory (Alogoskoufis, 2021). Large factories began to close one after another, and the economy shifted more toward services and tourism (Karamessini, 2008; Petrakis & Kostis, 2020). Result was dramatic for traditional industrial areas. Piraeus, Lavrion, Eleusis, and Volos were filled with factory "carcasses". Sectors that flourished, such as textiles and papermaking, almost completely disappeared (Kostis, 2018). This mass abandonment created the ruins that we today strive to save as monuments of industrial heritage (Belavilas, 2021; Xie, 2015).

5. METHODOLOGY AND RESEARCH QUESTIONS

This study follows a qualitative combined methodology, using case study, content and comparative analysis. This approach is appropriate for examining complex phenomena such as the management of industrial heritage, where spatial, historical, and social dimensions cannot be adequately captured through quantitative data alone (Yin, 2014; Creswell, 2013). First, the study analyses selected Greek cases of industrial site reuse, aiming to explore different approaches to management and redevelopment. These cases were Lavrion, Technopolis in Gazi, Piraeus, and Volos. Second, a content analysis is applied to institutional texts (such as the TICCIH and UNESCO Charters). This analysis allows for the identification of key concepts—such as reuse, sustainable development, and collective memory—and their connection to the Greek context. Finally, a comparative analysis took place through the examination of similar methodological approaches have been widely used in studies on cultural heritage and urban regeneration (Plevoets & Van Cleempoel, 2019; Evans, 2005). The comparative analysis based on five specific criteria: (a) the Managing Body (Oevermann, 2020; Landorf, 2009), (b) the Type of Reuse (model) (Alavi et al., 2024; Kurtoglu, 2026; Li and Heath, 2025) (c) the Original Industrial Function (Meng et al., 2024; Alavi et al., 2026) (d) the Current Functions (Oevermann and Mieg, 2021; Sun and Chen, 2023), and (e) the Urban Impact.(Arbab and Alborzi, 2021; Rodwell and Turner, 2018). These criteria allow for a structured evaluation of how different management models affect the urban fabric.

Based on this approach, the research questions are:

RQ1: How industrial heritage reused in the Greek context, and what different models of reuse emerge?

RQ2: What is the role of different actors in the process of industrial heritage reuse in Greece?

RQ3: What are the main impacts and challenges of industrial heritage reuse on urban areas in Greece?

6. CASE STUDIES

6.1 Volos: Matsaggos Tobacco Factory

The Matsaggos factory, founded in 1890, became one of the most important industrial complexes in the region and dominated the Greek market until World War II. The complex, covering approximately 13,000 sq., occupies an entire urban block in the city centre and constitutes a characteristic example of industrial architecture in Greece (Adamakis et al., 2013; Dimitriou, 2022). Following its economic decline and the company's placement under forced management in 1970, the factory ceased operations permanently in the early 1970s (Adamakis, 2009).

The Matsaggos Tobacco Factory in Volos is a unique example in Greece, where the preservation of industrial heritage integrated into the strategic planning of a Higher Education Institution. The University of Thessaly as part of its strategy to develop a "polycentric campus" within the urban fabric later acquired the property. The acquisition process was gradual and formed part of a broader vision that linked academic expansion with the revitalization of the city centre. More specifically, the involvement of a public university in this process illustrates how academic institutions can function as key agents of urban transformation, particularly in medium-sized cities such as Volos (Dimitriou, 2022). The reuse of the Matsaggos factory acted as a catalyst for the wider area. The presence of students and academic functions in the city centre strengthened local economic activity, increased daily mobility toward the area, and helped reverse the previous image of decline and abandonment. This transformation demonstrates how the reuse of industrial buildings can function as a tool for sustainable urban development; linking heritage preservation with contemporary urban needs (Mitoula et al., 2013). Furthermore, the intervention highlights the symbolic and mnemonic dimension of industrial heritage. Even after its functional transformation, the building remains a point of reference for the local community, connecting its industrial past with its current academic role. This continuity suggests that industrial heritage can acquire new meanings without necessarily losing its historical significance (Halbwachs, 1992; Dimitriou, 2022). In contrast to other cases in which cultural or commercial uses dominate, here the new function is directly associated with academic activity and everyday use of the space. This model differs significantly from reuse approaches that depend on tourism or event-based consumption, since it based on continuity, institutional stability, and long-term incorporation into the city's social and spatial structure (Mitoula et al., 2013). In this sense, reuse becomes not only a matter of conserving a building, but also a broader urban strategy that influences patterns of local development, accessibility, and centrality. The visual contrast between the historical depiction of the factory (Figure 1) and its contemporary restored state (Figure 2) perfectly illustrates this organic spatial and functional transition from industrial production to academic life.

Figure 1. Historical depiction of the Matsaggos Tobacco Factory in Volos



Source: Volos Municipal Center of History Archive.

Figure 2. University of Thessaly, Department of Economics at the former Matsaggos Factory



Source: University of Thessaly. Available at: https://www.uth.gr [Accessed: May 26, 2026]

6.2 Technopolis City of Athens (Gazi): The Old Gasworks Factory

The gasworks factory complex in Athens constitutes a rare monument of industrial archaeology by European standards, as one of the few that preserve their mechanical equipment in situ. Local Government played a significant role in this case regarding the rescue of industrial heritage, highlighting the importance of municipal initiatives in the management and reuse of industrial sites, particularly in the context of protecting and promoting industrial heritage within the urban fabric (Loukaki, 2008).

The factory was founded in 1857 by royal decree of King Otto, by the French entrepreneur Francois Feraldi, for lighting Athens. For decades, it operated as a private enterprise until 1938, when ownership passed to the City of Athens and the Athens Municipal Gas Enterprise was established. Its operation ceased permanently in 1984, due to the prevalence of electricity and the pollution it caused in the city center. The 1986 designation by the Ministry of Culture acted as a shield against intense pressures for demolition and the construction of office buildings (Municipality of Athens, n.d.). In 1999, was inaugurated, a cultural multi-space under the

management of a municipal enterprise. The decision of the City of Athens to convert the facility follows a broader global trend of repurposing industrial monuments for cultural purposes. This shift reflects a transition toward culture-led urban regeneration strategies, where former industrial sites are transformed into hubs of cultural production (Evans, 2005; Sarri, 2017). More specifically, Technopolis functions not only as a cultural venue but also as a multifunctional urban space that hosts exhibitions, concerts, educational programs, and festivals, thus expanding its role beyond heritage preservation (Gazi, 2017; Sarri, 2017). However, the substantive utilization of the industrial stock was completed in 2013, with the inauguration of the Industrial Gas Museum. The restoration fully respected the architectural integrity of the buildings, such as the ovens, gasholders, and chimneys (Gazi, 2017).

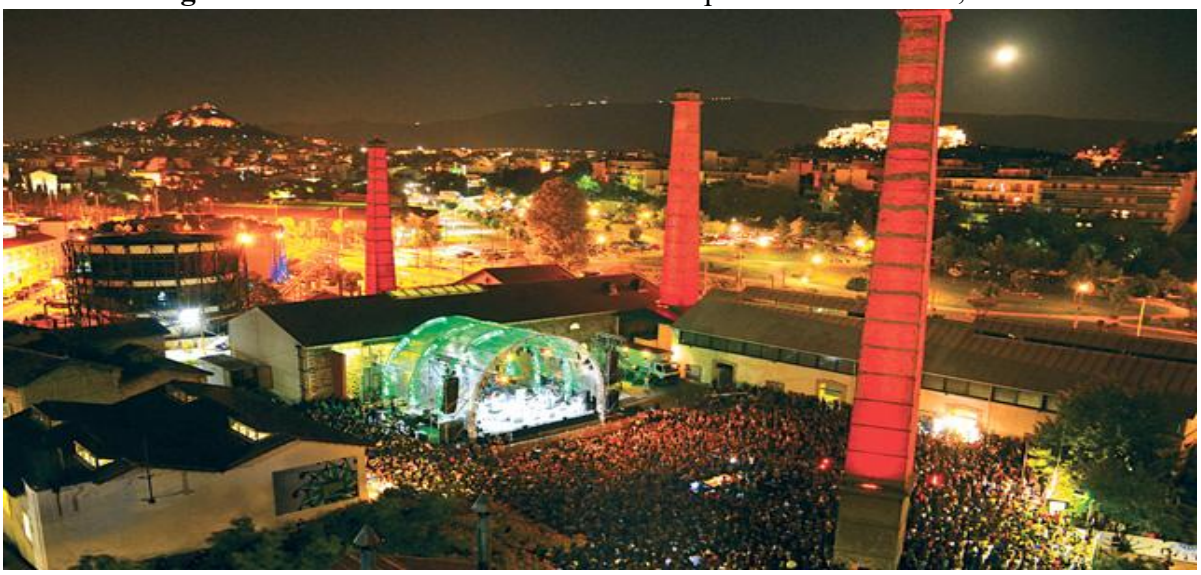
Technopolis represents a successful example as it combined the rescue of technological memory with the hosting of major events, thereby contributing to the cultural identity and attractiveness of the area. The concentration of cultural activities has significantly increased the visibility of the area at both national and international levels. Technopolis serves as a model of industrial heritage reuse primarily based on cultural functions. In contrast to the Matsaggos case, here the emphasis shifts towards tourism and entertainment, reflecting a strategy of culture-led urban development (Evans, 2005; Sarri, 2017). While the intervention has undeniably revitalized the urban environment, making Gazi one of the most vibrant districts in Athens, it also reveals important contradictions. On the one hand, economic activity, tourism, and cultural production have been strengthened; on the other hand, issues of social inequality and spatial exclusion have emerged, indicating the limits of culture-led regeneration as a sustainable urban strategy (Gourzis & Alexandri, 2026). The transformation of the area illustrates the ongoing tension between economic growth and social sustainability, a pattern frequently observed in global cases of industrial heritage management. In addition, the commercialization of cultural space has been criticized for prioritizing consumption-oriented uses over local social needs, raising questions about the inclusiveness of such regeneration strategies (Zukin, 2010). The transition from a heavily polluting industrial facility (Figure 3) to a modern cultural venue (Figure 4) visually captures the essence of this culture-led urban regeneration.

Figure 3. Historical view of the Athens Gasworks (Gazi) during the period of its industrial operation



Source**:** Archive of the Industrial Gas Museum

Figure 4. General view of the Gazi Technopolis cultural center, Athens



Source: Photo: G Da (Wikipedia Creative Commons) Available at : https://commons.wikimedia.org/wiki/File:The_Gazi_Technopolis_cultural_center,_Athens,_Greece_-_panoramio.jpg [Accessed: May 26, 2026].

6.3 Lavrion Technological Cultural Park (LTCP)

Lavrion represents the most significant case of heavy industry in Greece. Here, the rescue did not concern an isolated building, but an extensive metallurgical complex of 250 acres. The National Technical University of Athens (NTUA), applying the model of "regenerative reuse", undertook the initiative. In this case, the intervention can be understood as a broader effort to utilize industrial heritage, where reuse is not limited to preservation alone but is also linked to innovation and regional development (Hadjimichalis, 2014; Yıldız, 2023).

The "French Mining Company of Lavrion" created the complex in 1875. Lavrion operated as a typical "company town," where the company-controlled production, housing, and social life (Conophagos, 1980). Industrial activity gradually declined during the 1980s, and the unit closed permanently in 1989 (Karachaliou & Kaliampakos, 2005). This form of organization had a strong impact not only on the local economy but also on the everyday life of the area, creating a close relationship between labor and the urban environment (Hadjimichalis, 2014). In 1992, the NTUA established the Lavrion Technological Cultural Park in 1994. The involvement of the university highlights how academic institutions can play an active role in the regeneration of post-industrial areas, especially in regions that have lost their industrial base (Karachaliou & Kaliampakos, 2005).

The project was particularly demanding, as it required not only the restoration of buildings such as machine shops and foundries, but also extensive environmental rehabilitation. This aspect was especially important, since decades of mining activity had caused serious pollution problems, making the site unsuitable for new uses without prior intervention (Hadjimichalis, 2014). Today, the buildings do not function merely as monuments but host startups, university laboratories, and exhibition spaces. In this way, the site takes on a more complex role, combining the preservation of the past with new forms of economic activity and innovation (Karachaliou & Kaliampakos, 2005; NTUA, n.d.).

Figure 5: Historical view of the facilities of the French Mining Company of Lavrion during its industrial peak.



Source: Archive of the Lavrion Technological Cultural Park

Figure 6. General view of the Lavrion Technological Cultural Park (LTCP)



Source: Photo: National Technical University of Athens (NTUA).Available at: https://www.ltcp.ntua.gr [Accessed: May 26, 2026].

The Lavrion project is internationally recognized because it demonstrated that industrial heritage could be economically viable through technology (Yildiz, 2023). In contrast to the case of Gazi, which focused mainly on cultural uses, Lavrion connected the industrial past with contemporary research and production (Karachaliou & Kaliampakos, 2005). This approach differs from culture-led regeneration models, as it links reuse not only to culture but also to research, entrepreneurship, and technological development. It represents a model of industrial heritage reuse that emphasizes technology and production but also integrates into new forms of economic activity (Karachaliou & Kaliampakos, 2005; Bullen & Love, 2011). At the same time, the preservation of the industrial complex allows the historical identity of the site to remain visible, linking its mining past with its present use (Hadjimichalis, 2014). In this sense, Lavrion functions both as a place of memory and as a space of innovation (Halbwachs, 1992).

However, certain limitations can also be identified. The focus on specialized activities such as research and innovation may restrict broader public participation, especially when compared to more open and accessible cultural spaces like Technopolis. The extensive environmental and

architectural rehabilitation is evident when comparing the historical mining operations (Figure 5) with the modern, restored facilities of the park today (Figure 6).

6.4 Piraeus: The Renaissance of the Papastratos Tobacco Warehouses

The area of Agios Dionysios in Piraeus had long been a declining industrial zone, largely disconnected from the surrounding urban fabric. The recent redevelopment of the former Papastratos tobacco industry represents one of the most significant urban regeneration projects in Attica, as it was primarily driven by private initiative rather than state entities (Karadimitriou et al., 2021).

The historic Papastratos tobacco industry founded in 1931, and its buildings in Piraeus, which housed the warehouses and the lithography plant, are characteristic examples of industrial modernism with strong Bauhaus influences (Belavilas, 2021). The company ceased operations in these facilities in 2008, when production was relocated to the new facilities in Aspropyrgos. The prolonged abandonment of these large industrial shells contributed to the further degradation of the area and the decline of land values. This development closely related to the broader process of deindustrialization, in which former production sites lose their original function and become underused or vacant urban spaces in need of new uses (Linkon, 2013).

A turning point in the history of the complex occurred in 2016, when the real estate development company Dimand Real Estate, in collaboration with Grivalia Properties, acquired the properties. The investment plan aimed at transforming the former warehouses into modern, high-standard office buildings. The architectural intervention preserved key elements of the industrial facades, while the interior spaces were redesigned to meet contemporary requirements, including LEED Gold certification, which is associated with energy efficiency and sustainability (Dimand, 2018; Ktirio, 2018; Langston et al., 2008).

On the one hand, the project contributed to the economic revitalization of an area that had remained inactive for years, transforming it into a dynamic business hub that now hosts major companies (Grivalia, 2019). On the other hand, it also raises concerns related to gentrification. The increase in property values and the shift in land uses may lead to the displacement of traditional activities and lower-income residents, gradually altering the social character of the area (Maloutas, 2007; Zukin, 2010). Furthermore, the project illustrates how industrial heritage can be incorporated into global economic networks, as the new uses are directly connected to multinational companies and advanced business services, reinforcing the international orientation of the local economy.

The Papastratos case represents a characteristic example of industrial heritage reuse driven primarily by private investment. Unlike other cases, such as Matsaggos (education), Gazi (culture), and Lavrion (research and technology), the new use of space here is more closely linked to business activity and the market (Karadimitriou et al., 2021). At the same time, the preservation of key architectural elements allows the connection with the industrial past to remain visible (Belavilas, 2021). However, this form of development also creates challenges, particularly at the social level. Rising land values and changing land use may limit the presence of smaller activities and alter the composition of the local population. In this sense, the Papastratos case highlights the difficulty of balancing economic development with social cohesion, a tension that is frequently observed in contemporary urban regeneration processes (Couch et al., 2011). The shift from the historic industrial shell (Figure 7) to the modernized, sustainable corporate environment (Figure 8) highlights the aesthetic and functional transformation driven by private investment.

Figure 7. Historical depiction of the "Papastratos" tobacco warehouse complex in Agios Dionysios, Piraeus.



Source: Papastratos Historical Archive.

Figure 8. Modern sustainable office spaces within the adaptive reuse project of Piraeus Port Plaza



Source: Photo: Dimand S.A. Sustainability Report. Available at: https://dimand.gr [Accessed: May 26, 2026].

7. COMPARATIVE ANALYSIS

The four case studies examined highlight distinct approaches to industrial heritage reuse. To evaluate these approaches, the analysis employs specific comparative criteria, as outlined in the methodology: the managing body, the type of reuse, the original and current functions, and the urban impact.

Managing body

In the cases of Matsaggos and Lavrion, public educational institutions, such as the University of Thessaly and the National Technical University of Athens, played a catalytic role. Conversely, at Technopolis, the initiative lay with local government, while in the Papastratos case, private investment initiative dominated. This differentiation is linked to broader patterns of urban regeneration governance, where public, municipal, and private actors shape different

priorities and intervention strategies. This variation directly influences both the design philosophy and the long-term objectives of each intervention.

Type of reuse

As for the new uses of the spaces, four distinct reuse models emerge from these examples. The Matsaggos building has been transformed into an educational facility, fully integrated into daily university life, while Technopolis functions primarily as a cultural hub for events and leisure. Lavrion is linked to research and technology, operating as a hybrid technological and cultural park, whereas Papastratos has been repurposed into a business center focusing on services and the market. This comparison demonstrates that industrial heritage reuse is not a monolithic process but adapts dynamically to the specific needs and strategies of each area.

Urban impact

Significant differences also identified in the urban impact of these interventions. In Matsaggos, the university's presence enhances the sustainability of the city center and fosters a stable social core. At Technopolis, the cultural identity led to urban revitalization, yet it was accompanied by phenomena of touristification and gentrification. In Lavrion, the intervention is more closely linked to regional development and innovation. Conversely, at Papastratos, economic growth has been rapid but has created pressures related to rising land values and shifts in the social character of the area—phenomena widely documented in international literature (Smith, 2002; Zukin, 2010). These differences are linked to the fact that the reuse of industrial heritage affects not only physical space, but also broader socio-economic structures and urban dynamics, particularly in areas undergoing rapid transition.

Functions

A further critical point of comparison concerns the relationship with collective memory and the preservation of industrial identity. While key architectural elements are maintained in all cases, the degree of memory integration varies significantly. In Matsaggos and Lavrion, the connection with history remains more organic, as the new functions allow for a continuity of identity. At Technopolis and Papastratos, however, the new roles transform the character of the space more radically, prioritizing new functions. This differentiation can be understood through the lens of collective memory, where societies re-signify their past through the transformation of physical space (Halbwachs, 1992; Nora, 1989).

Table 1.

Criteria	Matsagos factory	Technopolis (Gazi)	Lavrion	Papastratos
Managing Body	Public University (University of Thessaly)	Local Government (Municipality of Athens)	Public University (NTUA)	Private investors (Dimand/Grivalia)
Type of reuse	Educational	Cultural	Technological/ Research	Commercial
Original industrial function	Tobacco & industrial Warehouses	Gas factory	Mining & metallurgical complex	Papastratos tobacco factory
Current functions	University facilities/ Academic uses	Cultural venue/ Museum/ Events	Research & innovation	Offices /Commercial spaces/ Business
Urban impact	Revitalization of city center	Cultural regeneration/ Gentrification	Regional development/ innovation hub	Real estate upgrade/ Gentrification

In conclusion, this comparative analysis proves that industrial heritage reuse is a complex phenomenon where economic, social, and cultural factors coexist. Each case presents its own advantages and challenges, indicating that there is no single model of application. Instead, the success of an intervention ultimately depends on achieving a balance between economic viability, the preservation of historical identity, and social cohesion. Table 1 summarizes these criteria for each case.

8. Answering Research Questions

Based on the analysis of the four case studies, the research questions can be addressed as follows:

RQ1: The adaptive reuse of former industrial sites in Greece does not follow a single path. Instead, it shaped according to the needs of each city, the managing institutions, and development priorities. The analysis shows four completely different models of reuse: educational, cultural, technological/research-oriented, and commercial through private investment.

Specifically, the case of the Matsaggos industry in Volos represents an example of educational reuse. Integrating this industrial shell into the University of Thessaly brought the building back into the urban fabric through the daily life and presence of students. On the other hand, Lavrion is connected to a model of technological and research-oriented reuse, linking the industrial past with modern innovation and regional development. Furthermore, Technopolis in Gazi represents a purely cultural model, where the old factory became a vibrant space for cultural activities and entertainment. Finally, the Papastratos complex in Piraeus reflects a market-oriented model, where adaptive reuse is tied to private investments and the upgrading of the local real estate market. Ultimately, we can see that reusing industrial heritage is a multidimensional process that tries to connect the protection of historical identity with modern economic and urban needs.

RQ2: Different actors carry out the reuse of industrial heritage in Greece, and each of them plays a decisive role. On one hand, universities—like the University of Thessaly in the case of Matsaggos and the NTUA in Lavrion—focus heavily on utilizing these buildings for education and research. Their involvement is crucial because it helps preserve the historical character of the sites and ensures their smooth, organic integration into the everyday life of the city. On the other hand, local authorities, such as the Municipality of Athens with Technopolis, mostly use industrial heritage as a tool for cultural policy and urban regeneration. Through cultural activities and public events, they manage to transform former industrial spaces into popular hubs for entertainment and leisure. Finally, private investors, like in the Papastratos complex in Piraeus, care much more about economic development, business activities, and the real estate market. However, even though these investments upgrade declining urban areas, they are often linked with negative trends like social exclusion and rising housing costs for the locals. Ultimately, we can see that the way industrial heritage is reused in Greece depends directly on who is manage the project, as their different priorities deeply shape the outcome of each intervention.

RQ3: From our research, the adaptive reuse of industrial heritage has done a lot for urban regeneration in Greek cities. By giving new functions to abandoned industrial sites, we manage to bring them back into the urban fabric. This has really boosted economic activity, attracted new visitors, and brought in important investments that drastically improved the image of many

declining areas. At the same time, we saw that this reuse helps preserve collective memory and historical identity, connecting the industrial past with what our cities need today. However, our analysis also brought up some major challenges. In certain cases, looking too much at the commercial side of things has led to gentrification, spikes in land values, and the social exclusion of local people. On top of that, there is always a real risk of ruining the historical character of these spaces when a project puts too much emphasis on economic profit at the expense of its history and social value. Therefore, what we conclude is that for the adaptive reuse of industrial heritage to be truly sustainable, we must find a careful balance between economic growth, social cohesion, and keeping the historical identity of these places alive.

9. CONCLUSIONS

In conclusion, the protection of industrial heritage can be understood as a dynamic and evolving process that connects the past with the present and the future. From the shift in mentality that first emerged in Europe to the contemporary redevelopment projects in Greek cities, it becomes clear that former industrial sites can act as important drivers of social and economic development. The key challenge for the coming years lies in achieving a balance between economic utilization and the preservation of historical memory, ensuring that future generations can access and understand the industrial past.

At the same time, this study explored how abandoned industrial buildings in Greece can avoid demolition and be reintegrated into contemporary urban life. The approach followed combined a theoretical framework with the analysis of four case studies, each representing a different model of management and reuse. As demonstrated, the reuse of industrial heritage does not follow a uniform approach but is directly dictated by the managing body. Based on the examined case studies, three distinct models of reuse emerge: (a) the public-cultural model, (b) the academic-regenerative model, and (c) the private-real estate model.

In the case of Technopolis in Gazi, the transformation into a cultural space has significantly increased visitor activity and urban attractiveness. However, there remains the risk that the industrial heritage may be reduced to a symbolic backdrop for entertainment-oriented uses. In contrast, the cases of Lavrion and the Matsaggos Tobacco Factory in Volos demonstrate that university-led reuse can offer a more stable and sustainable solution. In these cases, the buildings are continuously used for educational and research purposes, maintaining their vitality throughout the year while preserving their historical identity.

The case of the Papastratos Tobacco Warehouses in Piraeus highlights both the potential and the challenges of private investment. While the redevelopment led to the rapid restoration and economic revitalization of the area, it also raised concerns regarding increasing property values and the risk of gentrification, potentially affecting the social composition of the local community.

Overall, it can be argued that industrial buildings need to maintain an active role in order to survive. In this context, adaptive reuse emerges as the most effective approach for the preservation of industrial heritage. Rather than remaining inactive or being converted into static museum spaces, these structures can acquire new functions that ensure their continued relevance. The crucial issue, however, lies in achieving a balance between economic viability, respect for historical identity, and the needs of the local population.

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