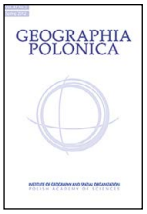

Geographia Polonica
2024, Volume 97, Issue 4, pp. 425-446
https://doi.org/10.7163/GPol.0286

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POLISH ACADEMY OF SCIENCES
www.igipz.pan.pl

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A CONCEPTUAL PLANNING FRAMEWORK TO INTEGRATION OF INDUSTRIAL HERITAGE REGENERATION WITH HISTORIC URBAN LANDSCAPE APPROACH

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Abstract

The Historic Urban Landscape has emerged as a new approach to reconcile heritage conservation and urban development. This approach has been increasingly used in planning literature since 2011. In this study, a four-step conceptual framework is developed by reflexive thematic analysis of recent literature on industrial heritage regeneration and Historic Urban Landscape. By integrating the principles of the Historic Urban Landscape into the regeneration of industrial heritage, a planning framework is developed with the aim of establishing recognition, fostering partnership, promoting diagnosis and feasibility, and implementing intervention measures. Also, it seems to help operationalize the Historic Urban Landscape approach in the context of industrial heritage sites by involving all stakeholders.

Keywords

industrial heritage • partnership • heritage value • regeneration • Historic Urban Landscape • conceptual planning framework • reflexive thematic analysis • conservation • development

Introduction

The term "industrial heritage" encompasses locations, buildings, complexes, areas, and landscapes, and related equipment, artifacts, and records that demonstrate past or current industrial production processes, from raw material extraction to product manufacturing and the associated infrastructures (ICOMOS-TICCIH, 2011). Industrial heritage holds substantial historical, social, cultural, technical, commercial, and aesthetic value, making it a vital part of our cultural legacy (Douet, 2016; Mo et al., 2022). Over recent decades, abandoned industrial buildings have become global phenomenon, leading to significant social, urban, and economic consequences. These buildings are often celebrated for their uniqueness, particularly in historically industrialized nations (Dell'Anna,

2022). They serve as reminders of past industrial processes and contribute to the distinct character of industrial city landscapes, playing a significant role in both real estate heritage and cultural history (Pickerill, 2021; Arbab & Alborzi, 2022).

In the latter half of the 20th century, the transformation of industrial historic sites began, with Britain serving as a model for effective urban regeneration strategies, influencing other Western European nations (Walker, 2001; Couch et al., 2008; Dellios, 2019). This industrial transformation involves the redevelopment and reuse of land, buildings, and urban structures (Ball, 2002; Kosmowski, 2019; Jarczewski & Koj, 2023). Conservation or adaptive reuse of industrial heritage sites can revitalize urban areas in industrial decline and stimulate the regional economy (Xie, 2006). The preservation and revitalization of such industrial heritage sites must address not only structures and industrial processes but also the surrounding streetscape, community, and spatial fabric (Mo et al., 2022). According to the National Heritage Protection Plan 2011-15 in the UK, industrialization significantly impacts the environment, and historic industrial sites are integral to tourism and urban regeneration initiatives, offering potential for empathetic new uses despite inherent challenges (Pickard, 2018).

Urban heritage faces increasing challenges in the 21st century, including mass tourism, urbanization, commercial exploitation, and climate change. Consequently, heritage revitalization has become more complex, necessitating a shift from the 1976 UNESCO Recommendation concerning the Safeguarding and Contemporary Role of Historic Areas (Liu et al., 2019). Following the "Vienna Memorandum," the creation of indicator systems has been experimental within the context of 21st-century heritage strategies (UNESCO, 2005). On November 10, 2011, the UNESCO General Conference approved the Historic Urban Landscape (HUL) recommendation, which combines socioeconomic development with urban heritage conservation (UNESCO, 2011a). The HUL approach reflects the evolution of heritage philosophy over the past thirty years and the changing role of heritage in society (Bandarin, 2019). This framework emphasizes recognizing and analyzing the global and local, tangible and intangible, environmental and cultural, and interconnected layers of cities (Taylor, 2016).

The regeneration of industrial districts has redefined urban heritage (UNESCO, 2016a). As Höftberger (2023) highlights, classifying urban heritage and regeneration has been central to European urbanism debates. The HUL approach encourages a rethinking of urban development, recreation, conservation, and redevelopment. It aims to show how city layers have developed and transformed over time, not just identifying structures of historical significance but also evaluating the preservation and changes of these layers (Rey Pérez et al., 2017). The HUL Recommendation offers a novel tool for historical city planning and heritage preservation, applicable to industrial heritage (Alba Dorado, 2023). In terms of its novelty, it emphasizes a comprehensive perspective on cities by considering social, cultural, and economic dimensions. This novel perspective is in contrast to traditional approaches that prioritize physical conservation. Consequently, the HUL distinguishes itself as an innovative approach to tackling contemporary urban challenges in the context of the regeneration of historic areas (UNESCO, 2011a).

Nonetheless, despite the growing importance of industrial heritage and an HUL approach, this paper finds a noticeable gap in the integration of both concepts within planning literature. Most recent efforts have thus far overlooked the use of the HUL approach for the regeneration of industrial heritage and have focused instead on protected historic city centers. In the meantime, attention is thus diverted from possible points of synergy that concern a comprehensive approach to urban regeneration in industrial areas. In terms of theory, this conceptual framework seeks to address this by integrating the principles of HUL with the regeneration of industrial heritage. For the purpose of this research, the following will be answered:

1. How could the principles underlying the HUL approach be used for reinterpreting industrial heritage regeneration?
2. What are the principal constituents and stages of a conceptual planning framework that incorporates HUL and industrial heritage regeneration?
3. What are the potential benefits and challenges of such an integrated approach?

Hence, the purpose of the present paper is the integration of the applicability of the industrial heritage regeneration into the HUL approach. After the delineation of the methodology, the principles and concepts of the HUL are discussed; after that comes the importance and dimension of industrial heritage regeneration. The third section discusses and concludes with the proposed conceptual planning framework basing on the current documents and resolutions related to industrial heritage regeneration in the HUL approach. This recognizes the applicability of the HUL approach for applying not just within the historically protected city centers but to the new categories of industrial heritage, which include industrial spaces, landscapes, and intangible heritage areas. There is therefore the need to come up with a new conceptual framework in order to achieve the effective management of the regeneration of industrial heritage.

Methodology

This study employs a qualitative research approach, using pre-existing data to conduct a comprehensive literature review. Pre-existing data, such as texts from books, papers, and other materials, can be compared to data gathered through observations and interviews, as they also represent people's beliefs and perspectives (Merriam & Tisdell, 2016; Morgan, 2022). In the context of integrating industrial heritage regeneration with the HUL approach, the literature review serves as the central research methodology. It provides a conceptual planning framework for the regeneration of industrial heritage sites within urban spaces.

Selection of documents

The initial step in the document analysis process involves the selection of relevant documents. Researchers must consider several factors when choosing these texts (Morgan, 2022). According to Flick (2009), four criteria are essential for selecting documents: authenticity, credibility, representativeness, and meaning.

Authenticity: This criterion assesses whether a document is genuine and reliable (Dunne et al., 2016). Authenticity ensures that the document is a primary source, free from significant flaws or alterations that may skew its content. (Mogalakwe, 2009). This paper uses original documents, reports, and charters from UNESCO, ICOMOS, and TICCIH, which are highly authentic and authoritative in heritage preservation and regeneration, to provide foundational guidelines for industrial heritage regeneration and the HUL approach.

Credibility: This refers to the accuracy and reliability of the document's content. Researchers must determine whether the document's source is trustworthy, considering potential biases or motivations behind its creation (Flick, 2009; Kridel, 2015). In this context, the term 'bias' pertains to systematic distortions in sources, whereas 'trustworthy' signifies reliability based on factual accuracy and the reputation of esteemed organizations such as UNESCO, ICOMOS, and TICCIH. These sources are deemed reliable due to their extensive research and well-established methodologies. Moreover, materials published in reputable and peer-reviewed journals are considered 'trustworthy' due to their stringent review processes and adherence to rigorous academic standards.

Representativeness: A document is representative if its content reflects a typical example within a group of similar documents. This ensures that the document's information is not unique but rather indicative of broader trends or patterns (Dunne et al., 2016)

Meaning: This involves understanding both the literal and interpretative meanings of the document's content. Researchers must

consider the context in which the document was created to fully grasp its significance (Mogalakwe, 2009; Morgan, 2022).

The Scopus database was utilized to identify relevant research on industrial heritage regeneration and the HUL approach. Additionally, resolutions, reports, and charters from UNESCO, TICCIH, and ICOMOS were included to ensure a comprehensive review. The screening process involved a thorough reading of titles and abstracts, followed by an in-depth review of selected documents (Arbab & Alborzi, 2022). A snowball sampling technique was also employed to identify complementary references related to available approaches, frameworks, and case studies for industrial heritage sites and the HUL (Parker et al., 2019).

The international recommendations and charters, which are certified by UNESCO, ICOMOS, and TICCIH, are shaped by policy agendas and diplomatic negotiations involving member states. Nevertheless, these frameworks and guidelines contribute to the preservation and revitalization of urban areas and are influenced by political and socio-economic circumstances. On the other hand, scientific papers critically evaluate the effectiveness and implementation of these recommendations through empirical research. Through an examination of these papers, we can gain insights into the practical application of these international guidelines and their impact on the transformation of industrial heritage regeneration and urban planning.

Reflexive thematic analysis

The selected documents were analyzed using Reflexive Thematic Analysis (RTA), a qualitative method that emphasizes the researcher's reflective and interpretative lens throughout the analytical process (Braun & Clarke, 2021). In this regard, the researcher does not confine bias but rather highlights its presence, acknowledging their own preconceptions that might impact the analytical process and findings (Mantzoukas, 2005). RTA involves a six-phased approach: 1) Familiarization with the data; 2) Generating initial codes; 3) Searching for themes; 4) Reviewing themes; 5) Defining themes; 6) Producing the report (Braun & Clarke, 2013). The reflexive approach to coding allows for an evolving process, where codes can be split or renamed based on the researcher's interpretation of the data. This method enables the identification of themes that represent shared meaning patterns, rather than merely summarizing the data (Braun et al., 2019). Atlas.ti version 8 software was used to facilitate the coding process.

Findings

The present paper examines the findings derived from a comprehensive analysis of various sources of literature, including journal articles, books, book chapters, conference proceedings, and reports. A thorough search was conducted on Scopus using specific keywords such as "Historic Urban Landscape," "HUL," and "industrial heritage regeneration," resulting in the identification of approximately 100 potentially relevant publications. In addition, an extensive snowball sampling technique was employed to expand the pool of literature by extracting relevant references from the aforementioned records, ultimately accumulating a total of 428 publications for initial screening (Fig. 1).

Moreover, the websites of UNESCO, TICCIH, and ICOMOS were utilized to identify relevant reports. Subsequently, the titles and abstracts of these publications were meticulously examined to ensure their adherence to the exclusion criteria. To conduct the literature screening, it was important to develop multiple exclusion criteria in order to match the objectives of the study. If any of the papers were narrowly centered around the HUL or failed to discuss planning frameworks, they were excluded from the papers due to the study's larger field of vision. Also excluded were those studies that were not covered under industrial heritage, for instance, research focusing on green areas or on Geographic Information Systems (GIS).

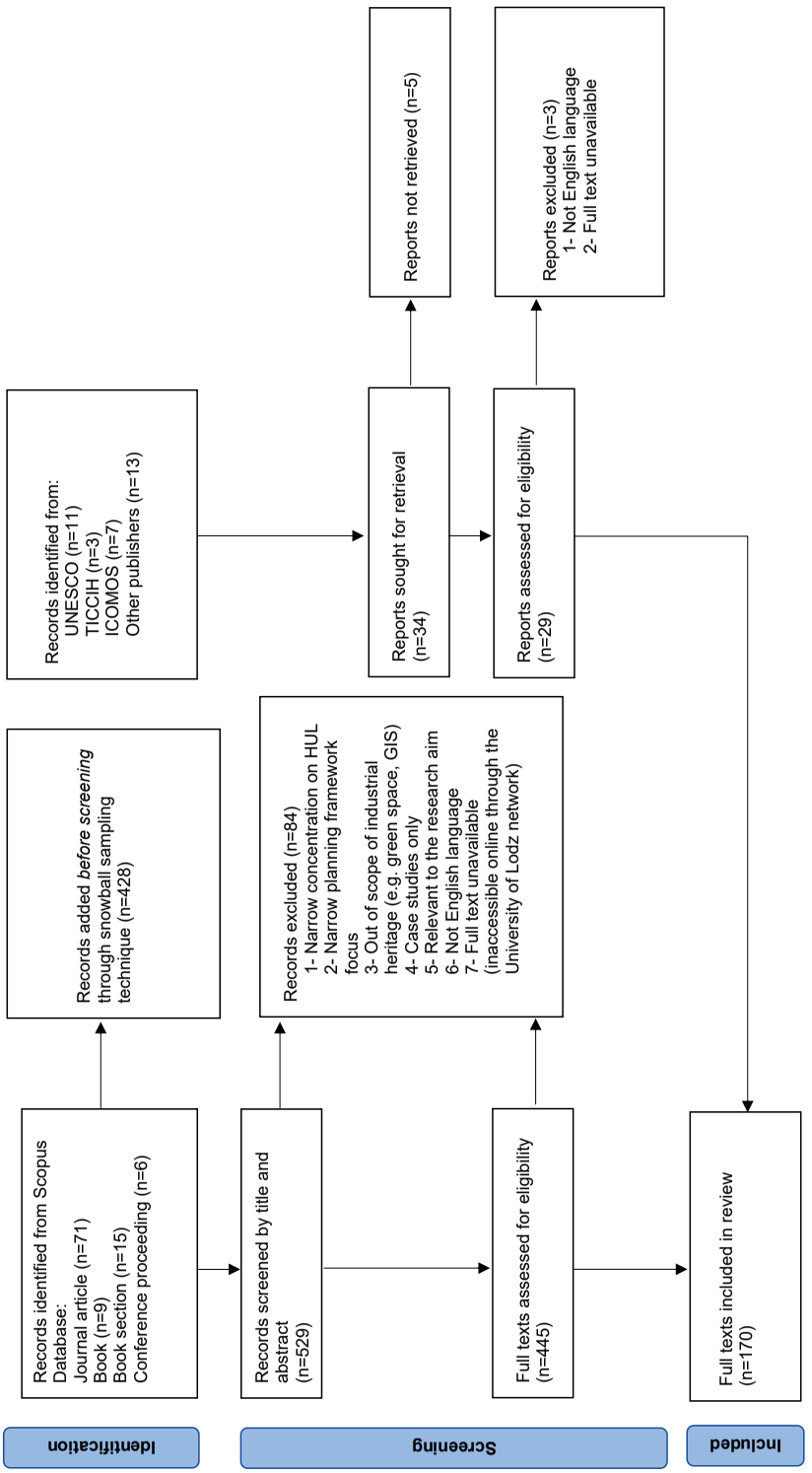

Figure 1. Diagram of the workflow of identification, screening, eligibility, and exclusion of texts

Only case studies that bring theoretical advancements that relate to the research aim were included for review. Furthermore, only papers published in English languages were included to ensure easy understanding of the contents. Additionally, papers were excluded where full text was not freely available for access through the University of Lodz network. These criteria reduced the chance of including irrelevant or overlapping literature and helped identify all the literature that was directly related to the analysis. After conducting a thorough review, a total of 170 publications were ultimately selected for inclusion in this study. Among these, 59% consisted of journal articles, while the remaining 41% encompassed books, book chapters, conference proceedings, and reports (Fig. 2).

This paper has identified a rise in publications that make reference to the HUL approach and industrial heritage since 2011, coinciding with the release of the UNESCO (2011a) and ICOMOS-TICCIH (2011) recommendations on the HUL and the conservation of industrial heritage sites (Fig. 3). Moreover, there has been a particularly significant increase in the number of papers published after 2016, which aligns with the publication of Douet (2016),UNESCO (2015a), UNESCO (2015b), UNESCO (2016a), and UNESCO

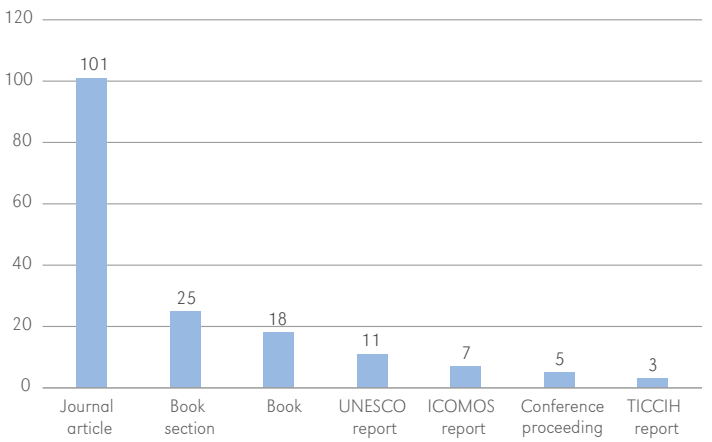

Figure 2. Number of published documents included for analysis

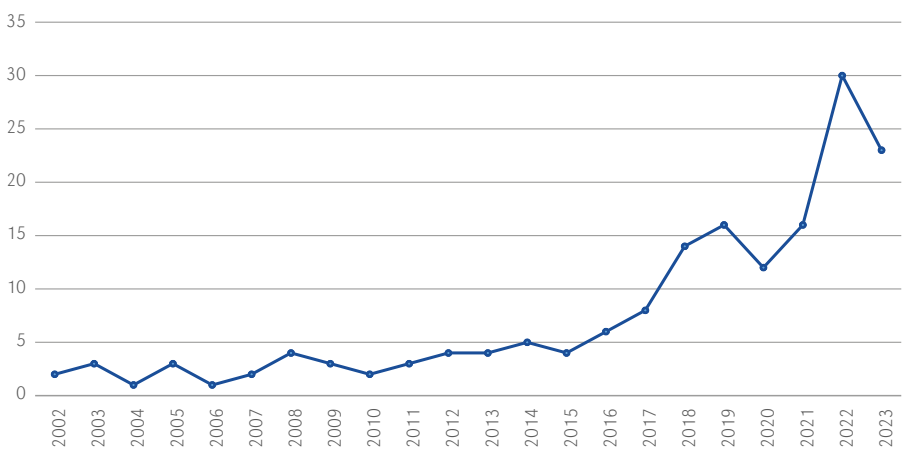

Figure 3. Number of published documents per year

(2016b). The research disciplines of the publications are mainly related to social sciences, arts and humanities, and Environmental Science. Publications within fields such as Earth and Planetary Sciences, Chemical Engineering, Medicine and Multidisciplinary disciplines are still very limited (Fig. 4). The results further reveal that journals with a focus on conservation and heritage, such as the Journal of Cultural Heritage Management and Sustainable Development, Historic Environment Policy and Practice, and the International Journal of Heritage Studies, have utilized heritage dimensions in the context of urban regeneration by incorporating them into the HUL guidelines.

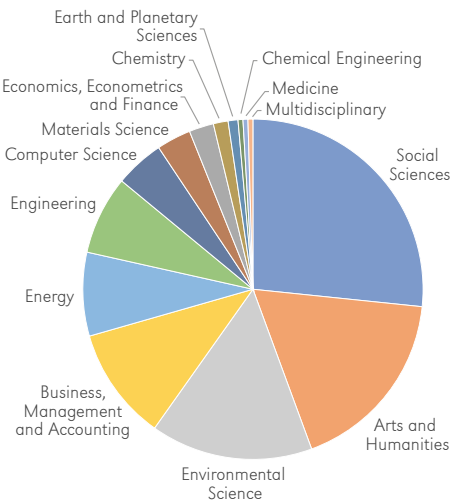

Figure 4. Published documents by subject area

The results also indicate that the academic discourse surrounding HUL and industrial heritage has predominantly taken place within the United Kingdom, with a total of 18 documents (Fig. 5). This finding underscores the significant influence that HUL and industrial heritage have had on universities and institutions in the UK. Chinese universities are increasingly integrating the HUL into their research, focusing specifically on the use of GIS tools and map translation. This trend is observed across 16 different documents. Regarding Poland, five documents addressed the industrial heritage, while two documents focused on the HUL and urban regeneration.

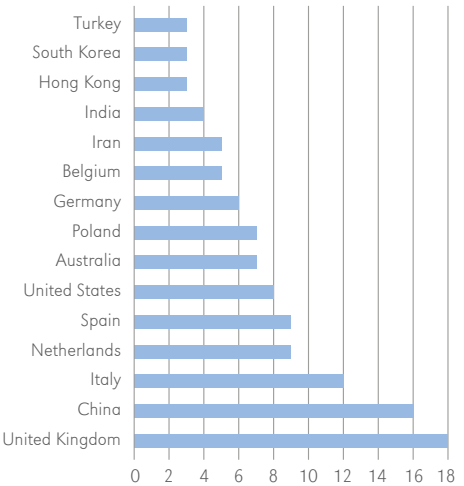

Figure 5. Number of published documents according to the countries

The sample texts were imported into Atlas.ti version 8 in order to categorize them into different themes. The top 10 codes used in the literature were extracted based on their frequencies to identify aspects related to the HUL and industrial heritage regeneration (Fig. 6). Subsequently, the sample texts were analysed using reflexive thematic analysis, following the six-phase format of thematic analysis.

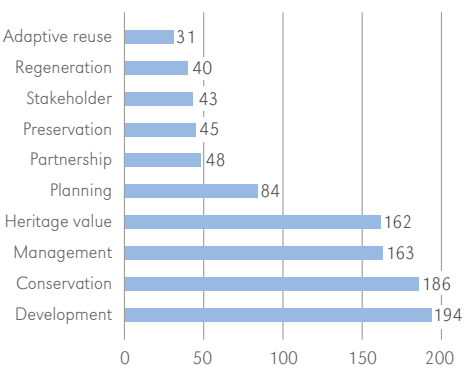

Figure 6. Charts showing the frequency of the top 10 codes

Understanding the differences between preservation, conservation and regeneration are also key to industrial heritage as well as HUL approach. The fundamental aim of preservation is to maintain heritage sites as they are, preserving them from decay and being changed in any way that would threaten their validity (Orbasli, 2008). In contrast, conservation is a more active intervention which considers the management of changes to heritage assets that ensure their historic qualities are maintained and they continue in use for the intended purposes (Jokilehto, 2006). Regeneration is about conversion and revitalization which respects their relevance today as functional entities in our urban cultures. This often takes place through creative interventions, which add economic and social value to these sites contributing towards sustainable development (Smith, 2006). These differences have to be understood in order to incorporate industrial heritage successfully into the HUL, and each should respectively tailored as an approach between historic conservation or contemporary requirements (Pendlebury, 2013).

The following sections present the findings of this study under seven main themes, staying in line with one significant feature from each theme and extracted literature that focuses on the HUL approach and industrial heritage regeneration. These sections highlight challenges encountered within applying the HUL approach to industrial heritage regeneration. These themes are then consistently presented in the following sections, resulting in a structured synthesis of the literature collected. This method guarantees that findings are presented in a clear and coherent way, which is congruent with the objectives of the study.

Historic Urban Landscape approach

HUL approach in Urban Heritage Management

In the age of globalization, cities face increasing competition both nationally and globally. While globalization fosters similarities in finance, information technology, and urban development patterns, culture and heritage remain distinct resources(UNESCO, 2016b; Ramírez Eudave & Ferreira, 2021). The HUL approach, endorsed by UNESCO, is a comprehensive, interdisciplinary method for managing heritage resources within dynamic urban environments. Unlike traditional methods, the HUL approach integrates heritage management into broader urban development strategies, aiming to guide change in historic cities (UNESCO, 2016b). This approach recognizes heritage as a powerful driver of environmental, economic, social, and cultural development, valuing both tangible and intangible heritage as key resources for cities and their inhabitants (Caballero, 2016; Taylor, 2018). The HUL method emphasizes mapping social, cultural, natural, and physical characteristics to inform decision-making and apply normative and regulatory frameworks tailored to specific local needs. These frameworks help preserve the authenticity and integrity of urban heritage while facilitating transformations that enhance living standards and urban spaces (Van Oers & Haraguchi, 2010; UNESCO, 2011a, 2013, 2016b). To evaluate the HUL's effectiveness in historic cities, it is crucial to document the spatial integration of cultural assets through comprehensive mapping (Saleh & Ost, 2023).

Urban heritage analysis, monitoring, and management technical approaches are fundamental to the HUL's knowledge and planning tools. Various surveying technologies create base maps at different scales, and GIS link quantitative and qualitative data to specific areas. This can include an inventory of cultural resources, financial, demographic, and architectural details (Hosagrahar, 2014). For instance, the project "Mapping Problematic Memories in the Historic Urban Environment" explored the Gulou area in Beijing, highlighting socio-cultural impacts like the forced displacement of original inhabitants (UNESCO, 2015a). Additionally, Fusco Girard (2013) applied the HUL approach to port cities, focusing on using cultural resources for urban regeneration and developing a synergized

circular economy. This study demonstrated the HUL approach's potential to foster sustainable urban development by integrating cultural heritage into broader economic and environmental strategies. These case studies underscore the novelty of the HUL approach, integrating comprehensive urban management with heritage conservation and addressing socio-economic development in ways that previous methodologies have not fully captured.

Values in HUL management

Historic urban districts are undergoing significant transformations due to urban expansion. The values communities attach to these areas and their environments are deeply influenced by global activities (UNESCO, 2011a). Therefore, it is crucial to define the values and qualities that all stakeholders agree to preserve. These should emerge from stakeholder meetings and participatory planning efforts (Aureli & Del Baldo, 2023). The HUL approach helps in understanding the significance and worth of historic regions by considering their conditions, which guides the dynamic city's layout, planning, and management (UNESCO, 2015b). This method supports communities in evolving while maintaining the values associated with their history, shared memories, and environment (UNESCO, 2011b).

A frequency analysis conducted on heritage value terms in the Scopus database reveals a notable increase in the inclusion of such terms in the discourse surrounding the HUL concept in recent years. For instance, Jiang et al. (2023) explored integrating modern built-up areas with the intangible heritage of Suzhou in China, suggesting that urban planners reconfigure new urban areas to align with community values, thereby reintegrating local culture with the Suzhou context. Similarly, Barrett (2023) emphasized how explicit articulation of HUL principles significantly impacts conservation practices in Worcester, England, and beyond. These studies illustrate how the HUL approach reassesses the relevance of cultural assets beyond physical surroundings (Boonmee, 2022). The challenge remains to use inclusive techniques to describe embedded cultural values within HULs (Barrett, 2023). These values should be the foundation for the city's overall management and development(UNESCO, 2016b).

Community engagement in HUL

Community involvement, commitment, and relationships play a crucial role in fostering social cohesiveness, adaptability to challenges, and creativity (Fabbricatti & Biancamano, 2019). Heritage and culture often provide a context for participatory processes, where urban conservation and regeneration initiatives encourage new forms of cooperative partnerships. These partnerships, involving local authorities, promote inclusive community projects, local empowerment, and civic pride (Tomka et al., 2019). To enhance the capacity of local communities in urban regeneration, deliberate efforts such as expanding funding and training opportunities or allowing the use of public spaces are essential (UNESCO, 2016a). The HUL approach integrates a broad range of stakeholders, including local, national, regional, public, and private players, in the urban development process, influencing local policy, governance, and management (UNESCO, 2011a; Ripp & Rodwell, 2018; Rodwell, 2018; Ginzarly et al., 2019). The HUL strategy emphasizes the need for participatory processes to develop consensus on the values and characteristics to be preserved. This approach aims to reconnect various interest groups and stakeholders from the public, private, and civic sectors (Khalaf, 2018). It necessitates the involvement of multiple specialists, professionals, and stakeholders, each with different levels of interest and engagement in the historic city. Various actors have implicitly adopted distinct methods, specifically linked to diverse techniques of surveying and modeling the city (Ramírez Eudave & Ferreira, 2021).

Local stakeholders often communicate through workshops utilizing analytical techniques like maps, interactive discussion formats such as World Cafés, and co-creative production of visions and ideas (Smith, 2014). Aureli and Del Baldo (2023) argue that a more

participatory strategy can lead to superior outcomes. Involving numerous stakeholders enables municipalities with limited financial resources to support initiatives aimed at socio-economic growth and historical preservation. Participation is crucial for operationalizing an active HUL conservation strategy (Aas et al., 2005; Tas et al., 2009). The HUL approach stresses the importance of local community involvement in promoting a democratic form of urban governance that relies on multiple actors and advocates for new governance methods for planning and managing urban systems (Kazepov, 2010). Projects utilizing data from various stakeholders and disciplines highlight the relevance of considering current data to develop a comprehensive city planning strategy aligned with the HUL proposal (Rey Pérez et al., 2017). However, research in different countries indicates that the HUL method faces challenges, such as a lack of defined responsibilities for specialized administration and public engagement in urban heritage management (Marović et al., 2022). The method remains primarily applied and researched in China and Europe (Rey-Pérez & Pereira Roders, 2020).

Balancing development and conservation

Cities are increasingly becoming pivotal in shaping global politics, social change, innovation, and development. They are emerging as the primary consumers, advocates, and creators of heritage in all its forms, both now and in the future (Bandarin, 2019). The challenge for cities undergoing rapid urban growth is to acknowledge and preserve key heritage aspects while integrating them harmoniously into territorial and urban planning. This approach requires considering the global challenges cities face while planning for future growth (Rey Pérez et al., 2017). Developing and conserving historic cities necessitates a comprehensive understanding of the complexity and diversity of urban areas, particularly regarding tangible and intangible cultural assets (UNESCO, 2011a). A growing body of literature emphasizes the need to balance local urban development and heritage conservation (Rey-Pérez & Pereira Roders, 2020; Aureli & Del Baldo, 2023). The rise of the HUL approach has transformed conservation practices (Taylor, 2016). It now views cultural assets not just as entities to be preserved (Liu et al., 2019), but as sources of social cohesion, diversity, innovation, and drivers of urban regeneration (UNESCO, 2013; Taylor, 2018). This evolution in urban heritage conservation practice, reflected in the HUL approach, equips policymakers and managers to address emerging challenges and opportunities more effectively (UNESCO, 2011b). Ultimately, the HUL approach addresses the crucial question of how development and conservation can coexist in urban settings (Höftberger, 2023).

The study of urban heritage spans both academic and public policy realms, reflecting the complex issues surrounding urban heritage conservation and regeneration. These issues dominate heritage management policies and practices globally, albeit at different levels (UNESCO, 2016a; Kaczmarek, 2019). Overcoming current disciplinary barriers and developing integrated approaches are essential for generating the evidence base needed for well-informed policies and investments in the HUL regeneration (Gravagnuolo & Girard, 2017). The coexistence of modernization and heritage is crucial in regenerating cities. The HUL and urban morphology draw attention to historical processes that can support urban regeneration (Shen & Dong, 2022). The practice of urban regeneration needs to be integrated and comprehensive (Korkmaz & Balaban, 2020), adapting traditional and historical places to meet contemporary demands while maintaining their historical integrity (Embaby, 2014). The contribution of significant innovations to methods and practices for the preservation and redevelopment of historic fabrics has often been limited by traditional planning tools, which are not tailored to the flexibility and procedural nature of historic center regeneration (Atzeni et al., 2022). Through HUL regeneration, urban productivity can be increased via adaptive reuse initiatives, and new management and economic models (Gravagnuolo

& Girard, 2017). Understanding urban regeneration experiences through the HUL framework highlights successful transformations that balance the complexities of urban systems and the historical relationship between city and heritage. This allows for sustainable interventions in areas where conservation needs and demands reach a new equilibrium of mutual support and interaction (De Rosa & Di Palma, 2013). Since the 1950s, there has been increasing attention to neglected industrial buildings and urban forms as new heritage categories, sparking regeneration initiatives in urban areas (UNESCO, 2016a). Figure 7 illustrates the aspects of HUL, with details in literature review.

Figure 7. The aspects of HUL through the reflexive thematic analysis of the literature review

Industrial heritage regeneration

Industrial heritage importance in the HUL context

The definition of heritage has expanded to include industrial heritage, previously overlooked, but now recognized for its significant cultural value. This inclusion is essential in the HUL approach, as it acknowledges the rich manufacturing culture of our recent industrial history (Alba Dorado, 2023). The regeneration of industrial heritage in HUL involves combining conservation with modern urban development needs, addressing polluted and abandoned areas through adaptive reuse and innovative management models (Kirkwood, 2001). The industrial heritage, a vital legacy of the Industrial Revolution, holds historical, economic, and cultural significance (Kisiel, 2020; Zhang et al., 2022; Dehghan Pour Farashah, 2023). Western Europe, particularly Britain, is where modern industry and its legacy first emerged during the Industrial Revolution in the late nineteenth century (Zhang et al., 2020), represent a wide range of values from science and architecture to society and technology. These sites include mines, factories, workshops, machinery, and buildings, each contributing to a comprehensive understanding of industrial civilization (Zhang et al., 2023).

Industrial heritage sites connect the modern world to past work, showcasing the development and evolution of industries (Dell'Anna, 2022). They form part of a sociocultural legacy, containing valuable historical information (Orbasli, 2008). The rarity and artistic value of industrial artifacts, often characterized by exceptional design and craftsmanship, further emphasize their importance (Njuguna et al., 2018). Beyond tangible heritage, industrial heritage includes intangible elements such as workers' skills, memories, and social interactions (ICOMOS-TICCIH, 2011). A multifaceted approach is required to understand industrial heritage fully, especially in cities where it intersects with social and cultural importance. This includes workers' housing, cultural activities, social gathering places, and familial structures, all integral components of industrial heritage (Affelt, 2015; Douet, 2016). Although determining the worth of cultural heritage is a highly debated and contextualized matter (Landorf, 2009), the field of industrial heritage research is characterized by a broad scope,

a variety of research methodologies, and an abundance of study viewpoints and topics (Fitzgerald, 2007; Palmer, 2012). The inclusion of industrial heritage within the HUL framework highlights its evolving importance. Industrial sites, now understood as integral to HUL, showcase changes over time, reflecting past industrial activities. This connection between historical context and social identity is significant; abandoned industrial facilities serve as tangible reminders of the past, and the activities that took place within the walls of these factories are psychical records of everyday people's lives over generations (Martinović & Ifko, 2018). According to the HUL approach, the regeneration of industrial heritage sites encompasses a range of activities. This entails the adaptive reuse of buildings, environmental remediation, and the incorporation of these sites into wider urban regeneration strategies.

Revitalizing industrial heritage

The decline of industrial areas due to globalization and competition from emerging nations has given rise to new urban concerns (UNESCO, 2016a). This has led to the destruction of industrial architectural heritage through large-scale demolition without proper investigation and analysis (Zhang et al., 2022). Aging and degradation have left significant portions of industrial heritage in ruins (Dragutinovic et al., 2022). However, these industrial sites serve as crucial "reserves of space" for urban areas, making their regeneration essential for enhancing urban living standards and promoting sustainable development (Đukić et al., 2018). Traditionally, recycling abandoned industrial land for alternative uses has not significantly improved the environments being replaced (Kirkwood, 2001). Nevertheless, the adaptable architecture of these buildings, originally designed to house massive industrial machinery, allows for diverse uses, including performance venues, libraries, museums, and other large-scale activities (Bottero et al., 2015; Tu, 2020; Eom et al., 2021). The spatial and architectural components of these buildings make them potential catalysts for urban change, especially in challenging locations (Guo et al., 2021; Radziszewska-Zielina et al., 2022). Revitalizing industrial buildings in polluted areas can significantly improve environmental quality (Becchio et al., 2018), while their conversion into innovative spaces holds promise for cultural events, leisure activities, and tourism (Alker & Stone, 2005; Murzyn, 2016; Navratil et al., 2018; Lee et al., 2022).

Western European nations, after entering the post-industrial period in the mid-20th century, began preserving their industrial heritage amidst the collapse and restructuring of traditional industries. Many of these sites have since been integrated into urban landscapes, becoming desirable for development due to their unique architectural forms, which influence their functionality in regeneration efforts (Arbab & Alborzi, 2022). This international interest in industrial heritage has spurred extensive research and projects, enhancing the understanding and study of this heritage across various levels (Alba Dorado, 2023). For example, in Karabük, Turkey, several projects aim to integrate city physical forms with social realities, preventing social and physical decline while promoting sustainable development (Özkan Altınöz, 2016). These projects prioritize sustainable production, consumption, and socialization objectives, aligning with broader urban development goals. This underscores the need for effective frameworks to deter demolition and encourage the transformation of industrial heritage sites (Cercleux et al., 2012).

Strategies for regenerating industrial heritage

Industrial heritage is shaped by the work culture that has influenced society. Its study and intervention are integral to understanding its territorial, social, and cultural context (Alba Dorado, 2023). When planning for the conservation and preservation of industrial heritage, comprehending its location complexities is crucial. To preserve the identity and spirit of abandoned industrial sites during regeneration, evaluating both the tangible and

intangible values of the heritage is essential. This analysis guides decisions on preserving material remnants and planning modern interventions (Đukić et al., 2018). Urban regeneration plans increasingly emphasize industrial heritage, considering industrial neighborhoods, surrounding terrain, and building facades. Professionals, local elites, and governments view urban and industrial heritage as tools for regeneration, preserving unique area characteristics while fostering sustainable development (Rautenberg, 2012). Governments aim for sustainable regeneration by reusing abandoned plants and warehouses to generate employment and revenue in revitalized areas (Wang, 2009). Transforming heritage contexts, particularly industrial heritage regeneration, requires engaging with various discourses and planning philosophies, including urban development, architecture, and heritage conservation (Oevermann & Mieg, 2017). The terms "revitalization" and "regeneration" describe social, cultural, physical, and economic aspects. "regeneration" often refers to a holistic approach encompassing these dimensions, especially in Western Europe (Grazuleviciute-Vileniske & Urbonas, 2014). This approach has been effective in repurposing abandoned industrial structures, stimulating economic growth, and improving urban peripheries (Murzyn, 2016; UNESCO, 2016a).

Significant research has explored the complex effects of industrial heritage regeneration on buildings, neighborhoods, and cities, considering diverse urban contexts, goals, and design methodologies (Hospers, 2002; Alfrey & Putnam, 2004; Wu et al., 2022). Before regenerating industrial sites, examining location parameters is crucial (Martinović & Ifko, 2018). Researchers have found that land policy property rights significantly affect the industrial regeneration process (Wu et al., 2022; Li et al., 2023). Regenerating industrial heritage requires interdisciplinary collaboration and learning from both domestic and international examples (Chen et al., 2019; El-Abidi et al., 2019; Wuni et al., 2022). Economic evaluation criteria are essential for assessing investments in industrial heritage regeneration. Dutch researcher Ruud van der Kemp emphasized economic indicators as fundamental for comparing investments and regeneration efforts (Ifko, 2018). Historical initiatives like the 1987 Recommendation No. R (87) 24 on European industrial towns have highlighted the role of public authorities in revitalizing industrial cities. These efforts aim to attract residents, businesses, and investments, fostering community commitment (Council of Europe, 1987). The 1988 international conference on "Heritage and Successful Town Regeneration" in Halifax, UK, showcased various Western European examples, demonstrating a multifaceted approach to industrial heritage regeneration (Pickard, 2018). It is feasible to effectively revitalize industrial heritage sites and promote urban regeneration through the integration of industrial heritage into the HUL framework, with a focus on contextual regeneration efforts and prioritization of sustainable and economic measures. The aspects of industrial heritage regeneration are shown in Figure 8.

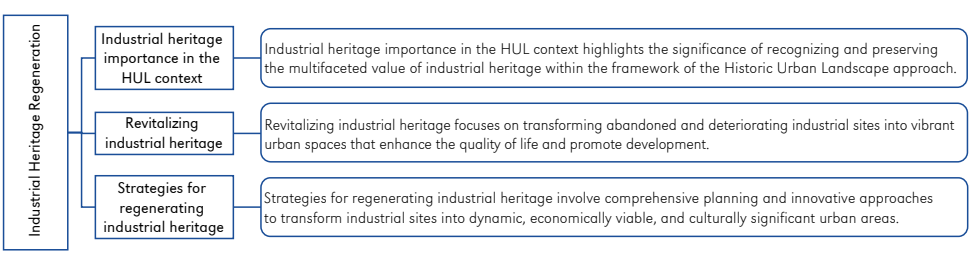

Figure 8. The aspects of industrial heritage regeneration through the reflexive thematic analysis of the literature review

Discussion and conclusion

The existing literature on the HUL approach focuses on four key aspects. First is the "HUL Approach in Urban Heritage Management," which maps tangible and intangible components for the city and its residents (Caballero, 2016; Taylor, 2018). Determining the effectiveness of the HUL in a historic city involves mapping the spatial integration of such heritage (Saleh & Ost, 2023). Second is the " Values in HUL Management," embodying a range of values associated with the past, shared memories, and the surrounding environment (UNESCO, 2011b). The HUL approach reevaluates the worth of heritage beyond the physical environment (Boonmee, 2022), which serves as the starting point for preservation or development (UNESCO, 2016b). Thirdly, "Community Engagement in HUL" operationalizes an active strategy for HUL (Aas et al., 2005; Tas et al., 2009). The formation of new cooperative partnerships involving local authorities results in urban regeneration initiatives (Tomka et al., 2019), advocating for new governance methods for planning and administering urban systems (Kazepov, 2010). Finally, "Balancing Development and Conservation" addresses how development and conservation can coexist in a city (Höftberger, 2023). The HUL views cultural heritage as sources of social cohesion, diversity, and innovation, as well as drivers of creativity and urban regeneration (UNESCO, 2013; Taylor, 2018), thus no longer prioritizing heritage preservation alone (Liu et al., 2019). Economic models, new management, and adaptive reuse initiatives can enhance urban productivity through HUL regeneration (Gravagnuolo & Girard, 2017). With the growing number of industrial heritage sites and many abandoned sites, regeneration has become more important in heritage conservation over the last decades. Accordingly, three key components -"Industrial Heritage Importance in the HUL Context," "Revitalizing Industrial Heritage," and "Strategies for Regenerating Industrial Heritage" should be considered regarding the industrial heritage regeneration in cities.

Industrial heritage importance in the HUL context: This aims to identify the value of industrial heritage, which was previously overlooked in the definition of heritage (Alba Dorado, 2023). The literature review revealed the significance of industrial heritage value, particularly regarding intangible heritage value (Dehghan Pour Farashah, 2023). Researchers have highlighted a wide range of values, including historical, economic, architectural, social, technological, and cultural significance (Kisiel, 2020; Zhang et al., 2022; Zhang et al., 2023). Tangible and intangible heritage are intertwined, as abandoned industrial facilities serve as reminders of the past, capturing the everyday lives of people over generations through their psychical records (Martinović & Ifko, 2018).

Revitalizing industrial heritage: This investigates how industrial heritage has long since fallen into ruin, and deterioration is dominant (Dragutinovic et al., 2022). Industrial sites serve as crucial spaces for regeneration, enhancing the standard of living in urban areas and promoting sustainable development (Đukić et al., 2018; Jarczewski & Koj, 2023). Recycling abandoned industrial land for alternative urban uses often involves demolitions that overlook the preservation of existing heritage (Kirkwood, 2001).

Strategies for regenerating industrial heritage: Planning for the conservation and preservation of industrial heritage involves a complex of discourses and planning philosophies, including urban development, architecture, and heritage conservation (Oevermann & Mieg, 2017). Regeneration strategies address social, cultural, and economic processes alongside physical interventions (Grazuleviciute-Vileniske & Urbonas, 2014; Kaczmarek, 2019). This process offers opportunities to revitalize abandoned industrial sites by creatively converting them to achieve economic flourishing (Murzyn, 2016; UNESCO, 2016a).

An in-depth reading of the result shows the feasibility of integrating industrial heritage regeneration into the HUL. The intertwined tangible and intangible values of industrial

heritage create development opportunities. Due to the multi-layered nature of the industrial heritage value, it is imperative that the regeneration process incorporates a suitable approach. The HUL approach is ideal for dealing with industrial heritage regeneration, considering all values to turn these sites into livable spaces. The HUL guidebook and the Recommendation on the Historic Urban Landscape serve as the foundation for the proposed conceptual planning framework, which has been refined in light of relevant research and experiences with HUL and industrial heritage regeneration.

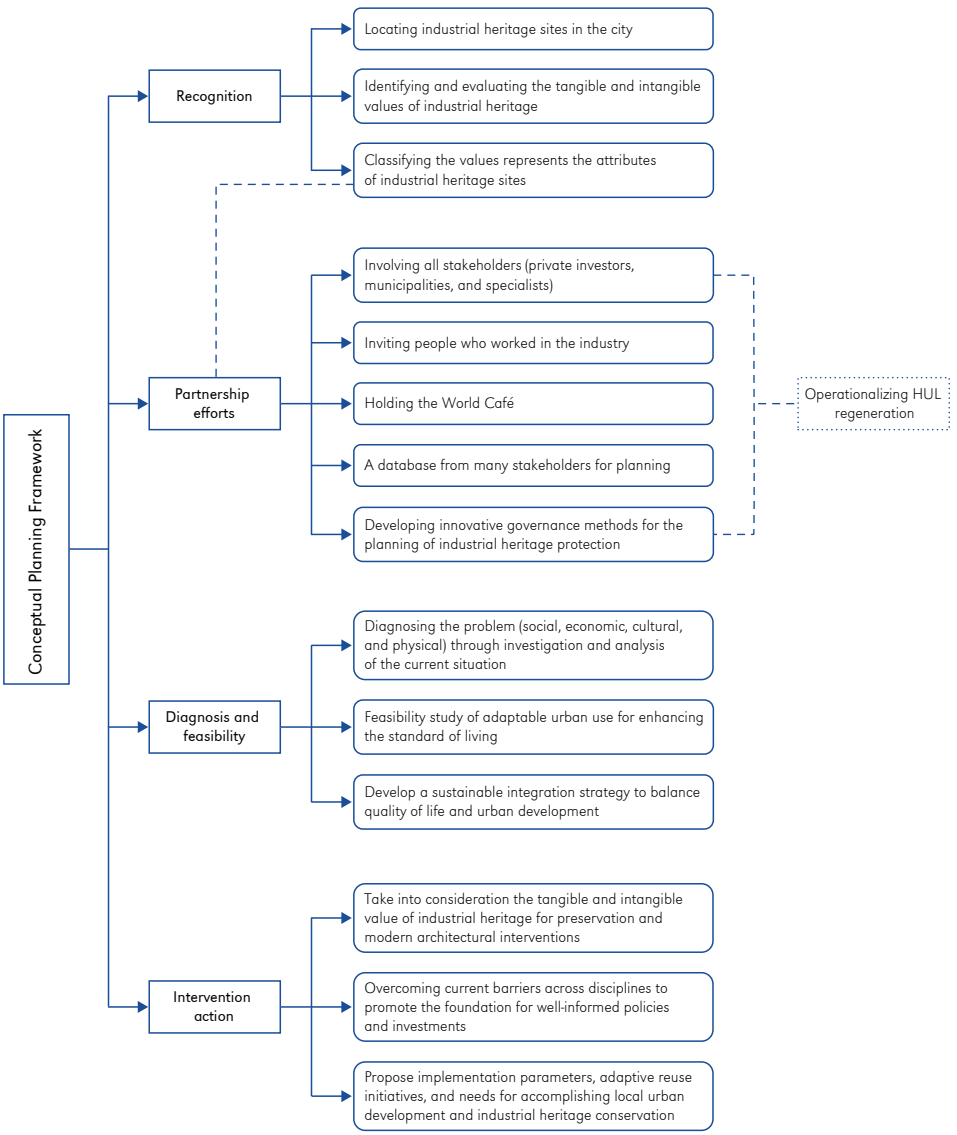

Figure 9. The suggested conceptual planning framework for the integration of industrial heritage regeneration with HUL

The conceptual planning framework needs practical discussion, considering all relevant aspects of successful processes rather than merely proposing different steps. Recognition and partnership efforts involve identifying and classifying industrial heritage values and involving stakeholders in developing innovative governance methods. Four main steps should be followed to ensure an effective conceptual planning framework:

Recognition: Identify and evaluate the tangible and intangible values of industrial heritage sites. Classify the values characterizing the attributes of these sites.

Partnership efforts: Actualize HUL regeneration and gather collective memories through the World Café. Develop innovative governance methods for planning industrial heritage protection based on stakeholders' opinions.

Diagnosis and feasibility: Diagnose problems related to industrial heritage sites and conduct feasibility studies of adaptable urban use to enhance living standards and balance quality of life with urban development.

Intervention action: Implement preservation and modern architectural interventions, addressing current barriers to inform policies and investments.

The recommended conceptual planning framework's sub-steps and specifics are displayed in Figure 9.

Hence, the framework contributes to the industrial heritage discourse, regarding the HUL approach as crucial for regenerating industrial heritage sites. It stimulates future empirical research by highlighting gaps in the literature and integrating regeneration into the HUL approach, enhancing understanding and articulation of heritage value from stakeholder perspectives. This critical examination of industrial heritage value within the diversity of industrial heritage sites offers new insights into planning and regeneration, addressing the practice-research gap to develop stronger analytical frameworks for industrial heritage regeneration.

Editors' note:
Unless otherwise stated, the sources of tables and figures are the author's, on the basis of their own research.

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Article first received • 5 March 2024
Article accepted • 17 October 2024