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Typological analysis of cultural heritage applications in city brand identity design

Qing Liu

Postgraduate Student Kyiv National University of Technologies and Design 01011, 2 Mala Shyianovska Str., Kyiv, Ukraine Shaanxi University of Science and Technology 710021, 6 Xuefu Road, Xi'an, China https://orcid.org/0009-0000-6391-5740

Oleksandra Shmelova-Nesterenko

PhD, Associate Professor Kyiv National University of Technologies and Design 01011, 2 Mala Shyianovska Str., Kyiv, Ukraine https://orcid.org/0000-0001-7073-3574

Abstract. This study investigated the diverse ways in which cultural heritage was integrated into city brand identity design. The purpose of the study was to identify and categorise distinct typologies of cultural heritage application across key visual elements - specifically logos and slogans, colour palettes, and auxiliary graphics. Employing a qualitative research approach, a typological analysis was conducted on diverse international case studies representing various cultural contexts and branding strategies. The analysis extended beyond visual aesthetics to examine the underlying semiotic principles, cognitive mechanisms, and cultural values that contribute to the effectiveness of these branding elements. The study revealed different typologies of integration of cultural heritage into the city's brand identity. Each element demonstrated significant potential for utilising cultural heritage to enhance brand resonance and impact. Among the analysed cases, prominent examples included the iconic "I love NY" logo as a symbol of civic unity; Kawasaki's, Busan's, and Madrid's updated slogans and logos reflecting new urban visions; the culturally grounded colour schemes of Nevers and Cairo; and the auxiliary graphics of Bologna and Baku, rooted in architectural and artisanal traditions. At the theoretical level, the study covered the evolution of the city logo along with the growth of social development, the way of integrating the city brand standard colour with cultural products and architecture, and the expression of cultural imagery in the auxiliary graphic design of simplicity, extraction, and reorganisation. In practical terms, the findings provided valuable insights for urban planners, designers, and branding professionals. The developed typological framework served as a practical tool for analysing existing branding strategies and formulating new, culturally sensitive approaches that effectively leverage heritage, thereby improving the overall impact of city branding initiatives

Keywords: urban brand design; colour palettes; composition; auxiliary graphics; brand image; cultural branding

INTRODUCTION

The relevance and urgency of this study were rooted in two contemporary contexts: the accelerated homogenisation of urban identities under globalisation trends, and the awakening recognition of cultural heritage as a vehicle for "cultural sovereignty". The diversification of urban brand identity design development played a crucial role in cultural manifestation, as it necessitated both highlighting urban distinctiveness and revitalising the implicit cultural connotations of heritage through visual design strategies.

Corporate identity system (CIS) design as a kind of identity system design is rooted in many disciplines

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*Corresponding author



such as communication, management, etc. It employs systematic and information-based methods and basic principles, and the image design ideas contained in it are enlightening. The application of CIS theory is not only limited to enterprises but also plays a new role for cities, communities, and individuals (Liu, 2018). According to M. Tajik & Z. Masoudi Amin (2023), visual identity means how to use the logo, colour, type, and size of the typeface and illustration. In the study on urban brand visual identity systems, Y. Su (2024) integrated the local Shilong intangible cultural heritage into various design aspects, including the planning of local intangible cultural heritage districts, themed food festivals, and derivative products, through elements such as shape and colour. Relying on the core concept of the CIS strategy, the researcher presented visual elements such as cultural architecture, public facilities, distinctive clothing, and culture as a localised brand concept. Using bibliometric analysis, Y.J. Hou & E.W. Huang (2024) focused primarily on the Fujian region of China. The researchers found that the integration of Fujian cultural heritage into urban brand development progressed from an initial stage of integration to a phase of heritage tourism city brand design. However, the correlation between cultural heritage and urban brand research was still relatively weak in their study. T. Sarmento & P. Quelhas-Brito (2022) studied the city's visual identity (VI), focusing on the designer's tools (typography, grids, colours, images) and the meanings assigned to graphic shapes by designers, clients, and peers.

A basic understanding of the city's brand identity itself is crucial. D. Kamlot & D.S.V. de Jesus (2022), in their analysis of Rio de Janeiro, hypothesised that a city's brand identity was constructed from both physical (e.g., infrastructure, productive aspects) and symbolic (e.g., values, cultural narratives, reputation) dimensions. The researchers further elaborated on the trinity of identity, image, and reputation, where the brand identity was the core essence of what the city aims to project, the image was how people perceived it, and the reputation was the long-term evaluation. Analogously, C. Rodrigues & H.J. Schmidt (2021) emphasised that place brand identity was shaped by the shared perceptions of the community and developed through a continuous dialogue between managers, consumers, and stakeholders, embedding it in a value co-creation paradigm. This co-creation aspect was also emphasised by S.S. Lam (2024) in the context of appealing to young consumers, suggesting that their emotional attachment and local identity were crucial for sustainable city branding. Cultural heritage is a rich repository of unique attributes for city branding. H.S. Ali & M. Khayat (2024) studied Erbil Castle to demonstrate how a specific, prominent heritage site could serve as a central branding element for a city, with residents' awareness and perception playing a key role in its branding effectiveness. Their study emphasised the significance of physical heritage as a visual and symbolic anchor. In

contrast, C. del Mármol & B. Santamarina (2024) focused on intangible cultural heritage (ICH), such as festivals (Faya in Valencia) and traditional crafts (filete porteño in Buenos Aires), and its legitimisation, often through UNESCO's lists, as a strategic tool for the promotion and image building of cities. The researchers pointed out that ICH policies are increasingly becoming an integral part of city branding to promote local identity.

Based on the theoretical substantiation of the previous identity design system and the classification of visual design types (including logos, colour schemes, auxiliary graphics, etc.), the purpose of the present study was to conduct a systematic analysis of the development of cultural heritage types in urban brand identity design, considering its crucial role in shaping the value of places.

MATERIALS AND METHODS

This study employed a qualitative research paradigm, specifically using a typological analysis approach, to investigate the diverse ways cultural heritage is integrated into city brand identity design. A qualitative approach was considered most suitable due to the research purpose of achieving an in-depth understanding of the complex, nuanced, and context-dependent phenomenon of heritage integration, as opposed to quantifying its frequency. Typological analysis was selected as the core method since it provides a systematic framework for identifying, classifying, and comparing distinct patterns and forms within a complex domain, aligning directly with the study's goal of categorising heritage applications across visual elements.

The empirical framework for this study included multiple case studies of city branding initiatives from around the world. A purposive sampling strategy was adopted to select these cases. The primary selection criteria aimed for maximum variation across key dimensions:

- 1. Geographical and cultural context: inclusion of cities from diverse global regions (e.g., Europe, Asia, North America, Latin America, Middle East) to capture a breadth of cultural influences and values.
- 2. Branding strategy focus: representation of cities with varying explicit approaches to heritage in their branding (e.g., explicitly heritage-led, future-focused with subtle heritage nods, balanced approaches).
- 3. Availability of data: feasibility of accessing sufficient visual branding materials (logos, slogans, colour schemes, graphic elements) and contextual information through publicly available sources.

This strategy ensured the examination of a rich tapestry of practices, enhancing the potential transferability of the findings. The data collection process involved a systematic search and compilation of primary visual branding materials from official city government websites, tourism portals, brand guideline documents (where available), and reputable design archives. Secondary sources, including academic publications and

case study reports on city branding, were consulted to gather contextual information regarding the branding rationale and intended meanings.

Identification was used for an initial examination of the collected visual materials (logos, slogans, colour palettes, auxiliary graphics) for each case study to identify explicit or implicit references, representations, or appropriations of cultural heritage elements (e.g., historical symbols, traditional motifs, culturally significant colours, iconic landmarks, linguistic references). Description and comparison – for detailed description of how heritage was integrated within each visual element for each city. These descriptions were then systematically compared across the diverse cases to identify similarities and differences in application. The case studies included New York (USA), Kawasaki (Japan), Busan (South Korea), Madrid (Spain), Nevers (France), Cairo (Egypt), Bologna (Italy), and Baku (Azerbaijan). Based on the comparative analysis, recurring patterns and distinct approaches to heritage integration were grouped. This involved the use of categorisation – an iterative process of proposing categories, defining their characteristics, and testing their fit against the data for each key visual element (logos/slogans, colours, graphics).

This structured methodological approach, which combined a purposive selection of case studies with a theoretically informed typological analysis, provided a systematic yet flexible framework for studying this phenomenon. Clearly defined selection criteria, data sources, and analytical steps were intended to ensure transparency and allow other researchers to understand, evaluate, and possibly replicate the process used to arrive at the study findings and the resulting typology.

RESULTS AND DISCUSSION

Evolution of visual identity in the context of city **branding.** When building a city's brand, visual identity has become a key communication tool that not only distinguishes a city from others but also helps to form an emotional connection with residents and visitors. This section examined the transformation of approaches to urban identity design, from the use of slogans to complex visual systems, with a focus on the role of cultural heritage as an integral part of modern branding. As presented in the study by R. Doszhan (2023), in the current context of globalisation, the development of multidirectional cultural relations plays a key role in the integration of states into the world community, while cultural heritage is viewed as a universal value that extends beyond national boundaries. The analysis of the cases in this study revealed that visual elements of city branding, such as logos, colours, and supporting graphics, not only preserve local symbols but also reinterpret them in the context of global discourse. This echoes the findings of Y. Pisolkar (2024), who emphasised the significance of incorporating elements of local culture - architecture, traditions, customs - into urban branding strategies. In the present study, this approach was confirmed by the cases of New York, Cairo, Bologna, and other cities where cultural heritage has become the basis for the updated visual language of the city. This integration was not only crucial for branding but also played a central role in urban renewal, particularly in areas experiencing decline (Harfst *et al.*, 2021; Abouelmagd & Elrawy, 2022). At the same time, the author's research deepened these approaches by typologising visual media that had previously stayed outside of the focus of such studies.

Cultural heritage revitalised through creative interventions, became a driving force for urban regeneration. Since the 20th century, there have been remarkable developments and changes in urban brand building. With growing global competition, branding efforts shifted towards comprehensive visual identity systems that encompassed logos, colour schemes, typography, and other elements. This evolution reflected a deeper understanding of visual communication's role in shaping public perception and emotional connections. A cohesive visual identity system, as noted by M. Kavaratzis & M.J. Hatch (2013), was crucial for establishing a recognisable city image. Originally based on Corporate Identity System (CIS) design, which spans communication and management disciplines, urban branding now leverages these principles. The adoption of these systems reflects a deeper understanding of the role of visual communication in shaping perceptions and fostering emotional connections with both residents and visitors. The transition from the use of slogans and logos to comprehensive visual identity systems represents a fundamental shift in urban branding. Initially, slogans served as concise, memorable phrases designed to encapsulate the spirit of a city. However, as the value of branding became more recognised, cities began to develop more intricate visual identity systems that include logos, colour schemes, typography, and other visual elements, e.g., other design forms such as city souvenir design and city event design. Notably, although previous studies by M. Kavaratzis & M.J. Hatch (2013) emphasised the significance of visual identity for the development of the city image, the present study focused on the structural analysis of the ways of integrating cultural heritage. This allowed expanding the understanding of not only aesthetic, but also semiotic and cognitive mechanisms underlying effective city branding. According to K. Fouseki & M. Nicolau (2018), the relationship between a city's cultural heritage and its deliberately crafted image had become increasingly critical for urban planners and designers.

The purpose of visual identity is to distinguish the commercial name in a competitive environment so that the name will effectively maintain its memorability in all presentable media. In the contemporary development of city brand identity design, in addition to the conventional visual identity system, a multitude of other visual forms has been derived from the characteristics

of urban development. These forms serve to enhance the correlation between urban branding and cultural heritage. Despite these advancements in urban branding theory and practice, a crucial area continues to be relatively unexplored: the systematic categorisation and analysis of how cultural heritage is applied within these diverse visual forms. While existing research acknowledges the significance of cultural heritage in creating unique and authentic city brands, it often lacks a structured framework for understanding the diverse forms this integration takes.

Signs and slogans with social cohesion. Logos serve as the most recognisable element of a visual identity system, acting as visual shorthand for the city's brand. They are designed to be instantly recognisable and to capture the essence of the city's identity. Slogans, on the other hand, provide a concise verbal expression of the city's brand promise. Together, logos and slogans create a memorable and marketable brand identity (Dai, 2020). In the late 1970s, New York City faced severe financial and social crises, marked by crime, economic decline, and negative media portrayal. To revitalise the city's image and boost tourism, the New York Department of Commerce launched a rebranding campaign. Milton Glaser designed the "I love NY" logo (Fig. 1), which quickly became iconic. This symbol not only attracted tourists but also fostered civic pride and unity among New Yorkers, significantly influencing urban development and social cohesion by reshaping perceptions and encouraging a positive outlook towards the city (Milosevic, 2025). The city logo design is undoubtedly a pioneering work in urban branding, with widespread recognition in its original form and various imitations. Initially, it featured the letters "I" and a heart shape followed by "NY" on the same line. As the idea evolved, Milton Glaser decided to stack "I" and the heart shape above "NY", later acknowledging a possible subconscious influence from Robert Indiana's pop art image "LOVE" (Sooke, 2011). This design played a crucial role in promoting New York tourism.

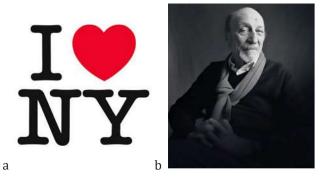


Figure 1. New York City logo design **Note:** a – the logo design; b – portrait of Milton Glaser;

Source: I. Shank (2017)

This layout made the logo more versatile, allowing it to be displayed on various surfaces, from hats to T-shirts. Following the 9/11 attacks in 2001, the logo gained prominence, it fostered a spirit of unity in the city, and this poster spread throughout New York in just a few days (9/11 Memorial & Museum, n.d.). Milton Glaser created a revised version to commemorate the attacks, stating "I love New York more than ever", with a small black spot on the heart symbolising the World Trade Center site (Fig. 2). The innovative use of a heart symbol to replace the word "love" set a precedent in visual communication, effectively conveying emotion and civic pride. This design has since been widely emulated across various industries, reflecting its profound impact on branding strategies.



Figure 2. Poster: I [heart] NY more than ever; 2001 **Source:** T. Lambert (2013)

The "I love NY" logo and its subsequent adaptations illustrated the profound impact of a well-designed city brand logo and slogan on image building, urban development, and civic cohesion. These elements not only created a memorable and marketable brand identity but also played a crucial role in shaping a city's unique identity and maintaining its cultural heritage. A well-crafted logo and slogan served as a powerful tool in transforming public perception, fostering a sense of belonging among residents, and promoting a unified civic identity (Zhang & Sun, 2007). This attracted tourism, stimulated economic growth, and enhanced the city's global image. The logo's design, which cleverly incorporated a heart symbol to denote love, had set a precedent in visual communication, illustrating how simplicity and emotional resonance could achieve widespread recognition and appeal.

Furthermore, the logo's capacity to construct a city's distinctive ontological signature stayed unchallenged.

Through the encapsulation of the quintessential attributed comprising New York City's ethos, the logo had evolved into an archetypal symbol embodying the metropolis' robustness, pluralistic composition, and dynamic energy. This profound alignment with the urban entity's core values and morphological characteristics engendered a psychological framework of pride and spatial belonging among its denizens, thereby enhancing civic solidarity at both individual and collective levels. The synergistic cohesion and shared ontological narrative propagated by the logo assumed critical importance in the conservation of the city's cultural genealogy, particularly amid the dual pressures of globalisation and accelerated urban metamorphosis. Logos and slogans were fundamental components in the construction of a city's brand image, to promote a high degree of city recognition (Zhang, 2023). M. Kavaratzis (2009) posited that these elements were essential in creating a coherent and compelling city brand. The "I love NY" logo's success could be attributed to its innovative design and emotional resonance, which had set a benchmark in urban branding. As the logo evolved, particularly with the post-9/11 (2001) adaptation, it demonstrated adaptability and continued relevance, reinforcing its role in fostering civic pride and unity.

The construction of a city's brand identity, particularly the design of its logo and slogan, was not static. With the evolution of a city's strategic positioning and market environment, making prompt adjustments and innovations had become a widespread trend. Many cities had updated their visual identities based on their development needs and changed in brand slogans. Cities such as Kawasaki, Japan; Busan, South Korea; and Madrid, Spain exemplified this (Table 1).

Table 1. City logo design and city slogan			
City name	Old logo	New logo	Slogan
Kawasaki, Japan			Colours, future!
	KAWASAKI CITY	川崎市	
Busan, South Korea	부산광역시 BUSAN METROPOLITAN CITY	부산광역시 BUSAN METROPOLITAN CITY	Busan is good
Madrid, Spain	j MADRID!	grid	Madrid embrace

Source: N. Ho (2016), Haps (2023), Madrid embraces you (n.d.)

In 2016, Kawasaki, Japan, launched a new city image identity and slogan: "Colours, Future!". The new logo used three colours – red, green, and blue, symbolising Kawasaki as a diverse and attractive city full of future possibilities. The three lines were not static but conveyed a sense of dynamism, representing Kawasaki's vitality and potential for future development. This change aimed to prepare for the upcoming 2020 Tokyo Olympics and the 100th anniversary of Kawasaki City's founding in 2024. The new logo had widely replaced the old one in municipal facilities, cultural events, and promotional materials. The new logo and slogan together formed Kawasaki City's completely new city brand identity, jointly conveying Kawasaki's unique charm and development vision, and providing a unified

visual and textual expression for the city's promotion and marketing. To highlight its diverse charm and cater to the needs of new consumer groups, Busan, South Korea, launched a new city tourism brand logo, slogan, and IP character in 2023. The new city logo, themed around the letters "B" and "S", adopted a three-dimensional shape and vibrant colours to convey energy and creativity. The new brand slogan, "Busan is good", combined English and Korean, symbolising the allure of the city. The overall renewal of the city's visual image has helped to strengthen local identity and positive perceptions of Busan both at home and abroad.

In contrast, Madrid Tourism had launched a new city tourism brand image themed "Madrid's Embrace", showcasing the city's warmth, openness, and inclusiveness. The goal was to better highlight Madrid's image as an open, free, inclusive, and welcoming city. Compared to other cities, these qualities are less readily associated with Madrid, hence the need to emphasise them through a new brand identity. The new brand identity design used the concepts of "embrace" and "fold" to present "Madrid", hoping to convey the message that Madrid welcomes everyone. This brand image would be unveiled at a series of upcoming cultural events and vigorously promoted on the official website and social media platforms. The new brand image would be prominently displayed at a series of upcoming cultural and entertainment events, including the LGTBQI+ Pride festival and music festivals, leveraging these internationally influential events to increase the new brand's exposure.

The brand image updates of these three cities all demonstrated the adaptability of city brand design that is, making prompt adjustments based on the dynamic changes in the city's development positioning. It also reflected the core value of public participation in city brand building. As for the coordination of city slogans and logos, some cities used the shape or colours of the logo to express consistency with the slogan, such as Kawasaki and Madrid, while others showcased this through the combination of the logo and slogan fonts. In conclusion, the design and deployment of city brand logos and slogans were critical in building a strong, recognisable, and marketable urban identity. They played an indispensable role in image communication, economic development, and cultural cohesion, ultimately contributing to the holistic growth and resilience of the urban environment.

According to the definition of corporate brand visual identity design, its foundational components, besides the brand logo and slogan typography, included standard colours and auxiliary graphics as crucial elements (Stoimenova, 2017). Y.L. Guo (2015) highlighted that a corporate brand's standard colours were specifically chosen to represent the company's philosophy and spirit and were used across all media forms in visual identity design. These colours could embody the attributes of the company's philosophy and had a strong visual symbolic recognition effect. In the context of city branding, the psychological and recognition impacts of colours are instrumental in articulating the city's brand identity. Y. Zhang (2020) emphasised that colour, as a symbol, aimed to activate the internal emotions of the audience, often providing a significant advantage in conveying the city's image. As a complex and diverse design entity, a city required these established standard colours to be used consistently across diverse materials and settings to create a cohesive and recognisable image. This study also revealed that many cities focus on maintaining the consistency of their brand logo graphics, while adapting the colours to different usage scenarios to present varied styles. For example, the latest brand image design of the Paris Tourism Bureau (Fig. 3).





Figure 3. Logo of the Paris tourist board **Source:** Paris convention and visitors bureau (2016)

It unified the overall visual style with an unchanging letter logo, while demonstrating the diversity of Paris through the isomorphism and linkage of different graphics below the font. This approach enabled consistent brand recognition while offering flexibility in visual storytelling across various media and contexts. As a result, the identity system effectively balanced tradition and modernity, reinforcing both the cultural richness and contemporary dynamism of the city.

Significance of standard colours in city branding. The establishment of standard colours in city brand design was a pivotal element in shaping a city's image, playing a paramount role in enhancing city recognition, evoking emotional resonance, and conveying cultural significance. From a cognitive perspective, unified and representative brand colours could assist the public in rapidly forming a clear visual understanding of a city. Nevers' adoption of the historically rich and highly recognisable "Nevers Blue" aided residents and tourists in perceiving and identifying the city, thus creating a distinct "sense of place". Cairo, through the extensive use of brown tones imbued with architectural imagery, visually highlighted its unique image as the "City of a Thousand Minarets", enabling audiences to swiftly grasp the city's salient features. As mentioned earlier, the consistent use of unified brand colours within a cohesive city brand system design helped residents and tourists perceive and recognised the sense of place. The following elucidated the brand identity colour design strategies of two cities – Nevers and Cairo (Fig. 4, 5), followed by an in-depth analysis from cognitive, emotional, and cultural significance perspectives.



Figure 4. Standard colour usage in city identity – Ville de Nevers, France

Note: a - Ville de Nevers logo; b - standard colour

design; c – application design **Source:** Grapheine (2018)



Figure 5. Standard colour usage in city identity – Cairo, Egypt

Note: a - Cairo logo; b - standard colour design; c -

application design

Source: M. Ali *et al.* (2024)

The brand-new visual identity design of the city of Nevers continued to utilise its iconic "Nevers Blue" (a symbolic colour of the city) as the primary colour (Fig. 6), and on this foundation constructed a richer colour system. This cobalt blue (a specific shade of blue used by Nevers), created through the firing of manganese, boasts a history spanning over three centuries, serving not only as the traditional glaze for Nevers pottery (represented the city's craft heritage), but also as the symbolic colour of the city. Alongside preserving this representative colour with its profound historical roots, the design team had also integrated more open and contemporary hues, fully embodying the inheritance and innovation of traditional colours.



Figure 6. Nevers earthenware bowl with Persian blue background **Source:** Bils-cramiques (n.d.)

The "Rebranding Cairo" project aimed to imbue Cairo with a more modern identity. Its standard colour scheme primarily employed brown tones that symbolised Islamic-style architecture. To align with the overall sense of history and visual unity, the hues of other colours within the standard palette were also rigorously controlled, utilising medium to low hues to reinforce the city's profound cultural heritage. "Nevers Blue" as the traditional colour of Nevers (evokes historical memories and cultural identity), could stir historical memories and cultural identification among local residents, bolstering their sense of pride. Cairo, with its dominant brown tones, cultivated an atmosphere that was both serene and steeped in history and culture. This colour palette could convey the city's solemnity and cultural accumulation, thereby establishing a connection with the audience on an emotional level. "Nevers Blue" was more than just a colour; it is a symbol of Nevers' pottery culture, deeply ingrained within the local cultural DNA. Cairo's choice of brown tones as the primary colour directly echoed the typical colour characteristics of Islamic architecture, reinforcing its position as a centre of Islamic culture. This colour selection in itself holds rich cultural symbolism.

In terms of emotional connection, colour possessed a powerful ability to evoke emotions. As L. Song (2014) pointed out, the psychological impact of colour is achieved through multiple layers, including sensory, associative, and symbolic levels. Imagery served as a bridge between visual thinking and mental perception. Through visual thinking, individuals could grasp, analyse, simplify, and abstract the essence of things, ultimately forming images that resonate emotionally (Zhang, 2020). As for cultural significance, colours often carried profound cultural connotations, and the colour cultures of different regions exhibited marked variations. These cultural meanings were often resistant to homogenisation and deeply reflected local traditions and identity (Caivano & López, 2006).

To summarise, Nevers and Cairo had thoroughly considered their respective historical and cultural characteristics, as well as their future development visions, in the design of their city brand identity colours. Nevers emphasised the inheritance and innovation of traditional colours, while Cairo was dedicated to showcasing its profound cultural heritage through colour. From the cognitive, emotional, and cultural significance dimensions, the brand identity colour designs of these cities had effectively contributed to shaping clear city images, stimulating emotional resonance, and conveying unique cultural values, fully demonstrating the valuable role of standard colours in city brand building.

Types of auxiliary graphics. In city brand identity design, auxiliary graphics played a crucial role. They served as an effective extension and complement to the main logo, enabling a deeper and more vivid conveyance of urban cultural connotations, and enhancing brand recognition and communication effectiveness. As stated in the research, Q.F. Ke (2021) explained visual symbols, with their unique structure and meaning, and concise forms, played a key role in the communication process, allowing audiences to form brand perceptions. Auxiliary graphics, as a type of visual symbol, come in various design types, primarily including:

- 1. Patterns and textures: the inspiration for these auxiliary graphics stemmed from the city's unique architectural styles, natural landscapes, or profound cultural themes. They formed a representative visual language through the abstraction, deconstruction, and recombination of these elements.
- 2. Icons and symbols: these were simple and easily recognisable marks or symbols, often drawing inspiration from urban landmarks, significant cultural elements, or unique regional characteristics. Their prominent level of abstraction allowed for quick and efficient information delivery and maintained recognisability across various application scenarios. As explained by Peirce's semiotic theory (Zhang *et al.*, 2023), symbols could be categorised into iconic signs, indexical signs, and symbolic signs based on their relationship with the object they represent. Icons and symbols in auxiliary graphics predominantly fell into the latter two categories.
- 3. Illustrations: custom illustrations could more figuratively and narratively showcase the cityscape, depicting urban landscapes, local flora and fauna, or cultural activities. Their artistic expression could imbue the brand with richer emotional tones and humanistic appeal.

Successful city brand identity design often skilfully integrated these auxiliary graphic types with the city's unique cultural DNA. From a cultural branding perspective, brands needed to be rooted in culture and resonate with the cultural values of their target audience. Auxiliary graphics served as a vital bridge connecting the urban brand with the audience's cultural

understanding. The following cases demonstrated how visual auxiliary graphics can effectively communicated urban cultural identity (Fig. 7, 8), and to form the city's cultural imagery.



Figure 7. Auxiliary graphics usage in city identity – Bologna, Italy

Note: a – Cairo logo; b – standard colour design; c –

application design

Source: A. Gizella (2013)



Figure 8. Auxiliary graphics usage in city identity – Baku, Azerbaijan

Note: a – Baku logo; b – auxiliary graphics and other brand basic units; c – application design

Source: M. Mammedov (2022)

Bologna, a historically rich cultural city and the "Music City" of Italy, boasted an ingenious urban brand logo design. The design inspiration originated from the window tracery of local historical buildings. By abstracting the form of the window tracery, the designers used overlapping lines to create a circular logo. From a semiotic perspective, the lines of the window tracery could be viewed as the signifier, while the signified was

Bologna's profound historical and cultural heritage. Furthermore, the designers segmented the circular curve, using the segmented lines as units to develop auxiliary graphic designs, piecing them together into diverse visual images applied to various urban brand materials, forming a unified visual identity. Additionally, based on the circular unit, a series of unified-style social service icons were designed, covering areas such as media, public spaces, and educational institutions. Bologna's case skilfully integrated the reverence for historical architectural heritage into the service expression of modern social functions, embodying the harmonious unity of tradition and modernity.

Recognised by UNESCO as a "Creative City of Design", Baku's urban brand identity design delved deeply into its local cultural heritage (China Radio International, 2023). The design team integrated the city's national values, historical styles, and urban essence. Azerbaijan's ancient pottery, stone carvings, metal decorations, and carpet weaving art provided rich inspiration for the auxiliary graphic design. Designers extracted geometric forms from these elements, creating a series of repeatable and easily combinable icon units. These icon units cleverly incorporated elements representing Baku's "natural scenery, famous landmarks" and significant transportation symbols and could flexibly adapt to different logo forms. By repeating and arranging these icon units, patterns with national characteristics could be formed, enhancing brand recognition. This method of repeated arrangement also aligned with the principles of rhythm and pattern in graphic composition. This design strategy, which drew inspiration from traditional crafts and translated it into modern geometric language, not only highlighted Baku's historical and cultural heritage but also demonstrated its forward-looking spirit of innovation.

The above cases demonstrated that successful urban brand identity designs focused on drawing inspiration from local culture in their use of auxiliary graphics. Whether it was the abstract refinement of historical architectural elements (Bologna) or the modern interpretation of traditional crafts (Baku), these auxiliary graphics had become valuable carriers for conveying urban cultural characteristics. High-quality auxiliary graphic design not only enhanced the richness and scalability of the brand's visuals but more importantly, it effectively conveyed the city's unique cultural values and improved the urban brand's recognition and appeal among domestic and international audiences. As W. Olins & X. Liu (2012) emphasised in their study, a brand was perceptible, and the public's descriptions of the brand's core concepts and visual elements outlined the brand's conceptual profile. Drawing the brand's visual image from urban visual elements and through the organic integration of auxiliary graphics and the main logo, a complete urban brand visual system was jointly constructed, ultimately serving the effective communication and promotion of the city's image.

Thus, the study results demonstrated a wide variety of approaches to integrating cultural heritage into the visual identity of cities. The presented cases confirm that successful branding is based on a profound understanding of the local context, historical codes, and cultural markers. The identified typologies clearly illustrated how various elements, from logos to supporting graphics, can form a coherent, culturally grounded brand strategy.

CONCLUSIONS

In the present study, the typological analysis of cultural heritage applications in city brand identity design revealed several key findings. The study found that the evolution of city branding has shifted from simple slogans and logos towards comprehensive visual identity systems. The analysis of concrete cases proved the profound impact of well-designed logos and slogans; for instance, the "I love NY" logo was proved to be instrumental in reshaping public perception, fostering civic pride, and promoting unity, particularly with its adaptation following the 9/11 attacks at 2001. Furthermore, it was identified that cities like Kawasaki, Busan, and Madrid have dynamically updated their visual identities and slogans, such as Kawasaki's "Colours, Future!" and Madrid's "Madrid embrace," to reflect new developmental strategies and enhance public engagement, often ensuring a cohesive relationship between the logo's design and the slogan's message.

The critical role of standard colours in conveying cultural significance and enhancing recognition was analysed. The study found that Nevers, France, effectively utilised its historically significant "Nevers Blue", derived from local pottery traditions, to establish a distinct "sense of place" and cultural identity. Analogously, the study proved that Cairo's strategic use of brown tones, symbolic of its Islamic architectural heritage, successfully reinforced its image as the "City of a Thousand Minarets" and communicated its deep cultural roots. The consistent application of these standard colours was shown to be vital for cognitive understanding and emotional connection. As for auxiliary graphics, the study found that these elements are crucial for extending the brand's narrative and cultural depth. The analysis of Bologna, Italy, demonstrated how abstracted window tracery from historical buildings was transformed into versatile auxiliary graphics and icons, bridging historical reverence with modern social functions. In the case of Baku, Azerbaijan, it was found that geometric forms extracted from traditional crafts like pottery and carpet weaving were developed into a system of repeatable icon units representing local landmarks and culture, thereby creating a distinct cultural imagery. The study proved that these typologies of auxiliary graphics, be they patterns, icons, or illustrations drawn from cultural heritage, significantly enrich the visual language of a city's brand and strengthen its unique identity.

The prospects stemming from this study are significant. The typological framework that was developed offers a practical tool for urban planners, designers, and branding professionals. It was established that this framework can be utilised to systematically analyse existing city branding strategies, and to formulate new, culturally sensitive approaches that effectively leverage heritage. Future research could expand on these typologies by examining their application in conjunction with intangible cultural heritage manifestations, investigating the measurable impact of these specific heritage integration strategies on tourism and resident satisfaction, or exploring the evolving role of digital media in the co-creation and dissemination of heritage-infused

city brand identities. Such endeavours would further refine the understanding and improve the overall impact of city branding initiatives.

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CONFLICT OF INTEREST

None.

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Типологічний аналіз використання культурної спадщини в дизайні айдентики міста

Цін Лю

Аспірант Київський національний університет технологій та дизайну 01011, вул. Мала Шиянівська, 2, м. Київ, Україна Шеньсіський університет науки і технологій 710021, вул. Сюефу, 6, м. Сіань, Китай https://orcid.org/0009-0000-6391-5740

Олександра Шмельова-Нестеренко

Доктор філософії, доцент Київський національний університет технологій та дизайну о1011, вул. Мала Шияновська, 2, м. Київ, Україна https://orcid.org/0000-0001-7073-3574

Анотація. У дослідженні вивчалися різні способи інтеграції культурної спадщини в дизайн айдентики міського бренду. Воно мало на меті визначити та класифікувати різні типології використання культурної спадщини у ключових візуальних елементах - зокрема, логотипах і слоганах, кольоровій палітрі та допоміжній графіці. Використовуючи якісний дослідницький підхід, було проведено типологічний аналіз різноманітних міжнародних тематичних досліджень, що представляють різні культурні контексти та стратегії брендингу. Аналіз вийшов за межі візуальної естетики, щоб дослідити основні семіотичні принципи, когнітивні механізми та культурні цінності, які сприяють ефективності цих елементів брендингу. Дослідження виявило різні типології інтеграції культурної спадщини в айдентику міста. Кожен елемент продемонстрував значний потенціал використання культурної спадщини для посилення резонансу та впливу бренду. Серед проаналізованих кейсів символічними прикладами були знаковий логотип «I love NY» як символ громадянської єдності; оновлені слогани та логотипи Кавасакі, Пусана та Мадрида, що відображають нові міські візії; культурно обґрунтовані кольорові схеми Невера та Каїра; допоміжна графіка Болоньї та Баку, що сягає корінням в архітектурні та ремісничі традиції. На теоретичному рівні дослідження показало еволюцію логотипу міста разом зі зростанням суспільного розвитку, шляхи інтеграції стандартного кольору бренду міста з культурними продуктами та архітектурою, а також вираження культурних образів у допоміжному графічному дизайні спрощення, вилучення та реорганізації. На практиці отримані результати надали цінну інформацію для містобудівників, дизайнерів та професіоналів у сфері брендингу. Розроблені типологічні рамки слугували практичним інструментом для аналізу існуючих стратегій брендингу та формулювання нових, культурно чутливих підходів, які ефективно використовують спадщину, тим самим підвищуючи загальну ефективність ініціатив з брендингу міст

Ключові слова: дизайн міського бренду; кольорова палітра; композиція; допоміжна графіка; імідж бренду; культурний брендинг