



Visual and Cultural Identity in Contemporary Saudi Architecture: A Cultural Sustainability Perspective

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ABSTRACT

The rapid urban transformation in Saudi Arabia has intensified debate over visual identity in contemporary architecture and its relationship to cultural context. Despite a rich architectural heritage, its integration into contemporary practice often remains superficial, weakening connections to place and diluting cultural sustainability, which extends beyond environmental and technical concerns to encompass cultural expression and the human-place relationship. This study examines visual identity and cultural sustainability in contemporary Saudi architecture, focusing on the relationship between heritage and modern design. Employing a qualitative approach, it critically reviews literature published between 2021 and 2025 to explore how sustainability is framed culturally. Findings indicate that visual identity arises from an ongoing interaction between cultural memory and contemporary design, rather than the superficial application of traditional motifs. Three interconnected dimensions are proposed: continuity with cultural memory, meaning and symbolism, and aesthetic ethics and spatial experience. As a conceptual study, its findings remain interpretive, inviting further applied and analytical research.

Introduction

Cultural and visual identity are vital in shaping the meaning and expression of architecture in Saudi Arabia. These dimensions reflect collective memory, social values, and the Islamic worldview that has historically influenced the built environment across regions such as Najd, Hejaz, and Al-Baha [1], [2].

Cultural identity in Saudi architecture is often associated with intangible aspects such as tradition, symbolism, and spiritual meaning, while visual identity is expressed through architectural form and composition. Within Saudi architecture, these identities appear in elements such as mashrabiyyas, inner courtyards, rawashin, and geometric patterns [3], [4]. Importantly, these features extend beyond decorative use, as they are closely tied to climatic adaptation, privacy, and underlying cultural principles.

In recent decades, architectural practice in Saudi Arabia has tended to adopt modern architectural models in urban development projects. Although these approaches contribute to significant technological advancements, traditional elements are often used superficially, appearing mainly as visual references instead of being genuinely integrated into the design process [5], [6]. As a result, expressions of architectural identity in Saudi cities may sometimes seem limited or inconsistent. They are often more visible in landmark projects, while becoming less noticeable or even absent in residential developments [7], [8].

In Saudi Arabia, this issue is particularly important, as architecture has historically functioned as a means of expressing Islamic values, social practices, and urban patterns. While several major projects, including the Ithra Centre and King Fahd Stadium, as well as several residential developments in different Saudi cities, incorporate references to heritage, these references often remain mainly visual. They are not consistently reflected in spatial or environmental design strategies within the design process [7], [9]. As a result, architectural identity tends to be expressed as symbolic imagery rather than as a principle that guides design decisions in a more integrated way.

National development strategies, particularly Saudi Vision 2030, emphasise the importance of heritage preservation and cultural revitalisation in shaping the future of Saudi cities. Vision 2030 views culture not only as a historical legacy, but also as a driver of tourism, creative industries, and heritage-based development.

In this context, major initiatives such as the Masar Destination in Makkah and the Diriyah Gate in Riyadh are presented as reflecting this direction and reinforcing architecture's role in supporting cultural identity and national belonging. However, this emphasis is not always clearly reflected in the design outcomes, as many projects are presented as expressing identity, while their architectural treatments are often limited or unclear.

Despite this, identity remains relatively limited within many sustainability assessment systems, as Selim et al. [10] indicate that cultural integration accounts for only 18.48% of the evaluation criteria in Saudi urban projects, compared to more than 50% allocated to environmental indicators such as energy efficiency.

Recent studies indicate a persistent gap between strategic ambitions and actual architectural practice. Research on cultural integration in contemporary Saudi architecture shows that heritage elements are often used in a limited or surface-level manner, despite the strong emphasis on identity within the framework of Saudi Vision 2030 [11]. At the same time, findings from user perception studies reveal a clear preference for more meaningful, contextually grounded expressions of cultural identity in architectural design, highlighting a gap between theoretical directions and practical applications in the Saudi context.

This gap can be attributed to several factors, including the rapid pace of urban transformation, particularly in cities such as Makkah, Madinah, and Riyadh, as well as the fast implementation of projects by developers and construction firms.

In addition, patterns of intensive urban expansion have weakened traditional architectural features that once characterised the local heritage of these cities. This has occurred largely in the absence of clear mechanisms or a defined framework to preserve elements of visual identity and support their continuity across generations.

Global design templates and imported styles further complicate this issue. Many contemporary buildings adopt international forms that separate architecture from its environmental and cultural context [5]. Even when traditional elements such as domes, arches, or mashrabiyyas are incorporated, they are often detached from their original climatic or social functions [3], [6]. This disconnection not only weakens architectural identity but also limits the use of passive environmental strategies that were an essential part of traditional vernacular architecture.

Despite these challenges, some projects demonstrate the possibility of meaningful integration between identity and sustainability. For example, the restoration of Ushaiger Village relies on traditional materials, adaptive reuse, and passive climatic strategies to support both heritage preservation and sustainable development [12]. Similarly, the preservation of historic mosques in Jeddah employs elements such as rawashin, coral stone, and shaded passages to address climatic conditions while maintaining Islamic architectural values [4].

These cases indicate that integrating identity into the design of place can contribute to achieving environmental and cultural sustainability, thereby enhancing the aesthetic dimension of place.

However, such examples remain limited. Much of contemporary architectural practice still treats identity as a secondary consideration, introducing cultural references late in the design process or reducing them to decorative elements. This reduces the role of identity in supporting the quality of the urban environment, environmental

performance, and cultural continuity. As a result, there is a need for clearer conceptual and methodological frameworks that can better integrate cultural and visual identity within sustainable architectural design.

This study addresses this gap through a critical review of recent architectural research on cultural and visual identity and sustainability in Saudi Arabia. Focusing on peer-reviewed studies published between 2021 and 2025, it examines how these topics are addressed in the existing literature and identifies recurring patterns, including the tendency to treat heritage elements primarily as visual symbols.

This research aims to develop a conceptual framework that links visual identity, cultural meaning, and sustainability within contemporary Saudi architecture. Viewing identity as a dynamic concept rooted in an Islamic perspective suggests that visual and cultural identity can guide the design of meaningful, adaptable built environments that respond to their context.

Methodology

Review Type

This study adopts a critical literature review to examine the intersection of visual identity, cultural identity, and sustainability in Saudi architecture. Unlike systematic reviews that prioritise exhaustive coverage, the critical review emphasises conceptual interpretation, theoretical synthesis, and the identification of gaps within existing scholarship. Following Grant and Booth [13], this approach moves beyond descriptive summarisation to engage critically with the conceptual foundations and methodological orientations of the literature. The method is particularly suited to studies addressing architectural meaning, cultural expression, and environmental ethics, where philosophical interpretation is required alongside analytical evaluation.

Scope and Timeframe

The review focuses primarily on academic literature published between January 2021 and March 2025, reflecting recent developments in Saudi architectural discourse under Vision 2030. However, a limited number of earlier foundational studies were included to provide essential theoretical and philosophical grounding. These works serve as conceptual anchors for interpreting cultural identity and sustainability within a broader intellectual framework.

Although the review emphasises contemporary scholarship, a limited number of foundational works were retained to provide philosophical grounding for the discussion. In particular, Nasr [14] and Alfaroqi [15] offer essential ontological and civilisational perspectives on Islamic conceptions of cultural and visual identity. These texts function as theoretical anchors rather than as part of the contemporary empirical corpus, ensuring that the analysis is situated within the broader intellectual traditions that inform debates on architecture, identity, and sustainability.

Source Selection and Screening Process

Relevant studies were identified through four major academic databases: Scopus, Web of Science, ScienceDirect, and Google Scholar. Google Scholar was used selectively to capture Arabic-language and cross-disciplinary studies not indexed in the other databases. To ensure comprehensive coverage, backwards and forward citation tracking was also conducted to identify additional relevant publications.

The study followed a structured screening process to enhance transparency and methodological rigour. The selection process involved three stages:

- 1) **Identification stage:** Retrieval of studies from selected databases using predefined keywords.
- 2) **Screening stage:** Removal of duplicates followed by title and abstract review to eliminate irrelevant studies.
- 3) **Eligibility stage:** Full-text assessment based on inclusion and exclusion criteria.

The initial database search yielded 128 records, of which 102 remained after duplicates were removed. Following title and abstract screening, 66 records were excluded, and 36 studies were retained for full-text assessment. After applying the inclusion and exclusion criteria, a final sample of 22 studies was selected for analysis. The overall selection process is illustrated in Figure 1.

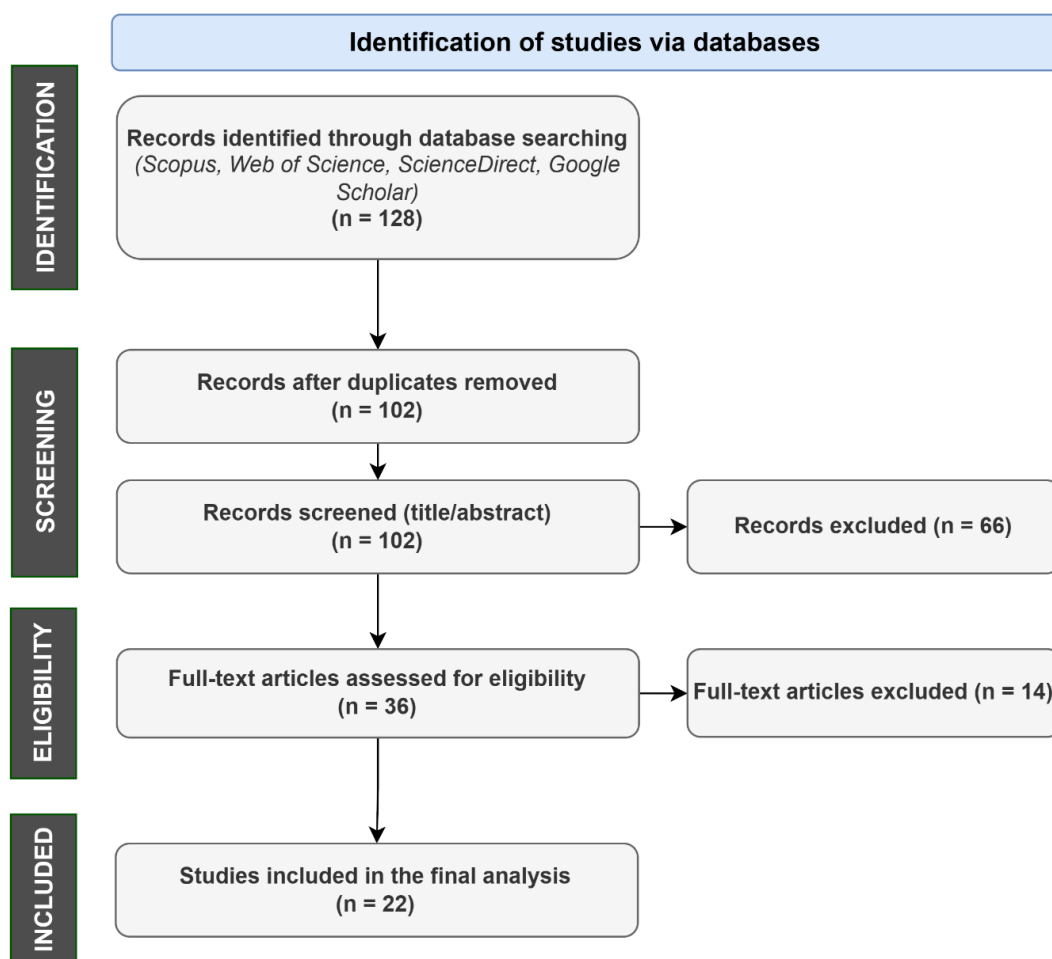


Figure 1. PRISMA flow diagram illustrating the identification, screening, eligibility, and inclusion process of the selected studies.

Search Strategy

The literature search combined several core keywords related to the study's central themes, including *visual identity*, *cultural identity*, *architectural sustainability*, *Islamic architecture*, and *Saudi Arabia*. Additional terms such as *vernacular design*, *heritage conservation*, and *symbolism in architecture* were used to broaden the search scope. Boolean operators (AND, OR) were applied to refine search results, enabling the identification of both general discussions and specialised studies examining the relationship between identity and sustainability within architectural discourse.

Inclusion and Exclusion Criteria

Explicit inclusion and exclusion criteria were applied during the screening process to ensure the relevance and conceptual depth of the selected studies.

Inclusion criteria

- Publications between 2021 and 2025.
- Studies focused on Saudi Arabia or closely related Gulf/Arab contexts.
- Research addressing cultural identity, visual identity, or environmental sustainability in architecture.
- Studies engaging architecture as a symbolic, theoretical, or analytical discipline.

Exclusion criteria

- Studies lacking reference to the Saudi or Gulf architectural context.
- Purely technical or engineering research without cultural or symbolic discussion.
- Non-scholarly outputs such as journalistic articles, opinion essays, or non-peer-reviewed material.

Analytical Approach and Theoretical Lens

Following the selection process, the analysis proceeded in two complementary stages designed to combine systematic organisation with critical interpretation.

First, all selected studies were recorded in a structured matrix that captured key information, including authors, publication year, methodological approach, thematic focus, and principal findings. This descriptive mapping enabled comparison across cultural, visual, and sustainability dimensions within the literature. The final

analytical dataset consisted of 22 sources: 20 contemporary studies published between 2021 and 2025, alongside 2 foundational theoretical works included to provide philosophical grounding for the analysis. These sources were coded S1–S22 and are presented in Table 1.

Table 1. Structured dataset of selected studies (n = 22) included in the critical review, coded (S1–S22)

Study ID	Author (Year)	Country / Context	Method	Focus Theme
S1	Ghaleb & Juhari (2024)	Saudi Arabia	Case study	Identity, megaprojects
S2	Ibrahim et al. (2023)	Saudi / Islamic context	Analytical study	Symbolism, sustainability
S3	Taki & Kumari (2023)	Saudi Arabia	Analytical	Mashrabiya, identity
S4	Abou Leila & Alaboud (2023)	Saudi Arabia (Makkah)	Case study	Vernacular, sustainability
S5	Sirror (2024)	Saudi Arabia (Al-Ula)	Case study	Vernacular strategies
S6	Waheeb (2023)	Saudi Arabia (Jeddah)	Case study	Heritage, mosques
S7	Alnaim & Noaime (2024)	Saudi Arabia (Najd)	Morphological analysis	Heritage, urban form
S8	Mazzetto (2025)	Saudi Arabia (Ushaiger)	Case study	Heritage, sustainability
S9	Mohamed (2025)	Saudi Arabia (Al-Baha)	Case study	Heritage preservation
S10	Scaffidi et al. (2025)	Global	Comparative	Heritage economy
S11	Selim et al. (2024)	Saudi Arabia	Analytical framework	Sustainability metrics
S12	Alzahrani (2022)	Saudi Arabia	Case study	Identity, contemporary design
S13	Hadjadi et al. (2024)	Global / Arab	Analytical	Globalisation
S14	Al-Adilee (2024)	Arab region	Conceptual	Heritage influence
S15	Moscatelli (2023)	Saudi Arabia (Riyadh)	Case study	Heritage reinterpretation
S16	Alfaroqi (1982)	Islamic philosophy	Theoretical	Ontology, identity
S17	Nasr (1987)	Islamic philosophy	Theoretical	Spiritual identity
S18	Alobailan & Alawad (2022)	Saudi Arabia	Analytical	Heritage values
S19	Shahda & Noseir (2021)	Arab region	Analytical	Environmental design
S20	Shbaita et al. (2024)	Saudi Arabia	Empirical	Biophilic design
S21	Alkathiri et al. (2025)	Saudi Arabia	Review + survey	Cultural integration
S22	Aldossary et al. (2025)	Saudi Arabia	Case study	Urban regeneration

Second, a thematic and critical comparative analysis was conducted. The studies were grouped into several conceptual categories, including symbolic versus functional identity; heritage conservation and sustainability; visual erosion under globalisation; and superficial versus embedded sustainability models. This thematic synthesis identified recurring patterns, conceptual tensions, and theoretical gaps within the literature.

The theoretical perspectives informed the analysis of phenomenology and critical regionalism, both of which interpret architecture as a medium of memory, meaning, and cultural continuity. These frameworks enabled the evaluation not only of whether visual and cultural identity appear within Saudi architectural discourse, but also of the extent to which they are conceptually integrated into sustainable design narratives.

Critical Synthesis

The reviewed literature reveals diverse approaches to cultural and visual identity in Saudi architecture, yet recurring themes suggest both strengths and limitations in the discourse. For clarity, this section is organised thematically rather than chronologically, allowing a synthesis that highlights conceptual connections and tensions. Such an arrangement facilitates a critical evaluation of ideas, moving beyond descriptive summaries to interrogate the deeper assumptions underpinning the field. The aim is not only to review existing scholarship but also to examine the conceptual foundations, methodological patterns, and philosophical orientations that shape current debates.

This thematic structure directly responds to the research problem identified in the broader study: the fragmented treatment of cultural, visual, and sustainability dimensions in Saudi architectural discourse. By grouping studies into major thematic clusters, the analysis demonstrates how identity has been variously framed: sometimes as symbolic ornamentation, sometimes as functional and climatic adaptation, at other times as a heritage preservation strategy, and at other times as a secondary element within sustainability frameworks. The reviewed literature reveals diverse approaches to cultural and visual identity in Saudi architecture, yet recurring themes

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1. Symbolic versus functional identity, where the literature alternates between treating heritage as surface-level decoration and as an embedded climatic or spatial logic.
2. Heritage conservation and sustainability highlight the ways architectural traditions are preserved, adapted, or reinterpreted in response to contemporary development goals.
3. Globalisation and visual erosion reflect the tensions between imported architectural templates and the formation of localised identities.
4. Superficial versus embedded sustainability models, addressing the extent to which cultural and visual identity is integrated into sustainability frameworks or marginalised as an aesthetic supplement.

Together, these clusters offer a structured framework for examining the contributions and limitations of the literature. They also lay the groundwork for identifying conceptual gaps and advancing a more comprehensive philosophical framework that reconnects cultural meaning, visual symbolism, and sustainability within contemporary Saudi architectural practice.

Symbolic vs Functional Identity

Symbolic Representations

Several studies approach identity primarily through symbolic representations, emphasising traditional motifs such as mashrabiya, domes, and arches. While these works highlight cultural heritage's visibility, they often reduce identity to surface-level ornamentation rather than treating it as an integrated design principle. For instance, Taki and Kumari [3] examined the mashrabiya in Saudi architecture, underscoring its symbolic value as a marker of privacy and cultural identity. However, their findings reveal that in contemporary applications, the mashrabiya is frequently employed as an aesthetic façade element, detached from its original religious, social, and climatic purposes.

Similarly, Ibrahim et al. [6] explored the role of Islamic geometric patterns as visual signifiers of Islamic history and culture. Although their study acknowledged the potential of such motifs for cultural preservation, it also indicated that these patterns are rarely embedded in holistic sustainability frameworks. Instead, they tend to appear as ornamental devices with limited functional or ecological integration.

At a broader scale, Ghaleb and Juhari [8] critiqued national architectural projects in Saudi Arabia for lacking cohesive symbolic narratives. Their analysis revealed that cultural symbols were often fragmented or absent, resulting in iconic projects that relied on abstracted decorative forms rather than meaningful cultural logics.

Taken together, these studies illustrate a recurring tendency to equate identity with visibility, treating heritage primarily as a symbolic layer. While this demonstrates the persistence of cultural references in contemporary design, it simultaneously exposes a critical shortcoming: the failure to reconnect symbolism with the climatic, social, and spiritual functions that once animated traditional architecture.

Functional and Embedded Identity

In contrast, some studies view identity as embedded within functional and climatic adaptations, such as courtyard houses, shading devices, and vernacular material use. These studies suggest that identity can operate simultaneously as a cultural marker and a sustainability mechanism. However, only a limited number extend this perspective into more developed theoretical models.

Siror et al. [2] analysed traditional residential architecture in the Hejaz region, emphasising rawashin, ventilation shafts, and courtyard structures as strategies that address cultural values while enhancing climatic adaptation. Their findings show that traditional design was rooted in social and religious practices and also provided practical solutions for thermal comfort and natural ventilation.

Similarly, Abou Leila and Alaboud [1] examined the case of Madinah, highlighting the continued use of thick walls, courtyards, and shading elements as both cultural expressions and climate-responsive strategies. Their qualitative study revealed strong public support for retaining these features in contemporary architecture, reinforcing the idea that functional identity can sustain cultural memory while improving environmental performance.

The conservation-focused work of Waheeb [4] on historic mosques in Jeddah also demonstrates this connection. By restoring Rawshan windows and other Hijazi design elements, these projects achieved cultural continuity while also providing environmental benefits, such as natural ventilation and reduced heat gain.

Finally, Sirror et al. [2] highlighted the role of traditional construction methods and local materials, such as mud and stone, in vernacular architecture in Al-Ula. This work shows how embedded identity can support community engagement and ecological resilience, while also pointing to the challenges of applying these approaches at a larger scale across the Kingdom.

Despite these contributions, the literature remains limited in advancing functional identity beyond descriptive accounts or case-based studies. Most studies stop short of developing comprehensive theoretical frameworks that connect cultural identity with environmental performance in contemporary Saudi architecture. This gap highlights the need for philosophical and methodological approaches that position functional identity not only as a technical adaptation, but as a more integrated cultural and environmental framework.

Heritage Conservation and Sustainability

Heritage as Cultural Preservation

A significant portion of the literature frames heritage conservation as cultural preservation, focusing on historic mosques, urban fabric, and traditional villages. These works stress continuity and authenticity, illustrating how conserving traditional environments helps maintain cultural and visual identity. For example, Mazzetto [12] examined the restoration of Ushaiger Village, showing how mudbrick and limestone structures were revitalised to preserve Najdi architectural traditions and reinforce cultural memory. Similarly, Waheeb [4] studied two historic mosques in Jeddah, highlighting the reuse of elements such as rawshan and coral stone to sustain Hijazi heritage.

In a broader cultural-morphological analysis, Alnaim and Noaime [16] demonstrated how the spatial organisation of traditional Najdi towns, through neighbourhood clustering, social hierarchies, and community-driven planning mechanisms, preserved both cultural identity and the visual coherence of the built environment. Their findings reinforce the view that heritage settings function not merely as physical artefacts, but as active carriers of cultural memory and visual identity embedded within social structures and spatial practices.

While these contributions demonstrate the tangible value of heritage in safeguarding cultural continuity, the literature often remains descriptive and limited in theoretical engagement. Most studies emphasise documenting architectural forms and the continuity of materials, but fall short of advancing comprehensive philosophical or sustainability frameworks. This gap underscores the need to connect heritage conservation not only to preservation practices but also to broader cultural and environmental discourses that shape the future trajectory of Saudi architecture.

Heritage as a Sustainability Strategy

Other studies link heritage to sustainability agendas, particularly through adaptive reuse, tourism development, and cultural economy initiatives. While these highlight heritage's potential to support sustainability, they frequently prioritise environmental or economic benefits over cultural depth. For instance, Mazzetto [12] showed how the revitalisation of Ushaiger Village transformed restored mudbrick and limestone houses into guesthouses, museums, and restaurants. This adaptive reuse strategy not only preserved local identity but also promoted sustainable tourism and generated economic opportunities. Likewise, the Diriyah Gate project exemplifies a large-scale initiative that utilises heritage as a vehicle for national branding and the development of a cultural economy, aligning with Vision 2030's objectives. Although such projects succeed in positioning heritage as a sustainable resource, their discourse tends to emphasise profitability and image-making, while offering limited reflection on cultural meaning and identity.

International research reinforces this pattern. Scaffidi et al. [17] show that heritage-led urban regeneration projects often prioritise economic outcomes, such as cultural tourism, creative industries, and entrepreneurial development, while giving comparatively limited attention to cultural meaning, symbolic identity, and community memory. Their findings highlight a broader imbalance in sustainability narratives, where economic and managerial priorities frequently overshadow deeper cultural dimensions.

At a smaller scale, Mohamed [18] analysed heritage preservation practices in the Al-Baha region, demonstrating how sustainable methodologies, such as the reuse of traditional stone and mud structures, passive cooling techniques, and the integration of heritage sites into local tourism, enhanced both environmental performance and cultural continuity. His study shows that adaptive reuse in heritage villages can strengthen the cultural economy while maintaining the ecological benefits of vernacular design, although the sustainability discourse often remains framed in technical rather than cultural or symbolic terms.

Overall, these works confirm the potential of heritage to operate as a sustainability strategy but also expose a recurring imbalance. Heritage is often instrumentalised for economic growth and environmental performance, while its deeper cultural meanings, symbolic values, and philosophical significance remain underexplored.

Globalisation and Visual Erosion

Global Templates in Saudi Architecture

A recurring critique in the literature concerns the adoption of globalised design templates in Saudi projects, which has raised concerns about placelessness and the erosion of architectural identity. Such works argue that globalisation frequently overshadows local traditions and produces designs detached from cultural context. For instance, Hadjadji et al. [5] observed that rapid digitalisation and the influence of imported Western styles have diluted Arab and Saudi architectural identity. Their study highlights how contemporary buildings increasingly adopt global aesthetics while neglecting traditional cultural references, resulting in forms that are visually disconnected from their historical and social contexts.

Similarly, Alzahrani [7] documented in his case study of major stadium projects how international templates overshadowed Saudi heritage elements. While the King Fahd International Stadium retained symbolic tent-like forms, the King Abdullah Sports City Stadium largely followed globalised design standards, resulting in a significant reduction of cultural and spiritual expression.

Further, Ghaleb and Juhari [8] noted that state-led megaprojects often lack cohesive symbolic narratives, as imported templates dominate the design process. Their findings underscore that globalisation produces iconic architecture, but often at the expense of local identity, reducing architecture to an instrument of spectacle rather than a medium of cultural continuity.

Taken together, these studies highlight a critical challenge: global templates, while technologically advanced and visually striking, frequently undermine the cultural and philosophical depth of Saudi architecture. The result is a form of "placelessness," where projects become visually indistinguishable from international counterparts, thereby eroding the distinctiveness of the Saudi built environment.

This suggests that addressing globalisation in Saudi architecture requires not only technical and visual adaptation, but also a stronger commitment to culturally grounded design frameworks.

Hybridisation and Selective Borrowing

Alongside these critiques, some studies explore hybridisation, where international forms are selectively combined with local motifs. While this approach seeks to balance global and local expressions, critics argue that such hybrids often remain superficial, failing to reconcile deeper cultural and climatic logics. For example, Alzahrani [7] examined Saudi stadium architecture, showing how the King Fahd International Stadium successfully integrated Bedouin tent symbolism into a modern structure, while the King Abdullah Sports City Stadium attempted to adopt mashrabiya patterns within an otherwise globalised design template. Although these gestures retained some visual references to tradition, the study found that they lacked theoretical depth and risked being reduced to ornamental gestures without substantive cultural integration.

Similarly, Al-Adilee [19] highlighted the incorporation of heritage elements in contemporary architectural projects across the Arab world. While traditional motifs such as domes, arches, and courtyards were frequently borrowed, they were often detached from their original religious, social, or climatic functions. This reflects a broader tendency to aestheticise heritage rather than embed it as a living design logic. Ghaleb and Juhari [8] further observed that hybrid designs in Saudi megaprojects, such as Diriyah Gate and Ithra, selectively combine Najdi motifs with international styles. While these projects aim to reinforce national pride and identity, the authors argue that such blending often prioritises iconic imagery over authentic integration, leaving the cultural logic unresolved.

Taken together, these studies suggest that hybridisation is a double-edged strategy: it demonstrates an awareness of the need to localise global forms, but rarely achieves a meaningful reconciliation between modernity and tradition. Instead, hybrid projects risk perpetuating superficiality, reinforcing decorative symbolism while neglecting the deeper cultural, social, and spiritual dimensions of architectural identity.

Superficial vs Embedded Sustainability Models

Superficial Identity in Sustainability Frameworks

Many studies reference identity within sustainability frameworks only superficially, treating cultural elements as supplementary or decorative rather than central to sustainable practice. This reflects a narrow and technocratic understanding of sustainability that prioritises environmental performance over cultural significance. Selim et al. [10] developed a sustainability assessment model for Saudi projects in which cultural integration accounted for less than 20% of the evaluation criteria. Indicators such as incorporating traditional styles or enhancing a sense of place scored as low as 2–4%, illustrating the marginalisation of cultural identity in relation to energy efficiency, water management, and other environmental priorities.

Similarly, Ibrahim et al. [6] examined Islamic geometric patterns as part of sustainable design but treated them primarily as visual elements with secondary environmental benefits such as daylighting or passive cooling. Their findings confirmed that while these motifs are acknowledged, they are rarely operationalised as integral drivers of sustainability strategies.

Other studies, such as those examining national projects [8], reveal that cultural symbols are frequently cited in planning documents but remain disconnected from performance-based sustainability frameworks. Symbolic

aspects of identity thus appear rhetorically in policy but are not translated into meaningful design logics or long-term sustainability mechanisms.

Overall, this body of literature highlights a persistent imbalance: cultural and visual identity is often positioned as an "add-on" to sustainability frameworks, reinforcing the perception of sustainability as primarily technical and environmental while neglecting its cultural, symbolic, and philosophical dimensions. Moreover, visual identity, expressed through form, materiality, ornament, and spatial symbolism, remains unaddressed mainly in sustainability frameworks, even though it is crucial in presenting cultural continuity and public perception of place.

Embedded and Ontological Approaches

By contrast, some studies emphasise the importance of embedding identity within sustainability through ontological and phenomenological perspectives. These contributions view architecture as a medium of memory, meaning, and ethical responsibility, positioning identity not as supplementary but as foundational to sustainable design. Nasr [14] emphasised the spiritual and metaphysical significance of Islamic art and architecture, framing built form as an expression of divine harmony and cultural depth rather than merely a technical solution. This perspective highlights the potential of Islamic ontology to provide a foundation for culturally embedded sustainability, although Nasr's contributions remain primarily conceptual and philosophical without empirical application.

In parallel to Nasr's metaphysical orientation [15], civilisational philosophy frames built form as a manifestation of *collective cultural consciousness* rather than the expression of individual authorship. He argues that architectural identity arises from shared ontological and ethical principles that transcend regional variation, thereby establishing a unified cultural logic underlying diverse architectural expressions. This perspective recognises identity not merely as a symbolic reference but as an epistemic and structural determinant of design, shaping how meaning, memory, and value become embedded within the built environment.

Taken together, these approaches reveal a significant conceptual gap. Although ontological and phenomenological perspectives grounded in Islamic metaphysics and cultural memory offer a strong framework for understanding identity as an embedded dimension of sustainability, this orientation remains absent mainly from architectural discourse in Saudi Arabia. Consequently, cultural identity has not yet been theorised as a foundational pillar of sustainability, underscoring the need for future research that more effectively integrates philosophical analysis with design methodologies and practical implementation.

These philosophical perspectives also offer a valuable lens for reinterpreting visual identity, not merely as ornament or stylistic reference, but as an embodied expression of cultural ontology within architectural form.

Cross-Cutting Synthesis

In general, the preceding thematic clusters indicate that, while documenting heritage forms and highlighting the visibility of cultural motifs, the discourse of sustainability continues to struggle with integrating cultural and visual identity coherently. The field is characterised by a persistent imbalance: symbolic representations are abundant, yet functional and theoretical integrations remain comparatively scarce.

Across the reviewed works, three recurring patterns emerge:

- First, identity is frequently treated symbolically or ornamentally, through motifs such as domes, mashrabiyyas, and geometric patterns, rather than as a functional design logic embedded in spatial, social, and climatic strategies. For example, Taki and Kumari [3] demonstrated how mashrabiyyas are often reduced to façade ornamentation in modern Saudi projects, stripping them of their climatic and cultural functions.
- Second, sustainability is predominantly framed in environmental and technical dimensions, with minimal engagement with cultural, spiritual, or philosophical layers. Selim et al. [10], for instance, quantified sustainability in Saudi projects but allocated fewer than 20% of the evaluation criteria to cultural identity indicators, underscoring its marginalisation in practice.
- Third, the literature lacks coherent theoretical frameworks that can bridge cultural identity, visual symbolism, and sustainability within a unified architectural discourse. While Mazzetto [12] documented the revitalisation of Ushaiger Village, the study remained primarily descriptive, offering little advancement toward a broader philosophical framework.

These inconsistencies point to a deeper conceptual gap: although heritage and identity are widely acknowledged as valuable, they are often instrumentalised as decorative additions or economic tools rather than positioned as foundational to architectural meaning, ethics, and sustainability. This gap underscores the need for future scholarship to move beyond descriptive or case-based accounts toward philosophically grounded models that embed cultural and visual identity as central pillars of sustainable design.

This synthesis, therefore, provides the foundation for the next section, which develops a philosophical framework to critically examine how identity, meaning, and sustainability can be reconciled not only within Saudi architectural theory and practice but also in strengthening cultural continuity and national identity in the context of rapid globalisation.

Table 2 presents a comparative summary of the representative studies, highlighting their main contributions and the critical gaps they reveal. This synthesis not only reinforces the recurring patterns identified in the literature but also highlights the conceptual inconsistencies that underscore the need for a more comprehensive philosophical framework in the subsequent discussion.

Table 2. Thematic synthesis of selected studies based on critical literature review (n = 22)

Theme	Associated Studies (Study IDs)	Main Findings / Contributions	Critical Observations / Gaps
Symbolic Representations	S1, S2, S3, S15	Identity is often reduced to visual symbols (mashrabiya, domes, geometric motifs), with limited environmental contribution.	Symbolism dominates, with weak integration of climatic, social, and spiritual functions, and a lack of philosophical grounding.
Functional & Embedded Identity	S4, S5, S6, S18, S19, S20	Identity embedded in climatic strategies (courtyards, rawshan, local materials), reinforcing cultural memory and ecological adaptation.	Mostly descriptive and case-based; lacks theoretical models and limited scalability to contemporary practice.
Heritage as Cultural Preservation	S6, S7, S8, S18	Focus on conserving historic villages, mosques, and traditional urban forms to reinforce authenticity and continuity.	Predominantly documentary; geographically limited; weak integration with sustainability frameworks.
Heritage as Sustainability Strategy	S8, S9, S10, S22	Heritage used for adaptive reuse, tourism, and cultural economy aligned with development agendas.	Overemphasis on economic/environmental aspects; cultural meaning often instrumentalised.
Global Templates in Saudi Architecture	S1, S12, S13, S15	Globalised design dominates major projects, contributing to placelessness and weakened identity.	Strong critique but limited alternative frameworks; lacks philosophical depth.
Hybridisation & Selective Borrowing	S12, S14, S1	Integration of local motifs (Najdi, mashrabiya) within global design frameworks.	Often remains ornamental; weak reconciliation between global and local identity systems.
Superficial Identity in Sustainability	S1, S2, S11, S21	Identity is treated as a minor component in sustainability frameworks (e.g., LEED-type approaches).	Cultural dimensions marginalised; sustainability framed mainly in technical/environmental terms.
Embedded & Ontological Approaches	S16, S17	Identity framed through phenomenology, ethics, and cultural meaning.	Rare in Saudi literature; largely conceptual; weak operationalisation in practice.
Cross-Cutting Observations	S1, S2, S3, S8, S11, S15, S21	Identity is widely acknowledged but treated symbolically; sustainability remains technical.	Strong need for an integrated philosophical framework linking identity, symbolism, and sustainability.

Discussion

Reframing Identity Beyond Symbolism

Limitations of Symbolic Approaches

Recent studies on visual culture in Saudi Arabia reveal a recurring tendency to equate visual identity with cultural identity, in which heritage elements are reproduced as decorative features rather than treated as carriers of meaning. Alzahrani [7] notes that contemporary Saudi graphic design frequently borrows traditional elements such as geometric ornament and calligraphy, but often treats them as aesthetic markers disconnected from their ethical, spiritual, and social origins. Similarly, Moscatelli [9] observes that in Riyadh's contemporary architectural landscape, traditional elements are increasingly used as visual motifs rather than as meaningful expressions of cultural logic or function.

A comparable pattern appears in architectural ornamentation, where elements such as the mashrabiya lose their climatic and social functions when detached from their original environmental context [3]. Shahda and Noseir [20] also point out that contemporary design practices across the Arab region often replicate traditional visual

vocabularies without maintaining their environmental or cultural principles, resulting in architecture that is visually recognisable but conceptually weaker

This separation between form and meaning creates decorative distortion, emphasising heritage symbols visually while reducing their conceptual depth. Traditional elements derived from Diriyah or Najdi ornamentation are often enlarged or abstracted, becoming aesthetic references detached from the social, spiritual, and environmental systems that once gave them meaning [9]. As a result, visual identity risks becoming performative rather than authentic.

When cultural symbols are disconnected from their systems of value and memory, identity can shift toward spectacle rather than meaningful cultural expression. In such cases, creative practice moves from interpreting memory to presenting it in a more staged way, producing visually compelling forms that lack deeper conceptual resonance. Re-establishing authenticity, therefore, requires reconnecting ornament and symbolism with their ethical and mnemonic foundations, allowing cultural references to function as active carriers of continuity rather than decorative additions [7].

Although studies by Alzahrani [7], Moscatelli [9], and Taki and Kumari [3] have highlighted the superficial use of heritage motifs in contemporary Saudi architecture, the broader structural implications of this shift remain underexplored. Treating visual identity as an aesthetic layer detached from deeper cultural logic risks weakening the relationship between architecture and collective memory, potentially leading to a gradual rupture between future generations and their symbolic foundations.

From this perspective, identity should be reconsidered not as a decorative element, but as an epistemic and ontological framework capable of shaping architectural thinking and design principles. Such a reframing is essential for developing culturally grounded models of sustainability, in which visual identity functions as a foundational component of Saudi architectural practice rather than a superficial aesthetic reference.

Integrating Functional and Symbolic Identity

Moving from a purely critical to a more practical perspective, some studies highlight the importance of integrating symbolism and function rather than separating them. In this sense, architectural elements are not limited to responding to spatial requirements; they can also express architectural identity.

Studies on Arab and Islamic architectural identity emphasise that authenticity emerges when architectural form is grounded in functional, environmental, and social principles rather than superficial visual replication [20]. In this context, visual and cultural identity serves as a key reference shaping architectural meaning and spatial organisation.

This suggests a shift in the relationship between form and meaning, where architectural form no longer follows function alone but is increasingly shaped by cultural meaning through the reinterpretation of heritage within a contemporary context that preserves its significance. For example, studies on heritage reinterpretation show that elements such as Najdi geometry and Hijazi ornamentation regain their meaning when integrated into design frameworks that maintain their symbolic and ethical logic [19]. Aldossary et al. [21] demonstrate that reinterpretation, rather than direct replication, allows heritage elements to function as dynamic cultural markers that support memory, belonging, and place-based identity.

In this context, integrating symbolic and functional identity is not limited to a stylistic approach; rather, it provides a cultural framework through which contemporary architecture can maintain continuity while adapting to changing conditions. When heritage is treated as a fundamental component of the design process, rather than merely a model to be replicated, designers are better able to develop visual designs that reflect cultural identity while responding to contemporary design needs.

Cultural Mediation and the Balance between Global Aesthetics and Local Identity

Contemporary Saudi architecture operates within a context of cultural mediation, where global aesthetic influences interact with local visual identity systems. This interaction is not merely oppositional but a dynamic process in which identity is continuously reshaped through the interplay of memory, technology, and spatial practice.

Recent urban research suggests that identity is shaped through ongoing interactions between community values, spatial design, and the pressures of modernisation. The humanisation initiative in Riyadh's Al-Falah neighbourhood provides a clear example of this process, showing how context-sensitive planning and improved walkability can strengthen community belonging while accommodating urban transformation (Figure 2). Similar patterns can be observed in other Saudi cities, such as Madinah and Qassim, where heritage-sensitive initiatives reflect comparable efforts to balance global urban models with local identity.



Figure 2. Urban humanisation interventions in Al-Falah neighbourhood, Riyadh.

Source: (Riyadh Region Municipality, Humanisation of Residential Neighbourhoods Program, 2022)

This mediating process requires the capacity to engage global design languages while simultaneously reactivating local symbolic frameworks. Cultural design scholarship emphasises that successful integration of heritage elements depends on cultural understanding rather than superficial imitation [19]. Similarly, Alnaim [22] argues that architectural identity gains conceptual depth when traditional forms are reinterpreted through culturally grounded design logics.

As the circulation of global architectural models continues to expand, the risk of marginalising visual and cultural identity increases. Research on heritage-led urban regeneration in Saudi Arabia points to the need for identity frameworks that are both clear and flexible, yet culturally rooted, in order to preserve symbolic and cultural continuity in cities undergoing rapid transformation [21].

Despite growing academic interest in this issue, existing studies still tend to focus primarily on the visual appearance of identity rather than on the cultural mechanisms that produce and sustain it. In the absence of theoretical models that link cultural memory, spatial design, and urban transformation, discussions of identity remain largely descriptive rather than analytical. Addressing this limitation requires developing interpretive frameworks that understand identity as a cultural, spatial, and ethical system embedded in architectural practice, rather than merely as a symbolic representation.

Cultural Sustainability and the Ethics of Memory

Cultural sustainability in Saudi architecture is closely linked to the ethical role of memory in preserving architectural identity across generations. Rather than relying solely on the material continuity of buildings, sustainability is realised through the continuous reinterpretation of cultural meanings within contemporary contexts.

According to Alzahrani [7], heritage becomes sustainable when it is reinterpreted in ways that restore its symbolic and cultural relevance within contemporary contexts. In this way, memory can be understood as an ethical reference that supports continuity and cultural responsibility in architectural practice.

Similarly, Norberg-Schulz [23] emphasises that the meaning of place is formed through the accumulation of memory, enabling architecture to be ethically important in sustaining cultural continuity as a static artefact and a living presence. Hence, architecture is continually renewed across generations.

This process requires distinguishing between authentic reinterpretation and superficial imitation. Frampton [24] argues that cultural sustainability emerges when tradition is critically reinterpreted rather than mechanically replicated. Alobailan and Alawad [25] similarly emphasise that the cultural value of Saudi heritage lies in its symbolic and social meanings, which must be renewed through thoughtful reinterpretation.

International research further supports the importance of cultural memory in sustainable heritage practices. Tang et al. [26] demonstrate how spatial identity and cultural memory interact to maintain continuity across generations in the Yuan River Basin in China, suggesting that memory-based sustainability represents a globally relevant architectural principle.

Heritage as a Living Sustainability Resource

Building on the ethical dimension of memory, heritage in the Saudi context is reconsidered as an active cultural system that contributes to sustainability through practice and reinterpretation, rather than as a preserved entity detached from its living context. This system is manifested in traditional architectural forms, including the ornamental vocabularies found in Hijazi and Najdi architectural compositions, which are associated with the local context and function as frameworks through which identity is continuously interpreted and renewed. Alobailan and Alawad [25] note that the architectural values embedded in Saudi heritage houses are transmitted across generations, allowing heritage to remain an active and meaningful reference in contemporary architectural practice.

Abou Leila and Alaboud [1] further illustrate how reinterpretation of the Hijazi Meccan architectural style can generate new cultural meanings while sustaining craftsmanship and collective identity. Viewing heritage as a

living resource, therefore, allows traditional practices to function not as static historical references but as epistemic tools guiding contemporary architectural production.

The Ontological Dimension of Sustainability

The ontological perspective expands the understanding of sustainability beyond technical performance to include lived experience and the cultural dimensions of architectural space. Lavaf-Pour and Meraz [27] note that contemporary sustainability discourse often prioritises measurable environmental indicators at the expense of experiential and cultural aspects of the built environment. Drawing on Gumbrecht's distinction between meaning and presence, they argue that sustainable architecture should reconcile measurable environmental performance with lived spatial experience.

Applying this perspective to Saudi architecture highlights the importance of integrating technological innovation with cultural depth, so that architectural identity remains capable of producing meaning when design engages with cultural memory and lived experience.

From Technical Sustainability to Ontological Sustainability

The Narrow Technological Frame.

Contemporary sustainability strategies in architecture tend to focus primarily on technical efficiency, such as improving energy performance, recycling materials, and adopting advanced construction technologies. While these approaches are important for achieving environmental goals, they often limit sustainability to measurable performance indicators, thereby overlooking the cultural dimensions of architectural identity.

In this regard, Moscatelli [9] argues that technological sustainability alone is not sufficient when the cultural and symbolic aspects of architecture are neglected. Similarly, Aldossary et al. [21] point out that heritage preservation practices relying mainly on technical interventions may succeed in protecting the physical fabric, but do not necessarily ensure the continuity of cultural meaning. This view is also reflected in broader theoretical perspectives that consider architecture not merely as a physical structure, but as a carrier of memory and cultural meaning [28].

Ontological and Phenomenological Dimensions

Ontological sustainability emphasises the endurance of cultural meaning through architectural practice. Within this framework, heritage elements become carriers of meaning when they are reinterpreted rather than replicated. The experiential dimension of architectural identity is equally important, as Norberg-Schulz [23] suggests that places become sites of dwelling when spatial environments engage human perception and foster a sense of belonging.

In the Saudi context, traditional spatial systems such as courtyards, shading devices, and tactile materials historically cultivated a strong sense of cultural presence. Reinterpreting these spatial principles allows architecture to sustain both environmental performance and an existential connection to place.

Toward Ethical Sustainability

Ethical sustainability integrates environmental awareness with cultural responsibility [29]. Traditional Saudi architectural environments demonstrate this integration through the relationship between natural elements, social values, and spatial organisation [30]. From this perspective, architecture becomes a cultural ecosystem in which ecological awareness, heritage values, and ethical design principles coexist. By reconnecting environmental performance with cultural meaning, contemporary Saudi architecture can articulate sustainability as both a technical and ethical practice.

Towards an Integrated Philosophical Framework

Synthesis of Insights

Through the preceding discussion, the study moves beyond viewing heritage as a collection of superficial decorative elements. Instead, heritage can be approached as a cultural structure through which memory, meaning, and ethical values are preserved and reinterpreted over time.

From this perspective, visual identity in architecture extends beyond physical or environmental expression to become a means of articulating cultural identity. It connects environmental performance with social meaning and, in certain contexts, also engages with spiritual experience, especially where heritage remains central to how place is understood.

A Conceptual Model for Sustainable Visual Identity

This evolution culminates in the conceptual framework of Sustainable Visual Identity (Figure 3), which synthesises three interdependent pillars:

1. **Memory & Continuity:** anchoring sustainability in cultural remembrance, architectural heritage, and the preservation of place-based collective consciousness.
2. **Meaning & Symbolism:** linking architectural and visual expression with epistemic depth and moral coherence, ensuring that spatial and material forms remain spiritually and culturally grounded.
3. **Aesthetic Ethics & Spatial Experience:** examines how cultural values, visual elements, and environmental qualities shape the way people perceive and experience contemporary spaces.

The selection of these three dimensions is based on their recurring presence in the literature and their complementary roles in presenting visual identity. While memory ensures continuity with cultural heritage, meaning provides interpretive depth, and spatial experience reflects how these values are perceived within contemporary environments.

At the intersection of these three pillars lies Sustainable Visual Identity, understood as the point where memory, meaning, and ethics come together to support culturally rooted sustainability. This framework, therefore, understands visual culture not merely as representation, but as a practice that sustains identity through time.

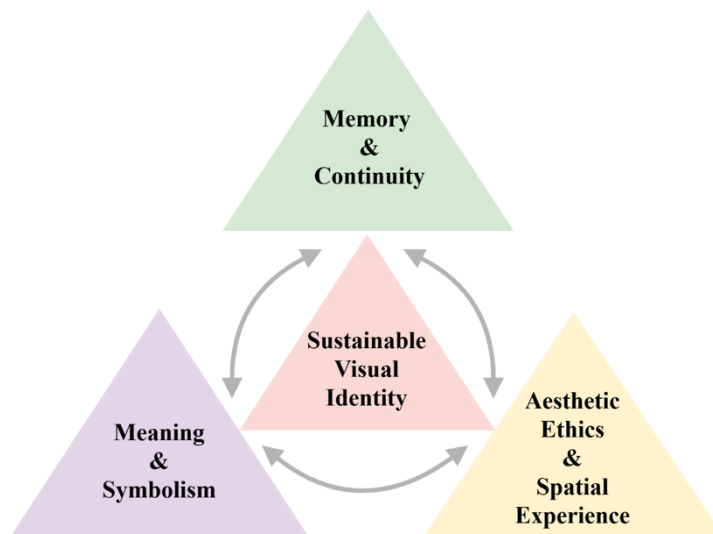


Figure 3. Conceptual Framework for the Sustainable Visual Identity of Saudi Architecture.

From Theory to Visual Practice: Application Insights and Future Directions

This proposed framework contributes to understanding sustainable visual identity by connecting sustainability with cultural values. For artists and designers, it offers guidance for integrating symbolism, ethics, and environmental awareness into visual production. For institutions and policymakers, it provides a practical approach for linking cultural and urban initiatives aligned with Vision 2030 to local visual identity.

Future research may further develop this model by applying it to other creative fields, such as architecture, graphic design, and digital art, in order to explore how sustainability can be translated into practical applications. In this context, a key question arises regarding the framework upon which the Holy Makkah Municipality relies when implementing contemporary projects in the city, such as the Hijrah Interface Project along the Third Ring Road (Figure 4) and the Masar Project. From this perspective, the importance of establishing clear visual frameworks becomes evident, as they can guide visual identity, shape spatial experience, and support future urban development trajectories. The project represents contemporary urban development within a global, culturally diverse context, highlighting the importance of establishing clear visual frameworks to guide visual identity and spatial experience.



Figure 4. Hijrah Interface Project in Makkah along the Third Ring Road.

Source: Prepared by the author

Conclusion

This review shows that visual and cultural identity remain central themes in contemporary Saudi architecture, yet they are often treated as symbolic or decorative elements rather than as integrated design principles. Across the reviewed studies, heritage elements such as mashrabiyas, geometric ornamentation, and traditional forms frequently appear as visual references detached from their original climatic, spatial, and cultural functions.

The review also identifies a clear imbalance in sustainability discourse. Technical and environmental dimensions remain dominant, while visual and cultural identity receive limited attention. Although several studies highlight vernacular architecture, heritage conservation, and adaptive reuse, most remain descriptive and offer limited integration between identity and sustainability.

This gap supports the need for a clearer framework that connects memory, meaning, and spatial experience within sustainable architectural practice.

Theoretical and Philosophical Contributions

This study proposes the framework of Sustainable Visual Identity to connect cultural identity with sustainability in Saudi architecture. The framework is based on three interrelated dimensions: memory and continuity, meaning and symbolism, and aesthetic ethics and spatial experience. These dimensions suggest the possibility of moving identity beyond decorative use into architectural thinking and sustainable design.

The main contribution of this study lies in bringing together fragmented discussions on heritage, visual identity, and sustainability within a single conceptual framework. The study also suggests that Saudi architectural identity should not be understood only through ornamentation or historical references, but through the relationship between memory, meaning, spatial experience, and environmental responsibility.

Implications for Practice and Policy

The proposed framework may help architects and planners consider visual identity at an early stage of the design process, rather than adding heritage elements at the end of the project. It may also help guide design decisions related to materials, spatial experience, and the use of cultural references in contemporary Saudi architecture.

In terms of urban planning and development, the findings highlight the need for clearer visual identity guidelines within major urban projects in Saudi cities. This is particularly relevant to rapidly developing projects in Makkah, Jeddah, Madinah, and Riyadh, where ongoing urban transformation requires balancing modern development with local identity and cultural continuity.

Limitations

This review was limited to peer-reviewed publications published between 2021 and 2025, most of which were in English. As a result, Arabic-language studies and locally produced or community-based research may not be fully represented, even though they offer valuable contextual insights.

The study also focused on conceptual and theoretical synthesis rather than empirical investigation. Future research could address this limitation by conducting interviews with architects, urban planners, and development practitioners, as well as field observations and comparative case studies across different regions of Saudi Arabia. This would contribute to a deeper understanding of how architectural, visual and cultural identity is applied within rapidly changing urban environments.

Future Research and Policy Directions

Future research should examine how rapid urban development in Saudi cities can balance architectural modernisation with the continuity of local visual identity. This is particularly important in cities such as Makkah, Jeddah, Madinah, and Riyadh, where ongoing urban transformation raises questions about how contemporary projects can preserve and reinterpret local architectural character.

Future studies may also apply the proposed framework through case studies that explore the relationship between urban design, cultural memory, and spatial experience within major development projects. In addition, further research could evaluate whether current urban policies include clear visual identity guidelines that support cultural continuity during rapid urban change.

At the policy level, the study highlights the importance of involving specialists in heritage, architecture, visual identity, and cultural history in the review of large-scale urban projects. This may help ensure that contemporary development remains connected to the cultural and visual character of Saudi cities, while continuing to respond to modern urban needs.

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