

Contemporizing Islamic Architecture

Adaptive Design in Middle Eastern and Central Asian Mosques

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Abstract – This study investigates the impact of globalization on contemporary Islamic architecture within the religious building typology in regions spanning Middle Eastern and Central Asia. The primary objective is to scrutinize the transformative paradigm by assessing its equilibrium between functional requisites and the preservation of cultural heritage, thereby elucidating common threads and regional differentiations. Methodologically, the research employs a comprehensive approach encompassing case studies, literature reviews, and meticulous photo analysis to elucidate the intricacies of modern Islamic architectural exemplars. It involved developing a conceptual framework and reviewing previous studies to build a theoretical foundation. This was then applied to selected projects. Key findings were that the spirituality of Islamic decorative designs stems from aesthetics linking form and meaning. Spirituality implies an inner vitality and timelessness. Contemporary materials and methods can retain the authenticity of Islamic decoration if the content and meaning are preserved. Through this examination, the research aims to uncover an insight into the socio-cultural ramifications of architectural evolution. By synthesizing multifaceted perspectives, this study provides a robust foundation for architects. It offers scholars and enthusiasts a nuanced comprehension of the processes underpinning the contemporizing of religious edifices within diverse cultural contexts.

Keywords: contemporary islamic architecture, cultural contexts, form and meaning, religious edifices.

I. INTRODUCTION

Islamic architecture, especially mosques, is integral to the urban landscape of Muslim cities, functioning both as places of worship and as hubs of community activity (Petersen, 1999). Contemporizing an architectural style involves updating elements to align with contemporary standards, ensuring their relevance and resonance in the present era. This concept extends across various domains, including art, design, and, notably, architecture (Verkaaik, 2013). Contemporizing architecture aims to bridge the gap between past and present, creating buildings that honor historical and cultural heritage while meeting the modern world's functional, aesthetic, and technological demands. This approach is particularly relevant in religious architecture, where tradition and symbolism play crucial roles but where there is also a need to adapt to changing social norms and community needs.

Within the realm of Islamic architecture, contemporizing emerges as a pivotal strategy to navigate the intersection of tradition and modernity, aiming to sustain its cultural relevance and functional utility amidst evolving societal landscapes (Serageldin & Steele, 1996). Islamic architecture refers to the architectural styles associated with Islam, encompassing both secular and religious buildings from the early history of Islam to the present day (Broug, 2023). Islamic architecture is a key element of the Islamic world's wider artistic traditions, embodying Muslim communities' cultural, spiritual, and social values (Khan, 2008). It is distinguished by its intricate geometric patterns, arabesques, and fusion of diverse cultural influences, spanning centuries as a testament to the enduring principles of Islamic cultural norms. While rooted in historical contexts, its adaptability has been crucial in incorporating new architectural elements and technological advancements without compromising its fundamental identity (Frishman & Khan, 2002). This adaptability ensures the continuity of Islamic architectural principles and facilitates broader societal acceptance and utility.

Distinctive architectural features have evolved, incorporating elements such as minarets (see Fig. 1), muqarnas (see Fig. 2), and multifoil arches, which serve as visual symbols of Islamic architectural expression (Hillenbrand, 2022). Islamic calligraphy (see Fig. 3), arabesques, and geometric motifs have become essential surface decoration components, further enriching Islamic architecture's aesthetic language (Ettinghausen et al., 2021).



Fig. 1. The Isfahani Minaret, Turkey
Source: Camlica (2022)



Fig. 2. Imam Khomeini mosque, Tehran , Iran
Source: Khorrampour (2019)

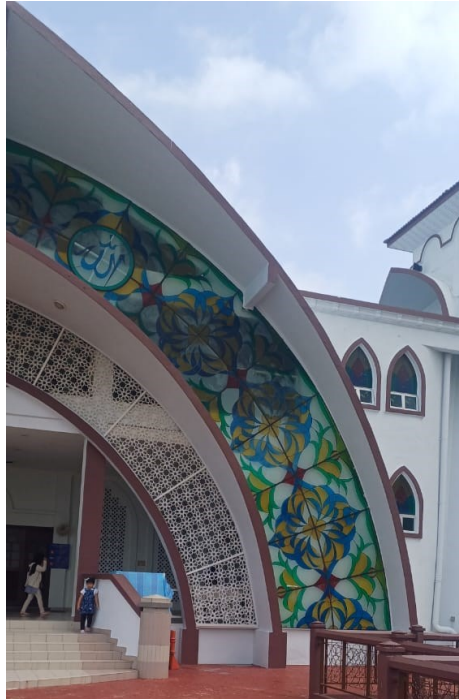


Fig. 3. Calligraphy in Selat Mosque, Malaysia
Source: Authors (2024)

Islamic architecture encompasses diverse edifices serving varied societal functions. Mosques are centers for worship, while madrasas with courtyards and iwans foster scholarship. Ornate mausoleums honor luminaries. Palatial structures boast diwan halls and chahar bagh gardens. Hammams provide social and hygienic spaces. Khanqahs offer Sufi sanctuaries. Hydraulic structures like sabil-kuttabbs provide water. Mercantile buildings include khans and qaysariyyas with vaulted galleries. Fortifications showcase defensive engineering. This architectural tapestry features elements like muqarnas, ablaq masonry, and geometric patterns, reflecting Islamic civilizations' rich cultural heritage and functional diversity across time and geography.

Finding a balance between innovation and tradition is the problematic part. Islamic architecture embodies ideals prioritizing harmony, beauty, and practicality; it is not just a compilation of past styles. Incorporating sustainable practices, like utilizing locally sourced materials, energy-efficient architectural designs, and water conservation methods, can augment the significance of these constructions in the contemporary milieu. Technological developments also present prospects for better building materials and techniques complementing conventional designs. The history of Islamic architecture is characterized by its diversity and adaptability, with regional differences enriching its architectural heritage (Karim, 2003).

This study explores how Islamic architecture can effectively contemporize to meet contemporary needs, such as sustainability and technological integration, while preserving its intrinsic characteristics. This research addresses the challenge of maintaining relevance in a rapidly changing world without diluting the essence of Islamic architectural aesthetics and values. This study aims to contribute to the ongoing dialogue on cultural preservation and innovation in architecture by examining the strategic integration of modern elements within Islamic architectural frameworks. Contemporary mosque architecture in the Middle East frequently symbolizes memory and identity, embodying historical continuity and modern political ambitions (Rizvi, 2015).

This study will explore the vital interplay between tradition and modernity in Islamic architecture. It will provide valuable insights into how these structures can adapt to contemporary needs while safeguarding their distinctive identity. By examining innovative approaches that honor historical principles, this research aims to demonstrate that Islamic architecture can thrive in a modern context without losing its cultural essence.

I. METHODOLOGY

The research employs a comprehensive mixed-methods methodology to analyze the contemporizing of Islamic architecture, particularly focusing on religious buildings such as mosques. This approach integrates qualitative and quantitative research techniques, utilizing primary and secondary data sources for robust data collection and analysis. The methodology begins with an extensive literature review and historical analysis of Islamic architecture, identifying gaps in existing research and establishing a theoretical framework (see Fig. 4). Diverse case studies of contemporary Islamic mosques are selected based on criteria that ensure representation across various geographical regions and cultural contexts, allowing for a thorough exploration of architectural design, material usage, modern technologies, and the preservation of traditional elements.

Each case study undergoes an in-depth analysis covering spatial organization, construction techniques, and community reception. A geographical and cultural context analysis provides detailed profiles of the regions represented, accounting for historical and social influences on architectural practices. A systematic comparative analysis identifies patterns and differences among the case studies, summarizing key attributes such as technological innovations and adaptability to local climates—quantitative analyses, including statistical and bibliometric methods, further illuminate trends in design elements and user satisfaction. Visual analysis employs digital tools to assess architectural forms, while an evaluation framework measures the success of contemporary designs against criteria such as adherence to Islamic principles and environmental sustainability. Ethical considerations ensure informed consent and cultural sensitivity throughout the research process. Finally, the methodology acknowledges potential limitations and implements strategies to mitigate biases, aiming to offer nuanced insights into the dynamic interplay between tradition and innovation in contemporary Islamic architecture.



Fig. 4. Graphic to Show the Methodology
Source: Authors (2024)

II. RESULTS

This study highlights the pressing need for Islamic architecture to adapt to the complexities of modern demands while preserving its cultural authenticity. The integration of contemporary elements into Islamic architectural practices poses a significant challenge, primarily revolving around maintaining historical significance without compromising the core aesthetic and functional values inherent to the tradition.

The challenge of contemporizing Islamic architecture is underscored by the necessity to adapt to modern societal demands while preserving the rich cultural heritage embedded in traditional designs. As architectural practices evolve in response to contemporary challenges, integrating modern elements

becomes pivotal to ensure these structures remain relevant and functional in today's context. This necessitates a thoughtful approach that honors historical significance while embracing innovation. The evolution of mosque architecture in the 21st century reflects a dynamic interplay between tradition and innovation as architects and designers strive to create spaces that are both spiritually meaningful and responsive to contemporary needs (Serageldin & Steele, 1996).

The subsequent salient features elucidate how architects can adeptly negotiate this intricate equilibrium, utilizing diverse tactics to recontextualize customary components, augment functionality, and incorporate modern methodologies while maintaining cultural integrity at the forefront of their designs. By emphasizing these elements, architects may design rooms that speak to the past and the present, resulting in a cohesive architectural language that unites modernity and tradition.

These elements are presented as critical aspects of contemporary architecture, explained in detail in the following section that highlights the elements and how they appear in Islamic architecture.

A. Adaptation of Traditional Elements

Using modern materials or techniques, conserving Islamic architecture often involves reinterpreting classic architectural features, such as domes and arches. This approach balances historical significance with modern design sensibilities, allowing architects to preserve essential cultural elements while innovating in form and function (Serageldin & Steele, 1996). The contemporizing of Islamic architecture creates a dialogue between tradition and innovation by reinterpreting classic elements like domes and arches with modern materials and techniques, enriching both their cultural significance and contemporary functionality.

An excellent example of adapting traditional elements in Islamic architecture is the King Abdulaziz Center for World Culture in Dhahran, Saudi Arabia. Designed by the internationally renowned architect Snohetta, this contemporary cultural institution incorporates traditional Islamic architectural features, such as domes and arches, but reinterprets them using modern materials like glass and steel (see Fig. 5). The structure's undulating glass roof resembles the form of dunes, blending seamlessly with the surrounding landscape while evoking the historic architectural aesthetics of traditional Islamic architecture. The King Abdulaziz Center for World Culture exemplifies how contemporary architecture can effectively reinterpret traditional Islamic design elements, creating a cohesive relationship with the landscape while honoring historical aesthetics through innovative materials and forms

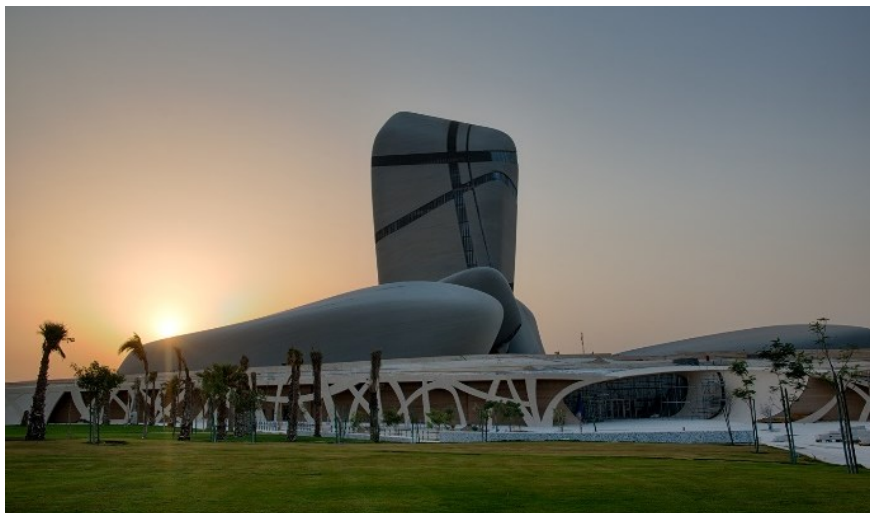


Fig. 5. King Abdulaziz Center for World Culture in Dhahran, Saudi Arabia
Source: Snøhetta (2018)

This visionary design illustrates the ability of modern architects to retain the fundamental characteristics of traditional forms while employing advanced technologies and contemporary materials to craft functional and aesthetically compelling environments. In this manner, architects sustain a dialogue with the rich cultural legacy of Islamic architecture while simultaneously responding to the practical demands of contemporary life.

B. Functional Updates

Modifying spaces within religious structures can meet current demands, such as improving accessibility for individuals with disabilities or enhancing energy efficiency. For example, incorporating ramps, lifts, and energy-efficient systems ensures that contemporary mosques serve their community effectively while respecting their heritage (Aksamija, 2016).

A prominent example of functional updates in Islamic architecture can be found in the Sancaklar Mosque in Istanbul, Turkey, designed by Emre Arolat Architects. This mosque exemplifies modern approaches to accessibility and energy efficiency while maintaining respect for traditional Islamic design. The structure includes ramps and level access to accommodate individuals with disabilities, demonstrating a commitment to inclusivity in a sacred space (see Fig 6).

Additionally, the mosque utilizes natural materials and integrated landscaping to reduce energy consumption, employing ventilation strategies that leverage the site's natural breezes and light. The design minimizes reliance on artificial lighting and cooling systems while maximizing daylight, which aligns with contemporary sustainability practices. This thoughtful harmonization of modern functional requirements with traditional architectural aesthetics enhances usability and reinforces the mosque's community-oriented role (Aksamija, 2016).



Fig. 6. Interiors, The Sancaklar Mosque, Istanbul, Turkey
Source: EAA (2013)

C. Technological Integration

Many modern Islamic architectural projects integrate contemporary technologies and sustainable systems into the design of historic structures. This includes installing renewable energy sources, smart building technologies, and advanced climate control systems that align with the original architectural intent while enhancing the building's overall functionality (Al-Asad, 2012).

An illustrative example of technological integration in Islamic architecture is the King Abdullah Petroleum Studies and Research Center (KAPSARC) in Riyadh, Saudi Arabia. Designed by Zaha Hadid Architects (see Fig. 7), this innovative facility incorporates advanced sustainable technologies while honoring traditional Islamic architectural principles.



Fig. 7. Rendered View of KAPSARC in Riyadh, Saudi Arabia
Source: Hadid (2017)

KAPSARC features solar panels that power the complex, showcasing the incorporation of renewable energy sources into the design. The building's layout and materials are strategically chosen to enhance natural ventilation and minimize energy consumption, a necessity in the hot Saudi climate. Moreover, smart building systems are utilized to monitor and control climate conditions, ensuring energy efficiency and comfort without compromising the integrity of the architectural design.

By marrying cutting-edge technology with sustainable practices, KAPSARC exemplifies how contemporary Islamic architecture can evolve while maintaining a connection to its cultural heritage (Al-Asad, 2012).

The Gargash Mosque in Dubai yet another example contemporizing of Islamic architecture. Designed by Sumaya Dabbagh, this mosque skillfully integrates traditional Islamic features with modern architectural concepts (Abdel, 2021). Using Quranic verses and geometric patterns creates a symbolic protective band, fostering a direct connection with the divine. The mosque's design, including its canopy and elevated female prayer area, emphasizes the transformation of space and inclusivity in worship (Aksamija, 2016).

D. Material Innovation

By utilizing contemporary building materials such as reinforced concrete, glass, and steel while maintaining traditional aesthetics, architects can achieve structural goals without compromising the visual connection to Islamic design principles. This innovation enhances durability and versatility when applied to Islamic architectural forms (Rabbat, 2020).

An exemplary mosque that showcases material innovation is the *Zayed Mosque* (also known as the Sheikh Zayed Grand Mosque) located in Abu Dhabi, United Arab Emirates. Completed in 2007 and designed by the architect Yousef Tohme, this mosque integrates contemporary building materials such as reinforced concrete, glass, and marble, all while reflecting traditional Islamic architectural aesthetics (see Fig. 8).

The mosque is notable for its use of over 1,000 columns made of reinforced concrete, intricate glass domes, and the extensive application of white marble, adding a modern twist to the traditional forms. Large glass panels allow natural light to illuminate the interiors, creating a serene and spiritual atmosphere. Additionally, the mosque incorporates elaborate tile work and ornamental calligraphy that symbolize traditional Islamic design, effectively bridging the gap between contemporary materials and age-old architectural motifs (Rabbat, 2020).

This innovative blend of materials enhances the mosque's structural integrity. It allows it to accommodate thousands of visitors, illustrating how modern innovations can be harmonized with cultural heritage in Islamic architecture.



Fig. 8. Interior View of Zayed Mosque, Abu Dhabi
Source: Lorica (2020)

E. Spatial Reconfiguration

Reimagining the interior layouts of mosques and Islamic buildings is essential to accommodate modern lifestyles. This may involve creating multi-functional spaces that support various community activities while respecting the building's original purpose and aesthetic. For instance, flexible worship areas that can be adapted for different gatherings enhance usability without detracting from the sacred nature of the space (Erzen, 2011).

The Sheikh Zayed Mosque in Abu Dhabi, United Arab Emirates, offers a prime example of spatial reconfiguration that balances traditional Islamic architecture with modern functionality. While maintaining its primary role as a place of worship, the mosque incorporates multi-functional spaces that serve various community needs:

- Flexible prayer hall: The main prayer hall can be easily reconfigured for different events, such as lectures or community gatherings, using movable partitions.
- Educational spaces: The mosque complex includes classrooms and a library that support religious education and cultural activities.
- Exhibition areas: Dedicated spaces showcase Islamic art and artifacts, serving as a cultural center for visitors and the local community.
- Open courtyards: These areas serve multiple purposes, from overflow prayer spaces during busy times to social gatherings and celebrations venues.
- Modern amenities: The mosque incorporates contemporary facilities like conference rooms and digital media centers, enhancing its role as a community hub.

These adaptable spaces allow the Sheikh Zayed Mosque to serve as both a spiritual center and a versatile community space, exemplifying the concept of spatial reconfiguration in modern Islamic architecture.

F. Aesthetic Evolution

Blending traditional and contemporary design languages creates a harmonious fusion that resonates with historical and modern audiences. This aesthetic evolution reflects a dialogue between past and present, enabling architects to draw inspiration from classical styles while introducing new visual elements that engage contemporary viewers (Nasr, 1987). The Şakirin Mosque in Istanbul, Turkey, is an excellent example of aesthetic evolution in Islamic architecture. Completed in 2009, this mosque seamlessly blends traditional Ottoman architecture with contemporary design elements:

- Traditional elements: The mosque retains the classic Ottoman dome and minaret structure, honouring historical architectural traditions (see Fig. 9).
- Modern interpretation: The dome is constructed with a modern twist, using a steel and glass structure that allows natural light to filter into the prayer hall.

- Contemporary interior: The prayer hall features a striking contemporary chandelier and a uniquely designed mihrab (prayer niche) created by modern artists.
- Innovative materials: The mosque incorporates modern materials like glass, steel, and carbon fibre alongside traditional elements like calligraphy and geometric patterns.
- Gender inclusivity: The women's section, often relegated to a secondary space in traditional mosques, is given prominence with a beautifully designed upper balcony.
- Artistic fusion: The mosque's aesthetic combines traditional Islamic art forms with modern artistic expressions, creating a visually stunning and spiritually evocative space.



Fig. 9. Traditional Element evolved, Mihrab of the Şakirin Mosque, Üsküdar, Istanbul
Source: Donnyhoca (2009)

The Şakirin Mosque demonstrates how contemporary mosque design can honor Islamic architectural heritage while embracing modern aesthetics and functionality. It creates a dialogue between past and present, offering a space that speaks to traditional and contemporary sensibilities.

G. Cultural Preservation

Maintaining the cultural significance of buildings or styles while updating them for contemporary use is crucial. This involves respecting traditional craftsmanship and local materials, ensuring that adaptations honor the past while moving forward. Successful examples of adaptive reuse demonstrate how cultural heritage can be preserved even when facilities are modernized (Verkaaik, 2013). The Great Mosque of Djenné in Mali is an excellent example of cultural preservation in Islamic architecture.

- Traditional construction: The mosque is built entirely of sun-baked mud bricks, a local material known as ferey (see Fig. 10).
- Annual restoration: The community engages in an annual replastering festival called the *crépissage*, where they apply a new layer of mud to the mosque's exterior.
- Preservation of craftsmanship: Local masons, who inherit their skills through generations, lead the restoration efforts, preserving traditional building techniques.
- Adaptive modernization: While maintaining its traditional structure, the mosque has incorporated subtle modern elements like improved drainage systems to protect the building better.
- Community engagement: The preservation process involves the entire community, reinforcing cultural ties and ensuring the mosque remains a living part of local heritage.



Fig. 10. Traditional Construction in Great Mosque of Dienne, Mali
Source: Zwart (2008)

Balancing use and preservation: The mosque continues to serve as an active place of worship while being recognized as a UNESCO World Heritage site, balancing its religious function with its cultural significance. This example shows how a historic mosque can be preserved and maintained for contemporary use while honoring traditional methods, materials, and cultural practices. The Great Mosque of Djenné demonstrates that cultural preservation can be achieved through community involvement and respect for local traditions, even as the building continues to serve its original purpose.

H. Sustainable Practices

Sustainable practices become increasingly important in contemporary Islamic architecture, with eco-friendly design principles being integrated into traditional architectural forms. This includes using materials with low environmental impact, optimizing natural light, and enhancing energy performance following Islamic teachings on stewardship of the Earth (Frishman & Khan, 2002). The Cambridge Central Mosque in the United Kingdom, also known as the “Eco-Mosque,” is an excellent example of sustainable practices in contemporary Islamic architecture:

- **Timber structure:** The mosque features a unique timber structure, using sustainably sourced wood for its roof and support columns, reducing the carbon footprint of the building (see Fig. 11).
- **Natural lighting:** The design incorporates large skylights and windows to maximize natural light, reducing the need for artificial lighting during the day.
- **Energy efficiency:** The mosque uses ground source heat pumps for heating and cooling, significantly reducing energy consumption.
- **Water conservation:** Rainwater harvesting systems and water-efficient fixtures are installed throughout the building to minimize water usage.
- **Green spaces:** The mosque includes gardens with native plants, promoting biodiversity and creating a connection with nature.
- **Solar panels:** Photovoltaic panels on the roof generate clean electricity for the mosque’s use.
- **Natural ventilation:** The building’s design allows for natural air circulation, reducing the need for mechanical ventilation systems.
- **Sustainable materials:** Local and recycled materials were used in construction where possible, reducing environmental impact.



Fig. 11. Timber Structure, Cambridge Central Mosque, UK
Source: Sternberg (2019)

This mosque demonstrates how Islamic principles of environmental stewardship can be integrated with modern sustainable building practices. By incorporating energy-efficient systems and utilizing eco-friendly materials, it bridges tradition with innovation. It showcases how a place of worship can be both spiritually meaningful and environmentally responsible, setting an example for future mosque designs.

III. DISCUSSION

The evolution of Islamic architecture to meet contemporary needs while preserving cultural heritage exemplifies a dynamic interplay between tradition and modernity. The successful integration of traditional elements with modern materials, functional updates, technological advancements, material innovations, spatial reconfigurations, aesthetic evolutions, cultural preservation, and sustainable practices demonstrates a holistic approach to contemporary Islamic architectural design. Through thoughtful adaptation and innovative solutions, architects can create spaces that honor historical significance and meet the demands of today's society. By balancing these aspects, the architectural practices not only maintain a deep connection to Islamic heritage but also advance the functionality and relevance of these structures in the modern world. This ongoing dialogue between past and present ensures that Islamic architecture continues thriving as a living, evolving tradition that resonates with historical and contemporary audiences.

These examples demonstrate how contemporary Islamic architecture is reinterpreting religious spaces. These mosques create unique spiritual environments by incorporating innovative design elements, materials, and spatial concepts while respecting Islamic traditions (Nasr, 1987). Focusing on natural light, geometric patterns, and the seamless integration of indoor and outdoor spaces reflects a modern approach to enhancing the worshipper's spiritual experience (Frishman & Khan, 2002).

This analysis reveals a trend in contemporary Islamic architecture where designers push boundaries while maintaining the essence of Islamic spirituality. These mosques serve as places of worship and architectural marvels that bridge the gap between traditional Islamic values and modern design sensibilities (Holod, 1997).

Integrating contemporary elements into Islamic architecture while preserving cultural authenticity presents a complex yet rewarding challenge. Modern innovations—such as adapting traditional elements with materials like glass and steel and incorporating sustainable technologies—demonstrate a harmonious blend of past and present. Examples like the King Abdulaziz Center and the Zayed Mosque illustrate how architects can innovate within traditional frameworks, enhancing functionality without sacrificing aesthetic values. As seen in the Sancaklar Mosque and Sheikh Zayed Mosque, functional updates and spatial reconfigurations address contemporary needs like accessibility and multi-functionality while respecting historical significance. Similarly, sustainable practices, exemplified by the Cambridge Central Mosque, align with Islamic teachings on environmental stewardship. The Great Mosque of Djenné underscores the importance of cultural preservation through community engagement and traditional techniques. Collectively, these examples show that modern Islamic architecture can

thrive by balancing innovation with respect for heritage, creating spaces that honour the past while meeting today's needs.

The Sancaklar Mosque, designed by Emre Arolat Architects, challenges conventional notions of mosque architecture by prioritizing the essence of spiritual space over ornate decorations (Ravenscroft, 2021). Its cave-like interior and integration with the landscape create a unique sensory experience that encourages introspection and connection with the divine. This approach aligns with Erzen (2011), who states that contemporary mosque design should focus on creating atmospheres conducive to spiritual contemplation rather than merely replicating historical forms.

In contrast, the KAFD Grand Mosque in Riyadh demonstrates how modern design can innovatively incorporate traditional Islamic motifs. Inspired by the desert rose, the mosque's geometric patterns serve aesthetic and functional purposes, providing sun shading and sculptural articulation (Al-Asad, 2012). This blend of form and function exemplifies what Rabbat (2020) describes as a "new Islamic architecture" that responds to local climatic conditions while maintaining cultural relevance.

The Gargash Mosque in Dubai, designed by Sumaya Dabbagh, offers another perspective on contemporary Islamic architecture. Using Quranic verses and geometric patterns as a protective band around the prayer hall demonstrates how traditional elements can be reinterpreted in modern contexts (Ravenscroft, 2021). The mosque's design also addresses contemporary social issues by incorporating an elevated female prayer area, reflecting a growing awareness of gender inclusivity in religious spaces (Aksamija, 2016).

These examples illustrate a broader trend in Islamic architecture towards what Nasr (1987) terms "critical regionalism" - an approach that balances global architectural influences with local cultural and environmental considerations. This trend is particularly evident in using natural light, a feature common to all three mosques discussed. The strategic manipulation of light enhances the spiritual atmosphere and creates a connection between the interior space and the natural environment. This concept resonates with Islamic traditions and contemporary sustainable design practices (Frishman & Khan, 2002).

However, the contemporizing of mosque architecture is not without challenges. Critics argue that some modern designs may prioritize aesthetic innovation at the expense of spiritual functionality (Holod & Khan, 1997). There is an ongoing debate about balancing the need for innovation with preserving essential Islamic architectural elements that have traditionally defined mosque design.

Despite these challenges, the examples of the Sancaklar, KAFD, and Gargash mosques demonstrate that contemporary Islamic architecture can successfully bridge the gap between tradition and modernity. By reinterpreting traditional elements innovatively, these mosques create spiritually meaningful and architecturally significant spaces in the 21st-century context.

As Islamic architecture continues to evolve, it will be crucial for designers to maintain a dialogue between past and present, creating spaces that honor Islamic traditions while responding to the needs and aesthetics of contemporary society. This ongoing negotiation between tradition and innovation promises to yield mosque designs that are not only places of worship but also landmarks of cultural and architectural significance.

Driven by societal, cultural, and technological shifts, mosque architecture evolved from the early Islamic era to the modern era, reflecting a dynamic interplay between tradition and innovation. The Great Mosque of Kairouan is an example of an early Islamic-era mosque with simple designs and key components like central courtyards, qibla walls, and designated prayer spaces. The profound simplicity of these structures emphasized the spiritual core of Islamic worship. Mosque architecture changed dramatically as Islamic societies flourished, demonstrating the wealth and inventiveness of these societies. This luxurious era is symbolized by the Blue Mosque in Istanbul and the Dome of the Rock in Jerusalem, both known for their exquisite patterns, tilework, and domes. Mosques became colorful representations of artistic identity using tilework, fusing religious and cultural aesthetics.

Mosque architecture transformed in the third millennium, incorporating modern elements and conventional Islamic design principles. This contemporary approach is best shown by the Sancaklar Mosque and the KAFD Grand Mosque, whose architects successfully blend modernism and Islamic aesthetics. A noteworthy endeavor to match mosque designs with environmental considerations demonstrates a dedication to sustainability. From an architectural perspective, the move towards contemporary styles allows architects more freedom and creativity to experiment with novel forms and materials. Usability, sustainability, and functionality are frequently prioritized in contemporary

mosques. Concerns are also raised by this evolution, though, regarding the possible disappearance of traditional architectural features and the cultural identity they stand for.

The Muslim community has debated the religious implications of the move from plain mosque structures to more ornate and contemporary designs. While modernists maintain that modern designs can improve worship, traditionalists might counter that simplicity encourages a deeper spiritual connection. Integrating environmentally sustainable practices aligns with Islamic environmental stewardship principles and has garnered positive recognition. Contemporary mosque architecture should express the present while adhering to universal Islamic principles, expressing the cultural identity of Muslim communities while highlighting the fundamental values of Islamic architectural history. In summary, the development of mosque architecture illustrates an ongoing conversation between innovation and tradition. Modern design offers benefits for architecture, but it also raises questions about the impact on worshippers' spiritual well-being and cultural preservation.

IV. CONCLUSION

The conclusion of the research encapsulates the intricate relationship between tradition and modernity in Islamic architecture, emphasizing the necessity for contemporary adaptations that respect and preserve cultural heritage while addressing modern needs. The findings assert that Islamic architecture can successfully integrate contemporary design elements, materials, and technologies without compromising its historical significance or aesthetic integrity. This adaptability is crucial for ensuring Islamic architectural practices remain relevant in a rapidly changing global context.

The findings assert that Islamic architecture can successfully integrate contemporary design elements, materials, and technologies without compromising its historical significance or aesthetic integrity. This adaptability is crucial for ensuring Islamic architectural practices remain relevant in a rapidly changing global context.

In conclusion, the research underscores that through thoughtful integration of modern elements, Islamic architecture can thrive in contemporary contexts, bridging the gap between past and present. This dynamic interplay preserves these structures' cultural and spiritual significance and enriches the architectural discourse on cultural heritage preservation and adaptive reuse. The study ultimately contributes valuable insights for architects and scholars, advocating for a harmonious coexistence of tradition and innovation in the evolution of Islamic architecture.

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