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Iranian Urban and Regional Caravanserais: Processes of Change and Strategies for Future Revitalization

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Abstract

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The inscription of The Persian Caravanserai on the UNESCO World Heritage List in 2023 recognized a network of fifty-four caravanserais as a significant component of Iran's historical transportation and commercial infrastructure (UNESCO World Heritage Centre, 2023). Despite this recognition, research has largely examined caravanserais as individual monuments rather than as evolving typological systems. This study compares two principal categories of Iranian caravanserais: regional caravanserais represented by the UNESCO serial property and the urban Vakil Caravanserai in Kerman. Using a historical-interpretative methodology based on documentary sources, UNESCO documentation, historical maps, and architectural analysis, the research investigates their long-term transformation. The findings reveal divergent evolutionary trajectories: regional caravanserais have increasingly become heritage and tourism destinations, whereas urban caravanserais have maintained commercial continuity through functional adaptation. The study argues that future conservation should adopt network-based, typology-sensitive strategies integrating heritage conservation, urban morphology, and adaptive reuse to support sustainable regional development and preserve the historical continuity of the Silk Roads.

Keywords: Urban Caravanserai; Urban Morphology; Iran, UNESCO

1. Introduction

Caravanserais constitute one of the most remarkable architectural and infrastructural achievements in the history of the Iranian plateau (Pope, 1965; Kiani, 2008). For more than two thousand years they served as the principal nodes of an extensive transportation network that connected cities, villages, commercial centres, pilgrimage destinations, and political capitals across western and central Asia (Herodotus, 2003; Ferrier, 1973). Their importance extended far beyond the provision of temporary accommodation for travellers. Caravanserais functioned simultaneously as commercial warehouses, centres of social interaction, places of cultural exchange, administrative facilities, and instruments of territorial integration (Blair & Bloom, 1994; Kiani, 2008) that enabled long-distance movement across some of the most diverse geographical landscapes of Eurasia. Throughout successive historical periods—from the Achaemenid Empire through the Parthian, Sasanian, Seljuk, Safavid, and Qajar dynasties—they evolved continuously in response to changing political conditions, economic systems, transportation technologies, climatic constraints, and regional architectural traditions.

The geographical position of Iran at the intersection of East and West placed the country at the centre of historical networks of communication commonly associated with the Silk Roads (UNESCO World Heritage Centre, 2023; Ferrier, 1973). Although the term "Silk Road" often evokes images of international trade between China and Europe, the system itself consisted of numerous regional and interregional routes whose success depended upon an extensive infrastructure capable of supporting the continuous movement of merchants, pilgrims, diplomats, military expeditions, and ordinary travellers. Caravanserais formed the essential architectural component of this infrastructure. Their regular distribution along trade routes created a sequence of secure stopping points that facilitated economic exchange (Herodotus, 2003; UNESCO World Heritage Centre, 2023), while simultaneously promoting cultural interaction among diverse societies. Consequently, caravanserais should be understood not simply as isolated buildings but as components of a much broader territorial system that structured mobility across the Iranian plateau.

From an architectural perspective, caravanserais also represent one of the most adaptable building types within Persian architectural history (Pope, 1965; Ardalan & Bakhtiar, 1973). Despite sharing common functional principles—including enclosed courtyards, controlled entrances, accommodation spaces, service facilities, and storage areas—their physical forms varied considerably according to geography, climate, available construction materials, topography, security requirements, and proximity to urban settlements. Desert caravanserais, mountain caravanserais, roadside caravanserais, coastal caravanserais, and urban commercial caravanserais each developed distinctive architectural characteristics while

maintaining a recognizable typological identity (Kiani, 2008). This remarkable adaptability explains both their geographical distribution and their longevity as an architectural tradition that remained functional until the emergence of modern transportation systems during the nineteenth and twentieth centuries.



Figure 1. A Karavanseraï in the Qajar Period.

The international significance of this architectural heritage was formally recognized in 2023 when UNESCO inscribed The Persian Caravanseraï on the World Heritage List as a serial property consisting of fifty-four representative caravanserais distributed throughout Iran (UNESCO World Heritage Centre, 2023; UNESCO World Heritage Committee, 2023). The inscription represents a fundamental shift in the interpretation of caravanserais within contemporary heritage discourse. Rather than recognizing individual monuments in isolation, UNESCO acknowledged the collective value of an interconnected network whose significance derives from historical relationships among multiple sites distributed across diverse cultural landscapes. The nominated caravanserais collectively illustrate more than two millennia of architectural evolution while demonstrating how a coherent transportation infrastructure contributed to commerce, diplomacy, pilgrimage, and cultural exchange throughout the Iranian plateau.

This network-oriented interpretation reflects broader developments within international heritage theory. Contemporary conservation increasingly recognizes cultural landscapes, infrastructure systems, and serial properties as heritage entities whose values emerge from spatial relationships rather than from individual monuments alone. Within this framework, caravanserais represent a rare example of historical infrastructure whose architectural, social, economic, and territorial dimensions remain closely intertwined. Their significance therefore lies not only in their architectural qualities but also in their contribution to the historical organization of movement, settlement, and regional development (Bianca, 2000; UNESCO World Heritage Centre, 2023).

Despite growing international recognition, scholarly research on Iranian caravanserais has remained fragmented. Architectural historians (Pope, 1965; Kiani, 2008; Blair & Bloom, 1994) have primarily concentrated on documenting stylistic characteristics, construction techniques, chronological development, and regional architectural traditions. Heritage scholars (UNESCO World Heritage Centre, 2023)

have focused largely on restoration projects, conservation policies, and adaptive reuse initiatives. Historical studies have examined caravanserais as institutions supporting trade and political administration, while tourism research has increasingly explored their potential contribution to regional economic development. Although these studies have generated valuable knowledge, relatively few have examined caravanserais as evolving spatial systems whose transformation reflects changing relationships between architecture, territory, urbanization, and economic activity.

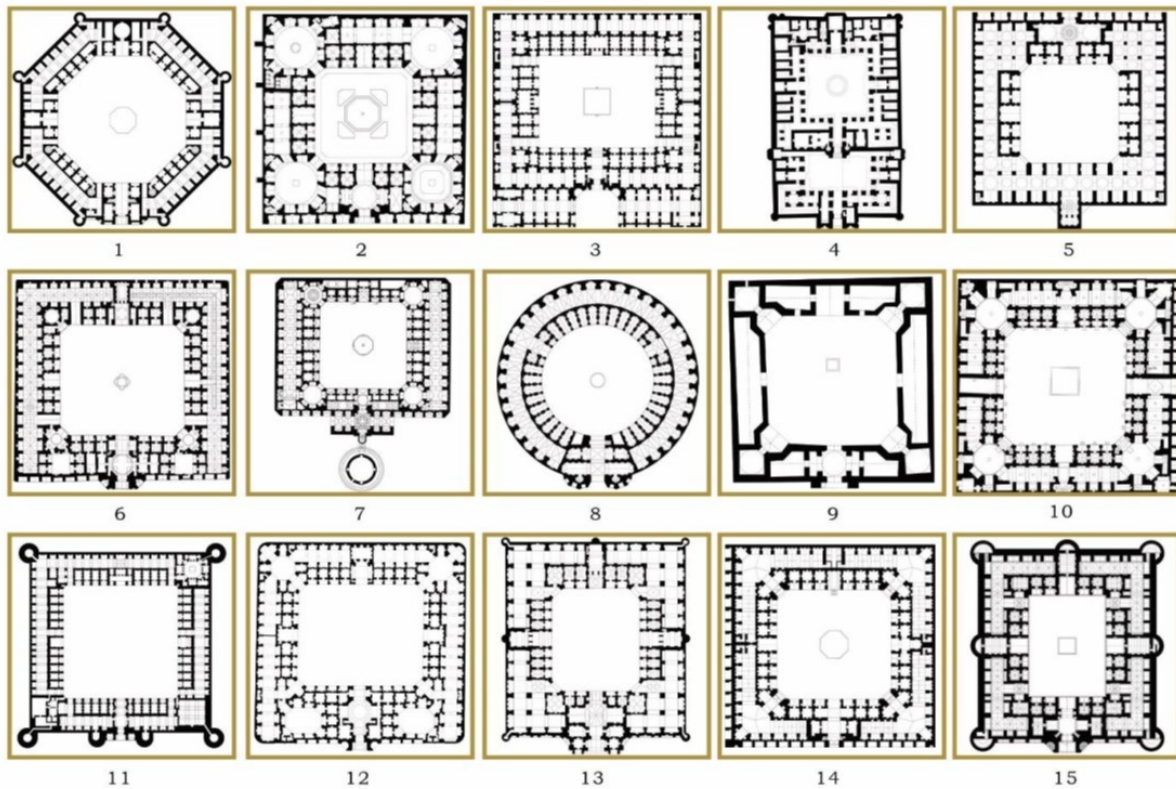


Figure 2. Numbers of Karavanserais' Plan. 1- Amin Ābād 2- Kharānaq 3- Mahyār 4- Robat sharaf 5- Khān 6- Āhovān Ājori 7- Meybod 8- Tāj Ābād 9- Ti ti 10- Yengeh Emām 11- Deyr-e Gachin 12- Sheikhalī Khān 13- Kuh Pāyeh 14- Rashti 15- Farasfaj.

An additional limitation within the existing literature concerns the tendency to treat all caravanserais as members of a homogeneous architectural category. In reality, important differences emerged according to their geographical setting and functional relationship with surrounding settlements. Caravanserais located along regional transportation routes were primarily designed to support long-distance travel by providing security, accommodation, water, and storage in isolated environments. Urban caravanserais, in contrast, formed integral components of historic commercial districts, where they functioned as extensions of bazaars and market complexes. Their architectural organization, patterns of use, and subsequent processes of transformation therefore differed substantially from those of regional roadside caravanserais. Yet this distinction has received comparatively limited analytical attention.

The contemporary trajectories of these two categories illustrate this divergence particularly clearly. Following the decline of traditional caravan transportation during the twentieth century, many regional caravanserais lost their original functions and gradually became abandoned, deteriorated, or converted into heritage and tourism facilities. Urban caravanserais experienced a different process. Embedded within active commercial centres, many continued to accommodate trading activities, storage, handicrafts, retail businesses, and public functions. Their continuity depended less upon heritage designation than upon their capacity to adapt to changing urban economies while maintaining their historical spatial structures. Consequently, the conservation challenges facing these two typologies differ fundamentally, suggesting that a single preservation strategy cannot adequately address the diversity of their historical development or future potential. Recognizing these differences is increasingly important in light of UNESCO's emphasis on integrated management and sustainable conservation. While the World Heritage inscription has enhanced the visibility of Iranian caravanserais internationally, it has also raised important questions concerning their long-term management, adaptive reuse, and contribution to contemporary regional development. Conservation strategies that concentrate exclusively on architectural preservation may fail to recognize the broader territorial and urban systems within which caravanserais historically functioned. Equally, tourism-oriented interventions that neglect the social and commercial roles of urban caravanserais risk transforming living heritage into static museum environments. A more comprehensive understanding of caravanserais therefore requires an analytical framework capable of integrating architecture, urban morphology, historical geography, and heritage management (Conzen, 1960; Oliveira, 2016).

This study adopts such a perspective by comparing the transformation of regional and urban caravanserais as two complementary but distinct typological systems. Rather than examining individual monuments independently, it investigates how different spatial contexts have generated different patterns of architectural continuity, functional adaptation, and heritage significance. The UNESCO-listed Persian Caravanserai serial property is employed as a representative example of regional caravanserais, while the Vakil Caravanserai of Kerman provides an urban case study illustrating the long-term evolution of caravanserais embedded within historic bazaar morphology. Together these cases enable a comparative exploration of continuity, change, and resilience across multiple spatial scales.

The research is guided by three principal questions. First, how have regional and urban caravanserais experienced different processes of transformation following the decline of traditional caravan transportation? Second, which spatial, economic, and morphological factors have influenced these differing trajectories? Third, how can an improved understanding of

these processes inform future conservation strategies that balance architectural preservation with sustainable contemporary use?

Methodologically, the study employs a historical-interpretative approach combining documentary research, UNESCO nomination documentation, historical maps (UNESCO World Heritage Centre, 2023), architectural analysis, and contextual investigation. Rather than reconstructing architectural chronology alone, the analysis focuses on identifying long-term patterns of functional adaptation, spatial continuity, and changing relationships between caravanserais and their surrounding environments. Particular attention is given to the interaction between heritage conservation, urban morphology, commercial transformation, and regional infrastructure

By bringing together perspectives from architectural history, heritage studies, urban morphology, and cultural geography, this paper seeks to contribute to a more integrated understanding of Iranian caravanserais as dynamic components of historical landscapes rather than isolated architectural monuments. It argues that their future sustainability depends not only upon preserving their physical fabric but also upon recognizing the networks of movement, commerce, and urban life that originally gave them meaning. Such an approach offers a broader conceptual framework for the revitalization of caravanserais through integrated conservation, adaptive reuse, cultural tourism, and the development of interconnected heritage corridors inspired by the historical logic of the Silk Roads. In doing so, the paper aims to contribute to ongoing international discussions concerning network heritage, living cultural landscapes, and sustainable approaches to the management of large-scale historical infrastructures (Conzen, 1960; Oliveira, 2016).

2. Materials and Methods

2.1 Research Design

This research adopts a qualitative historical-comparative methodology to investigate the long-term transformation of Iranian caravanserais as components of evolving territorial and urban systems. Rather than examining caravanserais solely as architectural monuments, the study approaches them as dynamic socio-spatial infrastructures whose forms, functions, and cultural significance have changed in response to shifting political, economic, technological, and urban conditions. The research is therefore grounded in an interpretative perspective that combines architectural history, urban morphology, heritage studies, and historical geography to explore continuity and transformation within the Persian caravanserai tradition (Conzen, 1960; Oliveira, 2016; UNESCO World Heritage Centre, 2023).

The methodological framework is based on comparative typological analysis (Conzen, 1960; Oliveira, 2016). Caravanserais are first classified into two principal categories according to their spatial context and historical function: **regional caravanserais**, located along long-distance transportation corridors, and **urban caravanserais**, integrated into the commercial cores of historic cities. Although both categories originated from the same institutional tradition of supporting trade and mobility, they have experienced fundamentally different evolutionary trajectories following the decline of traditional caravan transportation. The comparative analysis seeks to identify the mechanisms responsible for these divergent patterns of change and to evaluate their implications for contemporary conservation and adaptive reuse.

Unlike studies that focus on stylistic description or architectural documentation of individual monuments, this research emphasizes processes rather than objects. The central concern is not merely how caravanserais were constructed, but how they have responded to successive historical transformations and how these transformations have reshaped their relationship with surrounding landscapes, transportation systems, and urban environments.

2.2 Research Materials

The study relies on multiple categories of documentary and spatial evidence in order to establish a comprehensive understanding of the historical evolution of Persian caravanserais.

The first body of material consists of international heritage documentation related to the inscription of *The Persian Caravanserai* on the UNESCO World Heritage List in 2023 (UNESCO World Heritage Centre, 2023). These documents include the nomination dossier, the Statement of Outstanding Universal Value, the evaluation reports prepared by ICOMOS, and the decisions of the World Heritage Committee. Together these sources provide detailed information concerning the historical development, typological diversity, geographical distribution, architectural characteristics, integrity, authenticity, and management frameworks of the fifty-four inscribed caravanserais. More importantly, they present caravanserais as components of a serial heritage property, emphasizing the relationships between individual sites and the wider territorial network in which they historically operated.

A second category of material consists of historical and scholarly literature (Pope, 1965; Blair & Bloom, 1994; Kiani, 2008) on Iranian caravanserais, Persian architecture, historical geography, Silk Road studies, and heritage conservation. These sources establish the broader historical context of caravanserai development from the Achaemenid period through the Safavid and Qajar dynasties while documenting the evolution of architectural typologies, transportation infrastructure, commercial systems, and state-sponsored investment in roadside facilities. Previous architectural surveys, urban historical studies, and conservation research are also reviewed to identify the dominant approaches within existing scholarship and to establish the research gap addressed in this paper.

The third category comprises historical maps, archival illustrations, planning documents, and published documentation relating to the Vakil Caravanserai (Zangiabadi, 1991), and the historic bazaar of Kerman. These materials provide evidence of spatial continuity, changes in commercial organization, and the relationship between the caravanserai and the surrounding urban fabric over time. Conference materials and published historical sources were additionally consulted to reconstruct the evolution of the Vakil complex and its role within Kerman's traditional commercial network.

Finally, the study incorporates contemporary photographic documentation and published architectural descriptions to evaluate present conditions, conservation interventions, and current patterns of use in both regional and urban caravanserais.

2.3 Case Selection

The comparative design of this research required the selection of representative examples for each of the two principal caravanserai typologies.

Regional caravanserais are represented collectively through the UNESCO-inscribed serial property *The Persian Caravanserai* (UNESCO World Heritage Centre, 2023). Rather than selecting a single roadside caravanserai, the study treats the fifty-four UNESCO-listed examples as a coherent territorial system. This approach reflects the conceptual framework adopted by UNESCO itself, which recognizes the Outstanding Universal Value of the property as emerging from the interaction among numerous caravanserais distributed across different climatic regions, historical routes, and cultural landscapes. Considering the serial property as the analytical unit enables the study to examine regional caravanserais from a network perspective instead of reducing them to isolated monuments.

Urban caravanserais are represented by the Vakil Caravanserai in Kerman (Zangiabadi, 1991). This case was selected because it demonstrates many of the defining characteristics of urban caravanserais in Iran. Situated within one of the country's most significant historic bazaar systems, the Vakil Caravanserai maintains strong spatial, functional, and historical relationships with adjacent commercial buildings, religious institutions, educational facilities, and public spaces. Furthermore, unlike many regional caravanserais that lost their original function during the twentieth century, the Vakil Caravanserai has remained embedded within an active commercial environment, making it particularly suitable for examining long-term functional continuity and adaptive transformation.

The selection of these two cases therefore allows comparison between two contrasting yet complementary trajectories of historical evolution while avoiding the limitations associated with analysing isolated monuments independently.

2.4 Analytical Framework

The comparative analysis was structured around four interconnected analytical dimensions that emerged from the literature on heritage conservation, urban morphology, and historical infrastructure.

The first dimension concerns **spatial context** (Conzen, 1960). Here the analysis investigates the geographical position of each caravanserai type and its relationship with transportation corridors, settlements, commercial centres, and regional landscapes. Particular attention is paid to the differences between isolated roadside locations and caravanserais embedded within dense urban fabrics.

The second dimension examines **functional transformation**. This component analyses the changing economic and social roles of caravanserais from the pre-modern period to the present, considering shifts from caravan accommodation to tourism, commerce, cultural activities, handicraft production, hospitality, and public use. Rather than viewing change as evidence of decline, the study interprets functional adaptation as an important indicator of resilience (Bianca, 2000) and continuity.

The third analytical dimension addresses **morphological continuity**. Drawing upon principles of urban morphological analysis (Conzen, 1960; Oliveira, 2016), the research evaluates the persistence and transformation of spatial organization, circulation systems, courtyard structures, building configuration, and relationships between caravanserais and their surrounding urban or territorial contexts. This perspective recognizes that the significance of caravanserais extends beyond individual architectural elements to include their position within larger spatial systems.

The fourth dimension concerns **heritage management and conservation strategies**. Here the analysis considers how different historical trajectories generate distinct conservation challenges. Issues including adaptive reuse, authenticity, tourism development, commercial continuity, infrastructure modernization, and management policies are examined in order to evaluate future approaches to sustainable conservation (UNESCO World Heritage Centre, 2023).

Together these four analytical dimensions provide a comprehensive framework through which regional and urban caravanserais can be systematically compared despite their differing historical circumstances.

2.5 Comparative Procedure

The research proceeded through a sequence of analytical stages.

The first stage involved a comprehensive review of documentary sources concerning the historical development of caravanserais and the UNESCO serial nomination (UNESCO World Heritage Centre, 2023).

This stage established the historical evolution of caravanserais within broader networks of transportation, commerce, and territorial organization.

The second stage identified the principal characteristics distinguishing regional and urban caravanserais with respect to location, architectural configuration, historical function, and patterns of transformation. These characteristics formed the basis for constructing the comparative framework.

During the third stage, the UNESCO-listed regional caravanserais and the Vakil Caravanserai were examined using the four analytical dimensions outlined above. Rather than comparing individual architectural details alone, the analysis focused on broader processes of continuity, adaptation, and spatial change.

Finally, the findings from both case studies were synthesised to identify common patterns, significant differences, and broader implications for heritage management. This synthesis enabled the development of a conceptual framework that interprets caravanserais as interconnected cultural infrastructures operating across multiple spatial scales rather than as isolated architectural monuments.

2.6 Limitations of the Study

Several limitations should be acknowledged. The study is based primarily on documentary and historical sources rather than extensive field surveys or quantitative spatial analysis. Consequently, the research emphasizes interpretative understanding over statistical generalization. Furthermore, although the UNESCO serial property contains fifty-four

caravanserais representing considerable geographical and architectural diversity, the present analysis treats them collectively as a regional system rather than examining each property individually.

Similarly, the Vakil Caravanserai is employed as a representative urban case study and cannot encompass the full diversity of urban caravanserais found throughout Iran. Nevertheless, its close integration within the historic bazaar of Kerman and its remarkable continuity of commercial use make it particularly valuable for understanding broader patterns of transformation characteristic of urban caravanserais. Future research may expand this comparative framework by incorporating additional case studies, GIS-based network analysis, and detailed field investigations across multiple regions.

Despite these limitations, the methodology provides a robust conceptual basis for interpreting caravanserais as evolving components of historical mobility systems and offers an analytical framework that can be applied to future comparative research on historical transportation infrastructures within Iran and beyond.

4. Results

4.1 Spatial Organization and Territorial Logic of the Persian Caravanserai Network

The comparative analysis demonstrates that the UNESCO-listed Persian Caravanserai is best understood not as a collection of independent architectural monuments but as a coherent territorial infrastructure whose organization reflects the historical geography of the Iranian plateau. Examination of the spatial distribution of the fifty-four inscribed caravanserais reveals a deliberate relationship between settlement systems, commercial corridors, environmental conditions, and political centres. Although individual caravanserais differ considerably in size, construction materials, architectural form, and historical chronology, their distribution follows an identifiable territorial logic that remained remarkably stable over successive historical periods.

The UNESCO serial nomination illustrates that caravanserais were strategically located along principal transportation routes connecting major political capitals, commercial centres, pilgrimage destinations, ports, and frontier regions. Rather than functioning as isolated roadside buildings, they collectively formed a continuous sequence of service nodes that enabled the movement of people, goods, and information across extensive geographical distances. This finding reinforces the interpretation that caravanserais constituted an infrastructural system comparable to contemporary transportation networks rather than merely an assemblage of individual buildings.

A second finding concerns the close relationship between caravanserai distribution and environmental adaptation (Kiani, 2008). The comparative review of the UNESCO property indicates that caravanserais responded directly to geographical diversity across the Iranian plateau. Buildings located within arid desert regions generally exhibit compact enclosed forms, thick masonry walls, limited external openings, and carefully protected internal courtyards designed to minimize climatic exposure. Mountain caravanserais display heavier structural forms adapted to severe winters and steep topography, whereas caravanserais situated within fertile plains often possess more open spatial configurations reflecting different environmental requirements.



Figure 3. Eastern Facade Courtyard/ Kuhpayeh Karavanserai, Isfahan.

Despite these regional variations, the analysis demonstrates remarkable consistency in the underlying organizational principles. Almost all caravanserais preserve a central courtyard surrounded by accommodation spaces arranged according to functional requirements. Controlled entrances, enclosed circulation systems, and spatial separation between public movement and storage facilities appear repeatedly throughout different climatic regions. This consistency suggests

that the caravanserai typology maintained a stable operational logic while allowing substantial architectural flexibility in response to local environmental conditions.

The spatial organization of the network further reveals the influence of political authority upon infrastructural development. Historical evidence indicates that successive dynasties, particularly during the Safavid period (Ferrier, 1973), invested extensively in caravanserai construction as part of broader strategies for territorial integration, commercial expansion, and administrative control. Consequently, the distribution of caravanserais reflects not only geographical necessity but also state-sponsored planning intended to strengthen economic exchange and political cohesion.

An important outcome of the analysis is the recognition that the value of the UNESCO serial property derives from relationships between individual caravanserais rather than solely from the architectural significance of each building. Their collective spatial organization generates a cultural landscape whose historical meaning depends upon continuity, connectivity, and interaction across multiple regions. This interpretation substantially expands conventional monument-centred understandings of architectural heritage and supports UNESCO's emphasis on network-based cultural values (UNESCO World Heritage Centre, 2023).



Figure 4. Entrance Facade of Madar-e Shah Karavanserai, Isfahan.

The findings therefore indicate that the Persian caravanserai should be interpreted simultaneously at two spatial scales. At the local scale, each caravanserai represents a distinctive architectural response to environmental and social conditions. At the territorial scale, however, these buildings collectively constitute a coordinated infrastructure that organized movement across one of the world's most extensive historical transportation systems.

4.2 Divergent Trajectories of Transformation

Although regional and urban caravanserais originated from common institutional principles, the comparative analysis reveals that they have experienced fundamentally different processes of transformation (Kiani, 2008) over the past two centuries. These differences reflect changing transportation technologies, patterns of urbanization, economic restructuring, and conservation policies rather than architectural characteristics alone.

The most significant transformation affecting regional caravanserais occurred following the decline of traditional caravan transportation (Ferrier, 1973) during the late nineteenth and twentieth centuries. Improvements in road construction, the expansion of motorized transport, and the emergence of modern logistics gradually eliminated the functional necessity for roadside accommodation based upon caravan travel. As a consequence, many regional caravanserais experienced abandonment, physical deterioration, or complete functional obsolescence.

Nevertheless, the results demonstrate that this process did not necessarily result in the disappearance of these buildings. Instead, many regional caravanserais entered a second phase of transformation characterised by heritage recognition and adaptive reuse (UNESCO World Heritage Centre, 2023). Their historical isolation, once essential to their original function, increasingly became an asset within cultural tourism and heritage interpretation. Numerous caravanserais have subsequently been restored as museums, boutique hotels, visitor centres, or cultural facilities, while others continue to undergo conservation interventions associated with regional tourism development.



Figure 5. The inside-city Karavanseraï compound of Sa'adossaltaneh in Qazvin dating from the Qajar era.

The comparative evidence indicates that urban caravanserais rarely experienced complete functional discontinuity. Storage facilities became retail spaces; merchant accommodation evolved into workshops, offices, or commercial units; traditional trading activities diversified into handicrafts, tourism services, restaurants, and contemporary commerce (Zangiabadi, 1991). Although these changes altered internal functions, they frequently preserved the broader commercial role of the buildings within the urban economy.

This continuity was largely enabled by their integration within historic bazaars. Unlike isolated roadside caravanserais, urban examples continued to benefit from surrounding commercial activity, pedestrian circulation, and established economic networks. Consequently, urban caravanserais evolved through gradual adaptation rather than abrupt abandonment.

The analysis therefore demonstrates that geographical context exerted a stronger influence upon long-term transformation than architectural form itself. Buildings located within functioning urban environments retained economic relevance through continuous adaptation, whereas those dependent upon obsolete transportation systems increasingly relied upon heritage designation for survival.

These contrasting trajectories also generated different conservation challenges. Regional caravanserais require strategies emphasizing landscape protection, tourism management, and infrastructural accessibility. Urban caravanserais instead require approaches capable of balancing commercial vitality with architectural authenticity while accommodating continuous urban change (Bianca, 2000).

4.3 Morphological Continuity and Functional Adaptation

The comparative morphological analysis reveals that the resilience of Persian caravanserais depends less upon preserving original functions than upon maintaining fundamental spatial relationships capable of accommodating changing patterns of use. This finding suggests that continuity should be understood primarily as a morphological rather than purely functional phenomenon (Conzen, 1960; Oliveira, 2016).

Across both regional and urban caravanserais, the courtyard consistently remains the principal organizational element (Pope, 1965). Historically serving as the operational centre for unloading caravans, accommodating animals, commercial exchange, and social interaction, the courtyard continues to organise circulation and spatial hierarchy even when surrounding functions have changed substantially.

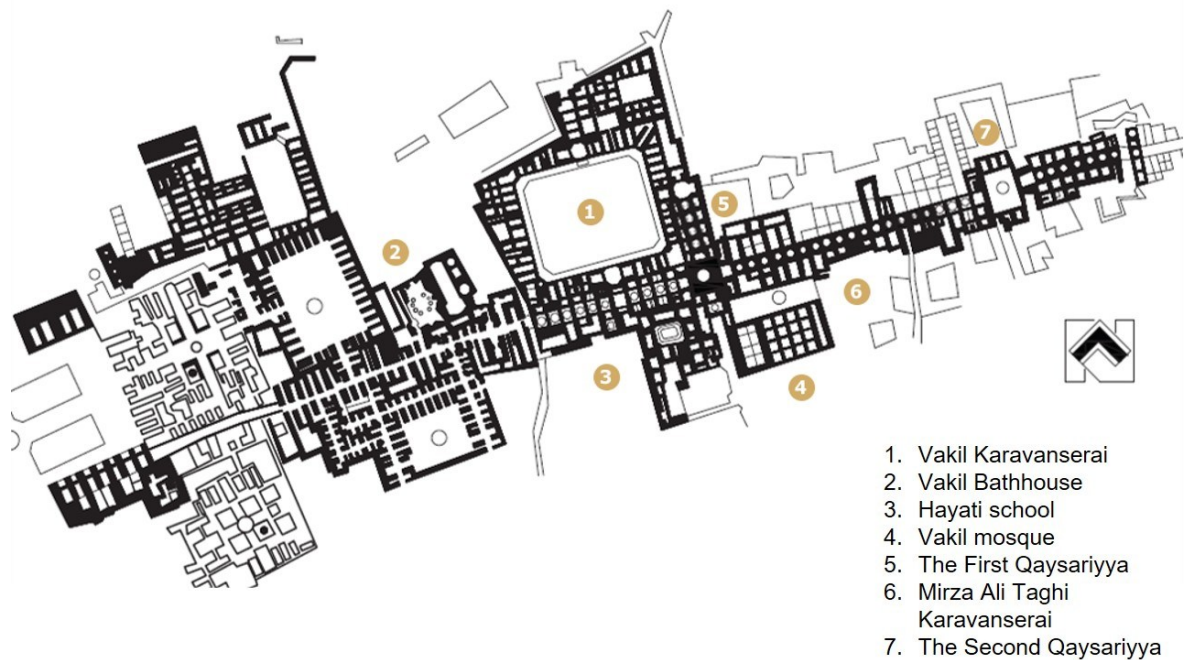


Figure 6. The spatial organization of different components.

Similarly, the enclosed perimeter organization demonstrates remarkable persistence throughout different phases of adaptation. Rooms originally intended for merchants, storage, or administrative purposes have frequently been converted into commercial units, workshops, exhibition spaces, cafés, hotels, or cultural facilities without fundamentally altering the overall spatial framework (Kiani, 2008). The architectural system therefore exhibits considerable flexibility despite substantial functional change.

However, the analysis identifies important differences between regional and urban examples regarding the extent of morphological modification. Regional caravanserais generally retain higher levels of physical integrity because prolonged abandonment limited incremental architectural alterations. Many restoration projects (UNESCO World Heritage Centre, 2023) have consequently focused upon preserving original spatial organization while introducing reversible contemporary functions.

Urban caravanserais present a more complex picture. Continuous occupation has generated numerous small-scale modifications associated with changing commercial requirements (Zangiabadi, 1991). Internal subdivision, installation of modern infrastructure, alterations to circulation routes, shopfront adaptation, and service improvements have gradually transformed individual spaces while leaving the broader organizational framework largely intact.

This pattern indicates that urban caravanserais should be interpreted as living heritage rather than static monuments. Their significance derives not only from preserved architectural fabric but also from sustained participation in evolving commercial life. Morphological continuity therefore coexists with continuous functional transformation (Bianca, 2000).

The results further demonstrate that adaptive reuse succeeds most effectively where contemporary functions remain compatible with historical spatial logic. Activities requiring moderate subdivision, pedestrian accessibility, and courtyard-oriented circulation generally integrate successfully within traditional caravanseraï layouts. Conversely, interventions demanding extensive structural alteration, large mechanical infrastructure, or vehicular access often generate conflicts with historical morphology (UNESCO World Heritage Centre, 2023) and threaten architectural integrity.

Overall, the findings indicate that the long-term resilience of Persian caravanserais results from the exceptional adaptability of their spatial organization. Rather than preserving fixed historical functions, caravanserais have survived because their architectural structure accommodates successive forms of occupation while maintaining the essential principles of courtyard organisation, controlled circulation, and spatial hierarchy. This capacity for adaptation represents one of the defining characteristics of the Persian caravanseraï tradition and provides an important foundation for future conservation strategies (Conzen, 1960; Oliveira, 2016).

5. Discussion

5.1 Beyond Monument-Centred Heritage: Reinterpreting Caravanserais as Territorial Infrastructure

The findings of this study suggest that the contemporary understanding of Persian caravanserais should move beyond conventional monument-centred approaches (UNESCO World Heritage Centre, 2023; Bianca, 2000) that have traditionally dominated architectural history and heritage conservation. Although individual caravanserais possess considerable architectural, artistic, and historical value, the comparative analysis demonstrates that their significance cannot be fully understood when they are examined as isolated buildings. Rather, caravanserais functioned as components of a highly integrated territorial infrastructure whose value emerged from the relationships established between individual sites, transportation corridors, commercial networks, political centres, and cultural landscapes (Bandarin & van Oers, 2012). This interpretation closely aligns with the conceptual shift embodied in the 2023 UNESCO inscription of *The Persian Caravanseraï*, where Outstanding Universal Value is attributed not only to the architectural qualities of the fifty-four selected properties but also to the historical continuity of the network they collectively represent.

This perspective corresponds with broader developments in heritage theory during recent decades. International conservation practice has progressively expanded from the preservation of individual monuments toward the protection of cultural landscapes, serial properties, historic urban landscapes, and infrastructure systems. Within this framework, heritage is increasingly understood as a product of spatial relationships rather than isolated architectural artefacts. The present study reinforces this interpretation by demonstrating that caravanserais derived their historical importance from their role within an interconnected system of mobility that structured economic exchange and territorial cohesion across the Iranian plateau for more than two millennia.

Interpreting caravanserais as territorial infrastructure (Taylor, 2009) also provides a more comprehensive explanation for their remarkable geographical diversity. Architectural variations between desert, mountain, urban, and roadside caravanserais should not simply be regarded as stylistic differences but rather as adaptive responses to distinct environmental and socio-economic conditions operating within a common infrastructural logic. This observation supports the argument that typological continuity does not require architectural uniformity. Instead, continuity emerges through the persistence of organisational principles (Pope, 1965) capable of accommodating geographical diversity while maintaining functional coherence.

The territorial perspective adopted in this research therefore extends the significance of caravanserais beyond architectural history into wider discussions concerning historical infrastructure, mobility systems, and regional development. Similar interpretations have increasingly emerged in studies of Roman roads, medieval pilgrimage routes, canal systems, and railway heritage, where infrastructure is understood as a fundamental component of cultural landscapes rather than merely a technological achievement. Persian caravanserais constitute one of the most extensive surviving examples of such historical infrastructure, yet their territorial dimension has remained comparatively underexplored. The findings presented here suggest that future research should increasingly investigate caravanserais through the analytical lens of network heritage (UNESCO World Heritage Centre, 2023) rather than solely through architectural description.

5.2 Urban Morphology and the Resilience of Caravanserais

One of the principal contributions of this study lies in demonstrating that the long-term resilience of caravanserais is fundamentally morphological (Conzen, 1960; Oliveira, 2016) rather than functional. Conventional heritage narratives frequently describe the decline of caravan transportation as marking the end of the caravanserai tradition. However, the comparative analysis reveals that while original functions were undoubtedly transformed, the underlying spatial structures of caravanserais proved remarkably adaptable to changing social and economic conditions.

This finding resonates strongly with principles developed within urban morphology, particularly the understanding that urban form often persists despite successive transformations in land use, ownership, economic activity, and social organisation. Morphological studies have long demonstrated that streets, plots, building arrangements, and public spaces frequently survive multiple cycles of functional change. The results presented here indicate that caravanserais exhibit a comparable form of spatial persistence. Their enclosed courtyards, hierarchical circulation systems, perimeter rooms, and integrated spatial organisation continued to accommodate new activities long after traditional caravan travel had disappeared.

Importantly, this resilience was not expressed uniformly across all caravanserais. Regional and urban examples responded differently because they occupied distinct positions within broader spatial systems. Regional caravanserais depended historically upon transportation networks whose functional relevance diminished rapidly following the introduction of modern roads and motorised transport. Consequently, many lost their economic role and became increasingly dependent upon heritage conservation and tourism. Urban caravanserais, by contrast, remained embedded within active commercial districts where continuous economic adaptation allowed historic spatial structures to remain occupied despite changing patterns of use.

This distinction suggests that resilience should be interpreted as relational (Oliveira, 2016) rather than intrinsic. Architectural flexibility alone does not explain why some caravanserais survived while others deteriorated. Instead, survival depended upon the persistence of the wider urban or territorial systems within which caravanserais operated. Buildings situated within resilient commercial environments retained opportunities for functional adaptation, whereas isolated roadside caravanserais increasingly relied upon external conservation policies for their preservation. Such findings reinforce the importance of considering historical buildings within their broader spatial contexts rather than evaluating them independently.

The Vakil Caravanserai illustrates this process particularly clearly. Its continued integration within Kerman's historic bazaar enabled successive transformations in commercial practice (Zangiabadi, 1991) without fundamentally disrupting the spatial logic of the complex. Storage spaces became shops, merchant accommodation evolved into commercial premises, and circulation patterns adjusted to contemporary retail activity, yet the organisational structure of the caravanserai remained recognisable. Morphological continuity therefore emerged through gradual adaptation rather than static preservation.



Figure 7. The historic fabric of the Vakil Karavanseraï.



Figure 8. Vakil Bazaar and Vakil Bathhouse of Kerman.

5.3 Rethinking Adaptive Reuse Through Living Heritage

The results further challenge conventional assumptions concerning adaptive reuse (Douglas, 2006) within heritage conservation. Adaptive reuse is often discussed primarily as a technical strategy for preserving historic buildings through the introduction of new functions. However, the comparative evidence suggests that caravanserais require a more nuanced understanding in which adaptation represents a continuation of historical processes rather than an exceptional intervention.

Historically, caravanserais were themselves highly adaptive institutions. Throughout successive dynasties they responded to changing commercial demands, political circumstances, transportation technologies, and regional economies. Their present transformation into cultural facilities, hotels, museums, workshops, or commercial centres therefore continues a much longer tradition of functional evolution. From this perspective, adaptive reuse should not necessarily be interpreted as a departure from authenticity but rather as an expression of the historical flexibility that has characterised caravanserais throughout their existence.

This interpretation aligns closely with contemporary concepts of living heritage (Poulios, 2014), which emphasize continuity of use, community engagement, and evolving cultural practices alongside material conservation. Particularly in urban contexts, preserving commercial vitality may contribute more effectively to the long-term sustainability of caravanserais than converting them into static museum environments. The findings indicate that authenticity (Jokilehto, 1999) should therefore be understood as a dynamic relationship between physical continuity and ongoing social use rather than solely as the preservation of original functions.

Nevertheless, the research also demonstrates that adaptation possesses identifiable limits. Commercial interventions requiring extensive subdivision, large-scale structural alteration, or incompatible infrastructure may undermine the spatial integrity that constitutes the defining characteristic of caravanserais. Consequently, successful adaptive reuse depends upon maintaining the fundamental organisational logic of courtyard-centred architecture while allowing appropriate functional flexibility. This balance between continuity and change (Plevoets & Van Cleempoel, 2019) represents one of the central challenges facing future conservation policies.

6. Conclusions

The inscription of *The Persian Caravanserai* on the UNESCO World Heritage List (UNESCO World Heritage Centre, 2023) has fundamentally transformed the international recognition of one of Iran's most significant historical infrastructures. Beyond acknowledging the architectural merit of individual caravanserais, the inscription has emphasized their collective significance as an interconnected territorial network that facilitated mobility, commerce, cultural exchange, and political integration across the Iranian plateau for more than two millennia. This changing heritage perspective provided the starting point for the present study, which sought to investigate how different types of Iranian caravanserais have evolved under contrasting spatial and socio-economic conditions and how these transformations may inform future conservation strategies.

The comparative analysis demonstrates that Persian caravanserais should not be understood as a homogeneous architectural category. Instead, the distinction between regional and urban caravanserais (Kiani, 2008) represents two fundamentally different trajectories of historical development. Although both originated from the same institutional tradition of supporting long-distance travel and commercial exchange, their subsequent evolution has been shaped primarily by differences in geographical setting and spatial context. Regional caravanserais, historically located along transportation corridors, became increasingly detached from their original functions following the decline of caravan-based mobility. Consequently, their contemporary survival has depended largely on heritage conservation, adaptive reuse, and cultural tourism. Urban caravanserais, in contrast, remained embedded within the commercial fabrics of historic cities, allowing them to preserve functional continuity through gradual adaptation to changing urban economies. These differing trajectories demonstrate that geographical context has exerted a greater influence on long-term transformation than architectural form alone.

A second contribution of this research concerns the interpretation of caravanserais from the perspective of urban morphology (Conzen, 1960; Oliveira, 2016). The findings indicate that the resilience of caravanserais should be understood primarily as a morphological phenomenon rather than merely a functional one. Throughout successive periods of economic and technological change, the fundamental spatial organization of caravanserais—including their courtyard-centred layouts, hierarchical circulation systems, and enclosed spatial structure—proved capable of accommodating new activities without losing their essential organizational logic. This capacity for adaptation explains why many caravanserais have survived despite the disappearance of the transportation systems for which they were originally constructed. In this respect, the study demonstrates that continuity may be achieved through the persistence of spatial structure rather than through the preservation of original functions.

The Vakil Caravanserai of Kerman illustrates this principle particularly effectively. Its continuous integration within the historic bazaar has enabled successive transformations in commercial activity while preserving the broader spatial relationships that define the character of the complex. Rather than functioning as a static architectural monument, the Vakil Caravanserai continues to participate in the economic and social life of the city, illustrating the concept of living heritage (Poulios, 2014) promoted by contemporary conservation theory. This example suggests that successful conservation is not necessarily achieved by freezing historic buildings in a single historical moment but by enabling compatible processes of functional adaptation that respect the underlying spatial organization.

The study also contributes to contemporary debates concerning network heritage (Bandarin & van Oers, 2012) and cultural landscapes. The UNESCO inscription encourages an understanding of caravanserais as components of an integrated historical infrastructure rather than isolated monuments. Building upon this perspective, the present research argues that the heritage value of caravanserais emerges from relationships between architecture, transportation networks, settlements, commercial systems, and landscapes operating across multiple spatial scales. This territorial interpretation expands existing approaches to caravanserai conservation by emphasizing connectivity, continuity, and regional context as essential components of heritage significance.

From a practical perspective, the findings indicate that future conservation policies (UNESCO World Heritage Centre, 2023) should recognize the differing requirements of regional and urban caravanserais. Regional caravanserais require integrated strategies that combine architectural conservation with landscape protection, route interpretation, sustainable tourism, and the revitalization of historical transportation corridors. Urban caravanserais require management approaches capable of balancing commercial vitality with architectural authenticity while accommodating the evolving needs of contemporary cities. Applying identical conservation strategies to both typologies risks overlooking the distinctive historical processes that have shaped their present conditions.

The research further suggests that the historical logic of caravan routes may provide an important framework for future regional development. Rather than promoting individual monuments independently, heritage managers could strengthen the cultural and economic value of caravanserais by developing interconnected heritage corridors inspired by the historical

Silk Roads. Such an approach would encourage cooperation among local communities, municipalities, tourism authorities, and conservation organizations while reinforcing the territorial identity that originally gave meaning to these buildings.

Although the study provides a comparative framework for understanding the evolution of Persian caravanserais, several limitations remain. The research relies primarily on documentary sources and a comparative case study rather than extensive field surveys or quantitative spatial analysis. Future investigations could expand the present framework by incorporating GIS-based network analysis, detailed morphological mapping, field documentation of additional caravanserais, and comparative studies with caravan infrastructures elsewhere along the Silk Roads. Such research would contribute to a more comprehensive understanding of the relationship between historical mobility systems, urban development, and cultural heritage.

Ultimately, this study argues that the future of Persian caravanserais depends not only upon preserving their physical fabric but also upon recognizing the spatial, economic, and cultural relationships that historically connected them across the Iranian plateau. Their significance lies not simply in the survival of individual buildings but in the persistence of a territorial system that shaped patterns of movement, commerce, and urban development for centuries. By integrating perspectives from heritage studies, urban morphology, and historical geography (Taylor, 2009), the paper proposes a broader conceptual framework through which caravanserais may be understood as dynamic cultural infrastructures whose continued revitalization can contribute simultaneously to heritage conservation, sustainable tourism, regional development, and the preservation of one of the world's most remarkable historical transportation networks.

Reference List

- Ardalan, N., & Bakhtiar, L. (1973). *The Sense of Unity: The Sufi Tradition in Persian Architecture*. University of Chicago Press.
- Bandarin, F., & van Oers, R. (2012). *The historic urban landscape: Managing heritage in an urban century*. Wiley-Blackwell.
- Bianca, S. (2000). *Urban Form in the Arab World: Past and Present*. Thames & Hudson.
- Blair, S. S., & Bloom, J. M. (1994). *The Art and Architecture of Islam: 1250–1800*. Yale University Press.
- Browne, E. G. (1893). *A Year Amongst the Persians*. Adam and Charles Black.
- Conzen, M. R. G. (1960). *Alnwick, Northumberland: A Study in Town-Plan Analysis*. Institute of British Geographers.
- Douglas, J. (2006). *Building adaptation* (2nd ed.). Butterworth-Heinemann.
- Ferrier, R. W. (Ed.). (1973). *The Cambridge History of Iran* (Vol. 6). Cambridge University Press.
- Herodotus. (2003). *The Histories* (A. de Sélincourt, Trans.). Penguin Classics. (Original work published ca. 440 BCE).
- Jokilehto, J. (1999). *A history of architectural conservation*. Butterworth-Heinemann.
- Kiani, M. Y. (2008). *Iranian Caravanserais*. Cultural Heritage, Handicrafts and Tourism Organization of Iran.
- Oliveria, V. (2016). *Urban Morphology: An Introduction to the Study of the Physical Form of Cities*. Springer.
- Plevoets, B., & Van Cleempoel, K. (2019). *Adaptive reuse of the built heritage: Concepts and cases of an emerging discipline*. Routledge.
- Pope, A. U. (1965). *Persian Architecture*. George Braziller.
- Poulios, I. (2014). *The past in the present: A living heritage approach—Meteora, Greece*. Ubiquity Press.
- Taylor, K. (2009). Cultural landscapes and Asia: Reconciling international and Southeast Asian regional values. *Landscape Research*, 34(1), 7–31. <https://doi.org/10.1080/01426390802392664>
- UNESCO World Heritage Centre. (2023). *Statement of Outstanding Universal Value: The Persian Caravanserai*. UNESCO.
- UNESCO World Heritage Centre. (2023). *The Persian Caravanserai* (World Heritage Property No. 1668). <https://whc.unesco.org/en/list/1668>
- UNESCO World Heritage Committee. (2023). *Decision 45 COM 8B.11: The Persian Caravanserai*. UNESCO.
- Zangiabadi, A. (1991). *Historical Structures of Kerman*. Kerman University Press.