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Original Research

Examining the Impact of Semantic Axes of Form Structure from Herdeg's Perspective on Place Identity in the Caravanserais and Saras of the Historical Bazaar of Qazvin

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Abstract

Aims: This study examines the impact of the physical and structural elements of the Qazvin Bazaar—particularly saras and caravanserais—on place identity and users' spatial experience. It focuses on seven structural–semantic axes of spatial form: the Central–Functional, Symmetry–Interaction, Visual, Movement–Access, Spiritual, Horizontal–Vertical, and Spatial–Connecting axes, and their influence on three dimensions of Place Identity: Social Interactions, Spatial Realm, and Visual Sensitivity.

Methodology: The research employs a hybrid qualitative–quantitative methodology: initially, a qualitative morphological and interpretive analysis of spatial structures was conducted to identify patterns, hierarchies, and functional relationships; the findings informed the development of a quantitative cross-case matrix that systematically compared nine saras and caravanserais within the bazaar. Spatial coherence, functional hierarchy, and the measurable contribution of each axis to social and perceptual experiences were assessed using operationally defined indicators.

Finding: Results show that large, multi-centered caravanserais such as Sa'd al-Saltaneh and spatially expansive saras such as Vazir, scoring high across centrality, visual extent, and movement axes, have the strongest measurable influence on Social Interactions, place attachment, and Visual Sensitivity. Smaller, single-courtyard saras, including Haj Reza and Dalan Deraz, provide complementary local and guild-focused functions, with limited Territoriality and moderate social engagement. The study operationalizes form–meaning coherence through observable spatial relationships, demonstrating how aligned structural axes, circulation patterns, and hierarchical organization reinforce Place Identity.

Conclusion: These findings provide a replicable analytical framework for evaluating the relationship between spatial structure and place identity in historical Iranian–Islamic bazaars and highlight the practical significance of preserving cultural heritage in contemporary architectural and urban planning practices.



Keywords: Semantic axes, Form Structure, Herdeg, Place Identity, Historical Bazaar of Qazvin, Saras and Caravanserais

Introduction

Contemporary architectural and urban studies demonstrate that the formal structure and semantic axes of historical spaces play a pivotal role in shaping urban identity and users' spatial experience. The Qazvin Bazaar, with its intricate network of saras (small commercial courtyards), caravanserais (large-scale trading complexes), hojreh (chambers), and rastehs (linear bazaars), exemplifies the dynamic interaction between spatial form, socio-economic activities, and cultural values—reinforcing Place Identity as a multilayered and evolving process. Structural axes such as centrality, symmetry, visual direction, movement and access, spirituality, horizontal–vertical configuration, and spatial connectivity not only determine the spatial organization and functional hierarchy of the bazaar but also shape social interactions, spatial domains, and visual sensitivity, thus enhancing spatial cohesion and attachment. To ensure terminological clarity for an international readership, several key architectural terms used in this study are briefly defined here. A sara refers to a small commercial courtyard typically surrounded by shops or hojreh (small vaulted chambers used by merchants). A caravanserai denotes a larger, often two-story complex that historically accommodated traders, goods, and travelers, organized around a central courtyard. A rasteh is a linear bazaar corridor connecting various commercial sections, while a hashti refers to a transitional vestibule space mediating between the public and private zones of a bazaar or building. These architectural typologies form the structural and spatial framework within which the semantic axes of form and place identity are analyzed. However, despite the significance of these structures in Iranian–Islamic architectural heritage, a theoretical and methodological gap remains in linking the semantic axes of form with the dimensions of place identity. Previous studies have largely focused either on the phenomenological and psychological aspects of place identity [1, 2, 3, 4] or on the morphological and geometric analyses of historical bazaars [5, 6, 7, 8]. Yet, there has been limited integration between formal semantics—as conceptualized by Herdeg (1997) through the notion of semantic axes of spatial form—and the experiential and identity-based dimensions of place. Place dignity is understood as a multidimensional construct emerging from the interaction of cultural, physical–environmental, social, perceptual, functional, and economic components, through which place identity is redefined and the regeneration of urban fabrics is facilitated [9]. Studies indicate that physical factors such as texture, decoration, color, odor, and sound, together with identity and visual variety, play a fundamental role in creating a sense of place in historical buildings, facilitating the redefinition of place identity and strengthening human–place connections [10].

The present study addresses this gap by proposing an analytical framework that integrates Herdeg's semantic axes with the multidimensional construct of place identity. The theoretical justification for adopting Herdeg's formalist framework lies in its capacity to reveal the symbolic and geometric meanings embedded in architectural form—elements that methods such as Space Syntax or typological analysis tend to overlook. While those methods primarily quantify spatial configuration or functional hierarchy, Herdeg's approach captures the qualitative essence of form as a mediator between structure, culture, and meaning. This makes it particularly suitable for interpreting Iranian–Islamic architectural contexts, where geometry and spirituality are intertwined in generating spatial identity. Accordingly, this research aims to reinterpret the relationship between form structure and place identity through the lens of Herdeg's semantic axes in the saras and caravanserais of the historical Bazaar of Qazvin. The study pursues the following research questions:



How do the semantic axes of form structure (central-functional, symmetry-interaction, visual, movement-access, spiritual, horizontal-vertical, and spatial-connecting) influence the physical, social, and perceptual dimensions of place identity?

To what extent do variations in spatial scale and functional hierarchy—between large caravanserais such as Sa'd al-Saltaneh and smaller saras such as Haj Reza—affect the intensity of place attachment, territoriality, and visual sensitivity?

Can Herdeg's semantic axes provide a replicable analytical framework for examining the relationship between spatial form and place identity in other Iranian-Islamic bazaars?

A review of relevant literature ([Table 1](#)) indicates that place identity is shaped by an interplay of physical, functional, and semantic dimensions, rooted in personal and collective experiences [[11](#), [12](#), [13](#), [14](#), [15](#), [16](#), [17](#), [18](#), [19](#)]. At the same time, morphological analyses emphasize geometric proportions and formal order as essential determinants of coherence and meaning [[20](#), [21](#), [22](#), [23](#), [24](#), [25](#)]. By synthesizing these two perspectives, the present research contributes to bridging the gap between form and meaning in architectural identity studies. Thus, the Qazvin Bazaar serves not merely as a historical site but as a living model of the interplay between spatial geometry and cultural symbolism. Exploring its saras and caravanserais through Herdeg's semantic framework enables a re-identification of spatial form as a vessel of collective memory and identity—highlighting the relevance of traditional morphology for contemporary urban planning and the preservation of cultural heritage.

Table 1. Review and Analysis of Studies and Research Related to Place Identity and Morphological Structure

NO	Author(s) and Year	Article/Book/Thesis Title	Results
1	Proshansky et al (1970)	Environmental Psychology: Human and Socio-Physical Environment	Introduction of the concept of place identity; emphasis on individuals' perceptions, emotions, and values in relation to the environment [1].
2	Rezazadeh (2006)	Psychological and sociological approach to spatial identity in new cities	Place identity is formed based on its distinguishability from other spaces [26].
3	Gifford (2002)	Environmental Psychology: Principles and Practice	Place identity is an interdisciplinary subject that explains the human-environment relationship [2].
4	Peng et al (2020)	Place identity: How far have we come in exploring its meanings?	Place identity encompasses personal, collective, physical, and symbolic dimensions [3].
5	Ebrahimi Mojarad (2021)	Modeling Factors Influencing Place Identity Formation in Residential Neighborhoods (Case Study: Sepahshahr Neighborhood, Qazvin)	Physical, psychological, and socio-cultural dimensions influence place identity in residential neighborhoods [4].
6	Abi Zadeh (2018)	Investigating Factors Influencing the Sense of	Tabriz Bazaar is an example of a space with social and cultural identity [27].

		Place in the Historic Bazaar of Tabriz Towards Semantic and Heritage Conservation	
7	Changizi (2020)	Identity in Architecture (The Role of Women in Shaping the Identity of Iranian House Architecture)	The role of women in shaping the identity of Iranian houses; linking identity with culture [28].
8	Kianfar (2020)	Principles of Open Space Design in Residential Complexes for Achieving Residents' Emotional Presence	Spatial and psychological factors are important in creating a sense of place in residential complexes [29].
9	Rollero & De Piccoli, (2010)	Place attachment, identification and environment perception: An empirical study	Place identity enhances quality of life and social interactions [30].
10	Soini et al (2012)	Residents' Sense of Place and Landscape Perceptions at the RuralUrban Interface	Social and physical factors increase place attachment [31].
11	Ghahremanpour et al (2020)	Examining and Measuring Criteria Influencing the Physical Identity of Urban Street Facades (Case Study: Hafez Street, Shiraz)	Direct relationship among place identity, place attachment, and social participation [32].
12	Durand & Good (1974)	The Structure of Form: Principles of Environmental Psychology	Analysis of morphological structure using a formalist approach with attention to architectural history [33].
13	Krier (2007)	Morphology of Urban Spaces	Study of urban space morphology and the link between form and society [5].
14	Herdeg (1997)	Formal Structure in Islamic Iranian and Turkestan Architecture	Physical and social layers play a fundamental role in Islamic architecture [8].
15	Norberg (2014)	Architecture, Meaning, and Place	Architecture reflects the culture and spirituality of society[34].
16	Hosseinian (2023)	Identifying and Explaining Geometry and Architectural Function of Safavid- era Naqsh-e Jahan Square and Surrounding Buildings (Formalist Perspective)	Geometric analysis of Naqsh-e Jahan Square using base and layered patterns [6].
17	Sabetfard (2020)	Study of Geometric Generative Structure in	Geometric generative structures, like language, determine spatial organization [35].

		Traditional Iranian Architecture	
18	Adeli (2021)	Explaining Form in Architecture	Cohesion and flexibility are criteria for “good form” in architecture [36].
19	Jalali et al (2021)	Analyzing the Role of Coherence and Spatial Continuity in the Geometric Structure of Traditional Iranian Bazaars (Case Study: Tabriz Bazaar)	Analysis of morphological structure using a formalist approach with attention to architectural history [7].
20	Silvaye et al (2012)	Geometry in Pre-Islamic Iranian Architecture and Its Manifestation in Contemporary Iranian Architecture	Study of urban space morphology and the link between form and society [37].

Materials and Methods

This research adopts a hybrid qualitative–quantitative methodology to analyze the interrelations among the seven structural–semantic axes of spatial organization and the three core dimensions of Place Identity within the historical Bazaar of Qazvin. The methodological framework was designed to balance the interpretive depth of phenomenological inquiry with the analytical precision of architectural morphology, thereby revealing the multi-layered relationship between form, meaning, and identity in traditional Iranian urban fabrics. The study specifically investigates how the semantic axes of spatial form—comprising the Central–Functional, Symmetry–Interaction, Visual, Movement–Access, Spiritual, Horizontal–Vertical, and Spatial–Connecting dimensions—influence the physical, social, and perceptual components of place identity. It further examines how variations in spatial scale and functional hierarchy between large caravanserais such as Sa’d al-Saltaneh and smaller saras such as Haj Reza affect the intensity of place attachment, territoriality, and visual sensitivity, and whether Herdeg’s semantic framework can serve as a replicable analytical model for interpreting other Iranian–Islamic bazaars. A directed qualitative content analysis was first employed to construct the theoretical foundation of the study. This analytical phase was informed by Herdeg’s (1997) formalist perspective, which emphasizes the symbolic and geometric meaning embedded in architectural form, and by the multidimensional conceptualization of Place Identity articulated by Proshansky et al. (1970), Relph (2008), and Peng et al. (2020). The coding framework was developed deductively, based on these theoretical sources, and was validated through iterative cross-checking and expert review to ensure conceptual coherence and analytical reliability. The process included establishing coding units corresponding to each of the seven semantic axes and mapping them onto three dimensions of Place Identity: Social Interactions, Spatial Realm, and Visual Sensitivity. The empirical phase of the research focused on nine case studies within the Qazvin Bazaar, selected through a purposive sampling strategy designed to capture maximum variation in architectural typology, spatial scale, and functional hierarchy. The selected examples—Sa’d al-Saltaneh, Beheshti, Panbe, Dalan Deraz, Shali, Zarrabkhaneh, Razavi, Haj Reza, and Vazir—represent the spectrum of structural and functional diversity across the bazaar. Architectural plans for all cases were obtained from the Iranian Cultural Heritage, Handicrafts, and Tourism Organization (ICHHTO). These plans, which are archival records of the original documentation and preservation surveys, were verified through on-site observations and photographic cross-referencing to ensure data accuracy. All spatial drawings were redrafted and

standardized using AutoCAD software to establish geometric consistency and analytical comparability across cases. Each case was examined through a qualitative–morphological procedure that combined visual-spatial analysis, typological mapping, and interpretive reading of symbolic meanings. The analysis of each spatial unit involved evaluating plan composition, geometric hierarchy, circulation patterns, and their semantic correspondence to Herdeg’s axes. The assessment of Place Identity was conducted through the examination of three core dimensions: Social Interactions, which encompassed functional–spatial, perceptual–legibility, and behavioral–normative indicators; Spatial Realm, including psychological–perceptual, socio–cultural, and physical–enclosure aspects; and Visual Sensitivity, which consisted of formal–morphological, spatial–perceptual, and aesthetic–experiential parameters. Operational definitions were developed for each subcomponent to ensure transparency and replicability in the coding and interpretation processes. A comparative analytical synthesis was then conducted across all nine cases using a cross-case matrix, which enabled systematic comparison of spatial structures and semantic relations. This matrix integrated qualitative ratings derived from morphological interpretation with spatial data extracted from AutoCAD analyses. The procedure allowed for the identification of recurring patterns of spatial coherence, symmetry, and connectivity, as well as distinctive deviations that revealed the unique spatial identity of each bazaar complex. The concepts of “spatial coherence” and “purposeful organization” were operationalized through measurable qualitative indicators—such as proportional harmony, spatial hierarchy, and functional continuity—to maintain consistency in interpretation across the dataset. To ensure methodological rigor, a triangulated validation approach was adopted, integrating spatial modeling, phenomenological interpretation, and comparative synthesis. This combination reinforced both empirical precision and conceptual depth, grounding the analysis in verifiable data while preserving the cultural and symbolic nuances of Iranian–Islamic architecture. The Qazvin Bazaar was selected not only for its representational diversity but also because it uniquely integrates both regular and organic spatial morphologies, providing an ideal context for testing Herdeg’s formal–semantic framework in relation to the lived experience of place. By merging morphological–spatial analysis with interpretive–content evaluation, this study proposes a systematic and replicable model for investigating the dynamic interplay between architectural form and Place Identity within traditional Iranian–Islamic contexts. While the findings aim to establish a generalizable analytical structure, the limitations of cultural specificity and morphological uniqueness are acknowledged. Thus, this methodological model serves as a foundation for both theoretical advancement and comparative research in the domains of architectural morphology, spatial identity, and cultural heritage studies.

[Figure 1](#). Conceptual Model of the Influence of Form Structure from Herdeg’s Perspective on Place Identity in the Saras and Caravanserais of the Qazvin Bazaar

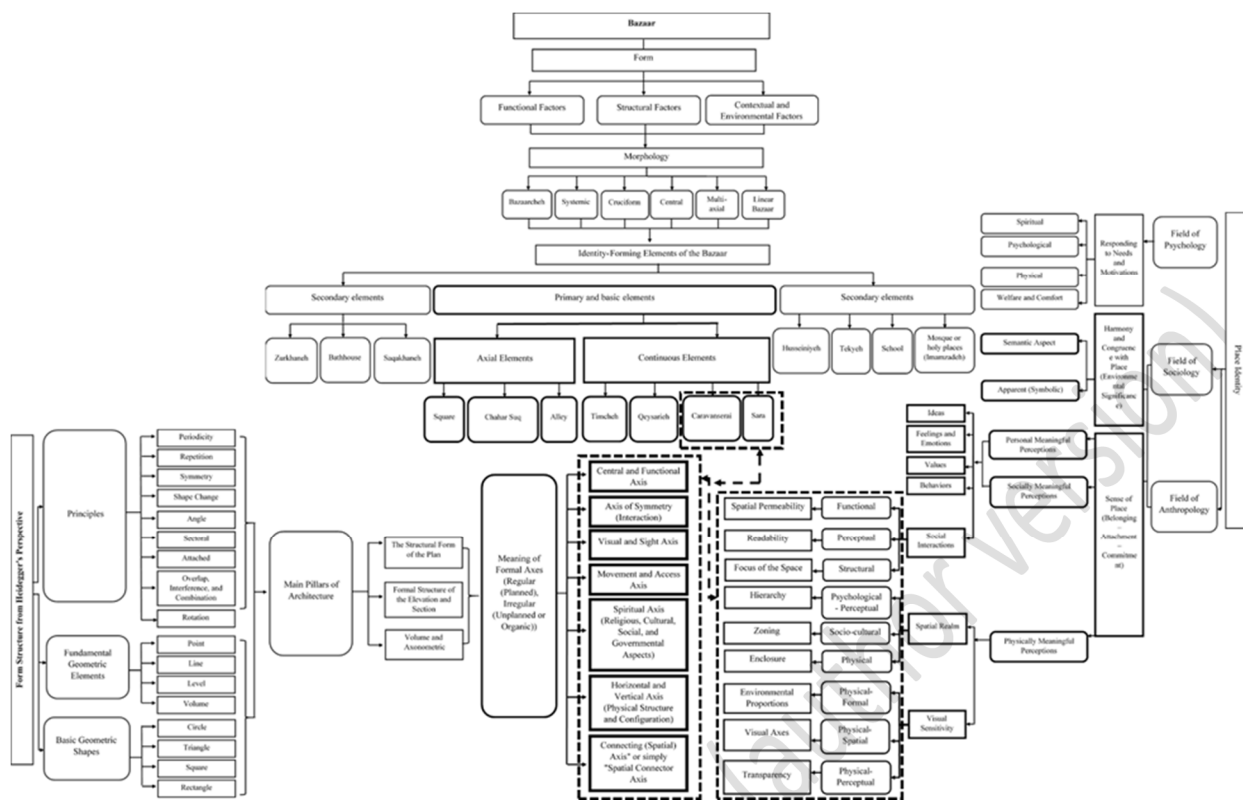


Figure 1 Conceptual Model of the Influence of Form Structure from Herd's Perspective on Place Identity in the Saras and Caravanserais of the Qazvin Bazaar.

Results, Discussion, and Interpretation

The analysis of the Qazvin Bazaar was conducted within the framework established by the methodological design, focusing on the three core dimensions of Place Identity—Social Interactions, Spatial Realm, and Visual Sensitivity. The evaluation employed the seven structural–semantic axes—Central–Functional, Symmetry–Interaction, Visual, Movement–Access, Spiritual, Horizontal–Vertical, and Spatial–Connecting—as the analytical basis for examining spatial organization and functional relationships. The study specifically compares the two principal spatial typologies within the bazaar: saras and caravanserais. Saras typically operate as more confined, guild-centered spaces, whereas caravanserais, due to their larger scale and integrative spatial networks, contribute more extensively to the economic, social, and spatial fabric of the bazaar. To ensure systematic and transparent assessment, qualitative ratings in the summary tables (e.g., Table 12) were assigned based on a defined rubric derived from the operational definitions established in the methodology. Indicators of Social Interactions, Spatial Realm, and Visual Sensitivity were evaluated for each case study on a scale of “low,” “moderate,” and “high,” grounded in observable morphological features, circulation patterns, spatial connectivity, and the functional intensity of activities. This procedure provides replicable criteria and mitigates subjectivity in comparative analysis. While some aspects of phenomenological interpretation were informed by Heideggerian concepts of dwelling (Dasein and the embodied experience of place), these were explicitly translated into observable spatial indicators within the bazaar environment. For instance, Dasein informed the evaluation of how social practices and movement patterns contribute to the sense of occupation and inhabitation in both saras and

caravanserais. Similarly, the notion of dwelling guided the assessment of spatial coherence and the perceptual engagement of users with the architectural form. This approach integrates Heidegger's insights as an interpretive lens, grounded in the physical and functional characteristics of the bazaar, rather than relying on purely abstract philosophical discourse. All descriptive statements have been revised to use precise, objective language. Terms such as "distinguished" have been replaced with contextually accurate descriptions, emphasizing measurable or observable criteria (e.g., "representative examples of traditional Iranian bazaar architecture") supported by references to prior morphological studies. This ensures that the discussion maintains academic rigor while conveying the significance of spatial and functional differentiation between saras and caravanserais.

3.1. Comparative Analysis of Saras and Caravanserais

The comparative analysis of saras and caravanserais within the Qazvin Bazaar reveals that while both typologies share foundational architectural features, they fulfill distinct functional and social roles within the bazaar's spatial network. Saras generally exhibit a single-centered configuration, with a central courtyard functioning as the focal point for guild-related gatherings and activities. This spatial organization restricts the social realm to members of specific guilds and limits the diversity of interactions. In contrast, caravanserais display multi-centered and networked configurations, characterized by larger courtyards, a distributed arrangement of hojrehs, iwans, and multiple access points, which systematically facilitate multifunctional uses and broader social engagement. From the perspective of Spatial Realm, saras primarily serve as guild-oriented domains, structuring activities around specialized economic groups, whereas caravanserais, due to their spatial capacity, structural complexity, and connectivity to multiple rastehs, function as integrative nodes linking local trade with regional commerce and fostering diverse social interactions. Visual Sensitivity was assessed based on the scale of courtyards, rhythmic patterns of hojrehs, and the extent of longitudinal and transversal views. Saras, with smaller courtyards and uniform hojreh arrangements, produce compact and orderly visual experiences, whereas caravanserais, with larger courtyards, multilayered visual axes, and more pronounced central nodes, generate a multilayered spatial presence and enhance perceptual engagement. To ensure systematic evaluation and avoid subjective interpretation, the comparative ratings reported in Table 2 were derived from predefined operational criteria established in the methodology. Each structural axis was assessed using observable indicators: spatial extent, connectivity, functional distribution, and morphological hierarchy. For example, "greater" visual reach refers to the measured length and intervisibility of longitudinal and transversal axes within the courtyard; "broader" functional scope is grounded in the number of activities or guilds accommodated; and "richer" social interaction corresponds to the density and diversity of user groups observed in both saras and caravanserais.

Table 2. Comparative Analysis of Saras and Caravanserais in the Qazvin Bazaar Based on Structural Axes and Place Identity Components

Structural Axis	Saras (Features)	Caravanserais (Features)	Implications for Place Identity
Central and Functional Axis	Predominantly single-centered or simple linear; centrality defined by small courtyards or dalan	Multi-centered and networked; centrality distributed across several courtyards or sequential spaces	Greater intensity of interactions in caravanserais compared to saras; broader functional scope

Axis of Symmetry (Interaction)	Relative or absent symmetry in many saras; emphasis on limited functionality	Precise and multilayered symmetry in courtyards and entrances	Caravanserais generate greater cohesion and readability; saras remain primarily functional
Visual Axis	Short, sectional views confined to entrances and small courtyards	Extended longitudinal–transversal views within large courtyards and deep <i>dalans</i>	Caravanserais, through expansive views, enhance transparency and a sense of spatial grandeur
Movement and Access Axis	Simple, direct, sometimes one-way circulation; limited access to <i>hojrehs</i>	Networked or multi-axial circulation; access to <i>hojrehs</i> , warehouses, and multiple entrances	Greater diversity of movement in caravanserais increases socio-economic permeability
Spiritual Axis (Religious–Social–Cultural)	Less prominent; primarily commercial or guild-oriented functions	More pronounced; integration with religious, governmental, or cultural activities (e.g., <i>Sa’ d al-Saltaneh</i>)	Caravanserais possess higher capacity for fostering social and cultural interactions
Horizontal and Vertical Axis (Physical Structure and Configuration)	Simple, horizontal, single- or mezzanine-level structures; emphasis on horizontality	Development across multiple levels (basement, upper floors); horizontal–vertical integration	Caravanserais embody richer spatial qualities; saras remain confined to specialized, rapid functions
Spatial Connector Axis	Limited linkage to one or two <i>rastehs</i> ; intermediary role at a micro-scale	Multiple connections to <i>rastehs</i> and the bazaar network; intermediary role at a macro-scale	Saras operate as specialized units; caravanserais function as nodal connectors within the bazaar network

In conclusion, the saras and caravanserais function as complementary spatial typologies within the Qazvin Bazaar. Saras, through their focused Guild Identity and compact architectural configuration, structure specialized economic activities. Caravanserais, through multi-centered, networked, and hierarchically organized

spaces, act as integrative nodes that support both local and regional commerce and promote extensive social interactions, while providing a more complex and perceptually rich spatial experience.

3.2.1. Sa’ d al-Saltaneh Caravanserai

Sa’ d al-Saltaneh Caravanserai, the largest caravanserai in Qazvin in terms of total built area (approximately 12335.6866 m²) and number of courtyards (6 main courtyards), exhibits a complex, multi-centered structure that integrates saras, *timchehs*, and *chahar suqs*. Spatial analysis indicates that its central and peripheral courtyards, along with the arrangement of *hojrehs* and multiple entrances, facilitate a wide range of social and economic interactions, supporting both guild-based activities and broader community engagement. Historical records and prior studies (e.g., [insert citation]) further corroborate its role as a hub for commercial, cultural, and social exchange within the

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city. The detailed examination of these structural axes and their implications for social interactions, spatial realm, and visual sensitivity are further analyzed in Table 3.

Table 3. Seven-Axis Interpretation of the Form Structure and Place Identity Implications of Sa'd al-Saltaneh Caravanserai

Structural Axis	Dominant Plan Evidence & Geometric Principles	Implications for Social Interactions	Implications for Spatial Realm	Implications for Visual Sensitivity
Central and Functional Axis	Sequential multi-courtyards with dominant longitudinal orientation; functional distribution of Trade/Warehousing/Hospitality; repetition of entrances and periodic Hojreh	Very high Spatial Permeability due to multiple entrances; network readability; strong social nodes in each courtyard	Hierarchy of Entrance → Hashti/Dalan → Courtyard → Iwan → Hojreh; zoning from micro to macro; regulated Enclosure	Carefully measured rectangular proportions; extended views along main axes; movement transparency along courtyard edges
Axis of Symmetry (Interaction)	Local Symmetry in each courtyard; symmetry axes at entrances and Iwans; modular regularity of openings	Enhances readability and ease of orientation; formalization of gathering spaces	Stabilizes hierarchy and clarifies functional boundaries	Balanced proportions and rhythmic framing; visual calmness
Visual Axis	Longitudinal sight corridors around courtyards; Chahar Suq-like openings at nodes	Formation of pause/display points; increased social pause time	Clarifies semi-private spatial boundaries	Sequential framing, open Isovists; deep perception of scale
Movement and Access Axis	Multi-directional connection to main Rastehs; network of connecting Dalans; controlled angular breaks	Continuous circulation with possibility of pause and movement; very high Spatial Permeability	Multi-layered movement hierarchy; controlled access to inner zones	Continuity of sight–movement; path readability
Spiritual Axis (Religious/Social/Governmental Aspects)	Urban centrality and historical role in rituals/governance; adjacency to symbolic market spaces	Ability to host events; increases the symbolic capital of the place	Legitimizes public–semi-private spatial realms	Enhances visual Dignity through order and proportion

Horizontal and Vertical Axis (Physical Structure and Configuration)	Riwaq belts around courtyards; vertical layers (possibly two floors/warehouses); measured solid-void ratios	Increases occupancy/exchange capacity; climatic modulation in Riwaqs	Strong yet permeable Enclosure; precise spatial framing	Vertical rhythm of openings; emphasis on courtyard periphery
Spatial Connector Axis	Hashtis and interwoven Dalans linking courtyards; direct connections to Rastehs and possibly Qeysarieh	Network cohesion; strengthens interaction across diverse zones	Multiple, layered thresholds; gradual boundary delineation	Gradual changes in light/scale; boundary readability
<p>Note:</p> <ul style="list-style-type: none"> -The Visual, Movement, and Central Axes overlap with one another. -The Hachured Space represents Private and Semi-private Territories, while the courtyards constitute Public Territory. -The Connecting (Spatial) Axis has spatial connections to the Carpenter's (Najjarha) Rasteh and Imam Khomeini Street. -The Spiritual Axis is established due to proximity to Masjid al-Nabi and Razavi Bathhouse. <p>The Horizontal Axis measures 134.68 m, while the Vertical Axis measures 8.15 m.</p>				

As the table indicates, spatial diversity, extensive visual axes, and the structural hierarchy have endowed Sa'd al-Saltaneh Caravanserai with a unique position in the Place Identity of Qazvin Bazaar.

3.2.2. Beheshti Caravanserai

Beheshti Caravanserai, with its single-centered organization and central courtyard, provides a spatial configuration that enhances readability and supports coherent Social Interactions at the local scale. The courtyard layout, along with the proportional arrangement of surrounding Riwaqs, generates a contained and orderly spatial experience, guiding movement flows while maintaining the character of the local Place Identity. A systematic analysis of the structural axes and their effects on social interactions, spatial organization, and visual perception is presented in Table 4.

Table 4. Seven-Axis Interpretation of the Form Structure and Place Identity Implications of Beheshti Caravanserai

Structural Axis	Dominant Plan Evidence & Geometric Principles	Implications for Social Interactions	Implications for Spatial Realm	Implications for Visual Sensitivity
Central and Functional Axis	Single central courtyard with surrounding	Medium permeability; congregation	Clear but small-scale hierarchy	Simple and legible proportions

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	Riwaq; limited elongation	around the single focus		
Axis of Symmetry (Interaction)	Relatively imprecise symmetry on both sides of the courtyard	Enhanced readability of orientations	Stabilization of simple functional boundaries	Visual calmness from symmetrical order
Visual Axis	Short- medium views toward the courtyard center; peripheral framing	Pause in the center; localized interaction	Clear display of the courtyard	Controlled visual transparency
Movement and Access Axis	One or two main entrances; short circulation paths	More limited movement flow	Effective control of access	Clear linear readability
Spiritual Axis (Religious/Social/Governmental Aspects)	Local symbolic role (less than Sa'd al- Saltaneh)	Neighborhood -scale social interactions	Stable local identity	Visual dignity derived from simplicity
Horizontal and Vertical Axis (Physical Structure and Configuration)	Predominantly horizontal configuration; possible half- level	Adequate capacity for specialized activities	Mild enclosure	Proportional rhythm of openings
Spatial Connector Axis	Limited connection to a single main Rasteh	Specialized interactions / controlled visitors	Controlled territorial boundaries	Smooth transition from Rasteh to courtyard

Note:

- The Visual, Movement, and Central Axes overlap with each other.
- The hachured spaces represent Private and Semi-private Territory, while the courtyards constitute Public Territory.
- The Connecting (Spatial) Axis maintains spatial linkage with the Carpenter's (Najjarha) Rasteh and Imam Khomeini Street.
- The Spiritual Axis is defined due to proximity to Masjid al-Nabi, Mulla Aqa Masque, and Razavi Bathhouse.



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-The Horizontal Axis measures 57.47 meters, and the Vertical Axis measures 5.20 meters.	
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Beheshti Caravanserai, with its single-courtyard organization and short hierarchical structure, creates a contained and coherent space that directs movement flows and reinforces local Social Interactions. The regular rhythm of the Riwaqs and the measured proportions of the courtyard generate a calm and dignified spatial experience, exemplifying principles of human-scale architectural clarity without invoking undefined or non-standard terminology.

3.2.3. Dalan Deraz Caravanserai

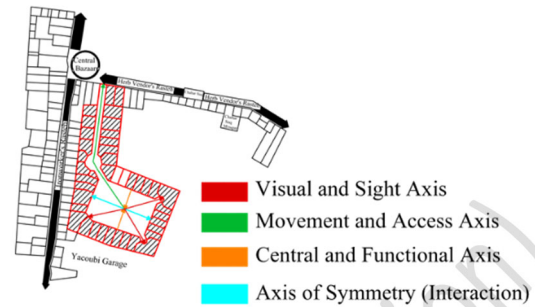
Dalan Deraz Caravanserai, with its single-axial organization and extended passage, concentrates movement flows and Social Interactions, creating a longitudinal Visual Pull. The repetition of Hojreh openings and the contained Physical Enclosure generate a coherent and controlled space, reinforcing collective Place Identity at the human scale. The following [Table 5](#) presents a detailed seven-axis interpretation of the form structure and its implications for social interactions, spatial organization, and visual sensitivity within the Dalan Deraz Caravanserai.

Table 5. Seven-Axis Interpretation of the Form Structure and Place Identity Implications of Dalan Deraz Caravanserai

Structural Axis	Dominant Plan Evidence & Geometric Principles	Implications for Social Interactions	Implications for Spatial Realm	Implications for Visual Sensitivity
Central and Functional Axis	Longitudinal Dalan with two-sided Hojrehs	Linear permeability; interaction limited to the passage	Linear hierarchy	Elongated proportions
Axis of Symmetry (Interaction)	Symmetry on both sides of the Dalan	Clear Readability	Precise demarcation of Hojrehs	Regular rhythm
Visual Axis	Continuous longitudinal view	Passage Interaction	Open boundary	Extended Visual Pull
Movement and Access Axis	Main movement flow along the Dalan	High Spatial Permeability	Controlled at both ends	Complete path Readability
Spiritual Axis (Religious/Social/Governmental Aspects)	Local/Guild role	Limited interaction	Guild Identity	Lacking Grandeur
Horizontal and Vertical Axis (Physical Structure and Configuration)	Single-storey Dalan	Linear capacity	Strong Enclosure	Elongated sight lines
Spatial Connector Axis	Connection to two alleys	Passage-level interaction	Linear boundary	Elongated proportions

Note:

- The Visual, Movement, and Central Axes overlap with one another.
- The hachured space corresponds to Private and Semi-private Territory, while the courtyards represent Public Territory.
- The Connecting (Spatial) Axis has spatial links with the Ironworker's (Ahanggarha) Rasteh and the Herb Vendor's (Attarha) Rasteh.
- The Spiritual Axis is defined by proximity to the Chahar Suq Mosque and the Central Bazaar.
- The Horizontal Axis measures 54.43 meters, and the Vertical Axis measures 5.20 meters.



The Dalan Deraz Caravanserai, relying on a continuous longitudinal axis and the linear rhythm of Hojrehs, establishes clear readability and orientation but remains limited in terms of social focus and spatial hierarchy. This structure, with high movement permeability and linear enclosure, produces a controlled interaction and a uniform yet cohesive experiential quality.

3.2.4. Shali Caravanserai

The Shali Caravanserai, with its spacious courtyard and guild-based organization, concentrates social interactions around textile production and trade activities and establishes high spatial order and readability. Its relative symmetry, limited visual axes, and connections to the Rastehs create a calm, cohesive experience that is proportionate to human scale and reinforces professional (guild) identity. The subsequent [Table 6](#) provides a comprehensive seven-axis analysis of the Shali Caravanserai, detailing the interplay between its form structure and the implications for social interactions, spatial configuration, and visual perception.

Table 6. Seven-Axis Interpretation of the Form Structure and Place Identity Implications of Shali Caravanserai

Structural Axis	Dominant Plan Evidence & Geometric Principles	Implications for Social Interactions	Implications for Spatial Realm	Implications for Visual Sensitivity
Central and Functional Axis	Large courtyard with surrounding Hojrehs	Guild gatherings / Textile exchange	Entrance–Courtyard hierarchy	Balanced proportions
Axis of Symmetry (Interaction)	Nearly symmetrical courtyard	High readability	Spatial orderliness	Sense of calm
Visual Axis	Views toward center and periphery	Pause and interaction	Clear boundary	Courtyard framing

Movement and Access Axis	Circulation path around the courtyard	High permeability	Controlled at gateways	Path clarity
Spiritual Axis (Religious/Social/Governmental Aspects)	Guild identity (Shawl and textile trade)	Interaction limited to guild	Consolidation of professional identity	Lacking religious grandeur
Horizontal and Vertical Axis (Physical Structure and Configuration)	Single-story, horizontal	Adequate capacity	Moderate enclosure	Simple massing
Spatial Connector Axis	Connection to Rastehs	Bazaar–Sara interaction	Semi-private boundary	Transition to bazaar
<p>Note:</p> <ul style="list-style-type: none"> - The visual, movement, and central axes overlap with each other. -The hachured spaces correspond to Private, Semi-private, and Public Territories, while the courtyards represent public space. -The connecting (spatial) axis has a spatial connection with the Ironworker’s Rasteh. -The spiritual axis is established due to proximity to the Yacoubi Garage. -The horizontal axis measures 50.11 m and the vertical axis measures 4.20 m. 				

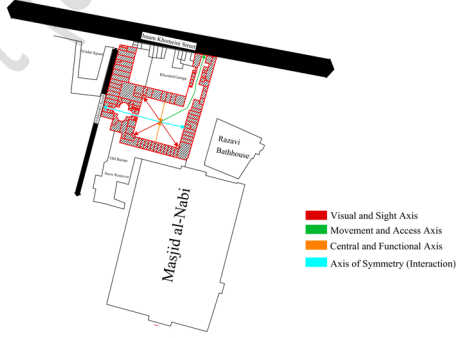
Shali Caravanserai, with its courtyard-based structure and precise symmetry, organizes social interactions around commercial activities and textile exchange and enhances spatial readability. Clear boundaries, understandable hierarchy, and balanced proportions establish a sense of spatial allocation and environmental clarity.

3.2.5. Panbe Sara

Panbe Sara, with its single-centered structure and limited entrance, organizes guild interactions around the courtyard while preserving spatial readability and internal focus of the space. Short hierarchy, balanced enclosure, and simple framing concentrate the place identity on guild functions. The following [Table 7](#) presents a detailed seven-axis evaluation of Panbe Sara, highlighting how its structural characteristics inform social interactions, spatial organization, and visual perception within the guild-oriented context.

Table 7. Seven-Axis Interpretation of the Form Structure and Place Identity Implications of Panbe Sara

Structural Axis	Dominant Plan Evidence & Geometric Principles	Implications for Social Interactions	Implications for Spatial Realm	Implications for Visual Sensitivity

Central and Functional Axis	Simple proportions	Limited gatherings, mostly guild-related	Short hierarchy	Simple proportions
Axis of Symmetry (Interaction)	Relative calm	Medium readability	Consolidation of guild functions	Relative calm
Visual Axis	Simple framing	Axial pause	Clear boundary	Simple framing
Movement and Access Axis	Path clarity	Limited circulation	Controllable	Path clarity
Spiritual Axis (Religious/Social/Governmental Aspects)	Simple, lacking grandeur	Limited interactions	Functional identity	Simple, lacking grandeur
Horizontal and Vertical Axis (Physical Structure and Configuration)	Uniform rhythm	Limited capacity	Mild enclosure	Uniform rhythm
Spatial Connector Axis	Direct connection	Localized interaction	Clear boundary	Direct connection
<p>Note:</p> <ul style="list-style-type: none"> -The Visual, Movement, and Central Axes overlap with each other. -The hachured spaces correspond to Private, Semi-private, and Courtyard Territories, while the courtyards represent Public Territory. -The Spatial Connector Axis is linked to the Goldsmith's (Zargarha) Rasteh and Imam Khomeini Street. -The Spiritual Axis is defined by the proximity to Masjid al-Nabi, Razavi Bathhouse, Sa'adat Square, and the Old Bazaar. -The Horizontal Axis measures 79.85 m and the Vertical Axis measures 5.49 m. 				

This table illustrates how the different caravanserai structures, from the Central and Symmetry Axes to the Movement and Visual Axes, shape social interactions, the spatial realm, and visual experience. Overall, geometric simplicity and defined framing foster spatial coherence, controllability of flows, and the concentration of guild activities, emphasizing place identity through functional performance and human-scale proportions.

3.2.6. Zarrabkhaneh Sara

Zarrabkhaneh Sara exhibits a clearly defined spatial hierarchy within an enclosed architectural realm, creating a controlled and structured spatial experience. Its distinct identity is primarily associated with institutional authority, reflecting its historical function and organizational role within the bazaar network. [Table 8](#) below provides a comprehensive seven-axis analysis of Zarrabkhaneh Sara, illustrating how each structural dimension influences social interactions, spatial organization, and

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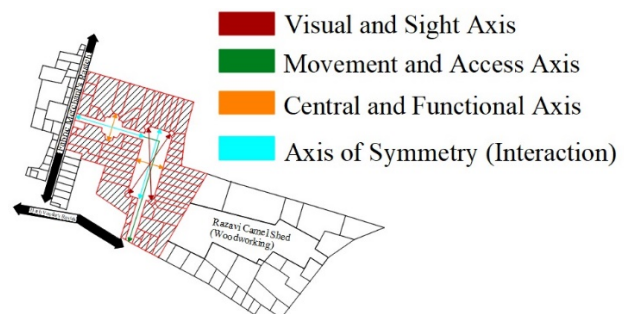
visual perception, thereby reinforcing its institutional and functional identity within the historical bazaar.

Table 8. Seven-Axis Interpretation of the Form Structure and Place Identity Implications of Zarrabkhaneh Sara

Structural Axis	Dominant Plan Evidence & Geometric Principles	Implications for Social Interactions	Implications for Spatial Realm	Implications for Visual Sensitivity
Central and Functional Axis	Courtyard with specific function (Zarrabkhaneh)	Limited gathering, mostly functional	Stricter hierarchy	Simple proportions
Axis of Symmetry (Interaction)	Relative	Moderate readability	Limited spatial order	Relative clarity
Visual Axis	View toward the center	Minimal interaction	High enclosure	Simple framing
Movement and Access Axis	Controlled, limited entry	Low spatial permeability	Strong demarcation	Relative clarity
Spiritual Axis (Religious/Social/Governmental Aspects)	Economic/Governmental importance	Limited social interaction	Institutional identity	Functional heaviness
Horizontal and Vertical Axis (Physical Structure and Configuration)	Single-story	Limited capacity	Strong enclosure	Closed volume
Spatial Connector Axis	Minimal connection to the bazaar	Limited interaction	Hard demarcation	Relative separation

Note:

- The visual, movement, and central axes overlap with each other.
- The hachured space corresponds to private and semi-private territories, while courtyards represent public territory.
- The connecting (spatial) axis interacts spatially with the Fabric Merchants' (Rasteh) and Herb Vendors' (Rasteh).
- The spiritual axis is defined due to its proximity to the Razavi Camel Shed (Woodworking).
- The horizontal axis measures 52.27 meters, and the vertical axis measures 4.60 meters.



The Zarrabkhaneh Sara, with its courtyard and limited functional hierarchy, creates an enclosed and bounded space, where social interactions and spatial permeability are low, and the spatial realm is

strictly controlled by clear boundaries. Due to its institutional and economic significance, this space possesses a strong institutional identity, yet it remains limited in terms of visual sensitivity and social interactions, with minimal spatial connectivity to the main bazaar.

3.2.7. Razavi Sara

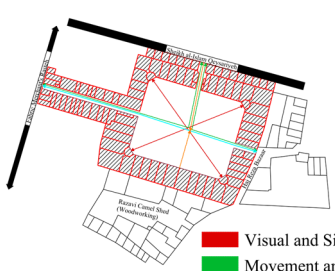
The Razavi Sara, with its simple courtyard-based structure, facilitates organized guild interactions and establishes a short yet legible spatial realm with clear visual transparency. [Table 9](#) presents a detailed seven-axis evaluation of Razavi Sara, highlighting how each structural and geometric aspect informs social interactions, spatial organization, and visual sensitivity, thereby reinforcing the guild-oriented identity and functional clarity of the space within the Qazvin Bazaar.

Table 9. Seven-Axis Interpretation of the Form Structure and Place Identity Implications of Razavi Sara

Structural Axis	Dominant Plan Evidence & Geometric Principles	Implications for Social Interactions	Implications for Spatial Realm	Implications for Visual Sensitivity
Central and Functional Axis	Medium courtyard with peripheral Hojrehs	Guild–Social Gathering	Short Hierarchy	Balanced Proportions
Axis of Symmetry (Interaction)	Symmetry in the surroundings	Good Readability	Spatial Order	Relative Clarity
Visual Axis	View toward the center	Pause and Interaction	Clear Boundaries	Balanced Visual Framing
Movement and Access Axis	Clear access from the Bazaar	Medium Permeability	Controllable	Route Clarity
Spiritual Axis (Religious/Social/Governmental Aspects)	Guild–Local	Profession-limited Interaction	Guild Identity	Lacking Grandeur
Horizontal and Vertical Axis (Physical Structure and Configuration)	Horizontal, single-storey	Limited Capacity	Medium Enclosure	Simple Volume
Spatial Connector Axis	Connection to Rastehs	Open Interaction	Semi-private Boundaries	Smooth Transition

Note:

- The visual, movement, and central axes overlap with each other.
- The hachured space corresponds to private and semi-private territories, while courtyards represent public territory.
- The connecting (spatial) axis interacts spatially with the Fabric Merchants' (Rasteh).
- The spiritual axis is defined due to its proximity to the Razavi Camel Shed (Woodworking) and the Sheikh al-Islam Qeysariyeh.
- The horizontal axis measures 96.87 meters, and the vertical axis measures 12.05 meters.



■ Visual and Sight Axis
■ Movement and Access Axis
■ Central and Functional Axis
■ Axis of Symmetry (Interaction)

The Medium Saras, with a central courtyard and peripheral Hojrehs, establish a guild–social gathering with a short hierarchy and balanced proportions, reinforcing limited professional interaction and

moderate guild identity. Clear access routes and medium spatial permeability, combined with balanced visual framing and semi-private boundaries, create a legible spatial realm and enable smooth interaction with the Bazaar.

3.2.8. Haj Reza Sara

Haj Reza Sara, as a small and low-capacity example in the Bazaar, primarily serves small-scale guild functions. Its social interactions and spatial realm are minimal, while its spatial enclosure is high. From a visual sensitivity perspective, it lacks distinctive features and merely represents the everyday guild functionality. [Table 10](#) provides a detailed seven-axis interpretation of Haj Reza Sara, illustrating how the structural and geometric elements influence social interactions, spatial organization, and visual sensitivity, thereby contextualizing the guild-focused place identity within the broader fabric of the Qazvin Bazaar.

Table 10. Seven-Axis Interpretation of the Form Structure and Place Identity Implications of Haj Reza Sara

Structural Axis	Dominant Plan Evidence & Geometric Principles	Implications for Social Interactions	Implications for Spatial Realm	Implications for Visual Sensitivity
Central and Functional Axis	Smaller courtyard, limited activity	Small-scale guild gathering	Short hierarchy	Simple proportions
Axis of Symmetry (Interaction)	Relative	Moderate readability	Limited order	Relative clarity
Visual Axis	View toward the center	Limited pause	Simple boundary	Conventional framing
Movement and Access Axis	Single access	Low spatial permeability	High control	Low clarity
Spiritual Axis (Religious/Social/Governmental Aspects)	Small-scale guild	Limited interaction	Weak guild identity	Lacking grandeur
Horizontal and Vertical Axis (Physical Structure and Configuration)	Single-storey	Low capacity	High enclosure	Simple volume
Spatial Connector Axis	Limited connection	Low interaction	Clear boundary	Minimal passage

Note:

- The visual, movement, and central axes overlap with each other.
- The hachured space corresponds to private and semi-private territories, while courtyards represent public territory.
- The Spatial Connector Axis maintains spatial linkage with the Haj Reza Bazaar.
- The Spiritual Axis emerges due to its proximity to the Razavi Camel Shed and the Haj Seyyed Javadi Mosque.
- The Horizontal Axis measures 70.30, while the Vertical Axis measures 8.10.

Legend:

- Visual and Sight Axis (Red)
- Movement and Access Axis (Green)
- Central and Functional Axis (Orange)
- Axis of Symmetry (Interaction) (Cyan)

This table demonstrates that the spatial structure of Haj Reza Sara, with its small courtyard and short hierarchy, is confined to small-scale guild functions, while social interactions within it remain relative and shallow. Its single access and low permeability, combined with high enclosure and a simple volume, create a limited and controlled spatial realm. Furthermore, the medium-level visual sensitivity and spatial readability, accompanied by relative clarity and clear boundaries, define its perceptual and functional character.

3.2.9. Vazir Sara

Vazir Sara, with its large courtyard, precise symmetry, and higher capacity, provides a space of prominent social interactions and an enhanced sense of place, where hierarchy and diverse zoning consolidate its place identity. The two-story proportions, regular visual framing, and visual transparency collectively establish this Sara as a distinguished example of the manifestation of harmony between form and identity. [Table 11](#) presents a comprehensive seven-axis analysis of Vazir Sara, detailing how its structural and geometric configurations influence social interactions, spatial organization, and visual perception, thereby reinforcing its distinguished place identity within the Qazvin Bazaar.

Table 11. Seven-Axis Interpretation of the Form Structure and Place Identity Implications of Vazir Sara

Structural Axis	Dominant Plan Evidence & Geometric Principles	Implications for Social Interactions	Implications for Spatial Realm	Implications for Visual Sensitivity
Central and Functional Axis	Larger courtyard, enhanced grandeur	More diverse gatherings	Clear hierarchy	Distinct proportions
Axis of Symmetry (Interaction)	Symmetrical courtyard	High readability	Spatial order	Strong clarity
Visual Axis	Views towards the center and façades	Pause and interaction	Clear boundaries	Strong framing
Movement and Access Axis	Multi-directional accessibility	High permeability	Balanced control	Path clarity
Spiritual Axis (Religious/Social/Governmental Aspects)	Elevated social identity	Broader interaction	Prominent guild status	Sense of grandeur
Horizontal and Vertical Axis (Physical Structure and Configuration)	Two-story divisions	Greater capacity	Balanced enclosure	Rich volumetric composition
Spatial Connector Axis	Connection to the main bazaar	Extensive interaction	Semi-private boundary	Smooth passage

<p>Note:</p> <ul style="list-style-type: none"> -The visual, movement, and central axes overlap with each other. -The hachured space corresponds to private and semi-private territories, while courtyards represent public territory. -The Spatial Connector Axis establishes spatial linkage with the Carpenter's (Najjarha) Rasteh. -The Spiritual Axis is formed due to its proximity to the Haj Seyyed Javadi Mosque. -The Horizontal Axis measures 54.96 and the Vertical Axis measures 8.78. 	
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Vazir Sara, with its spacious courtyard and clear hierarchy, generates an ordered and highly readable spatial structure that reinforces diverse gatherings and extensive social interactions. Its multi-directional access, high permeability, and strong visual framing, together with its two-story configuration and connection to the main bazaar, endow this Sara with a distinct identity, prominent guild status, and a pronounced sense of spatial grandeur. The subsequent [Table 12](#) provides a comprehensive comparative synthesis, illustrating the influence of the seven structural–semantic axes on Social Interactions, Spatial Realm, and Visual Sensitivity across all examined Sarays and Caravanserais in the Qazvin Bazaar, thereby enabling a systematic evaluation of their relative spatial and experiential significance.

Table 12. Macro Table of the Impact of Seven Axes on Social Interactions, Spatial Realm, and Visual Sensitivity of Qazvin Sarays and Caravanserais

Space / Axis	Social Interactions (Permeability, Readability, Focus)	Spatial Realm (Hierarchy, Zoning, Enclosure)	Visual Sensitivity (Proportions, Visual Axes, Transparency)
Sa'd al-Saltaneh Caravanserai	Central: Large courtyard as interaction core; Symmetry: Readable structural order; Visual: Open visual axes; Movement: Multi-directional access; Spiritual: Socio-economic position; Horizontal–Vertical: Two-story; Connector: Connection to Rastehs → Very strong interactions	Clear hierarchy (Entrance–Courtyard–Hojreh); Diverse guild zoning; Balanced enclosure	Strong symmetry; Wide visual axis; High Hojreh transparency; Distinct proportions
Beheshti Caravanserai	Central: Small guild courtyard; Symmetry: Limited; Visual: Short framed views; Movement: Limited access; Spiritual: Mainly economic; Horizontal–Vertical: Single layer; Connector: Simple connection → Moderate interaction	Short hierarchy; Limited zoning; Simple enclosure	Simple proportions; Short visual reach; Relative transparency
Dalan Deraz Caravanserai	Central: Guild gathering; Symmetry: Medium; Visual: Framed views; Movement: Limited access; Spiritual: Guild-economic; Horizontal–Vertical: Single layer; Connector: Connection to Bazaar → Moderate interaction	Simple hierarchy; Guild zoning; Controlled enclosure	Balanced proportions; Central view; Adequate transparency
Shali Caravanserai	Central: Lacking courtyard core; Symmetry: Minimal; Visual: Linear and elongated; Movement: Linear restrictive	Linear hierarchy; Minimal zoning; High enclosure	Linear view; Elongated

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	axis; Spiritual: Low; Horizontal–Vertical: Horizontal elongation; Connector: Transitional function → Weak–moderate interaction		proportions; Low transparency
Panbe Sara	Central: Relatively core courtyard; Symmetry: Moderate order; Visual: Balanced framing; Movement: Clear access; Spiritual: Guild-oriented; Horizontal–Vertical: Double front; Connector: Connection to Rasteh → Moderate–high interaction	Clear hierarchy; Clear zoning; Balanced enclosure	Good proportions; Central view; Moderate transparency
Zarrabkhaneh Sara	Central: Institutional economic role; Symmetry: Strong but authoritative; Visual: Limited; Movement: Strict control; Spiritual: Government–economic; Horizontal–Vertical: Rigid structure; Connector: Limited → Weak interaction	Rigid hierarchy; Institutional zoning; High enclosure	Heavy proportions; Limited view; Low transparency
Razavi Sara	Central: Small guild courtyard; Symmetry: Limited; Visual: Simple framing; Movement: Clear access; Spiritual: Guild; Horizontal–Vertical: Single layer; Connector: Simple connection → Moderate interaction	Short hierarchy; Guild zoning; Balanced enclosure	Simple proportions; Central view; Relative transparency
Haj Reza Sara	Central: Small space; Symmetry: Minimal; Visual: Limited; Movement: Low permeability; Spiritual: Local–guild; Horizontal–Vertical: Single layer; Connector: Limited connection → Weak interaction	Simple hierarchy; Minimal zoning; High enclosure	Fine-grained proportions; Low view; Weak transparency
Vazir Sara	Central: Large and core courtyard; Symmetry: Strong; Visual: Wide; Movement: Multi-entry; Spiritual: Prominent socio-economic position; Horizontal–Vertical: Two-story; Connector: Extensive connection → Very strong interaction	Complete hierarchy; Guild and social zoning; Balanced enclosure	Excellent proportions; Open visual axis; High transparency

A structured comparative analysis of saras and caravanserais in the Qazvin Bazaar, grounded in the Seven-Axis Structural Approach, demonstrates that these architectural elements influence Place Identity through Social Interactions, Spatial Realm, and Visual Sensitivity beyond their economic functions. Spatial and functional indicators for each axis were systematically evaluated using the operational definitions established in the methodology, ensuring replicable qualitative ratings. Large-scale caravanserais, such as Sa'd al-Saltaneh and Vazir Sara, scored high across the Central–Functional Axis, Symmetry–Interaction Axis, Movement–Access Axes, and Visual Axes. Their structural characteristics—including multi-centered courtyards, diverse hojreh entrances, structural symmetry, and clear visual framing—support hierarchical spatial organization, prominent guild identity, and high Visual Sensitivity, providing spaces that facilitate extensive social engagement and clear spatial hierarchy. Medium-scale saras, such as Beheshti, Panbe, and Shali, presented moderate scores for the Central Axis, semi-regular symmetry, and controlled Movement Axes, indicating support for guild-specific interactions, balanced spatial zoning, and moderate Visual Sensitivity while preserving local Place Identity. Small-scale or linear units, such as Haj Reza Sara and Dalan Deraz

Caravanserais, demonstrated limited Movement and Visual Axes and short hierarchical organization. Based on these measurable indicators, their functions were more localized and primarily guild-specific, with high enclosure, restricted spatial zoning, and lower Visual Sensitivity, resulting in comparatively weaker Social Interactions. Overall, integrating the seven structural axes with identity-forming elements (Axial Elements, Continuous Elements, Hojreh, Rastehs, Courtyards, and semi-private/public territories) produces a multi-layered, hierarchical, and interconnected spatial network within Qazvin Bazaar. Large-scale caravanserais like Sa'd al-Saltaneh and Vazir Sara represent the highest-scoring realizations of Place Identity according to the study's predefined metrics, while other saras, contingent on guild status and scale, perform complementary roles that reinforce Social Interactions, Spatial Hierarchy, and Visual Sensitivity across the bazaar. The comparative ratings presented in Table 12 systematically summarize the evaluation of all saras and caravanserais across the seven structural–semantic axes and three Place Identity dimensions. These scores, derived from the operationalized criteria outlined in the methodology, provide a transparent and replicable basis for interpreting spatial hierarchy, social interactions, and visual sensitivity throughout the Qazvin Bazaar, ensuring analytical objectivity and consistency across all case studies.

Conclusion

The analysis demonstrates that traditional spaces within Qazvin Bazaar, particularly saras and caravanserais, possess layered and meaningful structures beyond their economic functions, directly shaping Social Interactions, Spatial Realm, and Visual Sensitivity. Large caravanserais, such as Sa'd al-Saltaneh and Vazir Sara, with multi-centered layouts, precise symmetry, extensive visual and movement axes, and clear spatial hierarchy, create complex, hierarchical spaces that facilitate diverse social engagement and strengthen users' sense of place attachment. Smaller, single-axis saras, such as Haj Reza and Dalan Deraz, while limited in movement and visual reach, reinforce local and guild-level identity through spatial coherence, controlled enclosure, and clearly framed layouts. The study confirms that the seven structural–semantic axes—Central, Symmetry, Visual, Movement, Spiritual, Horizontal–Vertical, and Connecting—play a key role in structuring space, guiding social interactions, and enhancing collective identity. Integration of physical form with Place Identity dimensions provides a model for reconciling cultural heritage preservation with contemporary urban planning and sustainable design. Large caravanserais link local and regional networks, while smaller saras serve specialized guild functions, collectively forming a hierarchical and multilayered spatial network that ensures functional coherence and strong Place Identity. Practical Implications: These findings suggest that urban planners and architects can apply the principles of spatial hierarchy, axial organization, and multi-scale connectivity when revitalizing historical bazaars or designing new urban spaces, ensuring functional integration while preserving cultural identity. Limitations: This study is limited to architectural form and spatial analysis and does not incorporate direct perspectives from bazaar users. Including user experience and perception in future research could deepen understanding of Place Identity in operational contexts. Future Research Directions: Subsequent studies may explore cross-cultural comparisons of historical bazaars, incorporate user-centered qualitative surveys, or examine the impact of modern interventions on spatial coherence and social interactions.

AUTHOR CONTRIBUTION

P. Sarraf Moayeri: First author, Literature review, conceptualization, data curation, modeling, validation, data analysis, preparation of the main manuscript, and editing. Prof. J. Soheili: Supervising



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professor and corresponding author, supervision, project administration, and formal analysis. Prof. K. Rahbari Manesh: Advising professor, project supervision.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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