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تحلیل مورفولوژی کالبدی بازار در بستر درون‌مایه‌های معماری ایرانی:
مرور نظام‌مند و ترسیم شبکه مفهومی با نرم‌افزار VOSviewer
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Review Article

A Morphological Analysis of the Physical Structure of the Bazaar Based on Iranian Architectural Themes: A Systematic Review and Conceptual Network Mapping Using VOSviewer Software*

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Abstract

Problem statement: Ritual Problem statement: Traditional Iranian bazaars, as spaces rich in cultural and vernacular architectural values, play a significant role in shaping the physical landscape of historical cities. However, in architectural studies and efforts to enhance urban landscape quality, the spatial capacities and intrinsic architectural themes of Iranian bazaars have received limited attention. This study seeks to answer the question of how the spatial structure and architectural elements of traditional bazaars reflect the cultural and identity-based concepts of Iranian architecture and what role they play in preserving and enhancing the quality of the urban landscape.

Research objective: The purpose of this research is to present part of the findings related to understanding the morphological structure of bazaars, with an emphasis on the underlying themes of Iranian architecture.

Research method: In this regard, using the 27-item PRISMA checklist, data were collected and screened from reputable Iranian and international scientific databases (WoS, MagIran, and Ganj) to identify relevant documents on the physical morphology of bazaars. After removing unrelated sources and applying thematic limitations, 170 international sources (from 2010 to 2025) and 488 Iranian sources (from 2011 to 2025) were selected for final analysis. The data were then analyzed thematically using VOSviewer software to visualize the scientific networks and key terms within the research domain.

Conclusion: The findings reveal that, over the past fifteen years, research publications on the physical morphology of bazaars have shown an increasing trend, with Iran having the largest share among international studies, while Tehran leads among Iranian research sources. Moreover, three core concepts, Bazaar Form, Architectural Morphology, and Urban Design, were identified, and the keywords associated with each were analyzed. Ultimately, the enhancement of the spatial quality of bazaars, from both architectural and urban design perspectives, was emphasized as an effective approach to improving urban landscape quality and preserving cultural identity.

Keywords: *Physical morphology, Traditional bazaars, Iranian architecture, Form, Urban Design.*

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Ghorbanzadeh” and in consultation of Dr. “Mousa Shakeri” which has been done at University of Bojnord, Faculty of Art, North Khorasan, Iran in 2025.

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Introduction and Problem Statement

Traditional Iranian bazaars have long been recognized as one of the most significant physical and social components shaping the spatial organization of cities and villages in Iran. Beyond their economic and commercial functions, these spaces have played multifaceted roles, serving as arenas for cultural, social, and even political interactions (Kheirabadi, 2000). At the same time, bazaars, as prominent manifestations of Iranian-Islamic architecture, have played a crucial role in reflecting the spatial and symbolic identity of Iran's historical cities (Karimi & Moradi, 2015).

Despite their remarkable significance, within the fields of landscape architecture and urban planning, the physical morphology of bazaars and the underlying themes derived from traditional Iranian architecture have received relatively limited scholarly attention. Most previous studies have predominantly focused on the economic and social dimensions of bazaars (Houshmandpour et al., 2020), explored their formation in relation to climatic factors (Shahamipour, 2013), or addressed their spatial and physical characteristics only partially and in a non-systematic manner (Pahlevan et al., 2024). This lack of comprehensive analysis has resulted in the physical deterioration and decline in spatial quality of many historical bazaars in recent decades, influenced by economic transitions, cultural pressures, and even environmental challenges (Sharifi & Sadafi, 2015).

A deep understanding of the variables and components related to the physical morphology of traditional bazaars is therefore of vital importance. Such an understanding not only contributes to the preservation and enhancement of urban and rural landscape quality but also offers practical strategies for adapting these spaces to contemporary needs while safeguarding their cultural and identity-based values (Tavakolian Ferdosieh et al., 2016). Moreover, as dynamic arenas connecting humans, culture, and the natural environment, bazaars hold significant potential for advancing sustainable development goals and preserving cultural heritage (UNESCO, 2017).

Accordingly, the present study aims to identify

and thoroughly analyze the concepts and variables underlying the physical morphology of traditional Iranian bazaars, with an emphasis on the intrinsic themes of Iranian architecture. Adopting a systematic approach, this research seeks to develop a conceptual and practical framework that can contribute both to the scientific understanding of bazaars and to their design, conservation, and regeneration processes. In this context, the study seeks to address the following research questions:

- What is the geographical and temporal distribution of studies related to bazaar morphology?
- How are the concepts and variables associated with the physical morphology of traditional bazaars structured in Iranian and international research?
- How are the relationships among key concepts in this field defined and interpreted?

Addressing these questions will provide a comprehensive picture of the current state of knowledge regarding traditional Iranian bazaars and offer a scientific foundation for planning, conservation, and balanced development of these valuable spaces. The originality and innovation of this study lie in its effort to move beyond a simple literature review, integrating and systematically analyzing previous research using the PRISMA framework to propose an applicable model for the physical enhancement and spatial revitalization of traditional Iranian bazaars. This approach distinguishes the present study from prior reviews and positions it as a practical tool for use in architecture, conservation, and urban planning disciplines.

Literature Review

To analyze the physical morphology of traditional Iranian bazaars, this study employs the Urban Morphology and Form-Function Relationship framework. This analytical framework enables the examination of key physical variables, such as form, architectural morphology, and spatial organization, while relating them to the intrinsic themes of Iranian architecture and the underlying design values (Rastiemadabadi et al., 2025). The use of this framework not only facilitates a structural analysis

but also allows for a systematic comparison between different bazaar typologies and previous studies, thereby helping to identify existing research gaps.

• Typologies of traditional bazaars in Iran

Traditional Iranian bazaars can be categorized into several main types based on their formation processes and spatial structures:

Linear Bazaars: These bazaars primarily developed along the main urban routes and thoroughfares. Planned linear bazaars were constructed based on predefined maps and urban plans, whereas organic linear bazaars evolved gradually without prior planning, demonstrating greater adaptability to social and economic transformations (Manoochehri et al., 2014; Pahlevan et al., 2024). The defining characteristics of these bazaars include shop density, pedestrian circulation, and spatial accessibility.

Multi-Axial Bazaars: These consist of a network of parallel or intersecting corridors (rāsteh) that incorporate caravanserais and khāns. Typically built with prior urban planning, these bazaars exhibit higher spatial density and stronger social interaction (Rastimadabadi et al., 2025).

Central Bazaars: Characterized by covered corridors and khāns organized around a central axis, this type of bazaar often features a high level of spatial coherence. The core element, such as a mosque or a madrasa, functions as the focal point, linking the various structural and functional components together (Ardalan & Bakhtiyar, 2011).

Cross-Shaped (Cruciform) Bazaars: Formed at the intersection of two linear bazaars, this typology creates multi-axial and compact developments at the crossing point. Prominent examples include the Lār Bazaar, Vakil Bazaar in Shiraz, and Arak Bazaar (Pahlevan et al., 2024). These bazaars are

distinguished by strong visual landmarks and clearly defined spatial orientation.

Accordingly, Table 1 presents the physical and functional characteristics of each bazaar typology and illustrates how they can be analyzed through the lens of the form–function relationship and urban morphology.

• Key architectural themes of traditional Iranian bazaars

Traditional Iranian bazaars embody several key architectural themes that define their spatial structure, visual quality, and user experience. Each of these components is explained as follows:

Physical–Visual Continuity: The spatial coherence of bazaars strengthens both the user experience and their cultural identity. This continuity is manifested through the alignment of corridors (rāsteh), the consistency of shop heights and scales, and the visual connectivity of passageways (Molaie, 2021).

Climatic Adaptation: The use of vaults, domes, and skylights ensures both thermal and visual comfort while enhancing the sense of unity and spatial security (Najjari Nabi & Mehdinezhad, 2020).

Principle of Unity and Central Axis: The presence of a central node, such as a mosque or a madrasa, serves as the core of the bazaar, reinforcing its hierarchical organization and guiding movement and social interaction (Ardalan & Bakhtiyar, 2011).

Human Scale and Proportion: Designing spaces in accordance with human dimensions and behaviors responds to functional and climatic needs while enhancing user experience and spatial aesthetics (Samani, 2011).

Enclosure and Spatial Contrast: Variations in width, the interplay of open and covered spaces, and the use of distinctive architectural elements contribute

Table 1. Typologies of traditional Iranian bazaars and indicators for form–function analysis. Source: Authors.

Bazaar Type	Characteristics	Case Examples	Form–Function Analysis Indicators
Linear	Developed along main urban routes; either planned or organically evolved	Tabriz Bazaar, Mashhad Bazaar	Movement flow, spatial accessibility, and shop density
Multi-Axial	Composed of interconnected corridors (rāsteh) and courtyards (sara)	Vakil Bazaar (Shiraz), Lar Bazaar	Density, social interaction, spatial hierarchy, gathering nodes
Central	Consists of covered corridors and khāns organized around a central axis	Kerman Bazaar	Spatial coherence, centrality, and connection to the bazaar core
Cruciform (Cross-Shaped)	Formed at the intersection of two linear bazaars, creating dense multi-axial development	Arak Bazaar	Visual landmarks, directional pathways, and key cultural elements

to the spatial coherence and visual appeal of bazaars (Samadi et al., 2020).

Visual and Functional Landmarks: Elements such as minarets, domes, and cultural nodes serve as spatial and visual anchors that not only guide movement but also express the symbolic and identity-based values of the bazaar (Rastimadabadi et al., 2025).

• **A comparative analysis of previous studies**

Although several studies have explored the physical morphology of traditional Iranian bazaars, most existing research has focused primarily on their structural and formal aspects, while the intrinsic architectural themes of Iranian traditional design have received limited attention. Studies such as Manoochehri et al. (2014) and Pahlevan et al. (2024) examined the geometry, corridors, and spatial organization of bazaars; however, they paid little attention to how these forms relate to architectural themes or to users’ spatial experiences. Furthermore, elements such as physical–visual continuity, enclosure, spatial contrast, and visual landmarks have been addressed only sporadically and in limited contexts within Iranian sources (Molaie, 2021; Samani, 2011). To date, no research has examined all of these components collectively with a specific focus on traditional Iranian architectural principles.

In addition, international studies have primarily concentrated on spatial form, density, organization, and social interaction, yet they lack a systematic, framework-based approach that links spatial form, functionality, and cultural values (Samadi et al., 2020; Rastimadabadi et al., 2025). Consequently, the main research gap lies in the absence of a comprehensive and integrated analysis of traditional bazaars through the lens of Iranian architectural themes. Such an approach is essential to elucidate the interrelationship between form, structure, social function, and cultural meaning, ultimately providing a scientific and practical foundation for the conservation and enhancement of urban landscape quality and the architectural identity of bazaars.

Accordingly, as summarized in Table 2, none of the previous studies have systematically integrated all key components of Iranian architectural principles, from physical–visual continuity and human scale to central axes and cultural landmarks within the context of traditional bazaars. This significant research gap underscores the necessity and novelty of the present study, which aims to address this deficiency through a comprehensive, conceptually grounded, and systematic analysis.

Table 2. Comparative analysis of previous studies on the architecture and morphology of traditional Iranian bazaars. Source: Authors.

No.	Author(s)	Title of the Study	Year	Bazaar Type	Discussed Morphological Components
1	Manoochehri et al.	Examining the Status and Critique of the Bazaar in Iranian Islamic Cities (Case Study: The Study of the Grand Iranian Islamic Bazaar in a New City)	2014	Linear and Multi-Axial	Form and Structure: Principle of Unity and Central Axis
2	Pahlevan et al.	Recognizing the physical structure patterns of Iranian bazaar timchehs based on spatial organization (Study case: Timcheh bazaar of Isfahan, Kashan and Tabriz)	2023	Linear and Cross-Shaped	Form and Structure; Physical–Visual Continuity; Principle of Unity and Central Axis; Spatial Contrast
3	Molaie	<i>Architecture of traditional Iranian markets and explanation of its social interactions in cold and mountainous areas</i>	2021	All Types	Form and Structure; Physical–Visual Continuity; Climatic Adaptation
4	Samadi et al.	Qualitative assessment of the sensory dimensions of space in historical bazaars from the users’ point of view (Case study: Qazvin Bazaar)	2020	Linear and multi-axial	Form and Structure; Physical–Visual Continuity; Climatic Adaptation; Human Scale and Proportion; Spatial Contrast
5	Rastimadabadi et al.	Traditional urban forms in contemporary cities: morphological analysis of the traditional Iranian bazaars in present-day cities	2025	All Types	Form and Structure; Physical–Visual Continuity; Climatic Adaptation; Principle of Unity and Central Axis; Visual and Functional Landmarks

Research Methodology

In qualitative research, identifying and analyzing data requires employing diverse and nuanced approaches that demand methodological precision. In this regard, the systematic review serves as a structured framework for addressing research questions and impartially evaluating the findings of previous studies (Stretch & Sofaer, 2012). This method, supported by tools such as thematic analysis (Braun & Clarke, 2006) and the PRISMA statement (Page et al., 2021), enables the systematic organization of data and minimizes potential bias.

In the present study, data collection and screening were conducted using the 27-item PRISMA checklist, which provides a coherent structure for the identification, selection, and evaluation of relevant sources. This framework includes three key stages:

- Identification of sources from reputable academic databases.
- Screening of studies based on inclusion and exclusion criteria.
- Selection of the final eligible sources for in-depth analysis.

Additionally, the PRISMA flow diagram was employed to visualize the data-processing stages, transparently illustrating the number of initial records, excluded studies, and reasons for exclusion (Liberati et al., 2009). This approach enhances research transparency while ensuring the replicability and validity of the results.

Data Sources and Research Databases

To evaluate Iran's scientific position in the field of architectural morphology of bazaars and to compare it with international research trends, data were extracted from both international and national academic databases. These included the Web of Science (WoS) as a leading global database and two major Iranian databases: Ganj (IranDoc) and MagIran. The MagIran database was selected for its extensive coverage and high number of indexed publications, while Ganj (IranDoc) was used for its access to up-to-date theses and dissertations. The search in WoS was limited to peer-reviewed scholarly documents published between 2010 and 2025, and for the Iranian databases, the period

between 2011 and 2025 was considered. Non-English publications were excluded from the search. The main keyword used in WoS was "Morphology of the Bazaars", while its Persian equivalent, "Morphology of the Bazaars", was used in MagIran and Ganj.

Document Screening

The initial search using the keyword "Architectural Morphology", based on pre-established criteria, identified 1,857 records. After refining the search in WoS and removing irrelevant titles, the number of records was reduced to 452. In the second screening stage, the scope was limited to studies addressing the physical and spatial dimensions of bazaars. Titles and, in some cases, abstracts were reviewed, resulting in 287 remaining documents. Subsequently, studies focusing on architectural and morphological values, cultural attractions, and urban identity were selected, yielding 170 final documents containing the keyword "Morphology of the Bazaars" for detailed analysis. For Iranian sources, searches in MagIran and Ganj using the Persian keyword led to the identification of 11,077 articles and 202 theses. After screening for studies addressing physical and spatial characteristics and historical significance, 488 documents remained, including 483 articles and 5 master's theses. The complete process of document selection and eligibility assessment is illustrated in Fig. 1, which follows the standardized PRISMA flow model used for systematic source selection in this research.

Bibliometric and Thematic Analysis

A total of 170 international and 488 national studies were analyzed separately. In the first stage, data from each source were imported into VOSviewer, a software tool designed for constructing and visualizing bibliometric networks. It also supports text mining, enabling the extraction and visualization of co-occurring keyword networks within the body of literature (van Eck & Waltman, 2010). The frequency and co-occurrence analysis of the extracted terms provided valuable insights into the concepts that have received the most attention within the field of bazaar morphology. Based on both bibliometric outputs and

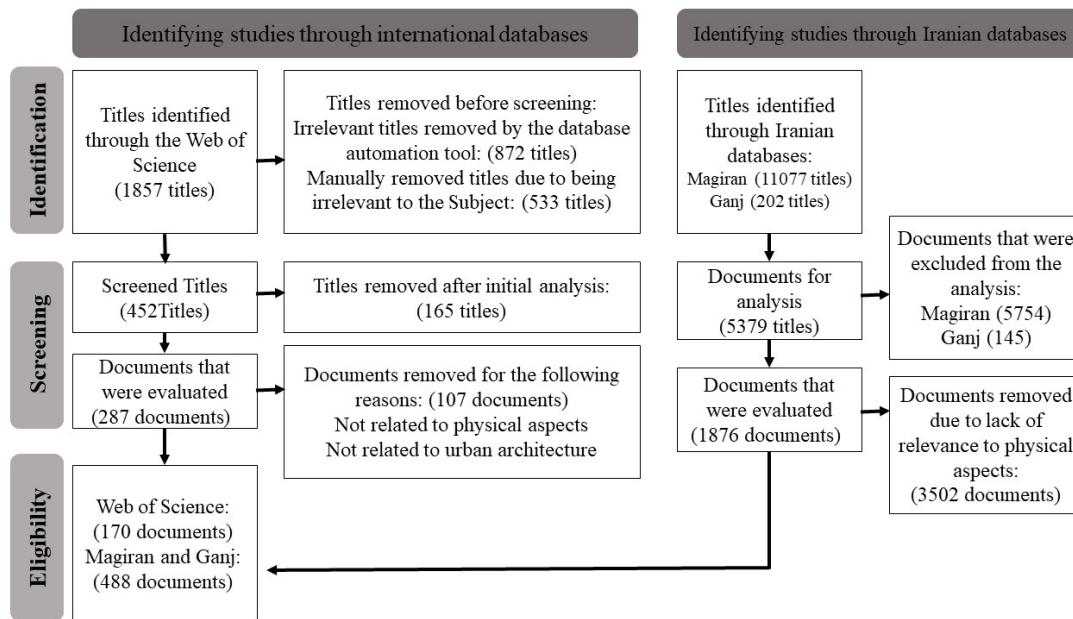


Fig. 1. PRISMA flow diagram for the systematic review in the field of bazaar morphology studies. Source: Authors based on Selçuk, 2019.

qualitative content analysis, three primary themes were identified as the core conceptual domains in this research area: Market Form, Urban Design, and Architectural Morphology. The following sections present a detailed discussion of the findings from this systematic review.

Research Findings and Discussion

To address the research questions, bibliometric analyses were first conducted from multiple perspectives, including temporal distribution, geographical dispersion, and the institutions and journals responsible for publication. Subsequently, a keyword content analysis was performed to identify the conceptual domains related to bazaar morphology and to explore the semantic relationships among them.

• Temporal distribution of documents

Table 3 presents the temporal distribution of international documents within the period 2010–2025. Based on data extracted from the Web of Science (WoS) database, the publication trend of research related to the morphological structure of bazaars has shown an overall upward trajectory over the past fifteen years, although some fluctuations are observed due to the thematic focus and filtering of relevant studies. Additionally, the frequency and publication year of Iranian studies and theses, based on data from

the MagIran and Ganj databases, are summarized in Table 4. The overall trend of publications during these fifteen years exhibits variability, which shows a steady increase throughout the 2010s (2010s in the Persian resources), followed by a decline over the past four years.

• Geographical distribution of documents

According to the Web of Science (WoS) data, the highest number of publications on the morphological structure of bazaars originates from Iran, accounting for 17.05% of the total extracted documents. Following Iran, Turkey and the United States rank second and third with 14.70% and 11.76%, respectively (Table 5). Based on Iranian databases, as shown in Table 6, the majority of publications related to bazaar morphology (54.30%) are attributed to Tehran, while Isfahan and Qazvin rank second and third with 11.80% and 5.17%, respectively.

• Journals publishing bazaar morphology documents

According to Table 7, journals publishing articles in the field of physical morphology based on WoS database data show that the journals “CENTRAL ASIAN SURVEY” and “SANT TARIHI DERGISI JOURNAL OF ART HISTORY” each have a publication frequency of 4.11%. Based on Iranian databases (MagIran), Arman-Shahr Journal of

Table 3. International publications in the field of bazaar morphology.
Source: Authors.

Year of Publication	Number of Documents	of Total %
2025	3	1.76
2024	14	8.23
2023	15	8.82
2022	21	12.35
2021	17	10.00
2020	17	10.00
2019	9	5.29
2018	12	7.05
2017	9	5.29
2016	14	8.23
2015	8	4.70
2014	9	5.29
2013	5	2.94
2012	9	5.29
2011	5	2.94
2010	1	0.58
Total	170	100

Table 4. Iranian publications in the field of bazaar morphology.
Source: Authors.

Year of Publication	Number of Documents	of Total %
2025	0	0.00
2024	3	0.61
2023	5	1.02
2022	3	0.61
2021	7	1.44
2020	31	6.35
2019	51	10.55
2018	36	7.45
2017	56	11.59
2016	59	12.09
2015	37	7.58
2014	52	10.76
2013	56	11.59
2012	61	12.62
2011	31	6.41
Total	488	100

Architecture and Urban Planning has published the highest number of articles and is recognized as the leading specialized journal in the field of bazaar morphology (Table 8). Regarding Iranian theses, the majority are affiliated with Tehran University of Art, Shahid Beheshti University, Ferdowsi University of Mashhad, Isfahan University of Art, Imam Reza

Table 5. International geographical distribution of bazaar morphology documents.
Source: Authors.

Geographic Region	Number of Documents	of Total %
Iran	29	17.05
Turkey	25	14.70
USA	20	11.76
UK	17	10.00
India	11	6.47
Germany	9	5.29
Russia	8	4.70
Pakistan	7	3.33
Australia	6	4.11
Netherlands	5	2.94
France	4	2.35
Sweden	4	2.35
Italy	3	1.76
Other Countries	22	12.94

Table 6. Iranian geographical distribution of bazaar morphology documents.
Source: Authors.

Geographic Region	Number of Documents	of Total %
Tehran	265	54.30
Isfahan	57	11.80
Qazvin	25	5.17
Kashan	16	3.31
Mashhad	13	2.66
Other Cities	112	22.95

Table 7. International journals with the highest number of articles.
Source: Authors.

Journal Title	Number of Articles	of Total % Documents
Central Asian Survey	7	4.11
Sant Tarihi Dergisi Journal of Art History	7	4.11
Modern Asian Studies	4	2.35
Bylye Gody	4	2.35
Journal of South Asia Studies	4	2.35
Bilimname	3	1.76
International Journal of Architecture and Planning	3	1.76
International Journal of Urban and Regional Research	3	1.76
Journal of Construction in Developing Countries	2	1.17
Metu Journal of the Faculty of Architecture	2	1.17
Symmetry, Culture, and Science	2	1.17
Urban Book Series	2	1.17
Other Journals	127	74.70
Total	170	100

University, and Yazd University, each contributing at least one thesis in this field.

Identification of Key Concepts Based on Extracted Data

According to Figs. 2 & 3, the key concepts in the field of bazaar morphological analysis were initially identified by extracting keywords from the selected sources. Subsequently, VOSviewer software was used to analyze the co-occurrence of these keywords to clarify the relationships among concepts in both Iranian and international sources. Based on the analysis, 23 keywords with more than three occurrences were identified from the WoS dataset, while 35 keywords were identified from the MagIran and Ganjesh databases. Tables 9 & 10 present the occurrence and link strength of the three most frequent keywords in each cluster. Keywords such as “Bazaar Form,” “Urban Design,” and “Architectural Morphology” emerged as the most frequently used terms in these two datasets.

A comparative analysis of high-frequency keywords in different sources revealed that in international sources, concepts such as architectural morphology, bazaar form, and social interactions are more prominent. In contrast, Iranian sources emphasize

keywords such as urban design, bazaar, and architectural forms. These differences reflect distinct research approaches at the national and international levels. Next, the identified clusters were aligned with the theoretical framework of the study and categorized under thematic domains. This process facilitated the organization of key concepts and the mapping of the intellectual structure of research in bazaar morphology (Tables 9 & 10).

The analysis indicates that the high frequency of

Table 8. Iranian journals with the highest number of articles. Source: Authors.

Journal Title	Number of Articles	of Total % Documents
Arman-Shahr Journal of Architecture and Urban Planning	189	38.75
Bagh-e Nazar	68	13.93
Nameh-ye Memari va Shahrsazi	66	13.52
Hoviat-e Shahr	45	9.22
Studies in Islamic Art	44	9.01
Memari va Shahrsazi Iran	31	6.35
Goljam	25	5.12
Bagh-e Nazar	12	2.45
Studies in Iranian Architecture	5	1.03
Restoration and Architecture of Iran (Restoration of Historical and Cultural Sites)	3	0.62
Total	488	100

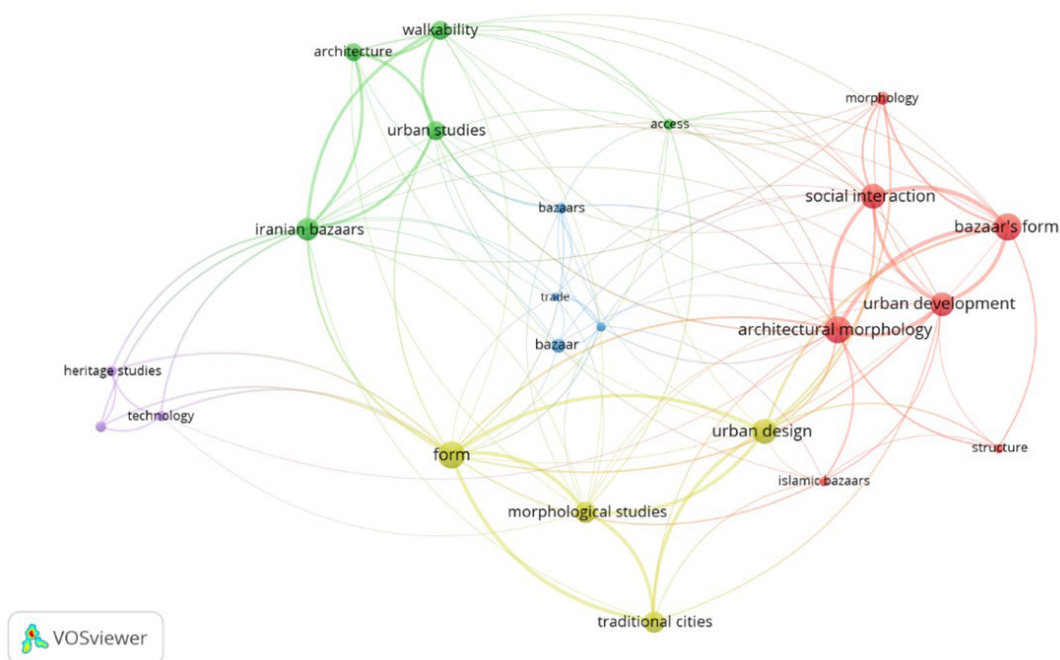


Fig. 2. Co-occurrence map of keywords in the field of bazaar morphology. Source: Authors.

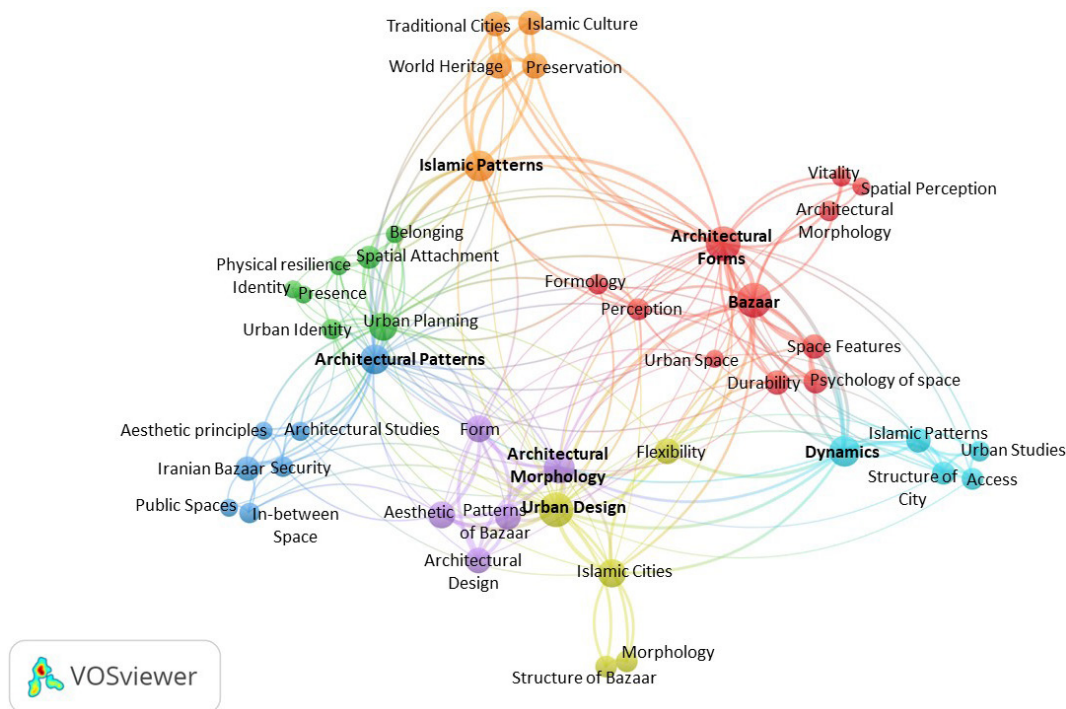


Fig. 3. Co-occurrence map of keywords in the field of bazaar morphology. Source: Authors.

Table 9. Frequency of keywords and their link strength in the field of bazaar morphology (External sources). Source: Authors.

Cluster	Keyword	Occurrence	Link Strength	Keyword	Occurrence	Link Strength	Keyword	Occurrence	Link Strength
Cluster 1	Architectural Morphology	46	132	Bazaar's Form	47	132	Social Interaction	39	116
Cluster 2	Iranian Bazaars	33	98	Urban Studies	24	70	Walkability	23	67
Cluster 3	Bazaar	14	7	Economics	6	18	Trade	5	11
Cluster 4	Traditional Cities	29	83	Morphological Studies	30	87	Form	46	138
Cluster 5	Architectural Forms	7	28	Heritage Studies	7	28	Technology	8	30

Table 10. Frequency of keywords and their link strength in the field of bazaar morphology (Internal sources). Source: Authors.

Cluster	Keyword	Occurrence	Link Strength	Keyword	Occurrence	Link Strength	Keyword	Occurrence	Link Strength
Cluster 1	Architectural Patterns	16	60	Iranian Bazaar	8	12	Urban Planning	15	50
Cluster 2	Architectural Forms	28	115	Bazaar	27	99	Flexibility	10	47
Cluster 3	Architectural Typology	20	92	Aesthetics	13	59	Form	13	59
Cluster 4	Dynamics	20	98	Architectural Patterns	8	29	Urban Structure	7	29
Cluster 5	Islamic Patterns	19	76	Conservation	11	46	World Heritage	10	46
Cluster 6	Urban Design	29	120	Islamic Cities	14	53	Typology	6	18
Cluster 7	Perception	6	22	Form Analysis	5	20	-	-	-

keywords such as “Bazaar Form” and “Architectural Morphology” in international sources highlights a focus on physical-structural approaches, whereas the frequent occurrence of “Urban Design” and

“Bazaar” in Iranian sources reflects greater attention to spatial functions and urban planning aspects. These differences effectively represent two distinct research discourses: one emphasizing theoretical-

conceptual analysis and the other focusing on practical and design-oriented aspects. Accordingly, the authors, relying on the extracted clusters and their alignment with Iranian architectural motifs, reinterpreted the existing trends within an analytical framework, which is discussed in detail in the following sections.

The term “Bazaar’s Form” and its associated definitions have emerged repeatedly as a key concept in the study of the morphological structure of bazaars in international scholarly sources (Şahinalp & Günal, 2011; Lak & Hakimian, 2018). This term also appears among the keywords of Iranian studies (Iranmananesh et al., 2023; Afshari & Chegeni, 2023; Medqalchi et al., 2020), although dedicated investigations on this concept remain limited. “Architectural Morphology” is another widely used term in the field of bazaar morphology, extensively examined in international literature (Ferdous, 2012; Humphrey & Skvirskaja, 2024) and addressed in Iranian sources as well (Gharipour, 2012; Shojaei & Moeinifar, 2016; Normohammadzad & Makki, 2018). This concept refers to the systematic study of the form, shape, structure, and spatial layout of architectural environments, examining the processes of formation, evolution, and transformation of these spaces over time (Alavi Zadeh et al., 2018). It also facilitates a better understanding of spatial organization and the interrelationship of architectural components, enabling designers to develop optimized solutions that are culturally, socially, and economically responsive. “Urban Design” is another critical concept in the context of bazaar morphology, emphasized in Iranian studies (Pourjafar & Sadraee, 2015; Ghanaei & Razeghi, 2020; Rahimi & Jafari, 2018) and particularly in international urban planning research (Jamei, 2021; Ahour, 2011; Ouria, 2019).

A comparative analysis indicates that these three keywords (Bazaar’s Form, Architectural Morphology, and Urban Design) play complementary and synergistic roles in understanding the physical structure and functional performance of traditional bazaars. International studies primarily focus on systematic analysis of bazaar form, historical

transformations, interrelations among components, and their impact on social interactions. In contrast, Iranian studies tend to concentrate on identifying architectural elements and physical characteristics of bazaars, with less emphasis on systematic analysis of component interactions and form. These differences highlight a significant research gap, particularly the lack of a comprehensive and integrated study simultaneously addressing Bazaar’s Form, Architectural Morphology, and Iranian architectural motifs in traditional bazaars. Therefore, through content analysis of the scientific literature, the three main concepts in bazaar morphology (Bazaar’s Form, Architectural Morphology, and Urban Design) can be identified, as summarized in Fig. 4.

• Detailed grouping of bazaar morphology concepts

Subsequently, a content analysis of keywords related to the morphological structure of bazaars was conducted to further elaborate on each of the main concepts identified. In this process, extracted categories from the reviewed documents were examined, and semantic subcategories related to each primary domain were presented. Regarding Bazaar’s Form, theorists have identified four main domains, including Form, Space, Form–Space Interaction, and Function (Medqalchi et al., 2020). In this classification, the Form domain refers to visual characteristics and the design of the form itself. The Space domain serves as the mediating element between form, architectural structure,

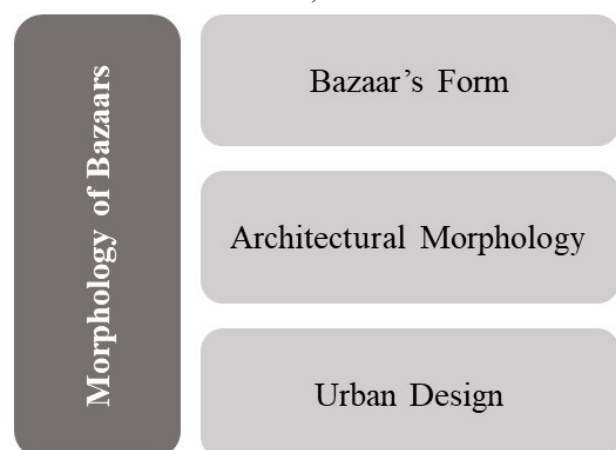


Fig. 4. Core branches of bazaar morphology. Source: Authors.

and human experience, encompassing factors that affect spatial quality, such as colour, shape, and lighting (Gruter, 1996). The Form–Space Interaction domain considers form and space as mutually defining and shaping elements, including subcomponents such as enclosure, vertical surface composition, and openings (Ching, 1999). The Functional domain addresses human needs and concerns, spatial organization, and overall layout, determining the placement and adjacency of architectural components. In addition, the principles domain encompasses regulatory factors not directly belonging to the previous domains but influencing them, such as hierarchy, balance and symmetry, geometry, and proportionality. Finally, Environmental factors are considered as components affecting the conceptualization and design of form and space, including natural and climatic conditions as well as the surrounding context and pathways.

The analysis of the extracted data indicates that prior studies have predominantly focused on key elements of form and space, such as physical continuity, circulation, and spatial density, whereas finer subcomponents, including vertical surface composition, openings, and detailed functional patterns, have received limited attention. This suggests that while the overall framework of bazaars is relatively well understood, detailed spatial analysis and the interaction between form and function remain underexplored. Furthermore, regulating factors such as hierarchy, balance, and symmetry, alongside environmental factors including climatic conditions and neighbourhood context, play a significant role in shaping the structural morphology of bazaars. However, the systematic interaction of these factors with functional subcomponents and user experience, particularly the interrelation between form, space, and human functionality, has not been fully examined. This research gap presents a potential avenue for future studies in integrated analyses of traditional bazaars. Table 11 illustrates the semantic concepts of Bazaar’s Form subcategories and each of their respective branches.

Table 11. Semantic subcategories of “bazaar’s form”. Source: Authors.

Component	Sub-Component
visual characteristics of form	Shape
	Dimension
	Color
	Texture
	Place
	Direction
	Visual equilibrium
Form Shape Design	Dimensional changes
	Accession and Reduction
	Form differentiation by facets
Factors Affecting the Quality of Space	Color
	Shape
	Light
Form and space	Enclosure and Composition of Vertical Surfaces
	Openings: enclosure, light, and view
Form organizations	Central Organization
	Linear Organization
	Radial Arrangement
	Clustered Organization
	Network Organization
Regulatory principles	Axis
	Part and Whole
	Repetitive and Unique
	Hierarchy
	Balance and Symmetry
	Geometry and Proportions
Environmental factors	Natural and Climatic Factors
	Neighborhoods and Pathways

The analysis of the extracted data indicates that the concept of “Urban Design” in previous studies has gradually extended beyond a sole focus on physical and morphological components to encompass social, economic, and environmental factors (PourJafar et al., 2016; Pakzad, 2011; Shaji et al., 2016). Additionally, most of the physical and built elements visible in the urban fabric are considered features that preserve urban identity and facilitate the interaction between natural elements and the surrounding context. This trend reflects a growing scholarly attention to the interplay between space and function in traditional bazaars and an effort to achieve a deeper understanding of how

urban structure influences landscape quality and user experience. A review of the subcomponents of this concept shows that most studies have addressed the impact of these elements on spatial cohesion, circulation guidance, and social interactions. However, fewer studies have analysed these factors concurrently within a systematic framework. This analysis demonstrates that, despite the identification of diverse components, an integrated approach for evaluating the role of urban design in traditional bazaars and its connection with the underlying principles of Iranian architectural heritage has not yet been developed. Table 12 presents the semantic subcategories of Urban Design in detail.

The findings of the study indicate that most Iranian and international research has primarily focused on examining the structural patterns and built morphology of bazaars. The authors’ analysis suggests that within the domain of Architectural Morphology, understanding the processes of structural change and spatial organization in bazaars can serve as a critical criterion for urban planning and design, ensuring that interventions are harmonized with the surrounding urban fabric while addressing users’ spatial and cultural needs. In Iranian sources, the focus on concepts such as comprehension, spatial configuration, and the analysis of relationships among components reflects attention to how spatial hierarchies and internal cohesion are formed within bazaars (Shojaei & Moeinifar, 2016; Ferdous, 2012). It can also be noted that Iranian studies have paid less attention to the interaction between form and user experience, whereas international sources place significant emphasis on meaning, legibility, form organization, and the relationship between form and space (Humphrey & Skvirskaja, 2024). This focus on form–function interaction allows for a more precise understanding of circulation patterns, gathering points, and users’ spatial experiences, highlighting that international studies emphasize the functional and social dimensions of bazaars. Therefore, integrating Iranian and international findings provides a rich framework for understanding the Architectural Morphology of bazaars and reveals

existing research gaps in analysing the interaction between form, function, and user experience. Fig. 5 presents the key concepts and terminology associated with the architectural morphology of bazaars.

Table 12. Semantic subcategories of “urban design”. Source: Authors.

Component	Sub-Component
Cultural heritage	Religious
	laws Natural
Political activities	Civic activities
	Management
Commercial components	Spatial Connection
Natural and environmental features	Mass-space system
	Greenery
	Local materials
	Climatic comfort
Social capital	Conceptual indicators
	Physical indicators

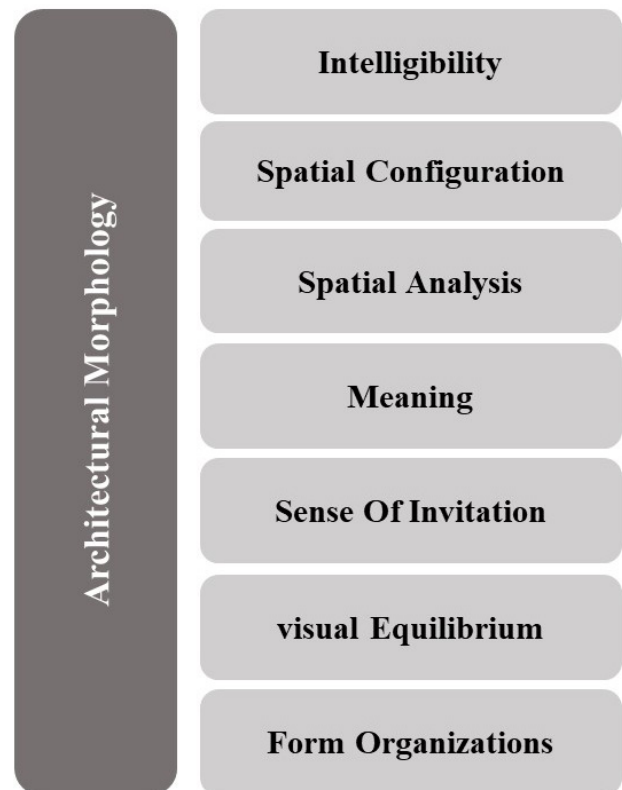


Fig. 5. Semantic subcategories of “architectural morphology”. Source: Authors.

Conclusion

One of the primary objectives of this study was to gain a more precise understanding and clarification of the key concepts related to the morphology of bazaars, drawing on specialized literature and diverse architectural approaches. Additionally, the semantic relationships among keywords and the definitions provided for this concept were examined in alignment with the characteristics and structure of urban architecture. Accordingly, the findings implicitly indicate the breadth of the concept of bazaar morphology and the diversity of contemporary architectural approaches in this field. Throughout the research process, a systematic review of specialized sources and analysis of their results enabled a comprehensive reexamination of a wide range of previous studies, providing an overall perspective on the various dimensions of the topic. The findings revealed that over the past fifteen years, the number of studies and publications on the built morphology of bazaars has significantly increased, reflecting growing scholarly interest in this area. Bibliometric and keyword content analysis further

indicated that most studies were conducted in Iran and Turkey, which can be explained by the historical and cultural significance of bazaars in these regions. Moreover, analysis of keywords from international sources showed a stronger focus on social interactions, whereas Iranian sources emphasized concepts directly related to the bazaar itself. It is also notable that, despite the long-standing academic engagement with bazaars in Iran, specialized studies on bazaar typology and structural organization, particularly from an urban architectural perspective, remain limited.

As illustrated in Fig. 6, the analysis of the reviewed documents led to the identification and classification of three main concepts related to bazaar morphology: Bazaar’s Form, Architectural Morphology, and Urban Design. Each of these concepts encompasses a set of specialized keywords and subcomponents. For instance, the concept of Bazaar’s Form addresses factors such as visual characteristics, spatial organization, form–space relationships, and environmental elements. Urban Design includes aspects such as cultural heritage,

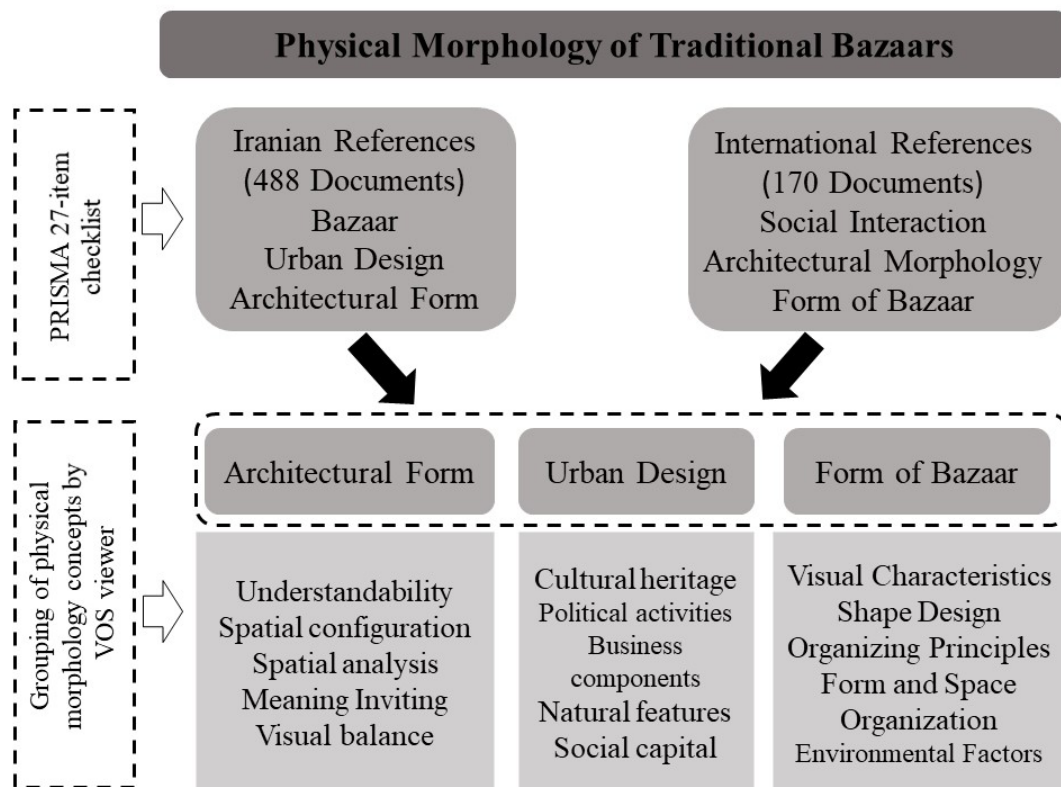


Fig. 6. The Relationship between the concept of built morphology of traditional bazaars and its extracted subcomponents. Source: Authors.

natural features, commercial activities, and social capital. Architectural Morphology examines components such as legibility, spatial configuration, visual balance, and meaning.

Finally, the study demonstrates that in the morphology of bazaars, enhancing spatial quality from architectural and urban design perspectives plays a critical role in improving the structure of traditional bazaars, and urban planning can serve as an effective strategy to achieve this goal.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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