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Funduqs in Fez: the Last Transformation of Urban Caravanserais

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Abstract

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Urban caravanserais typologies have shown high resilience over time. They adjust both their contents and architectural traits to fit the urban fabric of Mediterranean cities. The funduq in Moroccan medinas shows the latest chronological changes in the caravanserai typology. Adaptations occur at two main levels: changes at the urban scale and social appropriation of the type. These shifts lead to important changes in the identities and roles of these buildings within the urban fabric.

While this evolution has helped breathe new life into the medinas, it also brings challenges for authenticity, community life, and the preservation of intangible heritage—the living traditions that give the medina its unique character.

The paper is structured in two parts. The first explores the Berber medina's character and reveals the souk and funduq as genetic elements. The second presents a general overview of the different structural funduqs' typologies on the Fez Medina case study, outlining options for sustainable rehabilitation and analysing pros and cons. The conclusions provide action lines for an integral restoration of the funduqs today.

Keywords: Funduqs, Urban Regeneration, Adaptive Reuse, Heritage Conservation, Fez Medina.

INTRODUCTION

Architecture is a defining element of cities and their landscapes, serving as a key to understanding both individual cities and broader comparative cultural dynamics. The argument of this study is that architectural forms are inextricably linked to the social and cultural meanings of cities, and that the study of urban typologies across societies uncovers this connection.

Urban morphologies reflect the interplay between architectural and urban scales in the conception, analysis, and proposal of urban agglomerations. Urban signatures, ultimately, are shaped by the relationship between their architectural elements, represented by the residential unit. This work starts by considering a well-known concept, but a return to the foundations of cities compels us to revisit these points. It is a return to the fundamental laws of city formation, precisely in the balance between the notion of urban agglomeration, where accretion extends as the organic form of its expansion, and the keys to the formation of urban logic with simple laws, sometimes unwritten but effective in the organisation of urban communities.

From this perspective, it is logical to conceive of funduq's architectural analysis to argue that cities' unique characters and their layers of overlapping cultural influence are best revealed through urban forms. It specifically argues that examining the typological development of Mediterranean Islamic cities reveals how these urban identities are shaped and transformed through interaction.

This work employs this method to develop the funduqs's topics as the last Mediterranean link in the typology of urban caravanserais, where the city and the landscape intertwine to define a domestic scale for this typology. Its integration into the city ultimately alters the notion of monumentality, dissolving it within the urban scale and acting as a bridge between scales, without losing the essence of a typology in which merchants and commerce merge.

Travels, caravanserais and scales.

Travel is an innate quality of human existence. The need to move, as well as the curiosity to explore the unknown, justifies these continuous flows of the human species, where the commercial sphere arises as a consequence of this temptation to travel.



Figure 1. Silk roads general map, by Kelvin Case.

The evolution of travellers' typologies across different scales of the commercial hospitality architecture represents a significant but understudied dimension of medieval urban history. While the specialised architectures of the khans (caravanserais) and the funduq (merchant inn) have attracted scholarly attention, research on how these structures accommodated distinct categories of travellers—and how such categorisation itself transformed—remains fragmented. In any case, the intention of joining to different life concepts, two different philosophies and cultures was a common topic alongside the centuries (Fig. 1)¹.

Islamic commercial architecture, particularly the caravanserai (khan), is one of the most iconic structures facilitating long-distance trade. These structures transcended mere functionality, as their architectural elements held deeper meaning across cultures and centuries. (Mazzetto, 2025). The emergence and development of caravan centres like Zuwila along major routes illustrate the complexity of these commercial networks. (Mattingly et al., 2015) These centres served as critical nodes in broader commercial and cultural networks, with the stability and infrastructure they provided enabling the continuation and expansion of long-distance trade. The evolution of such sites—from simple waystations to sophisticated commercial hubs—reflects broader changes in trader typologies and travel patterns. Madinat Fez symbolised this function in the Islamic era, especially in the Saharan countries, as a bridge between the Andalusian communities in the Iberian Peninsula and sub-Saharan countries. The maps on fig.2 reflect this scenario, where the golf trading was a key element in the transactions and trading activities in the North African regions. Mobilities in Africa followed parallel developments to the Silk roads, with connections in specific hubs, basically through Kairouan, Alexandria, and Cairo.

¹ The map on Fig. 1 shows one of the multiple visions of the Silk Roads through the History, with an intense activity in the central Asian region. However, the Silk roads reproduced connectivities East-West even through the Anatolian region, which are not yet reflected in the map. They were key elements for the Caravanserais' developments.

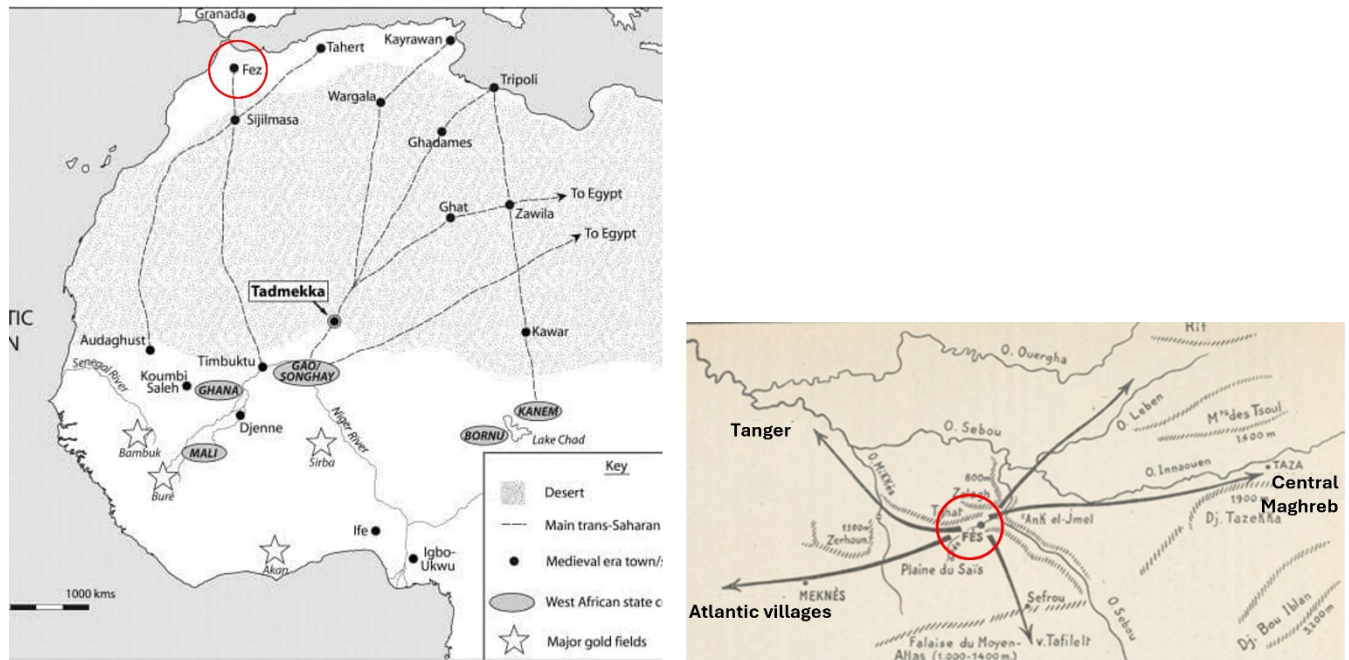


Figure 2. Transaharian routes for the gold trading: main hubs. Centuries 7th – 11th. AD. Source: Rehren, T., & Nixon, S. (2014).

Travellers’ categories and Pilgrimage networks

Modern research on pilgrimage tourism provides valuable frameworks for understanding historical categorisations of travellers. (Cahyadi, Hidayati, N, Zahra, N, & Arif, C., 2024) The organisation of pilgrimage routes demonstrates the infrastructure required to support diverse traveller types. (Moscatelli, 2024) The Darb Zubaydah Hajj pilgrimage route in Saudi Arabia exemplifies how heritage plays a pivotal role in the development and urban evolution of pilgrimage cities, across religions, particularly in Islamic culture. The same structures that accommodated pilgrims travelling for spiritual reasons also served merchants, officials, and diverse other travellers with different motivations and resource levels. Sacred movement across regions generated complex hierarchies of travellers. (Irakleous & Bakirtzis, 2020) Karamanli votives in Cyprus monasteries provide evidence that Turkophone hajjis during the eighteenth and nineteenth centuries followed mountainous routes through specific sacred landscapes, and written sources indicate they were welcomed and hosted by active communities that nurtured their spiritual needs. These narratives demonstrate how networks sustained between Asia Minor and the Holy Land created recognisable traveller categories adapted to particular spatial and cultural contexts.

Scale transformations in Commercial Infrastructures

The evolution from monumental khanat² to smaller merchant inns (funduqs) reflects changing scales of trade organisation and traveller typologies. Archaeological and historical evidence from Central Asian caravan routes demonstrates that trading networks along routes like the Silk Road played a paramount role in facilitating not only goods but also disease, information, and people (Slavin, 2023). The plague spread across trade routes between 1338 and 1346, demonstrating how thoroughly these networks connected distant regions through regular flows of travellers.

The transformation in hospitality architecture must be understood in relation to broader commercial reorganisation. (Seland, 2014) The complexity and scale of trade in the western Indian Ocean involved particular forms of management, connectivity, and social cohesion among traders. As such patterns evolved, the infrastructure supporting travellers—ranging from monumental caravanserais to small merchant inns—necessarily adapted to changing volumes, types, and organisational structures of trade.

The integration of hospitality facilities into urban centres represents a significant scale shift in how travellers are accommodated. (Smith, 2014) Urban landscapes manifest social, political, economic, and ritual interactions through their material remains. The inner landscapes of cities are expressed in architecture and spatial patterns, configuring relationships based on economic status, ethnicity, occupation, and age grade. External landscapes comprise the hinterlands upon which cities depend for resources, including agricultural products and in-migrating labourers. The elite reach deep into the countryside not merely for political control but for investment in centralised infrastructure, including roads and territorial borders.

The emergence of smaller, more integrated hospitality facilities reflects urbanisation processes and changing traveller typologies. (Gohar, 2021) The historical relationship between tourism and urbanisation reveals how tourist curiosity, routes, and destinations changed across time, with the built environment both shaped by and shaping travel patterns. Understanding these transformations requires appreciating how different eras identified tourists differently and how available modes of transportation and accommodation types influenced actual travel possibilities.

The funduq: a flexible Urban Hospitality.

Smaller merchant inns (funduqs) likely developed to accommodate the needs of urban-based traders with shorter travel distances and different social status hierarchies than caravan merchants. (Brédeloup, 2012) The evolution of African

² Khanat: A khanate is a political state or territory ruled by a khan. Note that the Khan is a leader of Mongolic or Turkic descent regions.

trading posts from traditional caravan hubs to urban commercial centres demonstrates how merchant diasporas created necessary hospitality infrastructure by building upper floors, including restaurants serving their specific communities. Such facilities differ fundamentally from monumental caravanserais in their scale, urban integration, and adaptation to particular merchant communities.

THE MEDITERRANEAN ISLAMIC CITY: FEZ AS A CASE STUDY

Mediterranean cities have provided a variety of urban solutions within a context of multiple variables, in areas where cultural and social flows have been a constant throughout history. These urban solutions have often resulted from spontaneous decisions that reflect an interesting duality: accretion vs community values. Despite the supposed disorder of the "accretion"³ phenomenon, cities exhibit a logic of functionality and feasibility in urban management that stems from the desire to maintain a balance between the values of the common good and private interests.

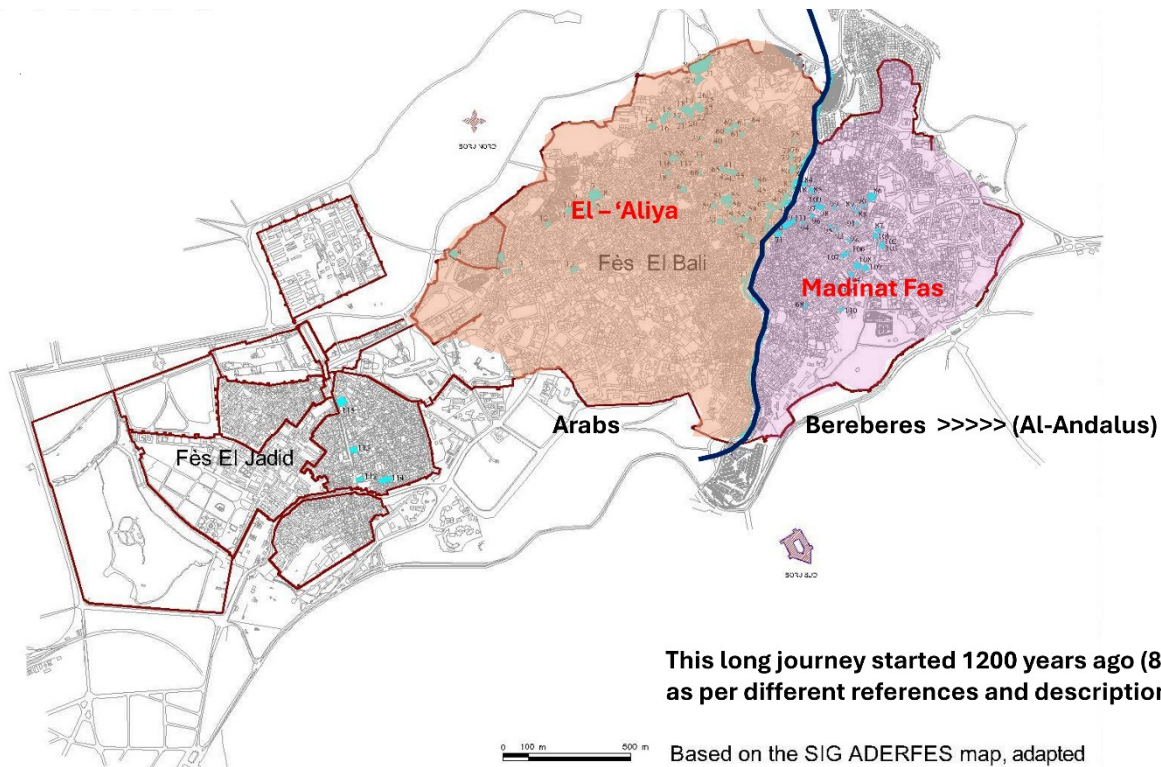


Figure 3. General distribution of the main areas of Fez. Blue line is Fez Oued crossing the valley. Source SIG ADERFES, adapted (JMPM,2026).

From the perspective of a scholar of urban morphology, design decisions in sensitive urban contexts require cross-disciplinary research to understand the values embedded in inherited structures, which collectively shape a unique urban heritage. As architects, this approach offers the most logical way to propose solutions that shape all historical settlements. Specifically, these solutions help us develop patterns of territorial and settlement intelligence. Their materialisations have been consolidated as principles of multi-scalar rationality, which we can now group within the category of nature- and culture-based solutions (Correia et al. 2014). Building on this, the contributions of the Italian school—namely Gregotti (1966), Muratori (1967), and Piccinato (1978)—are well known in this field. Accordingly, these principles of rational settlement could be applied in any of the Islamic foundation cities, including Fez:

- the relationship between settlement and hydro-geomorphological characteristics;
- the multifunctional role of agricultural and natural spaces;
- the articulation of public and private space;
- The articulation of open and closed space.

The first principle will be essential for understanding the city's genetic conditions: land vs water.

From a territorial perspective, the relationship between these two natural elements has determined the fundamental decisions in establishing a settlement on a given piece of land. Water maintains its "natural" territory under the most adverse conditions and imposes its will, clearly defining the limits of human intervention. Only large-scale actions can alter this relationship, sometimes with adverse consequences for human settlements. Most floods occur at this level, when the design of large water infrastructure fails for any reason. The most recent example is the flooding in Valencia in 2024. As is well known, settlement choices have historically been influenced by considerations concerning the availability of primary resources (water, fertile soils, building materials), the suitability of the land for planting (both from the perspective of geological stability and strategic security), and the presence of communication infrastructures of anthropogenic origin (road network) or natural (rivers, coastal inlets capable of serving as ports) (Gisotti, 2017). Fez is no exception, as demonstrated by its foundation's history ((Bianca, 2000); (Métalsi, 2003)).

³ Accretion: It refers to the gradual, piece-by-piece growth of a city. Rather than being planned all at once, the urban fabric expands or evolves organically through incremental additions.

In the case of the territory of Fez, water defined an important presence in certain areas near the Madinat Fez, where the Oued Fez (Fez River) represents far more than a hydrological feature in the landscape—it is a fundamental organising principle that has shaped the spatial development, functional organisation, and cultural identity of Madinat Fez (the Medina of Fez) over centuries. (Rassam, 2026). The relationship between water infrastructure and urban form has been consistently recognised across historical Islamic cities and ancient settlements worldwide, demonstrating that water management is intrinsically linked to the formation of urban morphology, settlement patterns, and socio-cultural organisation. (Khirfan et al., 2021) The loss of urban streams through culverting and water infrastructure modifications fundamentally alters the regulatory and socio-cultural ecosystem services that rivers provide, reshaping the connections and ecological functions of urban form in ways that often persist for centuries.

The establishment and persistence of human settlements have historically been determined by access to reliable water sources, proximity to transport routes, and favourable topographical conditions. (Kumawat, 2026) (Kumawat & Damor, 2026) Cities strategically located along water sources benefit from natural defences, fertile soil, and water resources that influence both early settlement establishment and ongoing urban development.

In the case of Fez, the river's role in urban location underwent similar transformations across different historical periods. The specific role of water in structuring the medina becomes evident through examination of water-dependent craft activities and commercial zones. (HANZAZ, 2025) Historically, brass craftsmen worked in areas adjacent to the Lalla Yeddouna Square, near the Fez Oued⁴, where they engaged in water-dependent industrial activities while simultaneously contributing to water pollution through the discharge of heavy metals and toxins. This spatial arrangement, in which water-dependent crafts concentrated near the river, reflects centuries-old patterns of integrating industrial production with water infrastructure. The organisation of these craft zones along the Oued Fez demonstrates how urban form evolved through functional specialisation dependent on water access.

Water, a discreet and hidden element, never appears in the urban fabric except in a few specific places: public fountains along streets, fountains in mosques and medersas for the ritual of ablution, and pools in the courtyards of private residences, often taking on symbolic meanings that go beyond mere functional significance. It is important to remember at this point the role of the pious institutions (habous) in Islamic culture, which assumed the provision and distribution of water to the entire population as an act of mercy, thereby leading to the development of important urban infrastructure for this purpose. (Hamdouni Alami, 2011) (Hamdouni Alami, M.,2011)

Given the impossibility of navigating it, the river has always been upstream, the source of the urban water supply network and downstream, the collector of wastewater. Its gradients, in some places considerable, have also provided the motive power necessary for productive activities. This fact, in turn, leads to a hierarchy of urban areas, equivalent in practice to zoning or the specialisation of urban areas, as will be seen later. The river, therefore, has from the very beginning represented a synthesis of technical applications rather than the aspiration to construct a landscape.

Furthermore, its vocation has always been to separate rather than unite. Traditionally, the river, by its very nature, has always been a dividing element between the two cities held together by the walls built by the Almoravids—an internal border, crossed with bridges and footbridges.

Until the first decade of the last century, the relationship between the city and its river remained virtually unchanged: even amid adaptations and transformations, the urban, social, and economic balances on which the city's structure was based had not been challenged since its founding. (Fumagalli,2015)

The relationship between water and the city of Fez had its ups and downs and serious consequences. According to Roudh El-Kartas in his previously cited work he refers to the urban situation and provides numeric⁵al data according to the documents of the time:

The presence or absence of water defined a clear classification of the city's urban shapes. This classification can be seen from the functional and social perspectives. The concentration of water-dependent craft activities along the Oued Fez and its tributaries shaped the medina's economic structure and social composition. The tanning industry, a historically dominant craft in Fez, required enormous quantities of water for leather processing—a requirement that shaped where tanneries could locate and how their operations were organised. Metalworking, ceramic production, and textile dyeing similarly depended on proximity to water, creating specialised zones along the river where these crafts concentrated. These economic activities generated revenue and employment for Medina residents while simultaneously creating relationships between urban residents and the river system through daily labour and water use.

Traditional water management systems in Islamic cities functioned to distribute water resources throughout the urban fabric while creating public spaces for social gathering and ritual practices. (Van der Kooij, 2015) The material of

⁴ Oued: river

⁵ Roudh El-Kartas is the author of an interesting book with data about the city of Fez. His publication was initially edited in Arabic, and later on, translated: [Roudh El-Kartas, author & Beaumier, A. Translator (1860). *Histoire des souverains du Maghreb (Espagne et Maroc) et Annales de la ville de Fès*. Imprimerie impériale.],

“During the reign of Nasser (after Almohad al-Mansur), the city had 89,236 houses; 19,040 and one mesrya ; 467 funduqs for merchants, travellers, and the homeless; 9,082 shops; two kaysseria , one in Adoua el Andalous, near the Oued Mesmouda, and the other in Adoua el-Kairouyn; 3,064 factories; 117 public washhouses; 86 tanneries; 116 dye works; 12 copper workshops; 136 bread ovens; and 1,170 other miscellaneous ovens.” (Roudh el-Kartas. & Beaumier A., p. 32)

...

“During the second capture of Fez by Youssef ben Tachefyn. He entered it on Thursday, the second day of Jumada al-Tani, in the year 462 (1069 AD) . Once he had taken control of the city, his first priority was to fortify and repair it. He had the walls separating the two parts of Adoua El-Andalous and El-Kairouyn demolished, so as to unite them into a single city. He ordered the construction of mosques in the suburbs and all the passageways, and whenever he found a street without one, he would reproach its inhabitants and order them to build one.” (Roudh el-Kartas. & Beaumier A., pp. 102-103)

...

“In 626 (1229 AD), a great flood in Fez destroyed most of the walls on the south side, and overturned three naves of the El-Andalous mosque, as well as a large number of houses and funduqs in the Adoua”. (Roudh el-Kartas. & Beaumier A., p. 199)

irrigation systems—including technologies like gates, channels, and distribution mechanisms—plays a critical role in co-mediating institutions through interactions between technical systems and social dynamics; institutional changes often consist of recursive cycles of modifications to both technological infrastructure and rules for allocation and distribution. In Fez's medina, the water distribution system connected the Oued Fez to multiple public fountains (Moroccan: *sqqaya*) throughout neighbourhoods, creating nodes of public gathering and social interaction while ensuring equitable access to water. These fountains served not merely functional purposes but were integral to the medina's social and spiritual organisation.

The medina of Fez faces complex challenges from rapid urbanisation, tourism development, and pressures on heritage conservation. (Boussaa, 2024) Previous strategies in Fez focused primarily on physical development and on riad hotels to boost cultural tourism, thereby exacerbating gentrification and the socioeconomic stratification of local communities. The "Ziyarates Fez"⁶ project represents an innovative approach to rehabilitation that avoids displacing local occupants and provides a holistic strategy for balancing economic and social sustainability. Tourism development has increasingly transformed the medina from a living urban community to a heritage attraction, with consequences for social sustainability and the functioning of urban systems, including water infrastructure.

The Relationship Between Land and Water

One of the eventual analyses of Fez's urban history is through the lens of water. The medina of Fez El Bali was thus built in a slight geological depression, chosen for the availability of surface and underground water, to the detriment of strategic and defensive needs.

The original foundation, and later the only possibility for development and subsistence, the Wadi Fes, together with its tributaries and the springs that abound in the area, determined the city's fortunes and growth. From a strategic perspective, the city's location, nestled in a valley, is not among the best, as it exposes it to enemy attacks that could easily dominate it from above. From a hydrographic perspective, however, this orographic condition has enabled the rational distribution of water throughout the city, which, as early as the year 800, was equipped with channels—both underground and above ground—capable of fully serving production and domestic activities. The supply and drainage networks were kept in perfect working order by teams of specialised workers (the *kawadsyia*), who were responsible for inspecting and repairing the complex system of canals that ran beneath the built fabric. We must mention the significant contributions of the treatises on hydraulic engineering, particularly the works of Al-Karaji (11th century), and Ibn alRazzaz al-Jazari (12th century).

The urban history of Fez, from its foundation to the present day, is intrinsically linked to the presence of water and its namesake river. It's on the eastern bank of the Oued Fès River; It was followed, twenty years later, by a second settlement commissioned by Idris II, on the opposite bank of the river. In 789, the first settlement (Medina Fas) nucleus was established by Idris I (Idris ibn 'Abd Allah) on the right bank of the Oued Fes. At that time, the site's characteristics played a decisive role in its designation as the Idrisid capital (Ibn Abi Zaraq, 1972, p. 32). Twenty years later, eager to build a new city, his son Idris ibn Idris founded al-'Aliya on the left bank of the 1st River. The two cities, opposite each other, coexisted until 1069, when the Almoravid conquerors decided to unite them into a single urban nucleus, effectively establishing a new foundation and transforming it into the main military base in the northern hinterland of the Islamic Maghreb.

It was most likely the Almoravids who undertook the first hydraulic engineering works, enabling the city to quickly develop an extensive, highly advanced water system. Under the Marinid dynasty (1244-1465), who conquered the city after the Almohads (who, in turn, succeeded the Almoravids), the city, thanks to the exploitation of the abundant subsoil water, became an important centre for the production of leather and textiles.

These factors transformed it, and two hundred years later, the Marinids designated it as their capital. As a result, in addition to mosques, madrasas, and funduqs, they built the administrative city of Fes-el-Jedid there, complete with a palace and its garrisons. This new expansion was necessary because the original core of the medina had become overcrowded within its walls.

Alongside these relationships, Fez experienced considerable growth from the 11th century onward. This was evident after the establishment of the Andalusian Mosque and Al Karaouyne University in 859, which laid the foundations for its role as the cultural and religious centre of the Maghreb. Additionally, Fez occupied a key economic position, establishing a powerful network of commercial spaces, both public and private, at specific points within the urban landscape. The funduqs (inns for merchants) eventually formalised the architectural imprint of this network of spaces.

The urban fabric of Fez.

Research into the city's heritage values is essential to understanding how historical influences and design solutions shape the city today. Effective research should balance diachronic and synchronic perspectives, identifying patterns of evolution and diagnosing actions in light of these values. Heritage values encompass not only traditional historical-testimonial meanings but also the design solutions that have continuously guided the city's construction.

The Madinat of Fez reflects today a development that has taken place over time, consistently employing a road network directly linked to water features and their architecture, as well as the foundational structures upon which it is based, as in any Islamic city.

The urban fabric of Madinat represents an extraordinary example of Islamic urban planning principles and architectural heritage. (Ourkia, 2025). Medieval Islamic civilisation was characterised by remarkable architectural expression, guided

⁶ "Ziyarates Fez" project is a homestay proposal for another alternative way for tourism, in rooms of families in Fez. They make available one or more rooms of their house with adapted comfort which allows visitors a discovery of the local life and the inhabitants, in a spirit of intercultural exchange. It is a way to participate in safeguarding the tangible and intangible heritage of the city (safeguarding the local culture by encouraging the inhabitants with this culture to stay in the Medina while preserving their family home). www.ziyaratesfes.com/en/

by a dense corpus of juristic writing—particularly Mālikī treatises on construction (bunyān) and easements (irtifāq)—which functioned as a de facto planning code shaping historic Muslim cities. By correlating textual rulings with archaeological maps of Medina, Fez, and Marrakesh, researchers have evidenced the materialisation of these principles in street dimensions, courtyard proportions, and craft districts.

This urban fabric comprises a residential area characterised by a courtyard house typology, within which urban caravanserais, given their scale and form, are embedded, particularly in the city's commercial districts.

Two components converge in the formation of Fez's urban fabric:

- high urban density, as a model of a compact city, where the courtyard house typology creates a uniform texture of voids within a dense built network.
- The superimposition of this urban fabric onto the water-generated architecture in relation to the urban land

Both components make visible a city model where the five principles of formation of the intense urban structure characteristic of late medieval Islamic cities find their respective expressions: Thus, we are faced with a “saturated” fabric but with the capacity to define necessary open spaces, a hierarchy in the urban road network capable of channeling pedestrian flows through the main thoroughfares, usually parallel to the courses of the main rivers, an opening of spaces along these thoroughfares with added social functions where citizens develop urban coexistence through market areas, and a zone, right on the edge of the traditional urban fabric, where areas for work requiring water with recycling difficulties are established, such as tanneries and dye works. Once again, territorial rationality finds its place in the conception of the Islamic city, as is common to other cultures. Ironically, these spaces are now one of the city's biggest tourist attractions. Furthermore, within this rationality, urban microclimate conditions are implicitly defined in accordance with the environmental and social conditions of the place.

The apparent prevalence of the private over the public

A persistent misconception in Western scholarship views Islamic cities as chaotic, ignoring the underlying order and theoretical basis that shape their evolution. This section argues that the stereotype of irregular street patterns in Mediterranean Islamic cities fails to account for examples of early planned grids and recurring organisational principles. These misunderstandings obscure the nuanced reality and the true structural logic guiding the evolution of these cities. García Bellido's PhD thesis, (García-Bellido García de Diego, 1999) for example, synthesises five underlying principles behind these urban forms: social integration, respect for common property, the right to expand onto common property, privacy, and the hierarchical connectivity of streets.

These five principles are formally translated into the following topics:

- Respect for common property, including public, communal, and charitable use, which allows expanding dwellings and certain uses onto common property, granting privileged use for tethering animals, loading cargo, and installing awnings.
- Respect for residential privacy encompasses clustering rooms around a central courtyard to optimise light and air, preserving seclusion through recessed entryways, and facilitating the sharing of exterior walls among adjacent houses. Streets function primarily as means of access rather than sources of illumination.
- Organisation of the streets according to function: public thoroughfares (nafid⁷) for general use; closed lanes (darb, zuqaq) designated for private or communal access.

The urban fabric of the Islamic city is structured around two fundamental patterns of its development: the derbs and the mahalles.

- Derbs, or Alleyways, enable access to the interior of urban blocks and maintain residential privacy. Their quasi-private character derives from the appropriation of property for thoroughfare, allowing residents to access inner parcels in densely populated urban environments, particularly after the removal of external walls and before urban expansion.
- The mahalle constituted the principal local community unit under Ottoman administration, typically centred around mosques and madrasas, and persisted beyond Soviet governance. Post-independence legislative measures facilitated the restoration of these entities, thereby re-establishing connections between residents and local governmental structures. In Uzbekistan, the mahalle continues as an autonomous organisational unit overseeing various aspects of community life. Medinas were historically partitioned into mahalle, which managed resources and social issues; this structure was formalised under Ottoman rule.

All such forms of internal organisation were guided by Islamic Sharia law and its interpretive stipulations regarding the dimensions of urban elements. The Tanzimat reforms further accelerated these transformations by strengthening administrative institutions and establishing the 1858 Land Code and the 1869 property law (Mayalla), both grounded in the principles of the conservative Hanafi legal tradition.

City organisation by social and cultural patterns repeats across cultures. This did not always cause segregation. Grouping diverse populations into recognisable communities is basic to human society. Urban communities are social and spatial constructs shaped by culture and economics. The Islamic city recognised these features, such as professional specialisation, the origins of its inhabitants, and religious distinctions. In Morocco, this led to the creation of the Mellah during the Marinid period (1269–1464). Analogous urban forms appeared elsewhere, as seen in the Moroccan Mellah and the Venetian ghetto.

The Courtyard House: Past, Present, and Future

Cities are made and recognised by their urban fabric, by the urban structures that give them distinctive value and a unique urban identity. The homogeneity of the city's urban morphology is reflected in the presence of a key typology in Fez's urban settlement: the courtyard house. In Mediterranean Islamic cities, the predominant typology is the courtyard. This patio serves as a central hub for the various activities. This reflects the dwelling's introspective character. This typology

⁷ The term “Nafid” refers to main public streets in the cities, being the first category of public roads to pass through them without any limitation

is characterised by its single-family nature and the development of all its activity, in accordance with the principles of the sacredness of the family as the basic unit in the development of Islamic culture. This typology is generally developed over two floors; the ground floor assumes a more social character within the family nucleus, while the second level develops the private spaces, sometimes differentiated by sex.

This courtyard assumes axial symmetry in its design, typically perpendicular to the facade facing the main street. A double portico or exterior gallery ensures perimeter circulation and directs all family activity towards the courtyard, which serves as the connecting link between the various rooms. Simpler courtyard houses have a single staircase, usually located at the opposite end from the exterior entrance, although houses of higher social standing have more staircases, diversifying circulation according to needs (guest area, exclusive area for the women of the family, service area, etc.). The entrances to the houses feature a "skiffa" or recess that prevents a direct view of the rest of the house from the outside, thus preserving privacy.

This scheme adapts to the city's generally irregular urban fabric by adjusting the house's perimeter walls. However, the courtyard area remains unaltered, seeking to maintain its symmetry and axiality as a differentiating element from other formal solutions.

Some variations are observed in the conception of the single-family dwelling, as in the Mellah (15th century), where the traditional inward-facing orientation of Islamic houses is replaced by balconies and windows overlooking the street. The floor plan of this house follows a central-plan scheme around the courtyard. Despite these differences, Miller, Petruccioli, and Bertagnin (2001) argue that the Mellah of Fez was not an isolated quarter but rather an integral part of the larger city, playing a vital role in establishing the registers of similarity and difference that contributed to the articulation of a specific urban identity. (Miller, 2001)

The cultural interactions

Cultural interactions and the use of initially overland routes have been a constant in the evolution of architecture and its typologies throughout history. These interactions have been interpreted in diverse and evolving ways. The most recent known reference to these changes is the work of Di Cosmo & Publici (Di Cosmo, 2026), which acknowledges the efforts and cooperation of Mongolian cultures in developing the Silk Roads, contradicting the dominant view in the literature produced up to that point. These authors refer to the support provided by Mongolian administrations for the implementation of infrastructure along the routes, citing Sinclair (2019, pp. 22-23). The qualitative leap between landscape and city occurs precisely through the change in the notion of trade, uniting scales from trading to the retail market. It is in this shift in notion that caravanserais are implemented, from the scale of the open landscape to their insertion into the urban environment.

Cities function as dynamic entities that reflect the societies inhabiting them and evolve in response to changing circumstances. Port cities, situated at the intersection of major intellectual, economic, and political corridors, exhibit a particular openness to cultural transformations. The conceptualisation of the Islamic city has undergone significant evolution in recent scholarship. Initially conceptualised from an Orientalist perspective, subsequent re-evaluations have extended into fields such as art history, literature, and cultural studies from the early nineteenth century onward. Scholarly debate concerning urban exchange continues, with the phenomenon of change remaining evident. This discourse takes place within the context of ongoing architectural exchange between Western and Eastern traditions. Scholars, including Kennedy (1985) and, more recently, Ward (2018), have emphasised the need to reassess these concepts to distinguish architectural and urban relationships from reductive East-West binaries.

The review of cultural flows between Western and Eastern societies persisted after decolonisation. In 1979, Francesco Gabrielli and Umberto Scerratto (Gabrielli, 1979) published a detailed study of the Arab and Islamic cultural impact on Italy in the Middle Ages. Enrico Guidoni outlined how these exchanges shaped urban forms in the 9th and 10th centuries. Many studies show architectural typologies as products of mutual enrichment and adaptation, such as caravanserais evolving from ancient Persia to Morocco across diverse local contexts.

Commercial areas

One of the innate conditions of human beings is the development of economic activities. Cities reflect the existence of these activities through their public and private spaces. In the specific case of Islamic cities, these commercial spaces include souks, bazaars, and complexes. The names may change across cultures, but the function of these spaces is generally the same. In Ottoman cities, the urban fabric is composed of arastas, bedestens, and caravanserais, strategically situated near mosques, where mahalles and neighbourhoods foster collective activity. These commercial zones are fundamental to settlement formation and social cohesion.

Historical evidence indicates that economic structures, together with architectural forms, have generated distinctive public spaces. In Mediterranean Islamic cities, open-air souks serve as focal points for public engagement. Supplementary facilities, such as caravanserais, enclosed markets (bedestens and arastas), emerge in adjacent localities. The prominence of water in Islamic culture is evident in the prevalence of fountains and baths. The interconnectedness of mosques, baths, and commercial areas defines the region's social and urban identity.

This study's central argument is that the urban caravanserai, as the main urban architectural typology in these spaces, illustrates how built forms acquire varied meanings and roles across different cultural contexts. Examining these variations highlights the adaptability and significance of caravanserais within urban life.

Urban caravanserais in the Islamic cities (rus in urbe vs urbs in rure)

One of the most interesting aspects of the evolution of the caravanserai as an architectural typology is its integration into the urban environment and the understanding of the alterations made to maintain its main objectives, including necessary changes in scale and formal adjustments.

The earliest references to this typology date from the 8th and 9th centuries, generally along major trade routes between East and West. Attempts to integrate this typology into urban settings are documented in the 12th century, through its Italian version (fondacco) in the ports of Alexandria and Valencia. During the reign of the Marinid dynasty (1244-1465),

key cities such as Fez and Marrakech became major commercial centres. These buildings (often linked to souks and mosques) began to be constructed to provide lodging for travellers, as well as shelter and stables for their animals.

The hans established within the urban fabrics of Anatolian cities are carried out in two phases, in parallel with the previous data. Caravanserais were strategically integrated into Anatolian cities in two distinct phases: first as state-sponsored highway fortresses in the 12th and 13th centuries (Seljuk era), and later as integrated urban trading hubs (or khans) located directly in city centres during the 14th to 16th centuries (Ottoman era).

City Connection: Instead of sitting in city centres, these grand structures served as gateways to safety at major intersections leading into cities like Konya, Kayseri, Sivas, and Erzurum. They were designed to protect merchants outside the city walls before they completed their journey.

Urban caravanserais developed in Islamic, Ottoman, and Mediterranean contexts to facilitate the integration and improvement of commercial activity. Caravans utilised these establishments as safe resting places and transshipment points along key trade routes. The arrival of commodities in urban centres necessitated the adaptation of caravanserais to accommodate both wholesale and retail commerce. Urban caravanserais subsequently evolved as specialised architectural forms catering to the changing demands of trade.

Thus, the first step in typological adaptation was to adjust the sizes and numbers of caravanserais to each city's needs. These adaptations resulted in commercial architectures known as khans, hans, wekalas, funduqs, ans, or fondacos (Wilkinson, 1956). All responded to two constants: spatial changes in commercial exchanges and the accommodation of traders within a single urban space (Caravanserai, n.d.). They share a location within the urban fabric, urban significance, and high resilience, as demonstrated in every case study of the present work.

Urban caravanserais adopted a similar architectural pattern: a central (square or rectangular) space with a water source serving both animals and merchants, surrounded by rooms for storage, trade, and rest. These layouts have demonstrated high resilience and enabled simple contextual changes in use. Urban caravanserais have documented uses. There are several functions documented and spread all over the adaptive reuse developments on them, like residences, barracks, hospitals, or prisons

Location

Urban caravanserais emerged in accessible spots such as city gates or central hubs, reinforcing the importance of these areas (Caravanserai, 2024). They joined souks, madrasas, and hammans as key spatial containers around the central mosque. Urban caravanserais have lost clear archetypes and design regularity (Javid et al., 2025), but, in many cases, adaptations are tied to location. In Fez, we find these urban caravanserais (funduqs) without stables only in a central location, where the entire funduq was considered a key trading point in the urban fabric, just next to the Qairowann mosque. In parallel, the functions located around the gates assumed another prominent role: one related to the animals. The spaces of the caravanserai were no longer so specialised in hosting animals (camels, usually) and their respective riders (cuidadores), balancing these spaces in the dense central area of the Fez Madinat. This is the case of the funduq name Han of the camels, with functions similar to those of other caravanserais located in Nicosia (Deveciler Han) and in Tokat (Turkey).

The typological review of the foundations proposes a variety of patterns, depending on the perspective we adopt in creating these typologies. Plan variations relate to size and adaptation to existing urban spaces, especially under private ownership and in central locations. Officially commissioned caravanserais under a more formal rule and ownership followed more formal patterns, as with Buyuk Han in Nicosia and several Ottoman-era inns. This model could be considered a variety of the Seljuk types developed during the 13th-14th centuries in Anatolia.

Interactions between the urban caravanserais and cities.

The evolution of urban caravanserais is best understood as an assimilation-accommodation process that demonstrates the adaptability and complexity of architectural forms over time. By applying the principles of architectural phenomenology, inspired by Christian Norberg-Schulz, this study argues that the changing relationships among "existence," "space," and "architecture" in the evolution of caravanserais reveal the dynamic interplay between built form and cultural meaning.

The imported stereotypes of the classic caravanserai typology are assimilated by the respective urban fabrics, which, in turn, necessitate adapting these structures to the specific urban context. During this first period, which we could place in the 15th and 16th centuries, caravanserais undergo this dual process, in which the urban caravanserai mimics its predecessors, with notable reductions in scale to integrate into the respective urban fabrics.

These are singular elements in the urban landscape of these cities that formalise commercial activities and reinforce urban spatial hierarchies around the fundamental element of the Islamic city: the Great Mosque.

In this case, the relationship between the urban scale and the surrounding urban fabric becomes difficult, especially given the change in scale, despite the assimilations. There appears to be a "forced" presence of these elements, as the city's de facto powers chose to establish them as new symbols of power.

Cities react to these insertions in various ways, but generally accommodate them by creating public spaces around them and altering their uses. These phenomena are visible in the Kapan Inn of Skopje and the Buyuk Han in Nicosia.

A second phase in the definition of urban caravanserais consists of applying the type, no longer as an isolated singular element but as a finishing touch to the urban consolidation of certain sectors. This detail is clearly seen in the case of the Egyptian Han, located in a privileged position right in front of the main entrance of the main Mosque of Nicosia (formerly the desecrated cathedral). In this case, the dimensions of the Han result from its adaptation to the urban void, where the urban caravanserai delimits new urban alignments and establishes a clear separation between residential spaces and those related to trading activities and animal stables.

The fact that these Hans were built through private initiative means the circumstances are clearly different. The city had been progressing in its consolidation and internal development of walled cities during the 18th and 19th centuries, depending on the different case studies. Large areas suitable for establishing new caravanserais are not usually found under normal conditions, and their strategic locations are the best assets for a successful investment. The city's adaptation

is carried out through successive operations and internal alignments, in relation to the new legislation governing the city's urban management (the Land Code of 1858).

A third phase in the evolution of urban caravanserais occurs in high-density centres, where it is impossible to build new caravanserais of the same dimensions as those of previous phases. This is the case of medinas like Fez and all Islamic-Mediterranean cities with similar characteristics. This evolution of the type should not be understood as diachronic, but rather as occurring under specific circumstances, as explained above. In general, the size of these caravanserais is comparable to that of domestic units, and their appearance is reminiscent of the residential units of Islamic housing. The axial character of the direct entrance from the street is lost; the double bend is adopted as the formal solution for this entrance. The number of entrances is reduced to just one, with a clear distinction between commercial activities on the lower level and temporary residences on the upper level. The funduq spreads throughout the city but is also localised as a linear structure parallel to the souk's activities, with a mix of wholesale and retail levels. The assimilation of the funduq is easier in this case; the relationship between funduq and housing is more direct, and the accommodation is complete.

Throughout the evolution of urban caravanserais and their integration into the urban fabric, several conclusions are evident:

- The smaller, the larger the number of containers
- In this case, the funduq, due to its small dimensions, is very close to the average scale of residential urban areas, is easily absorbed into the urban fabric, and is significant in number; meanwhile, it is spread across the city's mercantile areas, supporting its own activities.
- The smaller, the stronger the relationship with the urban tissues and citizenship.
- In parallel, the small dimensions are accepted by urban communities and, in the event of functional obsolescence, it can be easily readapted to other uses.

Fez-Medina is a good reference for understanding the importance of this typology in the urban reconfiguration over time. It covers a total area of 300 hectares and has a population density of 800 to 1200 people per hectare. It boasts a substantial number of historic buildings—14000 in total, of which 50 per cent are in good condition, 34 per cent have degraded, 14 per cent are at risk of ruin or collapse, and 2 per cent lie in ruin. It is also the site of many historical monuments, numbering around 3000. These include 11 madrasas, 43 Quranic schools, 176 mosques, 83 zaouias, mausoleums and 117 funduqs or caravansaries. (ADER-Fès, 2006). The fact that 117 funduqs are currently catalogued suggests the importance of this building type in urban planning. This number is far from those reported by El-Kartas. (Roudh el-Kartas.), but other researches refer bigger numbers of funduqs, which increase the presence of the typology in the urban fabric till 467. (Tourneau, 1949, p. 57)

The funduq

In the patchwork work where the basic urban fabric (the family home) receives the insertion of the funduq at certain points, the two important contributions of the funduq at the urban scale become apparent:

- The role of the funduq as an intermediary element in the formal scale of the urban landscape: this role is most evident in those funduq that, despite the notable reduction in their dimensions, tend to be built following patterns of imported typologies (originating from the Ottoman Seljuk culture). This urban presence serves as the intermediary element in the perception of the city's urban scale, between the minuteness of singular buildings (meccas, madrasas, libraries,...) and the courtyard-house dwelling. The cases of Fondouq Sbitriyin fall within this role. Funduq Chemmaïne and Fondouq Abd Lamajid, both located near the Qarawiyyin Mosque.
- The funduq's role as an element closely related to the basic unit of the urban fabric, the courtyard house, is reflected in its scale, with facades ranging from 4 meters in the Al-Lamti funduq to 7 meters in the Al-Labad funduq.

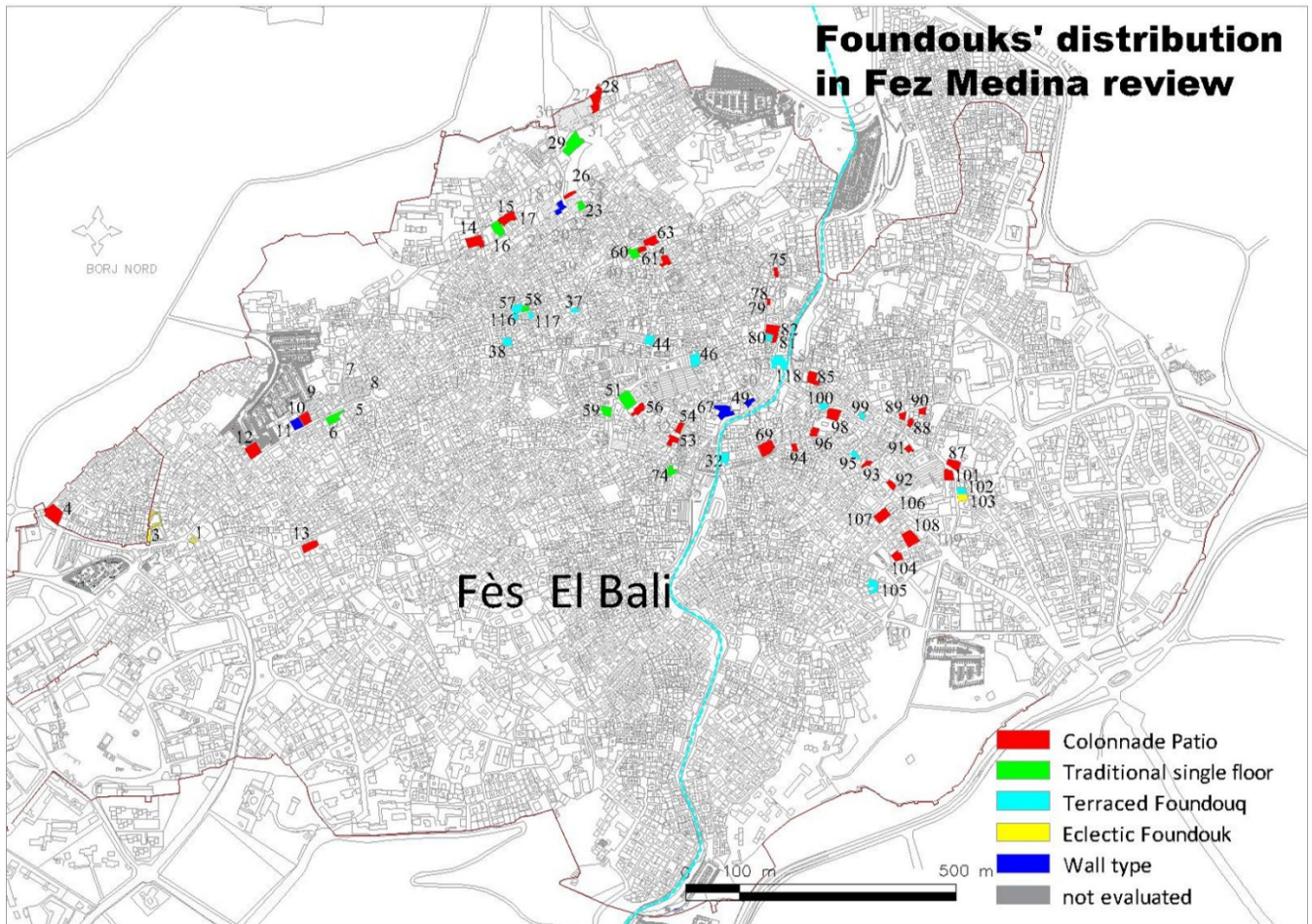


Figure 4. Typological classification of funduqs. Source; Yamada, 1996, over SIG ADERFES, adapted (JMPM-2026).

The funduq was previously presented as a more elaborate typology of urban caravanserais, clearly intended to adapt to urban dimensions and, more specifically, to the domestic scale of its dwellings. A simple comparison between the traditional dwelling of the Islamic city and the funduq reveals a similarity in their formal organisation around a courtyard, which, in many cases, takes on an elongated form perpendicular to the main facade plane. Access to this courtyard area is more direct, as the "skiffa" (a narrow passageway) is absent. or a bent entrance. This emphasises the more public character of the funduq compared to the dwellings' private character.

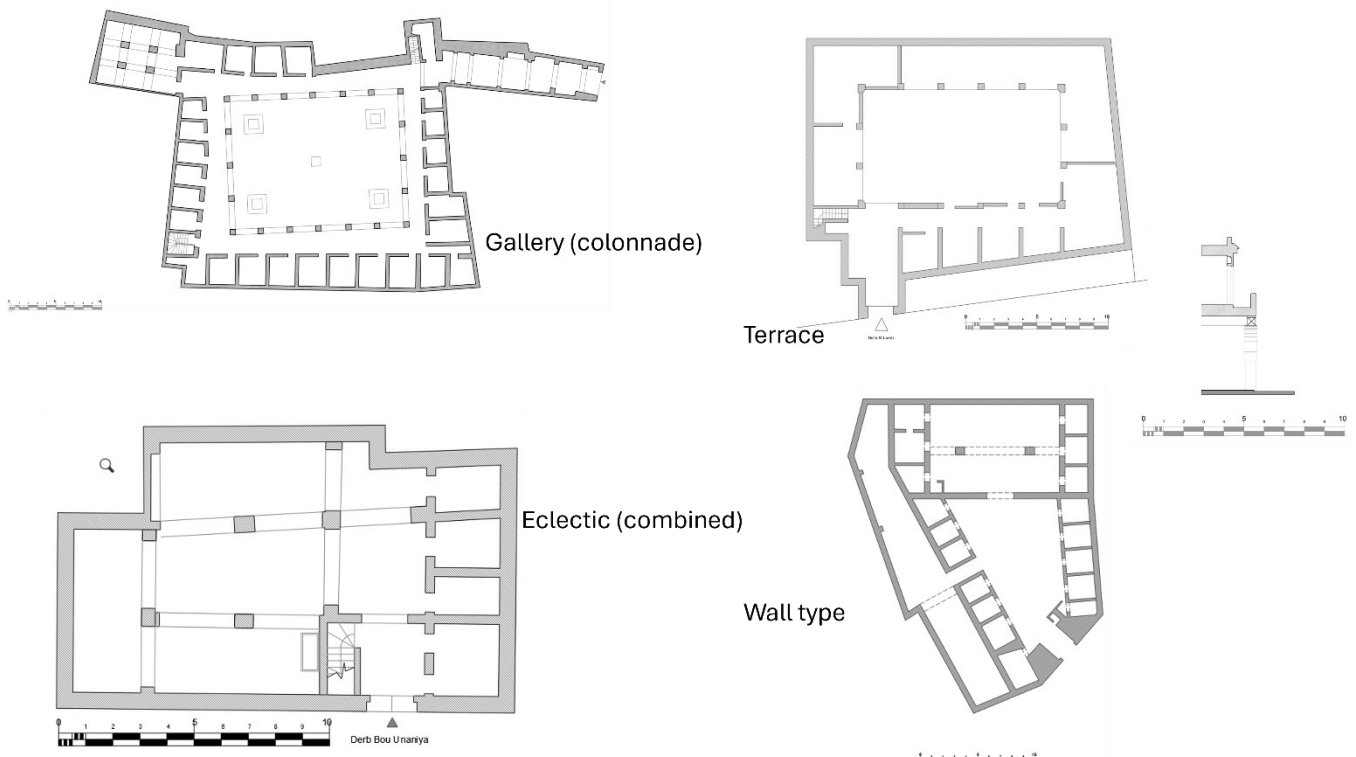


Figure 5. Samples of the different types defined by YAMADA (Yamada, 1996).

Funduqs in Fez Medina: Between Heritage Conservation and Sustainable Urban Rehabilitation

The current state of the funduqs is highly diverse, ranging from successful rehabilitations in both function and form to abandoned funduqs at the mercy of urban development, given their extreme vulnerability due to the materials used in their original construction. Their respective locations also play a significant role, with a direct relationship existing between abandonment and peripheral and/or inaccessible locations. This contrast reflects the complexity of any integrative action, inherent in any historic city where less privileged social classes still coexist amid gentrification processes that threaten to provoke large-scale social and economic changes.

In the case of the Medina of Fes, these contrasts are evident. Although this medina can be considered a living environment, it is no less true that tourism, economic change, and inadequate implementation of heritage policies are progressively transforming the remaining balances and concepts into a more universal society than in previous times.

Funduq Es-Stawniyine: Adaptive Reuse and Heritage Reactivation

The Funduq Es-Stawniyine is one of the most significant examples of architectural rehabilitation carried out in recent years in the medina of Fez. Its location, opposite the eastern gate of the entrance courtyard to the Al-Qarawiyyin Mosque, and its integration into the urban fabric adjacent to the Souk El Attarine, make the building a prime example of an urban caravanserai, where the living quarters and trading facilities are more developed than those for sheltering and housing caravan animals.

This building has received various names throughout its existence, which dates back to around the 14th century. Initially called Funduq er-Rida (Marçais, 1954, p. 315), and currently Tétouaniyine or Es-Stawniyine, the funduk was characterized by its commercial activities, attracting groups of merchants from the nearby city of Tetouan. The building replicates the canons of traditional caravanserai architecture: a symmetrical floor plan centered around a multi-story courtyard.

This funduq still retains several characteristics associated with Moroccan architecture, including its central courtyard, superimposed galleries, and wooden structural elements. Any section of this central courtyard reflects a design that facilitates cross-ventilation, with minimal exterior presence, showcasing the introspection characteristic of Islamic architecture in general, and Moroccan architecture in particular.

This spatial organization simultaneously allows for a vertical hierarchy of functions, ranging from storage to commercial and residential functions, in that order from bottom to top.

After periods of deterioration and partial abandonment, the building underwent comprehensive rehabilitation under the coordination of ADER-Fes. The rehabilitation was not only architectural, but also involved changes to the building's content and functions, transforming the concept of a static museum into a space for interaction between artisanal and cultural activities, always compatible with the building's identity.

This strategy offers several advantages. First, it is understood to be the best way to integrate conservation efforts with compatible functions and spaces within the building itself. Second, it involves not only interaction at the building level, but also interaction between the building and its immediate surroundings (Souk El Attarine). Finally, given the cultural practices developed there, there is also a clear intention to perpetuate them across generations, which is extremely positive for maintaining cultural identity without significant alterations.

On the other hand, this project also exhibits some modifications. The specialisation of activities refers primarily to a vision focused on a predominantly foreign client profile, leading to social disintegration and significant cultural gentrification, where local citizens experience clear marginalization, with the most direct consequence being heritage-centred rehabilitation. The growing orientation towards tourism is progressively transforming historical spaces into cultural products primarily intended for external consumption.

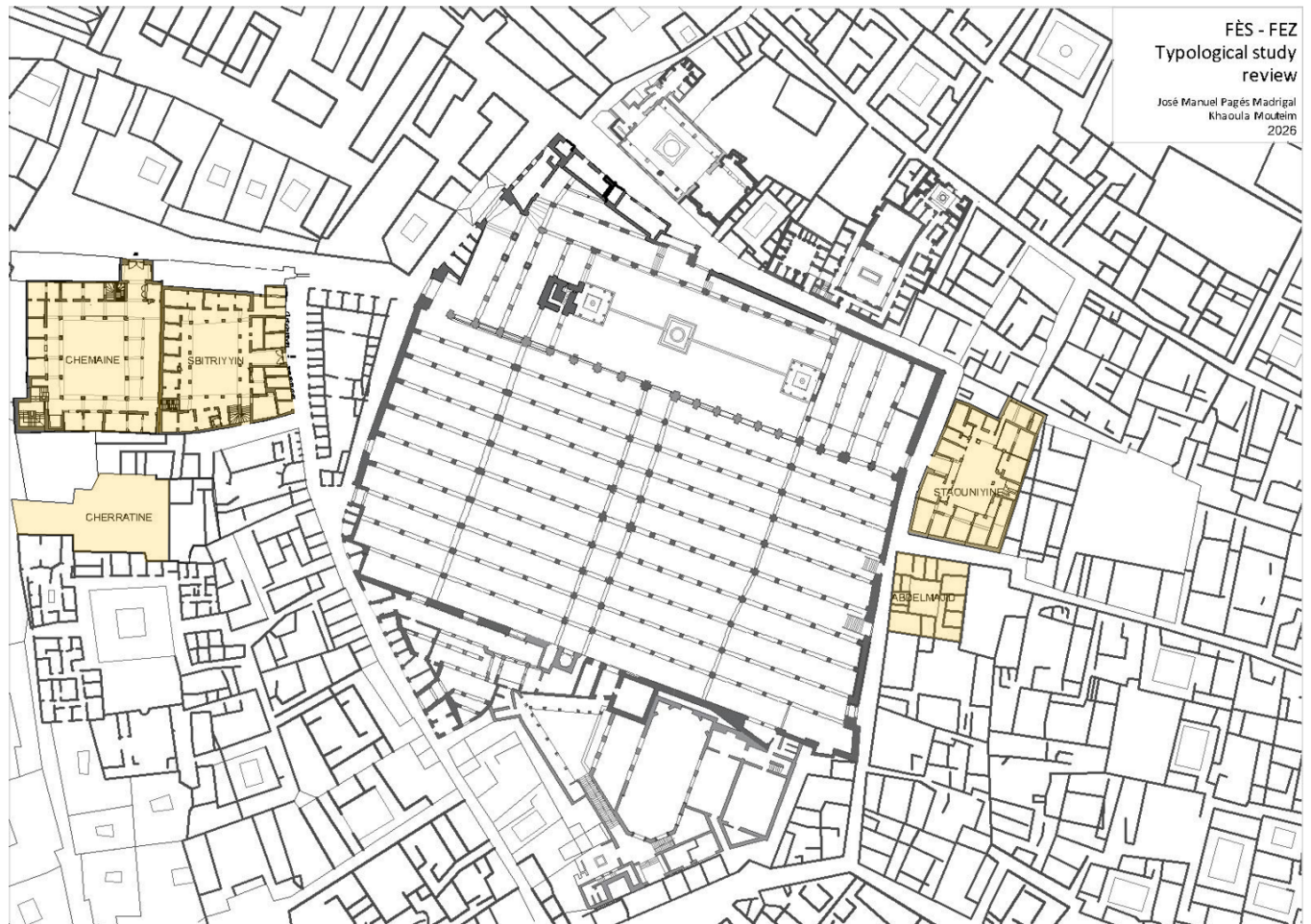


Figure 6. Surroundings of Al-Qarawiyyin Mosque including Es-Stawniyine funduq. Source JMPM-2026.

- **Funduq El Mezdae Tahtani: Residential Vulnerability and Post-Disaster Rehabilitation**

This building is located near one of the medina's gates, Bab Boujeloud, and next to the Bou Inania Madrasa in Tala Sghira. This position defines the building's dimensions, where greater urban intensity justifies a notable reduction in the size of urban plots. It is an area where being present in the urban landscape is more important than the size of the spaces, and where local activity is intense. This attitude contrasts with purely commercial buildings, which are usually larger, and is associated with extra-urban commerce, where transactions are also on a larger scale. Subsequently, the building's reduced dimensions allow for alternative residential use when commercial activity declines. In the case of the central urban farmhouses of Fez Medina, this situation arises from the emergence of new modes of goods transport and changes in trade management, resulting in the general obsolescence of the funduq model. Funduq El Mezdae Tahtani is the typical transition between functions and demonstrates the versatility of this typology.

The building consists of three levels: a ground floor and two upper floors (G+2), with a footprint area of 125 square meters. The funduq is extremely vulnerable, having recently suffered a fire that seriously damaged its structure. This disaster highlighted the fragility of many historic residential structures, affected by ageing materials and insufficient maintenance. Furthermore, the urban structure limits the actions of fire services, given the inaccessibility of conventional means; this should prompt reflection on the needs of cities in general to develop their own fire-extinguishing strategies.

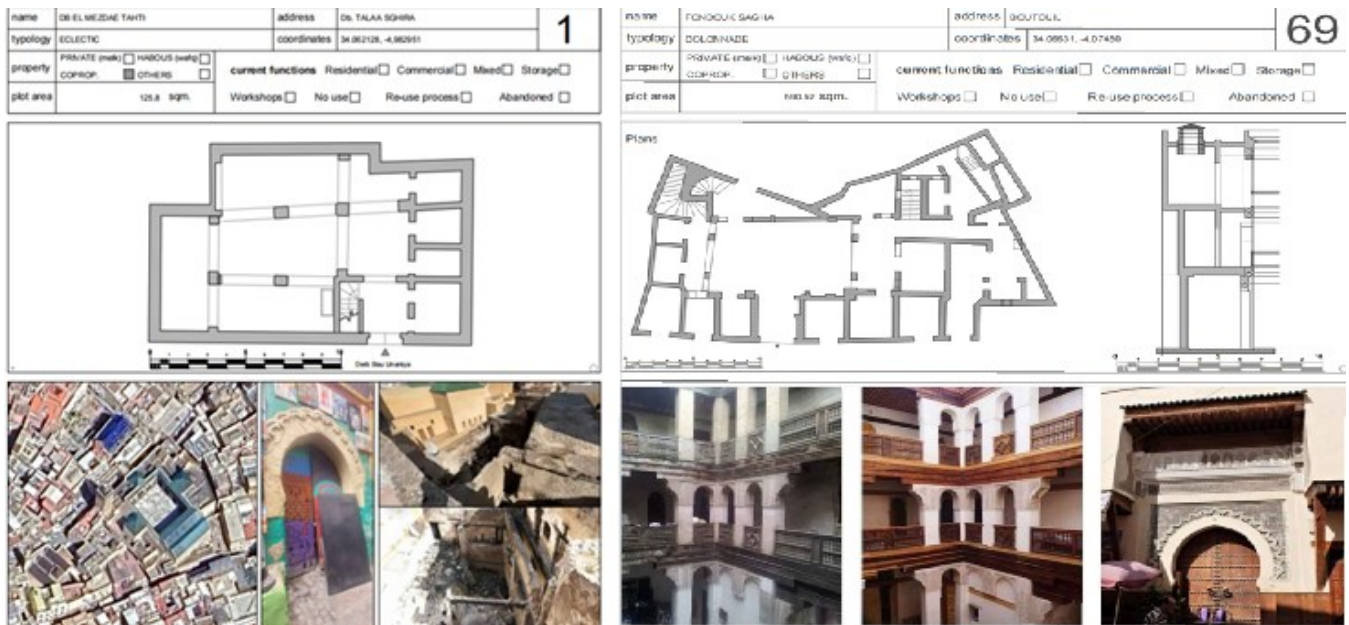


Figure 7. El Mezdae Tahtani and Sagha Funduqs. Source: Authors, 2026.

Funduq Sagha: Craft Specialization and Urban Interface

Funduq Sagha is an interesting example in architectural terms of the medina, located in an area of souks and activities linked to jewellery and metallurgy, around Sagha Square.

The funduq maintains its functional characteristics, namely a central courtyard surrounded by multi-level galleries. Despite the irregularity of the plot's layout, the courtyard serves as the central element that maintains the traditional geometric patterns, and the rest of the buildings adapt to this irregularity. The dimensions of the different perimeter spaces reflect the functional logic of production-oriented funduqs, where workshops, warehouses, and commercial activities interact within the building. Decorative elements such as carved wood, zellige tilework, and stucco emphasise the symbolic importance of craftsmanship in the urban economy of Fez.

Given the funduq's location and the generous ratio of its area to the length of its facades, Funduq Sagha establishes a strong connection with the public space. These facades actively contribute to the revitalisation of the surrounding square by fostering relationships between the artisanal production inside the building and the commercial exchange on the adjacent streets.

The rehabilitation of Funduq Sagha made it possible to restore its architectural qualities and accentuate its heritage and touristic potential. However, despite this intervention, the building remains closed, limiting its role in the neighbourhood's economic and social relations. This situation raises questions about the sustainability of heritage rehabilitation projects when restored buildings fail to regain active, lasting functions within the medina's urban structure.

Fonduq Barad'iyine: A Commercial Interface Between the City and the Rural Hinterland

The Funduk Barad'iyine, also known as the "Camel Funduk" because of its original function, is a traditional commercial building near Bab Guissa in the Fez medina. With an area of approximately 894 m², it stands as an important testament to the historical exchanges between the city and its surrounding rural area.

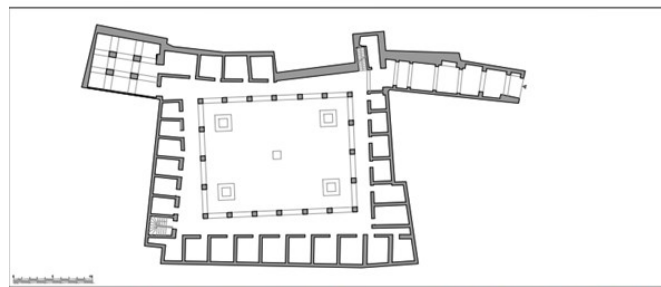
Its location near one of the medina's northern gates facilitated access for rural merchants transporting goods and pack animals. Originally, it was conceived as a classic caravanserai with central symmetry around a large courtyard, all on a single floor.

The building was primarily intended to house camels and other pack animals used to transport goods. It served as a support structure for those in the city centre, given the difficult access to the medina's central area. Its internal organisation separated the different types of animals to reduce congestion and improve circulation within the building.

In a second phase, the funduq evolved into a two-story building, thus enabling greater development of commercial activities and a growing number of users. This new situation demonstrates the building's resilience to traditional commercial structures and the medina's increasing economic dynamism.

The Funduk Barad'iyine reflects essential aspects of the economic and social history of Fez, serving as a link between the Bazaar city and the rural territories that supplied it. Currently, the building is undergoing restoration, in accordance with the building's original formal design.

name	FONDOUK JMAL LABRADIYINE (Fondouk des chameaux)	address	15 BAB GUISSA	18
typology	COLONNADE	coordinates	34.067794, -4.975608	
property	PRIVATE (mek) <input type="checkbox"/> HABOUS (wafiq) <input type="checkbox"/> COPROP. <input type="checkbox"/> OTHERS <input type="checkbox"/>	current functions Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Mixed <input type="checkbox"/> Storage <input type="checkbox"/>		
plot area	894.93 sqm.	Workshops <input type="checkbox"/> No use <input type="checkbox"/> Re-use process <input checked="" type="checkbox"/> Abandoned <input type="checkbox"/>		



name	FONDOUK KAËT SMAN	address	TALAA A KEBIRA	09
typology	COLONNADE	coordinates	34.06416, -4.98048	
property	PRIVATE (mek) <input type="checkbox"/> HABOUS (wafiq) <input type="checkbox"/> COPROP. <input type="checkbox"/> OTHERS <input checked="" type="checkbox"/>	current functions Residential <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Mixed <input type="checkbox"/> Storage <input type="checkbox"/>		
plot area	552.56 sqm.	Workshops <input type="checkbox"/> No use <input type="checkbox"/> Re-use process <input type="checkbox"/> Abandoned <input type="checkbox"/>		

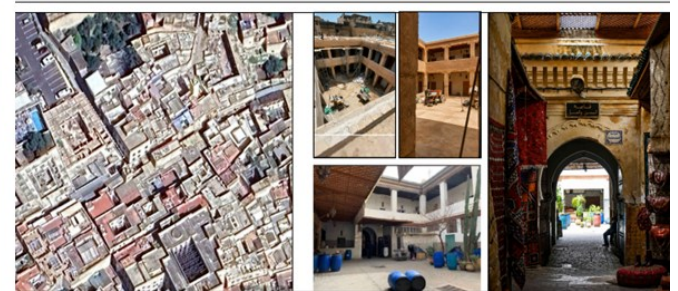
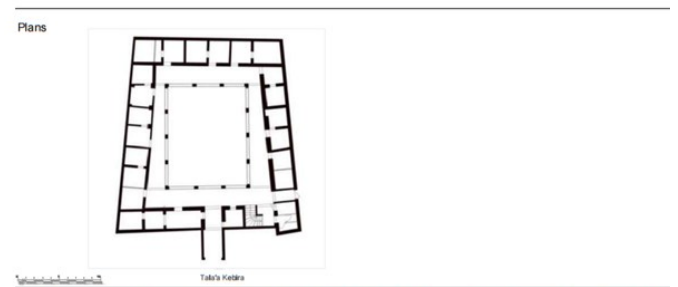


Figure 7. Barad'iyine and Kaât Smen Funduqs. Source: Authors, 2026.

Fondouk Kaât Smen: A Commercial Heritage Site Under Restoration

The Kaât Smen funduq is located in Talaa Kebira, near the western gate of the medina of Fez—Bab Boujloud—for which there is documented evidence from the 17th century. This area of the city developed along the axis connecting this gate with Bab-El Guissa, creating a commercial area mainly focused on the storage and exchange of traditional food products such as smen beldi⁸, honey, olive oil, khlii⁹, and various handicrafts.

Historically, the funduq specialised in the trade, storage, and exchange of traditional food products such as smen beldi, honey, olive oil, khlii, and various handicrafts. All these products came not only from the agricultural belt near the medina of Fez but also from other regions of Morocco, thereby actively contributing to the local economy.

The building falls into the colonnade typology (Yamada, 1996, April), the most common among the remaining funduqs, comprising a regular central structure paved with river pebbles and a perimeter development of various spaces adapted to the irregularities of the plot on which it is situated. Its current use is strictly commercial. The long central corridor provides direct access from Talaa Kebira to the central core of the two-story building, which features a perimeter gallery with various trading and storage spaces arranged. A comprehensive rehabilitation is underway at this funduq today. The work aims to preserve their structure and adapt them for modern use in accordance with current safety and habitability standards.

Funduqs today

Funduqs in Fez Medina present today very different realities highly depending on their locations. In general, there is a duality; Some funduqs have been restored and brought back to life, often hosting artisans or small activities. However, other funduqs have been abandoned, slowly deteriorating or losing their original function. The result is an uneven landscape: a mix of revived spaces and abandoned ones.

Walking through the Medina, the perception is mixed, passing from active areas with well-maintained funduqs to other sectors with closed, silent, or partially ruined funduqs, where it feels like time has stopped.

The Medina is still alive — people work, trade, and live there every day — but its rhythm has changed. It is vibrant during the day, and much quieter after shop hours, when many streets become almost empty.

The future of the Fez Medina will strongly depend on the current silent areas where funduqs remain as spaces of memory, revealing a gradual shift from a lived city to one increasingly shaped by heritage and tourism.

These case studies demonstrate that funduqs in Fez Medina cannot be approached through a single rehabilitation model. Their diverse functions, conservation states, urban contexts, and social realities require flexible, multidisciplinary strategies. Some deteriorated tenement buildings continue to house economically vulnerable populations, making conservation inseparable from social sustainability. Therefore, future rehabilitation strategies must balance architectural conservation with resident safety, improved living conditions, and the preservation of the building's historical identity within the urban fabric of Fez Medina.

Previous studies have proposed various classifications of funduqs based on architectural, functional, or historical criteria. However, many classifications now require updating, particularly because some funduqs have disappeared or undergone major transformations.

⁸ It refers to a traditional, artisanal fermented butter in Moroccan Arabic. It is a heavily salted, aged, clarified butter with a pungent, complex, and "funky" flavor profile comparable to blue cheese

⁹ This is a traditional Moroccan preserved meat, often described as a "meat confit" or Moroccan jerky. It is made by cutting beef or lamb into strips, marinating them in spices (cumin, coriander, garlic), sun-drying

Ultimately, sustainable rehabilitation must go beyond the preservation of architectural form alone. It should integrate urban safety, social sustainability, economic vitality, and the continuity of living cultural practices. The future of the funduqs depends not only on restoring historic buildings, but also on maintaining their role as active components of the living medina. The rehabilitation of funduqs in Fez, therefore, requires an integrated approach that balances heritage conservation, contemporary urban needs, and the preservation of the medina's social and productive identity.

Future actions

Considering the previous analysis, some future actions are proposed, since some important research efforts conducted earlier require an update after almost forty years. In some cases, we observed that some of the funduqs included have disappeared today.

Since this work is still in progress, and given the numerous previous studies of individual cases, a comprehensive compilation of existing research is necessary to develop a systematic study of the funduqs. The results of this study could be used to develop a comprehensive GIS database as a cross-referencing framework for the different typologies and conditions of funduqs throughout the medina. This study should include architectural, historical, functional, and socio-economic layers, and it would advance interdisciplinary research in parallel with the integrative rehabilitation of the different samples.

Conclusion

The city of Fez, in general, is the result of multiple legacies inserted into a palimpsest city. More specifically, the Medina represents today the cultural, religious, and tourist centre of Morocco. In this context, the funduq, a building enclosing an internal courtyard used for caravans and also equipped with rooms for travellers, historically played an important role within the Medina. This typology is the main component of the urban tissue as the Medina, and represents a cultural heritage that bears witness to a society's collective memory, and their rehabilitation is the ultimate goal of this paper. Heritage conservation does not seek to weaken the bonds that bind members of society together. Nor does it seek to challenge the past. It draws inspiration from the "collective memory" rooted in the city's cultural depths, reflected in its buildings and monuments. The paper sought to highlight the main characteristics of Funduqs and their roles in shaping the urban form of Mediterranean Islamic cities.

These types of buildings constitute a heterogeneous group, still playing a specific role in supporting the urban tissue: a kind of bridge between the larger scale (urban landmarks) and the domestic urban tissue. Funduqs represent a cultural heritage that bears witness to a society's collective memory, and their rehabilitation is the ultimate objective of a transversal action. Funduqs were progressively reduced due to their obsolescence in the last decades. Meanwhile, their respective adaptive use projects were successful, usually with new uses assigned, such as different public uses or communal services, but are unfortunately threatened by multiple factors of degradation. One is not only physical but also affects the significance within the community.

The "World Heritage site" designation of Fez in 1981 was a catalyst for its regeneration, though it was accompanied by gentrification in the Medina's central areas. The medina of Fez is destined to play an important role as a reference point in the regeneration of cities with significant heritage value, as a bridgehead between Europe and Africa, and to avoid the errors in heritage management that can be observed today, where the exaltation of the economy can end up destroying the true reason for the recognition of sites as World Heritage

So many aspects experienced an important improvement, in terms of preservation and regeneration of the most iconic buildings. An integrative project with different stakeholders is needed: a coordinated action Plan with the participation of universities, public and private partners, and the own citizenship, needs to be urgently developed..

After four decades of actions along these lines, it is time for a new impetus for comprehensive regeneration based on these points:

- 1.The funduqs continue to be an important landmark in the urban landscape of the medina, between the iconic buildings and the riads. (housing units)
- 2.The consideration of still-unrestored funduqs as a necessary element for the retention of local populations.
- 3.The promotion of artisan trades in these buildings that allow for mixed use based on standards of decent housing.
- 4.The comprehensive recovery of public spaces adjacent to these building types to allow for appropriate social use for the benefit of local citizens.
- 5.These points require the support of all institutions, where universities, as educational and training entities, and social

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