



## Concepts and Functions in The Building Engineering



Journal homepage: <https://cfbejournal.abu.ac.ir/>

### Artificial Intelligence with Human Intelligence: Empowering the Historical Lalehzar Neighborhood with

Masoumeh Nasiri; Mahmoud Rezaei



Associate Professor, Department of Architecture, Tehran Central Branch, Islamic Azad University, Tehran, Iran .

\* Corresponding author: [Mahmud.Rezaei@iau.ac.ir](mailto:Mahmud.Rezaei@iau.ac.ir)

#### ARTICLE INFO

#### ABSTRACT

##### Article history:

Received: 03 July 2025

Revised: 15 July 2025

Accepted: 12 August 2025

##### Keywords:

Urban empowerment, historical neighborhoods, collective intelligence, ICT, digital regeneration, Lalehzar, smart participation..

This research investigates the technological capacities in the regeneration and empowerment of historical neighborhoods, focusing on the Lalehzar district in Tehran. By integrating information and communication technology (ICT) and artificial intelligence (AI) within data-driven solutions, the study examines the role of social participation and collective memory in redefining urban identity. Lalehzar, once a center of modernism, art, and technology, now faces challenges such as demographic decline, physical decay, and cultural disintegration. This study, employing a qualitative and project-based approach, has been conducted in three stages: the development of a participatory vision involving urban stakeholders, 3D modeling based on creative scenarios, and Delphi analysis to assess the feasibility of the proposed actions. The findings indicate that the intelligent use of ICT can provide new platforms for social interaction, strengthen local narratives, and attract human capital. Emphasizing "collective intelligence" alongside artificial intelligence serves as a key strategy for ensuring the sustainability of empowerment processes and utilizing local capacities toward the achievement of sustainable cultural and economic development.

E-ISSN: 000-000

© (2025). The Authors. Concepts and Functions in The Building Engineering by Ahlul Bayt International University.

How to cite this article:

M. Nasiri; M. Rezaei, (2025). Artificial Intelligence with Human Intelligence: Empowering the Historical Lalehzar Neighborhood with, 1(2), 58-76. <https://doi.org/>

## **Introduction**

Today, the use of Information and Communication Technology (ICT) in applied sciences, including urban design, is considered essential for improving the quality of living environments (Carmona, 2021). ICT, by supporting instrumental, placeless, and participatory theories, can play an effective role in the regeneration of urban fabrics (Rezaei, 2021). Despite various studies conducted in Iran and globally on the impact of technologies such as the Internet of Things (IoT) and Artificial Intelligence (AI) on landscape design, cityscape, and public spaces (Rezaei, 2003; Townsend, 2013), it is still unclear what specific functions these technologies might have in the historical contexts of Iran. With the intensification of decay in central urban fabrics, especially after the pandemic, there has been a growing focus on the role of ICT in revitalizing these areas (Rezaei, 2022). However, most studies have taken a prescriptive approach toward technology, whereas this research, with a problem-oriented approach, investigates the use of ICT in developing a participatory vision and design in the historical Lalehzar street of Tehran. Unlike previous studies that considered the electrical trade as a barrier to development (Tavakoli, 2009; Azizi & Safari, 2014), this research considers the same trade as a key agent of transformation and prioritizes "collective intelligence" over just "artificial intelligence." Furthermore, the cultural significance and central location of Lalehzar accentuate the need for technological interventions aimed at preserving its historical identity and enhancing its social and economic functions (Green, 2020; Sajadzadeh & Farjamtalab, 2022).

### **Literature Review on the Use of Information and Communication Technology (ICT)**

Information and Communication Technology (ICT), as a network of processes for receiving, storing, processing, analyzing, and presenting information, has brought about a fundamental transformation in the 21st century and paved the way for the emergence of the new information society (Rezaei, 2005). This technology, now defined in terms of computers, telecommunications, and the internet, has had widespread effects on social structures and all dimensions of the urban environment, to the extent that some consider it a key infrastructure for urban development (Moqaddari Esfahani, 2010). Historically, ICT was mainly recognized as a tool for economic development, but today its role as a driver of human, social, and economic development, especially in the context of globalization, is highly prominent (Mohammadpour, Zali & Amoozadeh, 2017). Before being merely a collection of tools, ICT has evolved into a cognitive and cultural system, promoting a "culture of information production" and creating a new identity (Ashna & Barzoui, 2011). By influencing various urban processes, ICT facilitates the enhancement of urban life quality through enabling citizen participation, increasing interactions between government and citizens, reducing costs, and improving access to information (Rezaei, 2021). Additionally, ICT, by digitalizing urban processes, improves security, strengthens social interactions, and boosts nighttime life in historical urban areas (Rezaei, Marzi & Shojaee, 2022). The diverse applications of ICT around the world, from snowplow control via GPS in Chicago to connecting citizens' cards to Wi-Fi networks in Spain, showcase its high potential for smart urban management (Townsend, 2013). However, effective utilization of ICT requires informed policymaking and cohesive strategies, as neglecting influential variables in urban design could lead to undesirable outcomes (Nourian & Afradi, 2020).

### **Social and Activity Aspects**

In social and activity aspects, ICT, in addition to facilitating citizen participation in social and economic processes, has contributed to strengthening social and cultural interactions. Digital technologies, particularly social networks and online platforms, have increased communication and social collaboration at the urban level. This has been especially important in crisis management, urban decision-making, and local planning, fostering increased public participation in urban affairs (Mohammed Aljoufie, 2017). In some advanced cities, the use of technologies in public spaces, such as parks and squares, has led to multifunctional uses of urban spaces, which has increased social interactions and improved urban life quality (Crang, 2000; Rezaei, 2021). Additionally, the smartification of public transport, such as the use of GPS systems in buses and metros, has facilitated movement and improved the quality of citizens' daily activities (Ghorbani Param & Rezaei, 2021).

### **Cultural and Historical Aspects**

In cultural and historical dimensions, ICT plays a prominent role in preserving and presenting cultural heritage and urban identity. The use of digital technologies for displaying location-based information through smart devices, digital exhibitions, and tourism applications has enriched the experience of visiting historical sites (Rezaei, 2005). These technologies allow tourists and residents to receive information about the history, culture, and architecture of historical places interactively and directly through digital tools like mobile apps or digital displays. Examples of such initiatives include the display of historical information in urban parks or using technologies like "Avayar" for listening to historical stories of places. This not only enhances cultural and social awareness but also aids in the revival of the historical and cultural identity of urban spaces (Guillaume, 2015; Anadol, 2021).

### **Economic Aspects**

In economic terms, ICT acts as a key factor in urban regeneration and economic revitalization. Since the 1990s, new technologies such as the Internet of Things (IoT), big data, and artificial intelligence have introduced the concept of smart cities, which can serve as catalysts for economic development and productivity improvement on a global scale (Guillaume, 2015; Pellegrin et al., 2021). By leveraging digital technologies, modern urban infrastructure has been established, and with increased access to resources and services, new businesses have emerged in historical and underdeveloped areas. This has helped strengthen urban economies and create new jobs (Medghalchi et al., 2021). Moreover, the adoption of advanced technologies in resource management and cost reduction has improved the performance of urban systems and overall productivity at various urban scales (Nourian & Afradi, 2020).

### **Physical Aspects**

From a physical perspective, ICT has significantly impacted urban design, bringing about major changes in the structural composition of cities. The use of digital technologies in designing urban facades, such as digital building surfaces and transparent panels that can display images and information, are examples of how technology is integrated into the physical design of cities (Rezaei, 2005). In various projects, building facades have turned into media platforms for broadcasting images and advertising messages, transforming the urban space into a dynamic and interactive environment (Crang, 2000). Additionally, in some cities, the use of digital technologies

to create smart spaces in parks, squares, and even public transportation stations has led to noticeable changes in how these spaces are used, enhancing accessibility and comfort for citizens (Rezaei, 2021).

ICT, by empowering cities across various economic, social, cultural, physical, and managerial aspects, plays a fundamental role in urban transformation and regeneration. From creating smart and economic infrastructures to strengthening cultural identity and improving urban life quality, ICT has become an essential tool for enhancing urban conditions. Global experiences in using ICT also show that with effective utilization of this technology, it is possible to create a smart and sustainable city where resources are optimally managed and social and economic interactions are continuously improved.

### **Research Methodology**

This study was conducted with a project-based approach within a qualitative research framework. The research structure was designed based on an interactive and forward-looking process, progressing through three main steps: developing a participatory vision, digital simulation, and Delphi analysis. These stages provided a foundation for evaluating and prioritizing design options in the historical fabric of Lalehzar Street. In the first phase, a participatory foresight model was employed, relying on the interaction between universities and the local community. Six potential scenarios for the future of Tehran's historical fabric were defined: "tourism-historical," "employment generation," "cultural-artistic," "transportation," "sustainable development," and "social housing" (Mahsani & Rezaei, 2023; Rezaei, 2017, 2020, 2022). Based on these visions, Lalehzar neighborhood was selected as the case study. Three main tools were used for data collection:

Initially, documentary studies (library and electronic) were conducted to extract theoretical foundations and analyze comparable studies. This was followed by field observations and qualitative interviews, including discussions with residents, local activists, long-time moviegoers, shopkeepers, and participation in community association meetings. Finally, the Delphi technique was used to achieve consensus among 15 experts in five key areas (urban design, architecture, ICT, computer science, and digital media and arts). The analysis and synthesis process was carried out in three consecutive rounds. By the end of the third round, consensus was achieved with an agreement rate of 78.9%. The criteria for evaluating and ranking the options were based on feasibility indicators such as budgeting, cost, return on investment, timing, and implementation possibilities. It is important to note that the results offer an open, flexible, and relative interpretation of the proposed design quality rather than an absolute version. Therefore, the final outcome of the research represents one of several collective-mental visions that, through expert participation, has the potential for realization within the project context (Rezaei & Irani Malekian, 2021).

### **Case Study Analysis of Lalehzar Street, Tehran**


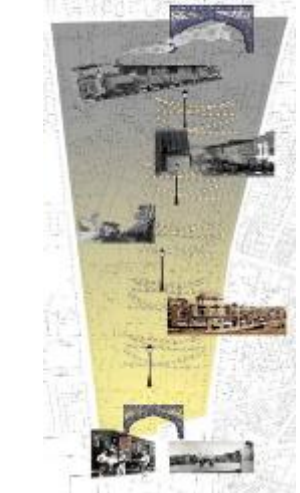




Lalehzar Street in Tehran, as one of the historical and cultural axes of the capital, contains layers of events and experiences—both physical, social, and virtual—that have manifested in various forms over time. This street, which has its origins in the Qajar-era Lalehzar Garden, gradually transformed into a public space during the urban development process under the Nasiri period. Over time, it became a symbol of modernity in the city, influenced by the introduction of Western lifestyles and the establishment of cultural, commercial, and recreational institutions. During the reigns of the first and second Pahlavi dynasties, Lalehzar became a luxurious thoroughfare for the sale of emerging products and the center of Iranian theater and cinema.

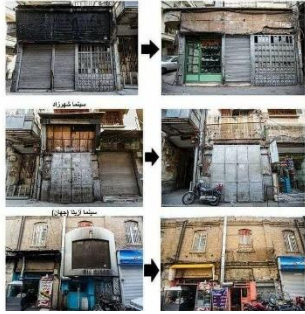

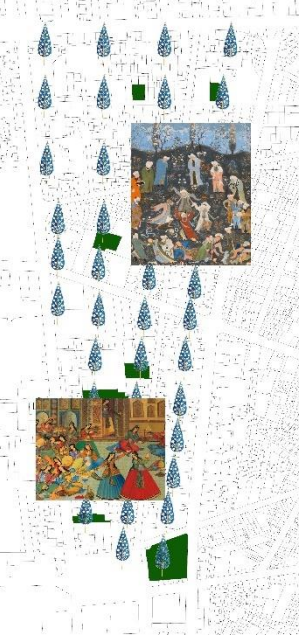
However, from the 1960s onwards, with the relocation of cultural and commercial centers and the concentration of activities in the electrical and clothing trades, its cultural identity weakened, and its social and physical structure underwent significant transformation. Following the Islamic Revolution, the pace of this change in land use accelerated, and Lalehzar gradually distanced itself from its cultural roots. Today, this street represents a meeting point of historical memory and the changing realities of urban life, which, over time, has been the subject of various regeneration efforts and proposed strategies (Habibi & Ahari, 1999; Rezaei, 2005; Pourzargar et al., 2020). This complex history of Lalehzar highlights its importance as both a cultural symbol and a site of constant transformation, providing valuable insights into how urban regeneration strategies can address both its past and present realities.



**Figure 1** - Graphical Section of Lalehzar Street (Nasiri, 2023)

**Table 1** - Graphical Diagram of the General Analysis of Key Components and Gradual Changes in Lalehzar Over Time (Nasiri, 2023)

Islamic Republic	From Qajar to Pahlavi	From Safavid to Qajar	Assessment of the Key Components
 <p data-bbox="207 835 505 982">Figure 4 – Formation of warehouses, parking lots, and the "electrical street" district – demolition of historical and valuable buildings.</p>	 <p data-bbox="548 835 846 982">Figure 3 – Physical and morphological transformation – construction of the street, gas lamps, and horse-drawn carriages.</p>	 <p data-bbox="927 808 1198 982">Figure 2 – Construction of the nearest garden to the Nasiri Wall – a recreational area for the king and the nobles of the country.</p>	<p data-bbox="1305 485 1398 512">Physical</p>
 <p data-bbox="207 1570 505 1724">Figure 7 – Displacement of original residents, neglect of historical heritage, and deterioration of historical buildings.</p>	 <p data-bbox="548 1570 846 1776">Figure 6 – Construction of modern recreational facilities – establishment of shopping centers, cafes, restaurants, cinemas, theaters, and the introduction of new consumer goods.</p>	 <p data-bbox="927 1537 1198 1661">Figure 5 – Hosting national celebrations and serving as a residence for foreign ambassadors.</p>	<p data-bbox="1305 1115 1398 1171">Social-Activity</p>

 <p>Figure 10 – Transformation into the "electrical street" district and removal from the center of attention.</p>	 <p>of Western-style atmosphere, establishment of New Lalehzar, and settlement of affluent people – decline in cultural values and the rise of low-quality performances.</p>	 <p>Figure 8 – Hosting royal weddings and the burial of princes, and the temporary residence of Qavam al-Dawla.</p>	<p>Cultural-Historical</p>
---	---	---	----------------------------

**Table 2.** Analysis of the proposed strategies in previous courses for improving the urban design of the Lalehzar area in Tehran, categorized by key components: (Razaei & Nasiri, 2024, p. 26)

Proposed strategies in previous courses for improving the urban design of the Lalehzar area	Key Emphasized Components
<p>Enhancing the quality of urban furniture, green spaces, pedestrian walkways, access to public transportation, and related services (Tavakoli, 2009).                      Reconstruction of the physical fabric, including repair and removal of undesirable physical characteristics (Khan Mohammadi, Qala Noei, &amp; Izadi, 2020).                      Restoration of the facades of valuable buildings (Tavakoli, 2009, p. 77).                      Increasing walkability by eliminating car traffic within the blocks adjacent to Lalehzar and Arg Streets, as opposed to on Lalehzar and Ferdowsi Streets. Categorization of walkability at intersections, squares, and blocks within the historical fabric (Rezaei, 2022).</p>	<p>Physical Component</p>
<p>Utilizing cultural productions in the revitalization of Lalehzar according to current needs (Azizi &amp; Safari, 2014).                       Strengthening the sense of belonging and enhancing the nostalgic and memory-building qualities of the area (Khan Mohammadi, Qala Noei, &amp; Izadi, 2020, p. 15).                       Preserving and maintaining historical elements and architectural heritage of the neighborhood through a technology-based approach (Hanachi, Azari, &amp; Mahmoud Kalaye, 2013).</p>	<p>Social-Activity Component</p>

<p>Creating pedestrian walkways and spaces for cultural and artistic events and festivals (Khan Mohammadi, Qala Noei, &amp; Izadi, 2020, p. 15).</p> <p>Forecasting low-cost workspaces, studios, cafes, and street markets (Khan Mohammadi, Qala Noei, &amp; Izadi, 2020, p. 15).</p> <p>Attracting private investors and cinema companies (Khan Mohammadi, Qala Noei, &amp; Izadi, 2020, p. 15).</p>	
<p>Utilizing cultural products in the revitalization of Lalehzar in line with current needs (Azizi &amp; Safari, 2014).</p> <p>Strengthening the sense of belonging and enhancing the nostalgic and memory-building qualities of the area (Khan Mohammadi, Qala Noei, &amp; Izadi, 2020, p. 15).</p> <p>Preserving and maintaining historical elements and architectural heritage of the neighborhood with a technology-based approach (Hanachi, Azari, &amp; Mahmoud Kalaye, 2013).</p> <p>and festivals (Khan Mohammadi, Qala Noei, &amp; Izadi, 2020, p. 15).</p>	<p>Cultural- Historical Component</p>

## 1. Social-Activity Strategies: Collective Intelligence as the Driving Force for Social Transformation

In the process of revitalizing Lalehzar Street, combining the potential of information and communication technology (ICT) with the concept of "collective intelligence" can provide a suitable platform for enhancing social participation and empowering the local community. Collective intelligence, as an embodiment of collective wisdom, lived knowledge, and local cultural capital, has the potential to democratize the decision-making process and revive social dynamism in forgotten spaces. The idea of transforming Lalehzar into a cultural tourism hub inspired by the components of native Iranian-Islamic architecture, while preserving existing businesses and trades, increasing pedestrian mobility, and enhancing presence throughout the day and night, is part of the proposed strategies in this regard. Supporting young artists through exhibitions, cultural markets, and art shops is also defined within this framework. On the other hand, ICT, as an empowering infrastructure, facilitates the intelligent utilization of people's capacities. The proximity of the electrical trade to cultural and artistic fields such as theater and music creates a unique opportunity for synergy, so that, with the support of specialized institutions, it is possible to foster the formation of knowledge-based companies in fields such as media, theater, cinema, music, and ICT. Proposed actions such as providing free internet infrastructure, installing digital urban panels, and allocating flexible spaces for artistic activities align with this vision. Ultimately, utilizing ICT and collective intelligence creates opportunities for forming participatory institutions, enhancing social capital, and developing digital platforms for local dialogue, urban voting, and sharing lived experiences. This intelligent participation becomes a driving force for fostering a sense of belonging, social cohesion, and empowering the local community.

## **2. Cultural-Historical Strategies: Digital Narratives of Collective Memory with the Support of Artificial Intelligence and Collective Intelligence**

Modern technologies such as augmented reality, the Internet of Things, and artificial intelligence offer the opportunity to recreate historical values and collective memories of neighborhoods through interactive digital narratives. Reviving old cinemas and theaters, smart lighting, combining music and light in urban spaces, and hosting cultural festivals during special times of the year (such as Fajr Festival) are actions that can transform Lalehzar into a lively cultural interaction hub. In this context, technology not only serves as a tool for representing the past but also as a platform for creating new cultural experiences. Lalehzar can evolve from a space of nostalgic memory into an innovative platform for reinterpreting historical heritage, recreating collective memories, and reviving urban identity. Through this, it can transform into a modern, interactive hub for cultural, artistic, and urban exchanges.

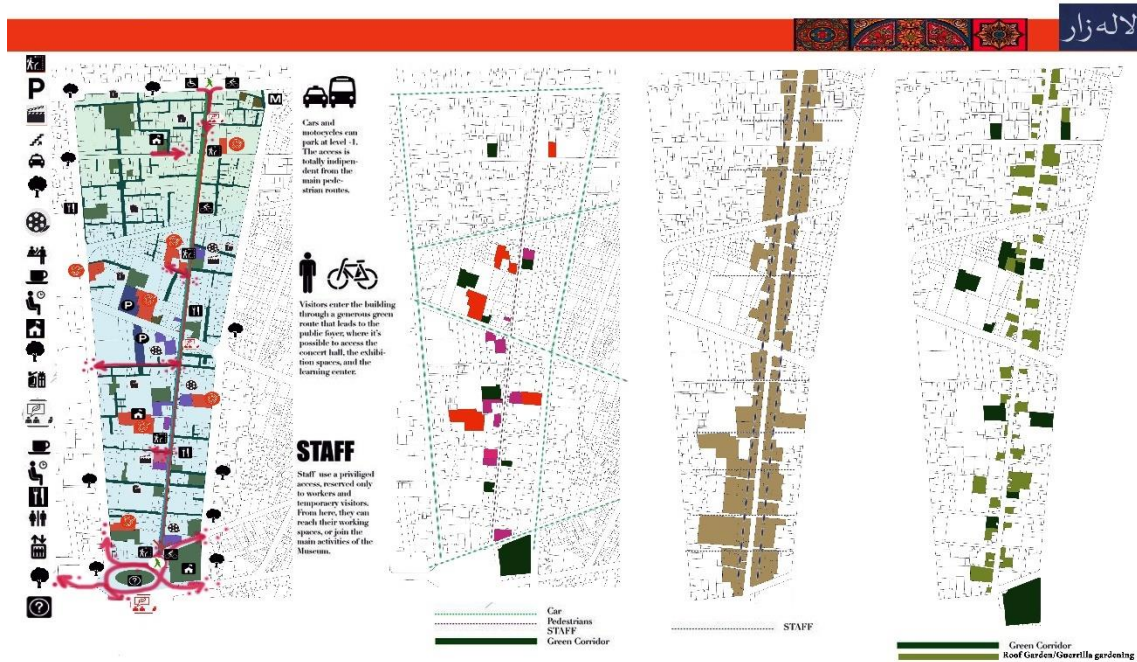
## **3. Physical Strategies: Designing Smart, Interactive, and Locally-Oriented Urban Spaces with a Focus on Collective Intelligence**

The physical transformation of Lalehzar using ICT and artificial intelligence can include equipping the street with interactive digital panels, smart lighting, smart advertising-art walls, and enhancing pedestrian and cycling infrastructures. These actions, especially during the night, improve the urban experience and strengthen citizens' interaction with the space. Alongside these technological interventions, the use of traditional Iranian-Islamic architectural elements such as "gudal baghcheh" (sunken garden), "koushk" (pavilion), "sharbatkhaneh" (refreshment house), "shahneshin" (throne room), "bahar-neshin" (spring room), and "zimistan-neshin" (winter room) in the design of green spaces and the creation of Iranian gardens on rooftops, courtyards, and even basements, is designed to strengthen place attachment and create a user-oriented, locally-grounded, and smart environment. This design not only improves the quality of the urban experience but also emphasizes the spatial identity of the neighborhood. Another proposed innovation is the design of an underground complex for transferring car parking, organizing loading and unloading zones, motor vehicle areas, and centralizing scattered warehouses, which would prevent construction incompatible with the historical fabric and manage service functions in a smart, infrastructure-driven manner.

## **4. Economic Strategies: Strengthening the Creative Economy through Technological Infrastructure and Collective Intelligence**

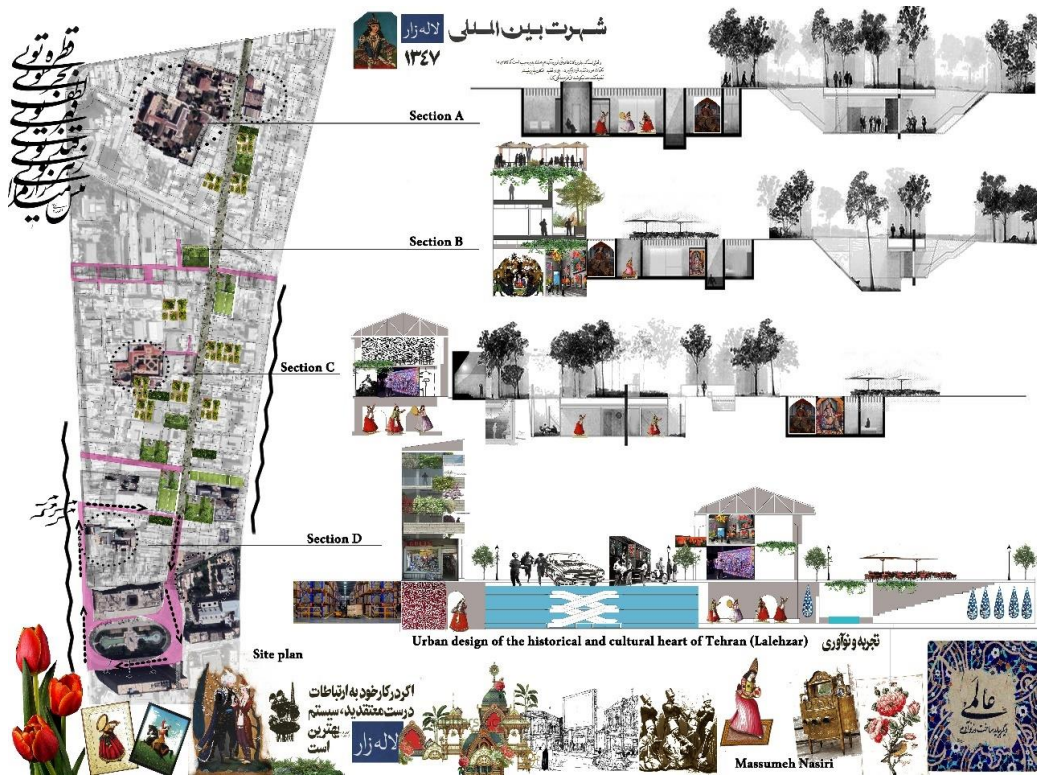
Information and communication technology (ICT), as a driving force for the creative economy, can play a significant role in the economic revitalization of Lalehzar. Creating shared workspaces, innovation centers, and cultural-artistic accelerators, supporting media businesses, and connecting the electrical trade with the ICT industry are among the actions that can lay the foundation for job growth and knowledge-based economy in this area. Additionally, offering digital services to local businesses, hosting online events, and connecting to national and international markets provide new opportunities for Lalehzar. In the long-term vision, these strategies can transform Lalehzar into a dynamic economic and cultural hub in the capital. Another proposed initiative to enhance collective intelligence is the concept of guerrilla gardening, which is a creative and community-driven method for revitalizing urban spaces and strengthening local attachment. This method uses

abandoned spaces, dusty corners of sidewalks, doorsteps, electric poles, forgotten areas, or spaces between buildings to create small gardens with flowers, medicinal plants, or even vegetables.

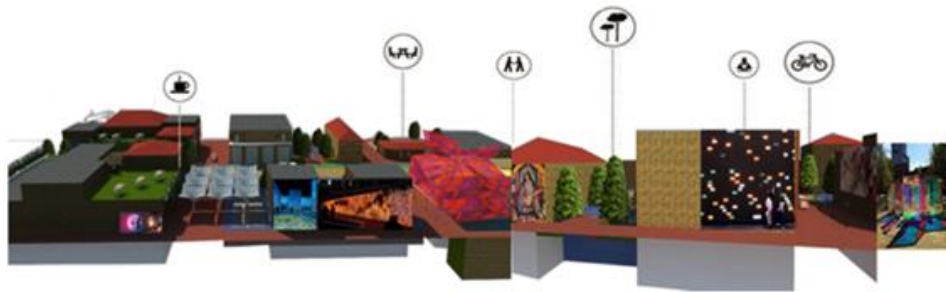


**Figure 11:** Activity and Location Mapping Based on the Strategies Adopted for the Urban Design of Lalehzar with the Help of ICT (Nasiri, 2023).

The findings of this research emphasize an approach where ICT and artificial intelligence (AI) play a role not only as technical tools but also as platforms for social, cultural, physical, and economic transformation in the revitalization of historical neighborhoods, including Lalehzar. This study shows that leveraging ICT and AI within the framework of collective intelligence can systematically and efficiently contribute to the revitalization of historical neighborhoods like Lalehzar. These technologies are not merely technological tools; they can also serve as cultural and social drivers in the path toward sustainable urban development. By combining modern technologies with local capacities, Lalehzar can transform from a passive historical fabric into an "urban creative ecosystem"—a place where digital narratives of identity, active participation of residents, cultural innovation, and digital economy are intertwined. In particular, the use of AI models to produce intelligent local content acts as a bridge connecting the neighborhood's historical past with its innovative future. Furthermore, the development of digital and data-driven participatory infrastructures provides an unparalleled opportunity to strengthen neighborhood-based governance for urban institutions. Overall, the revitalization of Lalehzar is not merely a physical project but a complex, interdisciplinary process in which the sustainable link between people, place, and technology is the key to achieving a smart, creative, and identity-driven city.



**Figure 12:** Graphic Section of Key and Nostalgic Points of Lalehzar Street from the Project-Based Findings for Example of Execution Operations in the Revitalization of Lalehzar Street Using ICT (Nasiri, 2023).



**Figure 13:** 3D Diagram and Graphic Representation of Research Findings for Execution Operations in the Revitalization of Lalehzar Street Using ICT (Nasiri, 2023).



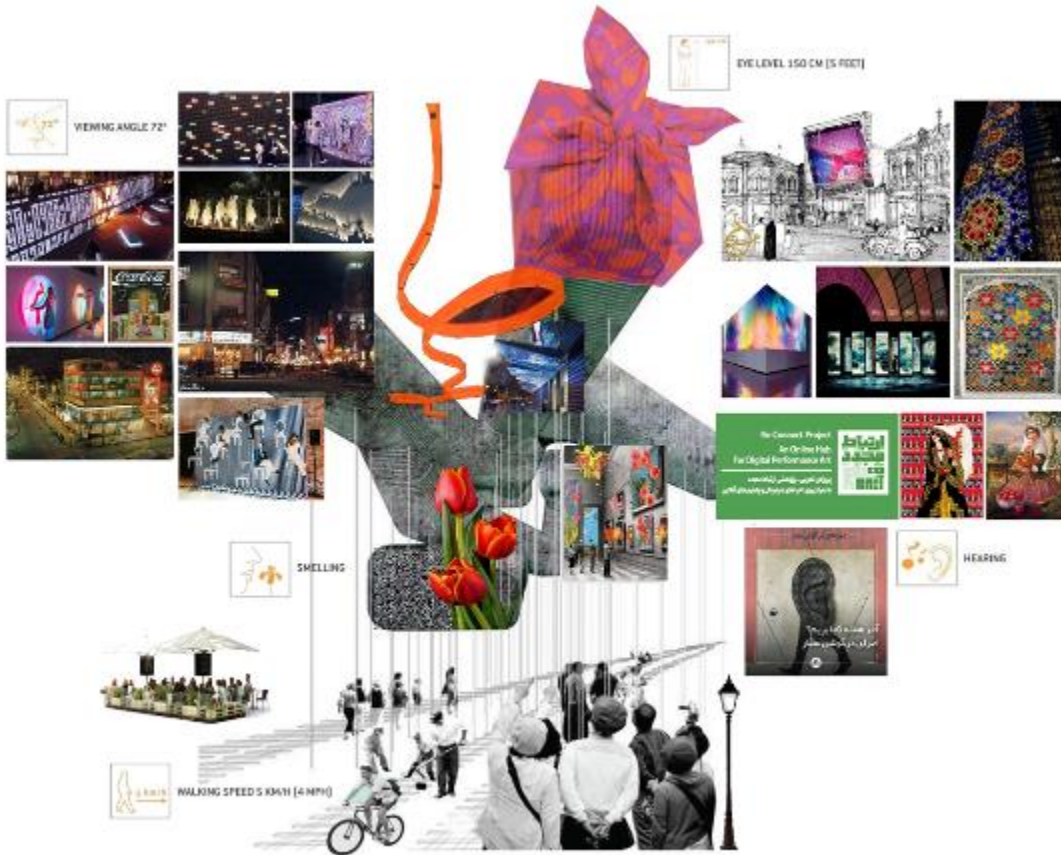
**Figure 14:** Strategies Adopted from Project-Based Findings for Collective Intelligence in Example Execution Operations in the Revitalization of Lalehzar Street (Nasiri, 2023).

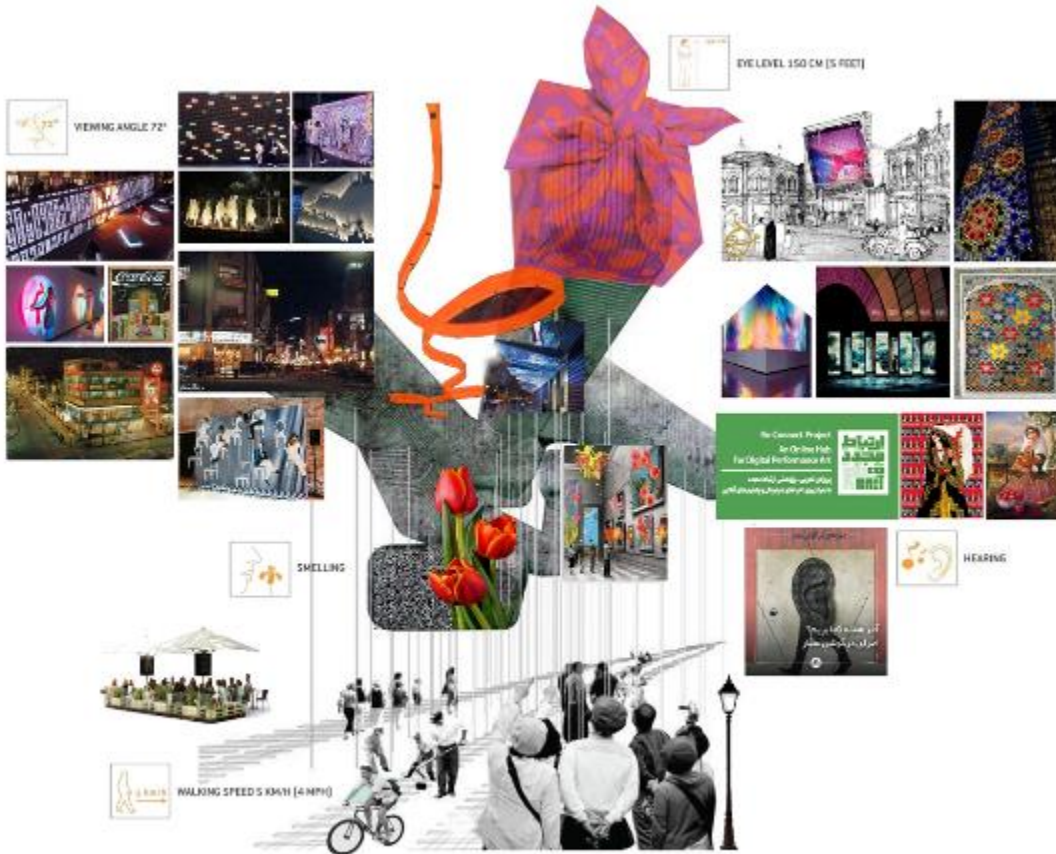
**Table 3:** Categorization of Project-Based Findings in the Revitalization of Lalehzar Street Using Information and Communication Technology (ICT). Source: Author

Proposed Strategy	Example of Execution Operations	Place Components Based on Feasibility Prioritization
Strengthening Social Capital through Enhanced Public Participation and Connecting Local Activities with ICT Capabilities	Creation of a Neighborhood-Based Participation Platform  Establishment of an Urban Innovation Center  Organizing Local Digital Events  Equipping Creative Content Production Workshops	Social-Activity
Revitalizing Cultural Identity through Digital	Design of a Place Narrative Application	Cultural-Historical

Representation of Historical Heritage and Collective Memories of Lalehzar	<p>Hosting light and sound exhibitions</p> <p>Symbolic reconstruction of cinemas and theaters with augmented reality</p> <p>Organizing nighttime cultural festivals</p>	
Creating Interactive Urban Spaces Using Modern Technologies	<ul style="list-style-type: none"> <li>• Installation of 3D digital panels in public spaces</li> <li>• Design of smart artistic and advertising walls</li> <li>• Smart lighting of nostalgic architectural elements</li> <li>• Enhancement and development of pedestrian and cycling paths</li> <li>• Utilization of traditional Iranian-Islamic architectural elements in the design of green spaces</li> <li>• Organization of motor vehicle parking and warehouses</li> </ul>	Physical
Supporting the Creative Economy in Historical Fabric through Technological Infrastructures	<ul style="list-style-type: none"> <li><input type="checkbox"/> Creation of shared workspaces for artists, programmers, and cultural activists</li> <li><input type="checkbox"/> Support for startups in the culture and media sectors</li> <li><input type="checkbox"/> Connecting the electrical trade with digital creative industries and ICT</li> <li><input type="checkbox"/> Providing online services to local businesses</li> <li><input type="checkbox"/> Designing guerrilla gardening as a solution for</li> </ul>	Economic

	revenue generation and enhancing place attachment in abandoned spaces	
--	---	--





**Figure 15** - Graphical Diagram of Urban Design in Lalehzar Street Using ICT (Nasiri, 1402).

## Conclusion

Urban transformation in historical fabric, without considering collective memory and cultural capacities of the people, only leads to physical modernization and will lack meaning and depth of identity. Lalehzar Street, as one of the most important historical streets of Tehran, today stands at a point where effective regeneration requires a smart connection between technology and people; a place where artificial intelligence can only play a constructive role if it serves "people's intelligence." In the age of technological transformation, the use of information and communication technology (ICT) in urban regeneration processes, especially in historical and cultural areas, is an unavoidable necessity. Tehran's Lalehzar Street, as one of the authentic historical-cultural areas, has the potential to become a localized model of technological regeneration. This research, focusing on the facilitating role of ICT, shows that the smart integration of this technology with cultural, historical, and social capacities can create a multi-layered platform for sustainable urban development. In this framework, ICT functions not only as a supporting tool but as an active infrastructure in various social, economic, and physical areas.

This technology makes it possible to establish digital infrastructures such as free urban internet, interactive urban displays, and technological workspaces for artists, programmers, and creatives. In such a structure, traditional trades, such as the electrical profession, can also become effective actors in the creative economy ecosystem by connecting with creative and knowledge-based industries. An important point here is the simultaneous use of the concept of "people's intelligence." People's intelligence, as the driving force of social transformation, is a collection of knowledge, awareness, and lived experiences of local residents, which, through technological capacities, can be extracted, analyzed, and integrated into urban decision-making processes. This approach can facilitate the formation of participatory institutions, enhance collective learning capacity, and redefine planning processes from the bottom up and based on local evidence. The combination of people's intelligence with ICT tools enables the development of online dialogue platforms, local voting systems, the recording of collective memories, and the creative design of public services. In the cultural dimension, the use of technologies such as augmented reality, location-based storytelling apps, and smart lighting helps in the digital representation of historical heritage and the revitalization of collective memories. These tools provide a basis for strengthening cultural identity and local historical narratives, while creating a suitable environment for holding cultural festivals, virtual exhibitions, and nighttime art events. Ultimately, the systematic use of ICT and people's intelligence, alongside the strengthening of social capital and stakeholder participation, can transform Lalehzar Street into a prominent example of creative, technological, and local revitalization in historical areas. This path not only leads to physical and economic regeneration of the neighborhood but also enhances a sense of belonging, social cohesion, and the creation of a lively, sustainable, and innovative neighborhood. By simultaneously leveraging digital capacities and people's participation, it can result in physical revitalization, improved quality of life, strengthened belonging, and social cohesion, transforming this street into a dynamic cultural, artistic, and economic destination. Finally, with the integration of artificial intelligence and people's intelligence in the form of interactive platforms, digital urban services, digital cultural narratives, guerrilla gardening, and the use of Iranian-Islamic architectural elements, Lalehzar will not only be revived but will again become a lively, multi-layered, and community-based street—a street that has not forgotten the past but has engaged in a dialogue with the future. In this process, people's intelligence, as the lived wisdom of citizens and the social memory of the neighborhood, is a key element in the design of urban policies from the ground up; an element that, with the help of technology, can be heard, seen, and influence decision-making. Ultimately, this research emphasizes that sustainable and local development in historical contexts is only possible when technology serves the people, not replaces them. Information and communication technology (ICT) not only serves as a tool for urban development but also as a strategic and infrastructural platform, which, by activating participatory, cultural, economic, and physical capacities of Lalehzar, can transform it into a novel model of urban regeneration in Iran.

## References

- Ashna, Hossamodin & Barzoui, Mohammadreza. (1390). ICT Policy in Iran (1381-1386); Evaluation of Islamic Digital Content from Takfa to Tsma, 5-35.
- Behzadfar, Mostafa. (1382). Necessities and Barriers to Creating a Smart City in Iran. *Art Journal*, 14-27.

- Pourzarghani, Mohammadreza; Abedini, Hamed & Etemadi, Seyed Ali. (1399). The Role of Streets in the Process of Modernization and Development of Tehran: Case Study of Lalehzar Street. *Scientific Journal of Bagh Nazar*, 5-16.
- Tavakkoli, Alireza. (1388). Analysis of Identity Preservation Indices in Lalehzar Street, Tehran. *Arman Shahr*, 70-77.
- Habibi, Seyed Mohsen & Ahari, Zahra. (1378). Lalehzar: From Garden to Street (Formation of European-style Streets During Naser al-Din Shah), *Fine Arts Journal*, - (34), 5-15.
- Hanachi, Pirouz; Azari, Abbas & Mahmoodkolayeh, Saeed. (1392). Value Management in Historical Urban Fabrics Using Geographic Information Systems (Case Study: Lalehzar Historical Street). *Iranian-Islamic City Journal*, 37-44.
- Khan Mohammadi, Marjan; Qalae Noei, Mahmoud & Izadi, Mohammad. (1399). Cultural Neighborhood Models in Historical Contexts for Economic Development and Creative Industries (Case Study: Lalehzar Street, Tehran). *Bagh Nazar*, 5-18.
- Khodadadi, Raheleh; Ziyari, Youssefali; Romina, Ibrahim & Mahdavi Hajilouei, Masoud. (1397). Assessing ICT Infrastructure and Indices in Three Municipal Areas of Semnan for Realizing a Smart City. *Environmental Planning Quarterly*, 43-70.
- Rezaei, Mahmoud. (1382). The Use of ICT in Rural Design. *First Conference on ICT Applications in Rural Areas* (pp. 293-299). Tehran: Iran University of Science and Technology.
- Rezaei, Mahmoud. (1383, Second Half). The Role of ICT in Urban Design Considering New Concepts in Urbanism (Case Study: Tehran). PhD Dissertation in Urban Planning supervised by Dr. Farshad Nourian, and advised by Dr. Seyed Majid Mofidi Shamirani & Dr. Hojatollah Ghadimi, 275 pages. Tehran, Iran: Islamic Azad University, Science and Research Branch.
- Rezaei, Mahmoud. (1384). Urban Design in the Third Millennium (Impacts and Role of Modern Information and Communication Technologies in Urban Design). *Safa*, 4-27.
- Rezaei, Mahmoud. (1397). Recommendations and Summary of Cooperation between Faculty and Tehran Municipality District 12: Participatory Urban Design Atelier (Vertical). Tehran: Faculty of Architecture and Urban Planning.
- Rezaei, Mahmoud. (1400). Mobilizing "Student Power" in Promoting National-Iranian Values (Case Study: Review of Urban Design Master's Courses). *First Conference on Humanities and Islamic Wisdom* (pp. 1-22). Tehran: Central Organization of Islamic Azad University.
- Rezaei, Mahmoud. (1401a). Strategic Frameworks of Iranian Architecture and Urbanism Post-Corona through Theory-Based Methodology. *Journal of Sustainable City*, 5(4), 143-158. doi:10.22034/JSC.2023.280198.1442.
- Rezaei, Mahmoud. (1401b). Place Making in Urban Spaces by Increasing Pedestrian Acceptance (Case Study: Urban Spaces Adjacent to Toopkhaneh Square in Tehran). *Urban Planning Journal*, 6(3), 120-138. doi: 10.22124/upk.2023.21599.1722.
- Rezaei, Mahmoud. (1402). Five Preconditions for Methodology Based on Islamic-Iranian Wisdom in Architecture and Urbanism. Tehran: First and Last Publications.
- Rezaei, Mahmoud & Irani Malek Kian, Aida. (1399). The Role of Human Scale in the Success of Urban Plans (Case Study: Restoration Plans of Urban Tehran in the 80s). *Urban Development Planning Journal*, 1-28.

- Rezaei, Mahmoud & Nasiri, Masoumeh. (1403). The Role of ICT in Revitalizing the Historic Neighborhood of Lalehzar Street, Tehran. *Bagh Nazar*, 21(132), 19-30. doi: 10.22034/bagh.2024.421660.5469.
- Shahiwond, Ahmad & Mousavi Pour, Elham. (1396). The Impact of Modern ICT on the Physical-Spatial Structure of Cities with a Focus on Creative Cities (Case Study: Isfahan). *Journal of Urban Studies*, 7-25.
- Sufi, Yousef; Ebrahimi, Shaban; Hakimi, Seyed Sina; Darugar, Babak & Hajilo, Vahid. (1392). The Impact of ICT on Social Security in Urban Areas. National Conference on Urban Planning and Management. Urmia: National Conference on Urban Planning and Management, 23-45.
- Anadol, R. (2021, 10 19). <https://www.casabatllo.es/en/mapping/>. Retrieved from <https://www.casabatllo.es/en/mapping/>.
- Carmona, M. (2021). *Public Places Urban Spaces The Dimensions of Urban Design*. london: Routledge.
- Crang, M. (2000). *Public Space, Urban Space and Electronic Space: Would the Real City Please Stand Up*. *Urban Studies*, 18.
- Gassmann, O., Böhm, J., & Palmié, M. . (2019). *Smart Cities: Introducing Digital Innovation to Cities*. london: Emerald Publishing.
- Guillaume, E. (2015). *CONNECTING THE DOTS: HOW DIGITAL CULTURE IS CHANGING URBAN DESIGN*. *Agents of Urbanity*, 25-35.
- Green, B. (2020). *The Smart Enough City: Putting Technology in Its Place to Reclaim Our Urban Future (Strong Ideas)*. Massachusetts: The MIT Press.
- Harter, G., Sinha, J., & Sharma, A. (2010). *Sustainable urbanization & The role of ICT in city development*. New York: Booz & Company.
- M. HASSAN, A., & ISMAIL AWAD, A. (2018). Urban Transition in the Era of the Internet of Things: Social Implications and Privacy Challenges. *SPECIAL SECTION ON SOCIAL COMPUTING APPLICATIONS FOR SMART CITIES*, 36428-36440.
- Medghalchi, N., Bahraini, S., & Rafieian, M. (2021). *Technology Communication and Information of Impact Technology and the Covid-19 Pandemic ( A Systematic Review )* . *Motaleate Shahri*, 95-114.
- Mohammed Aljoufie, A. T. (2017). *People's Aspirations from Smart City Technologies: What Solutions They Have to Offer for the Crucial Challenges City of Jeddah Is Facing*. *current urban studies*, 466-482.
- Nourian, F., & Afradi, K. (2020). *Understanding ICT's impacts on urban spaces: a qualitative content analysis of literature*. *Springer*, 701-733.
- PELLEGRIN, J., COLNOT, L., & DELPONTE, L. (2021). *Artificial Intelligence and Urban Development*. European Union: REGI Committee.
- Rezaei, M., Marzi, R., & Shojaee, E. (2022). *Embedded heritage: the role of information*. *Journal of Historical Archaeology and Anthropological Sciences*, 152-158.
- Rezaei, M. (2003). *A Role of ICTs in Urban Design*. The Fifth International Conference on IT in Regional Planning (pp. 70-81). Queensland: Queensland University, Australia.
- Rezaei, M. (2021). *Design Participation Theories*. In M. Rezaei, *Reviewing Design Process Theories: Discourses in Architecture, Urban Design and Planning Theories* (pp. 39-47). Springer.

- Rezaei, M. (2021). Place and Non-place Theories. In M. Rezaei, *Reviewing Design Process Theories: Discourses in Architecture, Urban Design and Planning Theories* (pp. 69-75). Springer.
- Rezaei, M. (2021). *Reviewing Design Process Theories: Discourses in Architecture, Urban Design and Planning Theories*. Cham: Springer. doi:10.1007/978-3-030-61916-9
- Rezaei, M. (2022). Expanding walkability in Tehran's historic downtown (Case Study: Streets leading to the Imam Khomeini Square (Maidan-e Tup-khana)). *International Journal of Architectural Engineering & Urban Planning*, 32(2), 1-16.
- Sajadzadeh, H., & Farjamtalab, F. (2022). The Impact of ICTs on Dimensions of Urban Design, Considering ICTs as a New Urban Layer. *International Journal of Architectural Engineering & Urban Planning*, 1-13
- Townsend, A. M. (2013). *Smart Cities: Big Data, Civic hackers, and the Quest for a New Utopia*. New York, London: W. W. Norton & Company.