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Integrating soft city principles into urban planning: Enhancing livability and sustainability in rapidly urbanizing regions

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Abstract

As urbanization accelerates globally, cities face increasing challenges related to environmental degradation, social segregation, and reduced quality of life. The concept of the "soft city" offers a promising framework for addressing these issues by emphasizing flexibility, human-centered design, and sustainable urban development. This article explores the integration of soft city principles into urban planning, focusing on how these principles can enhance livability and sustainability in rapidly urbanizing regions. Drawing on case studies from cities that have successfully implemented soft city approaches, the article examines the physical, environmental, and non-physical dimensions of soft cities, including walkability, biodiversity, and social infrastructure. The study employs a qualitative research methodology, utilizing thematic analysis of expert interviews and literature reviews to develop a conceptual model for soft city implementation. The findings highlight the importance of small-scale, multifunctional urban spaces, mixed-use developments, and community participation in creating resilient and adaptable urban environments. The article concludes with policy recommendations for urban planners and policymakers to integrate soft city principles into future urban development projects, ensuring sustainable and inclusive growth.

Keywords: Soft City; Urban Sustainability; Human-Centered Design; Walkability; Social Infrastructure.

1. Introduction

The urban population of the world is rapidly increasing, and the processes of urbanization in countries across the globe are accelerating at a swift pace (Ma, 2021). Environmental degradation, inadequate housing and transportation, reduced access to public spaces and the natural environment, and social segregation are among the factors negatively impacting human health and the sustainability of cities (Berger, Pamar, & Singh, 2023). This expansion necessitates coordination regarding issues such as land use, housing provision, transportation system planning, as well as the provision of both private and public services and green infrastructure, to ensure that growth is sustainable and socially equitable (Janssen-Jansen, Hutton, 2011; Harrison, 2021; Ravetz, 2013). While humans are constructing hard and spatially defined areas in cities, advanced countries like the United States and some European nations are facing the problem of "urban melancholia." Such issues also exist in the cities of Asia, the Americas, and Africa. In this historical period, soft cities have emerged as a remedy for various problems in contemporary urban development. In other words, the birth of soft cities is a product of highly developed global urbanization in the 21st century (Feng, Hassan, & Noh, 2024). Open, collective, and tranquil spaces, where people have room for connection and experience tranquility, have become scarce with the construction of independent private homes and high-rise buildings. It is not surprising that research shows city dwellers have a 39% higher likelihood of experiencing anxiety and mood disorders compared to those living in other areas (CBS, n.d.). In just a few decades, the purpose and identity of urban life in the public realm have changed, leading to increased demand for quality urban space (Gehl, 2011). The quality of public spaces deteriorates with the introduction of cars, trains, and trams. As people became more connected through infrastructural communications, social interactions diminished at the street level (Van der Kooij, 2009). Nowadays, citizens plan their activities in such a way as to minimize walking and use of public spaces, leading to neglect of urban public spaces and sometimes leaving them abandoned, which is quite distressing (Gehl, 2006).

Modern urban design and planning paradigms—based on structural functionalism principles that have led to the separation of land use and space (Jacobs, 1961; Gehl, 1987)—that have been critiqued in the past are now being questioned again (Sim, 2019). Cities are inherently complex systems. Jane Jacobs was a key advocate for viewing the city as a living organism, believing that urban growth should encompass mixed and diverse land uses (Jacobs, 1961). Comprehensive plans, planned cities, and inhuman spaces such as layered cities with flyovers and highways, as well as commercial areas filled with buildings that extend vertically beyond human scale, are now under reconsideration (Sing, Unhale, 2020).

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Therefore, it is not surprising that many researchers and practitioners are calling for changes in the ways we learn about urban space (Simson, 2004; Zelinsky & Lee, 1998; Frisch, 1990; Klinenberg, 2018; Wolf, 2016; Wolf & Haas, 2021). However, experiences have shown that the soft aspects of urban living may be just as important, not only for well-being but also for sheer survival. The organization and design of the built environment must include improvements in fluid movement and comfort, a diversity of building types, and careful design to ensure a sustainable and soft urban environment.

The separation of functions within the city and the allocation of areas solely for limited functions have plunged cities and their citizens into numbness and alienation, reducing humans to mere mechanical beings who move from home to work and from work to home. The lack of urban spaces that encourage human interaction with one another and with the environment at the neighborhood and city level has eradicated the conditions for the spontaneous presence of residents in the city and their neighborhoods. Leisure time has become limited to the use of electronic devices such as mobile phones and computers, leading individuals not only to lack desire to engage with neighbors, who are the closest people in their living areas, but also to constantly seek ways to avoid confrontation and escape from others. Children have no space to play with their parents and peers, leaving their growth and flourishing threatened and compromised.

Therefore, one of the challenges of future cities will be to achieve the dreams and peace of their people. At first glance, these two elements may seem contradictory. However, on the other hand, they can lead to a qualitative enhancement of a space. One of the significant and valuable aspects of the city is when people can experience tranquility and share spontaneous interactions. It seems that, from an anthropological perspective, the architecture of urban spaces is not primarily derived from human senses (Van Deer Veen, 2021). The future outlook illuminates flexible and creative cities as platforms for the economic, social, and cultural development of communities (Collins & Shantz, 2009, 517). In this regard, attention to the soft city approach, which has gained prominence worldwide in recent years, is viewed as appealing due to its emphasis on flexibility, functional diversity, and consideration of contemporary lifestyles, with its human-centered nature being its core focus (Bahalu, Pirbabayi, Fadavi, Vahid-Bafandeh, 2022, 7). This is the necessity and importance of the present research.

The aim of this study is to develop a conceptual model for realizing a soft city. Efforts have been made to familiarize with the concept of a soft city and to utilize the opinions of experts in the field of urban planning, to pave the way for the future construction of livable and sustainable cities and towns. The soft city approach aligns with the subject of the present research and explains how, within the framework of rigid urban planning that prioritizes physical space, the "soft" elements of soft cities can be utilized to enhance well-being, quality of life, and the future.

Qazvin city, being one of the industrial cities, holds significant importance due to its location and proximity to the capital. For many years, it has attracted populations from various regions of the country. Additionally, like most cities in Iran, especially in the northern areas where land is highly valued, it is progressing according to the standards of contemporary urbanism and architecture. However, this advancement has not only led to the creation of urban spaces with dense building blocks that are alien to their surroundings but has also created numerous challenges for citizens in the future. The presence of single-function and independent buildings, lacking attention to human-scale designs, with no layering in floors, functional mixing, and connectivity with the surroundings and natural phenomena, presents a one-dimensional dependency on automobiles for mobility. The absence of flexibility in various aspects, along with the deprivation of suitable shared spaces and spatial diversity throughout the city, are the challenges currently facing Qazvin city. Therefore, it can be said that Qazvin lacks the ability to respond to various changes over time, creating a rigid and inflexible structure in relation to the surrounding environment and individuals.

2. Research Methodology

The research method in this article is descriptive-analytical. This study is applied in terms of its purpose and is qualitative in nature, based on an interpretivist paradigm. Throughout the process of the article, based on qualitative research methods for developing a conceptual model for realizing a soft city in Qazvin, data collection was conducted using library and field methods. Efforts were made to ensure the credibility of the article through multiple perspectives and data gathered from various sources, along with thematic analysis. All necessary information related to the soft city approach for understanding concepts and identifying dimensions and components was collected using various documents. Given the research topic and experts' preference for specific questions, a semi-structured interview method was utilized. After a comprehensive review of the research literature, the interview questions were designed. As the interviews progressed and the responses of the experts were analyzed, additional questions were raised. The average duration of the interviews was fifty minutes. With the consent of the interviewees, the interviews were recorded and transcribed. The statistical population of this research consists of urban specialists (from municipal authorities) with more than 15 years of experience. In this study, 12 semi-structured interviews were conducted using a non-probabilistic purposive sampling method. From the ninth interview onward, no new concepts were added to the previous ones; however, to ensure theoretical saturation, the interviewing process continued until the twelfth interview.

For data analysis, thematic analysis was employed as one of the qualitative analysis methods (Boyatzis, 1998).

2.1 Study area (Qazvin city)

Qazvin Province, which constitutes one percent of the country's area, is located in the northwest of the Iranian plateau. Considering the relative position of Qazvin Province, it serves as a connecting link between the central plateau of Iran and the northern, northwest, and western provinces of the country. The city of Qazvin plays a significant role at the intersection of these connections. The historic city of Qazvin, as the provincial center, is situated on the southern slopes of the Alborz mountain range and at the northern edge of the Qazvin plain. The Tehran-Zanjan highway passes to the north of the city, while the Tehran-Zanjan railway runs to the south (Urban Development and Planning Report, 2011). The city is located at an elevation of 1,278 meters above sea level. The population of Qazvin city has increased from 66,420 in 1956 to 402,748 in 2016 (Babapour, Davoodpour, Moeinifar, 2022, 60).

Fig. 1. Geographic location of qazvin city

2.2 Background of the research

A review of existing studies and research indicates that there is very limited scholarly background, both domestically and internationally, related to the subject of this research, and the concept of a soft city is an emerging concept. Therefore, localizing it in Iran is also of significant importance. The table below includes the background and previous research conducted both inside and outside the country, summarizing the research titles, types (book, article, etc.), authors, publication years, methodologies, and findings.

Table 1
Background of Research Conducted Inside and Outside the Country in the Field of Soft Cities.

Title	Type	Author	Year of publication	Methodology	Findings
Soft city	Book	David Sim	2023	Descriptive	Finding ways to create livable urban density
Investigating the role of the soft city approach in promoting social interactions in the urban space after Corona (Case study: Hashemiyeh neighborhood of Mashhad)	Article	Mohammad Taqi Pirbabaei Mana Vahid Bafandeh Malika Fadavi Farnoosh Bahalu	2023	Combined	According to the soft city approach, the impact of each criterion was examined in the Hashemiyeh neighborhood of Mashhad.
The catalytic role of soft cities in urban development systems	Article	Dengjan Feng Sharmiza Abu Hassan Lia Marziana	2024	Descriptive	Development Cities Soft causes transformation Program Resi Design Space Physical, renovation Cities Swing Aver and Acceleration In Integration Cities Soft and Hard, and Base Transition For development Stable For the whole It is a city.
Hard and soft smart cities: an integrated approach	Article	Gianluca Senator Melissa Sessa	2023	Descriptive	Lack One Model Theoretical that Possibility Definition Accurate Phenomenon Hi Social and Cultural particle for direct object Provide Slow.
Negotiating resilience with hard and soft cities	Book	Binti Singh Tania Berger Manjor Pamar	2023	Descriptive	Investigating the interaction of hard and soft dimensions in the city
Soft infrastructure in smart sustainable cities: a literature review	Article	Ridwan Sutraidi	2023	Descriptive	Subject Infrastructures Soft In Cities Smart Stable Challenge New particle for direct object For Promotion Continuous Skills and Expertise They Creation Does
Soft Assets Consideration in Smart and Resilient City Development	Article	Eiko Wataya Rajib Shaw	2022	Combined	In Opinion Catch Composition Optimal and Balance Asset Hi Soft Case Need In City For Improvement Life is structured. For Approach People Axis
Book review: soft city by David Sim, 2019, Island press	Article	Elek Pafka	2021	Descriptive	The researcher reviews David Sim's book The Soft City to address the human dimensions of density.
Poster of the soft city	Article	Vittoria chrysostomi	2020	Descriptive	Discuss and examine how urban planning can change in line with climate change and environmental goals.

The "soft city" of EU power elites: Athens from neoclassical capital to "oriental" margin	Article	Lila Leontidou	2020	Combined	So From Analysis Adaptive, Problem Ways Exit From Dystopia (ruined city) Featured It will be.
Frame work for soft and hard city infrastructures	Article	Mark Dyer & other	2019	Combined	Overlapping of soft and hard structures in cities
Soft city: building density fot everyday life	Book	David Sim	2019	Descriptive	Creating livable urban density
The graduation thesis of soft city	Thesis	Christine Van Der Veen	2019	Combined	The soft city's susceptibility to culture and climate and its susceptibility to spontaneous encounters through them.

3. Theoretical Foundations

3.1 Soft City Approach (Concepts and Definitions)

A soft city is equivalent to the term "soft city" in English, which consists of two parts: "soft," meaning flexible or gentle, and "city," meaning urban area. There is a significant gap in the theoretical foundations related to urban studies for this term; therefore, the soft city is an important addition to the literature on people-centered architecture and urban planning. The term "soft city" was defined by Professor Toshio Kitahara, who was a translator of Jan Gehl's works. Various thinkers, such as Jane Jacobs and Jan Gehl, have provided similar research in this area; however, David Sim, a people-friendly architect, leaves the most significant impact in this field with his book titled "Soft City." He was a migrant from England to Scandinavia and one of Gehl's students, whose thoughts were greatly influenced by the Copenhagen School (a movement that has significantly impacted the development of Copenhagen as one of the most livable cities in the world). Its people-centered planning effects have been applied in Oslo, Stockholm, Sydney, Melbourne, London, New York, and Moscow.

Sim emphasizes the importance of ordinary, everyday aspects learned in Jan Gehl's classes and believes that neglecting seemingly insignificant aspects represents a gap in urban planning and architecture, which can easily free cities and their inhabitants from serious problems. Sim holds great respect for nature and people, combining it with softer and more delicate approaches in urban design. He argues that under harsh and diverse climatic conditions, one can align with the laws of nature and climatic realities, creating conditions that make work, recreation, residence, and other factors enjoyable and feasible. Therefore, instead of fleeing from reality, one must accept it, change the quality of life, and strive for improvement. Sim does not wish to Scandinavianize other regions but states that, given the specific contexts of each city and country, and understanding the people and existing architectural styles, urban spaces can be transitioned from rigidity to pleasantness and softness.

The soft city is an approach that has gained considerable attention worldwide in recent years. Its characteristics include flexibility, functional diversity, and attention to contemporary lifestyles and components, with a human-centered philosophy as its core, making it significantly appealing (Bahalu et al., 2022, 7).

In a soft city, the urban space becomes livable and adaptable to changes over different times, effectively creating a sustainable and resilient city (the ability to respond during times of change). The soft city opposes divisive and functional separation viewpoints. It relates to the compatibility of density and diversity in everyday life. The soft city enhances daily life enjoyment in the short term and addresses many issues and challenges in the long term. Below are the viewpoints of various theorists regarding the soft city, presented in Table 2.

Table 2
Theoretical Perspectives on the Soft City

Theorist	Viewpoint
Dengjan Feng at el (2024)	- Cities Soft, Aspects Henry, Cultural, Civilization, Aesthetic and Humanistic Life Urban particle for direct object In On They take, They Role Catalytic In Increase Development System Hi Urban Hard and Swing Aver IFA May Do.
Senator, Sessa(2023)	- City Smart Soft On Sustainability , Factors Social and Participation Society Focus Yes Up to Simply On Technology. Goal it Creation Balance Between Development Urban With Protection From Environment Life, Promotion Equality In Income, Services and Quality Life For Residents is.
Binti et al(2023)	-«City Soft» To Capital Social and Networks Social Hint Yes that Residents From it For Passage From Challenges In Environments Urban Use They do. This In Contradiction With «City Hard» is, that Infrastructures Physical and Assets Urban particle for direct object In On Takes and Interaction Between Any two Aspect particle for direct object Outstanding Does.
Sutraidi (2023)	- Infrastructure Soft In Cities Smart Stable Includes Aspects Commercial-Space, Cultural-Political and Human-Innovation is that To Challenges Regional Integrated and Increase Planning Urban It pays to Role Important In Support From Systems Infrastructure Necessary and Promotion Resilience In Environments Urban IFA Does.
Wataya, Shaw (2022)	- «City Soft» To Environments Urban Application It will be that Assets Soft, Like Capital Social and Human, Participation Social and Approaches Innovative particle for direct object In Aside Infrastructures Traditional, For Increase Resilience and Creation Policies People Axis For Improvement Conditions Life, In Priority Appointment They give.
Crisostomy (2020)	- Concept City Soft With Hint To Organizing Again Cities In Reaction To Changes Climatic and Adopt Value I see and Approaches New In Program Resi Urban Discusses.

Leontidou(2020)	-«City Soft» To Aspects Imaginary and Made One City, Under Impact Powers Global, Hint Yes that To Material To become and Identity it Shape They give.
Dyer et al (2019)	- Terminology«City Soft» To Elements Non Physical Infrastructures Urban, Includes Aspects Social, Cultural It refers to that Quality Life particle for direct object Increase Gives and Completion Maker Infrastructures Hard Like Buildings and Facilities In Framework General City is.
Sim (2019)	- Soft city is a combination ofIt is made up of hardware (the physical form, the structure, the streets and buildings, everything that is designed and built) and software (all the invisible structures, laws and finances, planning and education, democracy, customs and culture, behavior and trust). - A soft city is a flexible and resilient structure, in which the city is considered as a system in which all its components are in contact with each other. The connection between people and nature, people and place, and people and people are among its prominent features. - In the soft city, life flows among diversity (diversity of activities and people) and density (density has a human scale), building blocks, and against weather and climate changes.
Van der Veen (2019)	-The soft city is, first of all, a living city, therefore, it is always influenced by the life of its citizens. Life in cities and the mortal elements are as important as the fixed and eternal elements around us. The mortal elements can die, but they have life, they are soft, they are in nature, human and animal.
Raban (2017)	-A soft city can be defined as a changing space that shapes itself around you; "Define who you are and the city will soon shape itself around you."

4. Physical and Non-Physical Aspects of the Soft City

The soft city is a composite of physical and non-physical aspects that function like two sides of a scale, helping to maintain balance in urban areas. In other words, these two dimensions are complementary for achieving a sustainable soft city and can overlap with one another (see Figure 2).

4.1 Physical aspects of the soft city

Urban Services: This refers to physical services such as transportation, water and sewage systems, and information and communication technology (ICT), among others. These tools are interconnected and operate equally across all urban scales, including national and international levels.

Urban Space: This is primarily considered as a limited physical space, encompassing streets, urban squares or local plazas, playgrounds, parks, etc. Urban space is usually identifiable at the neighborhood or district scale depending on the nature of the open space and land ownership patterns.

Buildings: This term primarily applies to architectural space, defined as individual or grouped structures that form part of an urban block.

4.2 Non-physical aspects of the soft city

Defining soft infrastructure or delineating it within specific spatial scales is more challenging. However, referencing prior studies by Landry (2006), Tonkis (2014), and Casey (2005), three primary categories of soft infrastructure can be defined as follows:

Institutional: This infrastructure refers to governmental and private systems that provide specific services within the city, such as local government, health services, or educational services. It may also include sports, arts, culture, or formal community support organizations. These institutions typically have a top-down structure and are more formal in nature.

Social Infrastructure: This term relates to informal networks or social groups that exist within neighborhoods or areas. In this context, social infrastructure often operates at the district scale and may be more easily identifiable at the neighborhood level.

Personal Infrastructure: This refers to support systems that an individual has at the family, friendship, or individual level, where membership in a family or social group is vital for a sense of belonging. It also includes access to education and other supportive systems that operate at an individual level (Dayer, Gleeson, Grey, Ferrari, Weng, Wu, 2019).

5. Some Principles of the Soft City

Following the sections mentioned, several principles that facilitate the transition of a city towards being soft are introduced as follows:

Small Scale: Utilizing small-scale, compact, and diverse physical forms promotes proximity between people and beneficial locations and resources. This closeness presents scenes of daily togetherness, neighborliness, cooperation, participation, learning, and comfort, fostering growth and flourishing.

Enclosure: One of the essential elements in fostering community acceptance in urban spaces and defining place is the sense of enclosure, which instills a feeling of positioning within a defined space. If an urban space is not suitably enclosed, achieving an ideal and community-friendly urban environment becomes challenging (Ghasemi, Norouzi, Nikpour, Mohammadzadeh, Balalemi, 2021, 7). Some consider enclosure as the first sensory experience to be realized in an urban space (Cremona, as cited in Zeyteh, 2015, 289), or as one of the fundamental principles of space creation (Doost Hosseini, Anarki Mohammadi, Ghasemi Darvish Baghal, Shabani, Hosseini Pour, 2017, 126).

Layering of Buildings: There is a fundamental difference between layering and stacking. Ideally, urban buildings should have clear horizontal layers. In a layered building, one can access the ground floor without ascending stairs. Often, one can directly gaze into the ground floor through windows from the street. Layering creates a complex system of spaces internally and externally. The more complex the spatial system and diverse its quality, the higher the likelihood of various behaviors occurring. Key factors in this complex system include accessibility

configuration, visibility, natural light and ventilation levels, dimensions and volumes, and certainly room shapes and layout (Sim, 2022). It's crucial to note that the ground floor's accessibility and visibility create substantial potential for attracting diverse users.

Continuous and Adjacent: The mix of old and new buildings, with varied ownership, diverse uses, and different types of users, contributes to a sense of belonging, security, economic-social diversity, and the continuous presence of individuals at different times, which helps prevent crime.

Multifunctional: Multifunctionality of buildings in the city fosters flexibility and satisfies a greater variety of individual needs by accommodating diverse functions. It also results in land use savings, increases encounters (social interactions) among individuals, reduces dependence on cars, allows for more green space, and decreases infrastructure costs. As a result, more vibrancy and activity are experienced.

Centralized and Walkable: Physical expansion, alongside segregation, requires more space and generates more traffic. At the same time, this physical separation creates social segregation. Humans are biologically designed for walking. Every journey, regardless of the mode of transport, begins and ends with walking. Walkability can foster sociability; the speed of walking allows for rich sensory experiences, as opposed to other forms of transport where individuals have complete control while walking. Short walking distances are especially significant for connecting to other transport options (Sim, 2022). Therefore, centralized development can reduce distances and provide rewarding pedestrian access.

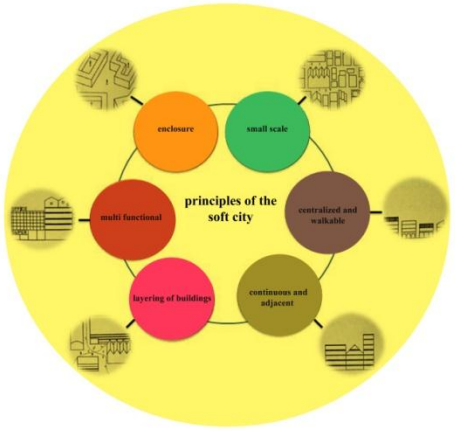

Fig. 2. Some Principles of the Soft City

6. Examining Urban Movements Similar to the Soft City

Smart growth, transit-oriented development, new urbanism, and traditional neighborhood development are among the movements and approaches that overlap with the soft city concept in various aspects, as briefly discussed in the table below (Table 3).

Table 3
Urban Movements Similar to the Soft City

Similar movements and theories to the Soft City	Important principles and criteria
Smart growth	-Density and compactness (limiting the city's horizontal expansion and efficient use of land and resources) - Mixed-use and walkable with different types of housing options - Access to various modes of transportation with a focus on public transportation and a pedestrian-friendly city, for the use of cyclists and reducing transportation costs. (Zanganeh, Mahdnezhad, 1402, 36)
Public transportation-based development	- Density - Diversity - Design - Accessibility - Distance to public transportation (Ewing, Cervero, 2010)
Redevelopment	- Mixing and diversifying uses - Protection of open and green spaces (sustainability) - Creating distinctive and attractive communities with a strong emphasis on the concept of place - Creating diverse transportation opportunities (smart transportation) - Creating walkable neighborhoods (walkability) - Use of compact buildings (increased density) - Creating different opportunities for choosing housing (mixed housing) - Connectivity and continuity - Quality of life (Andalib, 2013, 23)
Traditional neighborhood development	- Pedestrian orbit - Connection and continuity - Mixed use - Density in the tissue

7. Summary of Global Background on the Soft City

The concept of the soft city has been explored through various international studies and initiatives, focusing on principles that enhance urban livability, sustainability, and community interaction. Below is an overview of global experiences and criteria related to achieving a soft city, summarized in Table 4.

Table 4
Global Background on Criteria for Achieving a Soft City

Proposed criteria for achieving a soft city	Case examples
- Very high density - Low height - Multi-functional - Affordable housing - Vibrant public space - Creating opportunities for people to meet - Pedestrian access routes	Donnybrook Quarter (Donnybrook district of London)
- A solution to climate change - Space for shared use - Cooperation and participation among residents - Strengthening local ownership	The courtyard of future of Stravssvej (Future Courtyard Project in Denmark) (Landezine-award.com)
- Creating a vibrant and diverse community - Various buildings and apartments - Green transportation such as cycling and walking - Use of solar energy - Very low carbon dioxide emissions throughout the entire life cycle	Construction planBuilding communitiesIn Freiburg, Germany (https://nestbau3.de/en/the-project)

5. Results and Discussion

5.1 Qualitative content analysis method

One of the suitable analytical techniques in qualitative research is content analysis, which is widely used yet rarely introduced in detail. Content analysis effectively identifies patterns within qualitative data (Taslimi, Sheikhzadeh, Abadi Jafari, Faghihi, 2011, p. 151). It is, in fact, the first qualitative analysis method that researchers should learn, as it provides the fundamental skills necessary for various qualitative analyses (Holloway & Toders, 2003).

Braun and Clarke have provided a six-step guide, which serves as a very useful framework for conducting this type of analysis (Figure 4). This method is a process for analyzing textual data, transforming scattered and diverse data into rich and detailed information (Braun & Clarke, 2006).

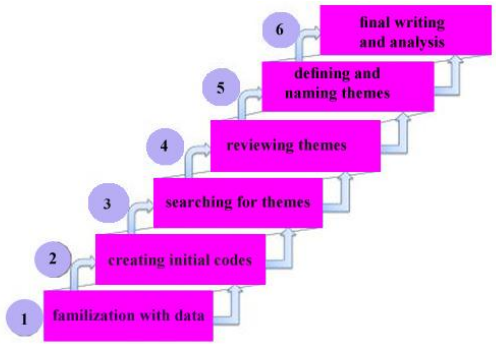

Fig. 3. Six-step framework for thematic analysis by braun and clarke

Additionally, the in-depth interview tool aids researchers in obtaining profound data and subsequently coding and marking them repeatedly. In the thematic analysis method, it is essential for the researcher to immerse themselves in the data to fully understand its depth and breadth. This immersion typically involves repeatedly rereading the data and actively engaging with it (searching for meanings and patterns).

Stage One: Familiarization with Data

The first step in any qualitative analysis is reading and re-reading the transcripts; for instance, in the present research, this occurred after conducting audio interviews, transcribing them into text, and re-reading for familiarity with the data. Converting the audio interviews from the interviewees into text is a very important step in aiding familiarity and understanding of the data.

Stage Two: Creating Initial Codes

For example, the following interview has been transcribed and the relevant codes are included:

"In my opinion, a soft city is a flexible, versatile, responsive, and capable urban space against various changes, including seasonal and climatic changes, which makes life in different conditions easy, bearable, and enjoyable for humans. In a soft city, the built forms have a very good diversity so that they can be combined in various volumes, shapes, and dimensions, which in this fusion allow different social classes to appear in the form of various affordable housing, leading to spontaneous interactions and participation among a wide range of individuals (including children, adults, and the elderly) and significantly contributing to visual diversity. On the other hand, small urban blocks lead to diverse ownerships. The constructed forms are such that they create the maximum control and supervision through the clarity of various spaces, such as public, private, semi-public, and semi-private. Walking and cycling, the connection between indoor and outdoor spaces, their mobility and adaptability affirm the human-centeredness of this approach. Due to respect for nature, in a soft city, constructions are designed to have minimal destructive environmental impacts on the surrounding environment and do not disturb the comfort of humans and living beings, while supporting and protecting biodiversity. In a

soft city, courtyard houses and private gardens create an enchanting connection between private and semi-private spaces. Attention to the courtyard, as the beating heart of private space in cities, combined with open public space, will create a more flexible and softer whole. Buildings with shallow plans, multiple access points, and minimal height contribute significantly to flexibility and diversity, with ground-level floors being adaptable and on the same level as outdoor spaces. Attention to design within human sight, buildings with pedestrian mobility capacity are among the most important factors in creating a human scale, fostering calmness, intimacy, security, and a sense of belonging, while also boosting the local economy. Upon reviewing the interview with expert number 6, the codes emphasized by the interviewee that were novel to the interviewer include: control and supervision, pleasant microclimate, biodiversity, environmental impacts.

Stage Three: Searching for Themes

This section involves grouping various codes into actual themes and organizing all summarized coded information within specified themes; therefore, the researcher begins to report their codes and considers how different codes can be combined to create an overarching theme. In this section, some of the initial codes form the main themes, while others form sub-themes, and the rest will be discarded. In this section, there is a group of codes that do not clearly belong to any particular state; for such codes, a theme titled "Miscellaneous" will be created (Braun, Clarke, 2006). At this stage, efforts will be made to categorize correctly for the initial themes by studying the initial codes; however, the creation of a general categorization will be pursued gradually over time. Following this, Table 5 sequentially presents the initial themes that the researcher has identified in the conceptual framework of the soft city.

Table 5
Initial Themes of the Soft City

Primary theme	**Initial code**
Flexibility	Multi-purpose space (responsive to change)
	Affordable housing
	Greater power and potential of the ground floor for change
	Enclosed spaces (yard potential, etc.) for flexibility
	Direct access from the public domain to the spaces
	Urban forms made of multiple, independent structures
	Diverse behavioral patterns
	Spontaneous encounters between people
Walking tour	Walking on a neighborhood scale
	Direct access to useful outdoor spaces
	Buildings with direct entry
	Buildings with the ability to walk between them
	Buildings with walk-up capability
	Visual connection and physical access between inside and outside
Variety of outdoor spaces	Different types of public space
	Different types of private spaces
	Semi-public and semi-private spaces
	Combined spaces connecting the outside and inside
	Paying attention to the street as a public space
Variety of built forms	Different types of ownership and management
	Dividing land into smaller properties for ownership and control
	Different types of buildings
	Different dimensions of the building
	Smaller pieces
	Visual diversity
	Balance of building components
Sense of control and identity	Public and private clarity
	A hierarchy of identifiable domains
	Useful edges and corners
	Spatial confinement
	Shared spaces
Human scale	Creating an enclosure
	Density on a human scale
	Walkable buildings
	Limitation on building height
	Smaller spaces

Low carbon footprint	Renewable energies (natural light and ventilation)
	High energy efficiency (use of solar energy)
	Very low carbon dioxide emissions throughout the entire life cycle
	Walking and cycling (green transportation)
The wisdom of a pleasant climate	Fewer floors
	Less building length
	Sunlight penetration
	Useful pop-ups
	Rain protection at the edges
	Wind protection
	Enclosed outdoor spaces
Biodiversity	Numerous vegetation and green spaces
	Protection of open and green spaces
	Small building dimensions for growing green walls and roofs
	Compatibility between buildings and natural environments
	Soft landscaping
	Close connection between people and nature
	Respect for nature
Small scale	Creating small-scale physical forms
	Creating dense and diverse physical forms
	The proximity and proximity of various people and important things
	Strengthening Neighborhood, Participation, and Comfort
Confinement	Creating a sense of identity
	Security and comfort
Building layering	Creating easier access to the ground floor
	Help with lighting and ventilation
Connected and side by side	Combination of old and new buildings
	Creating diverse ownership
	A wide range of users and users
	Economic and social diversity
Multifunctional	Saving on land use
	Encounter and creating social interactions
	Reducing car use
	Creating more green space
	Lower infrastructure costs
	Mixing and diversifying uses
	Efficient use of land
	Helping to boost the local economy
Focused and walkable	Connecting to other transportation options via walking
	A rich sensory experience with walking
	The natural encounter of people with each other
Resilience	Responsive to changes
Hardware (Forms made)	Urban square, local square, building, urban services, building
	Land and urban blocks
	Transportation infrastructure
	Information and Communication Technology (ICT)ICT)
Human-centered (Software)	Humanistic
	Paying attention to aesthetic principles
	Civilization
	Cultural artistic aspects
	Participation
	Educational system
	Social capital
	Social networks
	Innovative

	People-centered policies
	Laws
	Customs and traditions
	People-to-people communication
	People's connection to place
	The connection between people and nature
	Private and government institutions
Diversity	Variety in shapes and sizes of buildings
	Variety in houses and apartments (affordable housing)
	Diversity in users (social diversity)
	Visual diversity

Stage Four: Reviewing Themes

This section includes two stages: reviewing and refining the themes. In the first stage, the codes will be reviewed, and in the second stage, their validity will be considered. When the thematic pattern is well established, we will move on to the next section; however, if the pattern does not align with the data, the researcher must return and continue coding until a suitable thematic pattern is achieved (Braun, Clarke, 2006). In this case, when the codes were reviewed, some codes were deleted or replaced while others remained untouched.

Stage Five: Defining and Naming Themes

Stage five begins when a satisfactory pattern of themes is established. In this section, the researcher defines the themes suggested for analysis, revisits them, and subsequently analyzes the data within them. By defining and examining, it becomes clear what a theme discusses, and it is determined which aspect of the data each theme encompasses (Braun, Clarke, 2006).

Table 6
Main Themes of the Soft City

Main theme (Main content)	Sub-theme (Subtopic)
Flexibility	Multi-purpose space (responsive to change)
	Mixing and diversifying uses
	Combination of old and new buildings
	Enclosed spaces (yard potential, etc.) for flexibility
	A wide range of users and users
	Urban forms made of multiple, independent structures
	Social interactions and spontaneous encounters of individuals (connections between people and people and people with place)
	Affordable housing
Walking tour	Walking on a neighborhood scale
	Direct access to useful outdoor spaces
	Buildings with the ability to walk between them
	Connecting to other transportation options via walking
	A rich sensory experience with walking
	Visual connection and physical access between inside and outside
	Natural confrontation of people with each other
Variety of outdoor spaces	Different types of private spaces
	Semi-public and semi-private spaces
	Combined spaces connecting the outside and inside
Variety of built forms	Different types of ownership and management
	Dividing land into smaller properties for ownership and control
	Different types of buildings
	Different dimensions of the building
	Visual diversity
Sense of control and identity	Public and private clarity
	A hierarchy of identifiable domains
	Shared spaces
Human scale	Creating an enclosure
	Smaller dimensions
	Small scale
	Walkable buildings
	Limitation on building height
Low carbon footprint	Renewable energies (natural light and ventilation)
	Small building dimensions
	Walking and cycling (green transportation)
The wisdom of a pleasant climate	Fewer floors

	Less building length
	Sunlight penetration
	Rain protection at the edges
	Wind protection
Biodiversity	Numerous vegetation and green spaces
	Protected spaces
	Small building dimensions for growing green walls and roofs
	Compatibility between buildings and natural environments
	Soft landscaping
	The relationship between humans and nature
Human-centered	Principles of aesthetics
	Social capital
	Social participation
	Laws
	Customs and traditions
	Social networks
	Local institutions
	Educational system
	Cultural activities

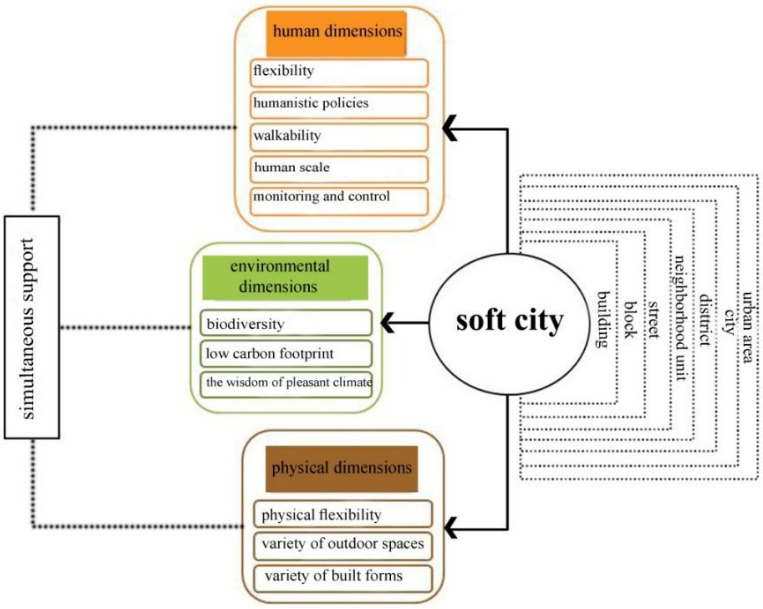

Fig. 4. Conceptual model for realizing the soft city

5.2 Conceptual model

Considering that the soft city is one of the newest theoretical and practical ideas regarding urban design, planning, and the development of urban life, the formulation of a conceptual model in this context provides a cohesive understanding of this subjective and objective concept within the city of Qazvin. This model not only enhances the future urban development process but also offers a foundation for the expansion of similar research.

6. Conclusion

As noted, the soft city can be regarded as a model of development that, while similar to other urban approaches, exhibits some differences due to its focus on implementing the simplest and most fundamental aspects of urban life and existing dimensions, thereby facilitating a pleasant living environment and acceptable habitat. This approach directs cities toward sustainability and resilience, provided that decisions made during planning and design are comprehensive and intelligent.

The present research, through analyses derived from the literature and conducted interviews, extracted a total of 10 main themes and 54 sub-themes related to the soft city, aiding the researcher in achieving a conceptual model for realizing the soft city in Qazvin. With the help of these themes, the soft city was delineated across three main dimensions—non-physical (human), environmental, and physical—alongside ten identifying criteria. The main themes include flexibility, walkability, diversity of outdoor spaces, diversity of built forms, sense of control and supervision, low carbon footprint, pleasant microclimate, extensive biodiversity, and human-centered policies. The realization of the soft city is unachievable without any of these three mentioned dimensions, and their absence would disrupt the process.

The soft city can be implemented at various scales, including building, block, street, neighborhood unit,

district, city, and region; this research focuses specifically on the city scale. All 10 main themes identified require mutual support and reinforcement. The obtained conceptual model illustrates that the human-physical and environmental dimensions are intertwined and will only succeed under conditions that operate as a system, where their components engage in reciprocal relationships to form a unified whole. Thus, they should not be viewed in isolation but rather as a balanced and enhancing set of elements.

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