

The Modernization of New Cities and the Transition Toward Smart Cities: A Sociological Approach to Rebuilding Sustainable Urban Identity

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Abstract

This study examines the transformations taking place in new cities amid the transition toward smart cities, by analyzing the impact of digital development and smart urban planning on reshaping urban space, social relations, and urban identity.

The study proceeds from a sociological perspective drawing on a number of theories that explain the phenomenon, and seeks to interpret the repercussions of the shift toward smart cities on local identity, and its capacity to preserve cultural and social distinctiveness amid the growing similarity of urban models worldwide. This study aims to anticipate the future of social relations and urban identity, and to propose a conception of sustainable urban identity that achieves a balance between the requirements of smart urban planning and the preservation of the local community's cultural and social characteristics — thereby contributing to the building of smart cities characterized by sustainability, innovation, and urban distinctiveness.

Keywords: New cities, smart cities, urban identity, sustainable urban transformation.

Introduction:

In recent decades, the world has witnessed rapid urban transformations driven by the digital revolution and technological development, leading to the emergence of new models of urban planning based on digitization (Castells, 1996) and smart governance, aimed at improving quality of life and achieving sustainable urban development (United Nations, New Urban Agenda, 2017).

New cities have become among the most prominent urban projects moving toward the smart city model, which is based on integrating technology into the city's various functions and services.

However, this transformation is not limited to the development of infrastructure and urban services; it extends to reshaping urban space, social relations, and lifestyles — raising sociological questions about the future of urban identity amid the growing similarity of urban and digital models across cities. The city is not merely an urban agglomeration, but a social and cultural space within which the values, symbols, collective memory of society, and individuals' sense of belonging are formed (Lefebvre, 1991).

From this standpoint, the study's problem emerges in seeking how to achieve a balance between the requirements of the transition toward smart cities and the preservation of local urban identity, in a way that ensures the continuity of social relations and cultural distinctiveness, and prevents cities from becoming similar urban models that lack a distinctive character (Relph, 1976).

On this basis, this study seeks to provide a sociological reading of the transformations experienced by new cities, by employing contemporary sociological theories to analyze the impact of digital transformation on the reproduction of urban space, and its repercussions on urban identity and social

relations — leading to a conception of sustainable urban identity as an approach that achieves integration between technological development and the preservation of the city's cultural and social distinctiveness.

Research problem:

In recent decades, the city has undergone profound transformations affecting its various urban, social, and cultural dimensions, as a result of the rapid development of information and communication technology, artificial intelligence, and digital transformation. This transformation is no longer limited to upgrading infrastructure or improving urban services; it has extended to reshaping urban space, lifestyles, social relations, and modes of interaction between individuals and groups. As a result, the city has shifted from its traditional model — based on spatial proximity and direct social interaction — to the smart city model, which relies on digital governance, smart urban planning, sustainability, and resource management using modern technologies.

However, this transformation raises a number of sociological issues, perhaps the most prominent being the impact of standardized global urban and technological models on the reshaping of urban identity. The reliance of smart cities on similar planning and architectural patterns worldwide may lead to a decline in local distinctiveness, and a weakening of cultural symbols, collective memory, and residents' sense of belonging to place — posing a challenge in how to achieve a balance between the requirements of modernization and the preservation of urban identity.

On this basis, this study seeks to analyze the impact of the modernization of new cities and the transition toward smart cities on the reproduction of urban space and the rebuilding of urban identity, and to uncover the nature of the transformations experienced by social relations in this context, and the extent to which they contribute to achieving sustainable urban transformation. The study also attempts to explore ways to integrate cultural and social distinctiveness into smart urban planning, so as to enable the construction of a sustainable urban identity capable of adapting to digital transformations without losing its local foundations.

Based on this, the main research problem can be formulated as follows:

How does the transition from new cities to smart cities affect the rebuilding of urban identity, what is the nature of the new urban identity forming under digital transformation, and how can a sustainable urban identity be achieved that preserves the cultural and social distinctiveness of the local community?

Study Methodology:

This study relies on the analytical method to examine the phenomenon of the modernization of new cities and the transition toward smart cities in its two dimensions — their repercussions on urban identity and on social relations — in light of the scientific literature and sociological theories.

The study also relies on the comparative method to compare traditional cities, new cities, and smart cities, in order to highlight the differences in urban planning, the production of space, urban identity, and social relations

Study Objectives:

- To examine the repercussions of standardized global urban models on the urban identity and cultural distinctiveness of local communities.
- To analyze the study's core concepts, namely: the city, new cities, the modernization of cities, the smart city, and urban identity.
- To anticipate the future of urban identity in smart cities amid digital transformation.

- To provide planning and cultural recommendations that can help decision-makers integrate local identity into the design and management of smart cities.

Conceptual and Theoretical Framework (Analytical Study):

The study draws on the analysis of concepts and sociological theories related to the research topic, relying on Louis Wirth's theory that the city is not merely an urban agglomeration, but a mode of social life characterized by population density, large scale, and social diversity — factors that give rise to new forms of social relations differing from those prevailing in traditional societies (Wirth, 1938, *Urbanism as a Way of Life*, pp. 1-24).

From this perspective, new cities can be understood as an urban space that reorganizes patterns of social interaction according to modern urban planning, drawing on Henri Lefebvre's theory of the production of space, through which Lefebvre explains how urban space is reproduced in new cities, and analyzes the impact of urban and technological transformations on the shaping of urban space.

New cities are not merely a physical extension, but a process of space production, planned according to economic, social, and political objectives. Lefebvre argues that space is neither a natural given nor a purely material framework, but a product of social practices and power relations (Lefebvre, 1991, pp. 26-46), as well as of policies and urban planning. Accordingly, the new city does not only produce buildings, roads, and facilities, but also produces new patterns of social relations, ways of living, and new images of belonging to place.

According to this perspective, the urban planning of new cities reshapes social life by organizing urban space and distributing functions and services, giving rise to patterns of social interaction that differ from those of the traditional city. While social relations in the traditional city formed gradually through history, collective memory, and local ties, new cities are built on pre-planned spaces, constructed according to functional and developmental logic — making social relations and urban identity in these cities a matter of ongoing formation and reconstruction (Lefebvre, 1991, pp. 68-73). New cities therefore represent not merely a spatial transition, but also a transformation in the social and cultural structure of the city, whereby urban space becomes a tool for the reproduction of society and the reshaping of urban identity, in line with the developmental and planning objectives for which the city was created (Lefebvre, 1991, pp. 286-300).

From this standpoint, new cities represent the stage preceding the transition to smart cities, in which urban space becomes increasingly linked to digital technologies and smart governance, opening the way for new questions about the future of social relations and urban identity.

In Algeria, the city of Sidi Abdellah represents a model of a new city established to serve as an urban and technological hub relieving pressure on the capital, equipped with residential areas, universities, research centers, and other activities. However, in its early stages this city faced the challenge of a delayed formation of urban identity, since its residents came from different neighbourhoods and cities and did not share a common history or local symbols reinforcing a sense of belonging. Consequently, identity-building remained tied to the passage of time, the development of social relations, the use of public spaces, and the formation of new social networks.

As for Manuel Castells's network society theory, related to the digital revolution, he argues that these digital transformations have radically altered the structure of society, such that social, economic, and political relations are no longer based solely on geographical proximity, but are increasingly organized within interconnected digital networks based on the flow of information and knowledge. Castells termed this model the 'network society,' in which information and communication technology has become the fundamental structure organizing various activities (Castells, 1996, pp. 376-428).

Castells divided the stages of the formation of the network society as follows:

- The urban stage: in his early work, Castells focused on studying the city, analyzing urban transformations and their relation to social structure, and considering the city as a social space reflecting economic and political change (Miller, 2006, p. 45).
- The transitional stage: Castells began focusing on technology, particularly the role of information in social organization, marking a shift from field studies of the city to the study of networks.
- The network society stage: this stage represents the culmination of Castells's thought, in which he developed the concept of the network society, viewing networks as the fundamental structure of modern society (Castells, 1996, p. 469).

On this basis, the modernization of cities does not simply mean upgrading infrastructure or introducing technological tools, but represents a structural transformation in the way the city is produced, managed, and organized. The city is no longer merely a traditional urban space, but has become a digital space in which smart networks intersect with various urban functions.

Accordingly, the smart city represents the urban application of the network society, relying on digital governance, artificial intelligence, and big data to manage various urban services in an interconnected manner. However, this transformation is not limited to its technical dimension; it extends to reshaping social relations, urban space, and urban identity. As reliance on digital networks increases, patterns of communication and interaction among residents change, new forms of community participation emerge, and the meanings attached to place and belonging shift — placing urban identity in a state of continuous reconstruction.

These transformations are evident in a number of global smart cities. Barcelona, for example, relies on digital platforms to engage citizens in urban governance. Such experiences show that the success of a smart city is measured not only by its level of technological advancement, but also by its capacity to preserve social cohesion and local identity amid digital transformation.

International experiences such as Songdo in South Korea and Ordos in China, among others, have faced difficulties in social adaptation and the formation of urban identity, as their planning focused more on technology and infrastructure than on building social ties — resulting in a lack of vitality and urban identity.

Accordingly, network society theory helps explain the transition from new cities to smart cities, as it clarifies that modernization is not merely the introduction of technology, but a comprehensive social and urban transformation that reorganizes urban space, ways of life, social relations, and urban identity. Achieving a sustainable smart city therefore requires balancing digital innovation with the preservation of cultural distinctiveness and local identity, so that cities do not become similar urban models lacking a distinct social and cultural character.

As for identity theory according to Anthony Giddens (1991, pp. 32-54), which explains the relationship between identity and society: Giddens argues that identity is not a fixed given born with the individual, but a continuously renewed social project, constantly reconstructed amid the transformations experienced by society. In the age of modernity, individuals no longer rely solely on tradition to define their identity, but continuously reshape it in response to social, economic, and technological change (Giddens, 1991, pp. 32-54). From this standpoint, urban identity in smart cities is not fixed, but dynamic — adapting to digital transformations while preserving cultural and social distinctiveness. In the absence of this distinctiveness, reliance on similar global urban models may

weaken the sense of place and belonging, making the rebuilding of urban identity a fundamental challenge for smart cities.

Place and Identity:

Identity is defined as an internal, subjective concept expressing an individual's awareness of themselves as an independent person.

A true place is a defined space or area to which individuals or groups attribute a particular meaning, expressed in the following equation:

$$\text{Place} = \text{Space} + \text{Meaning}$$

According to Edward Relph (1976, p. 29), places are recognized through their distinctive character, natural landscape, routines, other people, personal experiences, concern for the place, and the context of other places.

According to Kaminoff (1983), and Fabian and Proshansky, place identity is the socialization of the self within the physical world. This means that the development of an individual's identity is not limited to distinguishing the self from others, but extends to objects and possessions, as well as to the places and spaces in which these objects exist.

Uzzell (1996) and Twigger-Ross also proposed four key processes related to place identity:

- Distinctiveness: the place helps the individual distinguish themselves from others.
- Continuity: the place represents an extension of the individual's past and memories.
- Self-esteem: the place contributes to enhancing the individual's sense of self-worth and satisfaction.
- Self-efficacy: the place provides an environment that helps the individual carry out their daily activities effectively.

Places, then, are built through three main elements: physical form, activities, and meaning — meaning being linked to individuals' internal psychological and social processes.

Sense of Place:

Sense of place is not merely a way of describing how a person perceives a given place; it is a multidimensional, value-laden concept linked to an individual's emotional and symbolic recognition of place (Stefanovic, 1998).

Sense of place represents a blend of conscious and unconscious feelings and perceptions — a rich concept encompassing the way people perceive, experience, express, and attribute meaning to place. An individual's sense of place also influences their attitudes and behaviours within that place (Shamai, 1991).

Relph argues that geographic location alone is not sufficient to form a sense of place; rather, a long and deep experience of the place, along with participation and immersion in it, is essential.

Urban planning should take sense of place into account through three main dimensions:

- Psychological responses to design.
- Preserving the past and heritage of the place.
- Creating a sense of place in future environments.

Achieving these objectives requires improving the means of engaging the local community in the planning process.

Accordingly, urban identity can be defined through the sociological analysis of the concept of identity according to Proshansky (1978) as the self-related dimensions that constitute an individual's personal identity in relation to the physical environment, through a system of beliefs, values, feelings, preferences, and behaviours associated with place.

Building on Proshansky's theory of place identity, urban identity is not a fixed given, but a social construct formed through the interaction between human beings and urban space. Accordingly, the modernization of new cities and the transition toward smart cities reshape this interaction, producing new patterns of belonging and identity. Relph further shows that preserving spatial and cultural distinctiveness is a fundamental condition for preserving a city's identity, since the similarity of urban models may lead to a loss of the distinctiveness of place and the emergence of placelessness.

Smart cities are also grounded in sustainable urban development, which aims to achieve a balance among the economic, social, environmental, and cultural dimensions of the local community. Sustainable urban development thus represents the framework that ensures digital transformation serves as a means of empowering people and place, rather than a cause of erasing the city's identity or weakening social ties.

Building Urban Identity Across Traditional, New; and Smart cities:

The following table summarizes the construction of urban identity across the three urban models:

Traditional City	New City	Smart City
Identity built on history, customs, and local belonging	Identity built on modern urban planning and the early formation of a new community	Identity built on the interaction between technology, urban space, and digital and local identity
Nature of urban space: a historical space that developed gradually over time	A pre-planned space designed according to urban and developmental objectives	A smart space connected to digital networks, data, and artificial intelligence
Direct, relatively strong social relations based on proximity and daily interaction	Relations still forming, as a result of residents relocating from different areas	Hybrid relations combining direct and digital interaction
Sense of belonging to place: high, based on memory and local symbols	Gradually forms as residents settle and a local community takes shape	Requires policies to preserve belonging amid digital transformation
Urban identity: stable, clear, and linked to local culture	An emerging identity forming over time	A dynamic identity subject to continuous reconstruction

Source: Prepared by G. Azzout, based on the theoretical contributions of Louis Wirth, Manuel Castells, Henri Lefebvre, and Anthony Giddens.

Conclusion:

Through this study of the impact of the modernization of new cities and the transition toward smart cities on the rebuilding of urban identity — toward a sustainable urban identity — it can be concluded that the city is no longer merely an urban framework or a geographical area, but has become a dynamic social space shaped by the technological and digital transformations of the contemporary world. The study has shown that new cities are not simply an urban extension of traditional cities, but constitute a new urban model that reproduces space and social relations according to modern planning and developmental visions. With the acceleration of modernization, smart cities have become a strategic choice for achieving efficiency in resource management and improving quality of life through the use of digitization and artificial intelligence.

However, this transformation is not limited to its technical dimension; it extends to reshaping urban space, patterns of social interaction, and urban identity. In light of Henri Lefebvre's theory of the production of space, Manuel Castells's network society theory, and the place-identity approach, the

study has shown that technology is not the sole factor in building the smart city; human beings, social relations, and cultural distinctiveness are also essential elements in the success of this urban model. The study has further shown that the adoption of similar urban and technological models may lead to a decline in spatial distinctiveness and a weakening of the sense of belonging, if local identity is not integrated into the urban planning process. Consequently, the future of smart cities should not be measured solely by their level of digital development, but also by their capacity to preserve collective memory, cultural symbols, and the social relations that give the city its distinctive character.

The study also confirms that urban identity is not a static entity, but a continuously renewed social construct, constantly reshaped by urban and digital transformations. As Anthony Giddens argues, identity is an ongoing project shaped by the conditions of modernity and social change, whereby individuals continuously reconstruct themselves and their relationship to place amid accelerating transformations (Giddens, 1991, pp. 32-54).

On this basis, we conclude with the concept of sustainable urban identity: a dynamic urban identity that preserves the cultural and social distinctiveness of the local community while adapting to the requirements of smart cities and digital transformation, thereby ensuring the sustainability of belonging to place and the continuity of social interaction within a framework of sustainable urban development.

This study may open avenues for future research aimed at developing scientific indicators for measuring sustainable urban identity and applying them across different communities, in order to contribute to building smart cities that preserve their authenticity while responding to the requirements of sustainable urban development.

Production of space → digital transformation → rebuilding urban identity → sustainable urban identity.

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