

Future Prospects of New Cities in Algeria: A Prospective Sociological Approach

الآفاق المستقبلية للمدن الجديدة في الجزائر

مقاربة سوسيولوجية استشرافية

Fathoun Iman

University of Blida 2, fathouniman@gmail.com

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Abstract:

The city is an inclusive urban space encompassing all the material and immaterial elements that constitute society. It forms a vital center where residents' activities intersect to meet their daily needs. Through the diverse interactions witnessed in this space, individuals' social, cultural, and economic capacities develop, thereby enhancing stability and contributing to the sustainability of growth within the urban community.

However, the rapid growth of cities imposes increasing pressures and challenges affecting various aspects of life, particularly the economic, social, and environmental dimensions. This has prompted researchers and decision-makers to seek radical solutions to mitigate these issues. In this context, Algeria, like many other countries, has sought to adopt urban strategies aimed at distributing population density and reducing the accumulated burdens in major cities by absorbing surplus population and achieving a more sustainable urban balance. This is the subject of the present study, which examines new and smart cities through a prospective sociological lens.

Keywords: New cities, smart cities, urban expansion, sustainable development, Algeria.

ملخص:

تعد المدينة فضاء حضريا جامعا لكل العناصر المادية والمعنوية التي يتكون منها المجتمع، حيث تشكل مركزا حيويا تتقاطع فيه أنشطة السكان لتلبية حاجاتهم اليومية، ومن خلال التفاعلات المتنوعة التي يشهدها هذا الفضاء، تتطور قدرات الأفراد الاجتماعية والثقافية والاقتصادية، بما يعزز الاستقرار ويسهم في تحقيق استدامة النمو داخل المجتمع الحضري.

غير أن هذا النمو المتسارع للمدن يفرض ضغوطا وتحديات متزايدة تمس مختلف جوانب الحياة، خاصة الاقتصادية والاجتماعية والبيئية، ما دفع الباحثين وصناع القرار إلى البحث عن حلول جذرية للتخفيف منها، وفي هذا السياق، سعت الجزائر، على غرار العديد من الدول، إلى تبني استراتيجيات عمرانية تهدف إلى توزيع الكثافة السكانية والتقليل من الأعباء المتراكمة في المدن الكبرى، من خلال امتصاص الفائض السكاني وتحقيق توازن حضري أكثر استدامة، وهذا موضوع دراستنا هذه التي تبحث في المدن الجديدة والمدن الذكية برؤية سوسيولوجية واستشرافية.

كلمات مفتاحية: المدن الجديدة، المدن الذكية، التوسع العمراني، التنمية المستدامة، الجزائر

Corresponding author: Fathoun Iman

1. Introduction

Given that the city is the urban space that encompasses all the material and immaterial elements constituting society, it is considered the vital center where residents interact to fulfill their needs. This center is the locus of daily events; these events, with their various interactions, develop the social, cultural, and economic talents of the population, conferring upon them stability and sustainable growth.

Urban cities continuously experience expansion and growth. Inevitably, this increasing and rapid growth creates a set of pressures and challenges within these urban centers, prompting urban sociologists and ecologists, alongside decision-makers, to devise radical solutions to limit these pressures, especially those affecting the economic, social, and environmental life of the residents.

Algeria is no exception to this trend. Like other countries worldwide with major urban centers, it has sought to adopt an urban strategy across most regions of the country to alleviate the various accumulated burdens and pressures in existing urban cities. The most prominent feature the Algerian state seeks to achieve through this is the absorption of the population surplus in current cities.

Significance of the Study:

Since the city is the image that reflects the state's urbanization, and as previously noted, Algeria is not isolated from the growth witnessed globally, it has sought in this context—through legal and practical frameworks—to pursue a strategy aimed at building new and smart cities to achieve sustainable development.

Therefore, this study aims to:

- ❖ Diagnose and monitor demographic transformations, the emergence of new cities and their imposition as a reality, and examine the mechanisms implementing them.
- ❖ Propose methods that new cities can rely on, based on the outputs and proliferation of technology, with the aim of exploring how to transform new cities into smart cities and facilitate the fulfillment of people's daily needs.
- ❖ Examine, study, and understand the concepts associated with new cities in order to operate within their context and explore the solutions they offer in this domain.

Methodology:

This study primarily relies on descriptive and analytical approaches. The descriptive approach is employed to observe the phenomenon under study, trace its developmental trajectory, and define its associated concepts, thereby allowing for the collection and presentation of the data necessary to describe the conditions of its establishment.

Meanwhile, the analytical approach is used to deconstruct the contents of the legal texts framing the subject and related studies, and to measure the extent to which these legislative frameworks and theoretical ideas align with actual reality and field applications.

1) Sociological Delineation of the Concepts of the New City and the Smart City:

The idea of constructing new cities is not a product of the modern renaissance; rather, it is deeply rooted in antiquity, tracing back to early civilizations, particularly during the era of Roman colonies. Despite the antiquity of the term and the purpose of its inception to

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meet specific needs, its concept underwent a fundamental evolution in the twentieth century, transforming into an independent planning policy aimed at restructuring the territory in an exemplary and organized manner. Resorting to this policy emerged as an imperative necessity after World War II to confront housing crises and urban inflation, and in pursuit of balance and equity in the distribution of population and economic activities, This makes the "new city" a term that is ancient in its existence but modern in its dimensions and concepts.

In the Algerian context, the trend towards establishing new cities emerged as a strategic response to imbalances in the distribution of development and to confront the phenomenon of chaotic and informal construction. They represent the optimal alternative to curb urban inflation and limit irregular population growth in major metropolises, thereby ensuring the restoration of urban balance. On this basis, in our current era, new cities have emerged, and in parallel with them and the technological openness that has swept the world, what are known as smart cities have appeared. We will address the definition of each separately, highlighting the distinguishing features of one from the other.

1-1) The New City:

The city represents the most important and complex urban pattern in human history, due to the features it carries that define its historical and cultural identity) Lewis ,1961 ، (صفحة 15; hence, approaches to defining it have varied.

Mustafa Al-Khashab described it as an urban social unit with a specific geographical and administrative scope, whose primary activity is based on the industrial and commercial sectors, with a decline in agricultural activity. The city is characterized by the multiplicity of its functions and institutions, its high population density, the development of its facilities and buildings, and the ease of transportation within it, as well as the prevalence of a class-based pattern in its centers and social conditions (صفحة 152 ، 2017 ، علام) .

Other researchers view the city as a human agglomeration characterized by remarkable density and complex, organized interaction simultaneously; it integrates material components (economic, social, and urban) and immaterial components (moral, cultural, and historical) into a single cohesive fabric. As a vital center, the city works to serve the interests of the population and meet their diverse needs, while some envision it as an extension of the village within a continuous overlapping relationship between rural and urban areas.

Perhaps the most prominent feature of urban life is the characteristic of social disparity and heterogeneity, given the fundamental differences in professions and economic and social statuses. This makes the city a space where most of its residents devote themselves to practicing multiple professions and jobs far removed from the traditional pattern (كتاف ، 2013، صفحة 18).

Based on this, sociologists' views on the new city have been established and varied. Dr. Mustafa Omar Hamada argues that new cities are newly created or pre-planned metropolises, where the residents do not intervene in formulating their initial conceptions; rather, the competent government authorities undertake their comprehensive and integrated

planning, such that these plans accommodate all urban, organizational, and economic dimensions.

Saleh Basyouni defines new cities as newly created local communities constructed according to comprehensive planning foundations that integrate economic, physical, and organizational aspects. The construction process is followed by the transfer of human elements selected according to specific criteria, with the aim of establishing an advanced social and economic reality that transcends the prevailing patterns in traditional cities, in pursuit of developing human and economic resources and elevating the general social standard (حمادة، 1998، صفحة 43) .

Thus, the new city in its social dimension is: "considered a social phenomenon and not merely population agglomerations that make their lives possible; rather, it is a set of customs and traditions" (كتاف ، 2013 ، صفحة 22) .

1-2) The Smart City:

The concept of smart cities has recently become a core focus of discussion, driven by the deep penetration of information and communication technologies into the fabric of daily life. In urban planning, this concept transcends the technical dimension to encompass scientific innovation, economic development, and environmental protection. It has crystallized as an integrative vision that employs technology to enhance the efficiency of cities and boost their competitiveness, as well as to provide innovative solutions to confront the dilemmas of poverty, social marginalization, and environmental challenges.

Accordingly, smart cities have emerged as an inevitable response to the impact of information technology on society, where urban planning intersects with innovation, economy, and sustainability. This concept is based on harnessing digitalization to achieve strategic goals, including:

- ❖ Performance Improvement: Enhancing the operational efficiency and competitiveness of cities.
- ❖ Social Responsibility: Combating deprivation and poverty through unconventional methods.
- ❖ Sustainable Development: This includes elevating citizens' lives and their quality, as well as protecting the environment.

Given the complexity of the smart city's dimensions and its intersection with various spheres of life, a unified and comprehensive definition has not crystallized; rather, the visions explaining it have multiplied. From a technological perspective, it is defined as a metropolis that integrates information and communication technologies within its traditional infrastructures in a harmonious digital manner.

However, this proposition remains limited as it reduces the city's smartness to the technical aspect alone; whereas the concept expands in other theses to include deeper economic and social dimensions. From this socioeconomic standpoint, the smart city is defined as 'the environment in which the joints of the economy and governance are managed by the engines of innovation and creativity, and through entrepreneurship led by smart

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human capital.' Smart cities are: "the place where the wheel of the economy and government is driven by innovation, creativity, and entrepreneurship undertaken by smart people" (مخلوف، 2020، صفحة 28).

If we wish to impart a comprehensive social definition to smart cities, we find ourselves aligning with Omar Makhlouf's assertion: "It is an inclusive place that uses technology and innovative solutions to increase social inclusion and combat poverty" (مخلوف، 2020، صفحة 28).

In a related context, definitions linking the smart city to the principles of sustainable development have emerged, seeking to overcome the limitations of previous propositions. The International Telecommunication Union's definition is considered the most comprehensive in this regard; it described the sustainable smart city as an innovative metropolis that employs information technology and advanced means to improve the quality of life, raise the efficiency of urban services, and enhance competitiveness, while strictly adhering to meeting the needs of present and future generations in their economic, social, and environmental dimensions (مخلوف، 2020، صفحة 29).

The names and terms applied to smart cities vary depending on the angle from which their strategic goals are viewed; sometimes it is a knowledge city focusing on intellectual capital and innovation, and other times a digital city placing technological transformation at the forefront of its priorities, or even a cyber (ecological) city combining the smartness of digital systems with environmental sustainability. The choice of name or orientation depends on the vision adopted by planners and decision-makers, and the core objectives they seek to achieve in developing the urban fabric (مجد، 2021، صفحة 182).

1-3) The Transition from New Cities to Smart Cities:

Formulating a consensual vision regarding the broad outlines of strategies to transform new cities into smart and sustainable metropolises is not a mere abstract technical process, but rather an in-depth research trajectory that first requires an accurate diagnosis of the city's current reality. It is essential to ascertain the nature of the spatial and social characteristics of each city and conduct a comprehensive analysis (Audit) of all its vital sectors. This deep understanding of current assets and existing challenges is what allows planners to draw a realistic and executable roadmap, ensuring the alignment of technological solutions with the environmental and economic needs of the community. From this premise, the strategic paths that can be adopted based on this diagnosis are multiple, the most prominent of which are:

A) The Initiation Phase:

This phase centers on crystallizing a procedural methodology to transform the theoretical concepts of smart cities into tangible reality, through the formulation of a transformation policy based on a package of qualitative initiatives. These initiatives are not merely executive steps, but rather serve as the strategic goals and major targets that delineate the features of the city's smart identity.

The importance of this phase lies in the fact that the clear declaration of these goals, along with subjecting them to precise classification processes and detailed explanation of

their targets, contributes to removing ambiguity from the actual course of action. Once priorities are set and their implementation mechanisms are explained, the vision becomes complete for planners and decision-makers, paving the way for a direct transition to the executive planning phase. This clarity of vision is what guarantees the transformation of the city from a mere technical project into a realistic model of a sustainable smart city that meets the community's aspirations.

B) The Planning and Project Development Phase:

Once the formulation of transformation initiatives and the identification of major goals are completed, the most critical phase begins: the phase of systematic planning and the formulation of investment portfolios for projects. This phase is characterized by being an interactive nexus, where success requires establishing close and complementary cooperation between the strategic planning team (the visionaries) and the technical experts and professionals (the implementers of the tools).

This joint effort aims to subject each initiative to in-depth feasibility studies and rigorous technical examinations, ultimately leading to the formulation of a package of detailed executive plans for vital projects applicable on the ground. This harmony between vision and field expertise is the sole guarantee for ensuring the continuity of supervision and follow-up, and for verifying that the transformation process towards the smart city model proceeds accurately in accordance with pre-approved standards and policies, thereby preventing the waste of resources or deviation from the original objectives.

C) The Phase of Comprehensive Change and Reliance on Technology:

In this context, the inevitability of creating a comprehensive and radical technological leap emerges, one that is not limited to the superficial adoption of digital tools, but extends to form an integrated and clearly defined smart infrastructure. This desired change is embodied in several strategic axes; starting with the adoption of Emerging Technologies, which represent the driving nerve of innovation, through the adoption of engineering and zoning designs that harmonize with smart standards, and culminating in Eco-friendly Operation (عبد العزيز وعبد المؤمن ، 2020 ، صفحة 11), which ensures the efficiency of resource consumption and the reduction of carbon emissions via smart management systems.

To achieve this model, it is advisable to rely on an integrated matrix of modern digital solutions that constitute the 'electronic brain' of the city, most notably:

❖ Cloud Computing and Network Platforms: Which provide flexible virtual environments capable of storing and processing Big Data highly effectively, and allow linking the city's various sectors and service platforms into a unified network that ensures the flow of information and cloud services in a real-time and sustainable manner) Anthony ، (2013، صفحة 85).

❖ Internet of Things (IoT): Which is considered the backbone of human-machine interaction, where millions of devices and tools are integrated into an interactive communication network.

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❖ **Multi-modal Sensors:** Which act as the nerves of the smart city, collecting precise data on traffic flow, air quality, and energy consumption, thereby providing a comprehensive analytical view of the urban reality.

❖ **Open Data Systems:** Which aim to enhance digital transparency and make information available to innovators and developers, contributing to the creation of an investment and social environment capable of inventing smart applications that improve the quality of urban life and support fact-based digital decision-making.

2) Algerian State Plans in Developing New Cities:

Algeria has adopted an ambitious strategic vision in conceptualizing new cities, fundamentally based on establishing an integrated system of legislative mechanisms and regulatory laws aimed at governing the course of modern urban planning. This orientation has been manifested through a series of legal texts and legislative updates that sought, in their entirety, to provide radical solutions to the dilemmas of existing metropolises and overcome their structural imbalances.

This approach stems from a firm conviction that effective management of urban problems can only be achieved through a dual dynamic: the first aims to revitalize small and medium-sized urban centers by reorganizing their infrastructure and rehabilitating their functions, while the second focuses on creating new, balanced urban poles. These poles act as strategic tools to break the unilateral dominance of major cities and alleviate the immense pressure resulting from their demographic and economic gravitational pull. In this framework, the 'new city' policy emerges not only as a housing solution but as a sovereign tool to redraw the urban map and ensure a more equitable distribution of activities and population across the national territory, thereby contributing to the creation of sustainable regional balance.

We have omitted the legal framework, tools, and texts regulating them, their structure, as well as their management methods and conditions upon which these cities were built, because our study focuses primarily on the social dimension. We will address the most important cities that the Algerian state has considered establishing, some of which have actually been launched, such as Sidi Abdellah and Bouinan, to further understand the phenomenon of new and smart cities. We will examine the desired goals for some cities, touching upon a coastal city, a city in the highlands, and another in our deep south.

2-1) Models of New Cities in Algeria:

First: From the Deep South, the City of El Menia:

This category represents the third generation of new cities directed towards developing the vast Algerian south and addressing its challenges. An ambitious strategy was adopted aiming to valorize significant mining resources and organize the territory by stabilizing the population in their regions, while attracting new groups to achieve regional balance and transform the south into an integrated space of attraction.

For this reason, the state decided to launch the cities of Hassi Messaoud and El Menia. The latter is considered a desert tourist city with international specifications, whose strategy

aims to achieve balanced development in marginal desert areas, while alleviating population congestion in the old city adjacent to the oasis (عاشوري ، 2017 ، صفحة 261) .

The new city of El Menia was designed to be a complementary link to the system of major cities, contributing to a qualitative leap in the level of public facilities and services, and creating extensive employment opportunities in the region.

Geographically, the new city is located within the territory of the El Menia municipality in the Ghardaïa province. The site for its construction was chosen outside the valley zone to protect the palm oasis from the urban sprawl that threatened its sustainability.

The boundaries of the new city of "El Menia" extend over a total area of 600 hectares; distributed between 350 hectares allocated for the urbanization and development zone, and 100 hectares as a real estate reserve for future expansion, in addition to a protection zone surrounding the city with an estimated area of 150 hectares.

The city was designed to accommodate approximately 30,000 inhabitants, equipped with all administrative facilities and public and neighborhood services. It also includes an integrated tourist space, a traditional industry museum, a university center, religious facilities, and sports and youth institutions. The city's primary activities are based on the tourism, cultural, and entertainment sectors, fundamentally aiming to rehabilitate the oasis economy and combat agricultural pests. It also seeks to develop specialized fields including ecotourism, support for desert agriculture, food processing industries, and the exploitation of renewable energy potentials, as the main axes of development in the region (كتاف ، 2013 ، صفحة 74).

However, it should be noted that in the Algerian south, there is another city of great importance, considered the capital of Algerian petroleum, which is the city of Hassi Messaoud.

Second: From the Highlands, the City of Boughezoul:

The new city project of "Boughezoul" is a massive undertaking representing a qualitative leap in the construction of new cities in Algeria. This urban pole is located 170 km south of the capital. The roots of the idea date back to the 1970s when the late President Houari Boumediene expressed his desire to make it the country's capital. However, the project remained frozen until it was officially proposed in 1986, with actual work commencing in 1987 as the first experiment in building new cities in Algeria. A pivotal strategic location was chosen for it, adjacent to two main national roads: National Road No. 1, which connects the north to the deep south, and National Road No. 40, which connects eastern Algeria to its west.

After a series of postponements, the new city project of "Boughezoul" was officially launched in 2004, following the ratification on October 29, 2003, of Executive Decree No. 04-97 related to its establishment, which was signed on April 1, 2004. Geographically, the city is located within the territories of the municipalities of "Boughezoul" in the Médéa province and "Aïn Oussera" in the Djelfa province, 170 km south of the capital. It spans an area of 4,650 hectares and is planned to accommodate 400,000 inhabitants, playing a pivotal

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role in regional structuring and demographic attraction in the High Plateaus region, ensuring a balanced distribution of growth comparable to the development of coastal cities.

The city centers around eight basic functions, including: housing, education and scientific research, development of renewable energies, industrial and logistical activities, in addition to administration and services, commerce, tourism and entertainment, and finally agriculture and food industries. This metropolis was designed according to the principles of sustainable development within the National Scheme for Spatial Planning, as it is situated on the banks of the Boughezoul Dam lake, which constitutes a fundamental structural and environmental element, allowing for the protection of the ecosystem and the development of the "blue and green networks" stipulated in the planning scheme.

In addition to the city of Boughezoul, the highlands region has also programmed another major new city in the Batna province, which is the city of Imedghassen. This city, along with Boughezoul, is slated to be a pole for rebalancing the regional population distribution in Algeria.

Third: In Northern Algeria, the City of Sidi Abdellah:

The new city of "Sidi Abdellah" is considered a strategic urban pole par excellence, located 25 kilometers west of the Algerian capital. It plays a pivotal role in relieving pressure on the center and redistributing the metropolitan functions of the city of Algiers. Its legal and spatial framework has passed through several regulatory milestones; according to Executive Decree No. 04-275 dated September 5, 2004 (amended and supplemented by the decree dated June 21, 2010), its initial area was set at 3,000 hectares. Later, Executive Decree No. 12-226 was issued, containing the declaration of public utility for the realization of the city's facilities and equipment. Article 02 of Executive Decree No. 16-220 then amended this area towards expansion, stipulating that the total area of the city is estimated at 7,000 hectares. This vast geographical scope is distributed within the territory of the Algiers province, encompassing the lands of five municipalities: Mahelma, Rahmania, Zéralda, Douéra, and Souidania.

The fundamental tasks and functions for which this city was established are manifold, primarily focusing on advanced technology, training, and university research, in addition to the associated logistical services. Within the framework of its future vision, the following objectives were set:

- ❖ **Restructuring the Capital:** By attracting major functions and alleviating congestion from the old administrative center.
- ❖ **Establishing a Scientific and Technological Pole:** Comprising a modern university, advanced laboratories, international research centers, and high-precision industrial facilities.
- ❖ **Providing a High-Quality Living Environment:** Ensuring a premium residential and urban environment that aligns with global standards of well-being.
- ❖ **Achieving Economic and Demographic Balance:** The city was designed to accommodate 450,000 residents, with the programmed construction of 90,000 housing units and the provision of 90,000 jobs to ensure self-sustaining economic dynamism.

On a sectoral level, the city consists of several specialized and integrated poles, including an information and communication sector, an administrative and health pole, and

extensive urban parks. It also includes an advanced technology pole, a university pole, a national defense and security pole, in addition to a pharmaceutical and biotechnology pole. The functional foundation of the city is based on integrating traditional economic, commercial, and administrative functions with high technology, via the "Cyberparc" system, which makes it a smart city adopting the latest digital solutions in managing urban affairs.

It is also worth noting that there are multiple new cities in the north, such as Bouinan and El Affroun in Blida, in addition to Sidi Amar in Annaba, and the city of Naciria in Boumerdès.

2-2) Achievements and Desired Goals in Smart Cities:

The goal of constructing smart cities in the current technological era is not limited to merely digitizing services; rather, it extends to being a comprehensive civilizational project aimed at humanizing technology. This means harnessing technical innovations to simplify and improve the daily quality of life for the community, and expanding the scope of democratic practice by enabling individuals to access their fundamental rights and freedoms with flexibility and transparency. This transformation also aims to restructure local administration to raise its operational efficiency, leading to strategic outcomes summarized in the following axes:

Strategic Objectives and Expected Outcomes:

- ❖ **Environmental Leadership and Emission Reduction:** Working to limit carbon pollution through smart energy and transportation systems, which directly contributes to reducing carbon dioxide emissions and combating climate change via real-time monitoring of pollution levels.

- ❖ **Elevating Quality of Life and Environmental Well-being:** Creating an urban environment that balances nature and urbanization, providing residents with a healthy and sustainable lifestyle where green spaces and eco-friendly services are available as basic standards for decent living.

- ❖ **Democratizing Access to Information Infrastructure:** Working to develop highly advanced digital infrastructures that are not restricted to technical elites, but are made accessible to all segments of society to bridge the "digital divide" and ensure everyone's right to knowledge and communication.

- ❖ **Balancing Economic Growth and Quality of Living:** Achieving a unique economic equation that ensures the continued growth and financial prosperity of the city, with the stipulation that this growth positively reflects on the citizen's personal well-being and does not come at the expense of their quality of life.

- ❖ **Building and Enhancing Sustainable Communities:** Investing in systems that ensure the continuity of resources for future generations, and creating communities capable of adapting to future challenges (economic and environmental) with high resilience.

- ❖ **Stimulating the Knowledge and Multimedia Economy:** Maximizing the benefit from the technological boom to localize digital content and multimedia industries, and transforming the city into a global incubator for industries based on knowledge and technological creativity.

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❖ Consolidating Social Cohesion and Harmony: Employing smart platforms to enhance positive interaction among various demographic components, and ensuring the inclusivity of services for all groups, thereby reducing social disparities and creating a state of harmony within the urban fabric.

❖ The City as a Living Lab for Innovation: Transforming the spatial realm of the city into an open testing ground for sustainable ideas, where new environmental and technical solutions are continuously tested and developed before being generalized, making the city a self-evolving entity.

❖ The Golden Triangle (Sustainability, Well-being, Economy): Reaching a state of mutual integration, where environmental sustainability enhances the health and activity of the citizen, and the activity of the creative citizen drives the wheel of economic growth, creating a positive and sustainable developmental cycle.

These combined objectives transform the city from a mere "residential agglomeration" into an "artificial and social intelligence system" aimed primarily at serving humanity while preserving the planet, making technology a means for elevation rather than an end in itself (مجد ، 2021 ، صفحة 185).

3) Challenges and Difficulties Facing New Cities in Algeria:

The accelerating waves of rural exodus and the increasing pace of urban growth in major Algerian metropolises have created immense pressure that has generated profound challenges, topped by the housing crisis and the deterioration of urban development in existing urban areas. In the face of this reality, the strategy of constructing new cities emerged as a sovereign choice and a pivotal solution to contain chaotic urban expansion and regulate spatial mobility in Algeria.

However, the mere establishment of new urban centers is no longer sufficient in light of global transformations (Peter, 2014, p. 485), as it has become necessary to overcome structural difficulties to elevate these metropolises from mere traditional residential agglomerations to sustainable smart cities. This qualitative transition requires adherence to scientific standards and strict technical foundations, starting with the precise identification of priority areas (such as digitalization, governance, and energy sustainability) before engaging in any developmental process. This proactive step is the cornerstone for ensuring the success of strategic policies aimed at launching smart Algerian cities capable of balancing technological advancement with the specificity of the local reality. Consequently, two major challenges have emerged in Algerian new cities: an ex-ante challenge and an ex-post challenge.

In light of the growing conviction of the pivotal role innovation plays in shaping the future of smart cities, and the ensuing positive impacts that reshape the quality of life for individuals and communities, these cities emerge as pioneering global hubs capable of attracting foreign direct investments and localizing research and innovation centers. This transformation is not limited to the technical aspect alone, but extends to form a major economic driving force that contributes to the flow of capital, the revitalization of the economic cycle, and the creation of large-scale employment opportunities.

Nevertheless, the realization of this ambition on the ground collides with a set of fundamental challenges that can be classified according to the following chronological phases:

First: Challenges of the Foundation and Construction Phase: These are primarily represented by the obstacles facing the construction of advanced digital infrastructure, where the challenge of the massive funding required by these qualitative projects emerges, alongside the deficit in specialized human resources and the qualified workforce capable of managing and implementing complex technology.

Second: Challenges of Post-Operation and Continuity: Once the city enters actual operation, obstacles of another kind appear, most notably the necessity of sustainability in maintaining the smart infrastructure and updating it periodically to ensure its efficiency. The challenge of cybersecurity also dominates the scene, given the urgent need to protect the privacy of citizens' data and secure digital systems against increasing cyber threats and breaches in connected environments.

In addition to this, a set of challenges can be highlighted as follows (كواش و كلثوم ، 2019: صفحة 20)

- ❖ The exorbitant cost of building such cities, due to the infrastructure, superstructure, and high-speed data transmission they require.
- ❖ The process of enhancing the features of a smart city requires the collaborative efforts of all stakeholders, not just programmers.
- ❖ There is apprehension about the failure of the idea, given the lack of an adequate level of computer literacy among the members of the city's community.

Conclusion:

The establishment of new cities according to a rigorous planning strategy has become an independent orientation aimed at achieving an equitable demographic distribution and establishing regional and territorial balance. Algeria, like other countries around the world, has adopted this experience as a mechanism to absorb overpopulation in major cities by constructing integrated urban poles with full services. These poles possess all structural standards, administrative, cultural, and commercial facilities, in addition to the economic fabric that ensures the vitality and independence of these cities. Among the models reviewed in this context are: Sidi Abdellah, Bouinan, Boughezoul, Imedghassen, El Menia, and Hassi Messaoud.

In parallel, the rapid technical development at the end of the twentieth century produced a contemporary urban concept, the "smart city," which officially crystallized following the European Digital City Conference in 1997. The smart city is not merely a follower of modernity; rather, it is a strategic model that relies on an advanced infrastructure (ultra-high-speed networks, digital applications) to manage urban affairs efficiently, while promoting sustainable development and environmental preservation. These cities aim to create an integrated technical environment that allows citizens to control vital services with the push of a button. This has motivated countries worldwide—including Arab nations—to

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strive towards adopting this model as a new orientation for the knowledge and digital society, whether by building new smart cities from scratch or developing traditional cities to transition into this pattern.

The shift towards smart cities necessitates giving utmost importance to information and communication technology, as it is the fundamental pillar for the success of smart systems in vital sectors such as health, education, urban planning, security, and environmental systems. In this regard, many countries are seeking to formulate clear strategic policies to achieve this scientific vision in line with the goals of sustainable development, emphasizing the need to provide the necessary governmental and institutional support to ensure the success of this trajectory.

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