Journal of Rights and Freedoms

Folder 14, Number 2
Year 2026, p1392-p1398

Smart Cities in Algeria: Sidi Abdallah Case Study

DJEMA Hamida[(1)]

[(1)] University of Mohamed Bougara, Boumerdes (Algeria)
h.djema@univ-boumerdes.dz

Received	Accepted	Published
26/04/2026	16/07/2026	31/10/2026

Abstract:

Smart cities leverage information and communication technologies, artificial intelligence, and the Internet of Things to enhance urban life and the management of public services. By integrating big data and digital infrastructure, they aim to improve decision-making, resource efficiency, and transparency while reducing costs and promoting sustainable development. Key features include advanced connectivity, smart governance, and strong citizen engagement. Challenges remain, including the high cost of digital infrastructure, cybersecurity risks, and the digital divide. In Algeria, initiatives like Sidi Abdallah Smart City project demonstrate a commitment to digital transformation in urban management and sustainable development.

Keywords: Advanced Hub - Development - Digital Service - New City - Sidi Abdallah

[1] - *Corresponding author: DJEMA Hamida*

Introduction

The world is currently witnessing a radical transformation in urban management methods due to the rapid development of information and communication technologies. Urban management no longer relies solely on traditional methods; it now draws on big data, artificial intelligence, and integrated digital systems. In this context, the concept of smart cities has emerged as a modern urban model aimed at improving the quality of life and developing public services effectively and sustainably[1].

Smart cities are of particular importance in light of growing urban challenges, including overpopulation, environmental pollution, inadequate public services, and rising resource demand. However, the application of this model in developing countries, including Algeria, still faces legal, technical, and institutional challenges[2].

In this context, the importance of studying smart cities in Algeria becomes clear, with a focus on the experience of the new city of Sidi Abdallah as a modern urban model with potential to develop into a smart city.

To study the new city's experience, we address the following research question:

To what extent does adopting the smart city model contribute to achieving sustainable urban development in Algeria, and what are the legal and technical challenges facing the implementation of this model in the city of Sidi Abdallah?

Section I:

Smart Cities : Concepts, Technology,and Legal Frameworks

Smart cities are based on the fundamental idea of using digital technology to manage cities more efficiently and transparently. Data is collected from various urban facilities and analyzed in real time to

[1] Townsend A. Smart Cities 2013

[2] UN-Habitat Urban Development Report 2022

improve decision-making[1]. This concept reflects a profound shift in urban management philosophy from traditional management to data-driven governance.

This model relies on a range of modern technologies, most notably the Internet of Things (IoT), which allows for the connection of devices and urban facilities to a unified digital network; artificial intelligence, which enables the analysis of big data and the prediction of problems before they occur; and cloud computing, which provides flexible data storage and processing[2].

From a structural perspective, smart cities consist of a complex network of interconnected systems. These include digital infrastructure, such as high-speed internet and fiber-optic networks, and sensor systems that monitor urban activities, including traffic, energy, and air quality[3]. They also include digital governance, which allows citizens to interact directly with management through e-platforms, thus enhancing transparency and reducing bureaucracy[4].

Humans are central to this model, as a smart city cannot be achieved without citizens possessing digital skills and the ability to use e-services efficiently. This makes digital education and technological training essential components of the model's success[5].

In terms of objectives, smart cities aim to improve the quality of life by enhancing public services in health, transportation, and education; achieve environmental sustainability through energy conservation and pollution reduction; and foster the digital economy and attract technological investments[6].

In Algeria, although there is no precise legal definition of a smart city, the legal framework for digitalization serves as the regulatory basis for

[1] OECD .Smart Cities Governance Report.2021
[2] ITU.ICT and Smart Infrastructure Report .2021
[3] IEEE Smart Infrastructure Studies .2020
[4] UN e-Government Index 2022.
[5] Human Capital and Digital Skills Repot .World Bank 2021
[6] OECD Innovation Strategy .2021

this concept. This is embodied in Law No. 18-07 on the Protection of Personal Data, which guarantees data protection in the digital environment; Law No. 18-05 on E-Commerce, which regulates digital transactions; and Law No. 09-04 on Combating Cybercrime[1].

However, this legal framework remains insufficient for comprehensively regulating smart cities, as it does not directly address issues of digital urban governance or the management of smart cities as an integrated system. This highlights the need for specific and independent legislation in this field[2].

Section II: Towards a Smart City : The Case of Sidi Abdallah Algeria

The new city of Sidi Abdallah, located west of Algiers, is one of the largest modern urban projects in Algeria. It was designed as a future-oriented city based on modern planning principles and sustainability, with the potential to later develop into a fully integrated smart city[3].

This project is distinguished by its strategic nature, aiming to alleviate pressure on the Algerian capital on the one hand, and to create a new urban hub based on higher education, scientific research, and technology on the other. Extensive areas have been allocated for the establishment of universities, research centers, and emerging economic institutions, making it a suitable environment for developing a knowledge-based economy[4].

The infrastructure of Sidi Abdallah is relatively modern, featuring urban planning based on the digital organization of streets and facilities, along with advanced communication networks that can be expanded into future smart systems[5]. Higher education institutions and

[1] Law No. 18/07, Law No. 18/05, Law No. 09/04
[2] Academic analysis of the digital legal system in Algeria
[3] Ministry of Housing, Urban Planning and the City, Sidi Abdallah Project
[4] Ministry of Housing, Urban Planning and the City, Op. Cit.
[5] Urban Planning Algeria Reports

scientific research centers have also been established, considered essential to supporting technological innovation in the city[1].

However, the actual transformation into a "smart city" is still in its early stages, as the city lacks an integrated digital system that includes intelligent traffic management, comprehensive digital services, and linking all facilities to a unified data system. Furthermore, the use of artificial intelligence in urban management remains limited compared with global smart-city models[2].

Legally, the city is subject to the same general framework for urban planning and digitalization in Algeria, without a specific legal framework for it as a smart city. This means its management relies on scattered texts on urban planning, digitalization, and data protection, without a unified framework to regulate such advanced urban projects[3].

The city of Sidi Abdallah also faces several challenges, most notably weak digital integration across public facilities, a shortage of specialized expertise in managing smart systems, high costs of digital transformation, and limited investment in modern technology for this urban development project[4].

Nevertheless, the city has significant opportunities to become a smart city in the future, especially given government support for digitalization projects, the availability of basic infrastructure, and the presence of educational institutions that can play a pivotal role in driving digital innovation[5].

[1] Algerian Ministry of Higher Education and Scientific Research
[2] Smart City Implementation Studies.World Bank.2022
[3] Analysis of the legal framework for urban development and digitalization in Algeria
[4] Digital Transformation Challenges Report Algeria
[5] OECD & World Bank Digital Transition Reports

Conclusion

This study demonstrates that smart cities represent an advanced urban model that leverages technology to improve the quality of life and enhance public services. In Algeria, despite existing legislative and technical foundations, implementation of this model remains in its early stages.

Furthermore, the case study of Sidi Abdallah reveals that Algeria has a modern urban project that could serve as the nucleus of a future smart city. Still, it requires comprehensive technical, legal, and institutional development.

Therefore, the success of smart city projects in Algeria necessitates:

- Developing a legal framework specific to smart cities
- Strengthening digital infrastructure
- Supporting scientific research and training
- Integrating artificial intelligence into urban management
- Enhancing public-private partnerships

Bibliography

A - Books:

1. Batty. The Future of Smart Cities. 2012
2. Komninos. Intelligent Cities. 2008
3. Townsend. Smart Cities. 2013

B - Reports:

1. OECD Smart Cities Report 2019
2. Reports of the Algerian Ministry of Housing and Urban Development
3. World Bank Smart Cities Report 2020
4. UN-Habitat Smart Governance Report 2020

C - Laws:

1. Executive Decree No. 04-275, dated 5 September 2004, relating to the establishment of the new city of Sidi Abdallah, No. 62
2. Law No. 18/07 on the Protection of Personal Data, dated 25 Ramadan 1439 AH, corresponding to 10 June 2018, Official Gazette No. 34.

3. Law No. 15/04, dated 1 February 2015, establishing the general rules relating to e-signatures and e-certification, Official Gazette No. 06.
4. Law No. 09/04 on Cybercrimes, dated 05/02/2005, bearing the special rules for the prevention and combating of crimes related to information and communication technologies, Official Gazette No. 47, 2009.