Smart Regions as a Model for Enhancing Regional Governance in Algeria

الأقاليم الذكية كنموذج لتعزيز الحوكمة الإقليمية في الجزائر

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Abstract:

This research explores how multi-level governance and decentralization can be strengthened through adopting digital regional governance, proposing the "Smart Regions" model as an effective institutional coordination mechanism, Relying on qualitative institutional analysis supported by an Algerian case study, it identifies core structural governance gaps, such as weak fiscal autonomy, limited intergovernmental coordination, and fragmented digital transformation efforts. The article asserts that Smart Regions constitute a vital intermediary layer in the governance system, fostering vertical and horizontal coordination among regional actors through integrating advanced digital infrastructure with institutional reforms.

The proposed model aims to enhance integrated regional planning, achieve greater policy coherence, and build data-driven governance, In conclusion, the study demonstrates how this model can support balanced regional development in decentralized, digitally transformed countries like Algeria.

Keywords: Regional Governance, Smart Regions, Decentralization, Digital Governance, Algeria.

ملخص:

يتناول هذا البحث كيفية تعزيز الحوكمة متعددة المستويات واللامركزية من خلال تبني مفهوم الحوكمة الإقليمية الرقمية، حيث يقترح نموذج "الأقاليم الذكية" كآلية تنسيق مؤسسية فعالة، اعتمدنا في هذه الدراسة على منهج التحليل المؤسسي النوعي المدعوم بدراسة حالة الجزائر، لتحديد الفجوات الهيكلية الجوهرية في الحوكمة، مثل ضعف الاستقلالية المالية، ومحدودية التنسيق بين مستويات الحكم، وتشتت جهود التحول الرقمي، يؤكد المقال أن هذه الأقاليم الذكية تشكل طبقة وسيطة حيوية في نظام التسيير، تعمل على تطوير التنسيق العمودي والأفقي بين الجهات الإقليمية، وذلك بدمج البنية الرقمية المتقدمة مع الإصلاحات المؤسسية.

يهدف النموذج المقترح بهذا الشكل، إلى تعزيز التخطيط الإقليمي المتكامل، وتحقيق تماسك سياسي أكبر، وبناء حوكمة تعتمد على البيانات الدقيقة، وفي الختام، تظهر الدراسة كيف يمكن لهذا النموذج أن يدعم التنمية المتوازنة على المستوى الإقليمي في الدول اللامركزية المتحولة رقميا على غرار الجزائر.

الكلمات المفتاحية: الحوكمة الاقليمية، الاقاليم الذكية، اللامركزية، الحوكمة الرقمية، الجزائر.

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Introduction:

Over the past two decades, public administration has undergone profound transformations driven by two interrelated dynamics: the restructuring of territorial governance through decentralization reforms, and the rapid expansion of digital technologies. These changes have reshaped traditional relationships between central governments and subnational authorities, particularly in states with large administrative territories and historically centralized institutional structures.

Within this evolving landscape, Multi-Level Governance (MLG) has emerged as a central analytical framework for understanding the distribution of authority across territorial levels. Decentralization reforms aim to enhance efficiency, accountability, and territorial equity; however, many developing and transitional states continue to experience structural limitations, including weak fiscal autonomy, fragmented administration, and insufficient coordination between central and regional actors.

Concurrently, digital transformation has introduced new opportunities to reconfigure governance systems. The rise of smart cities and smart regions is often discussed as a technological paradigm designed to improve service delivery, sustainability, and citizen participation. Yet, the literature predominantly emphasizes technological infrastructures and innovation ecosystems, often overlooking how digitalization can act as an institutional restructuring mechanism capable of reshaping intergovernmental relations in centralized governance systems.

In Algeria, decentralization reforms remain constrained by persistent administrative centralization, limited regional fiscal autonomy, and gaps in coordination between national and local authorities. Although digitalization initiatives have been implemented, research exploring the intersection of territorial governance reform and digital transformation is fragmented. Most studies treat decentralization and digital administration separately, without proposing an integrated governance model capable of bridging central and subnational levels.

This study adopts Algeria as its primary analytical framework, Although the literature on decentralization, regional governance, and smart territorial models is often discussed in relation to developing countries in general, this research intentionally narrows the analytical focus to the Algerian institutional context, The comparative references to other contexts are used only as interpretive supports and are not intended to shift the center of gravity away from Algeria. The purpose of this approach is to assess the extent to which the proposed Smart Regions model can be adapted to Algeria's legal, administrative, fiscal, and territorial specificities.

Against this backdrop, this study conceptualizes the Smart Regions model not merely as a technological framework but as an intermediary institutional tier designed to enhance coordination, fiscal autonomy, and digital integration within Algeria's multi-level governance structure.

Research Problem :

Despite the legal recognition of decentralization in Algeria, territorial governance continues to face structural constraints related to limited fiscal autonomy, weak intergovernmental coordination, and fragmented digital transformation initiatives. These challenges raise questions regarding the capacity of existing institutional arrangements to ensure effective multi-level governance and balanced regional development.

Accordingly, this study seeks to answer the following central research question:

To what extent can the Smart Regions model provide an institutional and digital governance framework capable of addressing coordination deficits and strengthening multi-level regional governance in Algeria?.

This central question is supported by the following sub-questions:

- What are the main structural limitations affecting regional governance in Algeria?.
- How have Smart Region approaches contributed to governance coordination in comparative experiences?.
- To what extent can the Smart Regions model be adapted to Algeria's legal, administrative, and territorial context?.

Research Contribution:

This article contributes to the literature on regional governance in three principal ways. First, it reconceptualizes Smart Regions not merely as technology-driven territorial entities, but as institutional coordination mechanisms capable of addressing governance fragmentation within centralized administrative systems. Second, it develops an analytical framework linking decentralization, multi-level governance, and digital transformation within a unified model applicable to the Algerian context. Third, it proposes an operational governance model tailored to Algeria's territorial and institutional specificities, thereby providing a policy-oriented framework for enhancing regional coordination, fiscal coherence, and digital integration.

Methodology and Analytical Framework ;

This study adopts a combined methodological framework that brings together the analytical method, the comparative method, and institutional analysis, The analytical method is used to clarify the conceptual foundations of regional governance, decentralization, smart regions, and multi-level governance, and to examine the relationships among these concepts within the study's theoretical structure, The comparative method is employed to draw selected lessons from international experiences in territorial governance and intergovernmental coordination, not as an end in itself, but as a means of identifying functional mechanisms that may be adapted to the Algerian context. Institutional analysis, in turn, provides the main interpretive lens of the study by examining the legal, administrative, fiscal, and organizational structures that shape territorial governance in Algeria and condition the feasibility of the proposed Smart Regions model.

The comparative cases were selected according to three criteria: the existence of institutionalized regional cooperation mechanisms, the integration of digital governance tools, and their relevance to territorial governance challenges comparable to those observed in Algeria.

Analytical Framework :

The framework is based on three interrelated dimensions derived from Multi-Level Governance theory:

- Vertical coordination capacity: Examines the effectiveness of interactions between central, regional, and local authorities.
- Fiscal and administrative autonomy: Evaluates the extent to which subnational units can independently mobilize resources and execute decisions.
- Digital integration: Conceptualizes digitalization as an institutional restructuring tool, beyond its technological role, capable of enhancing intergovernmental coordination and decision-making.

Institutional Analysis Lens :

The institutional lens focuses on:

- Distribution of legal competences across governance levels.
- Intergovernmental coordination mechanisms.

- Fiscal dependency and autonomy structures.
- Administrative capacity asymmetries.

This lens allows the identification of structural governance gaps that cannot be resolved solely through formal decentralization, moving the analysis beyond normative recommendations to evaluate the institutional architecture underpinning territorial governance.

Justification of Case Selection: Algeria.

Algeria provides a strategic and policy-relevant case study for three main reasons:

- It possesses a formally decentralized system that remains functionally centralized in fiscal and decision-making terms.
- National digital transformation initiatives have been implemented without corresponding structural reforms in territorial governance, creating an asymmetry between technological modernization and institutional architecture.
- Although Algeria has not yet adopted a Smart Region framework, several institutional initiatives illustrate the growing importance of digital territorial governance, examples include the digitization programs implemented by the Ministry of Interior, the modernization of civil status services through electronic platforms, the development of geographic information systems within several wilayas, and the expansion of digital public service portals, these initiatives demonstrate an increasing institutional reliance on digital tools however, they remain largely sectoral and fragmented, lacking an integrated regional coordination mechanism, this institutional fragmentation reinforces the relevance of the Smart Regions model proposed in this study.
- Its vast geographic scale and regional disparities offer a context to assess whether intermediary governance coordination mechanisms can enhance territorial coherence without constitutional restructuring.

Research Design :

The study is organized into three analytical Sections:

Section I: The conceptual framework for regional governance and smart regions.

Section II: Regional Decentralization and Comparative Governance Models.

Section III: Smart Regions and Territorial Governance Reform in Algeria.

The study emphasizes institutional design evaluation rather than empirical measurement, aiming to develop a governance model that is both context-sensitive and implementable.

This study bridges Multi-Level Governance theory with digital territorial administration, offering a conceptual model that can guide policy reform in transitional centralized states undergoing digital transformation.

Section I : The conceptual framework for regional governance and smart regions.

A) : The concept of regional governance.

1. Theoretical Foundations of Regional Governance:

Drawing on the literature related to regional governance, the concept Refers to a mode of territorial management in which public authority is organized and exercised through coordination among actors operating at the regional level. Linguistically, the term combines "governance," which denotes direction, regulation, and management, with "regional," which relates to a distinct territorial unit. In conceptual terms, regional governance goes beyond a purely administrative understanding of territory; it signifies a collaborative framework through which central authorities, regional bodies, and local institutions interact to design, coordinate, and implement public policies. In jurisprudential and legal terms, it is associated with the organization of territorial public action, the distribution of competences, and the mechanisms that ensure coherence, accountability, and efficiency in regional decision-making.[1]

1.1 Regional Governance within Multi-Level Governance Theory:

Regional governance is commonly situated within the broader analytical framework of Multi-Level Governance (MLG), which conceptualizes authority as dispersed across multiple territorial layers rather than monopolized by central governments. Unlike traditional hierarchical administrative models, MLG emphasizes horizontal coordination, vertical power-sharing, and the participation of non-state actors in public decision-making processes.

provides the broader analytical framework for this study. The term refers to a system in which authority is distributed across multiple levels of government rather than concentrated exclusively in the center. Linguistically, it points to the coexistence of several levels within a single governance structure. Conceptually, it describes a pattern of governance characterized by vertical and horizontal coordination among central, regional, and local institutions, as well as, in some cases, non-state actors, In political and legal theory, multi-level governance emerged to explain the growing interdependence between territorial levels in the formulation and implementation of public policy. It is therefore not simply an organizational arrangement, but a mode of governance based on interaction, negotiation, and overlapping competences, Within this study, multi-level governance serves as the interpretive lens through which the relationship between decentralization and smart regional governance is examined.

Taken together, these concepts are distinct but interrelated, Regional governance defines the territorial field of action, decentralization provides the legal and institutional basis for distributing authority, smart regions introduce the digital and organizational dimension of territorial modernization, and multi-level governance offers the broader framework within which these elements interact, This conceptual clarification is necessary to avoid terminological overlap and to ensure the analytical precision of the study.[2]

1.2 Institutional and Functional Dimensions :

From an institutional standpoint, regional governance concerns the distribution of competences between central and subnational authorities, as well as the legal and fiscal frameworks that regulate this distribution. Functionally, it seeks to enhance administrative efficiency, promote balanced territorial development, and reduce regional disparities.

Economic perspectives highlight its role in strengthening regional competitiveness through localized development strategies, innovation ecosystems, and resource optimization. Meanwhile,

contemporary scholarship increasingly stresses the digital dimension of governance, arguing that technological infrastructures can reconfigure decision-making processes, improve transparency, and enable data-driven public management.

Thus, regional governance can be conceptualized as a multidimensional system combining institutional autonomy, fiscal decentralization, participatory engagement, and digital integration.[3]

1.3 Governance Instruments and Digital Transformation:

The operationalization of regional governance relies on a set of institutional instruments, including:

- Legal reforms expanding regional competences;
- Fiscal mechanisms enhancing local revenue generation;
- Intergovernmental coordination platforms;
- Public-private partnership frameworks;
- Digital governance tools such as open data systems, GIS-based planning, and participatory digital platforms.

Importantly, digital transformation introduces a structural shift from bureaucratic administration to data-driven governance. Rather than serving merely as a technological enhancement, digitalization can function as an institutional catalyst that strengthens coordination between territorial levels.[4]

1.4 Structural Obstacles to Decentralization in Developing Countries, such as Algeria:

Despite its normative appeal, regional governance faces significant obstacles in centralized in Algeria, where formal decentralization coexists with persistent administrative centralization . These include persistent fiscal dependence on central transfers, limited administrative capacity at the regional level, and political reluctance to devolve authority. Moreover, digital divides and uneven infrastructural development may exacerbate territorial inequalities rather than reduce them.

Consequently, the effectiveness of regional governance depends not only on formal decentralization reforms but also on the capacity to integrate digital transformation into a coherent institutional restructuring strategy.[5]

B) : The concept of smart regions.

1. Smart Regions: From Technological Ecosystems to Governance Restructuring:

Represent a more recent concept, emerging as an extension of the smart city paradigm but applied to a broader territorial scale. Linguistically, the adjective “smart” suggests intelligence, adaptability, and effective response to changing conditions. Conceptually, smart regions are not limited to the digitalization of public services or the deployment of technological infrastructure,they denote a territorial governance model in which digital tools, data systems, innovation platforms, and interoperable institutions are integrated into regional planning and administration.

From a legal and institutional perspective, a smart region is best understood as a governance framework that combines technological modernization with institutional coordination, enabling more efficient policy implementation, improved transparency, and stronger interaction among territorial actors. Accordingly, the smart region is not merely a technical space, but a governance environment in which technology supports institutional restructuring and territorial coherence.[6]

1.1 Evolution of the Smart Region Paradigm:

The concept of Smart Regions emerged as an extension of the Smart City paradigm, initially rooted in technological innovation and urban efficiency. Early interpretations emphasized the deployment of information and communication technologies (ICT), Internet of Things (IoT) systems, artificial intelligence, and big data analytics to enhance infrastructure management and service delivery.

However, contemporary scholarship increasingly recognizes that smart territorial development extends beyond technological infrastructures. Smart Regions are not merely digitally enhanced territories; they represent governance ecosystems where digital tools reshape institutional coordination, participatory mechanisms, and policy implementation processes at the regional scale.

1.2 Smart Regions versus Smart Cities: Territorial and Governance Implications.

While Smart Cities focus primarily on urban management within municipal boundaries, Smart Regions operate at a broader territorial level, encompassing multiple municipalities, rural areas, and interlinked economic zones. This territorial scale introduces distinct governance challenges, including inter-municipal coordination, fiscal redistribution, and strategic regional planning.

Unlike city-level smart initiatives, Smart Regions require vertical coordination between national authorities and subnational entities, making them inherently connected to multi-level governance dynamics. Therefore, the Smart Region paradigm cannot be reduced to technological optimization; it must be understood as a governance restructuring framework capable of integrating digital systems with territorial institutional reforms.[7]

1.3 Digitalization as an Institutional Restructuring Mechanism:

Most current studies portray smart regions as technological ecosystems centered on sustainability, innovation, and digital infrastructure. However, this technological perspective overlooks a crucial dimension: the potential of digital transformation to reshape institutional authority and coordination mechanisms.

Digital platforms, open data systems, integrated GIS planning tools, and AI-powered policy analytics can serve as instruments to enhance transparency, facilitate communication between governments, and support evidence-based regional planning. In developing countries with centralized structures, such as Algeria, this digital infrastructure can form intermediate governance layers that reduce administrative fragmentation and improve vertical and horizontal coordination.

Thus, Smart Regions can be reconceptualized as hybrid governance models combining:

- Institutional decentralization.
- Fiscal empowerment.
- Digital integration.
- Participatory platforms.

1.4 Structural Constraints and Implementation Challenges :

Despite their transformative potential, Smart Regions face significant obstacles in developing contexts. These include limited digital infrastructure in peripheral areas, insufficient technical expertise, resistance to bureaucratic change, and financial sustainability constraints.

Moreover, without parallel institutional reforms, digitalization risks reinforcing existing centralization patterns rather than fostering genuine territorial autonomy. Therefore, the success of Smart Regions depends on aligning technological innovation with structural governance restructuring.[8]

Section II: Regional Decentralization and Comparative Governance Models.

A) : Forms of Decentralization:

Decentralization is a foundational concept in this study. Linguistically, it refers to the dispersion of authority away from a central locus of power. Conceptually, it denotes the devolution or delegation of selected competences, responsibilities, and decision-making powers from the central state to territorially based entities endowed with legal personality and a degree of administrative and financial autonomy. In legal and doctrinal terms, decentralization does not entail any fragmentation of state sovereignty; rather, it constitutes a constitutional and administrative mechanism designed to enhance public service efficiency, strengthen citizen participation, and promote territorial balance. Accordingly, decentralization operates as a structured mode of internal state reorganization that preserves institutional unity while redistributing functional authority.[9]

1. Conceptual Foundations of Regional Decentralization:

Regional decentralization refers to the institutional redistribution of authority from central governments to subnational entities. While often framed as a mechanism for enhancing democratic participation and administrative efficiency, decentralization is not a uniform process. It encompasses legal, administrative, fiscal, and political dimensions, each shaping the scope of local autonomy differently.

From a governance perspective, decentralization aims to reduce hierarchical concentration of power by empowering territorial units with decision-making competences and implementation capacities. However, the mere transfer of formal powers does not automatically produce effective multi-level governance. The effectiveness of decentralization depends on coordination mechanisms, fiscal sustainability, and institutional coherence across territorial layers.

1.1 Forms of Decentralization and Their Coordination Implications:

Decentralization manifests in multiple forms:

- Political decentralization, which strengthens elected local representation;
- Administrative decentralization, involving delegation or devolution of executive responsibilities;
- Fiscal decentralization, enabling local revenue generation and budgetary management;
- Economic decentralization, promoting territorial development strategies and local investment autonomy.

While these forms expand local competences, they may also generate coordination challenges. Increased autonomy without integrative mechanisms can lead to policy fragmentation, fiscal imbalance, and uneven territorial development. Therefore, decentralization reforms must be accompanied by coordination frameworks capable of ensuring coherence between national strategies and regional implementation.[10]

1.2 Institutional Constraints :

In algeria, decentralization reforms remain limited by:

- Continued central oversight over strategic decisions.
- Fiscal dependency on state transfers.
- Limited administrative capacity at the regional level.
- Weak digital integration across governance levels.

These constraints reinforce the governance gap identified earlier, where formal decentralization coexists with practical centralization. Without coordination mechanisms that integrate vertical and horizontal governance processes, decentralization risks becoming symbolic rather than transformative.[11]

1.3 Comparative Governance Experiences

To situate the proposed institutional model of Smart Regions within an international context, it is instructive to examine how different governance systems have experimented with supra-municipal or cross-jurisdictional institutional arrangements aimed at enhancing territorial collaboration, digital governance, and multi-level coordination.

1.3.1 Basque Country - Spain:

In Spain, the Basque Country has adopted a hybrid network of comarcal councils and digital intermunicipal bodies that transcend strict municipal boundaries, facilitating cooperative governance across contiguous local authorities. These entities, while not constitutional levels of government, carry delegated functions in regional planning, economic development, and digital service platforms.

What is particularly relevant is their legal anchoring within the Basque Statute of Autonomy and specific intergovernmental frameworks that preserve municipal autonomy while enabling shared services and e-administration tools. This aligns with the proposed Smart Regions institutional model, where the focus lies on functional cooperation backed by clear legal recognition and operational mandates.[12]

1.3.2 Germany - Zweckverbände:

Germany's Zweckverbände (special purpose associations) represent a longstanding institutional mechanism for supra-municipal cooperation. Created under federal and state law, these bodies allow municipalities and districts to pool resources for services such as waste management, water supply, and public transportation. While not digitally oriented per se, Zweckverbände illustrate a core institutional principle shared with Smart Regions: legally empowered cooperation with autonomous governance features and specified competencies across jurisdictions.

From a digital governance perspective, certain Zweckverbände have adopted integrated information systems and digital platforms to coordinate services more efficiently, demonstrating how institutional cooperation constructs can underpin digital transformation even in traditionally federated contexts.[13]

1.3.3 Ontario, Canada:

In Ontario, Canada, regional service boards facilitate intermunicipal collaboration for shared services such as emergency communication systems and public health data networks. These boards are statutory entities created under provincial legislation that enables cross-municipal policy implementation without creating an additional level of government.

Policy analysts emphasize that Ontario's model manages to strike a balance between local autonomy and regional coherence, a rationale that also motivates the Smart Regions approach—particularly in digital service delivery and regional planning where scale and interoperability matter.

1.3.4 Scandinavian Models:

Denmark and Sweden have experimented with metropolitan governance structures, such as the Greater Copenhagen and Öresund cross-boundary region, where municipalities cooperate on transportation planning, environmental policy, and digital infrastructure initiatives. These models lack constitutional status as formal government layers, but operate through agreements and shared policy frameworks, enabling coordinated digital and spatial planning.

What this demonstrates -in line with the Smart Regions framework- is that functional regional cooperation, when formalized at the institutional level, generates governance coherence without eroding local democratic legitimacy.[14]

1.3.5 International Comparison: Key Institutional Similarities and Lessons:

Across these cases, several common institutional principles emerge that validate and strengthen the theoretical foundation of the Smart Regions model:

- Legal grounding without constitutional duplication: Entities exist through clear statutory or autonomy frameworks but do not constitute new constitutional government tiers, preserving core municipal sovereignty.
- Functional cooperation regimes: Institutional arrangements are based on specific shared functions (e.g., digital services, infrastructure, planning), analogous to the programmatic focus of Smart Regions.
- Cross-jurisdictional legitimacy: All models incorporate mechanisms for representation and accountability (municipal delegates, joint boards, provincial oversight), which aligns with the democratic governance emphasis in the Smart Regions design.
- Digital integration as a governance enabler: In several cases, digital platforms and interoperable systems serve as operational pillars for intermunicipal collaboration—suggesting that digital transformation is both a governance challenge and an institutional opportunity.

1.3.6 Implications for the Proposed Model:

This comparative overview underscores that institutional innovation in governance is feasible and effective when legal clarity, functional cooperation, and digital interoperability underpin cross-municipal arrangements. The Smart Regions model synthesizes these international lessons, offering a scalable institutional framework that enhances local governance performance without compromising decentralized democratic principles.

1.4 Institutionally, three elements explain its effectiveness:

First, fiscal decentralization is constitutionally recognized, enabling regional authorities to collect and manage significant portions of public revenue. This reduces vertical dependency on the central state.

Second, structured intergovernmental coordination mechanisms ensure policy coherence between municipal, regional, and national levels.

Third, digital transformation is integrated into governance processes rather than treated as a parallel technological reform. Data-sharing platforms, performance monitoring systems, and coordinated planning tools enhance territorial decision-making capacity.

However, unlike the Basque model, which operates within a constitutionally decentralized framework, centralized states such as Algeria face structural constraints that limit immediate fiscal autonomy and territorial sovereignty, Therefore, direct institutional replication is neither feasible nor desirable.

The lesson for Algeria in promoting decentralization lies not in the transfer of autonomy itself, but in the institutionalization of coordination mechanisms supported by digital integration. In this sense, the proposed smart regions model adopts selected governance principles—such as financial coordination, multi-level integration, and digital land management—while remaining compatible with the central constitutional order.[15]

Section III. Smart Regions and Territorial Governance Reform in Algeria.

A) : The Algerian Decentralization Framework.

The present section focuses specifically on the Algerian case, as it constitutes the core empirical and normative reference of the study, The comparative discussion developed in the previous sections is retained only to clarify the conceptual background and to highlight possible institutional lessons, however, the analytical emphasis here is placed squarely on Algeria's territorial organization, its decentralization framework, and the structural constraints affecting regional governance and digital transformation, This shift in focus is necessary to ensure that the proposed model is assessed in light of Algeria's own constitutional, administrative, and financial architecture

1. Legal and Institutional Architecture:

Algeria's decentralization framework is structured around municipalities and provinces (wilayas), both recognized as legal entities with financial autonomy under national legislation. However, this autonomy operates within a supervisory system that maintains strong state oversight through the Ministry of Interior and provincial governors

While the legal framework provides formal competences in urban planning, local services, and development initiatives, strategic coordination remains vertically structured, limiting regional autonomy.[16]

1.1 Legal Foundations of Territorial Governance in Algeria:

Algeria's territorial governance framework is structured through a set of constitutional and legislative provisions that define the organization, competences, and functioning of local authorities. The Constitution recognizes municipalities and wilayas as decentralized territorial entities endowed with legal personality and financial autonomy, forming the institutional basis of local governance within the Algerian administrative system.

At the legislative level, the organization of municipalities is governed by the Municipal Law, which defines the municipality as the fundamental territorial unit responsible for managing local public services, urban planning, and community development, Municipal councils represent the elected deliberative bodies responsible for local decision-making, while executive authority is exercised through municipal administrations under the leadership of the mayor.[17]

At the intermediate territorial level, the Wilaya Law regulates the organization and competences of provinces (wilayas). The wilaya functions simultaneously as a decentralized territorial entity and as an administrative unit representing the central government, Provincial governors ensure the implementation of national policies while coordinating development programs at the territorial level.[18]

In addition to these legislative instruments, the national territorial organization framework, more specifically, Law No, 84-09 of 4 February 1984 relating to the territorial organization of the country constitutes one of the principal legal instruments governing the territorial structure of Algeria.

The law determines the territorial divisions of wilayas and municipalities and provides the institutional basis upon which territorial governance arrangements are organized, regulates the spatial distribution of administrative units and the creation of new territorial divisions. Together, these legal provisions establish the institutional architecture of Algeria's decentralization model.[19]

However, despite the formal recognition of local autonomy, the Algerian legal framework maintains strong supervisory mechanisms exercised by the central government, particularly through the Ministry of Interior and provincial administrative authorities. This configuration reflects a model of regulated decentralization in which territorial entities operate within a hierarchical administrative structure designed to preserve national cohesion while allowing limited local governance autonomy.[20]

Table 1 : Operationalizing Multi-Level Governance in Algeria: Structural Gaps and the Smart Regions Institutional Contribution.

MLG Analytical Dimension	Institutional Characteristics in Algeria	Structural Governance Gap	Smart Regions Institutional Contribution
Vertical Governance Coordination.	Territorial governance is organized around a centralized administrative hierarchy where national ministries exercise significant control over policy design and implementation through wilayas and municipalities.	Limited feedback loops between territorial levels and weak alignment between national policy objectives and local implementation capacities.	Smart Regions create a digital coordination interface connecting national ministries, wilayas, and municipalities through integrated planning systems and real-time policy monitoring platforms.
Fiscal and Administrative Capacity.	Although municipalities and wilayas possess formal financial autonomy, their budgets remain heavily dependent on central government transfers and administrative approvals.	Fiscal dependency restricts local development initiatives and reduces the capacity of subnational actors to implement long-term territorial strategies.	Regional coordination frameworks allow pooled investment mechanisms, improved fiscal transparency, and digital monitoring of regional development expenditures.
Horizontal Territorial Cooperation.	Institutional cooperation between municipalities and between wilayas remains limited, with most territorial initiatives coordinated vertically through sectoral ministries.	Fragmented territorial planning and duplication of development projects due to the absence of structured inter-municipal governance mechanisms.	Smart Regions promote cross-territorial cooperation through shared digital platforms, regional data centers, and coordinated infrastructure and development strategies.
Digital Governance Integration.	Digital transformation programs exist but are implemented through fragmented administrative systems with limited interoperability between institutional actors.	Weak digital integration across governance levels reduces the effectiveness of data-driven decision-making and territorial policy coordination.	Smart Regions introduce interoperable digital infrastructures, regional data governance systems, and digital governance units facilitating integrated territorial management.
Participatory and Transparency Mechanisms.	Citizen participation in territorial governance remains limited and is	Low levels of civic engagement and limited transparency in	Smart Regions integrate open data platforms, digital

	mostly confined to consultative administrative processes.	regional policy-making processes	participatory tools, and citizen feedback systems enhancing transparency and democratic accountability.

Source: Developed by the author based on the World Bank, 2022. Decentralization, Multilevel Governance and Intergovernmental Relations: A Primer. World Bank, Washington, DC. Available at: https://documents1.worldbank.org/curated/en/099225502022314300/pdf/P1754490a5d87e07d0915e0e165e739dbf5.pdf.

1.2 Legal Competences and Administrative Oversight:

The distribution of competences between central and local authorities is defined through legislative provisions regulating municipal and provincial governance. Municipalities are entrusted with responsibilities related to local public services, territorial planning, infrastructure maintenance, and community development initiatives. These competences are exercised through elected municipal councils and executive administrative bodies.[21]

Wilayas, on the other hand, perform broader coordination and implementation functions, particularly in areas related to regional infrastructure, economic planning, and sectoral policy implementation. Provincial authorities act as intermediaries between central government ministries and local administrations.

Nevertheless, the exercise of these competences remains subject to administrative oversight mechanisms. Local budgets, development programs, and regulatory decisions often require approval or supervision from higher administrative authorities. This oversight framework aims to ensure national policy coherence but may also limit the operational flexibility of local governments.[22]

As a result, Algeria's territorial governance system combines elements of decentralization with persistent vertical administrative control, creating structural constraints that affect intergovernmental coordination and regional policy implementation.

2. Fiscal and Administrative Constraints:

Despite possessing independent budgets, municipalities and provinces rely heavily on central transfers. This financial dependency reduces their capacity to design long-term development strategies and constrains investment initiatives.

Moreover, administrative capacity gaps and limited digital integration hinder efficient governance processes. Although digitalization programs have been introduced, they often function within traditional bureaucratic structures, failing to redefine coordination mechanisms between governance levels.[23]

2.1 Institutional Coordination Mechanisms and Administrative Fragmentation:

Beyond legal arrangements, Algeria's territorial governance system is characterized by an institutional configuration that limits effective coordination between administrative levels. Municipalities constitute the primary units responsible for delivering local public services, while wilayas function as intermediary administrative authorities responsible for implementing national development policies at the territorial level.

However, interactions between these levels remain predominantly vertical rather than horizontal. Municipalities rarely engage in formalized inter-municipal cooperation frameworks, and regional development initiatives are generally coordinated through centrally driven sectoral programs rather than territorially integrated governance mechanisms.

This institutional configuration generates several structural coordination challenges. Development planning processes are often fragmented across administrative sectors, fiscal planning is heavily dependent on central transfers, and digital governance initiatives are implemented within isolated administrative systems.

These structural characteristics create what may be described as a territorial coordination deficit, where decentralized institutions exist formally but lack the operational mechanisms necessary for effective multi-level governance. Addressing this deficit requires institutional arrangements capable of strengthening inter-territorial cooperation and improving coordination between national and subnational governance levels.[24]

2.3 Institutional Status and Legal Positioning of Smart Regions:

The proposed Smart Regions model is not conceived as a new constitutional administrative tier requiring formal territorial restructuring. Rather, it is designed as an intermediary coordination layer embedded within the existing decentralized framework. This distinction is essential in order to ensure institutional feasibility within centralized states such as Algeria.

From a legal perspective, the Smart Region does not replace the Wilaya or Municipality, nor does it introduce an additional elected authority. Instead, it functions as a territorially integrated governance platform operating across multiple municipalities within a defined regional perimeter. Its mandate is based on functional coordination rather than constitutional autonomy.

The model operates through delegated competences and legally recognized inter-municipal cooperation mechanisms. It may be established through ordinary legislative reform or executive regulation, without requiring constitutional amendment. In this sense, Smart Regions represent an institutional reorganization mechanism rather than a new administrative level,In relation to existing territorial units:

- At the municipal level, Smart Regions provide digital infrastructure, shared data systems, and coordinated development planning tools, while municipalities retain their legal competences and elected authority.
- At the Wilaya level, Smart Regions enhance vertical coordination by integrating territorial data, supporting regional planning coherence, and facilitating fiscal transparency.
- At the central government level, the model improves policy alignment and performance monitoring through structured digital reporting and multi-level governance coordination mechanisms.

Legally, the Smart Region may be structured as a public inter-territorial institution with administrative and financial personality, limited to coordination, digital integration, and strategic planning competences. It does not exercise sovereign authority but operates as a governance accelerator embedded within the decentralization framework.

Thus, the Smart Regions model should be understood as a functional governance layer rather than a constitutional administrative reform. It seeks to modernize territorial governance architecture through digital integration and coordinated autonomy, without disrupting the formal hierarchical structure of the state.[25]

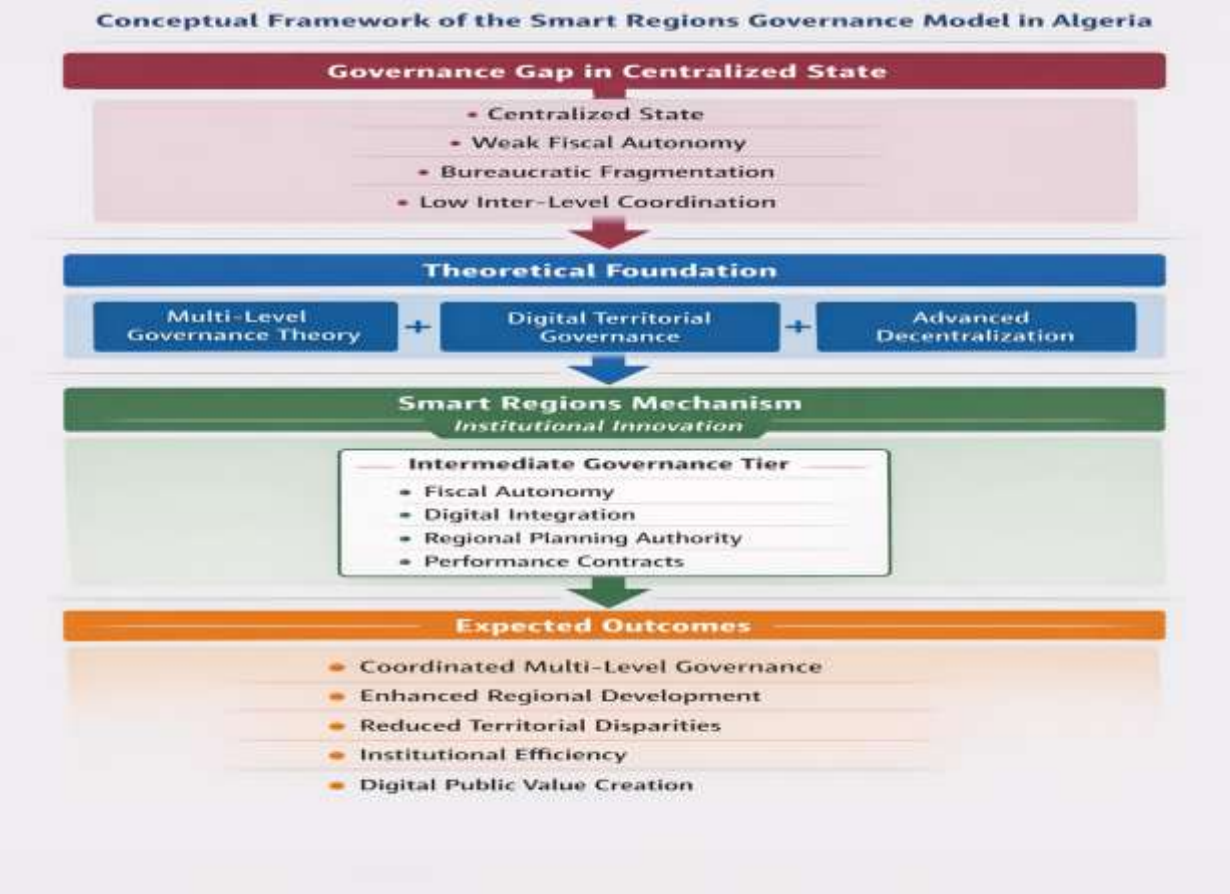
2.4 The Algerian Governance Gap:

The Algerian case illustrates a persistent governance gap characterized by:

- Vertical control over local decision-making;
- Limited horizontal cooperation between municipalities;
- Fragmented digital transformation efforts;
- Fiscal asymmetry between central and local levels.

These structural features justify the need for an intermediary coordination framework capable of integrating decentralization reforms with digital transformation processes.

Figure 1:Conceptual Framework of the Smart Regions Governance Model in Algeria: From Governance Gaps to Expected Outcomes.



Source: Developed by the author based on the conceptual frameworks of smart governance literature Muñoz-Hermoso, S., Domínguez-Mayo, F. J., Cerrillo-i-Martínez, A., & Benavides, D. (2025) International Journal of Electronic Government Research, 21(1). https://doi.org/10.4018/IJEGR.376170.

2.5 Institutional Governance Gap Matrix: Operationalizing the Analytical Framework :

To move beyond a purely conceptual proposition and to operationalize the analytical framework introduced earlier, this study applies a structured Institutional Governance Gap Matrix. This matrix evaluates Algeria's territorial governance system across core Multi-Level Governance dimensions and identifies the structural constraints that justify the Smart Regions institutional model.

Rather than treating decentralization and digital transformation as parallel reforms, the matrix reveals how their disconnection generates coordination failures that cannot be resolved through formal decentralization alone.

Figure 2: Institutional Governance Gap Matrix in Algeria: Key Dimensions of Multilevel Governance Deficiencies.

Institutional Governance Gap Matrix – Algeria

Governance Dimension	Current Algerian Status	Structural Constraint	Smart Region Institutional Response
Vertical Coordination	Centralized oversight; limited regional autonomy	*Administrative centralization*	Digital coordination dashboards; performance-based contracts
Fiscal Autonomy	High dependence on central transfers	*Fiscal dependency*	Pooled investment funds; coordinated fiscal planning
Horizontal Cooperation	Weak inter-municipal collaboration	*Lack of inter-wilaya platforms*	Inter-wilaya councils; *shared digital resources*
Digital Integration	Fragmented e-government systems	*Non-integrated data silos*	Unified regional data centers; *interoperable systems*
Strategic Planning	Sectoral, top-down planning	*Weak regional evidence base*	AI-assisted regional planning tools
Citizen Participation	*Limited participatory channels*	*Centralized decision-making*	*Digital participatory councils; open data portals*

Source: Developed by the author based on Charbit, C., & Michalun, M. (2009).

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The matrix demonstrates that Algeria's governance gap is not primarily a question of constitutional decentralization, but rather of coordination asymmetry and institutional fragmentation.

While legal decentralization exists, operational autonomy remains constrained by fiscal dependency, vertical administrative control, and insufficient digital interoperability. This structural configuration produces what may be described as functional centralization under formal decentralization.

B) : Smart Regions as a Governance Coordination Model for Algeria:

Building upon the identified governance gap and the structural constraints of Algeria's decentralization framework, this study proposes a Smart Regions Governance Coordination Model designed to function as an intermediary territorial coordination layer between the central government and existing subnational authorities.

Rather than introducing a purely administrative restructuring, the model aims to enhance vertical and horizontal coordination through digitally integrated governance mechanisms.

1.1 Conceptual Definition of the Model:

The Smart Region, as conceptualized in this study, is not merely a geographical subdivision, but an institutional coordination platform that aggregates multiple wilayas within a functionally integrated territorial zone.

Its primary objective is to:

- Strengthen coordination between national planning and regional implementation.
- Improve fiscal and digital integration across territories.
- Reduce administrative fragmentation.
- Enhance data-driven governance.
- Thus, the Smart Region operates as a coordination intermediary rather than a replacement for existing provincial structures.[26]

1.2 Core Coordination Pillars:

The model is structured around three interdependent coordination pillars:

1.2.1 Vertical Digital Coordination:

- Integrated planning dashboards connecting ministries and regional authorities.
- Real-time fiscal monitoring systems.
- Performance contracts between central government and Smart Regions focused on measurable development outcomes.
- This pillar ensures coherence between national strategies and territorial execution.

1.2.2 Horizontal Territorial Integration:

- Inter-wilaya digital cooperation networks;
- Shared regional data centers;
- Coordinated infrastructure planning based on GIS and predictive analytics.
- This reduces duplication of projects and fosters economies of scale.

1.2.3 Participatory and Transparency Architecture:

- Open regional data platforms.
- Digital participatory councils.
- AI-assisted citizen feedback systems.
- This pillar enhances democratic legitimacy and accountability.

2. Institutional Architecture:

The governance structure of each Smart Region includes:

- A Regional Coordination Authority responsible for strategic alignment.
- A Multi-Actor Regional Council integrating representatives from wilayas, private sector, and civil society.
- A Digital Governance Unit overseeing data integration and technological infrastructure.
- Importantly, wilayas and municipalities retain their existing competences, but operate within an integrated coordination framework.
-

2.1 Territorial Structuring Logic:

- Instead of imposing arbitrary divisions, Smart Regions may be structured based on:
- Economic interdependence.
- Infrastructure connectivity.
- Demographic coherence.
- Strategic development corridors.
- Such structuring ensures functional integration rather than merely administrative redistribution.

2.2 Administrative Structure of the Smart Region System in Algeria :

2.2.1. Governance Levels :

The system consists of four main levels:

- Central Government: Sets national policies and the regulatory framework.
- Smart Region: Supervise wilayas, coordinate development policies, and manage large-scale projects.

Algeria's military territorial division can provide a practical model for smart regions due to its effectiveness in managing and controlling the entire national territory despite its large size. Based on this, the proposed Smart Regions are:

- **Smart Region 1**: Blida, Algiers, Médéa, Tizi Ouazou, Chlef, Djelfa, Bouira, M'Sila, Aïn Defla, Boumerdès, Tipaza.
- **Smart Region 2**: Oran, Mascara, Saïda, Tlemcen, Mostaganem, Sidi Bel Abbes, Tiaret, Aïn Témouchent, El Bayadh, Naâma, Relizane, Tissemsilt.
- **Smart Region 3**: Béchar, Tindouf, Adrar.
- **Smart Region 4**: Ouargla, Biskra, Laghouat, El Oued, Ghardaïa, Illizi, Djanet.
- **Smart Region 5**: Constantine, Annaba, Jijel, Skikda, Batna, Guelma, Sétif, Tebessa, Béjaïa, Oum El Bouaghi, Bordj Bou Arréridj, El Taref, Khenchela, Mila, Souk Ahras.
- **Smart Region 6**: Tamanrasset, Aïn Salah.[27]
- **Wilayas and Municipalities**: Continue delivering local services under the regulatory supervision of the Region.

2.2.2 Components of a Smart Regions:

Each Smart Regions consists of:

- Smart Regions Governor: Responsible for implementing regional policies.
- Regional Planning Council: Includes representatives from wilayas, the private sector, and civil society.
- Digital Authority of the District: Manages digital transformation and ICT infrastructure.

2.3 Requirements for Implementing the Model in Algeria :

2.3.1 Legal and Regulatory Reform:

- Amending regional division laws to allow the creation of smart regions as independent administrative and financial entities.
- Integrating the Smart Local Fund into national financial policies to support sustainable. municipal financing.

2.3.2 Developing Digital Infrastructure:

- Establishing local data centres in every district, linked to national data centres.
- Creating a smart local data network to enable local authorities to make decisions based on real data.
- Developing a local digital management portal to connect central government, districts, wilayas, and municipalities.
- Expanding Fiber-optic networks and 5G coverage across all regions to connect them with central digital platforms of districts.
- Equipping local administrations with AI and data analytics systems to facilitate decision-making.

2.3.3 Capacity-Building for Local Human Resources:

- Training local administrators in digital project management and smart finance.
- Encouraging the recruitment of local developers to build AI applications for municipal services.
- Promoting merit-based employment instead of political appointments to improve administrative performance.

2.4 Implementation Requirements:

- Successful implementation requires:
- Legal recognition of Smart Regions as coordination entities.
- Fiscal instruments enabling pooled regional investment funds.
- Digital infrastructure linking territorial levels.
- Capacity-building programs for regional digital governance.

2.5 Expected Governance Outcomes:

If implemented effectively, the model may:

- Reduce vertical coordination delays.
- Strengthen fiscal planning coherence.
- Improved local administrative efficiency by reducing time and costs of public service delivery.
- Achieving financial independence for smart regions, reducing reliance on financial transfers from central government.
- Supporting sustainable development through smart local planning and big data use.

- Enhancing transparency and citizen participation via digital platforms for monitoring budgets and projects.
- Improving citizens' quality of life through smart, technology-based urban services.
- Improve evidence-based territorial policy-making.
- Enhance citizen trust through transparency.
- Support balanced territorial development.[28]

To illustrate the practical relevance of the Smart Regions governance model, several potential application scenarios can be considered within the Algerian territorial context.

One possible scenario concerns regional economic planning. Smart Regions could facilitate coordinated investment strategies across multiple wilayas sharing economic complementarities, such as industrial corridors or agricultural production zones. Through integrated digital planning platforms and shared territorial data systems, regional authorities could align infrastructure projects, logistics networks, and innovation initiatives.

A second scenario relates to environmental governance. Regions characterized by shared water resources or ecological systems could benefit from integrated environmental monitoring platforms supported by geographic information technologies and regional data infrastructures. Such systems would enable coordinated responses to environmental challenges while maintaining the administrative competences of local authorities.[29]

A third application concerns digital public services. Smart Regions could host regional digital service hubs responsible for developing interoperable administrative platforms connecting municipalities, thereby improving service delivery efficiency and reducing administrative fragmentation. Smaller municipalities with limited technological capacity would particularly benefit from access to shared digital infrastructure and technical expertise.

These illustrative scenarios demonstrate that Smart Regions can function not only as theoretical governance constructs but also as practical coordination mechanisms capable of strengthening territorial planning, public service delivery, and intergovernmental cooperation.[30]

Conclusion:

This study examined the structural governance gap characterizing centralized developing states, with particular reference to Algeria's administrative system. Despite the formal adoption of decentralization reforms, territorial governance remains constrained by limited fiscal autonomy, weak intergovernmental coordination, and insufficient digital integration between central and subnational authorities.

By conceptualizing Smart Regions not merely as technological ecosystems but as an institutional restructuring mechanism, the article advances a governance-centered interpretation of digital transformation, The proposed model introduces an intermediary coordination tier designed to enhance vertical and horizontal policy coherence, strengthen data-driven territorial planning, and support progressive fiscal empowerment at the regional level.

In the Algerian context, the Smart Regions model does not seek to replace existing administrative structures rather, it aims to reorganize them through structured digital integration and multi-level coordination. This approach enables a gradual transition from administrative decentralization toward functional territorial governance aligned with principles of Multi-Level Governance.

The findings suggest that successful implementation depends on three key conditions: a supportive legal framework, institutional capacity building, and sustained investment in digital infrastructure. Without these foundations, digital reforms risk reproducing existing centralization patterns in electronic form.

Ultimately, the Smart Regions model offers a context-sensitive pathway for centralized states undergoing digital transformation to reconcile national cohesion with territorial autonomy, thereby contributing to more balanced, transparent, and sustainable regional development.

Recommendations:

- Develop a national strategy for adopting the Smart District Model based on digital transformation and multi-level governance, with strong involvement of local actors in designing and implementing this vision.
- Create unified digital platforms at the district level (as an intermediary level between central government and province and municipality) to facilitate information exchange and coordination of policies and development programs.
- Establish a legal and regulatory framework that recognizes smart regions as digital and participatory administrative units, and defines their powers and relationships with the rest of the administrative levels.
- Invest in local digital infrastructure, especially in inland regions, to ensure equitable access to smart services, and to connect different areas with an integrated network.
- Strengthen local human capacities through continuous training programs in smart administration, data analysis, and digital governance.
- Adopt periodic local performance evaluation mechanisms based on digital and smart indicators to measure progress in implementing the Smart District Model and achieving its development objectives.

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