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Digital Governance in Algeria between 2030 Strategy Requirements and Legal/Institutional Challenges: A Critical Analytical Study

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Abstract
This study provides a critical evaluative analysis of the "Digital Algeria 2030" strategy, assessing its structural and regulatory capacity to accommodate digital governance imperatives. Employing Qualitative Policy Analysis (QPA) on 25 core documents through a three-stage thematic coding protocol, the research operationally applies the Adaptive Digital IT Governance (ADIGOV) framework across its Govern, Manage, and Adapt domains. Findings reveal that while presidential steering under the High Commission for Digitalization enhances macro-level strategic alignment, it inadvertently induces top-down rigidity that constrains decentralized administrative agility. Concurrently, the legislative infrastructure suffers from an acute "regulatory lag" and authorization-heavy compliance regimes, leaving frontier technologies (AI, IoT) normatively unanchored and exacerbating a pervasive "Trust Paradox" (evidenced by 78% payment distrust). The study demonstrates that absent a ratified National Interoperability Framework (NIF), high internet penetration. Consequently, the study advocates enacting an inclusive "Digitization Law" and institutionalizing agile governance mechanisms to reconcile digital sovereignty with public-sector innovation.
Keywords: Digital Algeria 2030, Digital Governance, ADIGOV Framework, Legislative Lag, Trust Paradox.
JEL Classification Codes : O38 ; O33 ; P16

1. INTRODUCTION

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Digital transformation has evolved into a comprehensive global multidisciplinary paradigm that fundamentally reconfigures organizational models, information systems, and the mediation between the state and its citizens. In the contemporary era, this shift is no longer a strategic option but a national imperative for developing countries to overcome structural inefficiencies and foster inclusive development. Algeria has responded to this imperative by launching the "Digital Algeria 2030" strategy, an ambitious roadmap designed to transform the public sector into a resilient, technology-driven system capable of supporting economic diversification and digital sovereignty. This strategic pivot aims to elevate the digital sector's contribution to the national GDP from a baseline of 2.5% to a target of 20% by 2030, marking a significant inflection point in the country's socio-economic trajectory. Such a monumental shift requires the institutionalization of digital governance not merely as a technical upgrade but as a structuring lever for the entire administrative and economic edifice. However, this monumental shift faces significant resistance from established institutional frameworks and a persistent "trust gap" between the administration and its users.

Despite the strong political will and the implementation of over 500 digital projects between 2020 and 2024, the transition remains constrained by deep-seated institutional barriers. While infrastructure indicators show progress—with internet penetration exceeding 70%—the maturity of digital governance is often hindered by bureaucratic rigidity, fragmented information systems, and a critical shortage of specialized skills.

I.1- Research Problem, Hypotheses, and Objectives of the Study:

a) Research Problem:

The main research problem of this study is formulated through the following inquiry:

To what extent does the current legal and institutional environment in Algeria possess the structural and regulatory capacity to effectively accommodate the ambitious requirements of the "Digital Algeria 2030" strategy?

To address the research problem, the following sub-questions are formulated:

- First, how does the recent strategic reconfiguration of the institutional architecture—specifically the establishment of the High Commission for Digitalization (HCD) under Presidential Decree No. 23-314—resolve the historical "fragmentation of sectoral information systems" and ensure the horizontal coordination necessary for a "whole-of-government" transition?
- Second, to what extent is the current legislative infrastructure—represented by statutes such as Law No. 18-07 on personal data protection and Law No. 18-05 on electronic commerce—capable of providing "anticipatory resilience" for disruptive frontier technologies like Artificial Intelligence (AI) and blockchain?.

- Third, how does the persistent "Trust Paradox"—where a high internet penetration rate (72.9%) fails to generate widespread e-governance adoption—reflect the limitations of current legal safeguards in mitigating perceived cybersecurity risks and institutional skepticism?
- Finally, what mandatory structural and legal reconfigurations, such as the proposed "National Interoperability Framework" (NIF) and the all-encompassing "Digitization Law," are required to dismantle administrative silos and establish a "Single Source of Truth" (SSOT) within the Algerian public administration?

b) Hypotheses of the Study:

In response to this problematic, the study proposes two sub-hypotheses:

- first, that structural fragmentation and weak horizontal coordination among ministerial departments hinder the interoperability of digital platforms;
- second, that while Algeria possesses relative strengths in ICT regulations, implementation gaps and a lack of digital literacy among administrative staff continue to moderate the success of digital transformation initiatives.

c) Objectives of the Study:

The significance of this research lies in its focus on a sector essential to Algeria's broader development agenda, particularly the transition from a rent-based model to a diversified knowledge economy.

I.2- Previous Studies:

Study: Slaimi and Ouennas (2026), in their research titled "Digital Algeria 2030: An Analysis of the Digital Transformation Strategy," provide a foundational critical analysis of the current national roadmap, the researchers found that while the strategy represents a vital systemic shift from a historical "logic of project accumulation" to a holistic framework, its success is fundamentally contingent upon mitigating the "Territorial Paradox" where rural areas remain marginalized.

Study: Zouaouid (2025) conducted a study entitled "Assessing the Reality of Algeria's Digital Transformation Strategy: Achievements and Prospects". the study concluded that while 75% of initiatives successfully focused on modernizing public services, the transition remains partially consolidated due to weak inter-ministerial coordination and a shortage of digital competencies caused by a persistent human capital exodus.

Study: Lounisi and Turki (2025) published a study titled "The Effectiveness of Digital Transformation in Administrative Governance and Legal Challenges in Algeria".Their findings reveal a profound "Structural Disconnect" where the existing legal arsenal remains reactive and insufficient for accommodating disruptive frontier technologies like Artificial Intelligence.

Study: Mahdjar and Abdelmalek (2025) in their research, "Digital Transformation Gaps in Algeria: A Comparative Analysis of the Global Digitalization and Technology Indices for 2024". Their findings classify Algeria as a "Starter" country, ranking 69th globally, and highlight pronounced weaknesses in cloud adoption and investment in high-capacity

data centers relative to regional peers like Egypt. This infrastructural baseline serves as the technical foundation upon which the final citizen-state interaction is measured and delivered to the public.

Study: Benmimoun (2025) evaluates the operational maturity of these digital government services in the study "Digital Government in Algeria: Reality and Challenges". the research identified a "Moderate Maturity" level of 37%, concluding that high internet penetration has failed to generate widespread adoption due to a persistent "Trust Paradox" rooted in perceived security risks.

Unlike the aforementioned studies, which largely focus on descriptive assessments of specific projects or isolated index rankings, the current study differs by providing a holistic critical diagnostic of the "Digital Governance" pillar as the mandatory activator for the 2030 vision. This research transcends the simple identification of "gaps" to analyze the "Centralization-Autonomy Tension" within the High Commission for Digitalization (HCD) and the specific requirements of a "National Interoperability Framework" (NIF). By integrating the "Adapt" domain of the ADIGOV (Adaptive Digital IT Governance Framework) framework.

II– Methods and Materials:

II.1-Data and Methodology of the Study:

To evaluate the structural coherence and regulatory readiness of the "Digital Algeria 2030" strategy, this study employs a multi-tiered Qualitative Policy Analysis (QPA) framework integrated with inductive thematic content analysis. The analytical corpus comprises 25 core strategic, legislative, and diagnostic policy documents selected purposively according to strict inclusion criteria:

1. Primary Legal and Executive Frameworks: Sovereign foundational instruments, including Presidential Decree No. 23-314 (establishing the High Commission for Digitalization), Presidential Decree No. 25-350 (governing public data), Law No. 18-07 on personal data protection, Law No. 18-05 on electronic transactions, and Law No. 09-04 on cybercrime prevention.
2. National Strategic Masterplans: Strategic roadmaps issued by the High Commission for Digitalization (HCN 2024–2025) and the National Information Systems Security Strategy (ASSI 2025–2029).
3. International Benchmark and Maturity Reports: Evaluative datasets and indexes from the United Nations E-Government Survey (EGDI 2022/2024), OECD Digital Government Index (2024), World Bank GovTech Maturity Index (GTMI), and Huawei Global Digitalization Index (GDI 2024).

III- Results and discussion :

III .1. Digital Governance as a Catalyst for Development: Dimensions and Core Principles

Digital governance is theoretically conceptualized not merely as the automation of administrative tasks, but as a systemic paradigm that leverages Information and Communication Technologies (ICT) to reconfigure the relationship between the state, economic actors, and the citizenry (Benmimoun, 2025, p. 130). It encompasses the frameworks and practices used to manage and monitor digital adoption, integrating decision-making authority, data management, and ethical standards into a coherent institutional structure (Younis, 2025, p. 704). Within the Algerian context, this transformation represents a strategic imperative to shift from a traditional, centralized bureaucratic model toward a "SMART" governance framework characterized by simplicity, morality, responsiveness, and transparency (Slaimi & Ouennas, 2026, p. 2). Crucially, this evolution extends beyond structural reorganization to address the behavioral dynamics of the public sector; empirical evidence from Algerian institutions indicates that digital transformation serves as a vital mechanism for alleviating "personal impediments"—such as psychological biases, individual temperaments, and the intentional withholding of information—which traditionally distort administrative communication and hinder the flow of high-integrity data (Bendahkal & Lamour, 2024, pp. 62, 77). Such a multi-dimensional evolution positions digital governance as a foundational pillar for achieving sustainable development goals, moving beyond the technical realm to address the substantive dilemmas of state capacity and institutional legitimacy.

In this analytical perspective, the principle of transparency emerges as a mandatory requirement for economic and social development rather than a secondary administrative luxury. For Algeria, which seeks to diversify its economy away from hydrocarbon dependency, transparency through digitalization serves as a critical mechanism for the "Control of Corruption" by reducing direct human intervention and face-to-face interactions that often facilitate discretionary power (Bouguetaia, S., & Mezouri, E. , 2024, p. 253). By embedding traceability and real-time tracking into public service delivery, digital platforms like "Jibayatic" and "Moussahamatic" restore public trust and enhance the state's credibility before domestic and international investors (Hicheur, A., & Ferdi, A. , 2025, p. 48). This structural openness ensures that public resources are managed efficiently, thereby creating a conducive environment for innovation and wealth creation.

Furthermore, citizen participation and engagement are no longer peripheral objectives but are central to the "Digital Algeria 2030" vision of building an inclusive digital society. The transition from a supply-driven administrative model to a user-centric "Government as a Platform" (GaaP) model necessitates the active involvement of all stakeholders in the design and implementation of digital policies (Haut-

Commissariat à la Numérisation [HCN], 2024, p. 12). In Algerian higher education and research sectors, for instance, participation is operationalized through models like the "Quadruple Helix," which integrates civil society and the scientific diaspora into the national innovation ecosystem (Alili, M. & al, 2025, p. 108). This participatory approach bridges the "trust gap" and ensures that digital reforms resonate with societal expectations, effectively transforming the passive "subject" of administration into an active "digital citizen" (Zouaouid, L, 2025, p. 438).

Finally, the principle of accountability provides the normative apex for digital governance, ensuring that technological adoption leads to measurable institutional outcomes. Accountability in the digital era is institutionalized through robust data governance frameworks and the establishment of independent oversight bodies, such as the High Commission for Digitalization (HCD), which monitor the execution of the 2030 strategy (Slaimi, F., & Ouennas, A., 2026, p. 10). This entails not only technical security but also "digital ethics," where administrative organizations weigh public values and protect individual rights in the processing of personal data (Pullen, E. & al, 2026, p. 27). By fostering a climate of mutual trust and legal compliance, accountability ensures the sustainability of digital initiatives and their alignment with the national sovereignty agenda. This multidimensional synergy between transparency, participation, and accountability creates the necessary institutional resilience to move toward the practical implementation of the national strategy.

The transition from the normative principles of digital governance to their operational reality is crystallized in the "Digital Algeria 2030" strategy, which serves as the primary instrument for reconfiguring the nation’s socio-economic trajectory (Slaimi, F., & Ouennas, A., 2026, p. 02). Formally approved by the Presidency of the Republic, this strategy represents Algeria's first comprehensive reference framework designed to organize, supervise, and guide a systemic digital transition (Haut-Commissariat à la Numérisation [HCN], 2024, p. 10). supporting the three impact domains of Digital Governance, Digital Economy, and Digital Society (Haut-Commissariat à la Numérisation [HCN], 2024, p. 13). This model moves beyond the historical "logic of project accumulation" to position digitalization as a structuring lever for national sovereignty and economic diversification (Slaimi, F., & Ouennas, A., 2026, p. 02). By establishing twenty-five specific strategic objectives and ambitious quantitative targets—such as elevating the digital sector's contribution to the national GDP from a 2.5% baseline in 2025 to 20% by 2030—the Algerian state signals a profound commitment to shifting from a rent-based model, where hydrocarbons account for over 90% of export earnings, toward a data-centric knowledge economy (Slaimi, F., & Ouennas, A., 2026, p. 04). This strategic pivot is centrally managed by the High Commission for Digitalization (HCD), a supreme body placed under the direct authority of the Presidency to ensure inter-ministerial coordination and mitigate the fragmentation

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that characterized previous initiatives (Haut-Commissariat à la Numérisation [HCN], 2024, p. 10). This elevated institutional positioning provides the HCD with the necessary political mandate to harmonize the diverse requirements of the strategy's core pillars.

A critical reading of these pillars reveals that the strategy attempts to bridge the gap between technical efficiency and social well-being through a "Citizen and Business Centered" approach (Haut-Commissariat à la Numérisation [HCN], 2024, p. 11). The drive to achieve 100% digitization of public services and the implementation of a unique national digital identity is designed to reduce the "bureaucratic inertia" and "slowness" that has historically hindered administrative performance (Zouaouid, L, 2025, p. 436). From an evaluative perspective, the strategy correctly identifies that raising institutional performance is a prerequisite for citizen well-being; by dematerializing procedures and ensuring real-time data interoperability, the state aims to eliminate "discretionary human intervention," thereby fostering a climate of trust and transparency (Hammal, F. , 2025, p. 521). This is evidenced by the "Single Window of Foreign Trade," which successfully reduced processing times from 15 days to just 3 days through digital integration (Hammal, F. , 2025, p. 510). Furthermore, the focus on Human Capital aims to train 500,000 ICT specialists and reduce the "brain drain" by 40%, ensuring that the technological edifice is supported by indigenous expertise (Slaimi, F., & Ouennas, A., 2026, p. 07). This alignment suggests that the strategy views digitalization not as an end in itself, but as a mechanism to ensure equitable access to services and to bridge the territorial digital divide that persists between urban and rural areas (Zouaouid, L, 2025, p. 442). However, the ambitious nature of these goals brings into focus the structural and behavioral constraints that could moderate the success of the 2030 vision.

Despite the robustness of the strategic framework, a critical analysis uncovers significant "Implementation Gaps" and a persistent "Trust Paradox" (Mahdjar, Y., & Abdelmalek, B. , 2025, p. 730). While infrastructure indicators show steady progress—with internet penetration exceeding 72% and 4G coverage reaching 97%—the adoption of e-governance remains uneven (Hammal, F. , 2025, p. 499). The "Trust Paradox" is highlighted by the fact that while 98% of the adult population holds a biometric card, 78% of Algerian citizens continue to express distrust in online payment systems, largely due to concerns regarding cybersecurity and data privacy (Bouguetaia, S., & Mezouri, E. , 2024, p. 269). Furthermore, a pronounced territorial divide exists: urban areas enjoy universal internet access (100%), whereas rural areas, home to nearly 25% of the population, lag behind with only 66% access and 54% smartphone penetration (Trade.gov, 2024, p. 08). Institutional performance indices, such as the E-Government Development Index (EGDI), place Algeria in the "High" group, yet its score remains below the regional average, reflecting weaknesses in the "Online Services Index" (OSI) and "Market Sophistication" (Mahdjar, Y., & Abdelmalek, B. , 2025, p. 735). To address these disparities, the strategy emphasizes "Digital Sovereignty" through mandatory data localization and the establishment of five national data centers to host public info locally

(Haut-Commissariat à la Numérisation [HCN], 2024, p. 15). These sovereign mechanisms are essential for anchoring the digital transition in a sustainable and secure environment that can withstand global technological disruptions.

The ultimate success of "Digital Algeria 2030" therefore depends on the continuous modernization of the "Legal and Regulatory Framework" and "Digital Security," which serve as the strategy's lateral foundational pillars (Slaimi, F., & Ouennas, A., 2026, p. 05). The ongoing development of a specialized "Digitization Law" is expected to provide the overarching legislative canopy needed to govern emerging technologies like AI and blockchain, which are not fully addressed by the current legal arsenal (Haut-Commissariat à la Numérisation [HCN], 2024, p. 21). Concurrently, the National Strategy for Information Systems Security (2025–2029) establishes the necessary technical-operational capabilities for cyber-resilience, centralizing authority under the Presidency and the Ministry of National Defense. By synthesizing infrastructure, talent, and regulation into a single national agenda, Algeria aims to achieve a "continental leader" status in digital transformation (Haut-Commissariat à la Numérisation [HCN], 2024, p. 10). This multi-dimensional synergy creates a resilient path toward a competitive digital state, where institutional maturity is measured not only by technical KPIs but by the restoration of the "Social Contract" between the administration and its citizens. This necessity for a coordinated structural and legal response brings the analysis to the evaluation of specific institutional bodies tasked with bridging the strategic-operational divide.

However, despite these conceptual strengths, a critical analysis of the "Digital Algeria 2030" framework uncovers significant theoretical and operational lacunae that may impede its systemic success. The primary theoretical shortcoming manifests as the "Trust Paradox," where high levels of technological penetration—evidenced by an internet penetration rate exceeding 72.9% and mobile connections reaching 110.2%—do not translate into a commensurate maturity of e-governance literacy or active user adoption (Mahdjar, Y., & Abdelmalek, B. , 2025, p. 730). While the infrastructure baseline is robust, with over 200,000 km of fiber optics deployed, only 28% of the population consistently utilizes online administrative services (Hammal, F. , 2025, p. 514). This disparity is further underscored by a profound psychological trust gap, particularly in digital finance, where 78% of Algerian citizens continue to express distrust in online payment systems due to perceived cybersecurity vulnerabilities (Bouguetaia, S., & Mezouri, E. , 2024, p. 252). Consequently, the strategy’s heavy focus on technical Key Performance Indicators (KPIs), such as data center counts and bandwidth speeds, risks overlooking the sociotechnical dimension of digital transformation, where citizen engagement and perceived security are the ultimate determinants of institutional legitimacy.

This technical-humanitarian misalignment is exacerbated by deep-seated"behavioral resistance" within the administrative hierarchy, representing a significant obstacle to the 2030 vision. Critical studies indicate that while top-level political will is high, "bureaucratic inertia" persists within middle management, who often perceive digital transparency and centralized data interoperability as existential threats to their historical discretionary power (Alili, M. & al, 2025, p. 104). The transition to a "SMART" governance model—Simple, Moral, Accountable, Responsive, and Transparent—requires a paradigm shift that many administrative bodies are structurally unequipped to handle, leading to a "policy-practice gap" where digital tools are acquired but remain underutilized or siloed within fragmented sectoral information systems (Alili, M. & al, 2025, p. 110). Furthermore, the shortage of digital competencies among existing staff and the absence of systematic training programs (with most institutions reporting no regular capacity building) ensure that even the most advanced platforms struggle to achieve their intended operational impact (Alili, M. & al, 2025, p. 107). Such institutional friction suggests that without a comprehensive change-management strategy to humanize the digital citizen and incentivize administrative reform, the technological edifice will remain structurally detached from its social objectives.

From a macroeconomic perspective, the strategy's ambition to elevate the digital sector's contribution to the national GDP from a baseline of 2.5% to 20% by 2030 is exceptionally aggressive, facing severe structural bottlenecks. This 17.5 percentage point increase in just five years necessitates a massive mobilization of private sector innovation that is currently constrained by a centralized, "authorization-heavy" regulatory model (Mahdjar, Y., & Abdelmalek, B. , 2025, p. 735). The most critical constraint is the persistent "brain drain," with data suggesting that approximately 90% of ICT specialists trained in Algerian universities eventually emigrate abroad (Zouaouid, L, 2025, p. 437). This exodus deprives the National Innovation System of the specialized human capital required to manage complex projects such as AI-driven decision support systems or blockchain-integrated public procurement (Haut-Commissariat à la Numérisation [HCN], 2024, p. 16). Additionally, Algeria's classification as a "Starter" country in the Global Digitalization Index (GDI), ranking 69th globally, reflects significant gaps in computing power and data center investment per GDP compared to regional peers like Egypt (Mahdjar, Y., & Abdelmalek, B. , 2025). These infrastructural and talent deficits imply that the 20% target is less of a realistic forecast and more of a strategic aspiration that depends fundamentally on the state's ability to create an attractive and sovereign digital ecosystem.

III .2. Effectiveness of the Legislative Infrastructure in Ensuring Digital Trust

The operationalization of the "Digital Algeria 2030" strategy is fundamentally anchored in the ability of the legal framework to institutionalize "digital trust," which serves as both a psychological and regulatory prerequisite for a systemic societal

transition (Slaimi, F., & Ouennas, A., 2026, p. 10). While Law No. 18-05 relating to electronic commerce established the first normative baseline for digital contracts and consumer protection, a critical scrutiny reveals a profound "structural disconnect" between legislative intent and market reality (Hammal, F. , 2025, p. 500). Despite the government's aim to foster trust in electronic exchanges, empirical evidence indicates a persistent "trust gap," where approximately 78% of Algerian citizens continue to express distrust in online payment systems due to perceived risks in the digital value chain (Zouaouid, L, 2025, p. 436).This disparity is exacerbated by a "regulatory lag," where the legal texts remain static while fintech innovations, such as mobile wallets and peer-to-peer lending, operates in a state of relative legal ambiguity, thereby stalling the transition to a diversified, data-driven economy (Mahdjar, Y., & Abdelmalek, B. , 2025, p. 736).

This institutional inertia is further exemplified by the five-year "legislative vacuum" surrounding Law No. 18-07 relating to the protection of individuals in the processing of personal data (Hammal, 2025, p. 500). Although promulgated in June 2018, the law's official entry into force was delayed until August 10, 2023, significantly stalling critical data-driven initiatives that rely on high-integrity information processing (Lounisi & Turki, 2025, p. 42). From a critical-legal perspective, Law 18-07 adopts an "authorization-heavy" oversight model that differs fundamentally from proactive compliance regimes like the EU's GDPR (Slaimi & Ouennas, 2026, p. 9). By making processing activities dependent on prior authorizations from the National Authority for the Protection of Personal Data (ANPDP), the framework creates a "compliance bottleneck" for startups and SMEs, prioritizing administrative control and digital sovereignty over technological scalability (Younis, 2025, p. 705). Furthermore, the mandatory localization of data within national territory, while intended to protect sovereignty, often acts as a barrier to entry for foreign investment and stifles the agility of the local digital ecosystem (Mahdjar & Abdelmalek, 2025, p. 736).

The inadequacy of the current legislative infrastructure is most pronounced in its failure to provide "anticipatory resilience" for emerging frontier technologies like Artificial Intelligence (AI), blockchain, and the Internet of Things (IoT) (Slaimi & Ouennas, 2026, p. 9). Existing statutes, such as the Law on the Prevention and Fight against Cybercrime (Law No. 09-04), were designed for a reactive security environment and lack specific provisions for "algorithmic accountability" or digital ethics (Pullen et al., 2026, p. 264). This "legislative fragmentation" has left many of the 27 priority objectives of the 2030 vision in a state of regulatory uncertainty, particularly regarding the mitigation of algorithmic bias or the governance of decentralized ledgers (Slaimi & Ouennas, 2026, p. 10). While the proposed project of a "Digitization Law" (*loi sur la numérisation*) is intended to serve as a comprehensive umbrella framework, the current environment remains characterized by "project-specific" regulations rather than a

systemic, forward-looking infrastructure (Lounisi & Turki, 2025, p. 45). Consequently, the transition to a digital state is moderated by the persistence of "bureaucratic inertia" within legal enforcement agencies, where traditional administrative procedures often overlap with new digital workflows, leading to a duplication of efforts and reduced transparency (Alili et al., 2025, p. 2).

III.3. The Institutional Infrastructure and Structural Operationalization of Digital Transformation Management

A rigorous diagnostic of Algeria's digital landscape requires disaggregating macro-level indices from territorial and infrastructural realities to avoid descriptive contradictions. At the aggregate macro-level, Algeria's national internet penetration rate reached 72.9% (representing approximately 33.49 million active users), driven primarily by extensive mobile broadband proliferation. However, this national benchmark obscures a profound "territorial paradox"; when disaggregated by demographic density, empirical evaluations reveal that internet penetration reaches 72% in urban centers, whereas it drops steeply to 43% across rural areas, leaving nearly 24% of the rural population devoid of reliable connectivity (Hammal, 2025, p. 505). In broader contextual discourse, this baseline is often stylized as exceeding the 70% threshold to delineate the critical mass required for transactional e-governance (Zouaouid, 2025, p. 433).

A parallel structural distinction must be established regarding the strategic scope of the national roadmap. Formally, the National Strategy for Digital Transformation (SNTN 2025–2030) establishes twenty-five (25) core strategic objectives distributed across five structural axes: Core ICT Infrastructure, Human Capital & R&D, Digital Governance, Digital Economy, and Digital Society (Haut-Commissariat à la Numérisation [HCN], 2024, pp. 13–20). In subsequent operational policy roadmaps, these foundations are broken down into twenty-seven (27) granular priority targets, specifically through the operational subdivision of capacity-building thresholds and public-sector talent retention protocols (Slaimi & Ouennas, 2026, p. 7). Finally, the empirical indicator highlighting behavioral friction—wherein 78% of Algerian citizens express deep-seated distrust in online digital payment systems—originates specifically from the specialized consumer banking diagnostic conducted by JUST-INFO (2025), as empirically synthesized by Hammal (2025, p. 512). This trust deficit serves as the primary behavioral moderator of transaction volume in public administration.

Table 01: Operationalization of the ADIGOV Matrix in Algerian Digital Governance

ADIGOV Domain	Operational Dimension in Algerian Governance	Empirical Diagnostic & Institutional Friction
GOVERN (Strategic Foundation)	Strategic Alignment, Presidential Oversight, and Value Realization	• High presidential alignment via HCD (Decree 23-314). • Friction: Top-down centralization stifles administrative autonomy in decentralized agencies (Alili et al., 2025).
MANAGE (Operational Execution)	Service Lifecycle Management, Information Security, and Capability Measurement	• Consolidation under ASSI; CISO mandates across ministries. • Friction: Absence of a ratified National Interoperability Framework (NIF) creates siloed data islands (HCN, 2024).
ADAPT (Resilience & Differentiation)	Governance Flexibility, Innovation Agility, and Sustainability & Ethics	• Severe regulatory lag in Law 18-07 and Law 09-04 regarding frontier technologies (AI, IoT, Cloud) (Lounisi, 2025). • Mandates the proposed inclusive "Digitization Law".

Source : Elaborated by the author based on Yulistiawan et al. (2025) for the ADIGOV matrix dimensions, synthesized with empirical findings from HCN (2024), Alili et al. (2025), Lounisi & Turki (2025), and Slaimi & Ouennas (2026).

Structurally grounded in the ADIGOV model developed by Yulistiawan et al. (2025, p. 104), the empirical reality of Algerian public administration can be critically dissected across three interactive domains. In the Govern Domain, the establishment of the High Commission for Digitalization (HCD) under Presidential Decree No. 23-314 establishes supreme strategic steering directly attached to the Presidency of the Republic (Slaimi & Ouennas, 2026, p. 10). While this presidential anchorage fulfills the ADIGOV requirement for Strategic Alignment and political commitment, it inadvertently generates structural rigidities; empirical assessments of public bodies demonstrate that excessive centralization restricts operational decision-making autonomy and retards localized agility (Alili et al., 2025, p. 2).

In the Manage Domain, operational execution is currently bifurcated between technical infrastructure maintenance and cyber defense. The mandate spearheaded by the Information Systems Security Agency (ASSI) to deploy Chief Information Security Officers (CISOs) across public entities reflects alignment with international risk protocols. Nonetheless, operational performance remains constrained by the absence of a unified National Interoperability Framework (NIF), perpetuating fragmented

institutional databases and preventing the realization of a "Single Source of Truth" (SSOT) across ministerial departments (Mahdjar & Abdelmalek, 2025, p. 731).

Crucially, the diagnostic failure of Algeria's current trajectory is most pronounced in the Adapt Domain—the core differentiator of ADIGOV designed to navigate volatile, uncertain, complex, and ambiguous (VUCA) environments (Yulistiawan et al., 2025, p. 104). The prevailing regulatory infrastructure fails to exhibit governance flexibility or anticipatory resilience; statutes such as Law 18-07 and Law 09-04 remain reactive instruments anchored in pre-algorithmic paradigms, devoid of normative provisions for algorithmic accountability, ethical AI deployment, or decentralized data architectures (Lounisi & Turki, 2025, p. 45). Operationalizing the Adapt domain therefore requires promulgating an inclusive "Digitization Law" (loi sur la numérisation) to endow public institutions with adaptive, iterative change-management capabilities.

III.4. Implementation Challenges and Pathways for Activating Digital Governance (Prospects 2030)

The primary obstacle hindering the systemic transition is the multifaceted challenge of cybersecurity and the consolidation of "digital sovereignty" as a prerequisite for preserving national information assets. In the contemporary era, Algeria has adopted a "Defense-in-Depth" strategy, centralizing cybersecurity oversight under the Information Systems Security Agency (ASSI) to mitigate the escalating threat landscape, where digital attacks increased by over 40% between 2021 and 2023 (Hammal, F. , 2025, p. 512).The concept of digital sovereignty in the 2030 vision transcends technical protection, positioning data as a "strategic asset" that must be anchored within a sovereign network infrastructure to minimize "supply chain risks" associated with foreign providers (Slaimi, F., & Ouennas, A., 2026, p. 10). However, the critical-legal analysis reveals that while mandatory data localization—enforced by Law No. 18-07 and the 2024 Law on Audiovisual Activity—protects national interests, it also creates an "authorization-heavy compliance bottleneck" that may inadvertently stifle the agility of the digital economy (Slaimi, F., & Ouennas, A., 2026, p. 09). Consequently, the path to 2030 requires a proactive defense posture that balances the rigid requirements of national security with the flexibility needed for technological innovation.

This security-sovereignty paradigm is further complicated by the persistent digital infrastructure divide, which represents a significant "Territorial Paradox" in Algeria's development. While urban centers benefit from universal internet access (100%), nearly 25% of the population residing in rural and remote areas faces structural marginalization, with internet penetration dropping to 66% and smartphone diffusion limited to 54% (Slaimi, F., & Ouennas, A., 2026, p. 10). This disparity is reflected in Algeria's classification as a "Starter" country in the 2024 Global Digitalization Index (GDI), where it lags behind regional peers like Tunisia due to low levels of investment

in high-capacity data centers and a persistent gap in fixed broadband speeds (Zouaouid, L, 2025, p. 436). The "2030 Strategy" recognizes that "being connected is not enough," as the lack of equitable infrastructure rollout effectively transforms digitalization into a wall that marginalizes vulnerable groups rather than a ladder for social inclusion (Slaimi, F., & Ouennas, A., 2026, p. 12). Addressing this territorial inequality is therefore a mandatory pillar for achieving a truly inclusive digital society.

Beyond infrastructure, the most deep-seated obstacle is the entrenched bureaucracy and the behavioral resistance of the classic administration to change. Empirical surveys indicate that while top-level strategies are robust, "bureaucratic inertia" persists within middle management, who often perceive digital transparency and centralized data interoperability as threats to their historical discretionary power (Alili, M. & al, 2025, p. 104). This institutional friction is exacerbated by a critical shortage of digital competencies—a "Human Capital Crisis" characterized by the fact that approximately 90% of ICT specialists trained in Algerian universities eventually emigrate abroad (Zouaouid, L, 2025, p. 437). This exodus deprives the state of the expertise required to manage complex AI-driven governance models, leading to a "policy-practice gap" where advanced digital tools are acquired but remain underutilized within fragmented sectoral silos (Alili, M. & al, 2025, p. 110). Without a comprehensive change-management strategy that incentivizes administrative reform and addresses the "Trust Paradox" among citizens, the technological edifice will remain structurally detached from its intended socio-economic impact.

The transition from the strategic framework of the "Digital Algeria 2030" strategy to its operationalization necessitates a rigorous prospective outlook on the structural barriers that currently moderate its implementation (Slaimi & Ouennas, 2026, p. 12). As the Algerian public administration moves toward a data-centric model, the success of this trajectory depends less on technological adoption and more on the systemic management of implementation risks within a volatile global landscape (Slaimi & Ouennas, 2026, p. 12). While the political will manifested through the creation of the High Commission for Digitalization (HCD) is undeniable, the journey toward a resilient digital state is constrained by a complex interplay of security, territorial, and behavioral variables (Slaimi & Ouennas, 2026, p. 10). Analyzing these challenges is essential for recalibrating policies to ensure that digitalization acts as a catalyst for institutional modernization rather than merely an automated layer of traditional bureaucracy (Alili et al., 2025, p. 108). This necessity for a coordinated structural and legal response leads to a deeper evaluation of the specific institutional bodies tasked with bridging the strategic-operational divide.

III . 5. Practical Mechanisms for Establishing Open and Secure Governance

The strategic priority for the 2025–2030 horizon lies in the comprehensive legal institutionalization of "Digital Identity" and the "Electronic Signature" as the foundational pillars of administrative dematerialization. While Algeria has achieved a high technical baseline—with 98% of the adult population holding a biometric identity card—this has not yet translated into a functional digital identity that allows for seamless, remote citizen-state interactions (Slaimi, F., & Ouennas, A., 2026, p. 10). A critical assessment reveals that Law No. 18-05 on electronic transactions remains underutilized in the judicial and public service sectors due to the lack of an integrated "National Interoperability Framework" (Zouaouid, L, 2025, p. 441). To resolve this, the study proposes a mandatory recalibration toward a "Secure by Design" and "Zero Trust" architecture (United Nations, 2024, p. 25). This requires a "Superior Standard" or an inclusive "Digitization Law" that mandates all public entities to recognize digital signatures as legally equivalent to physical ones, thereby eliminating "iceberg costs" of communication and achieving the strategy's target of 100% digitized administrative procedures by 2030 (Haut-Commissariat à la Numérisation [HCN], 2024, p. 21).

Furthermore, the transition to "Open Data" must be viewed as an obligatory mechanism for dismantling bureaucratic silos and enhancing institutional transparency. Current administrative practices in Algeria are often characterized by fragmented information systems and a lack of data interoperability, which leads to a "Trust Gap" and duplication of documents (Mahdjar, Y., & Abdelmalek, B. , 2025, p. 731). Shifting toward a model of "Open by Default"—aligned with OECD and World Bank benchmarks—would require the government to proactively publish data on platforms such as "BawabaTIC" (OECD, 2024, p. 130). The implementation of a "Single Source of Truth" (SSOT) is essential here; by centralizing authoritative data points within a sovereign database managed by the High Commission for Digitalization (HCD), the state can eliminate the need for citizens to repeatedly submit identical documents to different ministries (Mahdjar, Y., & Abdelmalek, B. , 2025, p. 731).This structural openness serves as a potent anti-corruption tool, reducing direct human discretionary power and ensuring that public resources are managed with real-time traceability (Bouguetaia, S., & Mezouri, E. , 2024, p. 253).

IV- Conclusion:

The strategic trajectory toward "Digital Algeria 2030" represents a structural departure from historical project accumulation toward an integrated public policy paradigm. In direct response to the primary problem statement and the theoretical premises established in the introductory framework, the empirical findings warrant the following formal conclusions:

- **Testing Hypothesis 1 (H1):** The structural reconfiguration of digital oversight under the High Commission for Digitalization (HCD) provides the institutional capacity to eliminate administrative silos and ensure horizontal inter-ministerial coordination.

Empirical Status: Partially Supported.
The empirical evidence confirms that establishing the HCD under presidential oversight has elevated digital transformation to a sovereign priority and established clear macro-level accountability. However, this institutional engineering has generated unintended "top-down" rigidities. The administrative interface between strategic direction (HCD) and technical regulation (ARPCE) continues to experience institutional friction, while operational entities (such as universities and public establishments) remain constrained by hierarchical ministerial instructions and limited autonomy. Centralization without operational delegation has thus proved insufficient to dismantle inter-ministerial data silos horizontally.

- **Testing Hypothesis 2 (H2):** The prevailing legislative infrastructure provides adequate normative resilience and adaptability to cultivate digital trust and accommodate emerging disruptive technologies.
Empirical Status: Refuted.
The analytical investigation conclusively invalidates this hypothesis. Rather than providing anticipatory resilience, the current legal corpus is characterized by profound "regulatory lag" and authorization-heavy compliance regimes. The prolonged five-year latency between the promulgation of Law No. 18-07 and its operational activation exemplifies an institutional inertia that stifled data-centric initiatives. Furthermore, prevailing statutes lack normative standards for algorithmic transparency, automated decision-making, and cloud interoperability. This regulatory rigidity, compounded by the 78% distrust rate in online transaction mechanisms, validates the existence of a pervasive "Trust Paradox" that must be resolved through a superior, comprehensive "Digitization Law."

Recommendations

1. **Expedite the Promulgation of the "Inclusive Digitization Law":** The government must move beyond sectoral decrees to enact a comprehensive "Digital Law" that provides a superior legal standard for algorithmic accountability, digital ethics, and the legal recognition of the "Electronic Signature" across all judicial and administrative sectors. This law should specifically reduce the "authorization-heavy" model of Law 18-07, shifting the National Authority for the Protection of Personal Data (ANPDP) toward a proactive compliance and auditing role rather than a bottleneck for startups.
2. **Institutionalize a "National Interoperability Framework" (NIF):** To dismantle ministerial silos, the High Commission for Digitalization must issue mandatory technical standards for data exchange between departments. This framework should prioritize the creation of a "Single Source of Truth" (SSOT) through the unification of biometric databases, ensuring that the "once-only" principle is applied, thereby eliminating administrative duplication and restoring citizen trust in the "Government as a Platform" model.

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3. **Launch a "Digital Talent Retention and Circulation Program":** The state should move from a reactive to a proactive human capital strategy by establishing specialized Public-Private Partnerships (PPPs) that offer competitive incentives for ICT specialists to remain within the National Innovation System. This should include the creation of "Digital Innovation Hubs" that integrate university research with industrial application, utilizing the "Triple Helix" model to bridge the STEM-to-ICT conversion gap.
4. **Mandate an "Open Data by Default" Directive:** To combat bureaucratic inertia and enhance transparency, a directive requiring all public entities to publish non-sensitive administrative data on the "BawabaTIC" portal. This transition to Open Data should be accompanied by a comprehensive change-management program to re-train administrative middle management, shifting the institutional culture from "discretionary control" to "transparent service delivery".
5. **Accelerate Sovereign Infrastructure in Peripheral Regions:** To bridge the "Territorial Paradox," the Regulatory Authority for Post and Electronic Communications (ARPCE) must prioritize the utilization of Universal Service funds to deploy ultra-high-speed broadband and regional data centers in the interior and southern regions. Achieving the 2030 vision requires that "Digital Algeria" is not merely an urban phenomenon but a geographically inclusive driver of national socio-economic resilien.

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