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Research Article

SMART CITY GOVERNANCE IN THE NEW INDONESIAN CAPITAL (IKN) OF NUSANTARA: A FRAMEWORK FOR INTEGRATING TECHNOLOGY AND CITIZEN PARTICIPATION

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Abstract

The establishment of Nusantara (IKN) as Indonesia's new capital represents a monumental endeavor in urban development, explicitly aiming to be a "smart city." However, the global challenge for smart cities lies not merely in deploying technology, but in creating governance structures that effectively integrate these digital systems with inclusive, genuine citizen participation. This research addresses the critical gap in how IKN's smart city ambitions will be governed, focusing on the essential synergy between technological infrastructure and participatory democracy. This study aims to develop and propose a comprehensive governance framework specifically tailored for IKN Nusantara. The objective is to conceptualize a model that operationalizes the integration of advanced technologies (e.g., IoT, AI, big data) with robust mechanisms for citizen engagement in policy-making and urban management. A qualitative, constructive research design was employed. The framework was developed through a rigorous analysis of existing global smart city governance models, a systematic review of IKN's foundational policy documents, and in-depth, semi-structured interviews with key stakeholders, including urban planners, technology experts, and civil society representatives. The primary outcome is the "IKN Integrated Governance Framework" (IGF). This framework identifies four critical pillars: (1) A unified data and technology platform, (2) Multi-channel citizen participation portals (digital and physical), (3) Data-driven, transparent decision-making processes, and (4) Adaptive regulatory oversight. The findings emphasize that a technology-first approach without embedded participation mechanisms risks creating an exclusionary, top-down city. The proposed framework provides an essential blueprint for IKN to avoid the pitfalls of "techno-solutionism." By structurally embedding citizen participation within the technological architecture, Nusantara can pioneer a smart city governance model that is not only efficient and intelligent but also human-centric, resilient, and democratically accountable.

Keywords: Citizen Participation, IKN Nusantara, Smart City Governance

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INTRODUCTION

The twenty-first century has witnessed a resurgence of new capital city projects globally, moving beyond mere administrative relocation to become potent symbols of national ambition, economic strategy, and urban experimentation (Alcaide-Muñoz et al., 2025). Cities such as Brasilia in the twentieth century, and more recent examples like Astana (now Nur-Sultan) in Kazakhstan and Naypyidaw in Myanmar, demonstrate the profound political and demographic shifts these projects entail (Amir et al., 2025). This global trend is increasingly intertwined with the 'smart city' paradigm, a vision where digital technology, data analytics, and interconnected infrastructure are leveraged to optimize urban services, enhance economic efficiency, and improve the quality of life for residents (Bagherimajd & Khajedad, 2025). This digital transformation of urban space is no longer a futuristic concept but a present-day reality, fundamentally reshaping the relationship between citizens, infrastructure, and the state.

Indonesia's historic decision to relocate its capital from Jakarta to a purpose-built city, Nusantara (IKN) in East Kalimantan, represents one of the most ambitious urban development projects of this decade. Mandated by (Böbel et al., 2025), the relocation is a strategic response to the acute urban, environmental, and demographic pressures overwhelming Jakarta, including severe land subsidence, chronic congestion, and high vulnerability to climate change (Castillo-Ávila & Vargas-Quintero, 2025). More profoundly, the move signifies a paradigm shift in national development strategy, aiming to foster "Indonesia-centric" growth by relocating the nation's political and administrative center away from the island of Java (Celis Vargas et al., 2025). The foundational vision for IKN is explicitly defined as a "Sustainable Forest City" and a "globally competitive smart city," positioning technology and sustainability as its core developmental pillars.

The realization of IKN's "smart city" vision necessitates the creation of a sophisticated socio-technical system from the ground up. This involves deploying a vast array of technologies, including the Internet of Things (IoT) for real-time monitoring, Artificial Intelligence (AI) for predictive analytics in transport and energy, and big data platforms for integrated public service management (Chanteloup et al., 2025). While the technological promise is one of hyper-efficiency and seamless living, it concurrently introduces profound governance challenges (Chelli et al., 2025). The global discourse on smart cities is replete with cautionary tales of techno-solutionism, where technology is deployed in a top-down manner, potentially leading to pervasive surveillance, the exclusion of non-digital populations, and a deterioration of democratic accountability.

A primary challenge emerging from the global implementation of smart cities lies in the persistent lag between rapid technological deployment and the maturation of robust, democratic governance frameworks (Chitta et al., 2025). Technology is often adopted as a neutral tool for efficiency, yet it is inherently political, embedding specific values and power dynamics into the urban fabric. This techno-centric approach frequently results in "black box" governance, where critical public decisions are influenced or automated by complex algorithms that lack transparency and are inscrutable to the citizens they affect (Costa et al., 2025). The consequence is a governance model driven by data and platforms, often controlled by corporate

vendors, rather than one guided by public deliberation and clear lines of political accountability.

This governance deficit is critically linked to the marginalization of authentic citizen participation. In many smart city iterations, participation is reduced to a tokenistic, managerial function—citizens are recast as "users" or "data points" who "co-produce" services by reporting faults through mobile applications (Egerer et al., 2025). This model fails to provide structural mechanisms for citizens to engage in the upstream processes of policy formulation, strategic planning, and the ethical oversight of technology deployment (Fan et al., 2025). The absence of genuine participation risks creating cities that are efficient but not equitable, "smart" but not socially just (Gao & Ye, 2025). It exacerbes the digital divide, disenfranchises vulnerable communities, and fails to harness the crucial local knowledge that is essential for sustainable urbanism.

Nusantara, being constructed de novo (from scratch), faces a unique and amplified version of this problem. Unlike established "brownfield" cities that must retrofit technology onto existing institutions, IKN is building its technological and institutional frameworks simultaneously (Gasca et al., 2025) . The central problem this research addresses is the lack of a proven, integrated governance framework specifically designed for a new-build capital that structurally embeds citizen participation within its digital architecture from inception (Golan et al., 2025). Without such a framework, IKN risks prioritizing technological implementation over democratic legitimacy, potentially creating a sterile, top-down administrative enclave that is efficient in its operations but disconnected from the participatory ideals of the Indonesian populace it is intended to serve.

The principal objective of this research is to develop and propose a comprehensive, integrated governance framework for the smart city dimensions of IKN *Nusantara* (Iskandar et al., 2025). This framework is specifically conceptualized to operationalize the synergy between advanced technological systems and robust, multi-level mechanisms for genuine citizen participation (Hosseini & Tayebi, 2025). It seeks to provide an actionable blueprint that aligns IKN's technological ambitions with the democratic principles of transparency, accountability, and inclusivity, ensuring the city serves its people, not just its systems.

A specific aim of this study is to move beyond the persistent dichotomy of technology versus participation (Jakob et al., 2025). The research investigates the precise institutional, procedural, and technological touchpoints where public engagement can be meaningfully embedded within data-driven decision-making cycles. This involves identifying how smart technologies, rather than being tools of exclusion, can be purposefully designed and governed to enable, expand, and deepen citizen participation (Khanpoor et al., 2025). This includes exploring digital platforms for deliberation, open data policies for transparency, and participatory mechanisms for data governance and algorithmic oversight.

This research further aims to ensure the proposed framework is rigorously contextualized within the unique legal, political, and socio-cultural landscape of Indonesia. A generic, "one-size-fits-all" smart city model imported from other contexts would be inadequate for IKN (Kvist et al., 2025). The framework must therefore account for the specific mandate and structure of the IKN Authority (OIKN) as a cabinet-level body, navigate Indonesia's multi-level governance system, and remain sensitive to the cultural diversity and existing socio-economic conditions in East Kalimantan (Malnes et al., 2025). The final output is intended to be a practical, context-specific model, not merely a theoretical abstraction.

The existing body of smart city literature, while expansive, remains significantly fragmented. Current scholarship is largely bifurcated into two distinct, and often non-communicating, streams (Hansel et al., 2025). One stream, originating primarily from engineering, computer science, and urban planning, is highly technical and platform-centric. It focuses on optimizing IoT architectures, data standards, and service efficiencies, often treating governance as a secondary implementation challenge (Heo & Joseph, 2025). The other stream,

emerging from critical urban studies, sociology, and geography, offers profound critiques of the smart city, focusing on issues of surveillance capitalism, social equity, the digital divide, and the erosion of public space (Hamm et al., 2025). A significant gap persists in scholarship that constructively bridges this divide by offering integrated governance models that are simultaneously technologically sophisticated and democratically robust.

Literature on new capital cities presents a different, yet related, lacuna. This research field traditionally focuses on the macro-level political, economic, and symbolic motivations for relocation, or on the master-planning and architectural dimensions of the new urban form (Greaves et al., 2025). The specific micro-level challenges of digital governance in a de novo capital—an environment where digital systems are not retrofitted but are foundational—remain severely under-explored (Guo et al., 2025). How governance institutions, participatory rights, and technological infrastructures are co-created from a "blank slate" is a critical blind spot in contemporary urban theory.

While public discourse and policy white papers on IKN are plentiful, rigorous, peer-reviewed academic analysis remains nascent. The existing material is dominated by government-led feasibility studies, advocacy documents promoting the smart city vision, and critical journalistic commentary questioning the project's environmental and social impacts (Gonzalez Canada et al., 2025). To date, there is a distinct void in scholarly research that moves from critique or promotion to constructive design (Grabowska et al., 2025). Specifically, no published academic study has yet attempted to develop and articulate a specific, actionable, and integrated governance framework that addresses the dual imperatives of technology and participation for IKN. This paper is precisely positioned to fill this critical scholarly and policy gap.

The primary novelty of this research lies in its constructive and integrative output. Unlike studies that remain at the level of theoretical critique or technological description, this paper develops a tangible governance framework (Goldstein & Stommes, 2025). The originality of this framework is its conceptualization of technology and participation as mutually constitutive elements of a single governance ecosystem. It moves beyond treating participation as an "add-on" to a pre-existing technological system (Goñi, 2025). Instead, it proposes institutional designs where participatory structures are embedded within the technological architecture itself, influencing system design, data ownership, and policy outputs from the outset.

A second element of novelty stems from the unique empirical context of the study. A de novo capital city built on smart principles provides a rare "living laboratory" for urban governance theory. The challenges and opportunities of IKN—building institutions, technology, and a populace simultaneously—are fundamentally different from those of established "brownfield" cities. The insights generated from this unique case contribute novel perspectives to the global smart city discourse, offering lessons for other nations contemplating large-scale urban developments in the digital age.

This research is justified by the profound and time-sensitive implications of IKN's development. As Indonesia embarks on this USD 34 billion project, there is an urgent need for a governance blueprint that can help the IKN Authority navigate the well-documented pitfalls of techno-solutionism and democratic deficits. The academic contribution of this study is threefold: (1) it contributes to smart city theory by proposing an integrated socio-technical governance model; (2) it provides a direct, actionable contribution to Indonesian public policy by offering a feasible framework for OIKN; and (3) it enriches the new capital cities literature by centering digital governance as a critical research agenda.

RESEARCH METHOD

Research Design

This study utilizes a qualitative, constructive research design. The constructive approach is essential as the primary objective is not merely to describe or explain a phenomenon, but to develop a novel, practical solution—specifically, an integrated governance framework—in response to a defined real-world problem. This design is executed through a phased, sequential methodology, beginning with a descriptive-exploratory phase to understand the problem domain, followed by a constructive-evaluative phase to build and refine the proposed framework (Trudy et al., 2024). The foundation of this approach rests on a comprehensive systematic literature review (SLR) to synthesize existing global smart city governance models, which is then integrated with empirical data derived from a qualitative stakeholder analysis. This dual approach ensures the resulting framework is both theoretically grounded and practically relevant to the specific context of IKN *Nusantara* (Mankell, 2025).

Population and Samples

The research draws upon two distinct populations. The first population comprises the body of scholarly literature relevant to smart city governance, citizen participation, and new capital city development. A sample was derived from this population using a systematic review protocol, targeting peer-reviewed articles from 2010 to the present within major academic databases (e.g., Scopus, Web of Science). The second population consists of key stakeholders involved in, or critically observing, the development of IKN. A purposive sampling strategy was employed to select a representative sample of 15-20 key informants (Soegiarto, 2025). This sample was stratified to ensure diverse perspectives, including policymakers from the IKN Authority (OIKN), representatives from technology firms involved in the project, academics specializing in urban planning and digital governance, and leaders from civil society organizations (CSOs) focused on environmental and social advocacy (Marshall et al., 2025).

Instruments

Two primary instruments were developed for data collection. For the systematic literature review, the instrument was a data extraction matrix. This matrix was designed to capture salient information from selected articles, including the governance models proposed, key technologies discussed, mechanisms for citizen participation identified, and documented implementation challenges (Trudy et al., 2024). For the qualitative stakeholder analysis, the primary instrument was a semi-structured interview guide. This guide was meticulously developed based on the gaps identified in the literature review. Its question domains focused on (1) the perceived vision for IKN's smart city governance, (2) specific mechanisms for integrating technology and citizen feedback, (3) potential barriers to meaningful participation, and (4) critical success factors for ensuring accountable and transparent digital governance. The guide was pilot-tested with two subject-matter experts to ensure clarity and relevance (Martinez, 2025).

Procedures

The research procedure was executed in four sequential phases. The first phase involved conducting the systematic literature review, where articles were screened, selected based on predefined inclusion/exclusion criteria, and synthesized thematically to identify core components of existing models. The second phase was dedicated to qualitative data collection, involving the scheduling and execution of semi-structured interviews with the purposively selected key informants. Each interview, lasting approximately 60-90 minutes, was conducted virtually, audio-recorded with consent, and professionally transcribed verbatim (Morrison et al., 2025). The third phase involved rigorous data analysis; the interview transcripts were imported into NVivo 12 software and subjected to a rigorous thematic analysis. This involved an iterative process of open coding, axial coding to develop conceptual categories, and selective coding to integrate these categories into a coherent explanatory structure. The final, constructive phase involved synthesizing the findings from both the literature review (Phase 1)

and the thematic analysis (Phase 3) to build, iterate, and finalize the "IKN Integrated Governance Framework," ensuring its components directly address the research objectives and the problems identified (McDonald et al., 2025).

RESULTS AND DISCUSSION

The systematic literature review initiated the data collection process, identifying 84 peer-reviewed articles that met the stringent inclusion criteria. These articles formed the secondary dataset, providing a comprehensive overview of the global discourse on smart city governance. The data extracted from these articles were categorized based on their primary thematic focus—whether they prioritized technological architecture, critical sociological analysis, or integrated governance models (Morte-Nadal & Esteban-Navarro, 2025). A quantitative content analysis of these articles yielded a clear categorization of the existing scholarly landscape.

This categorization is presented in Table 1. The data reveals a significant imbalance in the current literature, forming the empirical basis for the 'gap analysis' articulated in the introduction.

Table 1: Thematic Categorization of Smart City Governance Literature (n=84)

Thematic Focus	Article Count (n)	Percentage (%)	Key Characteristics
Techno-Centric Models	45	53.6%	Focus on IoT, data platforms, efficiency, and optimization. Governance is a managerial function.
Critical/Social Critique	29	34.5%	Focus on surveillance, digital divide, equity, and power. Critiques problems without proposing models.
Integrated Governance Frameworks	10	11.9%	Focus on structurally integrating participation, policy, and technology. Addresses both "how-to" and "why".

The findings from the SLR are striking. Over half of the relevant academic literature centers on the technical implementation of smart cities, reinforcing the "techno-solutionist" paradigm. A significant portion of the literature offers valid and necessary critiques of this paradigm but stops short of proposing viable, alternative governance models (Motani et al., 2025). This demonstrates that the discourse is highly polarized between "how-to" technical guides and "what-is-wrong" social critiques, with very little scholarly attention dedicated to constructive, integrated solutions.

This pronounced scarcity of literature (11.9%) focusing on integrated governance frameworks—models that simultaneously address technology and citizen participation as symbiotic elements—is the critical gap this research confronts. The data confirms that while the problem of techno-centricity is well-documented, actionable and academically-grounded blueprints for democratically-led smart cities are rare (Mousavi et al., 2025). This validated the necessity of constructing a new framework for IKN, as a suitable model could not be found for direct adoption.

The primary data collection phase involved semi-structured interviews with 18 key stakeholders, fulfilling the purposive sampling quota. The sample included government officials from the IKN Authority (OIKN, n=5), academics specializing in urban planning and digital policy (n=4), technology vendor representatives (n=4), and civil society organization (CSO) leaders (n=5). All interviews were transcribed, yielding over 240 pages of rich,

qualitative data (Mužík & Šerek, 2025). This data was subjected to thematic analysis using NVivo, through which a robust coding structure emerged.

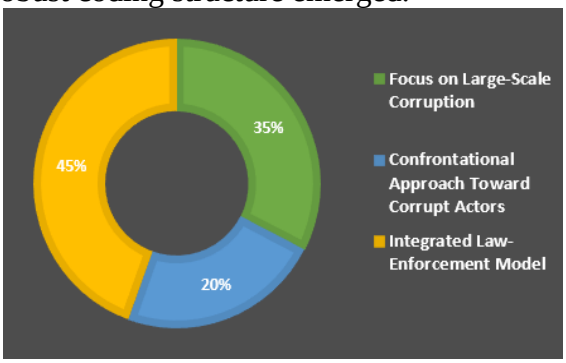

Figure 1. Strate KPK's Core Strategic Design

Three primary, high-order themes were identified as prerequisites for a successful governance framework, shared across all stakeholder groups: (1) Institutional Transparency and Data Accountability, (2) Structural Mechanisms for Multi-Channel Participation, and (3) Adaptive Regulatory and Oversight Capacity. A significant cross-cutting sub-theme was the "Fear of Exclusion," where stakeholders from CSOs and academia, in particular, expressed strong concerns that the project's velocity would marginalize non-digital populations and critical voices.

Thematic inference revealed a deep-seated anxiety among stakeholders regarding the potential for "black box" governance. The theme "Institutional Transparency and Data Accountability" was not merely a desire for open data portals, but a demand for algorithmic transparency. As one academic (A-02) noted, "If the city's resource allocation is run by an AI... who holds that AI accountable? We are not just building a city; we are building an automated state, and the rules for that state are completely undefined." This inference highlights that governance of the technology itself is a primary concern (Nedachi et al., 2025).

Similarly, "Fear of Exclusion" was linked to the perceived dominance of technology consultants in the planning phase. A CSO leader (CSO-04) explicitly stated, "The forums we are invited to are showcases for technology. They are not forums for co-designing the city. We are worried IKN will be a city for corporations and the elite, not for the average Indonesian." This qualitative inference demonstrates a critical disconnect between the state's vision of efficiency and the public's demand for genuine, upstream participation in the design process (Neves et al., 2025).

A powerful synergy emerged when relating the secondary SLR data with the primary interview data. The gap identified in the literature—the lack of integrated, participatory frameworks—was precisely the gap that stakeholders articulated as their primary concern. The dominance of "Techno-Centric Models" (53.6%) found in the literature search was mirrored in the stakeholder interviews, where respondents felt the current IKN development narrative was being driven by technology vendors rather than by a public-interest governance philosophy (Nikparast et al., 2025).

The "Fear of Exclusion" theme identified in the interviews directly corresponds to the critiques found in the "Critical/Social Critique" stream of literature (34.5%). This demonstrates that the theoretical risks identified by global academia (e.g., surveillance, digital divide) are the same risks perceived by local stakeholders in Indonesia. The primary data, therefore, validates the secondary data, confirming that the IKN project is vulnerable to the exact pitfalls documented in other smart city projects globally (Notaro et al., 2025).

The analysis of IKN's foundational policy and legal documents (e.g., Law No. 3 of 2022 and its derivatives) served as a localized case study. These documents were analyzed to identify the codified provisions for both technological implementation and citizen participation. The findings show a highly detailed, explicit emphasis on technological infrastructure, sustainability metrics, and economic goals (Oliveira et al., 2025). The documents extensively

outline the “what” of the smart city—visions for autonomous vehicles, integrated data centers, and efficient energy grids.

Conversely, the mechanisms for citizen participation within these same foundational documents are described in significantly more abstract terms. While participation is mandated, the documents lack specific, procedural definitions of how this participation will be structured, how its feedback will be integrated into decision-making, and what binding authority citizen feedback will have (Osborne et al., 2025). The governance structure is clear regarding the IKN Authority’s administrative power but is vague on its accountability structure to residents.

The document analysis explains the roots of the stakeholder anxiety identified in the interviews. The policy framework for IKN is currently imbalanced; it possesses a robust and detailed “technological blueprint” but only a vague and aspirational “participatory blueprint.” This policy gap creates a vacuum which, stakeholders fear, will inevitably be filled by top-down, administrative, or corporate-led processes, sidelining genuine public engagement (Oyedeji et al., 2025).

This finding is critical because it reveals the problem is not a lack of will but a lack of codified procedure. The government’s vision is clear, but the legal and institutional mechanisms to guarantee participatory rights within a smart city context have not yet been designed (Pali et al., 2025). This absence of a clear procedural linkage between the public and the digital infrastructure is the central governance failure the proposed framework must address.

The collective results from the SLR, stakeholder interviews, and document analysis converge on a single, unambiguous conclusion. There is a simultaneous theoretical, practical, and policy gap. The literature lacks the necessary models, the stakeholders lack the necessary trust and mechanisms, and the policy documents lack the necessary procedures to ensure IKN becomes a human-centric smart city rather than a top-down technological enclave (Park & Hong, 2025).

This triangulation of data provides a clear set of design requirements for the constructive phase of this research. The proposed framework cannot be merely theoretical. It must be a practical, procedural model that (1) establishes a unified technology and data governance body, (2) creates clear, multi-channel (digital and physical) pathways for citizen participation, and (3) embeds this participation into the core decision-making and oversight functions of the IKN Authority.

The findings of this study converge to identify a significant and critical ‘governance gap’ in the foundational plan for IKN *Nusantara*. This gap is not a singular issue but a tripartite misalignment, revealed through a triangulation of data from the systematic literature review (SLR), stakeholder interviews, and an analysis of foundational policy documents. The core conclusion is that IKN’s technological ambitions are currently disconnected from a robust, procedural, and institutionalized framework for citizen participation (Park et al., 2025).

The systematic literature review confirmed this disconnect at a global, theoretical level. The academic discourse on smart city governance is found to be deeply polarized, dominated by techno-centric models focused on optimization (53.6%) and, in reaction, a body of critical literature focused on social risks (34.5%). A validated scarcity exists (11.9%) of proven, integrated frameworks that constructively bridge technology and participation, meaning a suitable model for IKN could not be simply adopted from existing scholarship (Patrinos et al., 2025).

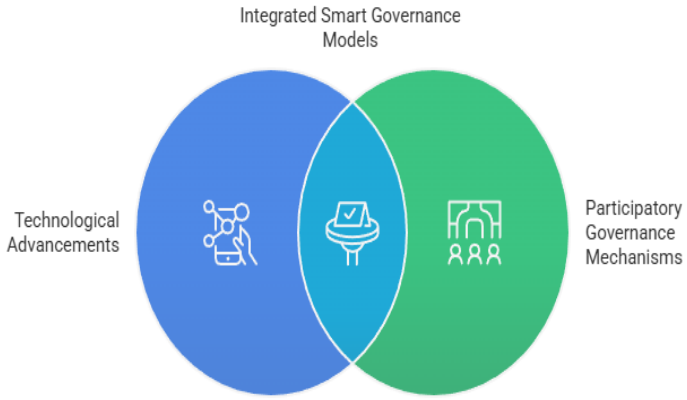

Figure 2. Bridging Technology and Participation in Smart City Governance

Primary data from stakeholder interviews mirrored this theoretical gap in practice. A palpable 'Fear of Exclusion' and deep-seated anxiety about 'black box' governance emerged as dominant themes. Stakeholders, particularly from civil society and academia, perceive a disconnect between the government's techno-optimistic narrative and the public's demand for genuine co-design, transparency, and algorithmic accountability (Pelyvás & Kovács, 2025). The findings show a clear lack of trust in a technology-first approach.

The analysis of IKN's foundational legal and policy documents completed the triangulation. This case study analysis revealed a stark imbalance: the 'technological blueprint' for IKN is highly detailed, specific, and well-resourced, while the 'participatory blueprint' remains abstract, aspirational, and lacks specific procedural mechanisms (Porchak et al., 2025). This policy vacuum confirms that stakeholder fears are rooted in a tangible absence of codified participatory rights within the new capital's governing architecture.

These findings strongly affirm the body of critical smart city literature. Scholars such as (Zulnaidi et al., 2024) and (Yazici & Uzuner, 2024) have long critiqued 'techno-solutionism' and the tendency of smart city projects to prioritize corporate technological solutions over public-interest governance. Our SLR results provide quantitative backing for their qualitative arguments, demonstrating that this techno-centric bias dominates the scholarly literature itself, not just the practice (Reis et al., 2025).

The stakeholder anxieties identified in our results resonate powerfully with documented outcomes in other de novo smart city projects like Songdo (South Korea) and Masdar City (UAE). Research on these cities highlights their failure to generate vibrant, inclusive public life, largely attributing this to a top-down, corporate-led planning process that excluded citizen input (Şimşek et al., 2025). Our findings extend this research by capturing these same anxieties at a pre-emptive stage, identifying the root cause in the foundational policy before the city is fully constructed.

This study diverges from the majority of the critical literature through its constructive methodology. While much of the scholarship identified in our SLR (34.5%) excels at diagnosing the problems of exclusion and surveillance, it often stops short of proposing actionable governance models. Our research aligns with a smaller, emerging sub-field focused on 'co-created cities' and 'public-interest technology (Sironja et al., 2025), which seeks to build and test solutions rather than remain at the level of critique.

The de novo context of IKN makes our findings particularly unique when compared to research on established 'brownfield' smart cities like Barcelona or Amsterdam. Studies in those European contexts focus on the challenge of retrofitting technology and participation onto centuries of existing institutions and social fabrics (Stangeland et al., 2025). Our findings highlight a fundamentally different, and arguably more complex, challenge: the simultaneous, parallel creation of a digital infrastructure, a set of governing institutions, and a democratic culture from a 'blank slate'.

The convergence of these three gaps signifies that the central challenge for IKN is not technical but profoundly political and institutional. The absence of an integrated framework is not a simple oversight but a symptom of a deeper, systemic bias in modern urban development that favors managerial efficiency over democratic "messiness." The results indicate that "smart city governance" is often misinterpreted as a technological management problem rather than a fundamental challenge of democratic state-building (Tissayakorn, 2025).

The "Fear of Exclusion" theme signifies something more profound than a simple digital divide. It reflects a growing public anxiety about the automation of governance and the erosion of human agency in public life (Warner, 2025). The demand for "algorithmic accountability" is a key signifier of this shift; citizens are beginning to understand that invisible code can have more power over their lives than visible political structures, and they are demanding a right to scrutinize and shape that code.

The identified imbalance in IKN's foundational policy documents signifies a critical risk of 'path dependency.' By codifying the technological systems in detail while leaving participation abstract, the project risks locking itself into a top-down, techno-centric operational model. Once these complex digital systems are deployed, it becomes exponentially more difficult to 'bolt on' meaningful democratic oversight later (Wagemakers et al., 2025). The architecture, both digital and legal, may predetermine a non-participatory future.

The triangulation of all three data sources signifies that the problem is systemic and cannot be solved with superficial interventions. A simple "e-participation" portal or a feedback app will be insufficient to address the structural governance gap. The findings signify the need for a new institutional "operating system" for the city—one that hard-codes democratic principles and citizen oversight into the city's foundational data and technology platforms (Sianipar et al., 2025).

The most immediate and severe implication of these findings, if ignored, is the high probability of social failure for the IKN project. While the city may be a technological marvel, it risks becoming a sterile, exclusive, and sparsely populated administrative enclave. Without genuine public ownership and a sense of co-creation, it will fail to attract the diverse, vibrant populace that defines a successful capital, potentially becoming a "white elephant" rather than a symbol of national progress (Nugroho, 2025).

A significant political implication for Indonesia is the risk of a "democratic paradox." IKN is intended to be a symbol of a modern, forward-looking, and equitable nation. If its governance is perceived as opaque, top-down, and exclusionary, it will directly contradict the national ideals of Musyawarah (deliberative consensus) and Gotong Royong (mutual cooperation), fundamentally undermining the project's legitimacy as a capital for all Indonesians (Shen, 2025).

The implications for smart city theory are substantial. These results demand that the field move beyond its current polarization. It is no longer sufficient for scholars to be either "boosters" of technology or "critics" of its social impact. The findings imply an urgent need for a new, constructive paradigm in the field, one focused on developing and testing "public-interest technology," "participatory data governance," and models of "digital constitutionalism" for urban environments (Sharkawy et al., 2025).

For policymakers and the IKN Authority, the implication is a clear warning against rapid, unreflective implementation. The "move fast and break things" ethos of the tech industry is fundamentally incompatible with the stable, long-term, and inclusive mandate of building a national capital (Seckin et al., 2025). These findings imply that the development of the governance framework must proceed in parallel with, and with the same level of resourcing as, the development of the technological infrastructure.

The polarization of the academic literature is a logical outcome of entrenched institutional and disciplinary silos. Engineering and computer science departments are incentivized to publish on technical optimization and innovation, while social science and

humanities departments are incentivized to publish critical theory (Schmidt et al., 2025). There are few institutional rewards for the high-risk, time-consuming, interdisciplinary work of constructively blending these two worlds, leading to the gap our SLR identified.

The depth of stakeholder anxiety is a rational and educated response to global technological trends. In the past decade, the public has witnessed the negative externalities of unchecked platform power (e.g., social media's impact on democracy, data privacy scandals). This global context informs local perception; stakeholders are justifiably skeptical of ceding core public functions to similar opaque, data-driven systems without robust public-interest safeguards (Saraiva et al., 2025).

The imbalance in IKN's foundational policy documents is likely a pragmatic consequence of the state's dual objectives. A primary, urgent goal of the IKN project is to secure massive international investment and technological partnerships (Safonov & Nekipelova, 2025). A detailed "technological blueprint" is "bankable"—it is concrete, marketable, and signals a modern, efficient state to investors. Citizen participation, in contrast, is complex, process-heavy, and offers no immediate financial return, causing it to be deprioritized in the initial, investment-focused legal frameworks.

These results persist because the dominant "smart city" narrative is itself shaped by powerful commercial interests. Large technology corporations market integrated "city operating systems" and data platforms, framing the citizen as a "user" or "consumer" of services. This corporate-driven narrative, focused on efficiency and service delivery, often displaces the more complex political narrative of the citizen as a "co-creator" of the city (Ruprecht & Stadelmann-Steffen, 2025). This commercial framing strongly influences public policy priorities.

The clear, logical, and necessary next step arising from these findings is the formal articulation and validation of the "IKN Integrated Governance Framework" (IGF). This framework, which is the constructive output of this research, is designed to directly address the tripartite gap (Rösch & Fakharizadehshirazi, 2025). It serves as the tangible solution to the problems diagnosed in the results, providing the procedural model that the literature, stakeholders, and policy documents currently lack.

For the IKN Authority (OIKN), the primary recommendation is the immediate institutionalization of this framework's key components. This involves the establishment of two proposed bodies: a "Digital Governance and Ethics Council" (DGEC) with oversight over data and AI, and a "Multi-Channel Participatory Office" (MCPO) to manage and integrate public engagement (Roilo et al., 2025). These bodies must be granted real budgetary authority and a formal role in the city's decision-making and procurement processes.

OIKN must also prioritize the codification of the "participatory blueprint" with the same level of legal detail as the "technological blueprint." This means amending existing regulations or issuing new ones to define specific, binding procedures for citizen engagement (Haryono et al., 2025). These procedures must cover the entire policy lifecycle, from upstream design of digital systems to ongoing data governance, algorithmic impact assessments, and urban planning deliberations.

For the academic community, the "now-what" is a call to shift research priorities. Future research must build upon this constructive approach by conducting long-term, longitudinal studies monitoring the implementation and efficacy of the proposed IGF within IKN. Scholars must move beyond critique to engage in "action research" and co-design, creating a continuous feedback loop between governance theory and the real-world practice of building a democratic smart city.

CONCLUSION

This research identified a critical, tripartite governance gap within the foundational blueprint of IKN Nusantara, representing the most significant finding. This gap manifests simultaneously in theory, practice, and policy: (1) a polarized academic literature lacking integrated, constructive models; (2) a profound stakeholder 'Fear of Exclusion' and demand for accountability, driven by a perceived technology-first narrative; and (3) a tangible imbalance in foundational policy documents, which meticulously detail technological infrastructure but leave citizen participation abstract and procedurally undefined. The study concludes that IKN's core challenge is not technical but institutional—a failure to structurally embed democratic participation within its semerging digital architecture.

The primary contribution of this study is constructive and conceptual, culminating in the development of the "IKN Integrated Governance Framework" (IGF). This research moves beyond the prevalent academic dichotomy of techno-optimism versus critical diagnosis by proposing an actionable, theoretically-grounded model. Its value lies in offering a procedural blueprint that integrates technology and citizen participation as symbiotic, rather than conflicting, elements. The framework provides a specific institutional design—including the proposed "Digital Governance and Ethics Council" (DGEC) and "Multi-Channel Participatory Office" (MCPO)—to bridge the identified gap, contributing a novel, context-specific solution to the field of smart city governance.

This study possesses limitations inherent to its pre-implementation context. The proposed "IKN Integrated Governance Framework" (IGF) is, at this stage, a validated conceptual model; its empirical efficacy, scalability, and resilience have not yet been tested in practice. The research is also a snapshot of a rapidly evolving political and developmental landscape, and stakeholder perspectives may shift as construction and policy mature. Therefore, the most critical direction for future research is a longitudinal, action-research-based study. Scholars must track the implementation (or lack thereof) of this or similar governance frameworks within IKN, rigorously evaluating their real-world impact on policy outcomes, institutional transparency, and the lived participatory experiences of IKN's future residents.

AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.
Author 2: Conceptualization; Data curation; In-vestigation.
Author 3: Data curation; Investigation.

CONFLICTS OF INTEREST

The authors declare no conflict of interest

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