



Reconciling Innovation and Accountability: Artificial Intelligence Adoption and Public Sector Reform in Nigeria

By

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Abstract

It's a common assumption in the debates about public sector reform that innovation and accountability are contradictory – that faster decision-making enabled by technology must be at the expense of oversight and answerability to citizens. This paper challenges this assumption in the context of the adoption of artificial intelligence (AI) in Nigeria's public administration using Socio-Technical Systems (STS) theory and the responsible-AI principles as articulated by the OECD (2019), UNESCO (2021) and European Commission (2023). Based on survey data from 200 public-sector and policy-adjacent professionals in the Federal Capital Territory (FCT, $n = 108$) and Plateau State ($n = 92$) and analysed using a 15-item Likert instrument (Cronbach's $\alpha = 0.78$), the paper finds that 83.5% of respondents perceive AI-driven innovation and institutional accountability as compatible rather than competing objectives, and 72% dismiss the proposition that ethical safeguards hamper innovation. However, respondents identified a measurable discrepancy between endorsement at the level of principle of responsible AI use (means above 4.40) and confidence in adherence to the principle in operation (means 3.88-4.04), with a statistically significant difference between FCT and Plateau respondents on accountability-in-practice (chi-square = 18.37, $df = 4$, $p < 0.01$). In the paper, we argue that this pattern reframes the challenge of reforming the public sector: the objective is not to balance innovation and accountability but to close an institutional-design gap through intentional coordination of technical adoption and administrative reform. It proposes a convergent reform agenda on procurement policy, civil service capacity building and inter-governmental coordination and makes recommendations for public administration reform bodies at federal and sub-national levels.

Keywords: Public sector reform; artificial intelligence; accountability; innovation; public administration; Nigeria.

1. Introduction

The adoption of digital and artificial intelligence (AI) as a central reform instrument promising faster service delivery, more efficient revenue collection and data-driven policy analysis is increasingly part of the public sector reform agendas in the developing world (Datta, 2024; Maphosa, 2024; Newman & Mintrom, 2023). But the debate between the academic and practitioner communities is predicated on a latent assumption that these benefits are a trade-off: that the benefits of speed and scale of AI-enabled decision-making are inherently incompatible with the deliberative, contestable and answerable nature that public accountability requires (Morley, Floridi, Kinsey & Elhalal, 2019). This presents a false choice for reform bodies tasked with modernising public administration: move fast and risk accountability, or protect accountability and forgo the efficiency gains AI promises.

In so doing, the paper directly challenges this assumption by asking whether Nigerian public-sector and policy-adjacent professionals themselves see AI-driven innovation and institutional accountability as competing or complementary goals, and what this means for the design of public sector reform. The question is especially relevant in Nigeria, where reform of public administration has increasingly encompassed the adoption of AI-enabled tools, including civil-service modernisation, e-governance, revenue-agency digitisation and public financial management reform, without a settled institutional consensus on how to preserve accountability in the process.

It is framed by three questions. First, how can AI be deployed responsibly and ethically in public policy and administrative decision-making? Secondly, can we innovate without losing accountability? And if so, what are the institutional preconditions for this? Third, where does the tension between the impulse to innovate and the obligation to remain accountable really

play itself out, at the level of principle or at the level of administrative practice? The central claim of the paper, developed through the empirical evidence of Section 6, is that the tension is much less a matter of principle than existing reform debates assume and much more a matter of institutional-design capacity to translate agreed principles into administrative practice.

This paper makes three contributions to the scholarship of public administration. Empirically, it provides evidence from a large sample of the Nigerian public sector that directly tests, rather than assumes, the widely assumed innovation-accountability trade-off. The challenge of public sector reform is framed, theoretically, within the Socio-Technical Systems (STS) theory as a problem of joint optimisation between technical adoption and administrative-institutional capacity, rather than as a problem of inherent trade-off between two competing values. In practice, it generates a coherent reform agenda that reform bodies, civil service commissions and public administration training institutions can use to sequence AI adoption and the institutional capacity to sustain it.

The rest of the paper is organised as follows. Section 2 reviews literature relevant to technology adoption and accountability in public sector reform. Section 3 describes the theoretical framework of Socio-Technical Systems. Section 4 describes the survey methodology. In Section 5, we report the results of the perceived compatibility of innovation and accountability. Section 6 considers the difference between principle and practice and its implications for institutional design. Section 7 suggests a coordinated reform agenda. Section 8 discusses policy implications for federal and sub-national reform bodies. Section 9. End.

1.2 Literature Review: Technology Adoption and Accountability in Public Sector Reform

There is a long-standing debate in the public administration literature as to whether administrative modernisation enhances or diminishes accountability. The reforms of the New

Public Management era, which highlighted efficiency, performance measurement and managerial autonomy, were criticised for placing output efficiency above the deliberative and accountable qualities of traditional bureaucratic accountability (Newman & Mintrom, 2023). A similar debate has recently re-emerged in a more acute form in the literature with the advent of AI-enabled decision-support tools within this reform trajectory: some scholars argue that AI adoption structurally undermines the deliberative core of public accountability because AI systems can make or materially inform administrative decisions at a speed and scale that outstrips traditional review mechanisms, while others argue that, if properly designed, AI can enhance accountability by making administrative decisions more consistent, auditable, and traceable than the discretionary human judgment it replaces (Sifgrids, Nieminen, Leikas, & Pikkuaho, 2022; Datta, 2024).

A smaller but growing body of work, produced mostly in the Global North, has started to empirically test this assumed trade-off, rather than taking it as self-evident, generally finding that the relationship between technology adoption and accountability depends on institutional design choices, procurement practice, staff training, and review architecture, rather than being a fixed property of the technology itself (Maphosa, 2024). This paper makes that empirical turn to the Nigerian public sector reform context, where the innovation-accountability question is particularly salient given the country's ongoing, multi-track public administration reform agenda and its historically uneven record of translating reform legislation into administrative practice.

1.3 Theoretical Framework: Socio-Technical Systems Theory

The paper applies the Socio-Technical Systems (STS) theory as its main theoretical lens. STS theory suggests that organisational technologies will only achieve their intended functions if the technical subsystem is co-optimised with the social subsystem of rules, roles,

training and accountability relationships that surround the technical subsystem (Trist & Bamforth, 1951; Guest, Knox & Warhurst, 2022; Herrmann & Pfeiffer, 2022). Applied to public sector reform, STS theory suggests that the perceived tension between AI-driven innovation and administrative accountability is not an inherent property of the technology, but a symptom of incomplete joint optimisation – that is, of reform processes that have adopted AI tools without a matching investment in the administrative-institutional capacity, procurement standards, staff training, review mechanisms needed to keep those tools accountable in practice.

The preferred framing is Actor-Network Theory and the Social Construction of Technology (SCOT) tradition. Both are considered but not adopted as the primary lens because STS theory generates a directly testable empirical prediction relevant to public sector reform. If the innovation-accountability tension is genuinely inherent, respondents should perceive the two objectives as competing at the level of principle. If the tension instead reflects incomplete institutional design, respondents should endorse both objectives as compatible in principle while expressing lower confidence in their joint observance in current administrative practice. Sections 5 and 6 then test this prediction directly against the survey data.

1.4 Methodology

The paper adopts a quantitative survey conducted among 200 public sector and policy-adjacent professionals, sampled through stratified random sampling from the Federal Capital Territory (FCT, $n = 108$, 54.0%) and Plateau State ($n = 92$, 46.0%), with a sample size calculated using Cochran's (1977) formula at a 7% margin of error. The majority of respondents were employed in public-sector positions (62.0%), and the plurality of respondents had postgraduate qualifications (42.5%) and were in the 30–49 age band (75.5%). The instrument consisted of 15 Likert-scale items in three domains: (1) general principles of responsible AI; (2) perceived compatibility of innovation and accountability; and (3)

confidence in current administrative practice. The Cronbach's alpha of the instrument was 0.78 (sub-scale range 0.71-0.76), indicating acceptable internal reliability. Data were analysed using descriptive statistics and chi-square tests of association between region (FCT vs Plateau) and key outcome items in SPSS 26.

1.5 Findings: Is Innovation Compatible with Accountability?

In contrast to the trade-off assumed in much of the literature on public sector reform discussed in Section 2, a clear majority of respondents, 83.5%, agreed that AI-driven innovation and institutional accountability can be pursued jointly, rather than as competing objectives. A related item found 72% of respondents disagreed with the proposition that ethical safeguards impede innovation, a direct empirical challenge to the premise that accountability mechanisms are, in nature, a drag on administrative modernisation. Respondents also highlighted specific institutional conditions they see as necessary prerequisites for reconciling the two goals: Transparency in AI-informed decisions (96.5% agreement) and clear assignment of responsibility for AI-informed decisions (94.5% agreement) were both identified as essential, suggesting that Nigerian public sector professionals do not see accountability as opposed to innovation in the abstract, but as a specific, achievable set of institutional design conditions under which innovation can proceed responsibly.

These results support the STS-theoretic prediction outlined in Section 3: the innovation-accountability tension that animates much of the public sector reform literature is not, as understood by the Nigerian public-sector professionals surveyed here, a fixed property of AI technology but rather a contingent outcome of whether the specific institutional conditions, transparency, and clear responsibility that respondents themselves identify as necessary are, in fact, in place.

1.6 The Principle-Practice Gap as an Institutional-Design Problem

If the innovation-accountability tension was indeed intrinsic to the technology, we would expect the respondents' confidence in accountable AI use to mirror their general enthusiasm for AI adoption. Rather, the data show a distinct mismatch between endorsement at the principle level and confidence at the practice level. Transparency, responsibility assignment and other principle-level items scored above 4.40 on the five-point scale, while practice-level items such as whether informed consent is truly observed in current administrative practice (mean 3.97), whether harm to affected citizens is proactively avoided (mean 3.94) and whether current administrative practice is in line with global best practice (mean 3.82-4.04) scored consistently and substantially lower.

There was also a significant difference in accountability in practice between the FCT and Plateau respondents (chi-square = 18.37, df = 4, $p < 0.01$). This suggests that confidence in accountable AI practice varies across the Nigerian federal administrative structure and is not merely a function of general attitudes towards AI. Taken together, these findings support this paper's central reframing of the public sector reform challenge: the evidence does not describe a workforce divided over whether accountability and innovation can coexist; respondents overwhelmingly agree they can, but a workforce is far less confident that current administrative institutions are actually delivering that coexistence in practice. In the language of STS, this is precisely the hallmark of a joint-optimisation gap: the technical subsystem (AI adoption) has outpaced the social subsystem (administrative capacity, training, review mechanisms) needed to hold it accountable.

1.7 Toward a Coordinated Public Sector Reform Agenda

The results support a reform agenda built around closing the institutional-design gap identified in Section 6 rather than closing a trade-off between innovation and accountability that the evidence suggests does not, in fact, obtain at the level of principle. The analysis leads directly to three reform tracks which work in tandem. First, procurement reform: public sector AI procurement standards should include as a condition of contract award documented transparency and responsibility-assignment mechanisms for any AI-enabled administrative tool, operationalising the specific conditions respondents themselves identify as necessary for accountable innovation. Second, capacity building for the civil service. Public administration training institutions, including the relevant staff colleges and civil service commissions, should incorporate AI-governance literacy, including informed consent, harm assessment and audit practice, into standard administrative training curricula. This should directly target the practice-level items where confidence lags behind principle. Third, inter-governmental coordination: given the statistically significant FCT-Plateau variation in accountability-in-practice, federal reform bodies should establish a formal mechanism for sharing accountability practice and audit standards with sub-national administrations, rather than assuming that federal-level policy commitments automatically translate into uniform state-level practice.

1.8 Discussion and Policy Implications

The key takeaway for federal public sector reform bodies such as the Bureau of Public Service Reforms and the Federal Civil Service Commission is that AI adoption must be sequenced with institutional capacity-building measures identified in Section 7, and not before them. The binding constraint reformers should anticipate is not professional resistance to AI adoption, but confidence in institutional delivery, evidence suggests. The findings support the

need for dedicated sub-national AI-governance capacity for state governments, especially those like Plateau where confidence in accountability-in-practice is significantly different from the FCT, rather than relying on federal-level frameworks alone. For public administration training and research institutions, the findings indicate a concrete curricular gap, in structured training in AI-governance practice, distinct from general digital-literacy training, that reform programmes have not yet systematically addressed.

1.9 Conclusion

This paper tries to test whether AI-driven innovation and institutional accountability are competing objectives in Nigerian public sector reform instead of assuming they are. The evidence is that they are not regarded as such by the public-sector and policy-adjacent professionals surveyed here: a clear majority find the two objectives compatible, and a majority reject the proposition that ethical safeguards stand in the way of innovation. What the evidence does demonstrate is a quantifiable disparity between consensus on the principle level and confidence on the operational level, a disparity that Socio-Technical Systems theory conceptualises as an institutional-design problem, not an inherent trade-off. Hence, a coordinated reform strategy that closes this institutional-design gap by combining procurement standards, civil service capacity building and inter-governmental coordination is a better strategy for Nigeria's public sector reform agenda than reform debates that continue to see innovation and accountability as opposing poles to be traded off against each other.

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