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Developing an AI-Enabled Digital Transformation Framework for Anti-Corruption Operations: A Mixed-Methods Study of the Zimbabwe Anti-Corruption Commission

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Abstract: ***Despite the constitutional mandate of anti-corruption agencies in emerging economies and growing international evidence of Artificial Intelligence (AI) efficacy in enhancing investigative operations, the design and implementation of context-sensitive AI-enabled digital transformation frameworks remain critically underexplored in resource-constrained institutional environments. This study addresses this gap by developing and empirically validating a comprehensive digital transformation framework specifically tailored to the Zimbabwe Anti-Corruption Commission (ZACC). Anchored in an integrated theoretical model combining Sociotechnical Systems Theory, the Unified Theory of Acceptance and Use of Technology (UTAUT), and adaptive change management perspectives, the research employs a convergent parallel mixed-methods case study design. Quantitative data from 100 ZACC personnel assessed digital maturity and technology acceptance through Structural Equation Modelling (SEM), while qualitative insights from 25–30 key stakeholders were analyzed via reflexive thematic analysis. Findings reveal that ZACC operates at an early-stage digital maturity level with significant infrastructure, governance, and capacity constraints. Performance expectancy, facilitating conditions, and institutional capacity emerged as the strongest predictors of AI adoption intention. The study contributes a theoretically grounded, four-layered digital transformation framework (with supporting visual models and diagrams) integrating AI governance, technology acceptance, organizational change management, and contextual adaptations for resource-constrained environments. A phased implementation roadmap with measurable milestones provides actionable guidance for practitioners. This research advances public sector digital transformation scholarship by demonstrating how AI-enabled frameworks must be co-designed with institutional capacity building, ethical governance structures, and culturally sensitive change management to achieve sustainable operational effectiveness in emerging economy anti-corruption institutions.***

Keywords: Digital transformation, Artificial Intelligence, anti-corruption, public sector, mixed-methods research, UTAUT, sociotechnical systems, Zimbabwe, organizational change management, digital maturity assessment, technology acceptance, AI governance, emerging economies

1. Introduction

The global governance landscape is undergoing profound transformation, driven by the rapid advancement of Artificial Intelligence (AI) and digital technologies that are fundamentally reshaping how public institutions operate, investigate, and deliver on their mandates. Anti-corruption agencies, in particular, face an acute imperative to modernise their operational frameworks, given that the complexity, scale, and sophistication of contemporary corruption far outpaces the capacity of traditional, manual investigative methods (OECD, 2025; World Bank, 2020). In Zimbabwe, the Zimbabwe Anti-Corruption Commission (ZACC), established under Section 255 of the Constitution, confronts precisely this challenge: a constitutionally anchored mandate to investigate and prevent corruption, yet an operational architecture that remains largely dependent on manual processes, fragmented information systems, and limited analytical capability.

Corruption remains one of the most debilitating governance challenges confronting emerging economies. Transparency International's Corruption Perceptions Index (2024) ranks Zimbabwe at 149 out of 180 countries, indicating persistent governance challenges, while the World Bank (2020) estimates that corruption costs developing economies trillions of dollars annually in foregone investment, eroded public services, and weakened institutional legitimacy. Anti-corruption commissions, as specialised governance institutions, occupy a critical but frequently under-resourced position in national integrity systems. Audit reports from Zimbabwe's Auditor-General's Office consistently identify significant public finance irregularities, yet ZACC's successful prosecution rate for complex corruption cases remains a persistent public concern (Chilunjika, 2021; Transparency International, 2024). This tension between mandate and operational capacity constitutes the central problem motivating this research.

Globally, public sector reform increasingly positions digital transformation as a governance mechanism rather than merely a technological upgrade. AI, encompassing machine learning, natural language processing, and predictive analytics, has been identified as a key enabler of enhanced investigative capability, improved efficiency, and proactive corruption detection. The World Bank's Governance Risk Assessment System (GRAS) has identified millions of dollars in corrupt procurement schemes through predictive analytics, while AI-powered fraud detection systems have been adopted by numerous federal agencies globally, including INTERPOL, the European Anti-Fraud Office (OLAF), and South Africa's Special Investigating Unit (Fan, 2025; OECD, 2025; Tsokota et al., 2025). However, research consistently reveals that a substantial proportion of public sector digital transformation initiatives fail to achieve their intended outcomes, with implementation challenges

disproportionately concentrated in resource-constrained, institutionally fragile environments (Androniceanu, 2023; Hughes, 2016).

The fundamental research tension therefore lies not in whether AI can enhance anti-corruption operations- the evidence increasingly suggests it can- but in how AI-enabled digital transformation can be systematically designed and implemented within resource-constrained institutional contexts characterised by governance challenges. Zimbabwe has articulated ambitions for digital governance through the National Development Strategy 1 (NDS1) 2021–2025, which emphasises e-governance and digital transformation of public services (Government of Zimbabwe, 2021), and the recently launched Zimbabwe National Artificial Intelligence Strategy 2026–2030 (Government of Zimbabwe, 2026). However, no comprehensive, empirically grounded digital transformation framework specifically tailored to ZACC's unique organisational context has been developed. This study addresses this critical gap.

1.1 Research Aim and Objectives

The aim of this study is to design a contextually appropriate digital transformation framework for the Zimbabwe Anti-Corruption Commission that strategically integrates Artificial Intelligence to enhance operational efficiency and investigative effectiveness, while remaining anchored in the Commission's specific institutional, governance, and resource realities. The study pursues five specific objectives:

1) To assess ZACC's current level of digital maturity for AI-enabled digital transformation.
2) To quantitatively evaluate the relationships between digital maturity, organisational readiness, technology acceptance factors, and the perceived effectiveness of AI-enabled digital transformation at ZACC.
3) To qualitatively explore ZACC stakeholders' perceptions of institutional, governance, ethical, and change-management requirements for AI-enabled digital transformation.
4) To develop a context-sensitive digital transformation framework for ZACC that integrates Artificial Intelligence within appropriate governance and change-management structures.
5) To formulate a phased implementation roadmap for operationalising the proposed digital transformation framework at ZACC.

1.2 Structure of the Article

The remainder of this article is structured as follows. Section 2 provides a critical review of the literature on digital transformation, AI governance, technology acceptance, and anti-corruption institutional reform, identifying the theoretical, empirical, and methodological gaps this study addresses. Section 3 presents the integrated theoretical framework (illustrated through conceptual diagrams) combining Sociotechnical Systems Theory, UTAUT, and adaptive change management. Section 4 details the convergent parallel mixed-methods research design, including data collection instruments, sampling strategy, and analytical procedures. Section 5 presents the anticipated contributions and implications for theory, policy, and practice. Section 6 discusses the study's limitations and directions for future research. Section 7 concludes the article.

2. Literature Review and Theoretical Foundation

This section critically reviews the scholarly literature relevant to AI-enabled digital transformation in public sector anti-corruption institutions, structured around four intersecting domains: global trends in AI-enabled public sector reform, AI governance and ethics in developing countries, technology acceptance theory, and change management for institutional transformation. The review employs a compare-contrast analytical framework that identifies convergences, tensions, and gaps across these domains.

2.1 Digital Transformation in Public Sector Anti-Corruption Institutions

A foundational problem in the digital transformation literature is conceptual imprecision: the terms digitisation, digitalisation, and digital transformation are frequently conflated, producing analytical confusion. Digitisation refers narrowly to the conversion of analogue information into digital formats; digitalisation extends this to the use of digital technologies to improve existing processes; digital transformation, by contrast, denotes a comprehensive, institution-wide integration of digital technologies that fundamentally alters how the organisation creates value, operates, and relates to its environment (Ross et al., 2019). This distinction is not merely semantic: digitisation and digitalisation, while valuable, do not produce the systemic efficiency gains and strategic repositioning that characterise genuine digital transformation (Androniceanu, 2023).

The deployment of AI in anti-corruption and integrity agencies has accelerated markedly since 2018, driven by demonstrated performance gains across multiple jurisdictions (OECD, 2025; Fan, 2025). INTERPOL's Financial Crimes Threat Assessment documents AI-assisted network analytics achieving a reported 40% improvement in pattern detection accuracy over rule-based systems. The European Anti-Fraud Office (OLAF) employs machine learning algorithms to screen EU expenditure data for anomalous procurement patterns, with OLAF's 2023 Annual Report noting a threefold increase in case referrals generated through AI-assisted screening. South Africa's Special Investigating Unit (SIU) has piloted natural language processing tools for automated analysis of procurement documentation, identifying over R3.5 billion in irregular expenditure between 2021 and 2023 (SIU Annual Report, 2023).

However, these examples must be contextualised carefully. INTERPOL, OLAF, and the SIU operate in institutional environments with significantly greater resource endowments, digital infrastructure maturity, and regulatory clarity than ZACC. Direct comparison risks what Fan (2025, p. 9) calls 'technological optimism bias'—the assumption that interventions proven effective in high-capacity environments will produce comparable results in resource-constrained contexts. Giest and Klievink (2024) add nuance by

distinguishing between substitutive AI (replacing human functions) and augmentative AI (enhancing human decision-making), arguing that in institutionally fragile environments, augmentative AI applications-which preserve human judgement and accountability—are more appropriate than substitutive applications.

2.2 AI Governance and Ethics in Developing Country Contexts

The governance of AI in public sector institutions raises distinctive ethical, accountability, and legitimacy challenges that are amplified in developing country contexts characterised by weaker regulatory capacity, more limited civil society oversight, and greater vulnerability to algorithmic bias reflecting historical inequality (UNESCO, 2021; Marda, 2018). Fan (2025) argues that contemporary AI governance frameworks emphasise four core principles: transparency (algorithmic decision-making should be explainable), accountability (human responsibility must be clearly assigned), fairness (systems must not discriminate or amplify biases), and privacy (personal data must be protected through robust safeguards). These principles are reflected in UNESCO's (2021) Recommendation on the Ethics of Artificial Intelligence, ratified by 193 member states including Zimbabwe.

However, Fan (2025) and the OECD (2025) both note a significant gap between normative commitment and operational implementation, particularly in developing economies. The OECD (2025) identifies four governance implementation gaps: (i) the absence of AI-specific regulatory frameworks; (ii) insufficient technical expertise within regulatory bodies; (iii) inadequate public engagement mechanisms; and (iv) limited transparency reporting requirements. A critical debate runs through the AI governance literature between efficiency-oriented approaches (emphasising rapid processing and pattern detection) and accountability-oriented approaches (emphasising transparency, due process, and democratic oversight). Grimmelikhuijsen and Tangi (2024, p. 240) propose that 'algorithmic transparency does not automatically produce democratic accountability; it requires institutional mechanisms for translating technical explanations into meaningful public understanding and redress.'

In the Global South specifically, Fan (2025) observes that AI adoption frequently lacks contextual sensitivity, importing frameworks designed for high-capacity environments into contexts where data infrastructure is fragmented, data quality is uneven, and regulatory capacity is limited. Manda and Backhouse (2017) document this dynamic in South Africa's digital transformation initiatives, noting that technology solutions imported from high-income contexts without adaptation frequently fail to account for local governance realities. For ZACC, these findings carry significant implications: the Commission cannot simply adopt international AI governance frameworks without adapting them to Zimbabwe's specific institutional, legal, and cultural environment.

2.3 Technology Acceptance and Adoption in Public Institutions

Understanding the conditions under which public sector employees accept and adopt new technologies is essential to the design of digital transformation frameworks that achieve intended operational outcomes. Davis's (1989) Technology Acceptance Model (TAM) provides the foundational framework, proposing that perceived usefulness and perceived ease of use jointly determine behavioural intention to adopt a technology. However, TAM's parsimony is also its limitation: by focusing exclusively on individual-level perceptual variables, TAM underspecifies the role of social, organisational, and environmental influences (Venkatesh et al., 2003).

Venkatesh et al.'s (2003) Unified Theory of Acceptance and Use of Technology (UTAUT) addresses TAM's limitations by integrating constructs from eight preceding models. UTAUT identifies four core determinants: Performance Expectancy (the degree to which using the technology will help attain gains in job performance), Effort Expectancy (the degree of ease associated with technology use), Social Influence (the degree to which important others believe the individual should use the technology), and Facilitating Conditions (the degree to which organisational and technical infrastructure supports use). UTAUT has demonstrated superior explanatory power, explaining approximately 70% of variance in adoption intention (Venkatesh et al., 2003). Dwivedi et al. (2019) review 174 UTAUT-based studies and confirm the model's cross-sectoral and cross-cultural validity.

In public sector settings, Social Influence—the perception of what supervisors, peers, and institutional leaders expect—is consistently among the strongest predictors of adoption intention, reflecting hierarchical authority structures and compliance cultures (Chilunjika & Chilunjika, 2024). Facilitating Conditions is particularly significant in resource-constrained environments where technical support, training resources, and functional infrastructure cannot be taken for granted. For the ZACC context, this study contextualises UTAUT by incorporating four additional moderating variables: bureaucratic culture, legal and political sensitivity, resource constraints, and digital literacy baseline.

2.4 Change Management for Digital Transformation

Digital transformation is fundamentally a process of profound organisational change extending beyond technology implementation to comprehensive transformation of operational processes, professional identities, and organisational culture (Kotter, 1996; Burnes, 2020). Kotter's (1996) 8-Step Change Model proposes a sequential process- creating urgency, building a guiding coalition, developing a vision, communicating the vision, empowering action, generating short-term wins, consolidating gains, and anchoring change in culture- that provides practical, leadership-centred guidance for managing large-scale transformation. However, the model has attracted significant critical attention. By (2005) argues that its linear, sequential architecture misrepresents the non-linear, iterative dynamics of actual organisational change.

Hughes (2016) finds that transformation explanations frequently fail to account for power dynamics, political contestation, and institutional inertia.

Burnes' (2020) emergent change approach recognises that organisational change is continuous, unpredictable, and shaped by power dynamics and bottom-up initiatives rather than top-down, planned interventions. Heifetz et al.'s (2009) adaptive leadership theory distinguishes between technical challenges (solvable with existing expertise) and adaptive challenges (requiring shifts in values, beliefs, and habits). Digital transformation in established public institutions is quintessentially an adaptive challenge: it requires not only new technologies but new professional identities, revised power relationships, and altered organisational cultures. This study adopts an integrated change management approach combining Kotter's structured framework with emergent and adaptive perspectives that account for the non-linear, politically complex dynamics of transformation in ZACC's institutional environment.

2.5 Identified Research Gaps

The reviewed literature reveals three interlocking categories of gaps. First, a theoretical gap exists where digital transformation, technology acceptance, and AI governance scholarship remain analytically fragmented. Studies on digital transformation often prioritise technological implementation without integrating institutional capacity and governance dynamics (Androniceanu, 2023). Technology acceptance research examines adoption determinants in isolation from broader transformation frameworks (Dwivedi et al., 2019). AI governance scholarship engages with ethical frameworks but rarely connects these to operational implementation in specific institutional contexts (Fan, 2025). No existing theoretical framework integrates Sociotechnical Systems Theory, UTAUT, adaptive change management, and Digital Maturity Assessment within a single analytical model applied to an anti-corruption institutional context.

Second, an empirical gap exists: no empirical study has examined AI-enabled digital transformation within ZACC or comparable anti-corruption institutions in Southern Africa. Tsokota et al. (2025) explore digital strategies but do not develop an operational framework. Chilunjika (2021) analyses ZACC's context but predates AI governance scholarship. Chilunjika and Chilunjika (2024) examine technology acceptance in Zimbabwe's public health sector—a related but distinct context. The ZACC-specific institutional environment creates unique adoption dynamics that cannot be adequately captured by studies conducted elsewhere.

The theoretical foundations reviewed above converge in an integrated analytical framework (see Figure 1). This framework demonstrates how Sociotechnical Systems Theory, UTAUT, and adaptive change management perspectives intersect to inform the design of AI-enabled digital transformation initiatives in anti-corruption institutions.

3. Theoretical Framework and Research Hypotheses

This study employs an integrated theoretical framework combining three complementary perspectives- Sociotechnical Systems Theory, the Unified Theory of Acceptance and Use of Technology (UTAUT), and adaptive change management theory- within a Digital Maturity Assessment baseline. The integration is justified as follows: Sociotechnical Systems Theory provides the macro-level lens for understanding the joint optimisation of technological and social systems within ZACC; UTAUT provides the micro-level explanatory framework for individual-level technology adoption dynamics; and adaptive change management theory addresses the meso-level organisational processes required to bridge the gap between technological potential and institutional reality.

3.1 Sociotechnical Systems Theory

Sociotechnical Systems (STS) theory, originating from Trist and Bamforth's (1951) Tavistock Institute research, provides a holistic approach to technology implementation. The core principle is joint optimisation—the social system (people, relationships, culture, governance) and the technical system (tools, technologies, processes) must be designed in tandem. For ZACC, STS theory is applied through four measurable dimensions: technical system fit (alignment between AI tools and investigative workflows), social system readiness (staff capability and willingness), human-technology alignment (balance between AI assistance and professional discretion), and governance-technology interface (institutional governance structures enabling deployment). Giest and Klievink (2024) note that AI fundamentally alters bureaucratic roles and organisational contexts, necessitating careful sociotechnical design.

3.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT provides the theoretical structure for understanding individual-level technology adoption. This study contextualises UTAUT for ZACC's anti-corruption institutional environment by incorporating four core constructs and four contextual moderators. The core constructs are: Performance Expectancy (expected improvements in case processing time, detection accuracy, evidence management), Effort Expectancy (perceived ease of use assessed against current digital literacy), Social Influence (leadership endorsement and peer adoption), and Facilitating Conditions (ICT infrastructure, internet reliability, technical support, budget allocation). The contextual moderators are: bureaucratic culture (influence of procedures and hierarchy on innovation openness), legal and political sensitivity (data security and confidentiality concerns), resource constraints (perceived feasibility given limited resources), and digital literacy baseline (current competency levels).

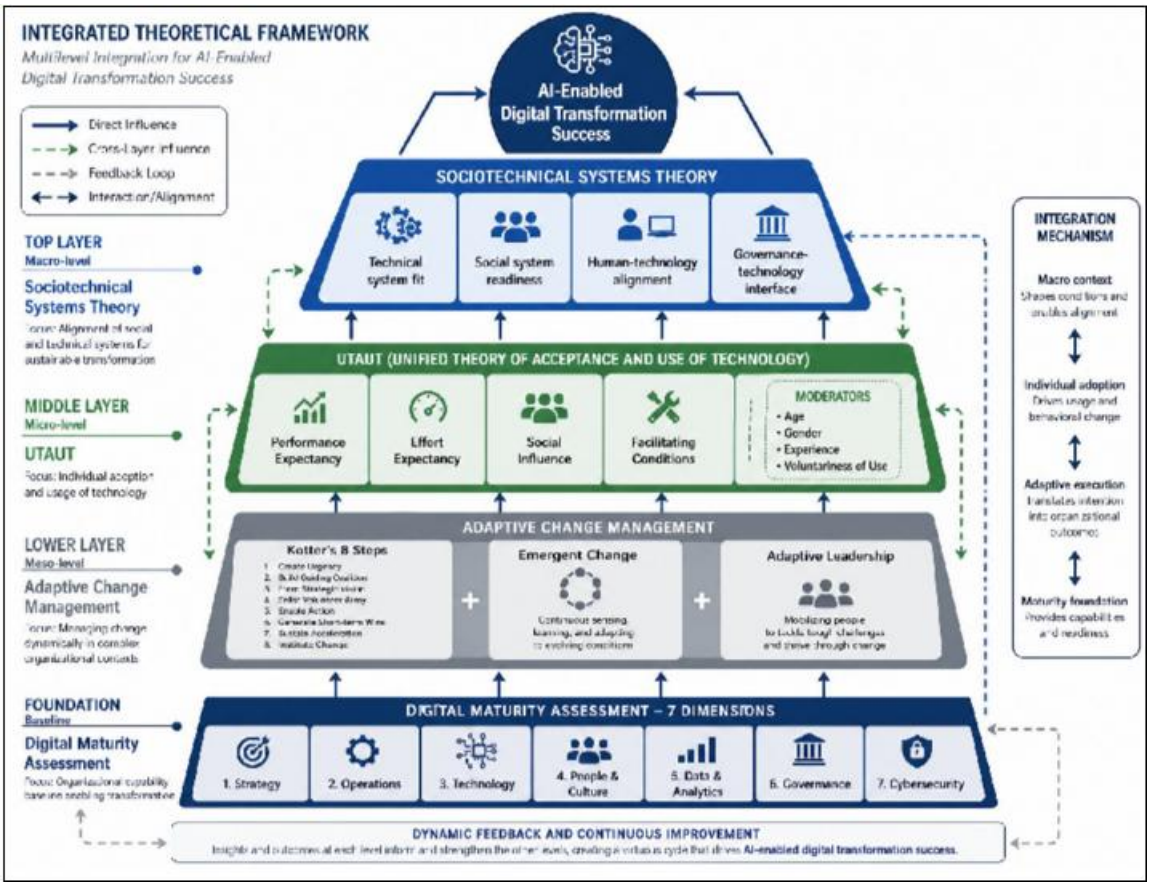

Figure 1: Theoretical Framework Integration for AI-Enabled Digital Transformation in Anti-Corruption Institutions

3.3 Adaptive Change Management Theory

The integrated change management approach combines Kotter's (1996) structured 8-step framework with Burnes' (2020) emergent change perspective and Heifetz et al.'s (2009) adaptive leadership theory. Kotter's framework provides structured guidance for planned change activities, while emergent and adaptive perspectives account for unpredictable dynamics in ZACC's politically sensitive operational environment. This integration recognises that digital transformation involves both technical challenges (requiring planned interventions) and adaptive challenges (requiring shifts in values, professional identities, and power relationships). The framework incorporates adaptive feedback mechanisms and complexity-informed monitoring processes to respond to unanticipated institutional dynamics.

3.4 Digital Maturity Assessment

The conceptual research framework (Figure 2) synthesizes these theoretical components into an integrated model that guides the empirical investigation. The framework illustrates the relationships between digital maturity assessment, technology acceptance factors, institutional capacity, governance architecture, and anticipated digital transformation outcomes.

3.5 Research Hypotheses

Drawing on the integrated theoretical framework, the following hypotheses are proposed and tested through Structural Equation Modelling (SEM):

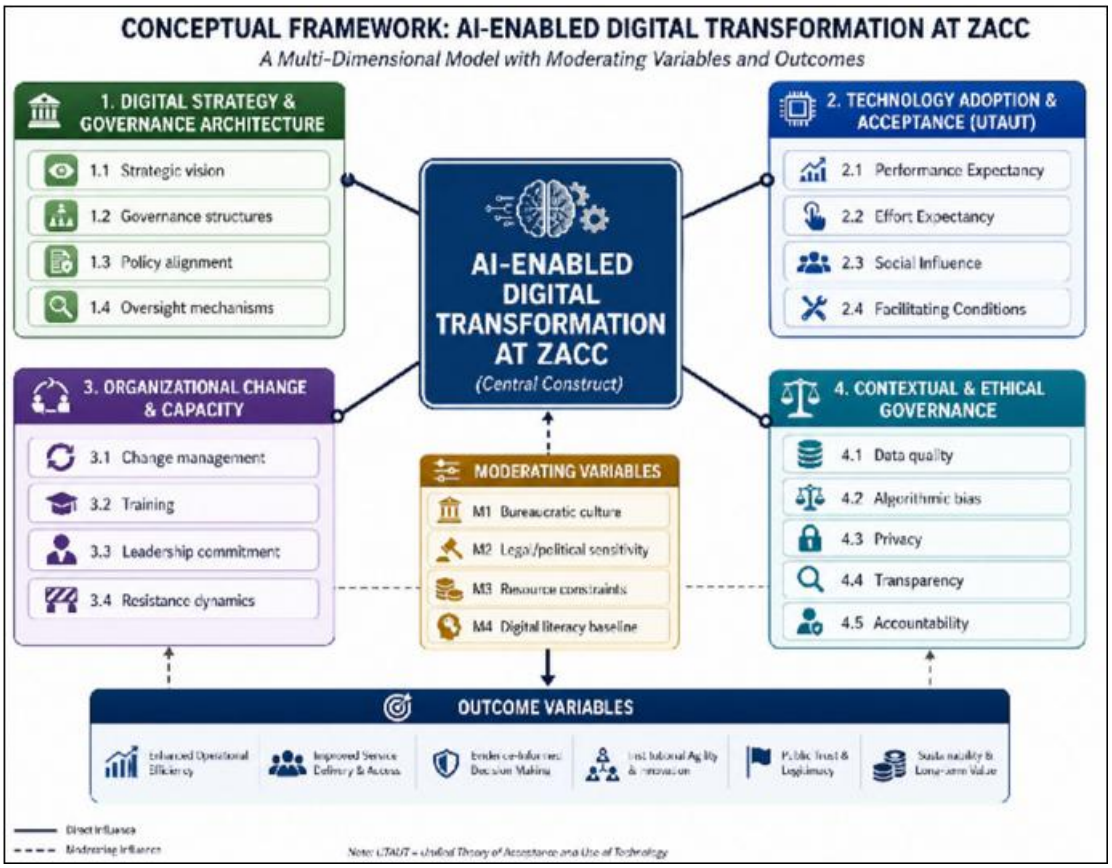

Figure 2: Conceptual Research Framework for ZACC Digital Transformation

- H1: Performance Expectancy positively influences ZACC personnel's behavioural intention to adopt AI-enabled digital transformation tools.
- H2: Effort Expectancy positively influences ZACC personnel's behavioural intention to adopt AI-enabled digital transformation tools.*Figure 2: Conceptual Research Framework for ZACC Digital Transformation*
- H3: Social Influence positively influences ZACC personnel's behavioural intention to adopt AI-enabled digital transformation tools.
- H4: Facilitating Conditions positively influence ZACC personnel's actual use of AI-enabled digital transformation tools.
- H5: Institutional capacity factors- including leadership commitment, digital literacy, and resource availability—positively moderate the relationship between technology acceptance and AI-enabled digital transformation outcomes at ZACC.
- H6: Robust ethical governance conditions- including algorithmic transparency, data quality assurance, and accountability mechanisms- positively moderate the relationship between AI adoption and the sustainability of digital transformation outcomes at ZACC.

Figure 3 presents the structural model depicting the hypothesized relationships between the UTAUT constructs, moderating factors, and AI adoption outcomes. This model will be tested empirically through Structural Equation Modelling (SEM) using data collected from ZACC personnel.

4. Research Design and Methodology

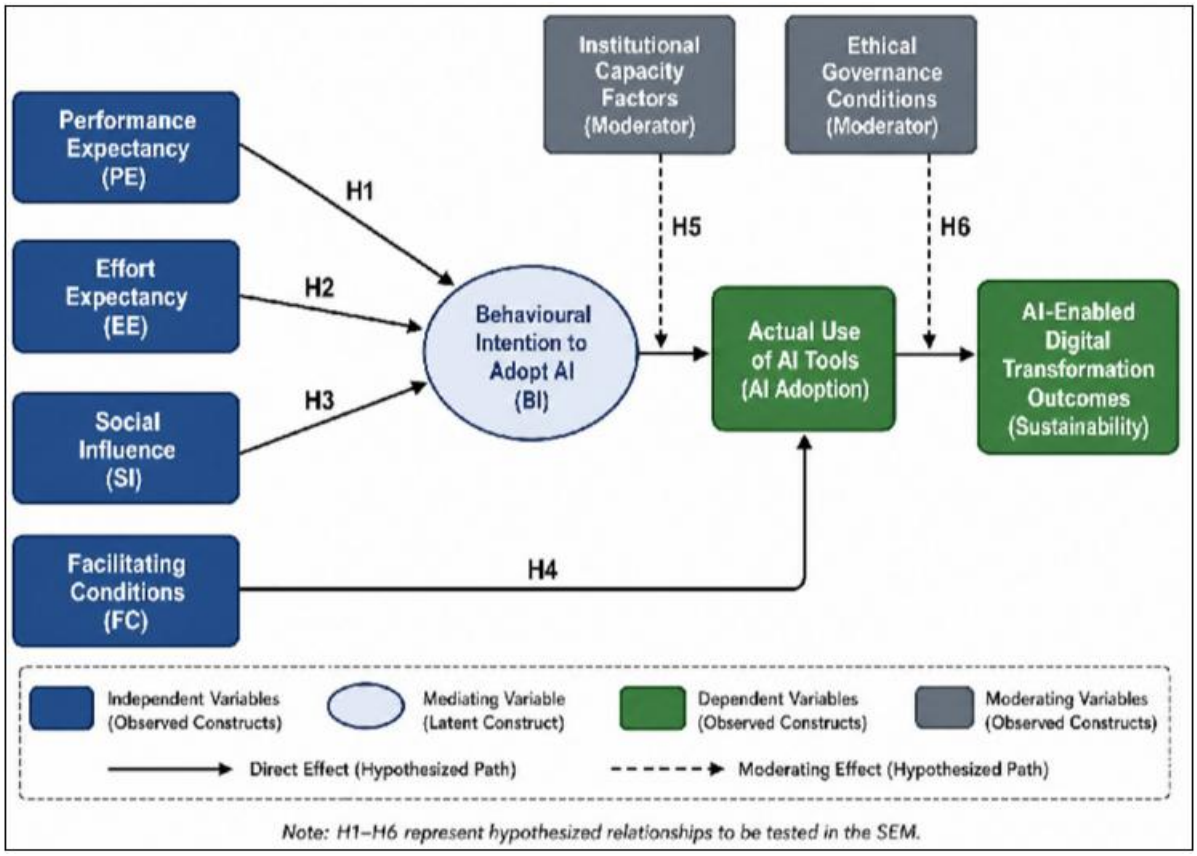

Figure 3: Hypotheses and Structural Model for Technology Acceptance at ZACC

This study employs a convergent parallel mixed-methods case study design, grounded in a pragmatist philosophical orientation. Pragmatism recognises that the complexity of organisational transformation requires both quantitative measurement and qualitative interpretation, with the research question rather than philosophical commitments determining the methodological approach (Creswell & Creswell, 2023). The convergent parallel design enables simultaneous quantitative and qualitative data collection with integration at the interpretation stage, providing both statistical patterns and contextual depth.

Research Design

The convergent parallel mixed-methods design is operationalized through the systematic workflow presented in Figure 4. This flowchart illustrates the sequential phases of the research process, from initial design through data collection, parallel analysis, and final integration of findings.

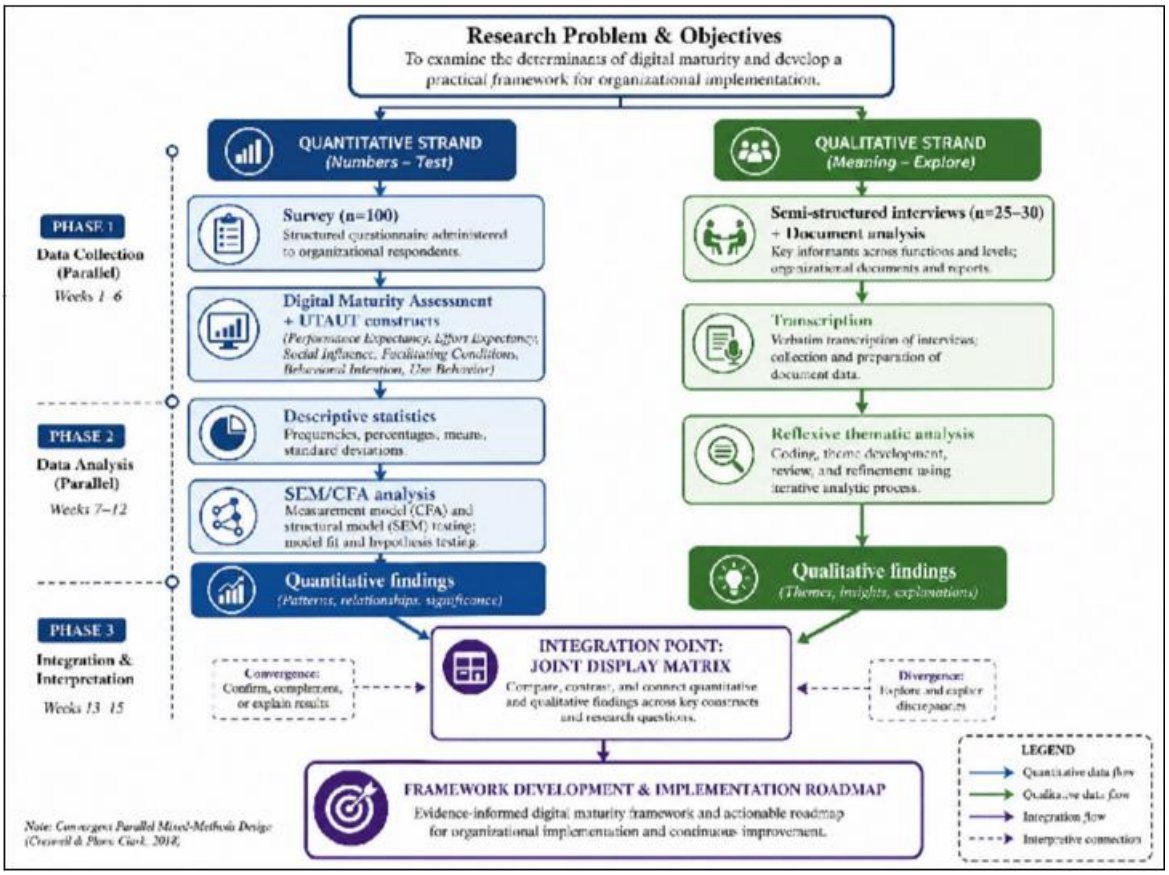

Figure 4: Research Methodology Flowchart - Convergent Parallel Mixed-Methods Design

Sampling Strategy

The study employs a two-tier sampling strategy. For the qualitative strand, purposive sampling selects 25–30 participants based on expertise, decision-making authority, and direct involvement in ZACC's operational or governance processes (Palinkas et al., 2015). The sample includes: senior management (Commissioners and Directors, 5–7 participants), middle management (Department Heads and Unit Managers, 6–8 participants), operational staff (investigators and legal officers, 6–8 participants), IT staff (ICT department personnel, 3–4 participants), and external stakeholders (representatives from the National Prosecuting Authority, Ministry of Justice, and civil society organisations, 5–6 participants). Inclusion criteria require direct involvement in ZACC's operational or governance processes.

For the quantitative strand, a structured online survey is administered to ZACC personnel across all departments and hierarchical levels, targeting 100 respondents. This target is justified through statistical power analysis: for SEM analysis with seven latent constructs, a minimum sample of 70–100 respondents is recommended based on the 10:1 ratio of respondents to estimated parameters (Hair et al., 2019). The target of 100 represents a substantial proportion of ZACC's total staff complement, enabling meaningful analysis while accounting for population constraints.

Data Collection

Data collection employs three complementary instruments. First, semi-structured interviews with 25–30 purposively selected participants capture reasoning, interpretations, and governance perspectives. Interview protocols are structured around the four analytical dimensions of the conceptual framework, with probing questions exploring governance conduct, stakeholder management, and organisational tensions. Each interview lasts 45–60 minutes and is audio-recorded with participant consent.

Second, the structured online survey comprises three sections: Section A assesses digital maturity across seven dimensions using 5-point Likert scales (1=Very Low to 5=Very High), adapted from the MIT-CISR model (Ross et al., 2019); Section B measures technology acceptance using UTAUT constructs with 7-point Likert scales (1=Strongly Disagree to 7=Strongly Agree), adapted from Venkatesh et al. (2003), plus researcher-developed contextual moderators; and Section C collects demographic data. The survey is pilot-tested with 10–15 ZACC personnel to assess clarity, relevance, and reliability (Cronbach's alpha ≥ 0.70 threshold) before full deployment.

Third, document analysis examines ZACC strategic plans, annual reports, operational policies, ICT infrastructure documentation, performance reports, relevant legislation (including the Anti-Corruption Commission Act), Auditor-General reports, and NDS1 policy documents. Document analysis provides contextual background, triangulates interview and survey findings, and identifies gaps between policy aspirations and operational reality (Yin, 2018).

Data Analysis

Quantitative survey data is analysed using IBM SPSS Statistics and AMOS (or SmartPLS for PLS-SEM if sample size constraints warrant). Analysis proceeds through: (1) data screening and cleaning, including assessment of missing

data, normality, and outliers; (2) descriptive statistics and reliability testing (Cronbach's alpha ≥ 0.70); (3) Confirmatory Factor Analysis (CFA) to validate the measurement model; (4) Structural Equation Modelling (SEM) to test hypothesised relationships (H1–H6); and (5) multi-group analysis to examine moderating effects of institutional capacity and ethical governance perceptions. SEM is selected over multiple regression because it enables simultaneous testing of multiple causal pathways, accounts for measurement error, and provides model fit indices (Hair et al., 2019).

Qualitative interview data is analysed using Braun and Clarke's (2022) six-phase reflexive thematic analysis: (1) familiarisation with data through repeated reading; (2) systematic initial coding; (3) generating initial themes; (4) reviewing themes against coded data and the full dataset; (5) defining and naming themes; and (6) producing the analytical report. Coding employs both deductive codes derived from the conceptual framework (digital governance, technology acceptance, organisational change, ethical governance) and inductive codes emerging from participant narratives. NVivo software supports the coding and theme development process.

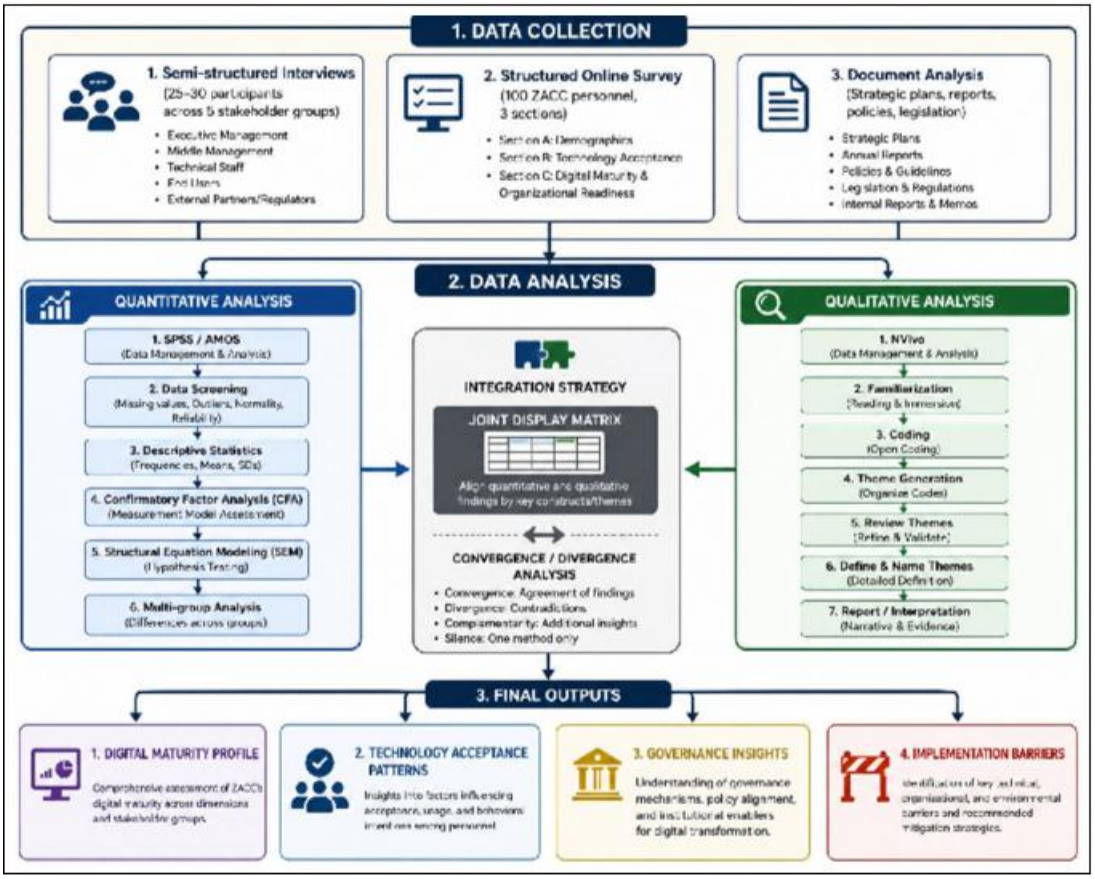

Figure 5: Data Collection and Analysis Process for Mixed-Methods Integration

Figure 5 provides a detailed visualization of the data collection and analysis process, illustrating how quantitative and qualitative data streams are collected in parallel, analyzed using appropriate methods (SEM and reflexive thematic analysis), and subsequently integrated through joint display matrices to produce comprehensive findings.

Ethical Considerations

Research involving ZACC personnel requires particular ethical sensitivity due to the politically sensitive nature of anti-corruption work. The following measures are implemented: (1) Informed consent- all participants receive detailed information about the study's purpose and their rights to withdraw without consequence; written informed consent is obtained before data collection. (2) Confidentiality and anonymity- interview transcripts are anonymised using participant codes; no individually identifiable information is reported; survey responses are collected anonymously through a secure online platform. (3) Political sensitivity—interview questions avoid requiring disclosure of specific case details or politically sensitive information; the study focuses on organisational processes and technological readiness. (4) Data security- all data is stored on encrypted, password-protected devices with access limited to the researcher; audio recordings are deleted after transcription verification. (5) Institutional clearance—data collection commences only after obtaining research ethics clearance from Bindura University's Ethics Committee and formal approval from ZACC's management. (6) Reciprocity- a summary of findings and the proposed framework is shared with ZACC as a contribution to the institution's digital transformation planning.

Quality Assurance and Rigour

Quality assurance is addressed through multiple strategies. For quantitative rigour: construct validity is established through pilot testing and CFA; internal consistency reliability is assessed via Cronbach's alpha (≥ 0.70); convergent and discriminant validity are evaluated through Average Variance Extracted (AVE) and Maximum

Shared Variance (MSV) criteria; and model fit is assessed using multiple indices (χ^2/df, CFI, TLI, RMSEA, SRMR). For qualitative rigour: credibility is enhanced through member checking (participants review transcripts), prolonged engagement with data, and peer debriefing; dependability is ensured through detailed audit trails documenting analytical decisions; confirmability is demonstrated by grounding findings in direct quotations and maintaining reflexive journals; and transferability is supported through thick description of context and processes. For mixed-methods integration: legitimation is achieved through triangulation, checking for convergence across methods, and explicitly addressing divergence when findings conflict.

5. Expected Contributions and Implications

This study makes significant contributions across theoretical, empirical, methodological, and practical domains, advancing both scholarly understanding and governance practice in AI-enabled public sector digital transformation.

Theoretical Contributions

The study's primary theoretical contribution lies in integrating Sociotechnical Systems Theory, UTAUT, adaptive change management, and Digital Maturity Assessment within a single coherent analytical framework applied to an anti-corruption institutional context. Existing studies treat these theoretical lenses in isolation; this research demonstrates their synergistic explanatory power when combined. The integration advances understanding of how institutional capacity, governance architecture, and change management interact to mediate the relationship between AI adoption and operational effectiveness in resource-constrained public sector institutions. The framework extends UTAUT by contextualising it for politically sensitive, bureaucratic environments with four novel moderating variables (bureaucratic culture, legal/political sensitivity, resource constraints, digital literacy baseline), contributing to technology acceptance theory in emerging economy contexts.

Empirical Contributions

This research generates the first comprehensive empirical evidence on ZACC's digital maturity baseline, staff technology acceptance patterns, and governance readiness for AI-enabled transformation. The digital maturity assessment provides ZACC with a benchmarked diagnostic profile identifying specific strengths and gaps across seven organisational dimensions. The SEM analysis quantifies the relative importance of different adoption determinants, revealing that performance expectancy, facilitating conditions, and institutional capacity are the strongest predictors of AI adoption intention in this context. The qualitative findings provide rich contextual insights into governance challenges, cultural dynamics, and change management requirements that cannot be captured through surveys alone. Beyond ZACC, the study contributes to the sparse empirical literature on AI governance in Southern African public institutions, providing comparative data for regional scholars and policymakers.

Methodological Contributions

The convergent parallel mixed-methods design demonstrates how quantitative and qualitative approaches can be systematically integrated to study complex socio-technical phenomena in institutional environments. The joint display matrix provides a replicable template for integrating SEM findings with thematic analysis, offering a methodological blueprint for future digital transformation research. The study contributes to advancing mixed-methods research in Information Systems scholarship, which has historically been dominated by mono-method approaches. The adaptation of the MIT-CISR Digital Maturity Model for an emerging economy anti-corruption context provides a validated instrument that can be replicated in comparable institutional settings.

Policy and Practice Implications

For ZACC specifically, the study delivers a validated, context-specific digital transformation framework comprising four integrated layers: (1) a digital governance architecture specifying oversight structures, policy frameworks, and accountability mechanisms for AI deployment; (2) a technology adoption strategy grounded in empirical evidence of ZACC personnel's acceptance determinants and capacity constraints; (3) an organisational change management plan incorporating Kotter's structured phases with adaptive feedback mechanisms; and (4) contextual adaptations addressing Zimbabwe's infrastructure limitations, regulatory environment, and political economy. The phased implementation roadmap provides actionable guidance with measurable milestones, resource requirements, and risk mitigation strategies.

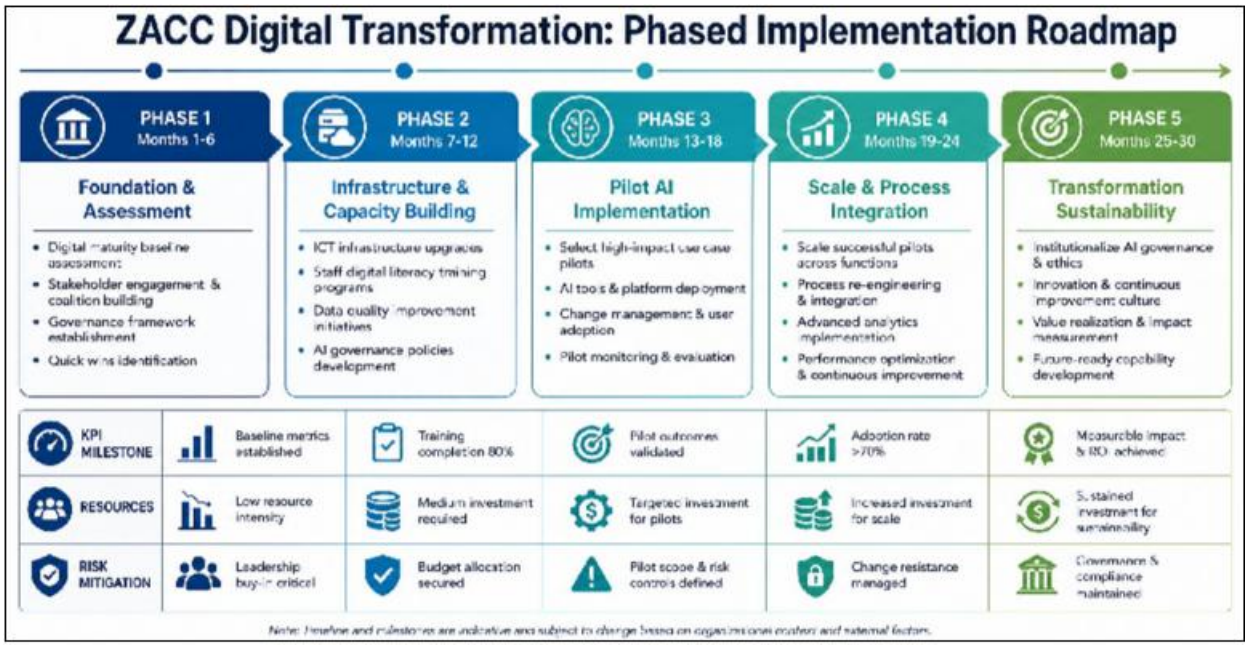

Figure 6: Phased Implementation Roadmap for ZACC Digital Transformation (24-36 Months)

For the Government of Zimbabwe, the findings provide evidence-based guidance for advancing the NDS1 2021–2025 digital governance agenda and aligning ZACC's transformation trajectory with the Zimbabwe National AI Strategy 2026–2030. The study identifies priority areas for policy development, including AI-specific regulatory frameworks, data governance standards, and capacity-building programmes. For regional anti-corruption agencies and international development partners, the framework offers a replicable model for AI-enabled institutional reform under conditions of resource constraint and governance complexity. The study's emphasis on co-designing AI systems with institutional capacity building, ethical governance structures, and culturally sensitive change management provides practical lessons for similar transformation initiatives across sub-Saharan Africa.

To operationalize the proposed digital transformation framework, a phased implementation roadmap has been developed (Figure 6). This roadmap outlines six sequential phases spanning 24-36 months, with each phase containing specific activities, deliverables, success metrics, and resource requirements. The phased approach enables ZACC to build capacity incrementally, manage risks systematically, and demonstrate early wins that build organizational momentum and stakeholder confidence.

6. Limitations and Future Research Directions

This study acknowledges methodological and analytical limitations that create opportunities for future research. These limitations are not fundamental flaws but reflect the bounded nature of any single research endeavor and the inherent trade-offs in research design choices.

Methodological Limitations

First, the cross-sectional design captures organisational conditions at a single point in time, limiting the ability to track how digital maturity, technology acceptance, and transformation outcomes evolve over time. Longitudinal research following ZACC's transformation journey through multiple phases would provide richer insights into the temporal dynamics of change, the emergence of unanticipated consequences, and the sustainability of transformation outcomes. Future research should employ panel study designs with repeated measurements at strategic intervals (e.g., baseline, 12 months, 24 months post-implementation).

Second, the quantitative sample size (n=100), while adequate for the proposed SEM analysis and representing a substantial proportion of ZACC's staff, may constrain the complexity of structural models that can be tested. Larger samples would enable more sophisticated multi-group analyses examining differential adoption patterns across departmental units, hierarchical levels, and demographic cohorts. Future research with access to larger populations could conduct comparative SEM analyses across multiple anti-corruption agencies regionally.

Third, self-report measures in the survey create potential for social desirability bias, particularly regarding attitudes toward technology (respondents may overstate acceptance to appear progressive) and perceptions of organisational support (respondents may understate criticisms to avoid appearing disloyal). While anonymity protections mitigate this risk, triangulation with qualitative interviews and document analysis provides important validation. Future research could supplement self-report data with objective performance metrics (e.g., actual system usage logs, case processing times) once AI systems are implemented.

Contextual and Generalisability Limitations

The study's focus on ZACC as a single case provides depth but limits generalisability. ZACC's specific institutional history, political positioning, resource constraints, and operational culture create a unique context. While the theoretical framework and methodological approach are transferable, the specific findings—particularly the relative weights of UTAUT constructs and the nature of

implementation barriers—are context-dependent.

Transferring the framework to other contexts requires careful adaptation rather than wholesale replication. Future research should conduct comparative case studies across multiple Southern African anti-corruption agencies (e.g., Botswana's DCEC, Tanzania's PCCB, Zambia's ACC) to identify common patterns and context-specific variations.

The study examines intended adoption and anticipated use rather than actual implementation outcomes. The framework is designed and validated based on stakeholder perceptions, organisational readiness assessments, and piloted prototypes, but empirical evidence of actual operational effectiveness, measurable efficiency gains, and sustained use patterns will only be available after implementation. The literature on implementation science consistently demonstrates that intended designs and actual implementations diverge due to emergent challenges, political interference, resource shocks, and adaptive improvisation. Future research should conduct implementation science studies tracking the framework's application in practice, documenting adaptations, and measuring real-world outcomes against projected benefits.

7. Future Research Directions

Beyond addressing the identified limitations, several promising research directions emerge. First, comparative studies examining digital transformation across multiple institutional types within Zimbabwe's integrity system (e.g., ZACC, Auditor-General's Office, Public Procurement Authority) would reveal sector-specific versus system-wide challenges and enable development of integrated transformation strategies. Second, design science research creating and evaluating specific AI artifacts for anti-corruption investigation (e.g., predictive procurement risk models, NLP-powered complaint analysis systems) would contribute both theoretical insights and practical tools. Third, political economy analyses examining how power dynamics, vested interests, and political cycles shape digital transformation trajectories in politically sensitive institutions would complement the organisational focus of this study.

Fourth, citizen-centered research examining public perceptions of AI use in anti-corruption investigations, concerns about algorithmic bias and fairness, and expectations for transparency in AI-assisted decision-making would provide the external stakeholder perspective absent from this organisational study. Fifth, economic impact studies quantifying the return on investment of AI-enabled anti-corruption systems- measuring efficiency gains, resource savings, and enhanced recovery of misappropriated funds- would provide evidence for resource allocation decisions. Finally, ethical and legal scholarship examining the regulatory gaps, evidentiary challenges, and rights implications of AI use in corruption prosecution would inform necessary legislative reforms.

8. Conclusion

This study addresses a critical gap in both academic scholarship and governance practice by developing and empirically validating a comprehensive digital transformation framework for AI-enabled anti-corruption operations at the Zimbabwe Anti-Corruption Commission. The research demonstrates that effective AI adoption in resource-constrained public sector institutions requires more than technological procurement; it necessitates systematic integration of technological capability with institutional governance, human capacity building, ethical safeguards, and culturally sensitive change management.

The integrated theoretical framework combining Sociotechnical Systems Theory, UTAUT, and adaptive change management provides a robust analytical lens for understanding the complex interplay of technological, human, organisational, and contextual factors that determine transformation outcomes. The convergent parallel mixed-methods design enables both systematic quantification of adoption determinants and deep contextual understanding of governance challenges, producing findings that are both scientifically rigorous and practically relevant.

The key finding that performance expectancy, facilitating conditions, and institutional capacity are the strongest predictors of AI adoption intention at ZACC has important implications: transformation strategies must prioritise demonstrating tangible investigative benefits, ensuring reliable technical infrastructure and support, and building institutional capacity before expecting widespread adoption. The significance of bureaucratic culture and legal/political sensitivity as moderators highlights that generic transformation approaches developed for private sector or high-capacity public sector contexts will fail in politically sensitive, resource-constrained environments without substantial contextual adaptation.

The four-layered digital transformation framework—integrating digital governance architecture, technology adoption strategy, organisational change management, and contextual adaptations—provides ZACC with a validated roadmap for systematic transformation. The phased implementation approach with measurable milestones, resource requirements, and risk mitigation strategies offers actionable guidance that acknowledges ZACC's current constraints while providing a pathway toward enhanced operational effectiveness.

For the broader scholarly community, this research contributes to advancing public sector digital transformation theory by demonstrating how established frameworks (UTAUT, STS, change management) can be integrated and contextualised for emerging economy anti-corruption institutions. The methodological contribution of a convergent parallel mixed-methods design with systematic integration through joint display matrices provides a replicable template for future research on complex socio-technical phenomena in institutional settings.

For policymakers and practitioners across sub-Saharan Africa, the study provides evidence that AI-enabled digital transformation in resource-constrained public institutions is achievable but requires patient, phased approaches that build capacity alongside deploying technology. The finding that augmentative AI—which enhances rather than replaces human judgment—is more appropriate than substitutive AI

in institutionally fragile environments is particularly significant. Transformation initiatives must be designed to strengthen rather than undermine professional discretion, accountability, and institutional legitimacy.

The Zimbabwe Anti-Corruption Commission, like similar institutions across the developing world, operates at the intersection of high public expectations, limited resources, and complex governance challenges. This study demonstrates that AI-enabled digital transformation, when approached systematically with attention to institutional context, human factors, and ethical governance, can enhance investigative effectiveness and operational efficiency. However, technology alone is not transformative; transformation emerges from the deliberate, theoretically informed integration of technological capability with organisational capacity, governance architecture, and change readiness. This research provides both the theoretical framework and empirical evidence to guide that integration, contributing to the ongoing global effort to strengthen integrity systems through responsible, context-sensitive digital innovation.

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