

Digital Transformation and Administrative Efficiency at the University of Education Wenneba, Ghana: Barriers, Enablers, and Policy Implications

Evelyn Gorman¹, Felicia Kpedekpo², Aba Ewuaba Botwe³, Emelia Serwaa Adu-Opoku⁴

¹ekgorman@uew.edu.gh, Finance Section, UEW, ²fkpedekpo@uew.edu.gh, Division of Publications and Communication (Media Relations), UEW, ³ewuaba@gmail.com, Registrar's Office, UEW, ⁴esboateng@uew.edu.gh, School of Graduate Studies, UEW

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Abstract

Digital transformation has become a major strategic priority in higher education, yet many African universities continue to struggle with implementation challenges that limit administrative efficiency. This study examines digital transformation at the University of Education Wenneba, Ghana, by exploring the socio-political and organisational factors shaping implementation outcomes. Guided by Institutional Theory and the Technology-Organisation-Environment (TOE) framework, the study adopted an interpretivist paradigm and qualitative single-case study design. Semi-structured interviews were conducted with 40 participants across senior, middle, and junior administrative levels, with data analysed thematically using NVivo 12. The findings show that implementation difficulties were driven less by resource shortages and more by misalignment between institutional strategies and operational realities. Key issues included top-down communication, informal workarounds, and ineffective training approaches. The study proposes the Contextually Responsive Digital Transformation Implementation Framework (CR-DTIF), which positions implementation as a participatory and adaptive process. The findings contribute context-specific evidence from Ghanaian higher education and offer practical implications for digital transformation policy and administrative reform.

Keywords: *Digital transformation, administrative efficiency, higher education, implementation barriers, Ghana*

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1. Introduction

The global higher education sector has undergone considerable transformation due to digital technologies, compelling universities to reconsider their administrative architectures and service delivery models. Scholarship in this area has increasingly positioned digital platforms as structural enablers of new organisational logics, fostering data-informed decision-making and expanded operational capacity (Bonina et al., 2021; Grover et al., 2022). International development organisations have similarly advocated for technology adoption as a strategic imperative for improving educational access, administrative efficiency, and institutional sustainability across diverse national settings (UNESCO, 2023; World Bank, 2022). Yet this dominant narrative, which originates predominantly from high-income country contexts, tends to prescribe integrated enterprise solutions and cloud-based infrastructures as universally

applicable remedies, often overlooking the complex contextual specificities that characterise University administrations in the Global South. The uncritical transfer of such models carries significant risks, creating conditions in which strategic ambitions repeatedly fail when confronted with divergent local institutional realities and resource constraints (Selwyn, 2022; Unwin, 2020).

Within the African context, this disconnect between global prescriptions and local realities becomes particularly apparent. Whilst the potential for digitalisation to catalyse administrative modernisation is broadly acknowledged, universities across the continent continue to navigate a formidable set of structural impediments. Systematic reviews have documented persistent challenges including chronic underfunding, unreliable electricity and internet infrastructure, and pervasive gaps in digital literacy among both staff and institutional leaders (Ashong & Commander, 2022; Tarus et al., 2019). In Ghana specifically, a national situational analysis found that a substantial proportion of tertiary institutions reported insufficient bandwidth and computing resources to support core administrative functions, revealing a foundational infrastructural chasm on which digital ambitions are precariously built (National Council for Tertiary Education [NCTE], 2020). Whilst this body of scholarship offers a valuable, albeit high-altitude, diagnosis of environmental and resource-based constraints, it provides limited insight into the internal organisational dynamics through which such barriers are mediated, negotiated, or partially overcome at the institutional level.

Theoretical frameworks commonly applied in this domain offer useful, though incomplete, conceptual tools for understanding these dynamics. The Technology-Organisation-Environment (TOE) framework identifies technological capabilities, organisational characteristics, and environmental pressures as the three contextual dimensions shaping technology adoption decisions (Tornatzky & Fleischer, 1990). Its application in African higher education research has confirmed its utility for mapping the conditions under which institutions initiate digital change (Agyei & Mensah, 2023). Institutional Theory, meanwhile, provides a complementary lens for understanding the isomorphic pressures that drive universities to adopt digital strategies to maintain legitimacy and competitive standing within their institutional fields, sometimes irrespective of their internal implementation capacity (DiMaggio & Powell, 1983; Scott, 2014). Notwithstanding the analytical purchase offered by these frameworks, they remain predominantly oriented toward the pre-adoption phase, providing comparatively limited traction for analysing the iterative, politically charged, and socially embedded processes that characterise the post-launch implementation phase, where the ultimate sustainability of any digital initiative is determined.

The case of the University of Education Wenneba, a public institution in southern Ghana, illuminates this theoretical and empirical gap with particular clarity. Despite a documented strategic commitment to digital transformation articulated across successive institutional plans, the University continues to exhibit persistent administrative inefficiencies alongside underutilised or partially implemented technological systems (Danso, 2023; University of Education Wenneba, 2023). Existing scholarship, at both the national and global levels, has tended to attribute such outcomes to broad constructs such as staff resistance, a framing that, whilst not without merit, risks obscuring the nuanced and often rational motivations underlying non-adoption and informal adaptation. Frempong (2021) advances the analysis at this institution by identifying staff perceptions of threat to occupational autonomy as significant drivers of resistance; however, this account stops short of examining the informal coping mechanisms and daily workarounds that staff develop in response to misaligned systems,

practices that represent active and arguably creative adaptation rather than mere passive obstruction.

Current implementation approaches at Wenneba appear to rest on several under-examined and potentially problematic assumptions. A primary assumption holds that the provision of standardised technical training is broadly equivalent to building sustainable digital competence and ensuring system adoption. Empirical evidence from within the institution directly challenges this position: Danso (2023) documented persistently low staff utilisation rates for a newly deployed Student Information System despite formal training having been delivered, attributing this outcome to a fundamental mismatch between generic training content and the context-specific challenges encountered in routine administrative work. A second, and arguably more consequential, assumption treats implementation as a neutral technical process of deploying a predefined system according to a fixed timeline. This framing ignores the deeply political dimensions of institutional change, wherein competing interests, inter-departmental rivalries, and contested definitions of efficiency actively shape, and at times derail, implementation trajectories, as evidenced by internal evidence of informal subversion of financial management systems by overburdened staff (Amponsah, 2021).

The consequences of failing to address this implementation gap extend well beyond individual system failures. Financially, they perpetuate a cycle of misallocated public investment: available evidence suggests that Ghanaian public universities have committed substantial resources to digital systems that operate far below capacity or have been effectively abandoned, representing a troubling misallocation of funds in resource-constrained environments (Mireku et al., 2024). Operationally, sustained inefficiency degrades the student experience, impedes research administration, and gradually erodes institutional credibility. Over time, repeated implementation failures generate organisational cynicism that renders subsequent change initiatives progressively more difficult, creating conditions of strategic stagnation with long-term implications for institutional competitiveness within the Ghanaian higher education landscape (Selwyn, 2022; Ashong & Commander, 2022).

Against this backdrop, the present study examines the implementation of digital transformation at the University of Education Wenneba as a socio-technical and political process rather than a purely technical exercise. It moves beyond cataloging macro-level barriers to undertake a fine-grained analysis of the micro-level mechanisms through which formal strategies, internal power dynamics, and informal staff practices interact to determine the success or failure of digital initiatives following their initial launch. The study's contribution lies in its explicit focus on this critical yet under-theorised implementation phase, its engagement with the political economy of institutional change, and its aim to generate a contextually grounded understanding of implementation pathology that can meaningfully inform more effective and equitable administrative transformation in similar institutional settings.

To achieve this aim, the study is guided by the following four research objectives:

- (i) To analyse the influence of leadership communication and institutional power dynamics on staff buy-in during the implementation of digital projects at the University of Education Wenneba.
- (ii) To assess the role of informal digital practices and workarounds employed by administrative staff in shaping the efficacy of formal digital systems.
- (iii) To evaluate the perceived effectiveness and sustainability of current training and post-implementation support frameworks for digital systems at the University.

(iv) To develop a contextually responsive framework for digital transformation implementation that integrates structural insights from the TOE framework with an evidence-based understanding of the University's internal socio-political dynamics.

2. Literature Review

The scholarly literature on digital transformation in higher education reflects a productive, if occasionally unresolved, tension between optimism regarding technological possibility and scepticism regarding the conditions under which that possibility is realised. Whilst foundational accounts position digital platforms as structural enablers of more efficient and scalable organisational models (Bonina et al., 2021), a growing body of critical scholarship has highlighted how the uneven distribution of digital capacity, combined with the imposition of externally designed systems, can deepen existing inequalities and generate new forms of institutional dysfunction (Selwyn, 2022; Unwin, 2020). Major international bodies including the World Bank (2022) and UNESCO (2023) have continued to frame technological adoption as a strategic imperative for educational advancement; yet scholars such as Selwyn (2022) have cautioned against the techno-solutionist assumption that digital tools automatically translate into institutional improvement, regardless of organisational culture, political context, or resource environment. This contested terrain establishes the broader conceptual backdrop within which the present study is situated.

In the African context, translating global digital ambitions into administrative practice has proved consistently challenging, producing a documented gap between strategic intent and operational reality. Systematic reviews such as that conducted by Ashong and Commander (2022) identify a recurring constellation of structural impediments, including inadequate funding, unreliable physical infrastructure, and pronounced digital skills deficits among academic and administrative staff alike. Research by Tarus et al. (2019) further demonstrates that resource-constrained environments tend to produce fragmented, siloed systems incapable of the institutional communication necessary for administrative integration, thereby reinforcing rather than resolving existing inefficiencies. Whilst this macro-level scholarship provides a valuable diagnostic map of the environmental conditions that impede digital progress, its high-altitude perspective often treats universities as analytically homogeneous entities, with insufficient attention to the internal cultures, political economies, and informal practices that shape implementation outcomes within individual institutions.

Within Ghana, scholarly attention has sharpened, but a preoccupation with infrastructure and policy-level analysis continues to limit engagement with the more nuanced human and organisational dimensions of implementation. The National Council for Tertiary Education (2020) provided a foundational situational analysis quantifying the degree of infrastructural unpreparedness across the country's tertiary sector. Amponsah (2021), drawing on the experiences of national e-government programmes, has argued for integrated administrative systems as a means of dismantling departmental silos in public universities. However, these contributions tend to assume that technical integration automatically produces efficiency gains, an assumption that the empirical literature on user behaviour and organisational change increasingly contests. Agyei and Mensah (2023) identify weak digital culture and inconsistent leadership support as critical implementation impediments in Ghanaian higher education, yet their analysis does not examine the specific micro-political strategies through which staff negotiate, resist, or reshape technological impositions in their everyday work.

Theoretical frameworks applied in this field provide useful analytical scaffolding, though each carries notable limitations when applied to the post-adoption implementation phase. The TOE framework usefully maps the technological, organisational, and environmental dimensions that shape adoption decisions (Tornatzky & Fleischer, 1990), and remains widely applied in empirical studies of technology adoption across the Global South (Agyei & Mensah, 2023; Grover et al., 2022). Institutional Theory, meanwhile, illuminates the isomorphic pressures, including coercive, normative, and mimetic forces, that compel institutions to adopt technologies for legitimacy rather than operational necessity (DiMaggio & Powell, 1983; Scott, 2014). Nevertheless, both frameworks are predominantly static and macro-oriented; they offer limited theoretical resources for analysing the dynamic, processual, and politically contested interactions through which global systems are localised, strategic plans are negotiated on the ground, and user agency is most consequentially exercised in the immediate aftermath of system launch.

The specific case of the Wenneba makes these theoretical limitations analytically productive. Available post-graduate research and internal institutional documents reveal a consistent pattern of implementation underperformance despite clear strategic intent. Frempong (2021) reframes staff resistance at this institution not as simple obstinacy but as a rational political response to systems perceived as threatening occupational autonomy and increasing workload, thereby challenging deficit narratives of non-adoption. Danso (2023) extends this analysis by demonstrating that formal training interventions failed to translate into sustained utilisation of the University's Student Information System, exposing the inadequacy of top-down, generic capacity-building strategies that fail to engage with the contextual specificity of users' daily work. Together, these contributions identify important dimensions of the implementation problem, yet they remain insufficient to construct a comprehensive account of the micro-level socio-political mechanisms through which implementation falters at Wenneba.

A critical reading of the broader literature reveals a persistent methodological tendency that has contributed to these knowledge gaps. Heavy reliance on survey instruments and high-level policy analysis, whilst valuable for identifying macro-level trends, limits existing research's capacity to access the lived experiences, tacit knowledge, and informal practices of the administrative staff who are ultimately responsible for the daily operation of digital systems. The informal negotiations of power, the coping mechanisms, and the pragmatic workarounds that characterise implementation on the ground remain largely invisible through these methods. This methodological observation provides a principled rationale for the present study's qualitative, case-study approach, which is better positioned to generate the rich, contextualised data necessary to explain the how and why of implementation failure at the University of Education Wenneba.

The cumulative evidence thus converges on a coherent but insufficiently theorised problem: the conditions under which digital transformation initiatives fail during their post-launch implementation phase in Ghanaian public universities remain poorly understood. The literature documents the barriers and where they tend to occur, but struggles to explain how they interact dynamically after deployment to produce sustained underperformance. It has identified staff resistance and leadership deficiencies as significant factors, but has not adequately analysed the informal agency, the political negotiations, and the everyday adaptive practices through which implementation outcomes are ultimately shaped. The present study is designed precisely to address these gaps by examining the micro-foundations of implementation at the Wenneba and generating a contextually grounded explanatory account that can support more

effective, equitable, and durable approaches to digital transformation in comparable institutional settings.

3. Methodology

The study was guided by an interpretivist philosophical paradigm, premised on the view that social reality is constituted through the meanings, interpretations, and subjective understandings that individuals assign to their lived experiences (Lincoln & Guba, 2013; Thanh & Thanh, 2015). Given that the research sought to understand the complex and context-dependent perceptions of administrative staff regarding the implementation of digital transformation, interpretivism offered the most epistemologically appropriate foundation. This stance aligned naturally with the study's theoretical use of Institutional Theory, which foregrounds the role of shared meanings, cultural norms, and legitimacy processes in shaping organisational behaviour (Agyei & Mensah, 2023; Scott, 2014). It also contrasted with positivist approaches, which were considered insufficient for capturing the subjective and politically embedded nature of the research problem. Comparable studies in this domain, including Frempong (2021) and Baxter and Jack (2008), have employed interpretivist methodologies to access the situated rationales underlying staff responses to technological change, demonstrating their analytical potency for exploring similar phenomena in the Ghanaian higher education context.

A qualitative, single-case study design was adopted to facilitate in-depth investigation of the phenomenon within its authentic institutional context. The case study approach was selected because the research sought to answer how and why questions concerning a contemporary set of events over which the investigator exercised no experimental control (Yin, 2018). This design enabled a holistic examination of the Wennebaas as a bounded system, permitting the researcher to trace the intricate interplay between leadership decisions, staff practices, formal structures, and informal norms. The single-case configuration was a deliberate choice consistent with the interpretivist orientation, as it prioritised contextual depth and analytical richness over statistical generalisability. Evidence from multiple sources, including semi-structured interviews, document analysis, and field notes, was collected and triangulated to strengthen the credibility and coherence of the findings, consistent with established recommendations for complex organizational inquiry (Baxter & Jack, 2008; Yin, 2018).

The University of Education Wenneba, a public institution in southern Ghana established in 1992, was selected as the study site because it exemplifies the core research problem with particular analytical clarity. With a student population exceeding 15,000 and a multi-layered administrative structure characteristic of Ghana's older public universities, the institution possesses the complexity and institutional history necessary to generate theoretically generative insights (Danso, 2023; University of Education Wenneba, 2023). Crucially, the University has a documented history of ambitious digitalisation strategies coexisting with persistent administrative inefficiency, making it an especially productive context for investigating the gap between strategic intent and operational practice. Its status as a single, clearly bounded institution facilitated the focused investigation necessary to generate detailed insights applicable, with appropriate caution regarding contextual variation, to comparable institutions facing similar structural and political pressures (Ashong & Commander, 2022).

The study population comprised all individuals directly involved in or affected by the implementation of digital administrative systems at the University, including senior management responsible for strategic planning, middle management overseeing departmental operations, and junior clerical staff serving as the primary end users of digital systems. Table

1 presents the composition of this population, which totalled an estimated 240 individuals across three strata. Purposive sampling was initially employed to identify information-rich cases from each stratum, targeting individuals with direct and substantive experience of the digital transformation initiatives described in the University's strategic plan (University of Education Wenneba, 2023). Snowball sampling was subsequently applied to identify additional informants, particularly those engaged in informal workarounds and shadow practices, whose perspectives are less readily accessible through formal institutional channels (Frempong, 2021). Sample size was not fixed in advance but was determined by the principle of data saturation, with data collection continuing until successive interviews yielded no substantively new themes or insights, resulting in a final sample of 40 participants, distributed as shown in Table 1.

Table 1: Target Population

Stratum	Definition	Estimated Population
Senior Management	Heads of Directorate, Registrars, IT Directors	15
Middle Management	Heads of Department, Unit Heads	45
Junior Administrative Staff	Clerical Officers, Data Entry Assistants, Secretaries	180
Total		240

Table 2: Sample Distribution

Stratum	Sampling Technique	Sample Size
Senior Management	Purposive	5
Middle Management	Purposive	10
Junior Administrative Staff	Purposive and Snowball	25
Total		40

Data collection instruments comprised separate semi-structured interview guides for each participant stratum, with questions derived from the study's research objectives and the theoretical and empirical literature. Two academic peers with expertise in qualitative methods and higher education research reviewed the instruments, and two administrative staff members from a comparable institution pretested them to assess clarity and comprehensibility before full deployment. Eligibility was restricted to permanent administrative staff with a minimum of one year of direct experience working with the University's digital systems, thereby ensuring that participants possessed a sufficiently substantive basis for the perceptions and judgments they were invited to share. Interviews were conducted over a three-month period, audio-recorded with participant consent, transcribed verbatim, and supplemented with contemporaneous field notes. Ethical protocols, including informed consent, assurances of anonymity and confidentiality, and the right to withdraw without penalty, were maintained throughout, and all

data were encrypted and stored on password-protected devices with identifying information removed during transcription.

Thematic analysis served as the primary analytical procedure, following the structured framework developed by Braun and Clarke (2021), which involves iterative engagement with the data through familiarisation, initial coding, theme development, refinement, and interpretive synthesis. NVivo 12 was employed to assist with data organisation and the systematic management of codes across a large corpus of transcripts. The analytical process was informed by peer debriefing with a doctoral colleague and member checking, in which a subset of participants reviewed preliminary thematic summaries to verify that their accounts were accurately represented. These measures strengthened the trustworthiness and credibility of the findings. Table 3 maps the correspondence between each research objective, the relevant participant group, and the analytical approach applied.

Table 3: Data Analysis Plan

Research Objective	Target Population	Sample	Instrument	Analytical Technique
Influence of leadership communication and power dynamics	Senior and Middle Management	15	Semi-structured Interviews	Thematic Analysis (NVivo 12)
Role of informal digital practices and workarounds	Junior and Middle Management	35	Semi-structured Interviews	Thematic Analysis (NVivo 12)
Effectiveness of training and support frameworks	All Strata	40	Semi-structured Interviews	Thematic Analysis (NVivo 12)
Development of implementation framework	All Strata	40	Interviews and Document Analysis	Thematic Synthesis and Conceptual Modelling

4. Results and Discussion

4.1 Leadership Communication, Power Dynamics, and Staff Buy-In

The analysis reveals a pronounced gap between the strategic ambitions articulated by institutional leadership and the operational realities experienced by administrative staff during the University of Education Wenneba's digital transformation. Guided by Institutional Theory (DiMaggio & Powell, 1983; Scott, 2014), the findings move beyond infrastructural explanations to expose the socio-political mechanisms through which leadership communication styles and entrenched power asymmetries actively undermine staff buy-in during implementation. Whilst the importance of leadership support in digital change processes is well established in the literature (Agyei & Mensah, 2023; Grover et al., 2022), the findings at Wenneba suggest that support expressed primarily through coercive or top-down communicative strategies may be insufficient, and may in some cases be actively counterproductive, for securing the genuine institutional commitment that sustainable adoption requires.

A prominent theme concerns the strategic disconnect between senior and middle management in how implementation decisions are communicated and understood. Senior leaders consistently described their communication approach as formal information dissemination, with one respondent noting that institutional announcements and briefing sessions were used to convey the strategic rationale for a new enterprise resource planning system, emphasizing its benefits for institutional efficiency and national competitiveness. Middle managers, however, reported that such communications rarely addressed the practical implications of these systems for their day-to-day responsibilities, leaving them ill-equipped to staff, answer their own staff's questions, or facilitate adoption at the departmental level. This pattern reflects the dynamics of coercive isomorphic pressure identified by DiMaggio and Powell (1983), whereby the adoption of visible digital systems is driven by legitimacy considerations rather than by genuine operational alignment, creating conditions in which systems are ceremonially implemented without the internal negotiation necessary for meaningful integration (Amponsah, 2021; Ashong & Commander, 2022).

The analysis further identified contested ownership and political resistance as significant themes, both of which are better understood as rational institutional responses than as individual failings. Several middle managers and departmental heads described their units' reluctance to migrate data and workflows to centralised systems in terms of a perceived threat to operational independence and established working practices. Finance officers and student records administrators, in particular, expressed concerns about losing control over data they regarded as foundational to their departmental functioning and professional identity. These accounts resonate with Frempong's (2021) observation that resistance at Wenneba reflects political feedback on flawed implementation design rather than a deficit in adaptability, and align with broader scholarship on the politics of technology adoption in African public institutions (Amponsah, 2021). Middle managers described finding themselves caught between institutional expectations of change leadership and their inability to advocate credibly for systems about which they had been insufficiently consulted, producing a form of organisational double bind that eroded their authority and trust among junior staff.

Taken together, these findings suggest that the current leadership model at Wenneba reproduces the conditions for ceremonial adoption, whereby systems are formally deployed and reported as implemented whilst daily operations quietly diverge from official processes (DiMaggio & Powell, 1983; Selwyn, 2022). The evidence points to a need for distributed leadership models, participatory communication frameworks, and a substantive reorientation of the ICT Directorate's role, away from technical deployment and toward socio-technical facilitation. Addressing these dynamics will likely require not merely procedural adjustments but a more fundamental renegotiation of the power relations through which digital change is currently conceptualised and enacted, a conclusion consistent with calls for politically astute change management strategies in comparable institutional contexts (Agyei & Mensah, 2023; Grover et al., 2022).

4.2 Informal Practices, Workarounds, and System Efficacy

The analysis demonstrates that informal digital practices among junior and middle management at the Wenneba are neither peripheral deviations nor isolated behaviours, but constitute a systematic and rational response to persistent misalignments between the design of formal systems and the actual demands of daily administrative work. Drawing on Orlikowski's (2000) socio-technical perspective, which treats technology as enacted through ongoing practice rather than deployed as a fixed artifact, the findings show that workarounds emerge and proliferate

precisely because formal systems fail to accommodate the complexity, variability, and time pressure of the workflows they are intended to support. This reframing is consequential: it repositions workarounds not as evidence of non-compliance but as diagnostic signals of design inadequacy, a perspective that has important implications for how institutions monitor, evaluate, and redesign digital systems over time (Danso, 2023; Frempong, 2021).

A central theme concerns the functional substitution of official systems with informal alternatives. Staff at multiple levels reported resorting to paper-based collection, shared spreadsheets, and informal digital communication tools to compensate for the technical limitations and unreliability of official platforms, particularly during high-demand administrative periods such as student registration and examination processing. Departmental managers described authorising the use of unofficial communication channels to maintain operational continuity when institutional systems were unavailable or unresponsive. Whilst these arrangements sustain short-term productivity, they generate unregulated parallel data flows that compromise the institutional aims of centralisation, data integrity, and audit-trail coherence, a pattern consistent with findings on organisational decoupling in African digitalisation contexts (Ashong & Commander, 2022; Amponsah, 2021). The persistence of these parallel systems also suggests that workarounds are not temporary workarounds pending system improvement, but have become embedded features of the administrative landscape.

A further theme highlights the latent institutional knowledge embedded within these workaround practices. Several staff members had developed informal tools, including customised spreadsheet macros and locally maintained databases, that demonstrably outperformed official systems in speed and reliability for specific tasks. Yet these innovations existed entirely outside institutional knowledge management structures, with no mechanism through which their utility could be recognised, evaluated, or incorporated into system redesign processes (Danso, 2023). Comparative analysis across participant groups also revealed a shared tension between user innovation and managerial complicity: departmental heads frequently acknowledged awareness of informal practices within their units whilst choosing not to intervene, prioritising operational continuity over formal compliance. Junior staff, meanwhile, reported anxiety about accountability in the event of data loss or error, given that the tools they were using lacked institutional sanction. This dynamic creates an institutionally precarious equilibrium in which productivity is maintained, but risk is effectively transferred onto individual employees.

These findings collectively reframe workarounds as diagnostic assets rather than behaviours to be eliminated. They provide concrete evidence of the socio-technical misfits between official systems and the lived realities of administrative work, and represent a repository of frontline knowledge that, if systematically engaged, could meaningfully inform system redesign (Orlikowski, 2000; Grover et al., 2022). Proposed responses include a practice-led redesign protocol through which staff demonstrate informal tools and workflows to ICT teams within a structured improvement cycle, and the development of a secure hybrid workspace that replaces unsanctioned shadow tools with sanctioned alternatives offering equivalent functionality. Such interventions would require a corresponding shift in ICT governance, away from restrictive acceptable-use frameworks and toward models that recognise and harness situated staff expertise as a legitimate driver of system improvement.

4.3 Training, Support Structures, and Sustainable Digital Competence

The analysis reveals that the University of Education Wenneba's approach to building digital competence rests on a model that is structurally misaligned with the conditions necessary for sustainable adoption. Formal training is conceived and delivered as a discrete, standardised event rather than as an ongoing, contextually embedded developmental process, a design logic that is fundamentally at odds with what is understood about how competence is acquired and maintained in complex workplace settings. Situated learning theory holds that knowledge is most effectively constructed through participation in authentic activities within communities of practice, rather than through decontextualized instruction (Lave & Wenger, 1991; Wenger et al., 2002). The training arrangements at Wenneba, which reproduce what Selwyn (2022) characterises as a technocratic rollout model, appear ill-suited to the contextual complexity and diversity of the institution's administrative workflows, generating a knowing-doing gap that formal assessment processes are unlikely to detect.

A prominent theme concerns the disconnect between the generic content of training modules and the specific demands of participants' daily responsibilities. Whilst institutional managers tended to characterise training volumes and completion rates as indicators of capacity-building success, end-users consistently reported that training scenarios failed to reflect the conditions under which systems were actually used, particularly during peak-demand periods characterised by concurrent demands and technical interruptions. Middle managers reinforced this concern, describing training provision as insufficiently attuned to departmental workflows and therefore of limited practical utility. This mismatch is consistent with critiques of top-down implementation approaches more broadly (Selwyn, 2022; Tarus et al., 2019) and raises questions about the extent to which training evaluation frameworks at Wenneba are capturing the right outcomes. The analysis also identified a pattern of collapse in formal support. Staff characterised the central ICT helpdesk as slow, unresponsive, and inadequate for urgent operational needs, leading to widespread reliance on informal peer support networks, including messaging groups facilitated through external platforms, as the primary mechanism for problem resolution. Whilst these informal networks reflect staff resilience and social capital, their dominance conceals failures in institutional support and creates fragile dependencies on individual knowledge holders (Frempong, 2021).

A third theme concerned the attribution of responsibility for ongoing learning. Senior leaders tended to position continued skill development as an individual obligation, whilst junior and middle staff identified the absence of refresher training, up-to-date communications, and competency-maintenance structures as institutional failures. This misalignment between institutional expectations and institutional provision creates conditions in which digital competence becomes fragile and unevenly distributed, particularly following system updates or personnel changes. Staff reported receiving no formal communication about system modifications, discovering changes only through operational disruption, a situation that amplifies frustration and reinforces a perception of institutional indifference toward staff capability development.

Addressing these deficiencies requires a fundamental reconceptualisation of digital competence-building at Wenneba, away from the event-based training model and toward what might be described as a continuous digital fluency ecosystem, in which learning is integrated into daily workflows, supported by formally recognised peer mentors, and sustained through collaborative knowledge-sharing structures. A formalised peer support network that transforms high-proficiency staff, often already serving this function informally, into institutionally

recognised digital champions would both legitimise existing informal expertise and extend support capacity beyond what a centralised ICT helpdesk can provide (Lave & Wenger, 1991; Wenger et al., 2002). Policy reforms should also require that system update communications and accompanying learning resources be developed and disseminated as standard components of any system maintenance cycle, ensuring that competence keeps pace with system evolution rather than perpetually lagging behind.

4.4 Synthesis and Cross-Objective Analysis

A cross-objective reading of the findings reveals a coherent and mutually reinforcing explanatory account of the failure of digital transformation at the University of Education Wenneba. What emerges is not a collection of isolated departmental or individual failings but a patterned, systemic misalignment between the logic of institutional strategy and the logic of everyday administrative practice, mediated throughout by socio-political dynamics that the prevailing implementation models were not designed to address. Senior management, middle management, and junior staff provide divergent accounts of the challenges at hand, but they converge on a common structural diagnosis: that communication is inadequate, systems are poorly aligned with actual work, and support structures are insufficient. This convergence across hierarchical positions strengthens confidence in the diagnosis whilst also pointing to the pervasiveness of the problems identified (Selwyn, 2022; Ashong & Commander, 2022).

The analysis identifies a clear causal chain linking the findings across all three objectives. Legitimacy-driven, top-down implementation strategies (Objective 1) produce communicative voids and marginalise middle management from decision-making, resulting in the selection and deployment of systems poorly matched to operational workflows. This organisational disconnect leads to decontextualised training and the erosion of formal support structures (Objective 3), which in turn drives staff toward informal workarounds and shadow practices to sustain operational continuity (Objective 2). Each weakness in leadership, system design, and support amplifies the others, producing a self-reinforcing cycle of inefficiency, cynicism, and resource waste. This finding directly addresses the research gap regarding the micro-level political processes through which institutional transformation efforts unfold, providing an empirically grounded account of implementation pathology that extends beyond what macro-level analyses have hitherto offered (Mireku et al., 2024; Danso, 2023).

Theoretically, the analysis both affirms and extends the frameworks applied in this study. Institutional Theory's account of isomorphic pressures and ceremonial adoption is confirmed, whilst the findings add granularity by demonstrating how such pressures generate internal contestations, defensive departmental politics, and covert decoupling that are rarely examined in traditional applications of the framework (DiMaggio & Powell, 1983; Scott, 2014). The TOE framework's structural mapping of technological, organisational, and environmental contexts retains analytical utility as a diagnostic tool, but the findings suggest that the three contexts interact dynamically rather than in parallel, with informal adaptations in one dimension reshaping conditions in others in ways that the framework's original formulation does not adequately capture (Tornatzky & Fleischer, 1990; Grover et al., 2022). Together, these theoretical observations support calls for more process-oriented and politically attentive models of technology institutionalisation in complex organisational settings.

4.5 The Contextually Responsive Digital Transformation Implementation Framework (CR-DTIF)

The persistent and patterned gap between strategic ambition and operational reality at the Wennebane necessitates a fundamental reconfiguration of the institution's approach to implementing digital transformation. The Contextually Responsive Digital Transformation Implementation Framework (CR-DTIF), developed from the empirical findings of this study, is designed to address this gap precisely. Whilst it draws on the structural architecture of the TOE framework (Tornatzky & Fleischer, 1990), it substantially extends that framework by reinterpreting the organisational context not as a neutral container within which technology is deployed but as a dynamic socio-political arena in which implementation is continuously negotiated. The CR-DTIF holds that successful digital transformation is not the linear rollout of a predefined technical solution but the outcome of sustained, inclusive, and politically literate engagement with the power relations, informal practices, and everyday realities that shape how any new system is ultimately experienced by those who use it.

The framework is organised around three interconnected principles that reflect the central lessons of the empirical analysis. The first is political astuteness over technical prescription: recognising that power dynamics, competing interests, and informal norms are primary rather than secondary determinants of implementation success, the CR-DTIF requires that stakeholder mapping, coalition-building, and cross-functional governance be treated as foundational activities rather than optional supplements to the technical deployment process (Agyei & Mensah, 2023; Frempong, 2021). The second principle is participatory co-design over top-down imposition: administrative staff are repositioned from passive recipients of externally designed systems to active co-designers with recognised expertise and legitimate voice in decisions that affect their work. The third is continuous adaptation over finite project management: implementation is conceived as an iterative and ongoing process of learning and adjustment, with formal feedback mechanisms ensuring that system design and support provision evolve in response to emerging operational realities rather than concluding at the point of initial launch (Grover et al., 2022; Orlikowski, 2000).

Structurally, the CR-DTIF operates as an iterative cycle comprising three dynamic, interacting layers centered on a core implementation, as illustrated in Figure 1. The outermost layer captures the external pressures, including government policies, funding requirements, and competitive dynamics within the higher education sector, that shape the urgency and strategic direction of digital transformation initiatives. The framework emphasises that these legitimacy forces must be meaningfully translated into the institution's specific operational context rather than imported wholesale, as uncritical adoption of externally mandated systems without internal negotiation is precisely the mechanism through which the ceremonial adoption identified in the findings is produced. The intermediate layer constitutes the internal negotiation phase, in which the University functions as a socio-political arena where power, culture, and informal networks actively shape which systems are adopted, how they are configured, and whose interests are served. Structured processes for power-dynamics analysis, stakeholder engagement, coalition-building, and the establishment of cross-functional implementation committees are proposed as institutional mechanisms to ensure that diverse perspectives shape these negotiations and that shared ownership of reform is cultivated rather than assumed. The innermost layer addresses operational practice: the point at which technology encounters daily work. This layer foregrounds practice-led system redesign, drawing on staff workarounds as diagnostic design inputs, and proposes the institutionalisation of a continuous digital fluency system anchored by micro-learning modules and formally recognised digital champions. A

participatory pilot-and-evaluation cycle connects these operational practices to an ongoing improvement loop, ensuring that the framework's implementation generates cumulative institutional learning rather than producing another set of ceremonially adopted but practically abandoned systems.

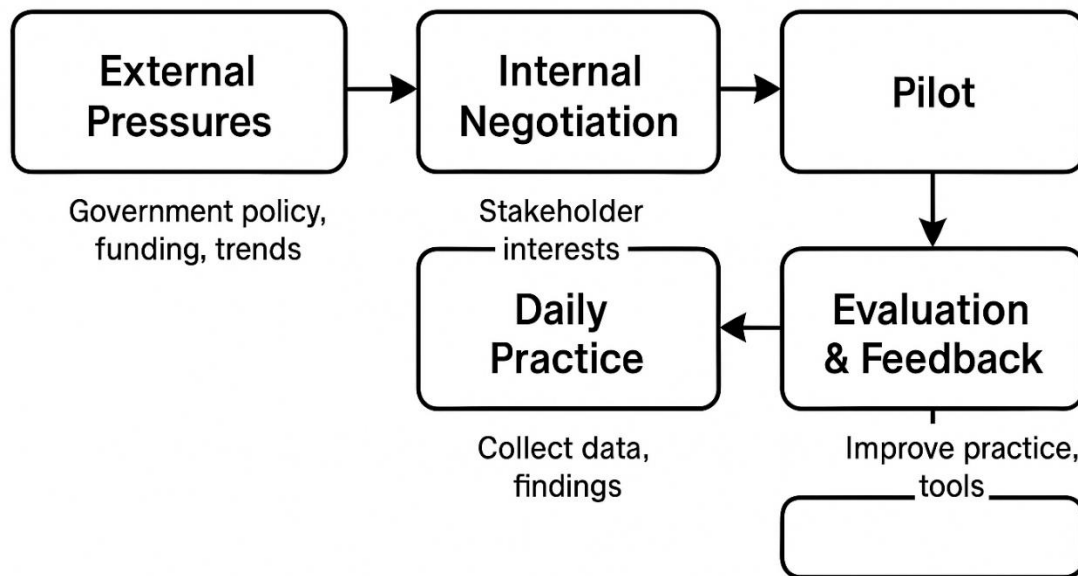


Figure 1: The Contextually Responsive Digital Transformation Implementation Framework (CR-DTIF)

5. Conclusion

This study has examined the implementation of digital transformation at the Wennebathrough a socio-technical and institutional lens, seeking to explain why sustained administrative inefficiency persists despite clear strategic commitment to digitalisation. The findings suggest that the fundamental challenge is not technological capacity per se but a deep and systematic misalignment between externally legitimated strategic imperatives and the internal organisational realities through which these imperatives are enacted. Institutional Theory proved instructive in explaining how isomorphic pressures drive the adoption of digital systems for legitimacy rather than operational fit, whilst the findings extend this framework by revealing the internal contestations, departmental politics, and covert decoupling that such pressures tend to generate but that conventional applications of the theory have underexamined. The TOE framework's identification of technological, organisational, and environmental contexts as relevant analytical dimensions was similarly affirmed, though the dynamic and politically charged interactions between these contexts during the implementation phase call for a more processual and power-attentive theoretical extension.

The study's principal practical contribution is the Contextually Responsive Digital Transformation Implementation Framework (CR-DTIF), which integrates the structural dimensions of the TOE framework with a dynamic map of the institution's socio-political landscape to produce a model oriented toward genuine and durable change. Staff workarounds and resistance, which conventional accounts tend to treat as implementation barriers, are reframed in this study as rational responses to misaligned systems and as repositories of institutional knowledge that, if properly engaged, can serve as productive inputs to system redesign. The findings are likely to resonate beyond the University of Education Wenneba, given the structural and institutional similarities among many public universities across sub-

Saharan Africa that operate under comparable legitimacy pressures and resource constraints. However, contextual variation should caution against uncritical transfer, and the framework should be treated as a generative starting point for institution-specific adaptation rather than a prescriptive template.

6. Recommendations

Based on the findings and the CR-DTIF, several targeted policy reforms are recommended. First, a Digital Governance Charter should be adopted to institutionalise cross-functional implementation committees with genuine decision-making authority, supported by clear leadership accountability structures extending to the Vice-Chancellor's office and engaging staff unions as legitimate governance partners. Such a charter would formally establish participatory governance as a non-negotiable condition of digital investment, rather than an aspiration. Second, the ICT Directorate should develop and institutionalise a practice-led innovation protocol, establishing structured mechanisms through which informal workarounds and frontline innovations are identified, evaluated, and incorporated into system improvement cycles, particularly during major software updates or transitions. Third, the Human Resources and ICT Directorates should jointly develop and implement a Continuous Digital Fluency Policy, replacing one-off training events with contextualised, workflow-embedded learning modules, formally recognising and supporting digital champions within departments, and embedding ongoing digital competency as a criterion within staff performance appraisal systems.

7. Limitations

Several limitations of this study merit acknowledgment. As a single qualitative case study, the findings offer analytical depth and contextual richness at the cost of statistical generalisability; the transferability of the conclusions to other institutions, while plausible on theoretical grounds, remains to be empirically tested. The reliance on interview data introduces the possibility of social desirability bias, with respondents potentially moderating their accounts in response to perceptions of institutional sensitivity. The researcher's interpretive choices, shaped by Institutional Theory and the TOE framework, may have foregrounded certain analytical dimensions at the expense of others. The absence of longitudinal or ethnographic observation limits the extent to which the informal and real-time dynamics of implementation could be directly accessed, and the use of voluntary sampling may have systematically excluded perspectives from staff in more politically marginalised or vulnerable positions.

8. Future Research Directions

Future research should prioritise longitudinal and ethnographic designs capable of capturing the real-time unfolding of implementation processes and the evolution of informal practices over time, moving beyond the retrospective perceptions that interview-based studies necessarily elicit. Multi-case comparative studies across different types of public universities within Ghana and across sub-Saharan Africa would provide a basis for testing the transferability of the CR-DTIF and identifying the conditions under which its various components are most or least effective. Quantitative studies operationalising constructs such as socio-technical fit and political astuteness would complement the present qualitative account and extend its reach. Further research should also investigate the roles of external actors, including technology vendors, regulatory bodies, and international development funders, in shaping the internal politics of digital transformation, providing a more complete account of the institutional ecosystem within which universities must navigate their reform efforts.

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