

Digital Transformation Culture, Labour Adaptation, And Employee Productivity In Nigeria's Financial Sector: An Industrial Sociology Perspective

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Abstract: *Background/Purpose:* Rapid digital technology adoption in Nigerian financial institutions has led to major changes in organizational culture, work processes, and employee behaviors. While research on digital transformation has increased, the sociological aspects of digital workplace cultures and their effects on labor adaptation and productivity in Nigerian finance remain underexplored. *Objectives:* This study explores the links between digital transformation culture, labor adaptation, and employee output in Nigeria's financial sector from an Industrial Sociology point of view, focusing on how labor adaptation mediates this relationship. *Design/Methodology:* A descriptive survey approach, grounded in a post-positivist framework, was used. A structured questionnaire based on validated scales from established theories was developed. The Taro Yamane formula was used to determine a sample of 399 employees from Nigerian banks and insurance firms. Data analysis included descriptive stats, Pearson correlations, multiple regression, and Structural Equation Modelling (SEM) to assess direct and indirect effects. *Findings:* Digital transformation culture significantly impacts labor adaptation and productivity. Labor adaptation partially mediates this impact. Organizations with supportive innovation, ongoing training, participatory leadership, and adaptable communication systems show higher productivity. Poor digital transition management increases resistance, anxiety, and decreases productivity. *Practical Implications:* Nigerian financial firms should develop inclusive, employee-focused digital strategies rooted in socio-technical principles to maintain workforce productivity. *Originality/Value:* This research offers an industrial sociology perspective on digital workplace culture in Nigeria's finance sector, highlighting labor adaptation as a key mediator and contributing to both theory and policy on digital workplace practices in developing economies.

Keywords: Digital Transformation Culture, Labour Adaptation, Employee Productivity, Industrial Sociology, Financial Institutions, Nigeria, Socio-Technical Systems, Technology Acceptance.

1. INTRODUCTION

The global workplace has undergone rapid change fueled by digital innovation, artificial intelligence, automation, big data analytics, and the widespread growth of information and communication technologies (Vial, 2019; Brynjolfsson & McAfee, 2014). These advances have deeply transformed organizational operations, labor processes, communication methods, and workplace relationships across all sectors. Notably, the financial services industry has become one of the most heavily digitalized worldwide. Digital transformation now extends beyond mere technology adoption, encompassing a broad organizational and cultural shift involving changes in values, employee behaviors, management practices, and workplace identity (Matt et al., 2015; Westerman et al., 2014).

Digital transformation culture refers to the shared organizational values, beliefs, behavioral norms, and practices that facilitate technological innovation, digital integration, ongoing learning, and workplace flexibility. It plays a crucial role in shaping how employees experience, react to, and perform in digital work environments (Schein, 2017; Hess et al., 2016). The strength of an organisation's digital culture influences whether employees see technological changes as opportunities or threats, whether they adapt smoothly or resist innovation, and ultimately if digital investments lead to long-term productivity improvements (Avolio et al., 2014; Kane et al., 2015).

Nigeria's financial sector has experienced significant technological changes over the last twenty years, driven by regulatory reforms from the Central Bank of Nigeria (CBN), banking consolidation, rapid growth in fintech, liberalization of competition, and rising customer demand for digital services (Central Bank of Nigeria, 2023; Adeyemi & Bello, 2021). Commercial banks and insurance firms now utilize automated service platforms, AI-powered customer systems, mobile apps, blockchain-based payment systems, and data-driven performance monitoring tools. These advances have fundamentally changed how the financial sector operates, leading to new expectations for employees' digital skills, adaptability, and efficiency (Ibrahim & Yusuf, 2020; Nwankwo & Okeke, 2022).

While digital transformation has led to measurable gains in efficiency and service, it also presents major labour challenges for Nigerian financial institutions. Employees face increasing technological demands, role confusion, outdated skills, digital surveillance, heightened performance monitoring, and ongoing fears of job loss due to automation (Cascio & Montealegre, 2016;

Blauner, 1964). These issues highlight the urgent need for effective labour adaptation, requiring employees to adjust cognitively, behaviourally, and emotionally to the changing digital work environment.

From an Industrial Sociology viewpoint, digital workplace technology functions as more than just a technical tool; it acts as a social force that reshapes organizational relationships, labor routines, institutional oversight, and employee identities (Trist & Bamforth, 1951; Orlikowski, 1992). This technological shift influences workplace hierarchy, how communication flows, employee engagement, managerial authority, and the personal experience of work. Therefore, analyzing digital transformation sociologically entails focusing not only on technical results but also on the human, relational, and cultural aspects of digital changes.

Labour adaptation involves employees' ability to effectively adjust to technological advances, organizational changes, shifting job requirements, and new work systems (Armstrong, 2021; Nwankwo & Okeke, 2022). Employee productivity refers to how efficiently and effectively staff meet organizational goals through high-quality service, operational efficiency, innovation, and customer satisfaction (Robbins & Judge, 2022). The link between digital transformation culture, labour adaptation, and employee productivity is vital for understanding the human factors involved in the digitalization of the financial sector.

Although there is increasing academic focus on digital transformation in Nigerian organizations, most studies primarily explore technological adoption, operational efficiency, and customer service, with less emphasis on the sociological aspects of digital workplace culture and how they affect labor adaptation (Ibrahim & Yusuf, 2020). The role of labor adaptation as a mediator between digital transformation culture and employee productivity remains underexplored, especially within the Nigerian financial sector.

This research fills existing gaps by exploring digital transformation culture, how labor adapts, and employee productivity within Nigeria's financial industry. It examines how digital transformation culture affects labor adaptation, the link between this culture and employee productivity, the impact of labor adaptation on productivity, and whether labor adaptation mediates the relationship between culture and productivity. The study is based on Socio-Technical Systems Theory, Labour Process Theory, and the Technology Acceptance Model, and adds to the expanding Industrial Sociology literature on workplace digitalization in developing countries.

2. STATEMENT OF THE PROBLEM

Nigeria's financial sector has undergone rapid and extensive technological changes, including digital banking innovations, expansion of the fintech ecosystem, AI integration, electronic payment systems, and automated service platforms (Central Bank of Nigeria, 2023; Vial, 2019). These advancements have fundamentally altered processes, employee roles, communication methods, and organizational cultures in banks and insurance firms. However, many Nigerian financial institutions still face ongoing issues such as employee adaptation difficulties, resistance to new technology, digital stress, fears of role displacement, and insufficient technological skills (Adeyemi & Bello, 2021; Ibrahim & Yusuf, 2020).

A key aspect of this issue is the gap between how much organisations invest in digital technologies and the actual productivity benefits they achieve. Studies show that simply investing in technology doesn't automatically boost productivity; instead, the effectiveness depends on the quality of the digital culture that surrounds the technology. This culture influences whether employees adapt well and work efficiently (Westerman et al., 2014; Kane et al., 2015). Many Nigerian financial institutions, however, focus more on technological efficiency and competitiveness, often overlooking the social and cultural factors involved in digital transformation (Nwankwo & Okeke, 2022). This managerial focus ignores how digital organizational culture affects employee experience, adaptability, and productivity outcomes.

Poorly managed digital transformation initiatives can cause employee alienation, lower morale, dissatisfaction, workplace conflicts, and decreased productivity. Industrial Sociology has long recognized these issues as stemming from technological changes that overlook social aspects (Blauner, 1964; Burawoy, 1979). When employees perceive digital transformation as threatening, exclusionary, or poorly supported, they are more likely to resist, show lower commitment, withdraw, and be less productive. Despite the significance of these effects, there is limited empirical research examining how the culture around digital transformation specifically impacts these outcomes within Nigeria's financial sector.

Additionally, although the mediating influence of employee attitudes and behavioral responses to technology on the technology-performance link is acknowledged in the broader Technology Acceptance literature (Davis, 1989; Venkatesh et al., 2003), the particular mediating role of labour adaptation—defined within an Industrial Sociology framework—has not been sufficiently explored in Nigerian financial institutions. This study aims to fill these theoretical and empirical gaps.

3. AIM AND OBJECTIVES OF THE STUDY

This study aims to analyze the digital transformation culture, labor adaptation, and employee productivity in Nigeria's financial sector through an Industrial Sociology lens. The specific goals include:

- examine the influence of digital transformation culture on labour adaptation in Nigerian financial institutions;
- determine the relationship between digital transformation culture and employee productivity;
- investigate the influence of labour adaptation on employee productivity; and
- examine the mediating role of labour adaptation in the relationship between digital transformation culture and employee productivity.

4. RESEARCH QUESTIONS

This study seeks to answer the following questions:

- How does digital transformation culture influence labour adaptation in Nigerian financial institutions?
- What relationship exists between digital transformation culture and employee productivity?
- How does labour adaptation influence employee productivity?
- Does labour adaptation mediate the relationship between digital transformation culture and employee productivity?

5. RESEARCH HYPOTHESES

The following null hypotheses were formulated for empirical testing:

H₀₁: Digital transformation culture has no significant influence on labour adaptation in Nigerian financial institutions.

H₀₂: Digital transformation culture has no significant relationship with employee productivity.

H₀₃: Labour adaptation has no significant influence on employee productivity.

H₀₄: Labour adaptation does not significantly mediate the relationship between digital transformation culture and employee productivity.

6. THEORETICAL FRAMEWORK

6.1 Socio-Technical Systems Theory

Socio-Technical Systems (STS) Theory was introduced by Eric Trist and Ken Bamforth in 1951 at the Tavistock Institute of Human Relations, based on empirical studies of British coal mining operations. The theory's core idea is that organisational effectiveness depends on the harmonious integration of social and technical systems in the workplace. It also emphasizes that prioritizing or optimizing one system over the other can lead to organisational dysfunction, worker dissatisfaction, and decreased productivity (Trist & Bamforth, 1951).

STS Theory suggests that organizations are made up of interconnected social subsystems—such as human behavior, relationships, group dynamics, and culture—and technical subsystems, including tools, technologies, processes, and physical setups. Achieving effective performance depends on optimizing both types of subsystems together, rather than prioritizing one over the other (Daft, 2022). The theory highlights that technological innovation must be supported by changes in employee support, communication, participative management, and organizational culture to truly improve productivity.

The relevance of STS Theory to this study is clear and significant. Nigeria's financial institutions have heavily invested in technological subsystems such as digital banking platforms, automated processes, and AI-driven operations. However, the social subsystem—covering how employees experience, adapt to, and are supported by these technological changes—has received less institutional focus (Adeyemi & Bello, 2021). STS Theory underpins the argument that sustainable employee productivity in digitalized financial institutions depends not only on technological investments but also on intentionally fostering adaptive digital organizational cultures, participatory implementation, and strong employee support systems (Cascio & Montealegre, 2016).

6.2 Labour Process Theory

Labour Process Theory (LPT), based on Harry Braverman's (1974) work and later expanded by Burawoy (1979) and others, explores how technological systems alter workplace control, employee experiences, organisational hierarchies, and labour relations in capitalist settings. LPT considers technology not just as a means to boost productivity but as a management tool that reorganizes control over the labour process, aiming to maximize output while diminishing workers' autonomy, skills, and bargaining power (Burawoy, 1979).

In digital transformation, LPT shows how digital monitoring, automated performance measurement, algorithmic work distribution, and surveillance alter work experience in financial institutions. These changes strengthen managerial control, foster new forms of employee alienation (as noted by Blauner, 1964), and can lead to resistance, withdrawal, and reduced productivity if poorly managed. However, LPT also acknowledges that employees have agency in responding to technological changes. They negotiate, adapt, resist, or accommodate digital transformations in ways that can significantly influence organizational outcomes (Orlikowski, 1992).

LPT's contribution to this study lies in its explanation of why labour adaptation is not automatic or inevitable in response to digital transformation. The quality of the digital organisational culture (whether it positions employees as participants in digital change or subjects of technological control) fundamentally shapes whether workers adapt productively or resist destructively. This theoretical insight underpins the study's conceptual framework and its treatment of digital transformation culture as the critical institutional factor mediating the relationship between digital investment and employee productivity outcomes.

6.3 Technology Acceptance Model

The Technology Acceptance Model (TAM), initially created by Davis (1989) and later expanded by Venkatesh et al. (2003) through the Unified Theory of Acceptance and Use of Technology (UTAUT), offers a straightforward yet effective explanation of why employees choose to accept and use information technology systems in organizations. The core idea of TAM is that the acceptance and actual use of technology are mainly influenced by two mental assessments: perceived usefulness, which is how much an employee believes that using a technology will improve their job performance, and perceived ease of use, which is how simple the employee thinks the technology will be to operate (Davis, 1989).

Venkatesh et al. (2003) expanded TAM by adding social influence (the importance of others' expectations for employee technology use), facilitating conditions (organisational support infrastructure), and hedonic motivation as key factors in accepting technology. These enhancements are especially relevant to this study because they emphasize how organisational culture and context—specifically those captured by the digital transformation culture construct—affect employees' willingness to adopt and effectively use digital work systems.

TAM relates to the current study's view of labour adaptation as a mediating factor. In TAM, labour adaptation includes not just the cognitive acceptance of technology—such as perceived usefulness and ease of use—but also the wider behavioural, social, and emotional changes needed to effectively integrate into a digital work setting (Venkatesh et al., 2003). The quality of digital transformation culture—covering organizational communication, training programs, participatory leadership, and innovation support—influences employees' TAM factors and their adaptive reactions. Combining STS Theory, LPT, and TAM offers a unified framework that underpins the study's hypotheses.

7. CONCEPTUAL REVIEW

7.1 Digital Transformation Culture

Digital transformation culture encompasses the shared values, beliefs, behavioral standards, and institutional practices that support technological innovation, digital integration, ongoing learning, and adaptability in organizations (Schein, 2017; Hess et al., 2016). It goes beyond simply adopting or deploying digital tools to include the deeper cultural foundations—such as employees' attitudes toward innovation, leaders' views on digital change, organizational preparedness for continuous learning, and social norms around technological conduct—that influence whether digital transformation delivers lasting institutional value (Matt et al., 2015; Vial, 2019).

In Nigerian financial institutions, the culture of digital transformation is reflected across various organizational aspects: support for innovation among staff; the quality and ongoing nature of digital skills training; participatory leadership in technological choices; openness and effectiveness of digital communication channels; organizational flexibility in adjusting workflows to new technological demands; and the extent to which institutional values consider technological adaptability a key competency (Adeyemi & Bello, 2021; Westerman et al., 2014). Entities with a strong digital culture tend to excel over those with weaker digital orientations in areas like technology adoption, employee satisfaction, service delivery efficiency, and overall productivity (Kane et al., 2015).

Schein's (2017) three-level model of organisational culture, comprising artefacts, espoused values, and deep assumptions, offers a valuable framework for analyzing why addressing all three levels is crucial for successfully embedding digital transformation. Merely introducing surface-level digital artefacts, such as new platforms and digital branding, without aligning espoused values like management's support for innovation, or deep assumptions like employees' core attitudes towards change, results in cultural inconsistency and hampers adaptive behaviors.

7.2 Labour Adaptation

Labour adaptation involves employees adjusting their thoughts, behaviors, and emotions to technological changes, evolving job requirements, organizational restructuring, and new work systems (Armstrong, 2021; Cascio & Montealegre, 2016). Adaptive workers show skills in technology, a learning mindset, flexibility, openness to innovation, and resilience amid organizational shifts. This process is continuous and influenced by individual traits such as education, experience, and personality, as well as organizational factors like training, cultural support, and leadership quality, along with technological features including usability and perceived usefulness (Venkatesh et al., 2003).

Insufficient labor adaptation leads to resistance to change, workplace anxiety, digital stress, organizational conflicts, absenteeism, turnover intentions, and decreased productivity. These issues are extensively documented in the Industrial Sociology literature on technological change (Blauner, 1964; Burawoy, 1979; Cascio & Montealegre, 2016). Furthermore, organizations that focus on building adaptive capacity through training, effective communication, employee participation, and cultural support tend to cultivate workforces that view digital innovation as an opportunity—both personally and organizationally—rather than a threat.

7.3 Employee Productivity

Employee productivity refers to how efficiently and effectively staff meet organizational goals through delivering quality service, operational success, innovative skills, minimizing errors, and satisfying customers (Robbins & Judge, 2022). In digital financial institutions, these productivity results are more and more influenced by employees' ability to use digital tools, operate automated systems, sustain service quality during tech-driven customer interactions, and adapt continuously to changing digital work settings (Vial, 2019; Cascio & Montealegre, 2016).

Key indicators of employee productivity in digitally transformed financial institutions include: service efficiency, which measures the speed and accuracy of customer service via digital channels; operational effectiveness, reflecting the achievement of performance goals through digital work systems; innovation capability, showing employees' role in improving digital services and solving problems; and customer satisfaction, indicating the quality of client experiences both digitally and in face-to-face interactions. These dimensions closely align with the organisational performance outcomes that Nigerian financial regulators and institutions have designated as strategic priorities (Robbins & Judge, 2022; Central Bank of Nigeria, 2023).

8. CONCEPTUAL FRAMEWORK

The conceptual framework for this study is shown in Figure 1 below. It depicts the hypothesized relationships among the main variables: digital transformation culture (independent variable), labour adaptation (mediating variable), and employee productivity (dependent variable). Control variables such as institutional sector, firm size, employee education, work experience, and training history moderate the pathway from the independent to the dependent variable..

Figure 1: Conceptual Framework of Digital Transformation Culture, Labour Adaptation, and Employee Productivity

INDEPENDENT VARIABLE	MEDIATING VARIABLE	DEPENDENT VARIABLE	CONTROL VARIABLES
Digital Transformation Culture	Labour Adaptation	Employee Productivity	Moderating Context
• Innovation Support • Continuous Training • Participatory Leadership • Digital Communication • Technological Flexibility • Adaptive Values	• Technological Competence • Workplace Flexibility • Innovation Acceptance • Continuous Learning • Resilience	• Service Efficiency • Operational Effectiveness • Target Achievement • Innovation Capability • Customer Satisfaction	• Institutional Sector (Banking/Insurance) • Firm Size • Employee Education • Work Experience • Training History



Source: Developed by the Authors (2024), adapted from Trist & Bamforth (1951), Davis (1989), Schein (2017), Vial (2019), and Venkatesh et al. (2003).

The framework illustrates a main pathway where digital transformation culture—characterized by innovation support, ongoing training, participative leadership, digital communication, technological adaptability, and adaptive organizational values—directly impacts employee productivity outcomes such as service efficiency, operational effectiveness, target achievement, innovation capacity, and customer satisfaction. This direct link represents the H₂ pathway in the study's hypotheses. Additionally, the framework shows an indirect, mediated pathway (H₄) through which digital transformation culture influences employee productivity by first affecting labour adaptation. This includes changes in employees' technological skills, flexibility, openness to innovation, continuous learning, and resilience. The mediated pathway is based on Socio-Technical Systems Theory's principle of joint optimization, Labour Process Theory's focus on employee agency in technological change, and TAM's explanation of how cultural and organizational factors influence technology acceptance behavior.

9. EMPIRICAL REVIEW

An expanding body of research has explored aspects of digital transformation culture, how employees adapt to technology, and organisational productivity in various countries and sectors. This section examines 20 key studies, starting with foundational international research and moving to recent African and Nigerian empirical findings.

9.1 Digital Transformation Culture and Organisational Performance

Westerman et al. (2014) examined digital transformation maturity across 391 companies in 30 countries and found that digital transformation leaders, characterized by a strong digital culture, executive commitment, a clear digital vision, and employee engagement, achieved 26% higher profitability than digital laggards. Their finding that the cultural and leadership dimensions of digital transformation outweigh purely technological factors in predicting performance outcomes established a foundational insight that cultural rather than technical variables are the critical determinants of digital transformation success.

Kane et al. (2015) supported this finding in their five-year study on digital transformation, involving over 4,800 executives across 27 industries. They discovered that digitally mature companies stand out not because of technology use, but due to cultural readiness, strategic clarity, and talent development. Organizations with robust innovation cultures and collaborative digital learning environments achieved significantly better productivity results than their technologically similar but less culturally strong competitors.

Hess et al. (2016) created the Digital Transformation Strategy framework by comparing media companies in Germany, Austria, and Switzerland. They found that organizations with clear digital culture strategies—covering employee development, transparent communication, and committed leadership—attain more sustainable digital transformation results than those focusing solely on technology. The study highlighted participatory leadership and open communication as the two cultural factors most linked to successful digital transformation and enhanced employee productivity.

Vial (2019) performed a systematic review of 282 digital transformation studies from 1990 to 2018, developing a detailed model that connects digital transformation enablers, such as cultural readiness, to disruption methods, strategic actions, and value creation results. The review highlighted that organisational culture is a key factor influencing success or failure in digital transformation efforts, with adaptive cultural environments leading to notably better performance outcomes across various sectors and countries.

9.2 Technology Acceptance, Labour Adaptation, and Productivity

Davis (1989) laid the groundwork for the Technology Acceptance Model through experiments with 107 IBM users, showing that perceived usefulness ($r = .63$) and perceived ease of use ($r = .45$) are key factors influencing both the intention to adopt technology and actual system use, which in turn predict productivity. TAM's focus on cognitive appraisals as mediators in the technology-productivity link aligns with this study's approach of considering labour adaptation as a mediating factor.

Venkatesh et al. (2003) expanded TAM with the Unified Theory of Acceptance and Use of Technology (UTAUT), merging eight competing models into a single framework tested across four organizations. Their results showed that social influence (such as colleagues' and supervisors' expectations), facilitating conditions (organizational support infrastructure), and performance

expectancy together accounted for 70% of the variance in technology use behavior. This highlights how organizational and cultural factors heavily influence individual responses to technology adaptation.

Orlikowski (1992) created the duality of technology framework based on a qualitative study of a software company. She showed that employees do not passively receive technology; instead, they interpret, enact, and adapt it in ways influenced by organizational structures, cultural norms, and institutional contexts. This constructivist view of technology-in-practice provided the key insight that labor adaptation to digital technologies involves active, socially mediated negotiation, deeply shaped by organizational culture.

Cascio and Montealegre (2016) examined three decades of research on the impact of technology on work and organizations in their Annual Review synthesis. They found that technological changes regularly disrupt skill requirements, job structures, and performance expectations, creating notable adaptive challenges for employees. Their review showed that organizations offering robust support systems—such as training, communication, leadership involvement, and cultural integration—see significantly better rates of workforce adaptation and higher productivity than those that adopt technology without equivalent social support investments.

9.3 Digital Transformation, Employee Wellbeing, and Labour Relations

Avolio et al. (2014) studied e-leadership—the practice of organizational leadership via digital and electronic media—across seven organizations. They found that leaders who use digital communication to foster authentic engagement, employee growth, and cultural exchange tend to achieve higher levels of employee trust, acceptance of technology, and overall productivity compared to those who mainly use digital tools for monitoring and control. This supports the current study's emphasis on participatory leadership as a vital component of digital transformation culture..

Brynjolfsson and McAfee (2014) highlighted the productivity paradox of digital transformation, showing that despite large investments in enterprise technology, productivity improvements are often delayed, uneven, or missing in organizations that neglect to redesign work processes, develop human capital, and foster adaptable cultures. Their findings emphasized that the human and cultural factors are not secondary but are fundamental in transforming technological investments into actual performance gains.

Sebastian et al. (2017) examined digital transformation strategies across 40 large organisations in their MIT Sloan Management Review study, identifying two critical digital transformation pathways (customer experience transformation and operational process transformation) and demonstrating that both pathways generate significantly better outcomes in organisations with strong digital cultural foundations, particularly those characterised by cross-functional collaboration, leadership digital commitment, and employee innovation orientation.

9.4 African and Nigerian Empirical Evidence

Adeyemi and Bello (2021) carried out a quantitative analysis of digital transformation and employee productivity in 10 Nigerian commercial banks, surveying 284 employees from Lagos, Abuja, and Port Harcourt. They used multiple regression to discover that digital innovation notably enhanced operational efficiency ($\beta = .61, p < .01$) and employee productivity ($R^2 = .49, p < .001$). Their findings indicated that ongoing technological training was the strongest factor influencing employee adaptability, accounting for 38% of the variance in adaptation. The authors recommended that Nigerian banks should increase their investment in structured digital training programs and adopt more participatory implementation approaches.

Nwankwo and Okeke (2022) analyzed digital culture and employee adaptability in 12 Nigerian financial institutions, surveying 312 staff with structured questionnaires. Results showed that supportive digital cultures—marked by open communication, innovation, and participatory leadership—significantly enhanced employee acceptance of technological changes ($r = .67, p < .001$). Employees in organizations with stronger digital cultures scored 43% higher in technological competence and exhibited lower digital stress levels compared to those in less digitally developed institutions. Among cultural factors, participatory leadership and communication openness emerged as the most influential in fostering adaptive behavior.

Ibrahim and Yusuf (2020) examined employee resistance to digital transformation in five Nigerian insurance companies, employing a mixed-method design combining surveys ($N = 198$) with in-depth interviews ($n = 22$). Their findings revealed that inadequate training provision, poor organisational communication, and exclusionary technology implementation processes were the three most cited drivers of employee resistance. The study established that resistance to digital change was not an expression of anti-technology attitudes but a rational response to poorly managed transformation processes that undermined employee competence, autonomy, and security. These findings provide direct empirical support for the present study's argument that digital transformation culture (rather than technology itself) is the critical determinant of labour adaptation outcomes.

This empirical review provides consistent evidence that a digital transformation culture significantly influences both labor adaptation and employee productivity across various sectors and countries. Specifically, in the Nigerian financial sector, key cultural factors such as ongoing training, participative leadership, and open communication are crucial for fostering adaptive behavior and boosting

productivity. The review also points out a notable gap in existing research: the lack of formal studies on how labor adaptation serves as a mediating factor in the relationship between digital transformation culture and productivity in the Nigerian financial sector. This study aims to fill that gap with a solid, empirically-based research approach.

10. METHODOLOGY

10.1 Research Design and Epistemological Orientation

This study employs a descriptive survey research design grounded in a post-positivist epistemological framework. The post-positivist paradigm is suitable for exploring relationships among theoretically defined variables in real-world social contexts, recognizing that measurement can be imperfect and that results are probabilistic rather than certain (Daft, 2022). The survey design allows for systematic data collection from a representative sample of the target population using standardized instruments, which supports analyzing relationships, differences, and predictive trends among variables (Robbins & Judge, 2022).

10.2 Population and Sample

This study focuses on employees working in licensed commercial banks and insurance companies in Nigeria. According to the Central Bank of Nigeria (2023) report and NAICOM workforce data, about 140,000 individuals are employed in the financial sector, with 95,000 in banking and 45,000 in insurance. To select a representative sample, the Taro Yamane (1967) formula was used, considering a 5% margin of error ($e = 0.05$) and a 95% confidence level.:

$$n = N / (1 + Ne^2) = 140,000 / (1 + 140,000 \times 0.0025) = 140,000 / 351 \approx 399$$

A sample of 399 respondents was chosen, proportionally representing banking ($n = 241$, 60.4%) and insurance ($n = 158$, 39.6%) sectors, based on their workforce sizes. Stratified random sampling was used to ensure proper representation at various organizational levels—junior, supervisory, middle management, and senior management—in both sectors.

10.3 Research Instrument

Data were collected via a structured questionnaire with four sections. Section A gathered demographic and organisational details such as sector, position level, gender, age, educational background, years of experience, and training history. Section B assessed the Digital Transformation Culture as an independent variable through 30 Likert-scale items (1 = Strongly Disagree to 5 = Strongly Agree) spread across six sub-scales: Innovation Support (5 items), Continuous Training (5 items), Participatory Leadership (5 items), Digital Communication (5 items), Technological Flexibility (5 items), and Adaptive Organisational Values (5 items). Section C evaluated the Labour Adaptation mediating variable with 20 items across five sub-scales: Technological Competence, Workplace Flexibility, Innovation Acceptance, Continuous Learning, and Resilience. Section D measured Employee Productivity through 25 items across five sub-scales: Service Efficiency, Operational Effectiveness, Target Achievement, Innovation Capability, and Customer Satisfaction. The items were adapted from validated scales including UTAUT (Venkatesh et al., 2003), Armstrong's (2021) HR Management framework, and Schein's (2017) organisational culture dimensions.

10.4 Validity and Reliability

Content validity was confirmed through expert review by three Sociology academics and two financial sector practitioners, who verified the relevance and representativeness of all items across constructs. Construct validity was evaluated via exploratory factor analysis, with all items showing factor loadings above 0.50 on their respective constructs. Reliability was measured using Cronbach's alpha; all sub-scales achieved alpha values of 0.70 or higher (Digital Transformation Culture: $\alpha = .89$; Labour Adaptation: $\alpha = .85$; Employee Productivity: $\alpha = .87$), surpassing the commonly accepted threshold of 0.70 for social science research (Robbins & Judge, 2022).

10.5 Data Analysis

Quantitative data were analyzed using SPSS version 26.0 and AMOS version 24.0 for Structural Equation Modelling. The analysis included descriptive statistics (frequencies, percentages, means, standard deviations) to describe the sample and variable distributions; Pearson correlation analysis to explore bivariate relationships among key variables; multiple regression analysis to assess the direct effects of digital transformation culture on labour adaptation (H_1) and employee productivity (H_2), as well as the effect of labour adaptation on employee productivity (H_3); and Structural Equation Modelling (SEM) with bootstrapped mediation testing (5,000 samples, 95% confidence intervals) to examine whether labour adaptation mediates the relationship between digital transformation culture and employee productivity (H_4). The mediation testing followed procedures by Preacher and Hayes (2008) for estimating indirect effects. Significance was set at $p < .05$ throughout.

11. DISCUSSION OF FINDINGS

11.1 Digital Transformation Culture and Labour Adaptation (H₁)

The study shows a strong, positive link between a digital transformation culture and how well labor adapts in Nigerian financial institutions, providing evidence to reject H₁. Organizations with robust digital transformation cultures—especially those with high support for innovation, ongoing training, participatory leadership, and adaptive communication—achieved notably higher scores in labor adaptation. This aligns with and builds upon Nwankwo and Okeke (2022), who found that supportive digital cultures are key predictors of employee acceptance of technology in Nigerian financial institutions. It also extends the findings of Hess et al. (2016), who identified participatory leadership and open communication as crucial cultural factors driving employee adaptability in digital transformation.

From a Socio-Technical Systems Theory perspective (Trist & Bamforth, 1951), these results show that the social subsystem factors in digital transformation—such as organizational culture, leadership support, and communication quality—directly influence employees' ability to adapt to changing technical systems. Organizations that focus on joint optimization, improving both cultural and technological elements together, tend to achieve much better labor adaptation results compared to those that only invest in technology. This supports Westerman et al.'s (2014) conclusion that cultural maturity, rather than technological investment, is the key factor in successful digital transformation.

Interestingly, the cultural dimensions of Continuous Training and Participatory Leadership showed the strongest link to labour adaptation, accounting for the most variance in adaptation results. This aligns with Ibrahim and Yusuf's (2020) finding that poor training and exclusionary processes mainly cause employee resistance in Nigerian insurance firms. It also supports Cascio and Montealegre's (2016) broader analysis, which found that organizations with robust support systems for adaptation tend to achieve significantly better workforce adjustment.

11.2 Digital Transformation Culture and Employee Productivity (H₂)

The clear positive link between digital transformation culture and employee productivity, which leads to rejecting H₂, is consistent with extensive international research on the connection between culture and performance in digital organisations. This finding builds on Kane et al.'s (2015) conclusion that culturally mature digital environments yield better productivity, now applied to Nigerian financial institutions. Notably, Innovation Support and Adaptive Organisational Values are identified as the cultural dimensions most closely linked to changes in productivity. This suggests that employees' ability to perform productively in digital settings depends not only on training and support but also on a broader cultural environment that encourages innovation and aligns values.

From a Labour Process Theory viewpoint (Burawoy, 1979; Blauner, 1964), the findings highlight how digital transformation culture influences the relationship between labor and productivity. Organizations with truly participatory and inclusive digital cultures—where employees see technology as a collaborative tool rather than a means of managerial oversight—foster conditions for engaged productivity instead of alienation. The difference between digital cultures of empowerment and those of control is a key analytical insight from the Industrial Sociology perspective used in this study.

11.3 Labour Adaptation and Employee Productivity (H₃)

The study confirms that labour adaptation significantly predicts employee productivity, leading to the rejection of H₃. This aligns with TAM's core prediction that technology acceptance and usage behavior—here, operationally similar to labour adaptation—result in measurable improvements in individual performance (Davis, 1989; Venkatesh et al., 2003). The dimensions of Technological Competence and Innovation Acceptance within labour adaptation showed the strongest links to productivity, supporting Adeyemi and Bello's (2021) findings that technological training-driven adaptation boosts productivity in Nigerian commercial banks.

According to Orlikowski's (1992) duality of technology perspective, these results show that employees who actively interact with digital technologies—adapting and using them effectively rather than just tolerating them—achieve better performance. Labour adaptation is not simply passive conformity but an active skill that, when nurtured through suitable organizational cultures and support, leads to lasting productivity benefits.

11.4 Mediating Role of Labour Adaptation (H₄)

The SEM results of the study show that labour adaptation partially mediates the link between digital transformation culture and employee productivity. There is both a significant direct effect of the culture on productivity and a significant indirect effect via labour adaptation. This partial mediation is theoretically important because it suggests that digital transformation culture impacts productivity directly by shaping work conditions, values, and institutional support, and indirectly by developing employees' adaptive skills. Both pathways are essential to fully understanding the relationship.

This partial mediation pattern aligns with Venkatesh et al.'s (2003) UTAUT research, which shows that both direct cultural-contextual factors and individually mediated adaptation processes independently influence performance outcomes. It also supports

Westerman et al.'s (2014) view that a digital transformation culture produces direct operational benefits—such as enhanced work systems and collaboration—as well as indirect benefits through cultivating a more adaptive, technologically skilled workforce. For Nigerian financial institutions, this means that investing in culture offers a dual advantage: immediate gains in productivity via improved work environments and delayed gains through the gradual development of more adaptable human capital.

11.5 Implications for Theory and Practice

This study's findings bolster Industrial Sociology by reaffirming that the joint optimisation principle of Socio-Technical Systems Theory remains pertinent in digital workplace transformation. It operationalizes labour adaptation as a theoretically grounded mediator linking digital culture with employee productivity within an integrated sociological model. Additionally, the research highlights the importance of combining Labour Process Theory's focus on power and control with TAM's cognitive-behavioural approach, revealing various pathways through which digital organizational culture influences both individual and institutional performance.

The findings suggest that Nigerian financial institutions can enhance employee productivity by fostering a culture of digital transformation. This involves investing in ongoing training, promoting participatory leadership, ensuring open communication, and supporting innovation systems. Such cultural investments yield benefits not only through increased productivity but also by developing adaptable workforce capacity that sustains gains as digital work environments evolve.

12. CONCLUSION

This research explored how digital transformation culture affects labour adaptation and employee productivity in Nigeria's financial industry, using an Industrial Sociology approach. Based on Socio-Technical Systems Theory, Labour Process Theory, and the Technology Acceptance Model, and supported by data from Nigerian financial institutions, the findings show that digital transformation culture significantly impacts both labour adaptation and productivity. Additionally, labour adaptation partly mediates the relationship between culture and productivity.

The findings confirm that sustainable employee productivity in digitally transformed organizations requires not only technological investment but also the deliberate cultivation of adaptive digital organizational cultures characterized by support for innovation, continuous training, participatory leadership, and open communication, which enable employees to adapt effectively to evolving digital work environments. Nigerian financial institutions that invest in these cultural dimensions alongside their technical infrastructure are better positioned to realize the full productivity potential of their digital transformation investments.

From an Industrial Sociology perspective, this study emphasizes that digital transformation is both a social and technological phenomenon, with its human implications—such as labour adaptation, employee wellbeing, and workplace productivity—requiring attention as key strategic issues rather than minor HR concerns. The core principle for sustainable digital transformation continues to be the integrated optimization of social and technical systems, as outlined in Socio-Technical Systems Theory.

13. RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made:

- Nigerian financial institutions should implement structured and continuous digital training programmes that develop employees' technological competence and adaptive capacity at all organisational levels, with particular attention to junior and intermediate staff who demonstrate the greatest training-adaptation relationship.
- Management should adopt participatory technological implementation processes that actively involve employees in digital transformation decision-making, thereby building ownership, reducing resistance, and accelerating the development of adaptive labour capacity.
- Financial institutions should strengthen organisational communication systems to ensure transparent, timely, and two-way information sharing about digital transformation processes, reducing workplace uncertainty and anxiety associated with technological change.
- Organisations should establish dedicated employee wellbeing and digital adaptation support systems (including mentoring, peer learning platforms, and psychological support resources) to address digital stress and facilitate workplace adjustment.
- Leadership within financial institutions should model adaptive and innovation-oriented behaviours, using digital communication platforms as vehicles for employee engagement and cultural communication rather than solely for performance monitoring.
- Financial institutions should commission regular digital culture audits to assess the alignment between stated cultural values and enacted institutional practices, closing the values-implementation gap that undermines labour adaptation and employee productivity.

- Policy makers and the Central Bank of Nigeria should incorporate digital transformation culture standards and labour adaptation metrics into financial sector regulatory frameworks, recognising that employee-centred digital transformation is a systemic financial sector performance issue as well as an institutional management challenge.

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