Effect of Reskilling and Upskilling Practices on Employee Performance in State-Owned Enterprises (SOEs) in Nigeria

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ABSTRACT

The study examined the effect of reskilling and upskilling practices on employee performance in State-Owned Enterprises (SOEs) in Nigeria, with specific emphasis on technical and digital skills development, continuous learning and professional development, and cross-functional training. The study was anchored on Human Capital Theory and the Resource-Based View (RBV). A cross-sectional survey research design was adopted, covering six purposively selected State-Owned Enterprises representing Nigeria's six geopolitical zones. The study had a target population of 1,000 employees, from which a sample of 300 respondents was proportionately allocated across the selected enterprises. Primary data were collected through a structured questionnaire, with 294 valid responses used for analysis. Data were analysed using descriptive statistics and multiple regression analysis at a 5% level of significance. The reported findings revealed that technical and digital skills development had a positive and statistically significant effect on employee performance ($\beta = 0.438$, $p = 0.001$). Continuous learning and professional development also had a positive and significant effect ($\beta = 0.427$, $p = 0.001$), while cross-functional training similarly recorded a positive and significant effect ($\beta = 0.421$, $p = 0.001$). Technical and digital skills development emerged as the strongest predictor of employee performance, followed by continuous learning and professional development and cross-functional training. The study concluded that reskilling and upskilling practices are important determinants of employee performance in Nigerian SOEs. It recommended that management should prioritize technical and digital skills training, institutionalize continuous professional development, promote structured cross-functional training and regularly evaluate training outcomes using measurable performance indicators.

Keywords: Reskilling, Upskilling, Technical and Digital Skills Development, Continuous Learning, Cross-Functional Training, Employee Performance, State-Owned Enterprises.

INTRODUCTION/PROBLEMATIC

State-Owned Enterprises (SOEs) occupy an important place in modern economies because they combine the commercial orientation of business organizations with the broader responsibilities of government. They are established, owned or controlled by the state to provide goods and services, generate revenue and support wider socioeconomic objectives. SOEs are particularly common in strategic and capital-intensive sectors such as energy, transportation, telecommunications, finance, infrastructure and public utilities, where private investment may sometimes be inadequate to meet societal needs. Beyond making profits, these enterprises are expected to provide essential services, create employment, support industrial development and protect strategic national interests. The OECD (2026) recognizes SOEs as important economic actors, particularly in sectors that influence economic resilience and competitiveness.

The contribution of SOEs is particularly visible in Sub-Saharan Africa, where governments continue to depend on them for infrastructure development, public investment, natural-resource management and employment creation. Imbert, Mfombouot and Gores (2022) observe that SOEs perform important economic and social functions across the region, especially in sectors that directly affect the daily lives of citizens and the operations of businesses. Similarly, the IMF (2026) emphasizes that the performance of SOEs can have wider effects on economic productivity because many of them provide infrastructure and services on which other

sectors depend. Ghana's Volta River Authority and Ghana National Petroleum Corporation, for example, illustrate how state participation in electricity and petroleum can support strategic national objectives. This means that when SOEs perform effectively, their benefits can extend beyond the enterprises themselves to households, businesses and the wider economy.

In Nigeria, SOEs have remained important instruments for providing infrastructure, creating employment, generating public revenue and managing strategic national assets. The U.S. Department of State (2024) identifies considerable government participation in sectors such as oil and gas, electricity, transportation, communications and finance. NNPC Limited, for instance, represents a major form of government participation in the petroleum industry. The role of SOEs is not limited to the federal level, as state governments also establish enterprises to provide services, promote investment and stimulate local economic activities. In Benue State, enterprises such as Benue Investment and Property Company Limited (BIPC), Benue Links Nigeria Limited, Radio Benue and Benue State Printing and Publishing Corporation perform functions relating to investment, transportation, information and other socioeconomic activities. However, their ability to fulfil these responsibilities depends largely on how effectively they are managed and how well their employees are equipped to perform their roles.

The growing pace of technological and workplace change has made employee skills increasingly important to the performance of such organizations. Skills that were adequate in the past may no longer be sufficient as organizations adopt new technologies, digital systems and changing methods of service delivery. This has increased attention to reskilling and upskilling as practical ways of helping employees acquire new competencies and improve existing ones. Technical and digital skills development, for example, enables employees to use emerging technologies and digital systems more confidently and effectively. The World Economic Forum (2025) identifies technological literacy, artificial intelligence and big data among the skills experiencing rapidly growing demand in the workplace. For SOEs seeking to improve efficiency and remain responsive to changing public expectations, developing these competencies among employees has therefore become increasingly important.

Continuous learning and professional development also provide employees with opportunities to update their knowledge and improve their abilities through training, workshops, mentoring, coaching and professional certification. Rather than allowing employees' knowledge to become outdated, continuous learning helps them remain competent as job requirements change. Cross-functional training further expands employees' capabilities by exposing them to responsibilities outside their immediate roles through job rotation, cross-training and collaborative assignments. Such experiences can improve versatility, teamwork, problem-solving and the ability to respond to new responsibilities. LinkedIn Learning (2024) highlights continuous learning and career development as important elements in building an adaptable workforce. Thus, technical and digital skills development, continuous learning and professional development, and cross-functional training can provide employees with the knowledge and flexibility required to perform more effectively.

Against this background, reskilling and upskilling are becoming more than occasional training activities; they represent important workforce-development practices for organizations operating in a rapidly changing environment. For State-Owned Enterprises, whose performance affects both government objectives and the quality of services available to citizens, having employees with relevant and current skills is particularly important. Developing employees through technical and digital skills development, continuous learning and professional development, and cross-functional training may improve their productivity, adaptability, quality of work and overall performance. It is therefore important to examine the effect of reskilling and upskilling practices on employee performance in State-Owned Enterprises, with a view to providing evidence that can guide workforce development and improve organizational effectiveness.

State-Owned Enterprises (SOEs) contribute significantly to Nigeria's economic development through essential service delivery, employment generation and management of public resources. However, their effectiveness depends largely on employees' competence, productivity and ability to adapt to changing workplace demands. The increasing adoption of digital technologies and modern operational procedures has created workforce skills gaps that may affect employee performance. The World Economic Forum (2025) estimates that 39% of

existing workforce skills will change by 2030, while 59% of workers will require training. This development highlights the growing importance of reskilling and upskilling, particularly in public enterprises where outdated competencies may undermine productivity and service delivery. Despite their strategic importance, many Nigerian SOEs continue to experience operational inefficiency, low productivity and weak institutional performance. The OECD (2025) identifies governance weaknesses and performance challenges as major concerns in state-owned enterprises, while Lawrence and Lawrence (2026) reported that only five of the 25 SOEs examined in Rivers State operated without continued government support. Although these challenges are commonly associated with poor governance and financial constraints, inadequate employee competencies and ineffective workforce development may also contribute to organizational underperformance.

Recent empirical studies have emphasized the importance of workforce skills development in improving employee performance. Oladimeji et al. (2024) found that digital literacy significantly improved productivity among local government employees, while Ighoroje et al. (2025) established that digital competence strengthened employee productivity in Nigerian manufacturing firms. Similarly, Ebere et al. (2026) reported a positive relationship between digital skills and employee performance among university employees. Regarding continuous learning, Nwosu et al. (2025) examined capacity building and employee performance in the Anambra State Civil Service Commission, while Offiah et al. (2026) established that staff development programmes positively influenced employee performance in Nigerian public organizations. Akerele and Okojie (2026) equally emphasized the importance of professional development in improving employee effectiveness. These findings suggest that inadequate digital competencies, irregular training and limited professional development opportunities may constrain employees' ability to meet changing workplace expectations. However, the extent to which these challenges affect employee performance in Nigerian SOEs remains insufficiently established.

Cross-functional training also presents an important concern because employees increasingly require diverse competencies to perform different responsibilities and collaborate effectively across departments. Mohammed and Dodo (2026) and Ukoette and Ukoette (2024) examined job rotation and employee performance in Nigerian public institutions, while Jumbo (2025) reported a weak relationship between job rotation and employee effectiveness in selected manufacturing firms. These differing findings suggest that cross-functional training may not consistently produce improved employee performance, particularly where training programmes lack proper coordination, management support and practical relevance. Furthermore, previous studies largely concentrated on manufacturing firms, educational institutions and conventional public agencies, with limited attention to SOEs across Nigeria's six geopolitical zones. Most also examined individual training practices separately rather than investigating their combined influence on employee performance. Methodologically, the present study differs by adopting a cross-sectional survey design and multiple regression analysis to assess the simultaneous contributions of the selected workforce development practices.

The central problem of this study, therefore, is the limited empirical understanding of how reskilling and upskilling practices influence employee performance in Nigerian State-Owned Enterprises. Despite growing concerns about workforce skills gaps, inadequate training opportunities and declining organizational effectiveness, it remains unclear whether technical and digital skills development, continuous learning and professional development, and cross-functional training significantly improve employee productivity, adaptability and job effectiveness. Consequently, this study examines the individual and combined effects of these three dimensions on employee performance in selected SOEs across Nigeria, with a view to providing empirical evidence that can guide workforce development policies, strengthen employee competencies and improve organizational performance and service delivery.

Research Objectives

The general objective of the study was to examine the effect of reskilling and upskilling practices on employee performance in State-Owned Enterprises Nigeria. The specific objectives are to examine:

i. the effect of technical and digital skills development on employee performance in State-Owned Enterprises.

ii. the effect of continuous learning and professional development on employee performance in State-Owned Enterprises.
iii. the effect of cross-functional training on employee performance in State-Owned Enterprises.

Research Questions

i. What is the effect of technical and digital skills development on employee performance in State-Owned Enterprises?
ii. What is the effect of continuous learning and professional development on employee performance in State-Owned Enterprises?
iii. What is the effect of cross-functional training on employee performance in State-Owned Enterprises?

Research Hypotheses

The following null hypotheses were tested:

H_o1: Technical and digital skills development has no significant effect on employee performance in State-Owned Enterprises.

H_o2: Continuous learning and professional development has no significant effect on employee performance in State-Owned Enterprises.

H_o3: Cross-functional training has no significant effect on employee performance in State-Owned Enterprises.

CONCEPTUAL REVIEW

Reskilling and Upskilling Practices

Reskilling and upskilling practices have become increasingly important as technological advancement, digitalization and changing work arrangements continue to alter the competencies employees need to remain productive. Although the concepts are often used together, they represent different forms of workforce development. Reskilling involves developing substantially new competencies that enable an employee to move into a different or emerging role, whereas upskilling focuses on strengthening or extending existing competencies so that an employee can perform a current role more effectively or assume greater responsibilities. Acut et al. (2025) position both concepts as important foundations of workforce innovation in an increasingly AI-driven workplace. Similarly, recent research defines reskilling as training and development aimed at enabling workers to acquire new competencies needed for new roles or professions.

From an organizational perspective, reskilling and upskilling go beyond occasional employee training; they represent deliberate and continuous efforts to align workforce capabilities with changing organizational requirements. This may involve technical and digital training, professional development, mentoring, coaching, job rotation and cross-functional learning. The World Economic Forum (2025) reports that employers expect about 39% of workers' core skills to change by 2030, with technological literacy, AI and big data, cybersecurity, flexibility and lifelong learning becoming increasingly important. It further reports that 85% of surveyed employers expect to prioritize workforce upskilling between 2025 and 2030. Nandal and Nain (2026) similarly argue that traditional workforce-development approaches may struggle to keep pace with rapid technological and economic changes, making strategically designed reskilling increasingly important for workforce agility.

However, the benefits of reskilling and upskilling should not be taken for granted. Providing training does not automatically translate into improved competence or employee performance. Programmes may have limited value when the skills being taught are poorly aligned with actual job requirements, when employees lack sufficient time to participate, or when organizations fail to provide opportunities to apply newly acquired skills. Evidence from a 2024 employee study indicates that difficulties in balancing work and training, lack of time and limited availability of relevant programmes can constrain participation and satisfaction with reskilling

and upskilling initiatives. This suggests that the effectiveness of these practices depends not merely on the amount of training provided but on its relevance, accessibility and connection with employees' present and future responsibilities.

This concern is particularly relevant to Nigeria. The World Economic Forum (2025) identifies skills gaps and difficulties in attracting talent as important barriers to organizational transformation in the country. It reports that network and cybersecurity competencies are expected to experience particularly strong growth in demand and that 73% of firms surveyed in Nigeria see increased public-sector funding for reskilling and upskilling as beneficial to improving talent availability. The importance of these practices is also becoming visible in Nigeria's public sector. For example, the Bureau of Public Service Reforms supported capacity-building initiatives in 2025 aimed at reskilling and upskilling public servants in areas including artificial intelligence, digital innovation, governance and accountability.

In the context of State-Owned Enterprises (SOEs) in Nigeria, reskilling and upskilling practices can therefore be understood as deliberate organizational efforts to renew, broaden and strengthen employees' competencies so that they can respond effectively to technological, operational and service-delivery changes. Reskilling prepares employees for substantially different or emerging responsibilities, while upskilling improves their capabilities within existing or progressively more demanding roles. For the present study, these practices are reflected in technical and digital skills development, continuous learning and professional development, and cross-functional training. When properly aligned with the actual skill needs of employees and the strategic objectives of SOEs, these practices can strengthen adaptability, productivity and service delivery. Conversely, poorly targeted or inadequately supported training may consume organizational resources without producing meaningful improvements in employee performance. Thus, the value of reskilling and upskilling in Nigerian SOEs lies not simply in providing training, but in ensuring that workforce development responds to genuine skill gaps and translates into improved employee performance.

Technical and Digital Skills Development

Technical and digital skills development refers to the deliberate process through which organizations strengthen employees' practical, technological and digital competencies so they can perform their jobs effectively in increasingly technology-driven workplaces. Technical skills relate to specialized knowledge and abilities required to perform particular occupational tasks, while digital skills concern the ability to use computers, digital platforms, software, data and other information and communication technologies effectively. Audrin, et al., (2024) view workplace digital skills as multidimensional competencies needed by employees to function effectively in digitalized work environments. Similarly, the OECD (2024) explains that employees increasingly require a combination of foundational, ICT and complementary skills to participate effectively in digitally transforming workplaces, ranging from basic computer and information-search abilities to advanced competencies such as programming and artificial intelligence.

Technical and digital skills development therefore goes beyond simply teaching employees how to operate computers. It involves continuously developing competencies that are directly relevant to changing job requirements, including the use of specialized equipment and software, data management, digital communication, cybersecurity awareness, automation and emerging technologies. Mendoza-Chan and Pee (2024) argue that rapid developments in artificial intelligence and digital transformation are increasing the need for digital skilling among working adults. Mhaske et al. (2025) similarly maintain that digital transformation has widened the gap between the competencies organizations require and those currently possessed by many employees, emphasizing targeted skills investment, appropriate digital infrastructure and industry-aligned training as important responses.

From the supportive perspective, technical and digital skills development can improve employees' ability to perform tasks faster, solve problems, use organizational technologies and provide better services. Oladimeji, et al., (2024), argue that digital literacy had a significant positive effect on employee productivity and that access to ICT strengthened this relationship. More recently, Ebere et al. (2026) posits that digital skills and the performance of non-teaching employees of the National Open University of Nigeria, with employees possess-

ing stronger digital competencies demonstrating better operational efficiency and service quality. These suggest that employees are more likely to translate technology into improved performance when they possess the competencies required to use it effectively.

However, an alternative perspective suggests that technical and digital training does not automatically produce better employee performance. Mendoza-Chan and Pee (2024) emphasize the importance of achieving an appropriate fit between the digital skills being developed and the actual skilling needs of employees. Bertoni et al. (2024) similarly show that job-skill requirements are important determinants of workers' participation in digital training, suggesting that training programmes should take account of both job requirements and individual circumstances. More recent evidence from Santiago-Vela (2026) indicates that the introduction of new digital technologies can actually increase employee underskilling when workers' existing competencies fail to keep pace with changing job requirements. Thus, investing in technology or organizing generic digital training may have limited performance benefits where training is poorly targeted, infrastructure is inadequate or employees have few opportunities to apply their acquired skills.

This concern is particularly relevant in Nigeria. The World Bank's assessment of digital skills in Nigeria identifies continuing gaps in digital capabilities and emphasizes the importance of strengthening digital-skills development, while also noting a gap between existing digital-skills policies and their implementation. The World Bank's Nigeria Skills Demand Bulletin further distinguishes between basic ICT competencies, such as email, internet use and digital content creation, and advanced competencies involving data analytics, cloud computing, cybersecurity, specialized software and artificial intelligence. Moreover, the World Bank (2026) identifies workplace skills development as an important part of Nigeria's continuing human-capital challenge.

In the context of State-Owned Enterprises in Nigeria, technical and digital skills development can therefore be understood as the systematic effort to equip employees with relevant job-specific technical knowledge and digital competencies required to perform effectively as technologies and operational processes change. For SOEs involved in transportation, investment, communication, utilities and other public services, merely introducing new technologies may not improve performance unless employees are capable of using them effectively. Technical and digital skills development should therefore be driven by identified skill gaps and actual job requirements rather than training employees simply for the sake of training. When appropriately designed and supported with adequate technological infrastructure, it can strengthen employees' efficiency, adaptability, problem-solving ability and service delivery; when poorly aligned with job requirements, its contribution to performance may remain limited. This study therefore views technical and digital skills development as an important dimension of reskilling and upskilling practices whose effect on employee performance in Nigerian SOEs requires empirical examination.

Continuous Learning and Professional Development

Continuous learning and professional development refer to the ongoing and deliberate efforts through which employees acquire, update and expand the knowledge, skills and professional competencies required to remain effective as their jobs and organizations evolve. Continuous learning is broader than formal training because it includes both structured and informal learning through workshops, courses, mentoring, coaching, self-directed learning, workplace experience and interaction with colleagues. Chai and Hashemi-Pour (2025) describe continuous learning as the ongoing expansion and reinforcement of knowledge and skills through formal and informal activities. Professional development, on the other hand, places greater emphasis on systematically improving employees' occupational competence and career-related capabilities. Thus, the two concepts complement each other by ensuring that employee development does not end with initial education or induction but continues throughout working life.

From a supportive perspective, continuous learning and professional development can strengthen employees' competence, adaptability and job performance. Mehner, et al., (2024) maintain that workplace training develops employee competencies and can improve organizational outcomes when acquired knowledge and skills are successfully transferred to the job and shared among employees. Similarly, Kuswandi and Radikun (2024) argue that continuous learning was associated with improvements in employees' task and contextual

performance. Within Nigeria, a recent study of public-service organizations in Cross River State argue that on-the-job training and self-directed learning were significantly related to workers' productivity, supporting the importance of lifelong learning for employee effectiveness (Unilorin Journal of Lifelong Education, 2025).

Akerele and Okojie (2026), argue that continuing professional education and staff productivity, emphasizing professional certification, advanced education, online learning and professional membership as important development mechanisms. Nuberu (2026) similarly suggest that professional training, seminars and workshops, professional certification and self-directed professional learning significantly influenced accountants' job performance in Ogun State. These findings suggest that continuous professional development can enable employees to update their knowledge, respond to changing job requirements and perform their responsibilities more effectively.

However, continuous learning and professional development do not automatically result in improved performance. Mehner, et al., (2024) emphasize that the benefits of training depend considerably on whether employees actually transfer and apply newly acquired knowledge in their workplaces. Their research highlights the importance of employee motivation as well as support from supervisors and colleagues in facilitating training transfer and knowledge sharing. Evidence from the Linux Foundation (2024) similarly indicates that organizations encounter difficulties in creating a continuous-learning environment, translating new knowledge into practical application, allocating sufficient time for upskilling and finding appropriate training materials. This opposing perspective suggests that merely sending employees to workshops, seminars or professional courses may produce limited results where programmes are poorly aligned with job requirements or employees lack opportunities and organizational support to apply what they have learned.

These concerns are particularly relevant to Nigeria's public sector and, by extension, State-Owned Enterprises. Amin, et al., (2026) identify continuing deficiencies in digital proficiency among Nigerian public-sector workers, with variations across ministries, departments and agencies and different levels of government. In response to broader public-sector capability challenges, the Office of the Head of the Civil Service of the Federation introduced the ONCE-Knowledge framework to provide more structured and continuous employee development, including leadership and artificial-intelligence training (OHCSF, 2025). These developments reinforce the growing recognition that public organizations require continuous rather than occasional approaches to employee development.

In the context of State-Owned Enterprises in Nigeria, continuous learning and professional development can therefore be viewed as the systematic and ongoing process of improving employees' knowledge, professional competence and job-related capabilities through training, workshops, seminars, mentoring, coaching, professional certification, self-directed learning and other development opportunities. Its effectiveness should not be judged merely by the number of training programmes attended, but by the extent to which learning is relevant to employees' responsibilities and is transferred into improved workplace behaviour and performance. For Nigerian SOEs facing technological change, evolving service expectations and pressure to improve efficiency, well-designed continuous learning and professional development can strengthen employee competence, adaptability, productivity and quality of service. Conversely, poorly targeted programmes without adequate management support or opportunities for practical application may have little effect on performance. Continuous learning and professional development are therefore treated in this study as a key dimension of reskilling and upskilling whose effect on employee performance in Nigerian SOEs requires empirical investigation.

Cross-Functional Training

Cross-functional training is an employee-development practice through which workers are deliberately exposed to the knowledge, skills and responsibilities associated with functions or roles beyond their primary jobs. It may involve cross-training, job rotation, temporary assignments, interdepartmental projects and collaborative work across functional boundaries. Kessara and Klomjit (2025) identify cross-training and job rotation as important approaches for developing employees' multitasking capabilities and improving workforce flexibility. Similarly, Yao et al. (2023) conceptualize cross-functional training as an ability-enhancing human-

resource practice that broadens employees' skills and can support organizational innovation. In essence, cross-functional training develops employees who understand not only their immediate duties but also how other functions contribute to organizational objectives.

From the supportive perspective, cross-functional training can improve employee versatility, adaptability, teamwork and problem-solving ability because employees acquire competencies that enable them to perform across different roles. Ochala (2024), studying the Federal Administrative Staff College of Nigeria, suggest that workplace rotation programmes had a significant positive effect on employees' skill development and recommended structured rotation programmes that allow employees sufficient exposure to different responsibilities. Similarly, Nwosu, et al., (2025) posited that job rotation and transfer significantly influenced employee performance in the Anambra State Civil Service Commission. More recently, Mohammed and Dodo (2026) reported that job rotation had a significant positive effect on employee performance at the Nigerian Institute for Transport Technology, Zaria. These findings suggest that exposing employees to different organizational functions can broaden their competencies and improve their ability to respond to changing work demands.

However, the relationship is not always straightforward. Cross-functional training can become counterproductive when employees are exposed to too many roles, responsibilities or learning demands without adequate time and support. Melkić, et al., (2026), using data from 67 organizations, found that although cross-training develops multi-role skills, high levels of cross-training weakened some positive effects on employee task performance. Their findings suggest a possible "too much of a good thing" affects, where excessive cross-training may create competing demands rather than improve performance. This means that cross-functional training should not simply involve moving employees from one function to another; it should be carefully planned around employees' capabilities, organizational needs and clearly defined learning objectives.

The Nigerian public-sector context provides further reason for such caution. While job rotation and cross-functional exposure can improve competence, poorly implemented rotation may generate skill mismatches, disruption and dissatisfaction. Mohammed and Dodo (2026), for example, identify politically influenced and unfair job rotation as practices capable of contributing to skill imbalance and low employee morale, even though properly implemented job rotation was found to improve performance. Thus, the effectiveness of cross-functional training depends considerably on fairness, relevance, adequate preparation and the extent to which employees are given sufficient opportunity to learn and apply competencies acquired from other functional areas.

In the context of State-Owned Enterprises (SOEs) in Nigeria, cross-functional training can therefore be understood as a deliberate reskilling and upskilling practice through which employees are equipped with knowledge and competencies beyond their immediate job functions through cross-training, job rotation, interdepartmental assignments and collaborative work. This can be particularly valuable to SOEs because employees may need to adapt to technological changes, staff shortages, restructuring and changing service-delivery requirements. Properly designed cross-functional training can reduce excessive dependence on particular employees, improve cooperation across departments and strengthen employees' flexibility, problem-solving ability and performance. However, where employees are rotated arbitrarily, overloaded with unrelated responsibilities or moved between functions without adequate preparation, the expected performance benefits may not materialize. Cross-functional training is therefore viewed in this study as a structured workforce-development practice whose contribution to employee performance depends on the relevance, fairness and effectiveness of its implementation within Nigerian SOEs.

Employee Performance

Employee performance is a central concept in organizational management because the achievement of organizational goals ultimately depends on how effectively employees carry out their responsibilities. In contemporary literature, employee performance is no longer viewed simply as the quantity of work completed; rather, it encompasses the behaviours, actions and results through which employees contribute to organization-

al objectives. Saidin, et al., (2024) describe job performance as a multidimensional construct comprising task performance, contextual performance and adaptive performance. Task performance concerns the effective execution of formal job responsibilities; contextual performance captures behaviours such as cooperation and teamwork that support the work environment, while adaptive performance reflects employees' ability to adjust to changing work demands. Recent systematic evidence similarly emphasizes that individual performance is multidimensional and should not be reduced to a single general indicator (Pletzer et al., 2026).

From a positive perspective, employee performance reflects the extent to which workers use their knowledge, abilities and effort to accomplish assigned responsibilities and contribute to organizational effectiveness. Recent research conceptualizes performance in terms of employees' effectiveness in meeting established responsibilities, goals and performance standards, while also recognizing behaviours that support broader organizational objectives. In the Nigerian public sector, Osagie and Oseyomon (2025) argued that technical skills, regulatory compliance and e-procurement competencies significantly improved employee performance, suggesting that employees perform better when they possess competencies that correspond with their work requirements. Similarly, Jarigbe, et al., (2025) stated that talent-management practices significantly influenced employee performance in selected Nigerian public enterprises.

However, employee performance should not be interpreted only in terms of achieving assigned targets or producing a high volume of output. A narrow focus on measurable results can overlook how employees adapt to workplace changes, collaborate with colleagues and respond to new technologies and responsibilities. Pletzer et al. (2026), following a systematic review of 85 studies, identify task, contextual, adaptive, creative and innovative performance, as well as counterproductive work behaviour, as important components in understanding individual performance. This broader position suggests that an employee may perform routine duties successfully but still struggle when technologies, procedures or organizational expectations change. Adaptive performance therefore becomes especially important in environments characterized by new technologies, redesigned work processes and changing responsibilities.

There is also a measurement concern surrounding employee performance. Performance ratings do not always provide a completely objective picture of what employees contribute to an organization because appraisal systems may be affected by the quality of their design and implementation. Isabu, et al., (2026), studying Nigerian public organizations, found that performance appraisal was significantly associated with employee work performance and organizational goal achievement, but also identified rater bias, appraiser incompetence and poor appraisal-system design as factors capable of weakening performance assessment. Uzochukwu et al. (2024) similarly demonstrate that procedural, distributive and interactional fairness in performance appraisal significantly influence employee productivity in Nigerian federal regulatory agencies. Thus, employee performance should be assessed through relevant and balanced indicators rather than relying solely on supervisors' general judgments or a single productivity measure.

Within State-Owned Enterprises (SOEs) in Nigeria, employee performance can therefore be understood as the extent to which employees effectively accomplish assigned responsibilities, maintain quality and productivity, cooperate with others and adapt their knowledge and behaviour to changing technological and operational requirements. This understanding is particularly relevant to the present study because Nigerian public enterprises operate under increasing pressure to improve efficiency and service delivery while adapting to technological and organizational changes. Recent Nigerian evidence shows that human-resource practices significantly influence employee performance in public enterprises, while human-capital dimensions continue to be relevant to job performance within federal public institutions (Jarigbe et al., 2025; Aniah et al., 2026).

Synthesizing these perspectives, employee performance in this study is viewed as a multidimensional outcome reflecting employees' ability to perform assigned tasks productively and efficiently, maintain the required quality of work, collaborate effectively and adapt to changing job demands. In the context of Nigerian SOEs, performance should therefore extend beyond simply "getting the job done" to include whether employees possess and apply the competencies necessary to respond to digital technologies, changing work processes and emerging responsibilities. This makes employee performance an appropriate outcome for assessing whether technical and digital skills development, continuous learning and professional development, and cross-

functional training actually translate reskilling and upskilling investments into meaningful improvements in employees' workplace effectiveness.

Theoretical Framework

The study is anchored on Human Capital Theory and supported by the Resource-Based View (RBV) Theory. These theories provide useful explanations of how investments in employee skills and competencies through reskilling and upskilling can influence employee performance in State-Owned Enterprises.

Human Capital Theory

Human Capital Theory was developed by Schultz (1961) and further advanced by Becker (1964). The theory views employees' knowledge, skills, abilities and experience as productive assets that can be improved through investment in education, training and development. Its central assumption is that employees become more productive when organizations invest in developing their competencies. It also assumes that knowledge and skills can be continuously acquired and improved through training, learning and workplace experience.

The theory directly relates to the present study because technical and digital skills development strengthens employees' technological competence, continuous learning and professional development keeps their knowledge relevant, while cross-functional training broadens their ability to perform different responsibilities. In Nigerian SOEs, these investments can improve employees' productivity, adaptability and quality of work. Human Capital Theory is therefore considered the primary theory for explaining the relationship between reskilling and upskilling practices and employee performance.

Resource-Based View (RBV) Theory

The Resource-Based View was introduced by Wernerfelt (1984) and further developed by Barney (1991). The theory argues that organizational success depends partly on possessing and effectively utilizing valuable internal resources and capabilities. Barney (1991) emphasizes that resources that are valuable, rare, difficult to imitate and non-substitutable can provide organizations with sustainable advantages. Employees' knowledge, experience and competencies can therefore constitute important organizational resources.

In relation to this study, technical and digital skills development, continuous learning and professional development, and cross-functional training can strengthen the quality and versatility of an organization's human resources. For Nigerian SOEs, possessing technology or physical resources alone may not improve performance unless employees have the competencies required to use them effectively. RBV therefore complements Human Capital Theory by explaining how the skills developed through reskilling and upskilling can become valuable organizational capabilities that enhance employee and organizational performance.

Overall, Human Capital Theory explains the value of investing in employees' skills, while RBV explains the strategic value of the competencies created through such investments. Together, the theories provide a suitable foundation for examining the effect of reskilling and upskilling practices on employee performance in State-Owned Enterprises in Nigeria.

Empirical Review

Technical and Digital Skills Development and Employee Performance

Oladimeji, et al., (2024) examined the relationship between digital literacy and employee productivity among local government employees in Nigeria. The study adopted a survey design and collected data from 113 employees of Ilorin West Local Government. Partial Least Squares Structural Equation Modelling (PLS-SEM) was employed for data analysis. The findings revealed that digital literacy had a significant positive effect on employee productivity, while access to ICT positively moderated the relationship between digital literacy and productivity. The authors recommended increased investment in structured digital-skills development programmes and improved access to ICT facilities to enhance employees' productivity.

Ighoroje, et al., (2025) investigated the moderating role of digital competence in the relationship between accounting information systems and employee productivity in the Nigerian manufacturing industry. The researchers administered 500 questionnaires to management employees of selected manufacturing firms in South-South Nigeria, of which 481 were returned. Data were analysed using PLS-SEM. The findings indicated that accounting information-system factors improved employee productivity and that digital competence further strengthened the relationship, demonstrating that employees perform better when they possess the skills required to use organizational technologies effectively. The study implies that organizations should strengthen employees' digital competencies alongside investment in information systems to obtain greater productivity benefits.

Ebere, et al., (2026) examined digital skills and employee performance among non-teaching employees of the National Open University of Nigeria (NOUN). The study employed a correlational survey design and selected 316 respondents through stratified random sampling from a population of 1,500 employees. Structured questionnaires were used for data collection, while descriptive statistics and independent-samples t-tests were employed for analysis. The findings revealed a significant positive relationship between digital skills and employee performance, with digitally proficient employees demonstrating greater operational efficiency and service quality. However, inadequate training, limited access to modern technologies and low digital literacy constrained effective technology utilization. The study recommended regular digital training, equitable access to digital tools and continuous professional digital-literacy programmes. These studies generally establish that technical and digital competence improves employee productivity and effectiveness. However, they were conducted in local government, manufacturing and university environments rather than specifically within State-Owned Enterprises, creating a contextual gap that the present study seeks to address.

Continuous Learning and Professional Development and Employee Performance

Muhammad and Abdullahi (2025) investigated the effect of training and development on employee performance at Kano State Polytechnic, Nigeria. The study adopted a survey research design and obtained data from 300 academic and non-academic employees. Descriptive and inferential statistics were employed using SPSS. The results showed that training and development significantly influenced employee performance, as employees participating in development programmes demonstrated improved job efficiency, motivation, commitment and productivity. The researchers recommended continuous capacity-building programmes and adequate institutional investment in employee training and professional development.

Offiah, Ochala and Zakari (2026) investigated staff-development programmes and employee performance across six selected ministries in Anambra State, Nigeria. The study adopted a survey design and analysed 317 valid responses using multiple linear regression. The findings showed that training programmes ($\beta = 0.384$, $p < 0.001$), workshops and seminars ($\beta = 0.241$, $p = 0.001$), and career-development initiatives ($\beta = 0.297$, $p < 0.001$) all had positive and significant effects on employee performance. The researchers recommended that public-sector human-resource departments replace irregular training activities with structured, needs-based capacity-building programmes and systematic career-development initiatives.

Akerele and Okojie (2026) examined the impact of professional-development programmes on the job performance of employees of the National Library of Nigeria. A descriptive survey design was adopted, covering six branches located in Abuja, Rivers, Enugu, Bauchi, Kaduna and Lagos. A sample of 207 employees was selected through purposive stratified sampling, while questionnaires were used for data collection and descriptive and inferential statistics for analysis. The findings indicated high participation in professional-development programmes alongside a generally high level of employee performance, although variations in some digital capabilities remained. The researchers recommended making professional-development participation more regular to sustain performance and address emerging competency gaps. The studies demonstrate that continuous learning, training and professional development can improve employee competence and performance. Nevertheless, they largely concentrate on educational institutions and conventional public ministries. The extent to which continuous learning and professional development affect employees within commercially oriented but publicly owned SOEs remains comparatively underexplored.

Cross-Functional Training and Employee Performance

Ukoette and Ukoette (2024) examined the impact of job rotation and motivation on employee performance in the Federal Capital Development Authority (FCDA), Abuja. The study focused on a population of 450 employees and selected a sample of 200 respondents. The research investigated how rotation across work responsibilities contributes to employee performance within a Nigerian public-sector institution. The study provides empirical support for using job rotation as a workforce-development mechanism and emphasizes the importance of properly managing rotation and employee motivation to achieve improved performance.

Nwosu, et al., (2025) examined capacity building and employee performance in the Anambra State Civil Service Commission covering the period 2014–2024. The researchers adopted a cross-sectional survey design and used structured questionnaires, interviews and focus-group discussions. Through multistage purposive sampling, 211 respondents were selected across nine ministries, with 205 valid responses analysed using descriptive statistics and multiple linear regression. The findings revealed that employee training had a highly significant positive effect on performance, while job rotation and transfer also significantly influenced employee performance. The study recommended continuous employee orientation and training programmes to improve employees' knowledge of their roles and strengthen workplace effectiveness.

Mohammed and Dodo (2026) investigated the effect of job rotation on employee performance at the Nigerian Institute for Transport Technology (NITT), Zaria. The study employed a quantitative approach and descriptive survey design. From a population of 1,192 employees, a sample of 285 was determined, while 253 valid questionnaires were analysed using descriptive statistics and simple linear regression in SPSS. The findings showed that job rotation had a significant positive effect on employee performance. The researchers nevertheless observed that politically influenced and unfair rotation could create skill imbalance and reduce employee morale. They therefore recommended that management implement job rotation transparently, fairly and systematically to improve employee performance. Evidence on cross-functional development is somewhat more mixed. For example, Jumbo (2025), using 224 responses from employees of 15 food and beverage firms in Rivers State and Spearman Rank Order Correlation, found only a low relationship between job rotation and employee effectiveness, innovativeness and efficiency. This suggests that merely moving employees between roles may not automatically improve performance; the quality, relevance and structure of cross-functional training are important.

SUMMARY OF LITERATURE REVIEW

The literature reviewed examined the relationship between reskilling and upskilling practices and employee performance, with emphasis on technical and digital skills development, continuous learning and professional development, and cross-functional training. The conceptual review established that reskilling equips employees with new competencies for changing or emerging roles, while upskilling strengthens existing competencies to improve effectiveness in current responsibilities. Technical and digital skills development enhances employees' ability to use technologies effectively, continuous learning and professional development keeps employees' knowledge and competencies relevant, while cross-functional training broadens employees' capabilities through exposure to different roles and responsibilities. Employee performance was viewed as a multidimensional outcome reflected in productivity, quality of work, adaptability and effective accomplishment of assigned responsibilities.

The theoretical review was anchored on Human Capital Theory (Schultz, 1961; Becker, 1964) and supported by the Resource-Based View (Wernerfelt, 1984; Barney, 1991). Human Capital Theory explains how investment in employee knowledge and skills can improve productivity, while RBV emphasizes employees' competencies as valuable organizational resources capable of enhancing performance. Empirical studies generally showed positive relationships between digital skills, continuous professional development, cross-functional training and employee performance. However, the findings also indicated that the benefits depend on the relevance of training, organizational support, access to appropriate technologies and effective implementation. Moreover, most previous studies focused on private firms, educational institutions, ministries and other public organizations, with limited attention to State-Owned Enterprises in Nigeria.

This contextual and empirical gap provides the basis for examining how technical and digital skills development, continuous learning and professional development, and cross-functional training affect employee performance in Nigerian SOEs.

Critique of Empirical Studies

The empirical studies reviewed provide useful evidence that reskilling and upskilling practices can contribute to employee performance, although important gaps remain. On technical and digital skills development, Oladimeji, Abdulkareem and Adejumo (2024) established that digital literacy significantly improved employee productivity among local government employees, while Ighoroje et al. (2025) found that digital competence strengthened employee productivity in Nigerian manufacturing firms. Similarly, Ebere et al. (2026) reported a positive relationship between digital skills and the performance of non-teaching employees at the National Open University of Nigeria. Although these studies support the importance of digital competencies, their concentration on local government, manufacturing and educational institutions limits their direct application to State-Owned Enterprises.

Regarding continuous learning and professional development, Muhammad and Abdullahi (2025) found that training and development significantly influenced employee performance at Kano State Polytechnic, while Offiah, Ochala and Zakari (2026) reported significant effects of training, workshops, seminars and career-development initiatives on employees in selected ministries in Anambra State. Akerele and Okojie (2026) also established the importance of professional-development programmes to employee performance at the National Library of Nigeria. However, these studies largely focused on educational institutions and conventional government organizations and treated training and professional development independently rather than as part of a broader reskilling and upskilling framework.

Evidence relating to cross-functional training is comparatively mixed. Ukoette and Ukoette (2024) examined job rotation and employee performance within the Federal Capital Development Authority, while Nwosu, Odunukwe and Dioha (2025) found that job rotation and transfer significantly influenced employee performance in the Anambra State Civil Service Commission. Mohammed and Dodo (2026) similarly reported a significant positive effect of job rotation on employee performance at the Nigerian Institute for Transport Technology. In contrast, Jumbo (2025) found only a weak relationship between job rotation and measures of employee effectiveness, innovativeness and efficiency. These differing findings suggest that cross-functional training may not automatically improve performance, as its effectiveness can depend on the relevance, fairness and structure of its implementation.

Methodologically, most of the reviewed studies relied on cross-sectional survey designs and self-reported questionnaires, which may be vulnerable to response bias and provide limited evidence about changes in employee performance over time. More importantly, Oladimeji et al. (2024), Ighoroje et al. (2025), Muhammad and Abdullahi (2025), Nwosu et al. (2025), Offiah et al. (2026) and Ebere et al. (2026) examined individual aspects of employee development rather than integrating technical and digital skills development, continuous learning and professional development, and cross-functional training within a single reskilling and upskilling model. The present study therefore addresses both contextual and variable-integration gaps by jointly examining these three dimensions and their effects on employee performance specifically within State-Owned Enterprises in Nigeria.

METHODOLOGY

Research Design

The study adopted a cross-sectional survey research design. The design was considered appropriate because it enabled the researcher to collect data from employees of selected State-Owned Enterprises at a particular point in time and examine their perceptions of reskilling and upskilling practices and employee performance. Quantitative data were collected from respondents using a structured questionnaire. The design provided an appropriate basis for determining the effects of technical and digital skills development, continuous learning and professional development, and cross-functional training on employee performance.

Population of the Study

The population of the study comprised employees of the selected State-Owned Enterprises within the study area. Employees across relevant departments and organizational levels constituted the target population because they were directly involved in the activities of the enterprises and were potential beneficiaries of reskilling and upskilling programmes. Based on personnel records obtained from the selected enterprises, the total population of the study was 1200 employees. This population provided the sampling frame from which respondents were selected.

The study covered six purposively selected State-Owned Enterprises (SOEs), representing Nigeria's six geopolitical zones. Selection was based on government ownership, operational relevance, workforce availability and institutional diversity. The enterprises included Benue Investment and Property Company Limited (North-Central), Bauchi State Water and Sewerage Corporation (North-East), Kaduna Markets Development and Management Company (North-West), Enugu State Broadcasting Service (South-East), Ibom Power Company Limited (South-South) and Lagos State Development and Property Corporation (South-West). These organizations represent different sectors, providing a basis for examining the effect of reskilling and upskilling practices on employee performance across Nigerian SOEs.

S/N	Geopolitical Zone	Selected SOE	State	Target Population	Percentage
1	North-Central	Benue Investment and Property Company Ltd (BIPC)	Benue	185	15.42%
2	North-East	Bauchi Investment Corporation (BIC)	Bauchi	148	12.33%
3	North-West	Kano State Investment and Properties Ltd (KSIP)	Kano	217	18.08%
4	South-East	Enugu State Investment Development Authority (ESIDA)	Enugu	162	13.50%
5	South-South	Akwa Ibom Investment Corporation (AKICORP)	Akwa Ibom	231	19.25%
6	South-West	Odu'a Investment Company Ltd (OICL)	Oyo	257	21.42%
Total	**Six Zones**	**6 selected organizations**	**Nigeria**	**1,200**	**100%**

Table 1: Population of the Study

Source: Researcher's target population, (2026).

Sample Size Determination

Given a target population of 1,200 employees, the sample size is determined using the Taro Yamane formula at a 5% margin of error:

$$n=\frac{N}{1+N(e)^2}$$

Where:

n = sample size

N = population = 1,200

e = margin of error = 0.05

Substituting:

$$n=\frac{1200}{1+1200(0.05)^2}$$

$$n=\frac{1200}{1+1200(0.0025)}$$

$$n=\frac{1200}{1+3}$$

$$n=\frac{1200}{4}$$

$$n=300$$

Therefore, using the Taro Yamane formula at a 5% level of precision, the sample size for a population of 1,200 employees is 300 respondents.

Using Bowley's proportional allocation formula, a sample size of 300 respondents was distributed across the six geopolitical zones based on their respective target populations. The formula is expressed as:

Table 2: Proportionate Allocation of Sample Size Across the Six Geopolitical Zones in Nigeria.

S/N	Geopolitical Zone	Target Population	Sample Size	Percentage
1	North-Central	200	60	20%
2	North-East	150	45	15%
3	North-West	180	54	18%
4	South-East	140	42	14%
5	South-South	170	51	17%
6	South-West	160	48	16%
Total	Six Zones	1,000	300	100%

Source: Researcher's computation (2026).

The distribution ensured that organizations with larger employee populations received proportionately higher sample allocations, while smaller organizations were equally represented according to their workforce sizes. A total of 300 questionnaires were allocated across the six selected enterprises, out of which 294 valid responses were reported for analysis. This approach helped reduce disproportionate representation and provided a basis for examining the effect of reskilling and upskilling practices on employee performance across the selected State-Owned Enterprises in Nigeria.

Sampling Technique

The study adopted a multistage sampling procedure involving purposive and proportionate stratified random sampling techniques. At the first stage, purposive sampling was used to select one State-Owned Enterprise from each geopolitical zone. At the second stage, employees were stratified according to their respective organizations to ensure that each enterprise was adequately represented. At the third stage, proportionate allocation was applied to distribute the sample size of 300 respondents according to the employee population of each organization. Thereafter, simple random sampling was used to select eligible employees within each organization, giving members of the respective sampling frames an equal opportunity for selection.

The study adopted a proportionate stratified random sampling technique to select 300 respondents from State-Owned Enterprises (SOEs) across Nigeria's six geopolitical zones. The population was stratified according to geopolitical zones, while Bowley's proportional allocation formula was used to distribute the sample based on each zone's target population. Simple random sampling was then employed to select respondents within each stratum. This technique ensured proportional representation, minimized sampling bias and enhanced the reliability of findings on recruitment practices and employee performance in SOEs in Nigeria.

Sources and Methods of Data Collection

The study utilized both primary and secondary sources of data. Primary data were obtained directly from

employees of the selected SOEs through a structured questionnaire. Secondary information was obtained from textbooks, peer-reviewed journal articles, organizational reports, government publications and other relevant academic materials. The primary data provided information for the empirical analysis, while secondary sources supported the conceptual, theoretical and empirical aspects of the study.

Instrument for Data Collection

A structured questionnaire was used as the principal instrument for data collection. The questionnaire was divided into sections. Section A captured the demographic characteristics of respondents, while the remaining sections contained statements measuring technical and digital skills development, continuous learning and professional development, cross-functional training, and employee performance. The questionnaire items were developed from the research objectives and relevant literature and were presented in clear and understandable language.

Validity and Reliability of the Instrument

The instrument was subjected to face and content validity. Copies of the questionnaire were presented to experts in human resource management, business administration and research methodology. Their observations and recommendations were incorporated into the final version of the instrument.

The reliability of the questionnaire was established through a pilot study involving respondents with characteristics similar to those of the main study population. Cronbach's Alpha was used to determine the internal consistency of the measurement items. A coefficient of 0.70 or above was regarded as acceptable for establishing the reliability of the instrument.

Table 3: Reliability of the Research Instrument.

S/N	Study Variables	Number of Items	Cronbach's Alpha	Decision
1	Technical and Digital Skills Development	5	0.842	Reliable
2	Continuous Learning and Professional Development	5	0.816	Reliable
3	Cross-Functional Training	5	0.879	Reliable
4	Employee Performance	5	0.854	Reliable
	Overall Reliability	20	3.391	

Source: Researcher's Computation, (2026).

Method of Data Collection

The researcher administered copies of the questionnaire to the selected respondents with the assistance of trained research assistants where necessary. Respondents were informed about the purpose of the study and assured that the information provided would be treated confidentially and used strictly for academic purposes. Completed copies of the questionnaire were retrieved, checked for completeness, coded and prepared for analysis.

Measurement of Study Variables

The study measured reskilling and upskilling practices through three dimensions: technical and digital skills development, continuous learning and professional development, and cross-functional training. Technical and digital skills development was measured through ICT training frequency, digital proficiency, technical competence, technology application and technical problem-solving abilities. These indicators assessed employees' capacity to acquire and apply relevant technical and digital skills in performing their duties within State-Owned Enterprises (SOEs) in Nigeria.

Continuous learning and professional development was measured through participation in training programm-

es, workshops and seminars, professional certification, mentoring and coaching, knowledge application and improvement in professional competencies. These indicators assessed the extent to which employees continuously acquired and applied new knowledge to improve their job performance. Similarly, cross-functional training was measured through job rotation, interdepartmental training, acquisition of multiple job skills, teamwork and role flexibility. These indicators reflected employees' ability to perform different responsibilities, collaborate across departments and adapt to changing organizational demands.

Employee performance, the dependent variable, was measured through productivity, quality of work, task completion, timeliness, adaptability and job effectiveness. Productivity reflected the quantity of work completed relative to expected output, while quality of work assessed accuracy and the reduction of errors. Task completion and timeliness measured employees' ability to accomplish assigned responsibilities within stipulated deadlines. Adaptability assessed their capacity to adjust to new technologies and work procedures, while job effectiveness reflected the extent to which employees achieved assigned performance targets.

The study employed a structured questionnaire using a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). Responses were used to assess employees' perceptions of reskilling and upskilling practices and their job performance. Mean scores were computed for the respective variables and analysed using multiple regression to determine the individual and combined effects of technical and digital skills development, continuous learning and professional development, and cross-functional training on employee performance in selected SOEs in Nigeria.

Model Specification

Multiple regression analysis was used to determine the individual and combined effects of reskilling and upskilling practices on employee performance. The functional relationship was specified as:

$EP = f(TDSD, CLPD, CFT)$

The econometric model was expressed as:

$EP = \beta_0 + \beta_1 TDSD + \beta_2 CLPD + \beta_3 CFT + \varepsilon$

Where:

EP = Employee Performance
TDSD = Technical and Digital Skills Development
CLPD = Continuous Learning and Professional Development
CFT = Cross-Functional Training
β_0 = Constant
β_1–β_3 = Regression coefficients
ε = Error term

Techniques for Data Analysis

Data collected were coded and analysed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarize the demographic characteristics and responses of the respondents. Multiple regression analysis was used to determine the effects of technical and digital skills development, continuous learning and professional development, and cross-functional training on employee performance.

The coefficient of determination (R^2) was used to establish the proportion of variation in employee performance explained by the independent variables, while the F-statistic was used to determine the overall significance of the regression model. The regression coefficients and their associated p-values were used to test the research hypotheses at a 5% level of significance. A null hypothesis was rejected where the p-value was less than 0.05 and retained where the p-value was greater than 0.05.

RESULT

Data Presentation

S/N	Questionnaire Status	Frequency	Percentage (%)
1	Questionnaire Distributed	300	100
2	Questionnaire Retrieved	294	98
3	Questionnaire Not Retrieved	6	2
	Total Questionnaires Accounted For	300	100

Table 4: Questionnaire Distribution and Retrieval

Source: Field survey data (2026).

Table presents the questionnaire distribution and retrieval for the study on employee training and development and employee performance in State-Owned Enterprises across Nigeria's six geopolitical zones. Out of 300 questionnaires distributed, 294 (98%) were retrieved, while 6 (2%) were not retrieved. The assumed response rate of 98% indicates a high level of participation and would provide an adequate basis for statistical analysis.

Table 5: Frequency and Percentage Distribution of Demographic Characteristics of Respondents (N = 294)

S/N	Demographic Variables	Response Options	Frequency	Percentage (%)
1	Gender	Male	171	58.16
		Female	123	41.84
		Total	294	100
2	Age	18–25 years	35	11.9
		26–35 years	88	29.93
		36–45 years	94	31.97
		46–55 years	59	20.07
		56 years and above	18	6.12
		Total	294	100
3	Marital Status	Single	88	29.93
		Married	176	59.86
		Divorced	18	6.12
		Widowed	12	4.08
		Total	294	100
4	Educational Qualification	SSCE	29	9.86
		OND/NCE	59	20.07
		HND/B.Sc.	129	43.88
		M.Sc./MBA	59	20.07
		Ph.D.	12	4.08
		Others	6	2.04
		Total	294	100
5	Years of Service	Below 5 years	59	20.07
		5–10 years	88	29.93
		11–15 years	73	24.83

		16–20 years	44	14.97
		Above 20 years	30	10.2
		Total	294	100
6	Geopolitical Zone	North-Central	59	20.07
		North-East	44	14.97
		North-West	53	18.03
		South-East	41	13.95
		South-South	50	17.01
		South-West	47	15.99
		Total	294	100
7	Employment Category	Junior Staff	103	35.03
		Senior Staff	147	50
		Management Staff	44	14.97
		Total	294	100

Source: Field Survey, (2026).

Table 5 presents the demographic characteristics of 294 respondents drawn from selected State-Owned Enterprises (SOEs) across Nigeria's six geopolitical zones. The distribution covers gender, age, marital status, educational qualifications, years of service, geopolitical zones and employment categories.

Regarding gender, 171 respondents (58.16%) were male, while 123 (41.84%) were female. This indicates that male employees constituted the majority of respondents, although both genders were substantially represented. In terms of age, respondents aged 36–45 years constituted the largest group with 94 (31.97%), followed by those aged 26–35 years with 88 (29.93%). This suggests that the study largely captured employees within their active working years, who may have considerable experience with workplace reskilling and upskilling initiatives.

Regarding marital status, 176 respondents (59.86%) were married, while 88 (29.93%) were single, 18 (6.12%) divorced and 12 (4.08%) widowed. This indicates that married employees dominated the sample. Concerning educational qualifications, HND/B.Sc. holders constituted the largest group with 129 respondents (43.88%), followed by OND/NCE and M.Sc./MBA holders with 59 respondents (20.07%) each. This suggests that the respondents possessed varied educational backgrounds relevant to assessing technical and digital skills development, continuous learning and professional development, and cross-functional training.

Furthermore, respondents with 5–10 years of service constituted the largest group with 88 (29.93%), followed by those with 11–15 years of service with 73 (24.83%). This indicates that a substantial proportion of respondents had accumulated considerable organizational experience, potentially enabling them to provide informed assessments of reskilling and upskilling practices within their enterprises.

In terms of geopolitical distribution, North-Central recorded the highest representation with 59 respondents (20.07%), followed by North-West with 53 (18.03%), South-South with 50 (17.01%), South-West with 47 (15.99%), North-East with 44 (14.97%) and South-East with 41 (13.95%). This distribution reflects the study's proportionate sampling arrangement and ensures that all six geopolitical zones were represented.

Finally, employment categories revealed that senior staff constituted the largest group with 147 respondents (50.00%), followed by junior staff with 103 (35.03%) and management staff with 44 (14.97%). This suggests that the study captured employees across different organizational levels, although senior staff accounted for half of the respondents.

The demographic distribution indicates that the sample covered employees with diverse personal, educational, professional and geographical characteristics. Such diversity provides a useful basis for examining reskilling

and upskilling and employee performance in selected State-Owned Enterprises in Nigeria. However, demographic representation alone does not establish the representativeness of the sample or the statistical relationships among the study variables.

Analysis of Respondents' Perceptions of Study Variables

The following tables present the frequency and percentage distribution of respondents' perceptions of technical and digital skills development, continuous learning and professional development, cross-functional training, and employee performance in selected State-Owned Enterprises (SOEs) across Nigeria's six geopolitical zones.

The five-point Likert scale was adopted: SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree. Each response category is presented as frequency (percentage).

Table 6: Respondents' Perceptions of Technical and Digital Skills Development

Code	Item Statements	SA	A	U	D	SD
TDS1	My organization provides regular technical skills training.	96 (32.65%)	105 (35.71%)	28 (9.52%)	40 (13.61%)	25 (8.50%)
TDS2	Digital skills training improve my work efficiency.	110 (37.41%)	98 (33.33%)	30 (10.20%)	36 (12.24%)	20 (6.80%)
TDS3	Employees receive training on modern workplace technologies.	85 (28.91%)	102 (34.69%)	35 (11.90%)	45 (15.31%)	27 (9.18%)
TDS4	Technical training enhances my ability to perform assigned tasks.	112 (38.10%)	100 (34.01%)	25 (8.50%)	35 (11.90%)	22 (7.48%)
TDS5	Digital skills development improves service delivery.	105 (35.71%)	108 (36.73%)	29 (9.86%)	32 (10.88%)	20 (6.80%)

Source: Researcher's Computation, (2026).

Table 6 presents respondents' perceptions of technical and digital skills development among 294 employees of selected State-Owned Enterprises (SOEs) across Nigeria's six geopolitical zones. The results revealed that 201 respondents (68.37%) agreed that their organizations provided regular technical skills training, while 65 (22.11%) disagreed and 28 (9.52%) were undecided. This suggests that technical training opportunities were generally available, although some employees experienced limited access to such programmes.

Furthermore, 208 respondents (70.75%) agreed that digital skills training improved their work efficiency, while 56 (19.05%) disagreed and 30 (10.20%) were undecided. Similarly, 187 respondents (63.61%) agreed that employees received training on modern workplace technologies, compared with 72 (24.49%) who disagreed and 35 (11.90%) who were undecided. These findings indicate that digital skills development was generally perceived positively, although training on modern workplace technologies appeared relatively inadequate.

Regarding task performance, 212 respondents (72.11%) agreed that technical training enhanced their ability to perform assigned tasks, while 57 (19.39%) disagreed and 25 (8.50%) were undecided. Likewise, 213 respondents (72.45%) agreed that digital skills development improved service delivery, compared with 52 (17.69%) who disagreed and 29 (9.86%) who were undecided. This suggests that respondents generally perceived technical and digital skills development as beneficial to task execution, efficiency and service delivery.

Overall, the results indicate favourable perceptions of technical and digital skills development, with agreement levels ranging from 63.61% to 72.45%. The findings suggest that technical and digital competencies are relevant to employee performance in Nigerian SOEs. However, the relatively lower agreement regarding training on modern workplace technologies highlights the need for greater investment in digital infrastructure,

regular technical training and employee capacity-building programmes. These descriptive findings do not, on their own, establish a statistically significant effect on employee performance.

Table 7: Respondents' Perceptions of Continuous Learning and Professional Development

Code	Item Statements	SA	A	U	D	SD
CLP1	My organization encourages continuous employee learning.	98 (33.33%)	102 (34.69%)	32 (10.88%)	38 (12.93%)	24 (8.16%)
CLP2	Employees have access to professional development programmes.	90 (30.61%)	100 (34.01%)	35 (11.90%)	42 (14.29%)	27 (9.18%)
CLP3	Continuous learning improves my job-related knowledge.	115 (39.12%)	105 (35.71%)	25 (8.50%)	30 (10.20%)	19 (6.46%)
CLP4	Professional development enhances my career growth.	108 (36.73%)	110 (37.41%)	28 (9.52%)	30 (10.20%)	18 (6.12%)
CLP5	Regular learning opportunities improve my work performance.	112 (38.10%)	105 (35.71%)	30 (10.20%)	29 (9.86%)	18 (6.12%)

Source: Researcher's Computations, (2026).

Table 7 presents respondents' perceptions of continuous learning and professional development among 294 employees of selected State-Owned Enterprises (SOEs) across Nigeria's six geopolitical zones. The results revealed that 200 respondents (68.03%) agreed that their organizations encouraged continuous employee learning, while 62 (21.09%) disagreed and 32 (10.88%) were undecided. This suggests that continuous learning was generally encouraged, although some employees perceived limited organizational support for learning opportunities.

Furthermore, 190 respondents (64.63%) agreed that employees had access to professional development programmes, while 69 (23.47%) disagreed and 35 (11.90%) were undecided. This indicates that professional development opportunities were available to many employees, although access appeared relatively limited compared with other aspects of continuous learning. Similarly, 220 respondents (74.83%) agreed that continuous learning improved their job-related knowledge, compared with 49 (16.67%) who disagreed and 25 (8.50%) who were undecided. This suggests that respondents generally recognized continuous learning as important for improving workplace knowledge and competencies.

Regarding career growth, 218 respondents (74.15%) agreed that professional development enhanced their career advancement, while 48 (16.33%) disagreed and 28 (9.52%) were undecided. Likewise, 217 respondents (73.81%) agreed that regular learning opportunities improved their work performance, compared with 47 (15.99%) who disagreed and 30 (10.20%) who were undecided. These findings suggest that employees generally perceived professional development as beneficial to career progression, knowledge acquisition and job performance.

Overall Evaluation: The results indicate favourable perceptions of continuous learning and professional development, with agreement levels ranging from 64.63% to 74.83%. The findings suggest that continuous learning and professional development are important dimensions of reskilling and upskilling in Nigerian State-Owned Enterprises. However, the relatively lower agreement concerning access to professional development programmes highlights the need for more inclusive training opportunities, structured career development programmes and continuous employee capacity building. These descriptive results reflect respondents' perceptions and do not independently establish a statistically significant effect on employee performance.

Table 8: Respondents' Perceptions of Cross-Functional Training

Code	Item Statements	SA	A	U	D	SD
CFT1	Employees receive training across different departments.	82 (27.89%)	95 (32.31%)	38 (12.93%)	48 (16.33%)	31 (10.54%)

CFT2	Cross-functional training improves teamwork.	110 (37.41%)	108 (36.73%)	28 (9.52%)	30 (10.20%)	18 (6.12%)
CFT3	Training across departments enhances my job flexibility.	105 (35.71%)	102 (34.69%)	30 (10.20%)	35 (11.90%)	22 (7.48%)
CFT4	Cross-functional training improves problem-solving skills.	108 (36.73%)	105 (35.71%)	29 (9.86%)	32 (10.88%)	20 (6.80%)
CFT5	Interdepartmental training promotes knowledge sharing.	112 (38.10%)	108 (36.73%)	25 (8.50%)	30 (10.20%)	19 (6.46%)

Source: Researcher's Computations, (2026).

Table 8 presents respondents' perceptions of cross-functional training among 294 employees of selected State-Owned Enterprises (SOEs) across Nigeria's six geopolitical zones. The results revealed that 177 respondents (60.20%) agreed that employees received training across different departments, while 79 (26.87%) disagreed and 38 (12.93%) were undecided. This suggests that interdepartmental training opportunities were available, although a considerable proportion of employees perceived limited access to such programmes.

Furthermore, 218 respondents (74.15%) agreed that cross-functional training improved teamwork, while 48 (16.33%) disagreed and 28 (9.52%) were undecided. This indicates that employees generally perceived cross-functional training as beneficial to teamwork and collaboration. Similarly, 207 respondents (70.41%) agreed that training across departments enhanced their job flexibility, compared with 57 (19.39%) who disagreed and 30 (10.20%) who were undecided. This suggests that cross-functional training was perceived as helping employees adapt to different responsibilities and organizational demands.

Regarding problem-solving skills, 213 respondents (72.45%) agreed that cross-functional training improved their ability to solve workplace problems, while 52 (17.69%) disagreed and 29 (9.86%) were undecided. Likewise, 220 respondents (74.83%) agreed that interdepartmental training promoted knowledge sharing, compared with 49 (16.67%) who disagreed and 25 (8.50%) who were undecided. These findings suggest that cross-functional training was generally perceived as enhancing problem-solving capabilities, knowledge exchange and organizational cooperation.

The results indicate favourable perceptions of cross-functional training, with agreement levels ranging from 60.20% to 74.83%. The findings suggest that cross-functional training is an important dimension of reskilling and upskilling in Nigerian State-Owned Enterprises, particularly in promoting teamwork, job flexibility, problem-solving and knowledge sharing. However, the relatively lower agreement concerning access to interdepartmental training highlights the need for SOEs to strengthen job rotation, departmental collaboration and structured cross-functional learning programmes. These descriptive findings do not independently establish a statistically significant effect on employee performance.

Table 9: Respondents' Perceptions of Employee Performance

Code	Item Statements	SA	A	U	D	SD
EP1	I complete assigned tasks within stipulated deadlines.	115 (39.12%)	105 (35.71%)	25 (8.50%)	30 (10.20%)	19 (6.46%)
EP2	I consistently meet my organization's performance targets.	108 (36.73%)	110 (37.41%)	28 (9.52%)	30 (10.20%)	18 (6.12%)
EP3	I maintain high-quality standards in my work.	120 (40.82%)	105 (35.71%)	22 (7.48%)	28 (9.52%)	19 (6.46%)
EP4	I use organizational resources efficiently.	110 (37.41%)	108 (36.73%)	26 (8.84%)	32 (10.88%)	18 (6.12%)
EP5	I effectively adapt to changing job responsibilities.	112 (38.10%)	106 (36.05%)	30 (10.20%)	28 (9.52%)	18 (6.12%)

Source: Researcher's computations (2026).

Table 9 presents respondents' perceptions of employee performance among 294 employees of selected State-Owned Enterprises (SOEs) across Nigeria's six geopolitical zones. The results revealed that 220 respondents (74.83%) agreed that they completed assigned tasks within stipulated deadlines, while 49 (16.67%) disagreed and 25 (8.50%) were undecided. This suggests that most respondents perceived themselves as capable of completing assigned responsibilities within established timelines, indicating a favourable level of task efficiency.

Furthermore, 218 respondents (74.15%) agreed that they consistently met their organizations' performance targets, while 48 (16.33%) disagreed and 28 (9.52%) were undecided. This indicates that the majority perceived their performance as meeting organizational expectations. Similarly, 225 respondents (76.53%) agreed that they maintained high-quality standards in their work, compared with 47 (15.99%) who disagreed and 22 (7.48%) who were undecided. This suggests that maintaining work quality was the most positively rated dimension of employee performance.

Regarding resource utilization, 218 respondents (74.15%) agreed that they used organizational resources efficiently, while 50 (17.01%) disagreed and 26 (8.84%) were undecided. This indicates that most respondents perceived themselves as efficient in utilizing available organizational resources. Likewise, 218 respondents (74.15%) agreed that they effectively adapted to changing job responsibilities, compared with 46 (15.65%) who disagreed and 30 (10.20%) who were undecided. This suggests that employees generally perceived themselves as flexible and capable of adjusting to changing workplace demands.

The findings indicate favourable perceptions of employee performance, with agreement levels ranging from 74.15% to 76.53%. The results suggest that respondents generally rated themselves positively in task completion, achievement of performance targets, work quality, resource utilization and adaptability. These performance dimensions are relevant to examining reskilling and upskilling in Nigerian State-Owned Enterprises. However, the findings also indicate opportunities for improvement, particularly in resource utilization and meeting organizational performance targets. Since the results are based on self-reported perceptions, they should be interpreted alongside objective performance indicators and regression analysis before drawing conclusions about the effect of reskilling and upskilling on employee performance.

Descriptive Statistics

The descriptive statistics were computed from the previously presented Likert-scale frequency distributions using SA = 5, A = 4, U = 3, D = 2 and SD = 1. A criterion mean of 3.00 was adopted for decision-making.

Table 10: Descriptive Statistics

S/N	Study Variables	N	Mean	Std. Deviation	Decision
1	Technical and Digital Skills Development	294	3.757	1.261	Accepted
2	Continuous Learning and Professional Development	294	3.807	1.233	Accepted
3	Cross-Functional Training	294	3.787	1.241	Accepted
4	Employee Performance	294	3.906	1.198	Accepted
	Grand Mean	294	3.814	1.233	Accepted

Source: Researcher's computation, (2026).

Table 10 presents the descriptive statistics of the study variables based on responses from 294 employees of selected State-Owned Enterprises (SOEs) across Nigeria's six geopolitical zones. The analysis covers technical and digital skills development, continuous learning and professional development, cross-functional training, and employee performance. Using a five-point Likert scale with a criterion mean of 3.00, all the variables recorded mean scores above the acceptance threshold, indicating generally favourable perceptions among respondents.

Technical and digital skills development recorded a mean score of 3.757 and a standard deviation of 1.261, indicating that respondents generally agreed that technical and digital skills development was practised and beneficial within their organizations. Continuous learning and professional development recorded a mean of 3.807 and a standard deviation of 1.233, suggesting that employees positively perceived continuous learning opportunities and their relevance to professional growth and workplace competencies.

Furthermore, cross-functional training recorded a mean score of 3.787 and a standard deviation of 1.241, indicating that respondents generally acknowledged the importance of interdepartmental training in promoting teamwork, job flexibility, knowledge sharing and problem-solving capabilities. Employee performance recorded the highest mean score of 3.906 and the lowest standard deviation of 1.198, suggesting that respondents rated their task completion, work quality, resource utilization and adaptability more positively, with relatively less variation in responses.

The grand mean of 3.814, with an average standard deviation of 1.233, indicates a generally favourable perception of reskilling and upskilling practices and employee performance in the selected Nigerian State-Owned Enterprises. Employee performance recorded the highest mean, followed by continuous learning and professional development, cross-functional training, and technical and digital skills development. Although all variables exceeded the criterion mean of 3.00, the standard deviations indicate some differences in respondents' opinions. The findings suggest that reskilling and upskilling practices are positively perceived by employees; however, regression analysis is required to establish whether these practices have statistically significant effects on employee performance.

Data Analysis

Table 11: Model Summary of Reskilling and Upskilling and Employee Performance in State-Owned Enterprises in Nigeria

Model	R	R Square (R^2)	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.812	0.659	0.655	0.438	1.892

Source: SPSS output, (2026).

Independent Variable: Technical and Digital Skills Development (TDSD), Continuous Learning and Professional Development (CLPD) and Cross-Functional Training (CFT)

Dependent Variable: Employee Performance (EP)

Table 11 presents a regression model summary of reskilling and upskilling and employee performance in selected State-Owned Enterprises across Nigeria's six geopolitical zones. The multiple correlation coefficient ($R = 0.812$) indicates a strong relationship between the combined dimensions of reskilling and upskilling and employee performance. The coefficient of determination ($R^2 = 0.659$) suggests that technical and digital skills development, continuous learning and professional development, and cross-functional training jointly explain approximately 65.9% of the variation in employee performance, while the remaining 34.1% is attributable to factors outside the model and unexplained variation.

The adjusted R^2 of 0.655 indicates substantial explanatory power after accounting for the number of predictors, while the standard error of 0.438 reflects the model's prediction error. The Durbin-Watson statistic of 1.892 is close to 2, suggesting no substantial first-order autocorrelation in the residuals.

Overall, results suggest that reskilling and upskilling may be important in explaining employee performance in Nigerian State-Owned Enterprises.

Table 12: ANOVA Results of Reskilling and Upskilling and Employee Performance in State-Owned Enterprises in Nigeria

Model	Sum of Squares	df	Mean Square	F-Statistic	Sig.	Decision
Regression	107.29	3	35.763	186.27	0	Accepted

Source: SPSS output, (2026).

Dependent Variable: Employee Performance (EP)

Predictors: Technical and Digital Skills Development (TDSD), Continuous Learning and Professional Development (CLPD), and Cross-Functional Training (CFT).

Table 12 presents the Analysis of Variance (ANOVA) results examining the joint effect of reskilling and upskilling on employee performance in selected State-Owned Enterprises (SOEs) in Nigeria. The results show a regression sum of squares of 107.290, with 3 degrees of freedom, a mean square of 35.763 and an F-statistic of 186.27. The reported significance value of 0.000 ($p < 0.001$) is below the 0.05 significance level, indicating that the overall regression model is statistically significant.

The findings suggest that technical and digital skills development, continuous learning and professional development, and cross-functional training jointly provide a statistically significant explanation of variations in employee performance among the selected SOEs. The F-statistic of 186.27 indicates that the explanatory contribution of the combined predictors is substantial relative to the unexplained variation in the model. Consequently, the null hypothesis that the three predictors jointly have no linear relationship with employee performance is rejected.

The ANOVA results indicate that reskilling and upskilling, considered jointly, are significantly associated with employee performance in the selected State-Owned Enterprises in Nigeria. This underscores the relevance of technical and digital skills development, continuous learning and professional development, and cross-functional training to understanding employee performance.

Table 13: Multiple Regression Coefficients

Model / Predictor	Unstandardized B	Std. Error	Standardized Beta (β)	t-value	p-value	Decision
Constant	0.482	0.174	–	2.77	0.006	Significant
Technical Digital Skills Development	0.479	0.17	0.438	8.096	0.001	Accepted
Continuous Learning and Professional Development	0.476	0.167	0.427	8.049	0.001	Accepted
Cross-Functional Training	0.472	0.154	0.421	8.009	0.001	Accepted

Source: SPSS Output, (2026).

Dependent variable: Employee Performance.

Table 13 presents the multiple regression results on the effect of reskilling and upskilling practices on employee performance in State-Owned Enterprises (SOEs) in Nigeria. The independent variables examined include technical and digital skills development, continuous learning and professional development, and cross-functional training. The reported results indicate that all three predictors have positive coefficients and are statistically significant at the 5% level, with reported p-values of 0.001.

Technical and Digital Skills Development: The result shows a positive unstandardized coefficient (B = 0.479), standardized coefficient (β = 0.438), t-value of 8.096 and p-value of 0.001. This suggests that technical and digital skills development has a positive and statistically significant effect on employee performance.

Specifically, a one-unit increase in technical and digital skills development is associated with a 0.479-unit increase in employee performance, holding other variables constant. The standardized coefficient indicates that technical and digital skills development has the strongest relative effect among the three predictors. The reported significance level supports rejecting the null hypothesis of no significant effect.

The result reveals a positive unstandardized coefficient (B = 0.476), standardized coefficient (β = 0.427), t-value of 8.049 and p-value of 0.001. This indicates that continuous learning and professional development positively and significantly influences employee performance. The coefficient suggests that a one-unit increase in continuous learning and professional development is associated with a 0.476-unit increase in employee performance, assuming other variables remain constant. Its standardized coefficient shows that it is the second strongest predictor, emphasizing the importance of regular training, knowledge acquisition and professional capacity development. Based on the reported p-value, the null hypothesis is rejected.

The result indicates a positive unstandardized coefficient (B = 0.472), standardized coefficient (β = 0.421), t-value of 8.009 and p-value of 0.001. This suggests that cross-functional training has a positive and statistically significant effect on employee performance. Specifically, a one-unit increase in cross-functional training is associated with a 0.472-unit increase in employee performance, holding other predictors constant. Although its standardized coefficient is slightly lower than those of the other variables, the result suggests that exposure to different functional responsibilities can strengthen employees' versatility, teamwork, adaptability and operational effectiveness. Accordingly, the reported significance level supports rejecting the null hypothesis.

The reported findings suggest that technical and digital skills development, continuous learning and professional development, and cross-functional training are positively associated with employee performance in Nigerian State-Owned Enterprises. Based on their standardized coefficients, technical and digital skills development (β = 0.438) ranks first, followed closely by continuous learning and professional development (β = 0.427) and cross-functional training (β = 0.421). The relatively small differences among these coefficients suggest that all three dimensions may be important components of an integrated workforce-development strategy. Consequently, SOEs should consider strengthening technical competencies, institutionalizing continuous professional development and promoting structured cross-functional training to improve employee effectiveness and service delivery.

DISCUSSION OF FINDINGS

The study examined how reskilling and upskilling practices influence employee performance in State-Owned Enterprises (SOEs) in Nigeria. Particular attention was given to technical and digital skills development, continuous learning and professional development, and cross-functional training. The findings are discussed in relation to existing literature, previous empirical studies, Human Capital Theory and the Resource-Based View (RBV) Theory.

The study reported that technical and digital skills development had a positive and statistically significant effect on employee performance (B = 0.479, β = 0.438, p = 0.001). Among the three variables examined, technical and digital skills development recorded the highest standardized coefficient. This suggests that employees perform better when they possess the technical knowledge and digital skills needed to carry out

their duties effectively. In today's changing work environment, employees are increasingly expected to use modern technologies, manage digital information and respond to new operational demands. Developing these competencies can therefore help employees work more efficiently, improve the quality of their output and adapt to changes in organizational procedures.

This finding agrees with Oladimeji et al. (2024), who found that digital literacy significantly improved employee productivity among local government workers in Nigeria. Similarly, Ighoroje et al. (2025) established that digital competence strengthened employee productivity in Nigerian manufacturing firms, while Ebere et al. (2026) reported a positive relationship between digital skills and employee performance among non-teaching staff of the National Open University of Nigeria. These findings are consistent with the

views of Audrin et al. (2024) and Mendoza-Chan and Pee (2024), who emphasized the importance of digital competencies in modern workplaces. The result also supports Human Capital Theory developed by Schultz (1961) and Becker (1964), which explains that employees become more productive when organizations invest in their knowledge and skills. Likewise, the Resource-Based View advanced by Wernerfelt (1984) and Barney (1991) recognizes employees' technical expertise as a valuable organizational resource. In the context of Nigerian SOEs, this suggests that regular technical training and digital skills development can help employees meet changing job requirements and contribute meaningfully to improved service delivery.

The study also reported that continuous learning and professional development had a positive and statistically significant effect on employee performance (B = 0.476, β = 0.427, p = 0.001). The result suggests that employees are more likely to perform their duties effectively when they have opportunities to improve their knowledge and professional abilities. Learning should not end after employees are recruited into an organization, especially as workplace practices, technologies and professional standards continue to change. Regular training, workshops, seminars, mentoring and professional education can help employees remain competent, build confidence in their abilities and respond more effectively to new responsibilities. For Nigerian SOEs, where employees are expected to provide reliable services despite changing operational challenges, continuous learning remains an important part of workforce development.

The finding is in agreement with Muhammad and Abdullahi (2025), who reported that training and development significantly influenced employee performance at Kano State Polytechnic. It also supports Offiah et al. (2026), who found that staff development programmes contributed positively to employee performance in Nigerian public organizations. Similarly, Akerele and Okojie (2026) emphasized the importance of professional development in improving the job performance of employees at the National Library of Nigeria. These findings reflect the position of Nandal and Nain (2026), who argued that continuous workforce development helps employees remain relevant and adaptable in changing work environments. The finding further agrees with Human Capital Theory, which views learning and professional development as investments that improve employees' productive abilities. It also supports the Resource-Based View, which emphasizes the importance of developing and maintaining valuable organizational competencies. This implies that Nigerian SOEs should move beyond occasional staff training and establish regular professional development programmes that address employees' actual learning needs and job responsibilities.

Furthermore, the study reported that cross-functional training had a positive and statistically significant effect on employee performance (B = 0.472, β = 0.421, p = 0.001). Although its standardized coefficient was slightly lower than those of the other two variables, the result suggests that cross-functional training is also important in improving employee performance. Employees who understand how different departments operate are often better prepared to work with colleagues, handle additional responsibilities and respond to unexpected workplace challenges. Cross-functional training can also reduce excessive dependence on particular employees by allowing others to acquire the knowledge and practical experience needed to perform related duties. This is particularly relevant to SOEs, where effective coordination among departments is necessary for achieving organizational objectives.

The finding agrees with Melkić et al. (2026), who examined the contribution of cross-training to employee task performance. It is also related to the findings of Mohammed and Dodo (2026), who investigated job rotation and employee performance at the Nigerian Institute for Transport Technology, Zaria, and Ukoette and Ukoette (2024), who examined job rotation, motivation and employee performance in the Federal Capital Development Authority, Abuja. However, the finding differs from Jumbo (2025), who reported a weak relationship between job rotation and employee effectiveness among selected food and beverage firms in Rivers State. This difference suggests that exposing employees to different duties does not automatically improve their performance. The training must be properly organized, relevant to employees' responsibilities and supported by management. The finding is also consistent with Human Capital Theory, which recognizes practical experience and skills acquisition as important factors in improving productivity. Similarly, the Resource-Based View explains that employees with knowledge of different organizational functions represent valuable resources that can strengthen organizational flexibility and effectiveness.

Taken together, the findings suggest that technical and digital skills development, continuous learning and professional development, and cross-functional training are important aspects of employee performance in Nigerian State-Owned Enterprises. Technical and digital skills development recorded the highest standardized coefficient (β = 0.438), followed closely by continuous learning and professional development (β = 0.427) and cross-functional training (β = 0.421). The small differences among these coefficients suggest that the three practices may complement one another in strengthening employees' knowledge, adaptability and effectiveness. While technical and digital training helps employees handle modern technologies, continuous learning keeps their knowledge relevant, and cross-functional training broadens their understanding of organizational activities.

The findings generally support Human Capital Theory and the Resource-Based View, which emphasize the importance of employees' knowledge, skills and experience in achieving improved performance. They also agree with much of the empirical literature reviewed, although the contrasting evidence from some studies shows that the success of training programmes depends on how well they are designed and implemented. The study therefore adds to existing knowledge by bringing these three dimensions of reskilling and upskilling together within the context of Nigerian State-Owned Enterprises. It highlights the need for management to treat employee development as a continuous process rather than an occasional activity. By investing in relevant technical skills, encouraging lifelong learning and providing opportunities for employees to gain experience across different functions, SOEs can strengthen their workforce capabilities and create better conditions for improved employee performance and service delivery.

Table 14: Summary of Hypotheses Testing on the Effect of Reskilling and Upskilling Practices on Employee Performance in State-Owned Enterprises in Nigeria.

Hypothesis	Independent Variable	Standardized Beta (β)	t-value	Reported p-value	Decision at 0.05
H_01	Technical and Digital Skills Development	0.438	8.096	0.001	Reject H_01
H_02	Continuous Learning and Professional Development	0.427	8.049	0.001	Reject H_02
H_03	Cross-Functional Training	0.421	8.009	0.001	Reject H_03

Source: SPSS Output, (2026).

Hypothesis One (H_01): Technical and digital skills development has no significant effect on employee performance in State-Owned Enterprises in Nigeria. The reported result (β = 0.438, t = 8.096, p = 0.001) indicates a positive and statistically significant relationship. Since the reported p-value is less than 0.05, the null hypothesis is rejected, suggesting that technical and digital skills development significantly influences employee performance.

Hypothesis Two (H_02): Continuous learning and professional development has no significant effect on employee performance in State-Owned Enterprises in Nigeria. The reported result (β = 0.427, t = 8.049, p = 0.001) indicates a positive and statistically significant relationship. Consequently, the null hypothesis is rejected, suggesting that continuous learning and professional development significantly influences employee performance.

Hypothesis Three (H_03): Cross-functional training has no significant effect on employee performance in State-Owned Enterprises in Nigeria. The reported result (β = 0.421, t = 8.009, p = 0.001) indicates a positive and statistically significant relationship. Therefore, the null hypothesis is rejected, suggesting that cross-functional training significantly influences employee performance.

mBased on the reported significance levels, all three null hypotheses are rejected. Technical and digital skills development recorded the highest standardized coefficient, followed by continuous learning and professional development and cross-functional training. The results suggest that all three reskilling and upskilling dimensions are positively associated with employee performance in Nigerian State-Owned Enterprises.

SUMMARY AND CONCLUSIONS

The study examined the effect of reskilling and upskilling practices on employee performance in State-Owned Enterprises (SOEs) in Nigeria, focusing on technical and digital skills development, continuous learning and professional development, and cross-functional training. The study was guided by three specific objectives, research questions and hypotheses. Human Capital Theory and the Resource-Based View (RBV) provided the theoretical foundation for explaining how investment in employees' knowledge and competencies contributes to improved job performance.

The study adopted a cross-sectional survey research design involving six selected SOEs representing Nigeria's six geopolitical zones. A structured questionnaire was used to collect data, with 294 valid responses analysed using descriptive statistics and multiple regression analysis. The study measured technical and digital skills development through ICT training, digital proficiency and technology application; continuous learning and professional development through training participation, mentoring and knowledge application; and cross-functional training through job rotation, interdepartmental learning and role flexibility. Employee performance was assessed through productivity, quality of work, task completion, timeliness, adaptability and job effectiveness.

The reported findings revealed that technical and digital skills development had a positive and statistically significant effect on employee performance ($\beta = 0.438$, $p = 0.001$). Continuous learning and professional development also recorded a positive and significant effect ($\beta = 0.427$, $p = 0.001$), while cross-functional training similarly showed a positive and significant effect ($\beta = 0.421$, $p = 0.001$). Technical and digital skills development emerged as the strongest predictor, followed by continuous learning and professional development and cross-functional training. The findings suggest that improving employees' technical competencies, providing continuous learning opportunities and exposing employees to different organizational functions are important for strengthening employee performance in Nigerian SOEs.

The study concluded, based on the reported regression findings, that reskilling and upskilling practices positively influence employee performance in State-Owned Enterprises in Nigeria. Technical and digital skills development emerged as the most influential dimension, suggesting that employees' ability to acquire and apply modern technological competencies is particularly important for improving productivity, work quality and job effectiveness. Continuous learning and professional development also contributed positively to employee performance by strengthening employees' knowledge, professional competence and adaptability to changing workplace demands.

Furthermore, cross-functional training was found to be important in improving employees' versatility, teamwork and ability to handle different organizational responsibilities. Although its reported effect was slightly lower than those of the other dimensions, it remains a relevant component of workforce development. The findings are consistent with Human Capital Theory and the Resource-Based View, which emphasize the importance of employees' knowledge, skills and competencies as valuable resources for achieving organizational objectives.

The study therefore concluded that improving employee performance in Nigerian SOEs requires an integrated approach to workforce development that combines technical and digital skills acquisition, continuous professional learning and cross-functional training. Management should consequently regard reskilling and upskilling as essential organizational practices rather than occasional training activities. Sustained investment in these areas can strengthen employees' capabilities, improve operational efficiency and support effective service delivery in State-Owned Enterprises across Nigeria.

RECOMMENDATIONS

Based on the findings and conclusions of the study, the following recommendations were made:

1. Management of State-Owned Enterprises (SOEs) in Nigeria should prioritize regular technical and digital skills training by providing employees with practical ICT programmes, modern technological

tools and opportunities to acquire relevant digital competencies. This will improve employees' productivity, technical efficiency, adaptability and overall job performance.

2. Management of SOEs should institutionalize continuous learning through regular workshops, seminars, professional certification programmes, mentoring and career development opportunities. Training programmes should be based on identified skills gaps and changing job requirements to strengthen employees' competence, knowledge application and effectiveness in service delivery.
3. Management of SOEs should introduce structured cross-functional training through job rotation, interdepartmental learning and collaborative assignments. Employees should be encouraged to acquire skills beyond their primary responsibilities to improve teamwork, operational flexibility, problem-solving abilities and overall employee performance.

CONTRIBUTION TO KNOWLEDGE

The study contributes to existing knowledge by providing empirical evidence on the effect of reskilling and upskilling practices on employee performance in State-Owned Enterprises (SOEs) in Nigeria. Unlike previous studies that largely examined employee training, digital competencies and professional development separately, this study integrates technical and digital skills development, continuous learning and professional development, and cross-functional training within a single framework for explaining employee performance.

The study further contributes to knowledge by identifying technical and digital skills development as the strongest predictor of employee performance ($\beta = 0.438$), followed by continuous learning and professional development ($\beta = 0.427$) and cross-functional training ($\beta = 0.421$). These findings provide additional insight into the relative importance of different workforce development practices in improving employees' productivity, adaptability and job effectiveness.

The study also extends the application of Human Capital Theory and the Resource-Based View by demonstrating their relevance to workforce development and employee performance within Nigerian SOEs. Furthermore, its coverage of selected enterprises across Nigeria's six geopolitical zones provides a broader institutional perspective on reskilling and upskilling practices. The findings offer a useful empirical foundation for future research and the development of workforce training policies aimed at strengthening employee performance and service delivery in public enterprises.

LIMITATIONS OF THE STUDY

The study encountered some limitations that should be considered when interpreting its findings. First, the study was restricted to selected State-Owned Enterprises across Nigeria’s six geopolitical zones, which may limit the generalization of the findings to all public enterprises in the country. Second, the study relied on questionnaire responses, which were based on employees’ personal perceptions and may have been influenced by response bias or the tendency to provide socially desirable answers.

Furthermore, the cross-sectional research design captured respondents’ opinions at a particular point in time,

making it difficult to establish long-term or causal effects of reskilling and upskilling on employee performance. The study also focused on three dimensions of reskilling and upskilling—technical and digital skills development, continuous learning and professional development, and cross-functional training—without considering other factors such as employee motivation, leadership support, organizational culture and working conditions that may influence performance.

Despite these limitations, the study provides useful insights into the relationship between reskilling and upskilling and employee performance in selected State-Owned Enterprises in Nigeria and offers a foundation for further empirical investigations.

SUGGESTIONS FOR FURTHER STUDIES

Based on the findings and limitations of the study, future researchers should consider expanding the scope to include more State-Owned Enterprises across Nigeria to enhance the generalizability of the findings. Further studies should also examine other dimensions of reskilling and upskilling, such as mentorship, leadership development, job rotation, digital literacy and competency-based training, to establish their relationships with employee performance.

Additionally, future researchers should adopt longitudinal or mixed-methods research designs to provide deeper insights into how reskilling and upskilling influence employee performance over time. Studies should also investigate the moderating or mediating roles of organizational culture, employee motivation, leadership support and technological infrastructure in the relationship between reskilling and upskilling and employee performance.

Finally, comparative studies involving State-Owned Enterprises and private-sector organizations in Nigeria are recommended to identify differences in workforce development practices and their implications for employee performance. These investigations would broaden existing knowledge and provide additional evidence for improving human resource development policies and practices.

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APPENDIX 1

Demographic Characteristics of Respondents

S/N	Demographic Variables	Response Options
1	Gender	Male; Female
2	Age	18–25; 26–35; 36–45; 46–55; 56 years and above
3	Marital Status	Single; Married; Divorced; Widowed
4	Educational Qualification	SSCE; OND/NCE; HND/B.Sc.; M.Sc./MBA; Ph.D.; Others
5	Years of Service	Below 5 years; 5–10; 11–15; 16–20; Above 20 years
6	Geopolitical Zone	North-Central; North-East; North-West; South-East; South-South; South-West
7	Employment Category	Junior Staff; Senior Staff; Management Staff

Section B: Questionnaire Items on Study Variables

Respondents were requested to indicate their level of agreement with each statement using a five-point Likert scale:

SA = Strongly Agree (5), A = Agree (4), U = Undecided (3), D = Disagree (2), SD = Strongly Disagree (1).

Table 3.5: Technical and Digital Skills Development

Code	Item Statements	SA	A	U	D	SD
TDS1	My organization provides regular technical skills training.	☐	☐	☐	☐	☐
TDS2	Digital skills training improves my work efficiency.	☐	☐	☐	☐	☐
TDS3	Employees receive training on modern	☐	☐	☐	☐	☐

	workplace technologies.					
TDS4	Technical training enhances my ability to perform assigned tasks.	☐	☐	☐	☐	☐
TDS5	Digital skills development improves service delivery.	☐	☐	☐	☐	☐

Table 3.6: Continuous Learning and Professional Development

Code	Item Statements	SA	A	U	D	SD
CLP1	My organization encourages continuous employee learning.	☐	☐	☐	☐	☐
CLP2	Employees have access to professional development programmes.	☐	☐	☐	☐	☐
CLP3	Continuous learning improves my job-related knowledge.	☐	☐	☐	☐	☐
CLP4	Professional development enhances my career growth.	☐	☐	☐	☐	☐
CLP5	Regular learning opportunities improve my work performance.	☐	☐	☐	☐	☐

Table 3.7: Cross-Functional Training

Code	Item Statements	SA	A	U	D	SD
CFT1	Employees receive training across different departments.	☐	☐	☐	☐	☐
CFT2	Cross-functional training improves teamwork.	☐	☐	☐	☐	☐
CFT3	Training across departments enhances my job flexibility.	☐	☐	☐	☐	☐
CFT4	Cross-functional training improves problem-solving skills.	☐	☐	☐	☐	☐
CFT5	Interdepartmental training promotes knowledge sharing.	☐	☐	☐	☐	☐

Table 3.8: Employee Performance

Code	Item Statements	SA	A	U	D	SD
EP1	I complete assigned tasks within stipulated deadlines.	☐	☐	☐	☐	☐
EP2	I consistently meet my organization's performance targets.	☐	☐	☐	☐	☐
EP3	I maintain high-quality standards in my work.	☐	☐	☐	☐	☐
EP4	I use organizational resources efficiently.	☐	☐	☐	☐	☐
EP5	I effectively adapt to changing job responsibilities.	☐	☐	☐	☐	☐