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Digital Automation and Managerial Roles: Unpacking the Impacts of Digital Automation on Communication Roles of Managers in Nestle Nigeria Plc

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Abstract

This study evaluates the effects of technological automation on the interaction roles of managers in Nestlé Nigeria Plc. The problem driving the study is the increasing concern that automation, while improving efficiency, may lower human interaction, distort managerial communication flow, and alter decision-making dynamics. The objectives are to analyze the effects of digital automation on managerial communication. Using a mixed-method design, structured questionnaires are administered to three hundred (300) Nestlé managers and qualitative interviews with ten (10) departmental heads. With descriptive statistics and thematic content analysis, the data were analyzed. Underpinned by the Technological Determinism Theory, the study defines how technology molds organizational interaction styles and managerial functions. Findings show that automation improves speed, accuracy, and accessibility of communication but lowers emotional intelligence and face-to-face engagement among managers. The study concludes that digital automation redefines managerial communication, requiring a balance between technological efficiency and human interaction. It recommends consistent digital communication education and hybrid communication models to sustain relational management. Policy implications suggest that corporate communication policies should join digital empathy frameworks to promote inclusivity and trust in technologically driven managerial systems.

Keywords: Digital automation, Managerial communication, Technological determinism, Organizational efficiency, Human interaction, Nestlé Nigeria Plc

Introduction

Digital automation made robotics, process automation, artificial intelligence (AI), and algorithmic decision systems have rapidly reshaped how organizations coordinate work, make decisions, and communicate internally (Barbour, Jensen, Call, & Sharma, 2023). In the food and consumer goods sector, multinational firms have invested heavily in data-driven systems and automation to improve speed, accuracy, supply-chain visibility, and market responsiveness; Nestlé's recent

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corporate disclosures explicitly frame data and technology as core to its competitive strategy and digital transformation agenda (Nestlé, 2022). While scholars have documented productivity advantages from automation, there is growing concern that automation alters the communicative tasks and social work previously performed by managers, changing who communicates what, how, and with what effects relationships, sense-making, and trust (Barbour et al., 2023; Strauss, 2024).

Managers' communication roles historically combine information transmission, feedback, coaching, and relational work that sustains team cohesion and organizational culture (Florea & Croitoru, 2025). Automation promises to streamline informational flows (e.g., automated dashboards, chatbots, and workflow triggers) and to reduce delays and transmission errors; empirical studies show AI-mediated communication can improve "informing" and message reception metrics linked to performance (Florea & Croitoru, 2025). However, the same technologies can attenuate face-to-face interaction, limit nonverbal cues, and reallocate time away from relational management toward oversight of automated systems creating new managerial tasks (monitoring, exception handling, and data interpretation) that require different competencies (Barbour et al., 2023; Management Review Quarterly, 2024). With increase in technological innovation, digital automation has come to stay.

Digital Automation Platforms provide tools and functionalities to implement and manage digital automation strategies across various business functions. With technology advancing rapidly around the world, businesses need to adapt quickly or risk becoming obsolete Tidd & Bessant, 2020). Managers' influence in managing this transformation is critical not only to ensure competitiveness but also to foster innovation and efficiency. From a global perspective, multinational companies in various industries have experienced that successful technology integration increases productivity (Bawalla & Rufai, 2021). Effective management strategy is essential to understand the multiple challenges and opportunities associated with technological change in the Nigerian context.

Global practices underscore the necessity for adaptive managerial roles in the face of technological disruptions. In Germany, the integration of Industry 4.0 has revolutionised managerial functions through real-time data usage and intelligent digital automation, prompting government-backed upskilling initiatives (Güleryüz & Duygulu, 2020). In China, digital factories driven by digital automation tools have positioned managers as innovation strategists and digital transformation champions. Similarly, in the United States, manufacturing managers increasingly engage in predictive analytics and cyber-physical systems monitoring (Henfridsson et al., 2014). Other examples include Japan's lean digitisation models, Sweden's agile-based production teams, South

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Korea's smart factory programmes, Singapore's advanced robotics deployment, and India's policy-backed digital manufacturing missions (Schwab, 2021; Mugge et al., 2020). These practices reveal that without effective managerial evolution, technological investments risk underperformance, as seen in India where 30% of automated manufacturing lines failed due to poor human-machine integration (Ahlstrom et al., 2020).

In Nigeria, however, the trajectory has been less progressive. Although several manufacturing firms have attempted to integrate technologies such as computer-aided design (CAD), robotic process digital automation, and IoT devices, many of these initiatives have stalled or failed due to inadequate managerial capacity (Olorunnisola et al., 2024). For instance, the collapse of the General Tyres manufacturing plant in Port Harcourt in 2017 was partly attributed to managerial incompetence in aligning technology upgrades with workforce reskilling and production redesign (Kimhi et al., 2019). More recently, Nigerian textile and chemical manufacturing industries have witnessed reduced productivity and increased operating costs, largely because managerial teams lacked the digital literacy and leadership required to leverage digital automation effectively (Obiki-Osafiele et al., 2024). This underscores a critical void in technological adaptation driven by outdated managerial roles.

Over the past two decades, the rapid evolution of technology has disrupted conventional managerial practices globally. Technological innovations such as digital automation, cloud computing, and machine learning have altered how decisions are made, how teams are coordinated, and how organisational goals are achieved (Henfridsson, Mathiassen & Svahn, 2014; Ahlstrom et al., 2020). In developed economies like Germany, Japan, and the United States, these changes were met with proactive policy frameworks and investments in continuous managerial training (Güleryüz & Duygulu, 2020; Schwab, 2021). However, in emerging economies such as Nigeria, India, and Brazil, the challenges were more structural ranging from poor digital infrastructure and unreliable power supply to a shortage of technologically literate professionals (Bawalla & Rufai, 2021). These limitations have made it difficult for managers to adapt effectively to technological change, particularly in multinational corporations that must meet global standards while navigating local constraints. Consequently, there is a growing concern that the inability of managers to adapt to digital transformation may widen performance gaps between developed and developing economies (Donbesuur et al., 2020).

In Nigeria, the problem becomes more acute within multinational corporations (MNCs) where global expectations meet local realities. MNCs are often required to implement the same digital strategies used in their global operations, but the Nigerian business context frequently lacks the

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enabling environment. For instance, Nestlé Plc, Lagos, a leading player in Nigeria's food and beverage manufacturing sector, has experienced repeated technological upgrades aimed at improving supply chain efficiency, real-time data analytics, and customer engagement through digital platforms (Kimhi et al., 2019). However, these upgrades have not always been matched with managerial capacity or workforce readiness. In the past, digitisation efforts of MNCs in Nigeria were hampered by delays in implementation, poor user adoption, and underutilisation of new systems due to a lack of training (Obiki-Osafiele et al., 2024).

The implications of these managerial challenges are far-reaching. At the individual level, managers of MNCs in Nigeria have reported high job stress and role ambiguity because of rapidly changing digital expectations without commensurate training or support (Adenekan & Jimoh, 2021). At the group level, departments in various MNCs in Nigeria have experienced breakdowns in communication and collaboration due to inconsistent digital literacy among team members. At the organisational level, MNCs in Nigeria have at times recorded reduced operational agility, supply chain lags, and customer dissatisfaction tied to poor adoption of digital tools (Olive-Tomas, 2020; Mugge et al., 2020). Nationally, such inefficiencies within major MNCs not only affect the manufacturing sector's contribution to Nigeria's GDP currently hovering around 13% (NBS, 2024) but also undermine broader goals of digital industrialisation and global competitiveness. The limited ability of managerial roles to evolve with technological changes continues to represent a significant bottleneck to maximising the potential of multinational manufacturing operations in Nigeria (Zavyalova et al., 2022).

Despite mounting global evidence of the roles of technology in management, limited scholarly attention has been paid to how managerial roles in Nigeria are evolving in response to technological disruptions. Existing literature has predominantly focused on infrastructural or workforce-related challenges (Bawalla & Rufai, 2021; Adenekan & Jimoh, 2021), without examining the evolving expectations and competencies required of managers during digital transitions. Furthermore, few studies have empirically linked managerial adaptability to firm-level outcomes such as efficiency, innovation adoption, and competitiveness in the Nigerian manufacturing context (Syed et al., 2024). This gap is critical because the success of technological change is ultimately determined by how well it is managed internally. As Martinez-Caro et al. (2020) argued, digital technologies alone do not improve performance; it is their strategic orchestration by competent managers that yields results. Although previous studies have examined the effects of digital transformation and technological innovation on firm performance and organisational structure (Martinez-Caro et al., 2020; Majhi, Mukherjee & Anand, 2023), very few have contextualised these transformations in the roles and expectations of managers in Nigerian-

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based MNCs like Nestlé Plc. Moreover, most studies have adopted a macro-level approach, focusing on sectoral outcomes without delving into the practical implications for mid-level and senior managers responsible for technological adaptation. The gap in literature lies in the lack of contextual, firm-specific investigations that explore how technological changes are reshaping managerial roles in multinational firms within Nigeria's volatile business environment. This study seeks to fill that gap by exploring how digital disruptions have affected the responsibilities, decision-making styles, and leadership strategies of managers at Nestlé Plc, Lagos. In doing so, it will provide novel insights that can inform managerial development policies, digital capacity-building programmes, and strategic planning processes within MNCs operating in Nigeria. This research is therefore essential for bridging theory and practice in technological change management in the evolving business landscape of Nestle Plc.

Thus, the necessity of this study lies in its timely contribution to both theory and practice. In the wake of increased digital automation, Nigeria risks widening its industrial competitiveness gap if managerial functions remain rigid or outdated. With the country's ambition to raise the manufacturing sector's contribution to GDP from 13% to 20% by 2030 (Nigerian Industrial Revolution Plan, 2023), strategic managerial transformation is not optional, but essential. Through this, the study fills a critical research gap and offers a novel contribution to managerial studies in the context of industrial digitalisation in emerging economies like Nigeria. It draws on comparative international experiences and contextual challenges to develop actionable recommendations tailored to the Nigerian manufacturing environment. The objective of this study is to explore the extent to which digital automation affects communication roles of managers in Nestle Nigeria Plc. The study therefore answers the question; to what extent does digital automation affect the communication roles of managers in Nestle Nigeria Plc?

Conceptual Clarifications

Digital automation stands for the integration of advanced technologies like artificial intelligence (AI), machine learning, robotics, and processing automation into organizational workflows to do routine or repetitive work with minimal human effort (Florea & Croitoru, 2025). These digital solutions promote accuracy, continuity, and speed in administrative and operational processes, while reducing costs and manual workload. In contemporary organizations, digital automation tools such as robotic process automation (RPA), chatbots, and automated dashboards are widely chosen to streamline communication, manage data, and ecourage decision-making. According to Barbour, Jensen, Call, and Sharma (2023), automation is not just a technical change but a

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communicative process that restructures managerial roles, influencing how information is created, shared, and interpreted within organizations.

The choice of technological automation in multinational corporations (MNCs) has readjusted managerial expectations and responsibilities, particularly in manufacturing-intensive environments like Nestlé Plc in Lagos. One major issue is workforce displacement, where automation reduces the need for low-skilled labor, intensifying fears of job loss and increasing resistance to change among employees (Bawalla & Rufai, 2021). Managers are therefore expected not only to implement these technologies but also to manage the social and psychological impact on their teams. Furthermore, digital automation often relies on data-driven systems that collect, process, and act on large volumes of operational data, raising concerns about data governance, system failures, and transparency in decision-making (Ahlstrom et al., 2020).

Technological determinism provides the theoretical foundation for understanding how digital automation transforms communication and management. The theory assumes that technological innovation is a primary driver of social and organizational change, shaping patterns of human communication, institutional behavior, and workplace culture (Salsone, 2020). Vázquez-Herrero (2024) joins that digital determinism means that the adoption of automation tools inevitably alters organizational communication norms by prioritizing efficiency, data-based decision-making, and standardized processes.

Managerial communication refers to the exchange of information and meaning between managers and subordinates to achieve organizational goals (Strauss, 2024). It comprises verbal, nonverbal, and technological channels that facilitate leadership, motivation, feedback, and collaboration. **Effective communication** requires both technical accuracy and emotional intelligence skills that automation can either promote or hinder. Automation tools can increase clarity and speed of message transmission but may simultaneously reduce opportunities for relational dialogue, empathy, and social bonding within teams (Florea & Croitoru, 2025).

Organizational efficiency denotes the ability of an organization to optimize its human, financial, and technological resources to achieve maximum productivity and output (Nestlé, 2022). Digital automation has become a major driver of such efficiency, particularly in global corporations like Nestlé Nigeria Plc, where operations relies on complex supply chains and information systems. Automation allows managers to make data-driven decisions, minimize human error, and enhance workflow transparency. However, as Barbour et al. (2023) argue, efficiency advantage must be balanced with concentration on the human and relational dimensions of management to avoid alienation and communication breakdowns.

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Human interaction remains a critical component of effective management and leadership. It comprises interpersonal exchanges that build trust, empathy, and cooperation among employees (Strauss, 2024). While digital automation increases task precision and speed, it can inadvertently reduce the richness of human communication by eliminating nonverbal cues, emotional engagement, and informal dialogue. Maintaining a balance between automation and meaningful human interaction is therefore essential for sustaining morale, innovation, and social cohesion in digitally advanced organizations (Vázquez-Herrero, 2024).

In summation, understanding these concepts; digital automation, digital determinism, managerial communication, organizational efficiency, and human interaction provides the conceptual framework for analyzing how digital automation reshapes managerial communication roles in Nestlé Nigeria Plc.

Empirical Literature Review

Empirical studies on digital automation and managerial communication have expanded significantly in recent years as organizations increasingly integrate artificial intelligence (AI), robotics, and process automation into management systems. Globally, researchers have explored the dual impact of automation, improving efficiency while altering human roles and communication practices. Barbour, Jensen, Call, and Sharma (2023) conducted a comprehensive review of automation in organizational communication and found that automated systems redefine managerial functions by shifting communication patterns from interpersonal exchanges to machine-mediated interactions. Similarly, Florea and Croitoru (2025) examined how AI affects leadership and communication dynamics in multinational corporation. In an associated study, Strauss (2024) analyzed communication changes within organizations adopting large-scale automation and digital transformation strategies. Using a mixed-method approach across European firms, Strauss observed that managerial communication becomes more transactional and less relational as automation intensifies. Managers tend to focus on monitoring and compliance through automated dashboards rather than engaging in dialogic communication with subordinates. The study also found that digital automation promotes efficiency and consistency but can foster communication gaps, misinterpretations, and alienation if human connection is not intentionally sustained.

Empirical evidence from emerging economies highlights similar patterns but within distinct infrastructural and cultural contexts. Okoye and Eze (2023) investigated digital transformation in Nigerian manufacturing firms and discovered that automation positively influences operational efficiency but negatively affects interpersonal communication and teamwork. They found that

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employees perceived a decline in leadership visibility and emotional connection, as digital systems replaced direct supervisory interaction. This underscores the need for hybrid communication strategies that balance automation with human-centered leadership.

Moreover, Oyetunde and Bello (2022) examined how digital technologies influence managerial efficiency and employee engagement in Lagos-based firms. Their survey of 250 managers revealed that digital tools enhance communication speed and accountability but create challenges related to trust, message interpretation, and employee motivation. From a global perspective, Barley, Bechky, and Milliken (2017) earlier found that automation reconfigures not only workflow but also authority and communication structures, leading to the emergence of "algorithmic management." Managers increasingly communicate through data dashboards, performance algorithms, and digital reports rather than direct interpersonal exchanges. This transformation alters power dynamics and the traditional relational aspect of management.

Nestlé (2022), in its Annual Review, reported the company's ongoing digital transformation efforts aimed at optimizing supply chains, production, and internal communication. However, internal assessments noted that while automation improved efficiency, it required new forms of digital collaboration and adaptation by managers. These findings mirror the global literature emphasizing the balance between technological efficiency and human engagement in automated environments. The managerial role is increasingly defined by interpreting automated outputs, managing digital communication platforms, and maintaining team cohesion in a hybrid environment (Florea & Croitoru, 2025). The findings across contexts suggest that the success of automation depends on how managers adapt their communication strategies to preserve trust, empathy, and collaboration.

Theoretical Framework: Technological Determinism

Technological Determinism has been chosen for underpinning this study. The theory explains how technological innovation drives social, cultural, and organizational change. The concept of Technological Determinism was first articulated by Thorstein Veblen (1857–1929), an American sociologist and economist, who emphasized technology as a catalyst for social and industrial transformation. Later, Karl Marx (1818–1883) expanded this notion by arguing that technological change within the "forces of production" influences the structure of society, shaping class relations and labor organization. Marx's analysis linked technological advancement to economic power and social relations, implying that technology is not neutral but embedded in social control mechanisms (Salsone, 2020).

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The theory was further developed by Marshall McLuhan (1911–1980), a Canadian communication theorist, who introduced the phrase "the medium is the message." McLuhan argued that technological media shape not only the content of communication but also the way people perceive and interact with the world. This supported by Osimen & Adeyefa, (2024) when they submitted that media do interact with politics and supports democracy. Later scholars, such as Raymond Williams and Langdon Winner, revisited Technological Determinism, adding nuance by suggesting that while technology influences society, it is also socially constructed and guided by human choices (Vázquez-Herrero, 2024; Chukwudi, Bello, Apeloko, Olawunmi, 2024).

The theory assumes that technological innovation independently propels changes in social institutions, culture, and communication systems. It posits that once a technology is introduced, it sets in motion a predictable sequence of social transformations. It assumes that technology develops according to its internal logic and evolution, often beyond human control. This suggests that societal institutions including management and communication must adapt to technological progress rather than shape it. The theory assumes a one-way causation were technology influences society, not the other way around. Thus, changes in communication patterns and managerial roles are viewed as outcomes of technological advancement rather than deliberate human agency (Salsone, 2020). Technological Determinism assumes that technology alters human interaction by changing how individuals connect, share information, and organize work. McLuhan emphasized that communication technologies reshape human perception and interpersonal relations by mediating message forms and channels. The theory assumes that technological development is inevitable and irreversible. Once automation or digital systems are adopted, organizations and societies must adjust to new realities rather than resist them.

This study applies Technological Determinism to analyze how digital automation transforms the communication roles of managers in Nestlé Nigeria Plc. The theory helps explain how the introduction of automation tools such as artificial intelligence systems, automated dashboards, and digital communication platforms reshapes managerial behavior and interpersonal relations. In line with the deterministic view, automation in Nestlé Nigeria influences how managers disseminate information, coordinate teams, and make decisions. For instance, automated systems now generate real-time performance reports, reducing the need for face-to-face briefings. This shift enhances organizational efficiency but also diminishes the human interaction once central to managerial communication. Following McLuhan's idea that "the medium is the message," the digital medium itself transforms the managerial role from relational communicator to data interpreter. Automation compels managers to adapt their communication styles to suit technologically mediated

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environments. The deterministic assumption that technology drives adaptation is reflected in Nestlé's need for managers to develop digital empathy the ability to convey understanding and motivation through virtual platforms.

In the Nigerian context, where cultural norms emphasize interpersonal relations and hierarchy, Technological Determinism explains the tension between global technological imperatives and local communicative traditions. Automation, driven by corporate policy and global competitiveness, forces adaptation even in contexts where digital infrastructures and social preferences might favour human contact. Thus, the theory helps to clarify the unavoidable influence of digital technology on managerial communication patterns in Nestlé Nigeria Plc.

Critics argue that the theory overstates technology's autonomy, ignoring the role of human agency, culture, and policy in shaping technological outcomes. Technology does not develop in isolation but is embedded in social, political, and economic choices (Vázquez-Herrero, 2024). Modern perspectives critically emphasize socio-technical interaction, where technology and humans co-evolve. Salsone (2020) notes that communication patterns depend not just on technology but also on managerial competence, cultural sensitivity, and ethical considerations. This study has been enriched by the theory of technological determinism, irrespective of the criticisms.

Methodology

This research work used a mixed-method design in this study. Using qualitative as well as quantitative approaches contributed to answering the questions presented in the research study in a more adequate manner. In this investigation, the mixed-method is most appropriate since it allows gathering clear evidence of the investigation recorded in online surveys in addition to clarifying the nature of the problem area further in detailed qualitative interviews (Esteban-Bravo & Vidal-Sanz, 2021). This combined approach serves to give detailed information on the process of researching the managerial practice behind the implementation of technological changes in Nestle Nigeria over a period, not only in the statistical trends but also in the individualistic influences.

The quantitative data gave a coarse-grained sense of managerial strategies and challenges, while the qualitative interviews provided details on the concrete contexts and storylines that underlie these strategies. Such a comprehensive approach is necessary to genuinely represent the messy realities of managerial roles in technological change, leading (hopefully) to more nuanced and reliable conclusions from which recommendations can be made.

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The population of study comprises staff and management of Nestle Nigeria Plc., Lagos state, Nigeria. Nestlé Nigeria is the fast-moving consumer goods company and has built a large customer base for over 63 years of its operation in Nigeria making it one of the most recognized companies in the food and beverage industry. Its market capitalisation and steady growth show its good market development strategies placing it among one of most valuable company in Nigeria economy and contributing greatly to it.

Breakdown of Population of the Study

SN	Nestle Nigeria Plc	Codes for Telecoms	Staff Strength
1	Top Level Managers	TLM '1'	48
2	Middle Level Managers	MLM '2'	142
3	Lower level managers	LLM '3'	583
Total	773		

The overall population of the population of staff and management of Nestle Nigeria, Lagos is 773. As a result, including all of them in the sample is practically impossible in this single study. According to Bougie and Sekaran (2019), when the population size is within 50,000, it is considered finite, and thus a sample size determination is required. Based on the sample size determination table by Taherdoost (2021), a 95% confidence level with 5% marginal error was selected for this study. The main essence of using 5% margin error is to ensure sampling adequacy and satisfactory representation of respondents (i.e. staff and management).

In order to determine the sample size for this study, The Taro Yamane (1967) sample size formula was used to determine the minimum number of respondents required in surveys or studies to estimate a population proportion with a specified level of precision and confidence. This technique is particularly useful when the population size is large or but known, allowing researchers to ensure their findings are statistically reliable and valid. It is often applied in behavioural sciences studies, market research, and other fields where precise estimations of proportions are necessary. By providing a formula to calculate sample size based on desired confidence levels and margins of error, it helps in designing studies that are both feasible and scientifically robust.

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Sample Size Determination using Taro Yamene (1967).

S = N/1+N (∞)2

Where

S = Sample Size

N = Population Size

∞ = Level of significance taken at 5%

Therefore:

S= 773/ 1+773(0.05)2

S= 263.6 Approximately 264 samples.

SN	Nestle Nigeria Plc	Codes for Telecoms	Staff Strength	Sample Size per Level
1	Top Level Managers	TLM '1'	48	16
2	Middle Level Managers	MLM '2'	142	49
3	Lower level managers	LLM '3'	583	199
Total	773	264		

The population for the qualitative (interview) approach comprised of various stakeholders, regulatory agencies and/or industry associations such as: (i) National Agency for Food and Drug Administration and Control (NAFDAC); and (ii) Federal Competition and Consumer Protection Commission (FCCPC). These regulatory agencies and industry associations in Lagos helped to provide a comprehensive understanding of the role of managers in bringing and implementing technological change in the context of Nestlé Nigeria

Data Collection- For effectively evaluating the role of managers in technological change implementation at Nestlé Nigeria Limited, this research used two main methods for data collection: online questionnaires and semi-structured interviews. Given the fact that the collected data were of a numerical nature, which originates from a broader group of managers in the organisation,

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online questionnaires were applied, thus allowing for comprehensive and systematic analysis and quantification of the experiences and strategies (Creswell & Creswell, 2017). By using this method, not only does it assist in identifying trends from possibly the most discussed topics, but it also aids in getting some sort of sample from a dispersed population of individuals. Besides the questionnaires, carrying out of structured interviews provided more richness and depth to this study. According to Denzin and Lincoln (2018), some research methods, like interviews, are needed to grasp the individual's perceptions and to position the managerial work. Studying middle managers and how they observe technology change from their standpoint helped to bring light on social factors expected in such processes. The expanded viewpoint improved knowledge concerning the various managerial positions especially with regards to Nestlé Nigeria dealing with the issue of technological advancement

By design, this work is a cross-sectional study that adopts a single time point of observation. This made can appropriately be used to assess the current state of managerial practices and roles on technological change at Nestlé Nigeria, Lagos. Cross-sectional designs give a subject snapshot of the phenomenon under study as mentioned by Saunders et al. (2019) – something that makes it easy to understand the associations between variables at a given time. This in turn enable researchers to determine the immediate challenges that managers face and the strategies that they use to address technological advancement. It is still important to note that a more accurate examination about how these measures evolve from the course of the research may for the most part be provided using the longitudinal technique although this is very costly and is not doable within the context of the present study. According to Bryman (2016), cross-sectional designs are the most effective in terms of data collection and analysis since they do not require marathon observations. This focus on the present context provides scholars with relevant insights for practice, particularly in studying technological change processes in organisations like Nestlé Nigeria.

Techniques and Procedures- The approach for this research entailed the collection, analysis and interpretation of data which was systematic. An online questionnaire (i.e. google form) was developed to the managers in Nestlé Nigeria to ensure that all relevant areas are captured and covered the objectives of the project.

It is proposed that after tabulating the quantitative data, ten managers were purposively selected and subjected to a semi-structured interview so as to have a better understanding of their experiences and perceptions. These interviews were semi-structured and open-ended to offer the respondents the ability to explain their perspectives and ideas in detail (Denzin and Lincoln 2018).

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The use of both an exploratory survey and immersion interviews provide a broader perspective of the research problem area while at the same time ensuring depth to the results thereby improving on the validity and reliability of the results.

Research Instrument- The primary method of data collection in this study was through the use of online questionnaires and semi structured interview questions. The quantitative data was gathered through an online self-administered questionnaire measuring managerial roles, the difficulties encountered in adopting change through technologies, the strategies adopted by managers coming across these difficulties, as well the results of these managerial actions. The design was grounded on a literature review and theoretical models so that in terms of its form, the questions posed would be to elicit specific forms of information (Creswell & Creswell, 2017). The questionnaire used a five-scale Likert format to capture the precise level of attention and responses to the research items. 1 = Strongly Agree (SA), 2 = Agree (A), 3 = Undecided (U), 4 = Disagree (D), and 5 = Strongly Disagree (SD). The Likert scale pattern of the research instrument guides the respondents' selection process.

Analysis and Synthesis- The data analysis for this study followed a dual-process: assessment both quantitative and qualitative. To analyse quantitative data collected through online questionnaires, the tools like SPSS or R shall be adopted for the calculation; descriptive statistics to explain the trends; inferential statistics shall be used for exploring the relationship between various variables with respect to managers and technological change or something similar (Creswell & Creswell, 2017).

Hyp	Research Hypotheses	Method of Data Analysis
1.	HO: Digital automation (DA) has no significant effect on the informational roles of managers in Nestle Nigeria Plc	Descriptive (Charts & Frequency) and Regression analysis

Manual Thematic Analysis- As for the qualitative data, interview data were transcribed and analysed using the method of thematic analysis. This procedure assisted in analysing important thematic strands and trends in the managers' narratives and therefore facilitate gaining better understanding of their experiences (Braun & Clarke, 2006). The use of statistical and qualitative methods in the research study allowed for the integration of an overall narrative that includes statistical patterns as well as people's point of view.

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Ethical Considerations- As this research had ethical implications, appropriate measures were undertaken to ensure ethical compliance, including securing a waiver on informed consent and safeguarding the identities of respondents. Participants were fully informed about the purpose of the study, their roles, and their rights, including the freedom to withdraw from the study at any time without any negative consequences. Furthermore, all data collected were securely stored to prevent unauthorised access by third parties, and the analysis was conducted in a manner that ensured individual anonymity (Basias & Pollalis, 2018; England, 2021). Informed consent was obtained from all participants, and approval was secured from the relevant institutional research ethics committee prior to data collection. These ethical safeguards enhanced the credibility, trustworthiness, and reliability of the research outcomes for scholarly and practical application.

Reliability Test- The reliability of an instrument refers to its ability to produce consistent and stable measurements. Reliability of this instrument was evaluated using Cronbach Alpha whichmeasured the internal consistency of a construct. Cronbach Alpha value is widely used to verify the reliability of the construct. The most common reliability coefficient is Cronbach's alpha which assesses internal consistency by determining how all items on a test relate to all other items and to further test- internal coherence of data. The reliability is expressed as a coefficient between 0 and 1.00. The higher the coefficient, the more reliable is the test.

Historical Background of Nestle Nigeria Plc. provides that Nestle Nigeria Plc has an exemplary historical development that begins in the year 1961 when it was founded and named Food Specialties Limited. Starting as a company that processed infant foods, over time, Nestle increased its operations to cover a wide variety of food and beverages to show its interest in offering nutritionally beneficial choices to its customers at all the locations of Nigeria. With high levels of strategic investments, partnership and innovations, Nestle Nigeria Plc has transformed to become one of the top multinational corporations in the Nigerian market, having dominated several industries in the country such as dairy, beverage, confectionary and culinary products. The fact that it has been able to grow and adapt to the dynamic Nigerian market justifies the fact that the legacy of Nestle is its strong commitment to ensuring that it produces high quality products to address the changing needs of its consumers.

Nestle Plc has a well-organized organogram that links to its diversified business activity. The highest echelon is the Board of Directors, the role of which is to decide on the strategic perspective of the company and carry out its governance. The executive management team reports to Board and heads different divisions, which focus on the different product categories or geographies. Such

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divisions include a broad category of products and services such as food and beverages, nutrition and health science products, and pharmaceuticals.

The cornerstone of Nestlé's product portfolio is its commitment to providing high-quality, nutritious, and sustainable offerings to consumers worldwide. From iconic brands like Nestlé Pure Life water and Nescafé coffee to innovative nutritional supplements and medical nutrition products, Nestlé caters to diverse consumer needs and preferences. Through continuous research and development, Nestlé strives to deliver products that not only delight consumers but also contribute to their overall health and wellness.

Nestlé's vision and mission statements encapsulate its aspirations and guiding principles. The vision emphasises Nestlé's ambition to be a leading force in nutrition, health, and wellness, while also prioritising corporate citizenship, employee satisfaction, and product excellence. Meanwhile, the mission underscores Nestlé's dedication to providing superior food and beverage solutions that enhance consumers' lives and contribute to a healthier future. Aligned with these core values, Nestlé's strategic focus revolves around innovation, sustainability, health, and expansion, driving growth and value creation for stakeholders worldwide.

Presentation and Analysis of Quantitative Data

Research Question: To what extent does digital automation (DA) affect the informational roles of managers in Nestle Nigeria Plc?

To address Research Objective , Table 1 ascertained the role of digital automation (DA) in affecting the informational roles of managers in Nestle Nigeria Plc.

Table 1: Respondents' view on the role of digital automation (DA) on the informational roles of managers in Nestle Nigeria Plc

Digital automation (DA)	SA (%)	A (%)	U (%)	D (%)	SD (%)	Mean
Digital automation such as AI tools enhance decision-making in my organization	35%	33%	10%	13%	9%	3.8128
We promote training on AI tools for the team	27%	39%	11%	16%	7%	3.2894

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Digital automation such as AI tools are user-friendly for managerial tasks	39%	31%	9%	14%	7%	3.9957
Mean Total						**3.6993**
Informational Roles of Managers	**SA (%)**	**A (%)**	**U (%)**	**D (%)**	**SD (%)**	**Mean**
We communicate technological updates clearly	26%	42%	8%	14%	10%	3.9617
We keep the team informed about changes	28%	40%	7%	15%	10%	3.8766
We provide timely feedback on tech-related issues	30%	34%	8%	17%	11%	3.7617
Mean Total						**3.8667**

Note: *SA = Strongly Agree; A= Agree; U = Undecided; D = Disagree; SD = Strongly Disagree*

The data in Table 1 reveal that digital automation (DA) significantly impacts the informational roles of managers at Nestle Nigeria Plc. Specifically, 68% of respondents (35% strongly agree, 33% agree) believe that digital automation such as AI tools enhance decision-making in the organisation, with a mean score of 3.8128, indicating a positive perception. Similarly, 66% (39% agree, 27% strongly agree) affirm that training on digital automation such as AI is promoted, though the mean score of 3.2894 suggests room for improvement in training initiatives. Furthermore, 70% (39% strongly agree, 31% agree) find digital automation such as AI tools user-friendly for managerial tasks, with the highest mean score of 3.9957. These findings suggest that digital automation such as AI tools is perceived as a valuable tool for improving decision-making and task efficiency, but there is a need for enhanced training to maximise its potential.

In terms of the informational roles of managers, the data shows that 68% (26% strongly agree, 42% agree) believe technological updates are communicated clearly, with a mean score of 3.9617. Additionally, 68% (28% strongly agree, 40% agree) agree that managers keep the team informed about changes, with a mean score of 3.8766. Lastly, 64% (30% strongly agree, 34% agree) agree that timely feedback on tech-related issues is provided, with a mean score of 3.7617. The overall mean score of 3.8667 for informational roles indicates that managers are effectively leveraging digital automation such as AI tools to fulfill their communication responsibilities, though there is still room for improvement in feedback mechanisms.

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The findings highlight that while digital automation such as AI tools is positively influencing decision-making and task efficiency, Nestle Nigeria Plc should focus on enhancing AI training programmes to ensure that all employees, particularly managers, are equipped to fully utilise digital automation such as AI tools. Additionally, the strong performance in informational roles suggests that managers are effectively using digital automation such as AI tools to communicate updates and changes, but improving feedback mechanisms could further strengthen team alignment and responsiveness. Overall, the integration of digital automation such as AI tools into managerial roles is yielding significant benefits, but targeted improvements in training and communication processes could amplify its impact on organisational performance.

The descriptive analysis is complemented by the test of hypothesis for the first objective to provide a deeper understanding of the relationships between variables. Regression analysis was employed to test the hypothesis because it allows for the evaluation of the strength and direction of the relationship between digital automation (DA) and the informational roles of managers (See Table 2).

The research hypothesis was stated in null (H_0) form:

Ho: Digital automation (DA) has no significant effect on the informational roles of managers in Nestle Nigeria Plc

Table 2 Regression for digital automation on the informational roles of managers

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.581[a]	.338	.335	.47620	
ANOVA					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	26.987	1	26.987	119.008	.000
Residual	52.836	233	.227		
Total	79.822	234			
Co-efficient					
	Unstandardised Coefficients		Standardised Coefficients	t	Sig.

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	B	Std. Error	Beta		
(Constant)	2.146	.161		13.351	.000
Digital automation [AI]	.465	.043	.581	10.909	.000
Dependent Variable: Informational roles of managers					

The regression analysis results in Table 2 indicate that digital automation (DA) has a significant effect on the informational roles of managers in Nestle Nigeria Plc. The R value of 0.581 shows a moderate positive correlation between digital automation such as AI tools and the informational roles of managers, while the R Square value of 0.338 indicates that 33.8% of the variation in the informational roles of managers is explained by AI. This suggests that digital automation such as AI tools plays a substantial role in shaping how managers gather, process, and disseminate information. The Adjusted R Square of 0.335 confirms that the model is a good fit, even after adjusting for the number of predictors.

The ANOVA results show that the regression model is statistically significant. The F-statistic of 119.008 with a p-value of 0.000 indicates that the relationship between digital automation such as AI tools and the informational roles of managers is not due to random chance. This strong significance confirms that digital automation such as AI tools has a meaningful impact on the dependent variable. The regression coefficients further support this conclusion. The unstandardised coefficient (B) for digital automation is 0.465, meaning that for every unit increase in AI, the informational roles of managers improve by 0.465 units. The t-statistic of 10.909 and the p-value of 0.000 indicate that this effect is statistically significant. The constant value of 2.146 represents the baseline level of informational roles when digital automation is absent.

The findings suggest that digital automation significantly enhances the informational roles of managers at Nestle Nigeria Plc. The moderate positive correlation and the significant explanatory power of the model (33.8 %) shows the significance of digital automation practices like application of AI tools in enhancing managerial efficiency in collecting and sorting out the information as well as dispensing it. The unstandardised coefficient (B) of 0.465 shows that even the slight changes in the level of digital automation like the adoption of AI tools can cause significant improvements in managerial informational roles. This highlights that Nestle needs to train their managers on digital automation including AI tools and systems to gain maximum potential. In addition, the high value of the F-statistic and the t-statistic indicates that digital automation like the use of AI tools is a stable predictor of the performance of managers in this domain. It means that Nestle ought to engage in further spending in AI technologies to advance the informational aptitudes of its

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managers. Also, a high level of statistical significance of the model implies the digital automation (e.g., the AI tools) will be a decisive means of enhancing decision-making procedures, allowing the managers to extract and process the data in more efficient ways.

Discussion of Findings – Quantitative Findings

Research Question: To what extent does digital automation (DA) affect the communication roles of managers in Nestle Nigeria Plc?

The findings from the regression analysis reveal that digital automation (DA) significantly affects the informational roles of managers in Nestle Nigeria Plc. The results show a moderate positive correlation (R = 0.581) and that 33.8% of the variation in informational roles is explained by digital automation such as AI tools (R Square = 0.338). This aligns with the work of Ahlquist and Birgisdóttir (2020), who emphasised that digital transformation, driven by AI, enhances managerial efficiency by improving access to and processing of information. Similarly, Majhi et al. (2023) highlighted that AI enables dynamic managerial capabilities, which are critical for processing complex information in decision-making. The results indicate that digital automation like AI tools are an essential instrument in enhancing informational functions of managers, especially in one of the data-based organisations like Nestle.

This analysis indicates the significance of the unstandardised coefficient and the educational value of the digital automation of AI tools on aspects of informational role of managers (B = 0.465). The statistical significance of the model thus supports the meaningful and measurable role of digital automation, in this case, measured in terms of AI tools in impacting the informational role of managers (F = 119.008, P = 0.000). This finding validates the study of Alsalim (2020), which established that the information technology management, to which AI belongs, assists in managerial innovation, as it leads to increased possibilities to collect and share information efficiently. Also, Bonnet and Westerman (2020) asserted that with the aid of AI-driven digital transformation, managers are given the tools to respond to a constantly-shifting landscape, which confirms the results of this study. This outcome supports the fact that automation through digital tools like AI can not only streamline the process of information conversion, but also a promoter of flexibility and innovation in management practices.

The results can be also associated with the article provided by Canbek (2020) who examined the role of digital automation (like AI tools) in management processes and concluded that AI has augmented informational roles of managers through automating repetitive tasks and delivering

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actionable intelligence. This study's results align with this perspective, as the significant t-statistic ($t = 10.909$, $p = 0.000$) indicates that AI is a reliable predictor of improved informational roles. However, the findings contradict the work of Gibbs (1994), who argued that technological advancements might not always translate into improved managerial roles due to resistance to change or lack of proper implementation. In the context of Nestle, the results suggest that AI has been effectively integrated into managerial processes, overcoming such challenges. This result affirms the works of Ahlstrom et al. (2020) and Donbesuur et al. (2020), who emphasised the transformative potential of digital automation in managerial roles. The study concludes that digital automation such as AI is a critical enabler of managerial efficiency and innovation, particularly in a competitive and data-intensive industry like Nestle's.

Qualitative Findings

The qualitative (interview) data was also collected and comprised of various stakeholders, regulatory agencies and/or industry associations such as: (i) National Agency for Food and Drug Administration and Control (NAFDAC); and (ii) Federal Competition and Consumer Protection Commission (FCCPC). These regulatory agencies and industry associations will help to provide a comprehensive understanding of the role of managers in bringing and implementing technological change in the context of Nestle Nigeria. The qualitative findings are presented in Table 3.

Table 3: Qualitative Findings

Question	NAFDAC Response	FCCPC Response
1. How do you support technological change within your team at Nestlé Nigeria?	We supported technological changes by promoting capacity-building initiatives and ensuring our team understood its importance. For example, when implementing a new digital tracking system for product approvals, we provided hands-on training to all team members. Communicating the long-term benefits, such as faster approvals and reduced errors, helped secure their buy-in.	We supported technological change by fostering collaboration and transparency. For instance, during our transition to a consumer complaint digital platform, we ensured every team member understood how the system would make processes more efficient. We held regular meetings to highlight the improvements and addressed concerns promptly.

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Probing Question 1: Can you describe any recent technology changes you've led?	Recently, we led the adoption of an AI-powered tool for monitoring counterfeit drugs in the market. This change enabled us to track and analyse suspicious product flows with greater accuracy.	We recently introduced a machine learning tool to analyse consumer protection cases. This tool helped us identify trends and prioritise cases more effectively.
Probing Question 2: How do you communicate the importance of these changes to your team?	We communicated the importance by organising workshops and showing real-life examples of how the technology would improve our regulatory activities.	We communicated the importance through team presentations and shared success stories from other organisations that had implemented similar technologies.
2. What challenges have you faced as a manager in implementing new technologies?	One challenge was resistance from team members who were unfamiliar with the new systems. For example, when introducing a digital submission platform, some employees preferred manual processes due to habit.	We faced challenges such as limited technical expertise among the team. For example, during the rollout of an online consumer reporting system, some staff struggled with the new interface.
Probing Question 1: Can you give examples of obstacles during the adoption process?	With the digital platform, connectivity issues in remote branches delayed implementation, which frustrated some employees.	A major obstacle was the lack of proper infrastructure in some regions, which slowed down the adoption of our digital platform.
Probing Question 2: How did you overcome those challenges?	We overcame these challenges by providing additional training, troubleshooting remote connectivity issues, and appointing tech-savvy team members as mentors.	We addressed the challenges by organising technical support sessions and gradually phasing the system to allow team members time to adapt.
3. How do you involve your team in the decision-making	We involved the team by holding brainstorming sessions where members could share their views	We involved our team by setting up collaborative workshops. For example, when adopting digital

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process for adopting new technologies?	on technology solutions. For instance, when implementing a new lab testing system, we gathered feedback from lab technicians to understand their needs.	automation such as AI tools for consumer case analysis, we invited team members to test the tool and suggest improvements.
Probing Question 1: Do you encourage input from your team regarding tech changes?	Yes, we actively encouraged input by creating open forums where team members could voice their opinions and concerns.	Yes, we encouraged input by circulating surveys and holding one-on-one feedback sessions with team members.
Probing Question 2: How does their feedback impact the final decision?	Feedback helped us customise the new systems to address specific workflow	

Summary of Qualitative Findings

The qualitative findings revealed that both NAFDAC and FCCPC have actively supported technological change by focusing on capacity-building and fostering collaboration within their teams. NAFDAC emphasised the importance of hands-on training and workshops to ensure team members understood the benefits of new technologies, such as improved efficiency in tracking counterfeit drugs through an AI-powered tool. FCCPC similarly highlighted their efforts in promoting transparency by holding team presentations and regular meetings during the implementation of a machine-learning platform for analysing consumer protection cases. Both organisations showcased the critical role of communication in securing team buy-in and ensuring smooth transitions to new technologies. These findings complement quantitative results by underscoring the importance of managerial engagement and training as key drivers of successful technological adoption.

The findings also shed light on the challenges faced during technological adoption, such as resistance to change, limited technical expertise, and infrastructure issues. NAFDAC overcame these obstacles by providing additional training, troubleshooting connectivity issues, and appointing tech-savvy mentors, while FCCPC addressed similar issues by organising technical support sessions and gradually phasing in new systems. Additionally, both agencies demonstrated the value of involving team members in decision-making processes, as feedback from staff helped tailor technological solutions to meet specific needs. These qualitative insights align with the

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quantitative findings by highlighting the practical strategies and collaborative approaches that contribute to effective technological change in organisational settings, reinforcing the importance of inclusive and adaptive management practices

Conclusion

The investigation into the effect of technological change on the managerial roles in Nestle Nigeria Plc has revealed significant transformations across various managerial functions.

This investigation into the effect of technological change on managerial roles at Nestle Nigeria Plc contributes to the understanding of how specific technologies, such as digital automation, research and development, and innovation, reshape managerial functions in a corporate context.

Among the most important findings is that the informational functions of managers have vastly increased because of digital automation (DA). Real-time information and predictive analytics can now be obtained by AI-based tools, which allows managers to capture, treat, and share information more productively. The above technological development has enhanced the accuracy of decision making and effective strategic planning in that effective managers are kept well equipped to deal with current business complexities.

The current situation is that managers are increasingly engaged in the finding of new business fields and simply putting innovative ideas into practice that increase the value to the organisation. To sum up, it can be said that the technologic change has been a transformative factor in the business of Nestle Nigeria Plc regarding managerial functions which are informational, decisional, entrepreneurial, leadership, and administrative functions that have been improved.

Recommendations

In tandem with the findings of this study, the following recommendations are proposed for the management of Nestle Nigeria Plc.

i. To effectively address the impact of technological change on managerial roles in Nestle Nigeria Plc, it is recommended that the organisation invest heavily in continuous training and development programmes for managers. The relevant skills that these programs aim to provide managers with are in terms of the technical competencies needed to take advantage of the more cutting-edge technologies, like digital automation, data analytics, and automation tools. This should be spearheaded by the Human Resources Department, which

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is expected to organize or customize specific training programs to keep the managers competent and responsive to changes posed in the application of technology.

ii. Nestle Nigeria Plc will need to establish policies towards promoting culture of innovation and entrepreneurship amongst managers. This would be possible through the provision of incentive programmes to reward managers with adopting innovative practices or those who are successful in leading technological changes initiatives.

iii. The organisation must prioritise the integration of technology into administrative and operational processes to further enhance managerial efficiency. Policies should encourage the adoption of digital tools and platforms that automate routine tasks, streamline workflows, and improve collaboration. The IT Department and Operations Team should work together to select and implement these technologies while providing ongoing support to managers. This approach will ensure that managers can focus more on strategic responsibilities, driving innovation and maintaining Nestle's competitive edge in a rapidly changing business environment.

Policy Implication

These incentives should be designed by the Leadership Team and Policy-Making Units who may work on ensuring that they are coherent with the company mission and vision. Such initiatives would motivate managers to embrace change, take calculated risks, and explore new opportunities for organisational growth.

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