

Digital Ethics and Middle-Level Manager Productivity in Mobile Telecommunication Firms in Rivers State

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Abstract

The study ascertained the relationship between digital ethics and middle-level manager's productivity in mobile telecommunication firms in Rivers State. The objectives of the study were to examine the relationship between digital ethics and measures of middle-level manager's productivity (time management, cost efficiency, and operational efficiency) in mobile telecommunication firms in Rivers State. The study was anchored on Cognitive Theory of Multimedia Learning. The study adopted cross-sectional research design. The target population of the study was two hundred (200) middle-level managers consisting of Heads of Departments/Units and Supervisors of the four major mobile telecommunication firms operating in Rivers State. The entire population of two hundred (200) middle-level managers were engaged for the study. As a result, no sampling technique was done, and the study adopted a census approach. Structured questionnaire was used as the main instrument for the collection of primary data. To establish the validity of the instrument, copies of the questionnaire were submitted to experts in Office and Information Management Department of Ignatius Ajuru University of Education, Port Harcourt. Their comments were used to validate the final copy of the instrument that was administered. Thus, Cronbach alpha was used to ascertain the reliability of the instrument. A total of two hundred (200) copies of the questionnaire were administered with the assistance of two trained research assistants. The number and rate of questionnaire retrieved was one hundred and seventy-five (175) copies. Pearson's Product Moment Correlation Coefficient was used for the analysis through the aid of Statistical Package for Social Sciences (SPSS). It was found that digital ethics has a significant positive relationship with middle-level manager's productivity in mobile telecommunication firms in Rivers State. The study concluded that effective adoption of digital ethics principles enables middle-level managers to utilise digital resources responsibly, manage administrative activities effectively and support improved organisational

processes. The study recommended that management should strengthen ethical digital usage policies and provide continuous training on responsible technology utilization

Keywords: *Digital Ethics, Middle-level Manager's Productivity, Time Management, Cost Efficiency, and Operational Efficiency*

Background to The Study

Middle-level managers' productivity has become an important concern in mobile telecommunication firms due to the increasing complexity of administrative activities, technological advancement and the need for efficient coordination of organisational operations. Middle-level managers in telecommunication firms perform critical functions involving information management, scheduling, communication coordination, documentation, resource utilisation and administrative decision support (Kekeocha et al., 2026). Their productivity reflects the extent to which they efficiently accomplish assigned responsibilities, manage available resources and contribute to organisational objectives. The rapid transformation of the telecommunication sector has further increased expectations for middle-level managers to utilise digital tools, manage information effectively and support faster organisational processes. Recent evidence from Nigerian mobile telecommunication firms shows that digital skills and technology adoption significantly enhance employees' task efficiency and output quality, demonstrating the growing relevance of productivity among workers in the sector (Kekeocha et al., 2026). Similarly, studies on telecommunication firms in Rivers State have identified middle-level manager performance as being influenced by factors such as digital capacity development and professional advancement, which improve creativity and task completion ability (Gbafah, 2025; Ordua & Ogeh, 2024). The productivity of middle-level managers in mobile telecommunication firms can be assessed through their ability to effectively manage time, control administrative costs and improve operational processes. Time management reflects the ability of middle-level managers to prioritise tasks, meet deadlines, coordinate schedules and minimise delays in administrative activities (Nwabali, 2023). Cost efficiency represents the capacity to achieve organisational objectives while minimising unnecessary expenditure through effective utilisation of financial, technological and human resources. Operational efficiency focuses on the ability to streamline work processes, improve information flow, reduce errors and ensure that administrative activities are completed effectively. These measures are particularly important in mobile telecommunication firms where rapid communication, accurate information handling and efficient service coordination are essential for maintaining competitiveness. Research in telecommunication organisations indicates that effective communication systems, digital competencies and technology adoption contribute significantly to improved organisational processes and employee effectiveness (Kekeocha et al., 2026). The growing dependence on digital systems and online platforms within mobile telecommunication firms has also introduced ethical considerations regarding how employees create, manage, share and utilise digital information. Digital ethics refers to the principles and standards that guide responsible, secure and appropriate behaviour in the use of digital technologies and information systems. It involves issues such as responsible digital communication, information privacy, data protection, transparency, accountability and appropriate use of organisational digital resources. For middle-level managers who increasingly rely on digital platforms for administrative coordination and communication, adherence to digital ethical principles is essential for maintaining trust, protecting organisational information and ensuring responsible technology utilisation. Studies have shown that digital communication practices and

ethical technology usage influence managerial effectiveness by improving information management, decision-making and workplace interactions (Nwiyii et al., 2022; Misra et al., 2021). Although existing studies have examined technology adoption, digital communication, employee productivity and middle-level manager performance within telecommunication organisations, limited empirical attention has been directed towards the relationship between digital ethics and middle-level managers' productivity, particularly in mobile telecommunication firms in Rivers State. For instance, Kekeocha et al. (2026) examined digital transformation and employee productivity in Nigeria's mobile telecommunication sector, focusing on digital skills and technology adoption rather than ethical digital practices. Gbafah (2025) investigated digital capacity building and middle-level manager creativeness in telecommunication firms in Rivers State, while Ordua and Ogeh (2024) examined career development programmes and middle-level manager performance. Nwiyii et al. (2022) explored digital communication etiquette and managerial effectiveness in telecommunication companies in South-South Nigeria. However, these studies have not sufficiently established how digital ethics, through responsible digital behaviour, information integrity and ethical technology utilisation, influences middle-level managers' productivity measured through time management, cost efficiency and operational efficiency. This gap creates the need for further investigation into the role of digital ethics as a potential contributor to improving middle-level managers' productivity in mobile telecommunication firms in Rivers State.

Statement of The Problem

Despite the strategic importance of mobile telecommunication firms in supporting economic activities, many firms continue to experience challenges relating to middle-level managers' productivity, particularly in effective time utilisation, cost control and operational efficiency. Middle-level managers are often confronted with increasing administrative responsibilities, information overload, ineffective digital practices and difficulties in managing technology-driven work processes, which may reduce their ability to complete tasks efficiently and support organisational objectives. The increasing dependence on digital platforms has further introduced concerns relating to digital ethics, including improper use of digital resources, weak information management practices and irresponsible digital communication. These challenges may negatively affect middle-level managers' productivity by creating delays, increasing administrative costs and reducing operational effectiveness. However, limited empirical studies have examined how digital ethics influences middle-level managers' productivity, especially within mobile telecommunication firms in Rivers State. This gap necessitates an investigation into the relationship between digital ethics and middle-level managers' productivity measured through time management, cost efficiency and operational efficiency.

Conceptual Framework

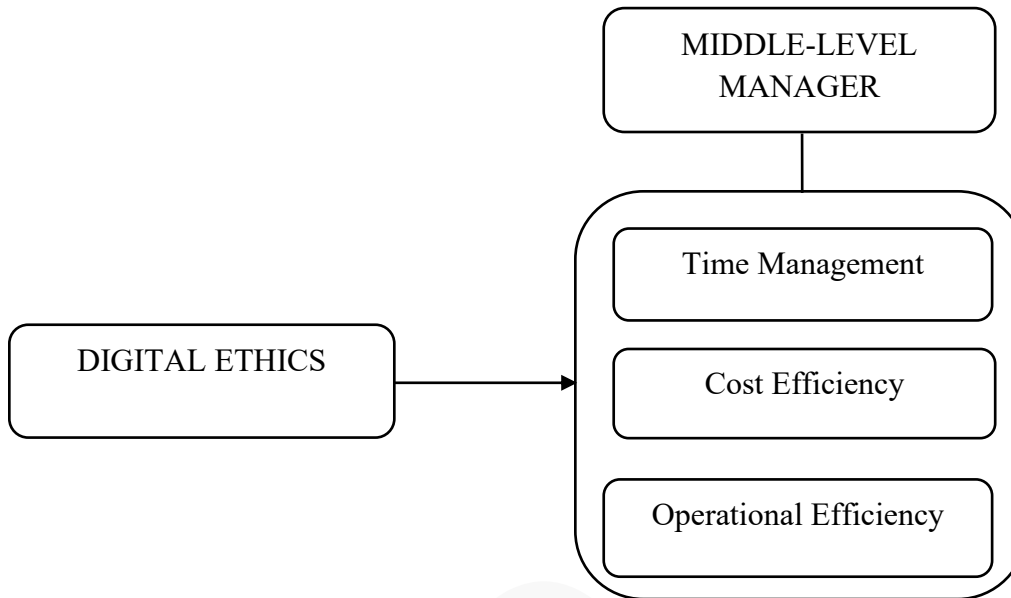


Fig. 1: Conceptual Framework.

Source: Ordua and Ogeh (2024); Nwiyi et al. (2022); and Floridi (2021)

Aim and Objectives of The Study

The aim of the study was to ascertain the relationship between digital ethics and middle-level manager productivity in mobile telecommunication firms in Rivers State. The sought to:

1. examine the relationship between digital ethics and middle-level managers' time management in mobile telecommunication firms in Rivers State.
2. determine the relationship between digital ethics and middle-level managers' cost efficiency in mobile telecommunication firms in Rivers State.
3. assess the relationship between digital ethics and middle-level managers' operational efficiency in mobile telecommunication firms in Rivers State.

Hypotheses

In line with the objectives, the following null hypotheses were formulated:

Ho₁: There is no significant relationship between digital ethics and middle-level managers' time management in mobile telecommunication firms in Rivers State.

Ho₂: There is no significant relationship between digital ethics and middle-level managers' cost efficiency in mobile telecommunication firms in Rivers State.

Ho₃: There is no significant relationship between digital ethics and operational efficiency in mobile telecommunication firms in Rivers State.

Conceptual Review

Concept of Digital Ethics

Digital ethics refers to the principles, values and standards that guide responsible, transparent and accountable use of digital technologies, information systems and online platforms within an organisational environment. Within mobile telecommunication firms in Rivers State, digital ethics

concerns how employees and managers use digital infrastructure, handle electronic information, communicate through digital channels and protect organisational and customer data. It involves responsible technology usage, respect for privacy, integrity in digital communication and compliance with established data protection regulations. As telecommunication firms process large volumes of customer information, including personal identities, call records and location-based data, ethical digital practices are essential for maintaining trust and ensuring responsible service operations (Floridi, 2021). The Nigerian Communications Commission has also emphasised the importance of ethical data management and privacy protection among telecommunications operators due to increasing digitalisation and emerging technologies such as artificial intelligence and 5G networks (NCC, 2025). Digital ethics therefore provides a framework for ensuring that technological resources within mobile telecommunication firms are used appropriately to support organisational objectives while protecting stakeholder interests. Thus, Data privacy awareness, and responsible engagement are considered as indicators of digital ethics.

Data Privacy Awareness: Data privacy awareness refers to the level of understanding and consciousness individuals possess regarding the collection, processing, storage, sharing and protection of personal information within digital environments. In mobile telecommunication firms in Rivers State, data privacy awareness involves employees' knowledge of customer information protection requirements, organisational privacy policies, regulatory obligations and appropriate procedures for handling sensitive digital records. Since telecommunications companies manage extensive customer data, including subscriber details, communication records and transaction information, employees require adequate awareness of privacy responsibilities to prevent misuse, unauthorised access and data breaches (Zainudin et al., 2024). Similarly, increased concerns about data security among technology users demonstrate the need for firms to strengthen transparency and awareness regarding how personal information is collected and protected (Deloitte, 2024).

Responsible Engagement: Responsible engagement refers to the appropriate, ethical and constructive interaction of individuals with digital platforms, technologies and online communication systems. Within mobile telecommunication firms in Rivers State, responsible engagement involves employees' ability to use digital communication channels professionally, share information appropriately, avoid unethical online behaviours and maintain respectful interactions with customers, colleagues and organisational stakeholders. It requires awareness of the consequences of digital actions and adherence to organisational guidelines governing technology use (Moor, 2021). In the telecommunications sector, transparent and responsible digital engagement has been identified as a major factor influencing customer trust, particularly as firms increasingly rely on digital platforms and artificial intelligence-based services (KPMG, 2024). Therefore, responsible engagement among middle-level managers supports effective digital communication and promotes professional technology utilisation.

Concept of Middle-level manager Productivity

Middle-level manager productivity refers to the ability of middle-level managers to efficiently perform administrative responsibilities, coordinate organisational activities and achieve expected work outcomes through effective utilisation of available resources. Within mobile telecommunication firms in Rivers State, middle-level manager productivity involves the effective management of schedules, information flow, documentation, communication processes and

administrative support functions. Productive middle-level managers contribute to organisational effectiveness by ensuring timely completion of tasks, reducing administrative inefficiencies and supporting smooth operational activities. Productivity in contemporary organisations is increasingly influenced by employees' ability to integrate technological resources with administrative competencies and workplace practices (Demerouti et al., 2021). In technology-driven industries such as telecommunications, employees are expected to manage digital information, coordinate virtual communication and support rapid organisational responses (Kekeocha et al., 2026). Middle-level manager productivity therefore reflects not only task completion but also the ability to improve administrative processes and support organisational performance through efficient work practices. Middle-level manager productivity was measured through time management, cost efficiency, and operational efficiency.

Measures of Middle-level manager Productivity

Time Management

Time management refers to the ability of individuals to plan, organise, prioritise and control the use of available time to accomplish tasks effectively. Within mobile telecommunication firms in Rivers State, time management involves middle-level managers' ability to schedule administrative activities, meet deadlines, coordinate meetings, respond to communication demands and minimise delays in workplace processes. Effective time management enables middle-level managers to balance multiple responsibilities associated with digital communication, documentation and coordination activities. Research indicates that effective time management practices enhance employee effectiveness by improving task prioritisation, reducing work pressure and increasing completion efficiency (Aeon & Aguinis, 2017). In telecommunication firms where operations require rapid information exchange and timely decision-making, poor time management may create administrative bottlenecks and reduce workplace efficiency. Consequently, time management remains an important indicator of middle-level manager productivity because it reflects the ability to maximise available work hours and achieve organisational objectives efficiently.

Cost Efficiency

Cost efficiency refers to the ability of an organisation or employee to achieve desired outcomes while minimising unnecessary expenditure and optimising the utilisation of available resources. Within mobile telecommunication firms in Rivers State, cost efficiency among middle-level managers involves effective management of administrative expenses, reduction of resource wastage, appropriate utilisation of digital tools and improved control of operational costs. Middle-level managers contribute to cost efficiency through proper planning, effective resource allocation and adoption of cost-saving administrative practices. In technology-intensive industries, digital systems can support cost efficiency by reducing manual processes, improving information management and lowering transaction costs (Bharadwaj et al., 2021). Effective cost management is particularly important in telecommunications because firms operate within highly competitive environments requiring continuous investment in infrastructure, technology and human resources. Therefore, cost efficiency reflects the ability of middle-level managers to support organisational sustainability by achieving administrative objectives with optimal resource utilisation.

Operational Efficiency

Operational efficiency refers to the ability of an organisation or employee to perform activities effectively by improving processes, reducing delays, minimising errors and achieving higher output with available resources. Within mobile telecommunication firms in Rivers State, operational efficiency among middle-level managers involves the ability to streamline administrative procedures, improve workflow coordination, enhance communication processes and ensure smooth execution of daily office activities. Efficient middle-level managers support organisational operations by ensuring accurate information processing, timely documentation and effective coordination between departments. Digital technologies have increased the importance of operational efficiency because organisations now depend on integrated systems for communication, data management and service delivery (Vial, 2019). In telecommunications, efficient operational processes enable firms to respond quickly to changing customer demands and technological developments. Thus, operational efficiency represents a critical dimension of middle-level manager productivity because it demonstrates the capacity to improve workplace processes and achieve organisational objectives effectively.

Theoretical Review

The study was anchored on The Cognitive Theory of Multimedia Learning. The Cognitive Theory of Multimedia Learning propounded by Richard E. Mayer (2001) argues that people learn more effectively from words and pictures than from text alone because the brain processes auditory/verbal and visual information through dual channels. The theory assumes that:

1. Individuals process multimedia content (video, graphics, text) using separate cognitive channels, leading to better understanding and retention.
2. Instructional design that aligns with human cognitive architecture improves learning outcomes, thus boosting efficiency.

The Cognitive Theory of Multimedia Learning provides a learning-based foundation for understanding how middle-level managers decode, integrate, and apply multimedia information crucial for efficient task execution, error reduction, and decision-making.

Methodology

The study adopted cross-sectional research design. The target population of the study was two hundred (200) middle-level managers consisting of Heads of Departments/Units and Supervisors of the four major mobile telecommunication firms operating in Rivers State. The entire population of two hundred (200) middle-level managers were engaged for the study. As a result, no sampling technique was done, and the study adopted a census approach. Structured questionnaire was used as the main instrument for the collection of primary data. To establish the validity of the instrument, copies of the questionnaire was submitted to experts in Office and Information Management Department of Ignatius Ajuru University of Education, Port Harcourt. Their comments were used to validate the final copy of the instrument that was administered. Thus, Cronbach alpha was used to ascertain the reliability of the instrument. A total of two hundred (200) copies of the questionnaire were administered with the assistance of two trained research assistants. The number and rate of questionnaire retrieved was one hundred and seventy-five (175) copies. Pearson's Product Moment Correlation Coefficient was used for the analysis through the aid of Statistical Package for Social Sciences (SPSS). The formula is presented overleaf:

$$r = \frac{n\sum XY - \sum X \sum Y}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$$

Where:

N= total number

X = number of data in group A

Y= number of data in group B

$\sum$ = Summation

$\sqrt{\quad}$ = Square root

The strength of relationship was interpreted using the following scheme: No Relationship = 0; Low or Weak Relationship = 0.1–0.3; Moderate or Relatively Strong Relationship = 0.4–0.6; High or Strong Relationship = 0.7–0.9; and Perfect Relationship = 1.

Results

Ho₁: There is no significant relationship between digital ethics and middle-level managers' time management in mobile telecommunication firms in Rivers State.

Table 1: Correlation between Digital Ethics and Time Management

		Digital Ethics	Time Management
Pearson's r	Correlation Coefficient	1.000	.812**
	Sig. (2-tailed)	.	.000
	N	175	175
	Correlation Coefficient	.812**	1.000
	Sig. (2-tailed)	.000	.
	N	175	175

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Survey Data, 2026

Table 1 above reveals r value of 0.812 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating digital ethics and time management. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis (Ho₁) which states that there is no significant relationship between digital ethics and middle-level managers' time management in mobile telecommunication firms in Rivers State was rejected and the alternate hypothesis (Ha₁) was accepted. This implies that there is a very strong significant relationship between digital ethics and middle-level managers' time management in mobile telecommunication firms in Rivers State.

Ho₂: There is no significant relationship between digital ethics and middle-level managers' cost efficiency in mobile telecommunication firms in Rivers State.

Table 2: Correlation between Digital Ethics and Cost Efficiency

		Digital Ethics	Cost Efficiency
Pearson's r	Digital Ethics	Correlation Coefficient 1.000	.545**
		Sig. (2-tailed)	.000
		N	175
	Cost Efficiency	Correlation Coefficient .545**	1.000
		Sig. (2-tailed)	.000
		N	175

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Survey Data, 2026

Table 2 above reveals r value of 0.545 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating digital ethics and cost efficiency. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis (Ho₂) which states that there is no significant relationship between digital ethics and middle-level managers' cost efficiency in mobile telecommunication firms in Rivers State was rejected and the alternate hypothesis (Ha₂) was accepted. This implies that there is a strong positive relationship between digital ethics and middle-level managers' cost efficiency in mobile telecommunication firms in Rivers State.

Ho₃: There is no significant relationship between digital ethics and middle-level managers' operational efficiency in mobile telecommunication firms in Rivers State.

Table 3: Correlation between Digital Ethics and Operational Efficiency

		Digital Ethics	Operational Efficiency
Pearson's r	Digital Ethics	Correlation Coefficient 1.000	.532**
		Sig. (2-tailed)	.000
		N	175
	Operational Efficiency	Correlation Coefficient .532**	1.000
		Sig. (2-tailed)	.000
		N	175

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Survey Data, 2026

Table 3 above reveals r value of 0.532 at a significance level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating digital ethics and operational efficiency. Since the significance value 0.00 is less than the alpha level of 0.05, the null hypothesis (Ho₃) which states that there is no significant relationship between digital ethics and middle-level managers' operational efficiency in mobile telecommunication firms in Rivers State was rejected and the alternative hypothesis (Ha₃) was accepted. This implies that there is a moderate positive relationship between digital ethics and middle-level managers' operational efficiency in mobile telecommunication firms in Rivers State.

Discussion of Findings

The findings of the study were discussed under the following heading:

Digital Ethics and Time Management

The test of hypothesis one revealed that there is a very strong significant relationship between digital ethics and middle-level managers' time management in mobile telecommunication firms in Rivers State. The finding that digital ethics has a very strong and significant relationship with middle-level managers' time management in mobile telecommunication firms in Rivers State is consistent with the growing emphasis on ethical digital conduct as a driver of workplace effectiveness. Nwankwo (2024) argued that adherence to digital ethics improves employees' discipline in the use of digital tools, reduces distractions, and enhances focus on core job responsibilities. This implies that middle-level managers who maintain ethical digital behaviour are more likely to allocate their time efficiently and remain productive in their daily operations. Similarly, Philip (2025) noted that digital ethics plays a critical role in regulating employee behaviour in technology-driven environments, particularly by discouraging misuse of digital platforms during working hours. According to the study, ethical compliance minimizes time wastage associated with non-work-related digital activities, thereby improving task completion speed. This supports the present finding that digital ethics strongly enhances time management in mobile telecommunication firms. Overes and Santoro (2025) further emphasized that organizations with strong digital ethics cultures tend to experience higher employee discipline and improved performance outcomes. They explained that ethical guidelines shape employees' decision-making processes regarding digital tool usage, ensuring that work-related priorities are maintained. This aligns with the very strong relationship observed in this study between digital ethics and productivity outcomes among middle-level managers.

Digital Ethics and Cost Efficiency

The test of hypothesis two revealed that there is a strong positive relationship between digital ethics and middle-level managers' cost efficiency in mobile telecommunication firms in Rivers State. The finding that digital ethics has a strong positive relationship with cost efficiency suggests that ethical digital behaviour contributes significantly to reducing organizational wastage and improving resource utilization. Nwankwo (2024) observed that employees who adhere to digital ethics are less likely to misuse organizational resources, thereby reducing unnecessary operational costs. This supports the idea that ethical behaviour in digital environments translates into more efficient use of organizational assets. Philip (2025) also highlighted that digital ethics reduces the likelihood of data misuse, duplication of efforts, and inefficient communication practices, all of which can lead to financial wastage. By promoting responsible digital conduct, organizations are able to minimize avoidable costs associated with errors and inefficiencies. This explains the strong positive relationship found between digital ethics and cost efficiency in this study. Furthermore, Overes and Santoro (2025) argued that ethical compliance in digital operations fosters accountability and transparency, which indirectly improves financial discipline within organizations. They noted that when employees adhere to ethical digital standards, there is reduced misuse of office technologies and improved monitoring of resource utilization. This further reinforces the strong relationship between digital ethics and cost efficiency identified in this study.

Digital Ethics and Operational Efficiency

The test of hypothesis three revealed that there is a moderate positive relationship between digital ethics and middle-level managers' operational efficiency in mobile telecommunication firms in

Rivers State. The finding that digital ethics has a moderate positive relationship with operational efficiency indicates that while ethical behaviour supports efficient operations, its impact is influenced by other organizational factors such as infrastructure, training, and workflow systems. Nwankwo (2024) explained that operational efficiency depends not only on ethical conduct but also on technical competence and system reliability. This suggests that digital ethics alone may not fully determine the level of operational efficiency in organizations. Philip (2025) supported this view by noting that although digital ethics promotes structured and disciplined work behaviour, operational efficiency is also shaped by employees' technical skills and organizational support systems. This implies that ethical behaviour contributes to smoother operations but must be complemented by adequate resources and competencies to achieve maximum efficiency. This explains the moderate relationship observed in this study.

Conclusion

Base on the findings, the study concluded that digital ethics has a significant positive relationship with middle-level manager's productivity in in mobile telecommunication firms in Rivers State. This implies that effective adoption of digital ethics principles enables middle-level managers to utilise digital resources responsibly, manage administrative activities effectively and support improved organisational processes.

Recommendations

Based on the findings, the following recommendations were made:

1. Management should strengthen ethical digital usage policies and provide continuous training on responsible technology utilisation.
2. Management should establish clear guidelines for the responsible use of digital resources, including organisational software, communication platforms and information systems.
3. Management should incorporate digital ethics education into employee development programmes, particularly for middle-level managers who frequently handle sensitive information and coordinate digital communication processes.

References

- Aeon, B., & Aguinis, H. (2017). It's about time: New perspectives and insights on time management. *Academy of Management Perspectives*, 31(4), 309–330.
- Batabyal, S. K., & Bhal, K. T. (2022). Cyberloafing and cyberslacking in the workplace: Systematic literature review of past achievements and future promises. *Information & Management*, 59(5), 103653.
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2021). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, 45(1), 1–20.
- Deloitte. (2024). *2024 connected consumer survey: Earning trust as gen AI takes hold*. Deloitte Center for Technology, Media & Telecommunications.
- Demerouti, E., Shimazu, A., & Bakker, A. B. (2021). Digital transformation and employee well-being: A job demands-resources perspective. *International Journal of Environmental Research and Public Health*, 18(10), 1–15.
- Floridi, L. (2021). *The ethics of artificial intelligence: Principles, challenges, and opportunities*. Oxford University Press.
- Hossain, T., & Islam, M. T. (2026). Real-time digital feedback and employee productivity: Evidence from Bangladesh's telecommunications industry. *Journal of Business and Economic Development*, 11(3), 74–88. <https://doi.org/10.11648/j.jbed.20261103.12>
- Kekeocha, E. M., Oliseh, S. P., Anagwu, V. K., & Nwanya, C. C. (2026). Digital transformation and employee productivity in Nigeria's mobile telecommunication sector. *Annals of Management and Organization Research*, 7(3), 385–399.
- KPMG. (2024). *KPMG 2024 telecom consumer survey: Carriers embrace GenAI, but wireless customers share what really matters*. KPMG.
- Mo, S., Yu, W., Fang, Y., Su, Y., & Zhao, Y. (2024). The impacts of supervisory information communication technology demands after hours on employee proactive behavior and unethical behavior at work: An attribution perspective. *Journal of Vocational Behavior*, 155, 104065. <https://doi.org/10.1016/j.jvb.2024.104065>
- Moor, J. H. (2021). Why we need better ethics for emerging technologies. *AI and Ethics*, 1, 3–8.
- Nigeria Communications Commission. (2025). *Building trust, ethics and innovation: Nigeria marks National Privacy Week*. NCC.
- Nwankwo, C. O. (2024). The effect of digital media on job performance: A case study of telecommunication employees in IHS Towers and ZTE Nigeria Limited. *Research Journal of Literature, Languages and Linguistics*, 12(1), 11–23.
- Offurum, A. N., Emerole, O. B., Osuala, A. E., & Emerole, G. A. (2024). Digitalization and employees' performance: Evidence from Mobile Telephone Network (MTN) Southeast, Nigeria. *Post-Print, HAL Open Science*.
- Overes, E. C., & Santoro, F. M. (2025). The effectiveness of business process visualisations: A systematic literature review. *Journal of Business Administration*, 5(1), 66-74.
- Philip, G. (2025). *Effect of marketing and organisational innovations on the performance of mobile telecommunication firms in Nigeria*. https://ijsmr.in/vol-6-issue-7/effect-of-marketing-and-organisational-innovations-on-performance-of-telecommunication-companies-in-nigeria/?utm_source=chatgpt.com
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144.

- Zainudin, M. H., et al. (2024). Security and privacy challenges of big data adoption: A case study in the telecommunications industry. *Journal of Information, Communication and Ethics in Society*, 22(1), 82–102.
- Zhu, J. N. Y., Chan, I. C. C., Su, Q., Lam, L. W., Wang, Z., Hou, W., & Wen, T. (2026). Instant messaging in the workplace: Facilitating tasks but depleting resources. *Information & Management*, 63(1), 104366. <https://doi.org/10.1016/j.im.2026.104366>