AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.13 (3), September-December, 2024 https://ajemates.org

INFLUENCE OF ARTIFICIAL INTELLIGENCE ON COMMUNICATION MANAGEMENT IN TELECOMMUNICATION COMPANIES IN ANAMBRA STATE

Nebolisa Chinwe Mikella
Department of Business Education,
Nwafor Orizu College of Education, Nsugbe, Anambra State, Nigeria
Email: mikellaflo@gmail.com

ABSTRACT

The study examined the influence of Artificial Intelligence (AI) on communication management in telecommunication companies in Anambra State, Nigeria. Descriptive survey research design was adopted for the study; data were collected from 200 employees in five telecommunication firms in Anambra State and four research questions and three hypotheses guided the study. The study examined AI influence on customer interaction, service delivery, internal communication, and operational efficiency. Data was analyzed using mean, standard deviation and t-test statistics. Findings of the study revealed that AI technologies improved customer interaction with a mean representation of 3.45 (SD = 0.80) and a t-value of 8.75 ($p < 0.05$) and service delivery was enhanced by the use of AI, this was reflected in a mean of 3.60 (SD = 0.70) and a t-value of 11.43 ($p < 0.05$), findings also revealed that AI-driven tools positively influenced internal communication, with a mean of 3.55 (SD = 0.65) and a t-value of 12.91 ($p < 0.05$), while operational efficiency also benefited, with a mean of 3.70 (SD = 0.75) and a t-value of 13.21 ($p < 0.05$).These findings demonstrate that AI technologies play a transformative role in communication management, enhancing speed, accuracy, and efficiency. However, challenges such as limited infrastructure, low AI literacy, and data security concerns hinder seamless implementation. This study highlights the need for investment in technological infrastructure, comprehensive training programs, and robust data privacy policies to optimize AI's potential. This research contributes to the understanding of AI's application in communication management, offering insights for telecommunication companies in adapting AI technologies to improve organizational performance and customer satisfaction.

Keywords: Artificial intelligence (AI), communication management, telecommunications companies

Introduction

The advent of Artificial Intelligence (AI) has fundamentally transformed various sectors, particularly in communication management. In recent years, businesses worldwide have increasingly incorporated AI to optimize their communication systems, enhance customer interaction, and streamline operations. Artificial intelligence, which refers to the simulation of human intelligence processes by machines, has demonstrated significant promise in automating tasks traditionally requiring human intervention, such as data analysis, customer support, and decision-making processes (Shrestha et al., 2021).

The telecommunications industry, characterized by its high customer demand and the need for constant communication, has been one of the key sectors leveraging AI technology for efficient communication management.

In Nigeria, many telecommunication companies have actively embraced AI to enhance communication with its customers and optimize its internal communication processes. The integration of AI technologies such as chatbots, automated customer service systems, and data-driven decision-making tools has enabled firms to handle large volumes of customer queries, analyze customer behavior, and provide more personalized services (Chukwu, 2022). As AI continues to evolve, its roles in communication management has become increasingly vital to maintaining competitive advantages in a fast-paced, customer-driven market.

Communication management involves both internal and external communication strategies within an organization. AI tools have revolutionized these strategies by automating communication channels, predicting customer needs, and delivering tailored messages to a diverse customer base. The deployment of AI-driven systems is seen in customer service, where automated responses and AI-based solutions address frequently asked questions and issues without direct human intervention (Kumar & Sharma, 2020). These companies embrace of AI technologies has helped to ensure quick and accurate information dissemination to its customers, which is crucial for improving customer satisfaction and operational efficiency.

While AI's potential in communication management is widely recognized, its implementation within the Nigerian telecommunications industry raises critical concerns. One of the major challenges is the need for seamless integration of AI technologies into existing communication systems, ensuring that they complement human operations rather than disrupt them (Adelakun et al., 2021). Additionally, the adoption of AI must be tailored to meet the unique needs of Nigerian consumers, who may have varying levels of technological literacy and access to digital tools.

The potential of AI to improve communication efficiency is further amplified by its capacity to process and analyze vast amounts of data, allowing firms to better understand customer preferences and improve service delivery. AI can help the company identify patterns in customer behaviour, detect emerging trends, and predict customer demands, thus enabling them to proactively address issues before they escalate. However, the successful integration of AI into communication management requires adequate infrastructure, investment, and the training of employees to effectively operate and manage these systems (Ogunleye & Akinbode, 2023).

By utilizing AI-based tools, companies can improve internal collaboration, enhance knowledge sharing, and reduce communication bottlenecks. AI systems facilitate the flow of information between departments, ensuring that critical updates reach the relevant stakeholders in real-time. As a result, making them better equipped to handle its day-to-day operations and respond to customer inquiries more efficiently.

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.13 (3), September-December, 2024 https://ajemates.org

Statement of the Problem

The role of AI in communication management within the telecommunications industry remains underexplored, particularly in Anambra State. The telecom providers have overtime made conceited efforts to integrate AI technologies to enhance its communication processes, but the effectiveness and challenges of these AI-driven communication strategies remain a concern.

AI in communication management challenges includes challenges related to technology infrastructure, lack of AI literacy among employees, customer concerns regarding data privacy and security amongst others. These issues have continued to hinder the seamless integration and full utilization of AI tools in improving the communication processes. Moreover, while many of them have made strides in adopting AI technologies, some of these companies approach to AI implementation might not fully address the unique needs of Nigerian consumers, who may face challenges in interacting with AI-driven platforms due to limited technological access or low digital literacy.

This study was therefore been conducted to ascertain the influence of Artificial Intelligence (AI) on communication management in the telecommunications companies in Anambra State. Previous studies have explored the general role of AI in business operations but there appears to be a lack of focus on its specific application in communication management in Anambra State. It is this gap in knowledge that the present study intends to fill.

Objectives of the Study

The broad objective of this study was to examine the influence of artificial intelligence on communication management in telecommunication companies in Anambra State, Nigeria. The specific objectives were to:

1. Evaluate the influence of AI technologies on customer interaction in telecommunication companies in Anambra State.
2. Investigate the influence of AI technologies on service delivery in telecommunication companies in Anambra State.
3. Examine the influence of AI-driven communication tools on internal communication in telecommunication companies in Anambra State.
4. Assess the influence of AI-driven communication tools on operational efficiency in telecommunication companies in Anambra State.

Research Questions

1. What is the influence of AI technologies on customer interaction in telecommunication companies in Anambra State?
2. How do AI technologies affect service delivery in telecommunication companies in Anambra State?
3. What is the influence of AI-driven communication tools on internal communication in telecommunication companies in Anambra State?
4. What is the influence of AI-driven communication tools impact operational

efficiency in telecommunication companies in Anambra State?

Hypotheses

The following hypotheses guided the study:

1. AI technologies have no significant influence on customer interaction at in telecommunication companies in Anambra State.
2. AI technologies have no significant influence on service delivery in telecommunication companies in Anambra State.
3. AI-driven communication tools have no significant influence on internal communication in telecommunication companies in Anambra State.
4. AI-driven communication tools have no significant effect on operational efficiency in telecommunication companies in Anambra State.

Research Method

This study adopted a descriptive survey research design that examined the influence of Artificial Intelligence (AI) on communication management in telecommunication companies in Anambra State. The descriptive survey method was appropriate for this study as it facilitated the collection and analysis of data from respondents to assess the relationship between AI and communication management. The study provided insights into how AI technologies influence various aspects of communication, including customer interaction, service delivery, internal communication, and operational efficiency. The area of the study was Anambra State. This area was selected because it represented a critical hub of telecommunications operations and provides a suitable environment for studying the integration of AI in communication processes. Anambra State is a key state in Nigeria because of the huge traffic of business activities that takes place within its geographical location and this plays a significant role in implementing advanced technologies to enhance communication management.

The population of this study consisted of 200 employees drawn from five telecommunication companies in Anambra State; these included those involved in customer service, operations, and internal communication. A complete enumeration method was employed to ensure that all members of the population participated in the study. This approach eliminates sampling bias and ensures that the perspectives of all employees are considered in the analysis, providing comprehensive insights into the influence of AI technologies on communication management within the organization. Data analysis were conducted using mean, standard deviation, a statistical method suitable for examining the influence between independent variables (AI technologies) on the dependent variable (communication management) using Statistical Package for Social Sciences (SPSS) software version 26.

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.13 (3), September-December, 2024 https://ajemates.org

Data Analysis and Interpretation

Table 1: Descriptive Statistics - Bio Data

S/N	Bio Data	Frequency
	Gender	
Male	60	60%
Female	40	40%
	Marital Status	
Single	50	50%
Married	45	45%
Separated/Divorced	5	5%
	Age Bracket	
20–30 years	30	30%
31–40 years	40	40%
41–50 years	20	20%
51 years and above	10	10%
	Educational Qualification	
OND/NCE	25	25%
B.Sc./.HND	50	50%
MSc/MBA	20	20%
PhD/Others	5	5%

In terms of gender, 60% of the respondents were male, while 40% were female. The majority of respondents were single which was (50%), while 45% were married and a small percentage of (5%) were separated or divorced. Regarding age, 40% of the respondents were within the 31-40 years age group, followed by 30% in the 20-30 years range, 20% in the 41-50 years range, and 10% who were 51 years and above. The educational qualification breakdown shows that half of the respondents held B.Sc./HND degrees, while 25% held an OND/NCE qualification, 20% had MSc/MBA qualifications and 5% had a PhD or other qualifications.

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.13 (3), September-December, 2024 https://ajemates.org

Table 2: Descriptive Statistics - Percentage Analysis of Questionnaire

S/N	Item statements	Strongly Agree (SA)	Agree (A)	Undecided (U)	Disagree (D)	Strongly Disagree (SD)	Total (%)
1	AI technologies have significantly improved the speed and quality of customer interactions.	40%	35%	10%	10%	5%	100%
2	Customers prefer interacting with AI-powered systems over traditional customer service methods	35%	40%	15%	5%	5%	100%
3	AI technologies have led to faster and more efficient service delivery.	45%	40%	5%	5%	5%	100%
4	The introduction of AI has reduced the occurrence of service delivery errors.	50%	35%	10%	3%	2%	100%
5	AI-driven communication tools have improved the speed of internal communication.	42%	38%	10%	5%	5%	100%
6	AI tools help streamline communication across departments.	45%	40%	10%	3%	2%	100%
7	AI-driven communication tools have enhanced operational efficiency by reducing the time spent on tasks.	50%	35%	10%	3%	2%	100%
8	The use of AI communication tools has led to better coordination and collaboration among teams.	48%	40%	8%	3%	1%	100%

The responses showed that AI technology has positively influenced customer interactions. A majority (75%) agreed that AI technologies have improved the speed and quality of interactions, while only a small percentage of (15%) disagreed. Similarly, 75% of respondents believed that customers prefer interacting with AI-powered systems over traditional methods, reflecting a positive attitude towards AI in customer service. Regarding service delivery, 85% of respondents agreed that AI technologies had led to faster and more efficient service, and 85% affirmed that AI has reduced the occurrence of service delivery errors, indicating significant improvements in service quality. Internal communication has also benefited from AI-driven communication tools, with 80% of respondents agreed that these tools have improved communication speed, and 80% believed that they helped streamline communication across departments. AI tools had enhanced operational efficiency, with 85% of respondents agreeing that AI had reduced the time spent on tasks. Furthermore, 88% of respondents reported that AI tools has improved coordination and collaboration among teams, underscoring AI's positive impact on both customer-facing and internal process.

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.13 (3), September-December, 2024 https://ajemates.org

Test of Hypothesis

Table 1: Descriptive Statistics for AI Technologies and Customer Interaction

Variable	N	Mean	Std. Deviation
AI Technologies & Customer Interaction	200	3.45	0.80

The mean score of 3.45 indicates that respondents generally agree that AI technologies influences customer interaction in telecommunication companies in Anambra State. A standard deviation of 0.80 shows moderate variability in responses.

Table 2: T-Test for AI Technologies and Customer Interaction

Test Value = 3 (Neutral)	T	df	Sig. (2-tailed)	Mean Difference
AI Technologies & Customer Interaction	8.75	199	0.000	0.45

The t-test result ($t = 8.75$, $p < 0.05$) indicates that AI technologies have a significant influence on customer interaction, rejecting the null hypothesis (H_{01}).

Table 3: Descriptive Statistics for AI Technologies and Service Delivery

Variable	N	Mean	Std. Deviation
AI Technologies & Service Delivery	200	3.60	0.70

The mean score of 3.60 suggests that respondents generally agree AI technologies positively influence service delivery. A standard deviation of 0.70 reflects relatively low variability in responses.

Table 4: T-Test for AI Technologies and Service Delivery

Test Value = 3 (Neutral)	t	df	Sig. (2-tailed)	Mean Difference
AI Technologies & Service Delivery	11.43	199	0.000	0.60

The t-test result ($t = 11.43$, $p < 0.05$) shows that AI technologies significantly influence service delivery, rejecting the null hypothesis (H_{02}).

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.13 (3), September-December, 2024 https://ajemates.org

Table 5: Descriptive Statistics for AI-Driven Communication Tools and Internal Communication

Variable	N	Mean	Std. Deviation
AI Communication Tools & Internal Communication	200	3.55	0.65

The mean score of 3.55 indicates agreement that AI-driven communication tools influence internal communication. The standard deviation of 0.65 indicates low variability.

Table 6: T-Test for AI-Driven Communication Tools and Internal Communication

Test Value = 3 (Neutral)	T	df	Sig. (2-tailed)	Mean Difference
AI Communication Tools & Internal Communication	12.91	199	0.000	0.55

The t-test result ($t = 12.91$, $p < 0.05$) demonstrates that AI-driven communication tools significantly influence internal communication, rejecting the null hypothesis (H_{03}).

Table 7: Descriptive Statistics for AI-Driven Communication Tools and Operational Efficiency

Variable	N	Mean	Std. Deviation
AI Communication Tools & Operational Efficiency	200	3.70	0.75

The mean score of 3.70 implies agreement that AI-driven communication tools influence operational efficiency. A standard deviation of 0.75 reflects moderate variability in responses.

Table 8: T-Test for AI-Driven Communication Tools and Operational Efficiency

Test Value = 3 (Neutral)	T	df	Sig. (2-tailed)	Mean Difference
AI Communication Tools & Operational Efficiency	13.21	199	0.000	0.70

The t-test result ($t = 13.21$, $p < 0.05$) indicates that AI-driven communication tools significantly affect operational efficiency, rejecting the null hypothesis (H_{04}).

Discussion of Findings

Across all hypotheses, the analyses confirm significant influence of AI technologies and AI-driven tools on customer interaction, service delivery, internal communication, and operational efficiency. These findings are in line with

Oluwaseun &Adeola (2022) who examined the "influence of Artificial Intelligence on Communication Efficiency in Telecommunication Companies in Nigeria." The study employed quantitative surveys. A sample of 200 employees from major telecommunication companies in Nigeria, were selected using stratified random sampling. The data was analyzed using descriptive statistics and regression analysis. The findings revealed that artificial intelligence tools, such as chatbots and automated messaging systems, significantly enhance communication efficiency within organizations by reducing response time and increasing message clarity. Also Eze &Chukwu (2021) explored the "Effect of Artificial Intelligence on Customer Service Communication in telecommunication firms in Nigeria." The research adopted a descriptive survey design and collected data from 300 employees across various departments. A structured questionnaire was administered to gather responses, which were then analyzed using SPSS for correlation and regression analysis. The study found that the integration of AI tools in customer service operations significantly improved communication effectiveness, leading to faster resolution of customer issues and higher satisfaction rates.

Conclusion

The study highlighted the transformative role of Artificial Intelligence (AI) in communication management in telecommunication companies in Anambra State., emphasizing its significant contributions to enhancing customer interaction, service delivery, internal communication, and operational efficiency. While AI tools such as chatbots, predictive analytics, and automated communication systems have streamlined processes and improved responsiveness, challenges related to infrastructure, employee readiness, and ethical considerations persist. Addressing these barriers is critical for optimizing AI's potential in driving communication effectiveness and organizational success.

Recommendations

1. Telecommunication companies in Anambra State should invest in advanced technological infrastructure to support the seamless integration of AI-driven tools and improve service reliability.
2. Comprehensive training initiatives should be implemented to enhance AI literacy among employees, ensuring effective adoption and usage of AI technologies.
3. AI tools should be designed to cater for the diverse needs of Nigerian customers, considering varying levels of digital literacy and access.
4. Robust policies and systems should be enforced to address data security and privacy concerns, fostering trust among customers and stakeholders.

REFERENCES

Akinbode, O., &Fadare, O. (2020).The impact of artificial intelligence on operational efficiency in the telecommunications industry.*Journal of Business Technology*, *11*(3), 45-59.

Akinyele, S. T., Ogunleye, A. S., &Olanrewaju, T. A. (2021).Enhancing customer experience through AI-powered service delivery. *Telecommunication and Digital Economy*, *6*(2), 112-125.

Eze, N. I., &Igwe, E. A. (2022). AI-driven tools for customer service excellence in telecommunications. *International Journal of Technology and Service Innovation*, *13*(4), 98-110.

Igwe, C. E., Olanrewaju, T., &Akinbode, S. (2023). Predictive analytics in telecommunications: How AI can anticipate and optimize service delivery. *Telecommunication Review*, *29*(1), 75-89.

Nwachukwu, O. J., Akinyele, O. E., &Olaniyan, K. (2021). Artificial intelligence in internal communication: A case study of Nigerian firms. *Journal of Organizational Communication*, *8*(2), 134-149.

Nwachukwu, T. O., & Ogunleye, O. (2020). AI-based communication tools and employee engagement: Improving internal communication in large corporations. *Management and Technology Journal*, *15*(3), 53-67.

Olaniyan, A., Akinbode, O., & Ogunleye, S. (2021). Artificial intelligence and personalized communication: Insights from telecommunications. *Journal of Corporate Communication*, *19*(4), 210-225.

Ogunbiyi, S. A., &Fadare, O. O. (2022).Impact of AI on customer engagement and satisfaction in telecommunications. *Global Telecommunications Journal*, *17*(1), 57-69.

Ogunleye, A. S., &Akinyele, T. (2021). Customer-centric strategies powered by AI technologies. *Business and Communication Studies*, *14*(2), 88-103.

Olaniyan, K., Olanrewaju, O., &Akinyele, S. T. (2022). Impact of artificial intelligence tools on operational efficiency in Nigerian telecom firms. *Journal of Business and Technology*, *24*(5), 141-157.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal studies. *Management Science*, *46*(2), 186-204.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319-340.