ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue X October 2024

Enhancing Knowledge Sharing and Boosting Organizational Efficiency in Nigerian Enterprises through AI

OLA-OLUWA, James Abidemi

Department of Business Administration, Faculty of Management Sciences, Ajayi Crowther University, Oyo State, Nigeria.

DOI: https://doi.org/10.51244/IJRSI.2024.1110002

Received: 22 August 2024; Accepted: 04 September 2024; Published: 26 October 2024

ABSTRACT

This study examined how Artificial Intelligence (AI) enhanced knowledge sharing and boosted organizational efficiency in Nigerian enterprises. Given the increasing competitive pressure, integrating AI technologies presented promising improvements by exploring how machine learning, natural language processing, and data analytics facilitated seamless knowledge transfer, improved decision-making, and fostered continuous learning within organizations. It also investigated AI's role in automating tasks, optimizing resource allocation, and increasing productivity. Utilizing a survey research method, two hundred and thirty-four subjects responded to the questionnaire. Data relevant to the hypotheses were analyzed using descriptive and inferential statistics. The results indicated low absorption of the positive impact of AI on knowledge management in enhancing organizational efficiency. Based on the findings, the study concluded that integrating AI in Nigerian enterprises was crucial for overcoming resource constraints coupled with effective board oversight function and achieving competitive advantages globally. Practical recommendations were offered on how Nigerian firms can leverage AI technologies and employee training to boost organizational efficiency.

Keywords: Artificial Intelligence, Knowledge Sharing, Organizational Efficiency, Machine Learning, Data Analytics,

INTRODUCTION

In today's competitive business environment, Artificial Intelligence (AI) is becoming a key driver of transformation, particularly in enhancing knowledge sharing and boosting organizational efficiency. Nigerian enterprises are increasingly recognizing AI's potential to revolutionize operations and achieve sustainable growth. AI technologies, such as Machine Learning (ML), Deep Learning, Natural Language Processing (NLP):, Computer Vision, Expert Systems, Speech Recognition and Generation, Recommendation Systems, AI Ethics and Governance, Data Mining, Generative Adversarial Networks (GANs), Fuzzy Logic are crucial for seamless knowledge transfer and collaboration within organizations. According to Adeoye and Elegbede (2022), AI systems facilitate real-time information sharing, improving decision-making and fostering continuous learning. These technologies collectively enable AI systems to perform a wide array of tasks, from simple automation to complex problem-solving and creative processes.

AI also enhances organizational efficiency by automating routine tasks, optimizing resource allocation, and boosting productivity. PwC (2023) asserts that AI implementation can increase productivity by up to 40%, highlighting its significant impact on operational performance which is particularly important for Nigerian businesses that face challenges such as limited resources, training, and the need for rapid innovation to remain globally competitive. Deloitte (2022) emphasizes that Nigerian companies using AI are better equipped to overcome these challenges by streamlining processes and enhancing strategic capabilities.

AI has transformed how organizations manage and share knowledge. By utilizing AI technologies, businesses can improve their knowledge-sharing capabilities, making information more accessible and actionable, increased efficiency and productivity, enhanced data analysis, improved accuracy and precision, personalization,24/7 availability, enhanced decision-making, cost savings, innovative solutions, enhanced safety, support for complex problem solving, accessibility and inclusivity:

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue X October 2024

AI systems analyze large volumes of data, extract valuable insights, and enable real-time information exchange and promoting continuous learning and innovation (Davenport & Prusak, 1998). AI also supports better collaboration by improving communication and information sharing across departments and teams, as noted by Bawack et al. (2020). In today's fast-paced business environment, timely information access is critical for efficiency and decision-making (Nonaka & Takeuchi, 1995, as cited in Russell & Norvig 2016).

Oke and Olayinka (2022) opined that Nigerian enterprises can leverage on AI to handle repetitive tasks with high accuracy and speed, it would allow human resources to focus on more strategic activities which added value through enhanced board oversight functions. AI-powered automation tools can manage tasks such as data entry, scheduling and customer service inquiries, reducing operational costs and improving efficiency (Adeleke & Amusa, 2021). Additionally, AI enhances efficiency through advanced data analytics, which helps in forecasting market trends and customer behaviors, allowing businesses to proactively adjust their strategies (Eze et al., 2023).

Deloitte (2025) postulated that AI improves resource management with intelligent systems that optimize supply chain operations and inventory management. By predicting demand and optimizing logistics, AI helps businesses minimize waste and enhance supply chain efficiency that is crucial for profitability and sustainability. Oke and Olayinka (2022) asserted that Nigerian enterprises should strife to adopt AI and understanding its role in knowledge management. This understanding supports effective AI implementation and highlights its importance in fostering a resilient and competitive business environment.

AI-driven knowledge management systems utilize tools like natural language processing (NLP) to streamline information organization, retrieval, and sharing within the firm. This technology improves data accessibility, smooth workflows, and supports informed decision-making. AI also personalizes learning and development programs tailored to meet individual and organizational needs, bridging knowledge gaps and ensuring ongoing professional growth aligned with business goals. Davenport and Prusak (1998) asserted that Virtual collaboration platforms integrated with AI tools, such as chatbots and virtual assistants, enhance teamwork, productivity, and operational efficiency through real-time support and data-driven insights.

Davenport and Prusak (1998) reiterated further that Predictive analytics powered by AI enable enterprises to make proactive, data-driven decisions and optimizing supply chains. AI also improves customer engagement through personalized recommendations, automated services, and sentiment analysis that increases client satisfaction and loyalty. Oke and Olayinka (2022) suggested that AI guidelines promote ethical practices, fairness, transparency, and accountability, fostering trust and responsible innovation. Cloud-based AI solutions provide advanced technology access, particularly beneficial in regions with limited IT infrastructure, promoting inclusive growth and digital transformation

Objectives of the Study

The study aims to explore the impact of AI technologies on knowledge sharing and organizational efficiency within Nigerian enterprises. Specifically, it seeks to:

1. Examine how the implementation of AI influences knowledge sharing among employees.
2. Assess the extent to which AI-driven knowledge sharing improves organizational efficiency.
3. Evaluate whether the integration of AI offers more opportunities than challenges in enhancing knowledge sharing and boosting organizational efficiency.

Hypotheses of the Study

1. The implementation of AI technologies influences knowledge sharing among employees in Nigerian enterprises.
2. AI-driven knowledge sharing significantly improves organizational efficiency in Nigerian enterprises.
3. The integration of AI presents more opportunities than challenges in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue X October 2024

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Artificial Intelligence (AI) is increasingly recognized as a key driver of organizational change, particularly in enhancing knowledge sharing and organizational efficiency. Russell and Norvig (2016) explore that Artificial Intelligence involves machines simulating human intelligence processes, such as learning, reasoning, and self-correction. AI technologies, including machine learning, natural language processing, and robotics, enable machines to perform tasks typically requiring human intelligence (McCarthy, 2007, as cited in Oke and Olayinka, 2022). In business, AI helps analyze data, automate routine tasks, and provide predictive insights, which enhances decision-making and organizational efficiency. Nigerian enterprises, despite low awareness on AI integration, firms are beginning to harness these capabilities to boost their competitiveness and growth. In contemporary context, Knowledge sharing is postulated as the exchange of information, skills, and expertise within an organization, essential for fostering innovation and maintaining a competitive edge (Davenport & Prusak, 1998). AI supports knowledge sharing through real-time information exchange and collaboration platforms. For Nigerian enterprises, where resource constraints often limit knowledge management, AI can significantly improve information accessibility and usability.

Adeleke and Amusa (2021) posited Organizational efficiency as the ability to achieve goals with minimal resource wastage leveraging AI to enhance efficiency through automating repetitive tasks, optimizing resource allocation, and increasing productivity. By handling routine tasks such as data entry, scheduling, and customer service inquiries, AI frees up human resources for strategic roles. AI-powered analytics also provide valuable insights into business operations, aiding in informed decision-making and strategic planning (Eze et al., 2023). Despite its advantages, AI adoption by Nigerian enterprises faces socio-economic and infrastructural challenges, such as limited access to advanced technologies, a shortage of skilled workers, and inadequate infrastructure (Oke & Olayinka, 2022). However, these challenges also offer opportunities for developing tailored AI solutions that address specific needs within the Nigerian context. Customizing AI technologies to fit local conditions, such as limited internet connectivity, can enhance their effectiveness and adoption.

Adeoye and Elegbede (2022) in their study on AI adoption in Nigerian enterprises postulated that AI systems like chatbots and virtual assistants significantly improve information accessibility and dissemination. These tools facilitate seamless knowledge sharing by categorizing and tagging content, which enhances decision-making and streamlines the process of locating and utilizing relevant information. Corroborating Bawack et al. (2020) emphasized that AI enabled knowledge management systems cut across various industries platforms offer personalized content recommendations based on users' roles and preferences. Their findings revealed that personalization boosts productivity and collaboration by ensuring employees receive pertinent information by identifying and addressing knowledge gaps whereby fostering a culture of continuous learning and innovation.

PwC (2023) in their study asserted that AI-driven automation reduces time and effort for repetitive tasks, enabling employees to focus on strategic activities. Technologies like predictive analytics and robotic process automation (RPA) are particularly effective in streamlining operations and enhancing decision-making. Adeleke and Amusa (2021) identified that AI's impact in businesses will lower operational costs by automating administrative tasks and optimizing supply chain management. The study findings reported improved accuracy, speed, and productivity, with AI-driven insights aiding in strategic decision-making. Eze et al. (2023) explored the Nigerian banking sector and the study revealed that AI technologies such as machine learning and data analytics enhance operational performance by predicting customer behaviors and market trends. The study findings revealed that AI-driven customer service automation, like chatbots, improves response times and service quality, contributing to overall efficiency.

Oke and Olayinka (2022) further identified barriers to AI adoption such as limited access to advanced technologies and shortage of skilled professionals. They suggested that tailored AI solutions in addressing these challenges could improve effectiveness and adoption rates. The study recommended the need for government and industry collaboration to provide necessary infrastructure and training. Deloitte (2022) in their tailored study highlighted unique opportunities for AI in Nigerian sectors like healthcare, agriculture, finance and others. The study based on is findings stressed the importance of investing in AI research and development and recommended policy interventions to support AI adoption, including incentives for technology investment and initiatives to build a skilled workforce.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue X October 2024

MATERIALS AND METHODS

The study adopted a survey research design method to systematically collect data from a sample of respondents in Lagos and Abuja using a validated questionnaire. Survey research was appropriate for this study as it allowed for a comprehensive analysis of the current state of AI integration, its extent of use, and its effects on organizational processes (Creswell & Creswell, 2018, as cited in Pallant, 2020). This design helped in understanding the phenomenon in its natural setting and provided insights (Sekaran & Bougie, 2016) into how AI technologies could be leveraged for enhanced knowledge sharing and efficiency. A sample of two hundred and eighty questionnaires were distributed, two hundred and thirty four found usable and were analyzed, adopting a stratified random sampling technique. The construct's reliability and validity were evaluated using Cronbach's alpha.

Measures

Independent Variable: The AI Integration and Impact Scale (AIIS), adapted and expanded from the study by Erik et, al., (2018) was utilized. The survey scale measured constructs such as AI integration, training, decision-making processes, streamlined work processes, and productivity with five survey items. These items were anchored on a Likert scale format for responses (Likert, 1932), ranging from (1) Strongly Disagree to (5) Strongly Agree. The Cronbach's alpha value of the scale was 0.89.

Dependent Variables: The Knowledge Sharing Behavior Scale (KSBS), adapted from the study by Zmud et. al., (2005) was adopted. Constructs such as work reports, methodologies, models, insights, and networks were measured with five survey items. These items were anchored on a Likert scale format for responses, ranging from (1) Strongly Disagree to (5) Strongly Agree. The Organizational Efficiency Scale (OES), adopted from the study by Tsai et al.,(2009) was implored to measure constructs such as firm objectives, goals, productivity, and time effectiveness. This scale was also measured with five survey items anchored on a Likert scale format for responses, ranging from (1) Strongly Disagree to (5) Strongly Agree. The scales were revalidated, with Cronbach's alphas showing the following results: productivity 0.99; collective effectiveness 0.99; work/report 0.94; and organizational efficiency 0.97.

Method of Data Analysis

Descriptive analysis, including frequency counts and percentages was used to describe the respondents' demographic profile. Hypotheses 1 and 2 were tested using Pearson Correlation, while hypothesis 3 was tested with multiple regressions. SPSS 27.0 was adopted to explore the relationship (Pallant, 2020) between knowledge sharing and boosting organizational efficiency in Nigerian enterprises through AI.

RESULTS

Descriptive Statistics

Table 4.1: Socio-Demographic Profile of Respondents

Category	Frequency	Percent	Category	Frequency	Percent
SEX			**AGE GROUP**		
Male	121	52%	20-30	24	10%
Female	113	48%	31-40	76	32%
Total	**234**	**100%**	41-50	92	39%
			51-60	37	16%

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue X October 2024

CADRE			60+	5	2%
Management Staff	100	43%	**Total**	**234**	**100%**
Senior Staff	65	28%			
Junior Staff	69	29%	**MARITAL STATUS**		
Total	234	100%	Married	183	78%
EDUCATIONAL QUALIFICATION			Single	42	18%
O-Level/Less	10	4%	Divorced	6	3%
OND/NCE	67	29%	widowed	3	1%
HND/BSC	105	45%	Total	234	100%
PG	52	22%			
Total	234	100%			

Field survey, 2024

The table above showed that 121(52.0%) of the respondents were male while their female counterparts were 113(48.0%), 24(10%) respondents were within the age space of 20-30 years, 76(32%) were within the age space of 31-40 years, 92(39%) were within the age space of 41-50 years, 37(16%) were within 51-60 years of age while 5(2%) were 60 and above years respectively. The table also indicated that 42(18%) respondents were single, 183(78%) were married, 6(3%) were divorced while 3(1%) were widowed. The table also revealed that 52(22%) respondents had Post graduate qualification, 105(45%) had B.sc/HND certificate, 67(29%) had OND/NCE certificate, 10(4%) had Secondary school leaving certificate/ primary school leaving certificate. The table showed that majority 100(43%) of the respondents were Management staff, 65(28%) were senior staff while 69(29%) were junior staff respectively.

Hypothesis Testing

Hypothesis 1

H1a: The implementation of AI technologies influences knowledge sharing among employees in Nigerian enterprises.

Table 4.2.1a: summary table showing the implementation of AI technologies influences knowledge sharing among employees in Nigerian enterprises.

Variable	Mean	Std.Dev	N	R	P	Remark
AI Technologies	20.184	4.7878				
			234	0.242**	0.005	Sig
Knowledge Sharing	14.547	5.1618				

***sig at .05 level

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue X October 2024

It is shown in the above table that there was significant relationship between AI Technologies and Knowledge Sharing (r = .242**, N= 234, P < .05). The hypothesis is accepted.

Hypothesis 2

H2a: AI-driven knowledge sharing significantly improves organizational efficiency in Nigerian enterprises.

Table 4.2.2: Summary table showing the significant relationship between AI driven knowledge sharing and organizational efficiency in Nigerian enterprises.

Variable	Mean	Std.Dev	N	R	P	Remark
Knowledge sharing	20.1837	4.7878				
			234	0.531**	0.005	Sig
Organisational Efficiency	18.2008	4.9934				

***sig at .05 level

It is shown in the above table that there was significant relationship between AI driven knowledge sharing and organizational efficiency. (r = .531**, N= 234, P < .05). The hypothesis is accepted.

H3a: The integration of AI presents more opportunities than challenges in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises.

Table 4.2.3: Summary table showing that the integration of AI presents more opportunities than challenges in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises.

	Df	Sum of Squares	Mean Square	F	Significance F
Regression	2	1511.564	1511.564	91.573	0.000
Residual	231	3829.534	16.5066		
Total	233	5341.098			

R = .531 R^2 = .28 Adj R^2 = .279

It was shown in the table above that the joint effect of dependent variables (knowledge sharing and organizational efficiency) on AI was significant (F(2,231) = 91.573; R = .531, R^2 = .280, Adj. R^2 = 0.279; P < .05). About 28% of the variation was accounted for by the dependent variables .The hypothesis is therefore accepted.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined how AI enhances knowledge sharing and boosts organizational efficiency in Nigerian enterprises. The results indicated a positive relationship between knowledge sharing and organizational efficiency through the infusion of AI. The hypotheses tested were consistent with an earlier study by Eric et al. (2020), which concluded that AI can positively impact knowledge sharing and organizational efficiency. This study found that the dependent variables used to measure AI were well correlated. Additionally, there were main and interaction effects of knowledge sharing, boosting organizational efficiency. AI will enhance Seamless knowledge transfer, informed decision-making, improved productivity, innovation, reduced

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue X October 2024

operational costs, and fosters a culture of continuous learning as supported by AI (Eric et al., 2018). Despite socio-economic and infrastructural challenges, tailored AI solutions to address the specific needs of Nigerian enterprises can significantly enhance their effectiveness and efficiency.

Recommendations

Based on the study findings, the following recommendations were made:

- Nigerian enterprises should invest in training programs to enhance employees' understanding of AI technologies. This will help maximize the benefits of AI tools for knowledge sharing and operational efficiency.
- AI technologies should be customized to align with the cultural and operational contexts of Nigerian businesses, including addressing infrastructural constraints such as limited internet connectivity (Russell & Norvig, 2016).
- Collaborations between the Nigerian government and private sector are needed to improve the technological infrastructure necessary for AI adoption, including reliable internet services and data centers (Deloite, 2022).
- Enterprises should implement AI-driven platforms to facilitate real-time information exchange and collaboration, promoting a culture of continuous learning and innovation (Adeleke & Amusa 2021)..
- Policymakers should develop favorable regulations and incentives, such as tax breaks and grants, to encourage AI adoption and reduce integration barriers (PwC, 2023).
- Further research should explore new AI applications and their impacts on various Nigerian sectors, helping to understand the evolving AI landscape and its benefits and challenges.

REFERENCES

1. Adeleke, A., & Amusa, O. (2021). AI and organizational efficiency: Evidence from Nigerian businesses. International Journal of Business Management, 20(3), 456-472.
2. Adeoye, B., & Elegbede, T. (2022). The impact of AI on knowledge sharing in Nigerian enterprises. Journal of Information Technology, 15(2), 123-137.
3. Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99-120.
4. Bawack, R., Fosso W. S., Carillo, K., & Akter, S. (2020). Artificial Intelligence in knowledge management: A systematic review and research agenda. Journal of Knowledge Management, 24(6), 1241-1262.
5. Bock, G. W., Zmud, R. W., Kim, Y. G., & Lee, J. N. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. MIS Quarterly, 29(1), 87-111.
6. Brynjolfsson, E., Rock, D., & Syverson, C. (2018). "Artificial Intelligence and the Modern Productivity Paradox: A Clash of Expectations and Statistics." In The Economics of Artificial Intelligence (eds. Ajay K. Agrawal, Joshua Gans, and Avi Goldfarb), University of Chicago Press.
7. Davenport, T., & Prusak, L. (1998). Working Knowledge: How Organizations Manage What They Know. Harvard Business School Press.
8. Deloitte. (2022). AI adoption in Nigerian enterprises: Opportunities and challenges. Deloitte Insights. Retrieved from Deloitte
9. Eze, S., Chinedu, O., & Ugochukwu, N. (2023). Enhancing organizational efficiency through AI in the Nigerian banking sector. Journal of Financial Services, 18(1), 78-92.
10. Likert, R. (1932). A Technique for the Measurement of Attitudes. Archives of Psychology, 140, 1-55.
11. McCarthy, J. (2007). What is Artificial Intelligence? Stanford University.
12. Nonaka, I., & Takeuchi, H. (1995). The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. Oxford University Press.
13. Oke, A., & Olayinka, O. (2022). Barriers to AI adoption in Nigerian enterprises. Journal of Technology Management, 25(4), 299-315.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue X October 2024

14. Pallant, J. (2020). SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS. Routledge.
15. PwC. (2023). The impact of AI on productivity: A global perspective. PwC Global Report. Retrieved from PwC
16. Russell, S., & Norvig, P. (2016). Artificial Intelligence: A Modern Approach (3rd ed.). Pearson Education.
17. Tsai, M. C., Chuang, S. R., & Hsieh, W. P. (2009). An integrated process model of communication satisfaction and organizational outcomes. Social Behavior and Personality: An International Journal, 37(6), 825-834.