



IMPACT OF ARTIFICIAL INTELLIGENCE ON BUSINESS MANAGEMENT SYSTEMS AND DIGITAL INNOVATION IN THE LAGOS CHAMBER OF COMMERCE AND INDUSTRY

Anthonia Eddo

Apsley Business School, London, England.

Omololaeddo@gmail.com

Abstract

This study examined the impact of Artificial Intelligence on business management systems and digital innovation in the Lagos Chamber of Commerce and Industry. A descriptive survey research design was adopted. The population comprised 180 employees, while the Taro Yamane formula produced a sample size of 124 respondents. A structured questionnaire was used for data collection. Of the 124 questionnaires administered, 118 were correctly completed and returned, representing a response rate of 95.2%. Data were analyzed using frequency distribution, mean scores, and simple linear regression analysis at the 0.05 level of significance. The findings revealed that Artificial Intelligence adoption significantly improves operational efficiency through enhanced decision making, workflow coordination, information management, and organizational productivity. Regression analysis showed that AI adoption significantly impacts operational efficiency ($F = 33.642$, $p < 0.05$), Artificial Intelligence technologies significantly affect digital innovation ($F = 29.874$, $p < 0.05$), and AI implementation challenges significantly affect digital transformation initiatives ($F = 25.466$, $p < 0.05$). The study concluded that Artificial Intelligence is a strategic tool for improving organizational effectiveness and digital transformation. It recommended the establishment of an AI governance framework, development of a digital transformation roadmap, and periodic AI capability audits.

Keywords: Artificial Intelligence, Business Management Systems, Digital Innovation, Operational Efficiency, Digital Transformation, Lagos Chamber of Commerce and Industry.

1.0 Introduction

Today, Artificial Intelligence (AI) is one of the most revolutionary technological advancements in the world that is changing the way organizations operate and manage their businesses around the world. AI is computer systems and intelligent technologies that are capable of mimicking human intelligence and completing tasks that would normally need to be done by a human being, including learning, decision making, problem solving, pattern recognition, automation, and predictive

analysis. The use of Artificial Intelligence technologies in various fields of business has revolutionized business processes by improving productivity, customer engagement, operational efficiency and overall competitiveness. As stated by Russell and Norvig (2021), Artificial Intelligence can be used to automate the activities of the organization, optimize the business processes and enhance evidence-based management decision making.

AI is increasingly relevant in today's business landscape due to the speed at which



digital technologies have progressed. AI-powered systems are becoming more common in organizations as they strive to enhance the performance of their operations and boost their strategic management processes. Business management systems are the organizational structures, managerial practices, technological systems and administrative systems used to manage business coordination, planning, communication, resource allocation, monitoring and business control. The incorporation of Artificial Intelligence into business management systems has brought in a range of new solutions to the organizational administration including intelligent automation, machine learning applications, predictive analytics and technologies of business intelligence. According to Dumas et al. (2022), the AI-driven management systems can greatly benefit the effectiveness of an organization by facilitating better operational coordination and optimizing processes.

Artificial Intelligence is a significant force for digital innovation and organisational transformation at a global level. Digital Innovation is the use of digital technologies to enhance products, services, processes and business models. In an increasingly digital world, organizations are turning to AI to support their digital transformation efforts and keep up with the competition. Davenport and Mittal (2022) highlighted that, where firms successfully implement Artificial Intelligence (AI) technologies, they see gains in their innovation capability, flexibility of their operations and strategic business performance. Artificial Intelligence, therefore, is now an organizational asset to consider over a long term and has an impact on its growth and sustainability.

The impact of Artificial Intelligence is growing in various industries such as finance, healthcare, manufacturing, education, and business administration. Today, the use of AI in CRM, market forecasting, fraud detection, data analytics, HRM, and workflow automation are widely used by organizations. These technological capabilities help to enhance the efficiency of operations as well as the capacity of the organization to respond to environmental variations. Russell and Norvig (2021) pointed out that companies implementing intelligent systems can get better productivity and decision-making results.

In Nigeria, technological and digital transformation programs are still transforming organizational processes, especially in developing economies. AI is a growing part of Nigeria's business landscape, with many companies beginning to understand its value in boosting competitiveness and driving business innovation. Agbeyangi, Makinde, and Odun Ayo (2024) noted that emerging technologies such as Artificial Intelligence are very much in potential for enhancing the sustainability of the economy and productivity of organizations in Nigeria. Likewise, Adegbuyi, Noor, and Adeniyi (2024) noted that Artificial Intelligence plays an important role in the effective management of business activities in Nigeria, as it helps to make businesses more intelligent by providing them with a decision support system and help in their operations.

Additionally, recent reports have shown that Nigerian businesses are embracing Artificial Intelligence technologies, recognizing its potential for operational efficiency and digital transformation. The Centre for the Study of the Economies of Africa (CSEA, 2025) reports that more than 70% of digitally-enabled businesses in Nigeria are



already using AI applications to enhance customer engagement, business analytics, and operational efficiency, Ogboe and (Sowande, 2024).

Some limitations such as poor technological readiness and organisational capability can impede the effective implementation of Artificial Intelligence in Nigerian organizations, as stated by Okolie and Egbon (2023). In like manner, Ogboe and Sowande (2024) assert that the preparedness of institutions and technological competence plays a significant role in the outcomes of the successful adoption of AI. These implementation challenges could decrease organisational capacity to make the most of the opportunities for digital innovation and to maintain competitiveness in increasingly technology-centric business world.

Lagos Chamber of Commerce and Industry is one of the leading institutions in Nigeria that supports the development of the private sector, competitiveness of businesses, growth of enterprises and advancement of innovations. The Chamber's strategic support services focus on enhancing business operations and fostering economic development. With digital transformation creating an environment that is increasingly digital, Artificial Intelligence (AI) offers the potential to improve the business management systems and boost digital innovation potential within institutions that support business development.

Although there is growing awareness of the AI benefits, the empirical evidence on AI impact on business management systems and on the digital innovation in business advocacy institutions is still limited. To the best of the authors' knowledge, the existing literature examines specific areas such as banking, education, manufacturing, healthcare, and small business enterprises, with few published studies dedicated to the

business chambers and advocacy organizations, particularly in regard to institutional business management systems and digital innovation. The authors find that studies have been carried out mainly in areas including banking, education, manufacturing, healthcare and small business enterprises, with little scholarly attention paid to business chambers and advocacy organizations in relation to institutional business management systems and digital innovation.

Thus, the purpose of the present study is to explore how AI impacts business management systems and digital innovation in the Lagos Chamber of Commerce and Industry. The purposes of the study are to:

- i. To determine the influence of AI adoption on operational efficiency within LCCI.
- ii. To assess the effect of Artificial Intelligence technologies on digital innovation in LCCI.
- iii. To evaluate the challenges affecting the implementation of Artificial Intelligence and digital transformation initiatives in the LCCI.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Artificial Intelligence

Artificial Intelligence (AI) refers to computer systems that simulate human intelligence through learning, reasoning, problem solving, language processing, decision making, and pattern recognition. AI integrates technologies such as machine learning, natural language processing, robotics, computer vision, and predictive analytics to improve organizational effectiveness and support intelligent decision making (Russell & Norvig, 2021).

In contemporary organizations, AI has become an important driver of operational efficiency and strategic competitiveness.



Organizations increasingly utilize AI to automate repetitive tasks, analyze large volumes of data, improve decision quality, and optimize business processes. Davenport and Mittal (2022) argued that AI enables organizations to enhance productivity, improve strategic responsiveness, and strengthen innovation capability. However, the benefits of AI are not automatic. While many organizations report significant efficiency gains, others experience implementation failures resulting from poor data quality, inadequate digital infrastructure, employee resistance, cybersecurity concerns, and insufficient managerial commitment. Consequently, AI adoption alone does not guarantee improved organizational performance; its effectiveness depends on organizational readiness and the availability of complementary technological and human resources.

In Nigerian, AI adoption remains uneven across organizations. Adegbuyi, Noor, and Adeniyi (2024) found that AI significantly improves enterprise management efficiency and productivity among Nigerian businesses. Conversely, Okolie and Egbon (2023) observed that many organizations struggle to realize these benefits because of inadequate digital infrastructure, shortage of technical expertise, high implementation costs, and weak institutional support. These contrasting findings suggest that the impact of AI is highly dependent. Organizations operating in environments with stronger technological capacity and skilled personnel are more likely to achieve positive outcomes than those facing infrastructural and financial constraints. This study therefore examines AI within the specific of the Lagos Chamber of Commerce and Industry, where organizational characteristics differ from those of commercial enterprises.

2.1.2 Business Management Systems

Business management systems consist of organizational structures, managerial processes, technological resources, and administrative procedures designed to coordinate activities and achieve organizational objectives. These systems include planning, communication, resource allocation, performance monitoring, decision support, and operational control mechanisms (Dumas et al., 2022).

The integration of Artificial Intelligence into business management systems has transformed many traditional management practices through intelligent automation, predictive analytics, and evidence based decision support. AI driven systems enable organizations to improve workflow coordination, optimize resource utilization, and enhance service delivery. Davenport and Mittal (2022) maintained that organizations utilizing AI supported management systems generally demonstrate greater adaptability and competitiveness than organizations relying solely on conventional management approaches.

Despite these advantages, evidence from previous studies indicates that AI integration into business management systems is not without challenges. Some organizations experience implementation difficulties because existing business processes are incompatible with AI technologies or because employees lack sufficient digital competencies to utilize intelligent systems effectively. Okolie and Egbon (2023) further argued that technological investments without corresponding investments in employee training and organizational change management often produce limited improvements in management effectiveness. Consequently, improvements in business management systems depend not only on AI availability but also on leadership



commitment, organizational culture, employee competence, and technological readiness. These observations suggest that successful AI implementation requires a holistic organizational transformation rather than simple technology acquisition.

2.1.3 Artificial Intelligence and Digital Innovation

Digital innovation refers to the application of digital technologies to develop or improve organizational processes, services, products, and business models. Artificial Intelligence has become one of the major technologies driving digital innovation through intelligent automation, predictive analytics, customer intelligence, and data driven decision making. According to Davenport and Mittal (2022), AI strengthens organizational innovation by improving strategic responsiveness, knowledge generation, and operational flexibility.

Although numerous studies report positive relationships between AI and digital innovation, the available evidence also highlights important implementation limitations. Organizations with advanced digital infrastructure and strong innovation cultures are generally able to translate AI investments into meaningful digital transformation outcomes. Conversely, organizations operating with inadequate technological infrastructure, fragmented information systems, limited financial resources, and insufficient technical expertise frequently encounter delays, implementation failures, or underutilization of AI technologies. Ogboe and Sowande (2024) reported that institutional readiness, employee competence, and technological capability significantly influence successful AI adoption within Nigerian organizations. These mixed findings indicate that digital innovation is not produced solely by introducing Artificial Intelligence

technologies. Rather, AI functions as an enabling technology whose effectiveness depends on complementary organizational capabilities such as strategic leadership, employee readiness, technological infrastructure, and continuous learning. For business advocacy institutions such as the Lagos Chamber of Commerce and Industry, successful digital innovation therefore requires integrating AI within broader organizational transformation strategies instead of viewing it merely as a technological investment. This perspective provides a more balanced understanding of AI by recognizing both its transformative potential and the contextual factors that determine successful implementation.

2.2 Theoretical Review

2.2.1 Technology Acceptance Model (TAM)

Fred Davis in 1989 developed the Technology Acceptance Model (TAM) to describe and explain user acceptance and use of technological systems within organizations. The theory suggests two main factors: perceived usefulness and perceived ease of use, which have a significant impact on users' acceptance of technology. Perceived usefulness is the extent to which a person thinks using a technological system will help him or her to perform his or her job better and perceived ease of use is the extent to which a person thinks that the technological system will be easy to use (Davis, 1989).

The relevance of the Technology Acceptance Model in the context of AI in business management systems is particularly relevant due to the growing importance of employees' willingness and the readiness of organizations to successfully implement digital technologies. Organizations can expect to reap any meaningful benefits from their use of Artificial Intelligence



technologies, which will only have an impact if they are seen as being useful and usable. When employees accept technological modifications, the operational efficiency, strategic decision making, automation capability and service delivery of business institutions implementing AI systems benefit.

In the Lagos Chamber of Commerce and Industry, the adoption of AI technologies in business management systems is heavily reliant on employees' acceptance and usage of AI powered platforms. Staff members are more likely to embrace intelligent technologies if they think these technologies can make the work more productive, less burdensome, and make the business processes more robust. As such, the Technology Acceptance Model can offer a valuable perspective on what drives the uptake of AI and digital innovation within organizations and how it affects the outcomes of such innovation.

2.2.2 Diffusion of Innovation Theory

Diffusion of Innovation Theory (1962) is a theory propounded by Everett Rogers to explain the process of the spread of technological innovations within the organisation and society over time. The theory yields that the following factors influence innovation adoption: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage is the degree to which an innovation is seen as being superior to the current systems, and compatibility is the degree of consistency with the innovation with values and operations of the organization (Rogers, 2003).

The theory suggests that technologies are introduced to organizations over a period of time that include knowledge acquisition, persuading, decision making, implementation and confirmation. The

growing widespread adoption of Artificial Intelligence (AI) technologies is driven by the recognition of institutions that AI can boost efficiency, competitiveness and innovation capacity.

The study is relevant to the Diffusion of Innovation Theory because the process of implementing Artificial Intelligence in business management systems is an innovation process that must be adapted and accepted by the organization. Management awareness of the benefits of digital innovation and operational improvement will help the Lagos Chamber of Commerce and Industry benefit from the use of Artificial Intelligence technologies more effectively. Other factors such as organizational readiness, technological infrastructure, and employees' competence also influence the adoption outcomes.

The reasons behind the early adoption of AI technologies by some organizations, compared to others, even in similar business context, can also be understood from the theory. Therefore, the Diffusion of Innovation Theory gives a sound theoretical background on the impact of Artificial Intelligence on business management systems and Digital Innovation in the Lagos Chamber of Commerce and Industry.

2.3 Empirical Review

Adegbuyi, Noor and Adeniyi (2024) carried out a research study on the use Artificial Intelligence (AI) to improve management efficiency in small and medium business (SMBs) in Southwestern Nigeria. The study employed a survey research approach as the research design with data gathered from the owners/managers of the selected SMEs in Southwestern Nigeria. The main instrument used for collecting data in this study were structured questionnaires, descriptive statistics and regression analysis were used in the analysis of the collected data. The



findings highlighted that the application of Artificial Intelligence (AI) technologies had a positive impact on the management effectiveness as it helped to enhance the operational efficiency, administrative efficiency, strategic decision making and customer relationship management process. The researchers called for a greater investment in the infrastructure for Artificial Intelligence, upskilling of digital skills, and enabling technological policy for wider adoption across Nigerian enterprises.

Ogboe and Sowande (2024) explored the implementation of Artificial Intelligence in universities and its effects on university performance in Nigeria. The descriptive survey design was used involving academic and non-academic staff of the selected Nigerian Universities. Structured questionnaires were used to gather primary data and inferential statistical techniques were used to analyse the data. The results showed that the implementation of Artificial Intelligence had a significant effect on the improvement of administrative efficiency, information management processes, communication systems among institutions and the performance outcomes of the organization. The researchers stated that the preparedness of the organizations is still essential to reap the most benefit from the AI and suggested there is a need to invest more in staff training and enhancing technological preparations.

Agbeyangi, Makinde and Odun Ayo (2024) investigated the effect of emerging digital technologies on the economic sustainability and organizational competitiveness in Nigeria. The researchers used quantitative research approach in which the organizations were from all sector in Nigeria. A structured survey instrument was used to collect data from the business operators and technology professionals and

descriptive and inferential statistical techniques were used to analyze the data. Results confirmed that the new technologies in particular the applications of Artificial Intelligence are having a significant impact on operational productivity, organizational innovation and competitiveness. Technological infrastructure problems, however, were also found as constraints to the wider technological transformation in the Nigerian institutions, while lack of digital competence was also identified. The researchers suggested policy measures to improve technological infrastructure and promote the use of digital technologies more widely.

Moghalu, Adeleye and Kanu (2025) explored the perceptions of educational institutions on the implementation of Artificial Intelligence and best practices on a global scale in Southeastern Nigeria. The survey research design was used and the respondents were business educators and students from selected tertiary institutions. Structured questionnaires were used for data collection and the mean statistics and regression analysis techniques were used for data analysis. The results showed positive attitudes toward the use of Artificial Intelligence, and it was found that the institutions that had integrated Artificial Intelligence technologies had higher operational efficiency, innovation performance and effectiveness in information management. The study also concluded that Artificial Intelligence helps enhance the competitiveness of the institutions by optimizing the administrative processes and helping in intelligent decision making. Even though these benefits were mentioned, the lack of technical expertise and technological infrastructure were reported as implementation challenge. The scientists made recommendations to enhance



the digital capacity building and institutional investment in AI technologies.

Obeta and Edwin (2025) explored digital governance and transparency of Nigerian institutions, focusing on how digital technologies can enhance institutional effectiveness and accountability. The study was descriptive survey design with the administrative personnel in selected organizations in Nigeria. Structured questionnaires were used to gather data and statistical techniques such as correlation and regression analysis were used to analyse the data. The results indicated that there is a substantial impact on organizational transparency; accountability mechanisms and the effectiveness of institutional operations as a result of the use of digital technologies. The research also determined that digital governance in institutions was associated with better information accessibility, better communication systems, and greater efficiency in the management. The researchers found that the use of digital technology still needs to be effective to improve institutional performance and suggested an increased investment in the organization's digital transformation initiatives to enhance accountability and enhance operational effectiveness.

2.4Gap in Literature

The body of work already published illustrates growing awareness of the impact of Artificial Intelligence on the organization's performance, effectiveness and outcomes of digital innovation. But most of the studies have been centred mainly on the banking institutions, educational institutions, healthcare institutions, manufacturing companies and the small business enterprises. There is little empirical research on the impact of Artificial Intelligence on business advocacy organisations and chambers of commerce.

Moreover, the available studies in Nigeria focus much on adoption of technology, productivity of the organizations and institutions but hardly pay attention to the impact of Artificial Intelligence on business management systems and digital innovations in business competitiveness and enterprise development organizations.

This study tries to fill this gap in knowledge by analysing the impact of AI on the business management and digital innovation in the Lagos Chamber of Commerce and Industry. This provides some empirical evidence towards the understanding of implementation of Artificial Intelligence in business advocacy institutions in Nigeria.

3.0Methodology

3.1Research Design

In this study the researcher used descriptive survey research design. The design is suitable as it allows the researcher to gather the opinion, experience and perception of the respondents towards the impact of Artificial Intelligence on the business management systems and Digital Innovation.

3.2Population of the Study

The population of the study includes the management, administrative, information technology and operational staff of the Lagos Chamber of Commerce and Industry. The Lagos Chamber of Commerce and Industry Human Resources Department (2025) estimates the number of employees at the institution to be 180 (HR Department Lagos Chamber of Commerce and Industry, 2025). The following categories were chosen as they have knowledge on different aspects of implementing Artificial Intelligence, business management systems and activities in the organization related to digital innovations.

3.3 The sample size in this study

To determine the sample size, the formula of Taro Yamane (1967) is used:

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

In the above equation, N is Population size.

e = 5% (significant level of error)

n = Sample size

For this research N = 180

Based on the above, the sample size is collected according to:

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

Where N = Population size

e = significant level of error (0.05)

n = Sample size

For this research N = 180

Therefore, the size sample size:

$$\begin{aligned} n &= \frac{180}{1 + 180(0.05)^2} \\ &= \frac{180}{1.45} \\ &= 124 \end{aligned}$$

A simple random sampling technique was employed to select the respondents. The sampling frame consisted of the official staff list obtained from the Human Resources Department of the Lagos Chamber of Commerce and Industry, which contained the names of all 180 employees across management, administrative, information technology, and operational departments. Each employee on the list was assigned a unique identification number. Using a simple random selection method (balloting without replacement), 124 employees were selected to participate in the study. This procedure ensured that every employee had an equal and independent chance of being selected, thereby minimizing selection bias and enhancing the representativeness of the sample.

3.4 Instrument for Data Collection

Data collection is done with a structured questionnaire with a four-point likert scale

of Strongly Agree, Agree, Disagree and Strongly Disagree.

Strongly Agree (SA) = 4

Agree (A) = 3

Disagree (D) = 2

Strongly Disagree (SD) = 1

The criterion mean was determined by summing the assigned scale values and dividing by the number of response categories as shown below:

$$\begin{aligned} \text{Criterion Mean} &= 4 + 3 + 2 + 1 \div 4 \\ &= 10 \div 4 \\ &= 2.50 \end{aligned}$$

Therefore, a mean score of 2.50 and above was regarded as Accepted (Agree), while a mean score below 2.50 was regarded as Rejected (Disagree).

3.5 Method of Data Analysis

The primary data are collected with the administration of the questionnaires. The collected data is analyzed by frequency distribution, percentage, mean score and regression analysis by using the Statistical Package for Social Sciences (SPSS) Version 26.0 software.

4.0 Data Analysis and Discussion of Findings

This chapter deals with the analysis and interpretation of the data obtained for the study entitled "Influence of Artificial Intelligence on Business Management Systems and Digital Innovation in the Lagos Chamber of Commerce and Industry." The questionnaires were filled out and returned by 118 of the 124 persons contacted, for a response rate of 95.2%. Frequency tables and mean scores are used to present the data. The criterion mean of 2.50 was used for decision making. Values greater than or equal to 2.50 were accepted and values less than 2.50 were rejected.

**4.1 Analysis of Research Questions**

Research Question One: What is the effect of the adoption of Artificial Intelligence on

the management systems of businesses in Lagos Chamber of Commerce and Industry?

Table 4.1: Business management systems and the extent of AI adoption.

S/N	Items	SA	A	D	SD	Mean	Decision
1.	Artificial Intelligence enhances decision making processes in the organization	48	44	18	8	3.12	Agree
2	AI technologies improve the efficiency of operation	50	42	17	9	3.13	Agree
3	Artificial Intelligence makes workflow management easier	45	46	18	9	3.08	Agree
4	AI systems enhance information management process	51	40	16	11	3.11	Agree
5	Artificial Intelligence boosts organizational productivity	49	43	18	8	3.13	Agree
Grand Mean						3.11	Agree

Source: Field Survey (2026)

The results show that respondents felt that Artificial Intelligence plays a significant role in improving the effectiveness of business management systems in effective business operations, decision making, and improvement of productivity.

Research Question Two: How Artificial Intelligence technologies affect the digital innovation in the Lagos Chamber of Commerce and Industry?

Table 4.2: The table below describes the areas of innovation that are covered by the AI.

S/N	Items	SA	A	D	SD	Mean	Decision
1.	Artificial Intelligence encourages innovation capability	50	41	17	10	3.11	Agree
2	AI technologies improve digital transformation initiatives	48	44	16	10	3.10	Agree
3	AI improves the adaptability of the organization	46	45	18	9	3.08	Agree
4	The use of Artificial Intelligence makes technology more competitive	52	38	17	11	3.11	Agree
5	AI facilitates innovation driven business growth	49	42	18	9	3.11	Agree
Grand Mean						3.10	Agree

Source: Field Survey (2026)

The results show that the respondents believed that the use of Artificial Intelligence has a positive impact on the three aspects of digital innovation (51%), organisational flexibility (50%) and competitiveness (48%).

Research Question Three: What are the challenges faced in the process of implementing Artificial Intelligence and digital transformation?

**Table 4.3** Challenges for the Implementation of Artificial Intelligence

S/N	Items	SA	A	D	SD	Mean	Decision
1.	Inadequate infrastructure has a negative impact on the implementation	52	39	18	9	3.13	Agree
2	Limited technical expertise affects AI adoption	49	43	17	9	3.12	Agree
3	High technology costs prevent use of AI	50	41	18	9	3.12	Agree
4	Resistance to technological change is an issue for the adoption of AI	46	44	18	10	3.07	Agree
5	Insufficient training affects the effectiveness of AI	48	42	19	9	3.09	
Grand Mean						3.11	Agree

Source: Field Survey (2026)

4.2 Hypotheses Testing

The hypotheses formulated for this study were tested using simple linear regression analysis at the 0.05 level of significance. Regression analysis was adopted because the study sought to determine the impact of Artificial Intelligence on business management systems and digital innovation

in the Lagos Chamber of Commerce and Industry. The decision rule states that where the probability value (Sig.) is less than 0.05, the null hypothesis is rejected; otherwise, it is accepted.

H0₁: AI adoption has no significant impact on operational efficiency in the Lagos Chamber of Commerce and Industry.

Table 4.4 ANOVA for Regression Analysis of AI Adoption and Operational Efficiency

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	758.416	1	758.416	33.642	.000
Residual	2613.279	116	22.528		
Total	3371.695	117			

Dependent Variable: Operational Efficiency

Independent Variable: AI Adoption

Source: Field Survey (2026)

Since the significance value (.000) is less than the 0.05 level of significance, the null hypothesis is rejected. Therefore, AI adoption has a significant impact on operational efficiency in the Lagos Chamber of Commerce and Industry.

H0₂: Artificial Intelligence technologies have no significant effect on digital innovation in the Lagos Chamber of Commerce and Industry.

Table 4.5 ANOVA for Regression Analysis of Artificial Intelligence Technologies and Digital Innovation

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	681.274	1	681.274	29.874	.000
Residual	2645.921	116	22.810		
Total	3327.195	117			



Dependent Variable: Digital Innovation

Independent Variable: Artificial Intelligence Technologies

Source: Field Survey (2026)

Since the significance value (.000) is less than the 0.05 level of significance, the null hypothesis is rejected. Therefore, Artificial Intelligence technologies have a significant effect on digital innovation in the Lagos Chamber of Commerce and Industry.

H0₃: Challenges affecting the implementation of Artificial Intelligence have no significant effect on digital transformation initiatives in the Lagos Chamber of Commerce and Industry.

Table 4.6 ANOVA for Regression Analysis of AI Implementation Challenges and Digital Transformation Initiatives

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	598.147	1	598.147	25.466	.001
Residual	2723.648	116	23.480		
Total	3321.795	117			

Dependent Variable: Digital Transformation Initiatives

Independent Variable: AI Implementation Challenges

Source: Field Survey (2026)

Since the significance value (.001) is less than the 0.05 level of significance, the null hypothesis is rejected. Therefore, challenges affecting the implementation of Artificial Intelligence have a significant effect on digital transformation initiatives in the Lagos Chamber of Commerce and Industry.

4.3 Discussion of Findings

The study found that Artificial Intelligence adoption has a significant positive impact on operational efficiency within the Lagos Chamber of Commerce and Industry. Respondents agreed that AI improves decision making, workflow coordination, information management, and organizational productivity, while regression analysis confirmed that AI adoption significantly predicts operational efficiency ($F = 33.642$, $p < .05$). This finding is consistent with Adegbuyi et al. (2024), who reported that Artificial Intelligence enhances management efficiency among small and medium enterprises in Southwestern Nigeria through automation, improved decision support, and efficient resource utilization. The similarity

in findings can be attributed to the ability of AI technologies to automate repetitive tasks, reduce administrative delays, and provide real time information for managerial decision making irrespective of organizational type. Unlike Adegbuyi et al. (2024), whose study focused on private SMEs, the present study extends this evidence to a business advocacy institution, demonstrating that AI can equally improve administrative efficiency in non-profit membership organizations such as the Lagos Chamber of Commerce and Industry. The finding supports the Technology Acceptance Model (Davis, 1989), which posits that employees are more likely to embrace technological innovations when they perceive them as useful in improving job performance.

The study further established that Artificial Intelligence technologies have a significant effect on digital innovation within the Lagos Chamber of Commerce and Industry ($F = 29.874$, $p < .05$). Respondents agreed that AI enhances innovation capability,



organizational adaptability, technological competitiveness, and digital transformation initiatives. This finding supports Davenport and Mittal (2022), who argued that Artificial Intelligence enables organizations to redesign business processes and respond more effectively to changing business environments through intelligent technologies. The agreement between the two studies suggests that AI creates an enabling environment for digital transformation by integrating intelligent systems into organizational processes. However, unlike previous studies that measured innovation performance directly, this study assessed digital innovation through indicators such as innovation capability, technological competitiveness, and organizational adaptability. Therefore, the findings should be interpreted as evidence that AI strengthens digital innovation practices rather than measuring innovation performance itself. The finding equally validates Rogers' (2003) Diffusion of Innovation Theory, which explains that organizations adopt innovations when they perceive clear advantages over existing systems.

The study found that implementation challenges significantly affect digital transformation initiatives within the Lagos Chamber of Commerce and Industry ($F = 25.466$, $p < .05$). Respondents identified inadequate technological infrastructure, shortage of technical expertise, insufficient employee training, organizational resistance to technological change, and high implementation costs as major barriers to AI adoption. This finding agrees with Ogboe and Sowande (2024), who reported that technological readiness and employee competence significantly determine successful Artificial Intelligence implementation in Nigerian institutions.

5.0 Conclusion and recommendations

5.1 Conclusion

This study concludes that Artificial Intelligence has a significant impact on business management systems and digital innovation in the Lagos Chamber of Commerce and Industry. The findings demonstrate that Artificial Intelligence adoption improves operational efficiency through enhanced decision making, information management, workflow coordination, and organizational productivity. The study further establishes that Artificial Intelligence strengthens digital innovation by improving innovation capability, organizational adaptability, technological competitiveness, and digital transformation initiatives.

The study further concludes that Artificial Intelligence should not be viewed merely as an emerging technology but as a strategic organizational capability capable of transforming institutional operations and improving service delivery. For business advocacy organizations such as the Lagos Chamber of Commerce and Industry, successful Artificial Intelligence adoption requires a structured governance framework, continuous investment in employee capacity development, and a clearly defined digital transformation strategy. These measures will enable the Chamber to provide more efficient services to its members, strengthen institutional competitiveness, and support Nigeria's broader digital economy agenda.

5.2 Recommendations

Based on the findings of this study, the following recommendations are made:

1. The Lagos Chamber of Commerce and Industry should establish a comprehensive Artificial Intelligence governance framework that clearly defines policies, ethical standards, data governance procedures,



implementation responsibilities, and risk management mechanisms for Artificial Intelligence applications.

2. Management should develop a five-year digital transformation roadmap that specifies priority Artificial Intelligence projects, implementation timelines, funding requirements, performance indicators, and monitoring mechanisms to ensure systematic adoption of intelligent technologies.
3. Annual Artificial Intelligence capability audits should be conducted to assess technological infrastructure, employee digital competence, cybersecurity readiness, data quality, and organizational preparedness for Artificial Intelligence implementation.

References

- Adegbuyi, A., Noor, S., & Adeniyi, A. O. (2024). The contribution of Artificial Intelligence to managing Small and Medium Scale business in Southwest Nigeria. *International Journal Entrepreneurship, Technology and Innovation* 1 (1) 11-28.
- Agbeyangi, A., Makinde, A., & Odun Ayo, I. (2024). The ICT and economic sustainability in the digital age in Nigeria. *Journal of Digital Economy and Sustainable Development* 23(2), 16-22.
- Davenport, T. H., & Mittal, N. (2022). *All in on AI: artificial intelligence to win big with smart companies*. The Harvard Business Review Press.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use and acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- Dumas, M., La Rosa, M., Mendling, J., & Reijers, H. A. (2022). *Business Process Management: Fundamentals* (3rd Edition). Springer.
- Moghalu, F. A., Adeleye, D. O., & Kanu, C. C. (2025). The perception of business educators and students on the application of the use of AI global best practice in business education in the South East of Nigeria. *Vocational and Technical Education Journal*, 5(1): 70-77.
- Obeta, R. U., & Edwin, E. I. (2025). The study examined and explored the contribution of digital government towards improving transparency and accountability in human resource management practices in the Nigerian organizations. *Journal of Business and Management Review, Arabian Journal*, 14(1), 13 – 18.
- Ogboe, O. S., & Sowande, A. (2024). Artificial intelligence, a paradigm shift in the human resource cycle processes for performance in Universities in Nigeria. *World Journal of Innovation and Modern Technology* 8(6), 1-13, 2020.
- Okolie, C. U., & Egbon, T. N. (2023). The bibliometric analysis of the effectiveness and challenges of the application of AI in HRM. *Applied Artificial Intelligence*, 36(1), 1–19.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th edition). Free Press.
- Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.)". Pearson.