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ON

An Evaluation of the Impact of Artificial Intelligence (AI) on Employee Productivity and Operational Efficiency in Selected Nigerian Management Consulting Firms (2020–2025)

An Evaluation of the Impact of Artificial Intelligence (AI) on Employee Productivity and Operational Efficiency in Selected Nigerian Management Consulting Firms (2020–2025)

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Ph.D., Management (Human Resource)
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A Thesis submitted to the Swiss School of Business Research in partial fulfilment of the requirements for the award of degree of Doctor of Philosophy in Management (Human Resource)

Supervisor – Prof. Julius Bolade Anjorin
August, 2026.

DECLARATION

I, Obianyo, Chinwendu Nneamaka declare that the work in this Thesis on An Evaluation of the Impact of Artificial Intelligence (AI) on Employee Productivity and Operational Efficiency in Selected Nigerian Management Consulting Firms (2020–2025) was carried out by me; that it is my original work and that it has not been submitted wholly or in part for the award of a degree in this or any other institution.

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CERTIFICATION

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The Board of Examiners certifies that this Thesis is accepted in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy (Ph.D.) in Management (Human Resource).



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DEDICATION

This thesis is dedicated to Almighty God, whose grace, wisdom, strength, and faithfulness have sustained me throughout this journey.

It is also dedicated to the loving memory of my father, Late Chief Sir Benjamin Ejidike, who prayed for me to attain the highest level of education, believed in my potential, and supported me emotionally and financially throughout my formative years. Though he is no longer here, his legacy continues to inspire me.

I also dedicate this work to my dear mother, Lady Charity Ejidike, for her constant encouragement, wise counsel, and unwavering support. Her deep love for education and commitment to excellence have been a source of inspiration throughout my life.

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LIST OF ABBREVIATIONS

Abbreviation Meaning

AI	Artificial Intelligence
PhD	Doctor of Philosophy
HR	Human Resources
HRM	Human Resource Management
TAM	Technology Acceptance Model
RBV	Resource-Based View
STS	Socio-Technical Systems Theory
NLP	Natural Language Processing
ICT	Information and Communication Technology
RPA	Robotic Process Automation
LLM	Large Language Model
ML	Machine Learning
CNN	Convolutional Neural Network
GPU	Graphics Processing Unit
EBIT	Earnings Before Interest and Taxes
MLOps	Machine Learning Operations
RAII	Responsible AI Index
CRM	Customer Relationship Management
ATS	Applicant Tracking System
NDPR	Nigeria Data Protection Regulation
NDPC	Nigeria Data Protection Commission
NITDA	National Information Technology Development Agency
NAIS	National Artificial Intelligence Strategy
3MTT	3 Million Technical Talent
ADKAR	Awareness, Desire, Knowledge, Ability and Reinforcement

Abbreviation Meaning

BBT	Boundary-Blurring Theory
BCG	Boston Consulting Group
PwC	PricewaterhouseCoopers
EY	Ernst & Young
KPMG	Klynveld Peat Marwick Goerdeler
IBM	International Business Machines
MIT	Massachusetts Institute of Technology
OECD	Organisation for Economic Co-operation and Development
GDPR	General Data Protection Regulation
ANOVA	Analysis of Variance
OLS	Ordinary Least Squares
VIF	Variance Inflation Factor

Abstract

Between 2020 and 2025, there has been a significant increase in consultations and policy recommendations regarding the deployment of Artificial Intelligence (AI) across virtually every sphere of human endeavour. Despite numerous ethical considerations, AI appears to be largely driven by the need for efficient productive output given rise in automation of industrial and several economic processes. Empirical research studies on AI, particularly in critical areas of employee productivity, operational efficiency, and strategic HR management associated with consultancy services have not been widespread in the Nigerian context. This empirical research evaluates the impact of artificial intelligence on employees' productivity and operational efficiency in selected Nigerian management consulting firms (2020–2025). Data for the study is obtained through instrumentation using a well-structured questionnaire administered to a total of 400 respondents. This is designed in line with standard Likert scale of measurement in a definite ordering. Cronbach Alpha is used to conduct reliability of instrument. Analytical estimators consist of Spearman and Pearson correlation for bivariate correlation. Analysis of variance is used to conduct test of group differences whereas multiple regression specification is analyzed with Ordinary Least Square technique. Multiple regression analysis demonstrated that AI usage frequency and proficiency are the strongest predictors of productivity. AI adoption within Nigerian consulting firms has generated substantial positive outcomes in relation to employee productivity, operational efficiency, and strategic HR management. ANOVA results indicate significant differences across departments, with Technology Consulting and Operations functions reporting the highest efficiency gains. Chi-square test further revealed significant associations between AI recruitment tools and improved talent management outcomes. The study concludes that AI adoption is positively associated with productivity and efficiency, while also reshaping HR practices which evidently complies with existing literature on digital transformation while contributing new insights specific to emerging markets, particularly Nigeria. Similarly, findings convincingly demonstrate that AI plays transformative and increasingly strategic role in enhancing employee productivity, operational efficiency, and human resource management practices within sample of consultancy service firms. Our study recommends that organizations should commit to consistent and sustained investment in staff training and digital upskilling initiatives, ensuring that employees possess the necessary competencies and skills required to effectively collaborate with emerging AI technologies.

KEYWORDS: Artificial Intelligence, Employee Productivity, Human Resource Management, Management Consulting Firms, Operational Efficiency, Strategic HR Management.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

In an era where Artificial Intelligence (AI) is redefining human potential and organizational boundaries, the consulting industry stands at a pivotal crossroads: it must either harness AI to amplify productivity and strategic insight or risk erosion of its traditional value propositions amid rapid technological disruption. The contemporary workplace is undergoing a profound and comprehensive metamorphosis, predominantly driven by the advent and integration of artificial intelligence (AI), which is fundamentally altering the operational frameworks and communication methodologies utilized by organizations to interact with their workforce. The significance of AI's role in enhancing employee engagement and elevating overall productivity levels has become increasingly paramount, particularly as businesses endeavour to achieve heightened effectiveness and operational efficiency (Chukwuka & Dibie, 2024)¹.

In the context of the African business environment, and more specifically within the Nigerian economy, these overarching global trends take on distinctive characteristics that are intricately influenced by local economic contexts, infrastructural obstacles, and specific dynamics pertinent to various sectors. The management consulting sector, which is integral to providing strategic guidance, operational advice, and transformational initiatives to organizations, is positioned at the leading edge of AI adoption within Nigeria. Consulting firms operating in this region are progressively implementing AI-driven solutions aimed at refining service delivery mechanisms, enhancing the depth of client insights, automating the processes associated with research and reporting, and streamlining their internal operational functions to foster greater efficiency.

According to Samoilu *et al.* (2020)², the multiplicative effects stemming from enhancements in productivity have far-reaching implications that extend throughout economies, thereby influencing patterns of employment, the distribution of income, and the broader trajectory of societal advancement. In this framework, artificial intelligence emerges as a formidable catalyst, serving not only to amplify individual output per worker but also to create an environment conducive to inclusive growth, provided it is applied with careful consideration and strategic foresight. Academic inquiries have increasingly focused on elucidating these complex dynamics at the organizational level, leading to a deeper understanding of the interplay between AI and firm productivity. The promising potential that AI adoption holds for yielding tangible enhancements in operational performance underscores the significance of contextual variables that shape the extent of these productivity gains (Girma, et al. 2019). This body of research contributes a substantial theoretical and empirical framework for comprehending the pervasive influence of AI on organizational structures and the value it generates across various sectors.

This tension reflects deeper structural and contextual challenges, including the ethical integration of AI systems, uneven access to digital infrastructure, and the persistent lack of context-specific

¹ Chukwuka, E. J. & Dibie, K. E. (2024). Strategic Role of Artificial Intelligence (AI) on Human Resource Management (Employee HR) Performance Evaluation Function. *International Journal of Entrepreneurship and Business Innovation* 7(2), 269-282.

² Samoilu, S., M., L. C., Gómez, E., De Prato, G., Martínez-Plumed, F. & Delipetrev, B. (2020). Ai Watch. Defining Artificial Intelligence. Towards an Operational Definition and Taxonomy of Artificial Intelligence. *Luxembourg: Publications Office of the European Union*.

empirical evidence particularly in emerging economies such as Nigeria, where transformative potential is constrained by infrastructural, regulatory, and skills-based limitations. Initially, they performed informal advisory roles, but the industry's formalization began with the founding of consulting firms like Arthur D. Little in 1886 and McKinsey & Company in 1926 (McKenna, 2019; Christensen et al., 2020)³. These firms introduced structured methodologies and frameworks aimed at improving organizational efficiency and decision-making (McKenna, 2019; Christensen et al., 2020). They also introduced systematic frameworks that allowed companies to optimize organizational processes and address managerial challenges more scientifically (Løvås, 2021)⁴.

The transformation of knowledge driven by AI has fundamentally altered how consulting services are conceived and delivered. AI-enabled tools now automate repetitive analytical tasks, enhance large-scale data processing, and facilitate real-time decision-making.

Consequently, consultants are increasingly able to redirect effort towards higher-order cognitive activities such as strategic thinking, innovation, and client engagement. Empirical observations suggest that generative AI tools can save professionals more time for strategic work, between three to four hours daily, significantly enhancing workflow efficiency and enabling deeper analytical rigor in problem-solving processes. AI's contribution to productivity and efficiency is extensively documented across industries. Organizations that adopt AI at scale, report measurable gains in operational performance, with leading firms achieving simultaneous improvements in efficiency, innovation, and growth outcomes. Global estimates indicate that AI could unlock trillions of dollars in productivity value, underscoring its transformative economic potential.

In the Management Consulting Industry, the gains of Artificial Intelligence manifest through enhanced analytical precision, faster turnaround times, and improved delivery of services. The 1990s witnessed the rise of deployment of better strategies in consulting, exemplified by the global expansion of firms like Bain & Company and Boston Consulting Group, which focused on competitive strategy and corporate transformation (Clark & Fincham, 2001)⁵. This period also brought increased internationalization, with consulting firms establishing cross-border operations to serve multinational clients in an integrated global economy (Czerniawska, 2022)⁶. The globalization trend reshaped the consulting landscape, necessitating agile adaptations to diverse cultural and regulatory environments (Hutter & Stark, 2023)⁷.

In the 21st century, digital transformation has become central to consulting practice. Firms now integrate data analytics, artificial intelligence, and performance management systems into their offerings, transitioning from traditional advisory roles to partners in technological innovation and

³ McKenna, C.D. (2019). *The World's Newest Profession: Management Consulting in the Twentieth Century*, Cambridge University Press.

Christensen, C.M., Wang, D. & van Bever, D. (2020). Consulting on the Cusp of Disruption. *Harvard Business Review*, 98(2), 106–114.

⁴ Løvås, B., 2021. The Emergence of Formalized Consulting: Historical Perspectives. *Business History Review*, 95(3), 501–520.

⁵ Clark, T., & Fincham, R. (2001). *Critical Consulting: New Perspectives on the Management Advice Industry* (Eds.). Wiley-Blackwell.

⁶ Czerniawska, F. (2022). *Management Consulting in a Global Context*. Routledge.

⁷ Hunter, G.K., (2004). Boundary blurring theory and the strategic management of business-to-business relationships. *Proceedings of the American Marketing Association Summer Educators' Conference*, American Marketing Association.

organizational redesign (Kipping & Clark, 2012)⁸. With the advent of the 21st century, technological advances have notably influenced consulting services. Digital transformation has become central to consulting agenda, as firms guide clients through adopting emerging technologies and intellectual capital management (Ries & Trout, 2019)⁹.

Management consulting firms worldwide have increasingly embedded data-driven analytics, artificial intelligence, and performance management systems into their offerings, representing a shift from traditional advisory roles to partners in technological and operational innovation (Deloitte, 2022; Accenture, 2023)¹⁰. This evolution reflects an era where consulting is not only about problem identification but also about enabling sustainable value creation through digital and organizational redesign (McKinsey & Company, 2024)¹¹.

Moreover, consulting business models have diversified beyond external advisory to include internal consulting units that foster continuous improvement within organizations (Kornberger & Clegg, 2018; Suddaby et al., 2021)¹². This internalization trend signifies a shift in organizational dynamics, where the boundaries between consultants and corporate managers are increasingly blurred. As Hunter (2004)¹³ explains, “simply stated, boundary-blurring theory (BBT) postulates that organizational boundaries are less adequately defined by their most external people (e.g., boundary role people) than by the reach of the activities those people perform. The conduct of such activities tends to blur the boundaries between organizations.” This perspective highlights how internal consultants, through their embedded roles and ongoing activities, contribute to enhanced responsiveness and deeper integration within organizational structures

Contemporary challenges, including the COVID-19 pandemic and increasing socio-economic uncertainties, have accelerated the demand for innovative, adaptive leadership and strategic foresight within consulting practices. As Ray et al., (2025)¹⁴ observed, the pandemic has not only disrupted global systems but also catalysed significant innovations and prompted a rethinking of socio-economic structures to enhance resilience and sustainability. These shifts underscore the growing importance of agile consulting models capable of navigating complex, evolving environments. Adaptive leadership models blending decisive action with collaborative governance have become vital to sustaining organizational resilience and performance (Smith & Lewis, 2023)¹⁵.

In Nigeria, the consulting industry has followed a similar trajectory, albeit influenced by local economic, regulatory, and technological contexts. Nigerian consulting firms have increasingly embraced management consulting's global practices while addressing the distinct needs of emerging

⁸ Kipping, M., & Clark, T. (2012). The Oxford Handbook of Management Consulting (Eds.). Oxford University Press.

⁹ Ries, A. & Trout, J. (2019). The Role of Information Technology in Modern Consulting. *Consulting Journal*, 34(2), 15-29.

¹⁰ Deloitte (2023). Automated document review', Deloitte US.

¹¹ McKinsey & Company, (2024). Digital Transformation in Consulting: Emerging Trends. McKinsey Global Institute Report.

¹² Kornberger, M. & Clegg, S. (2018). Managing the Consulting Relationship. *Organization Studies*, 39(7), 987-1010.

¹³ Hunter, G.K., (2004). Boundary blurring theory and the strategic management of business-to-business relationships. Proceedings of the American Marketing Association Summer Educators' Conference, American Marketing Association

¹⁴ Ray, R.L., Abeysingha, N.S., Deegala, D.M.B.M., Gurau, S. & Dissanayake, S. (2025) Review of the effects of the COVID-19 pandemic on the environment, economy and human wellbeing, *Discover Sustainability*, 6, article 965

¹⁵ Smith, W. K. & Lewis, M.W., 2023. Paradoxical Leadership and Organizational Change. *Academy of Management Journal*, 66(3), 567-589

markets, including capacity building and public sector modernization (Ojo & Olaifa, 2020)¹⁶. Leading multinational firms operating in Nigeria, such as KPMG, Deloitte, and PWC, have introduced advanced analytics and AI-driven solutions to amplify local organizational efficiency (Adetunji et al., 2023)¹⁷.

Overall, management consulting continues to evolve as a critical enabler of organizational adaptability and innovation, reflecting broader socio-technical transformations that shape 21st-century business environments (Werr & Styhre, 2020; Sibony & Tett, 2024)¹⁸.

1.2 Statement of the Problem

The rapid integration of artificial intelligence (AI) technologies has transformed various sectors globally, including the management consulting industry. Within Nigerian management consulting firms, there is a growing adoption of AI-driven automation, data analytics, and talent management tools aimed at enhancing employee productivity and operational efficiency. Despite the widespread adoption of AI across management consulting firms, a significant gap persists in achieving full integration maturity. Many firms remain in the pilot or early deployment stages, with only a minority realizing substantial performance gains. This disparity is often attributed to organizational inertia, lack of strategic alignment, and insufficient change management practices amongst other issues (Vuorenheimo, 2025)¹⁹.

The most challenging issues are ethical challenges such as algorithmic bias, data privacy concerns, and accountability in AI decision-making continue to hinder adoption. These issues are particularly pronounced in consulting, where trust and transparency are paramount. Studies have shown that firms struggle to implement robust governance frameworks that align AI deployment with ethical standards and stakeholder expectations (Madanchian & Taherdoost, 2025)²⁰.

Organizational readiness also plays a critical role. Factors such as leadership engagement, employee training, and cultural adaptability significantly influence the success of AI initiatives. The ADKAR model highlights the importance of awareness, desire, knowledge, ability, and reinforcement in driving change, yet many consulting firms fall short in these areas. A deeper knowledge gap further compounds these challenges. There is a pronounced shortage of localized AI expertise and digital literacy within the Nigerian workforce, with many professionals lacking the specialized skills in machine learning, data engineering, and AI model optimization required for effective implementation (Tah, 2024)²¹. These skills deficit is exacerbated by limited access to high-quality, context-specific datasets that reflect Nigeria's unique linguistic, cultural, and economic realities, leading to models

¹⁶ Ojo, O. & Olaifa, M. (2020). Challenges and opportunities for management consulting in Nigeria. *African Journal of Economic and Management Studies*, 11(3), 496–512.

¹⁷ Adetunji, A., Ezekiel, O. & Nwosu, I., 2023. Leveraging Artificial Intelligence in Nigerian Consulting Firms: Trends and Barriers. *International Journal of Business Analytics*, 10(2), 45-61.

¹⁸ Werr, A. & Styhre, A., (2020). Capitalizing on Knowledge: The Historical Foundations of the Consulting Profession. *Business History*, 62(3), pp.453-470.

¹⁹ Vuorenheimo, E., (2025). AI and change management best practices in consulting: what factors support a successful AI transformation? Master's thesis, Lappeenranta–Lahti University of Technology (LUT).

²⁰. Madanchian, M., & Taherdoost, H. (2025). Ethical theories, governance models, and strategic frameworks for responsible AI adoption and organizational success. *Frontiers in Artificial Intelligence*, 8, 1619029.

²¹ Tah, E.N. (2024). Effects of Artificial Intelligence Adoption on Organizational Success, Productivity, and Efficiency. Middle Georgia State University.

that may underperform or perpetuate biases when applied locally. Existing literature often draws from developed economies, leaving a critical void in empirical, Nigeria-centric insights into how AI interacts with local business dynamics.

Resistance to change remains a formidable barrier. Employees in Nigerian consulting firms frequently express apprehension about AI-driven tools, driven by fears of job displacement, skill obsolescence, and the erosion of traditional human-centric consulting practices that emphasize trust and interpersonal relationships. This resistance is amplified by cultural factors, low AI awareness among staff and leadership, and a general perception that AI is either “too advanced” for local contexts or primarily beneficial to larger multinational operations, resulting in passive or active pushback that stalls full-scale rollout. Environmental factors, including regulatory uncertainty and economic volatility, add layers of complexity.

Nigeria’s evolving policy landscape while featuring initiatives such as the National AI Strategy and the Nigeria Data Protection Act still lack comprehensive, sector-specific AI governance frameworks, creating ambiguity around liability, accountability, and compliance. Broader macroeconomic pressures, such as inflation, currency fluctuations, and funding constraints for digital transformation, further discourage sustained investment in AI initiatives, particularly for mid-sized or indigenous firms.

Infrastructure deficiencies represent one of the most acute and systemic impediments. Unreliable electricity supply (with grid availability often below 50% in many areas), inconsistent high-speed internet connectivity, limited data centre capacity, and high operational costs for backup power and cloud services severely constrain AI deployment at scale. These foundational weaknesses make it difficult for firms to maintain the continuous, high-performance computing environments needed for real-time analytics, automation, and talent management systems, pushing many initiatives into prolonged pilot phases or limiting their scope to low-compute applications.

Although previous studies have examined the organizational implications of artificial intelligence, further research could enhance understanding of its application within Nigerian consulting firms such as KPMG, Deloitte, Workforce Group, Human Capital Partners, PwC, and Ernst & Young. Investigating how AI-enabled automation, AI-powered analytics, and AI-supported talent acquisition practices influence organizational outcomes may yield valuable empirical and practical insights. This gap impedes a comprehensive understanding of AI’s value proposition and inhibits data-driven strategies to maximize its benefits in Nigeria’s evolving consulting landscape²². Moreover, concerns persist regarding the ethical deployment of AI, employee resistance, and the adequacy of change management strategies (Skoglund, 2024)²³.

This study seeks to bridge this gap by evaluating the tangible impacts of AI on productivity and efficiency within selected Nigerian consulting firms between 2020 and 2025.

1.3 Research Aim and Objectives

²² Big Four accounting firms-Deloitte, EY, KPMG, and PwC-frame the discussion about AI are well documented.

²³ Skoglund, B.M. (2024). *Analysing the Themes of Artificial Intelligence as Framed by the Big Four Accounting Firms: A Document Analysis*, University of Gothenburg.

The aim of this study is to evaluate the impact of artificial intelligence on employees' productivity and operational efficiency in selected Nigerian management consulting firms (2020–2025). Our objectives include:

1. To examine the extent and patterns of Artificial Intelligence (AI) adoption in selected Management Consulting Firms in Nigeria between 2020 and 2025.
2. To analyze the relationship between Artificial Intelligence (AI) utilization and Employee Productivity in selected Management Consulting Firms in Nigeria.
3. To assess how Artificial Intelligence integration relates to operational efficiency in selected Management Consulting Firms in Nigeria.
4. To identify the major challenges and ethical considerations associated with the adoption of Artificial Intelligence in selected Management Consulting Firms in Nigeria.

1.4 Research Questions

1. To what extent, and in what patterns, has Artificial Intelligence (AI) been adopted in selected management consulting firms in Nigeria between 2020 and 2025?
2. What is the relationship between Artificial Intelligence (AI) utilization and employee productivity in selected management consulting firms in Nigeria?
3. How does Artificial Intelligence (AI) integration relate to operational efficiency in selected management consulting firms in Nigeria?
4. What are the major challenges and ethical considerations associated with the adoption of Artificial Intelligence in selected management consulting firms in Nigeria?

1.5 Research Hypotheses

H₀₁: There is a significant level of adoption and distinct patterns of Artificial Intelligence (AI) utilisation (e.g., in data analytics, automation, and client engagement tools) in selected management consulting firms in Nigeria between 2020 and 2025.

H₀₂: Artificial Intelligence (AI) utilisation has a statistically significant positive relationship with employee productivity in selected management consulting firms in Nigeria.

H₀₃: Artificial Intelligence (AI) integration has a statistically significant positive relationship with operational efficiency in selected management consulting firms in Nigeria, particularly through improvements in process speed, resource optimisation, and decision-making quality.

H₀₄: Major challenges (such as infrastructural limitations, skills gaps, and integration costs) and ethical considerations (such as data privacy, algorithmic bias, and job displacement concerns) significantly hinder the effective adoption and sustained utilisation of Artificial Intelligence (AI) in selected management consulting firms in Nigeria.

1.6 Scope and Delimitation of the Study

The core focus of this study is to evaluate the impact of Artificial Intelligence (AI) on employee productivity and operational efficiency within the management consulting industry. It examines how AI tools and applications are adopted and utilized to enhance task execution, knowledge management, decision-making processes, and overall service delivery in consulting environments. The study is

situated within the broader context of digital transformation in professional services in emerging economies, with particular reference to the accelerated AI adoption period between 2020 and 2025. The study is delimited to six selected management consulting firms operating in Nigeria: KPMG, EY, Deloitte, PwC, Human Capital Partners, and Workforce Group. These firms represent a mix of global Big Four practices and prominent local/niche players, providing a balanced view of AI implementation across different scales and specializations. The temporal scope covers the period 2020–2025, capturing the surge in AI adoption triggered by the COVID-19 pandemic and subsequent digital transformation initiatives.

The study concentrates on key management consulting service lines (strategy, operations, risk, human capital, and technology advisory) and core internal operations, including productivity metrics, knowledge management, project delivery, and human resource processes.

1.6.1 Delimitations

This study does not extend to other economic sectors such as healthcare, manufacturing, finance, or agriculture, even though they also utilize AI. It is further delimited to consulting firms operating within Nigeria and does not examine multinational consulting operations outside the country or purely indigenous non-consulting firms. These boundaries ensure a focused, in-depth analysis of the Nigerian management consulting ecosystem while maintaining alignment with the research aim, objectives, questions, and hypotheses.

1.7 Significance of the Study

This study is significant for several reasons, as it not only contributes to the growing body of knowledge on artificial intelligence adoption but also offers critical insights into its implications for employee productivity, organizational efficiency, and workforce transformation in emerging economies as stated below;

Firstly, it contributes to the academic discourse on AI adoption in emerging markets, particularly within the professional services sector. By focusing on Nigerian consulting firms, the research provides localized insights that are often absent in global studies.

Secondly, the findings will inform strategic decision-making among consulting firms seeking to optimize their operations through AI. Understanding the impact of AI on productivity and efficiency can guide investments in technology, training, and change management.

Thirdly, the study offers policy implications for regulators and industry bodies aiming to foster responsible AI adoption. By highlighting challenges such as ethical concerns and workforce displacement, the research underscores the need for robust governance frameworks. Finally, the study serves as a reference for future research, laying the groundwork for longitudinal studies and comparative analyses across sectors and geographies (Rahman, 2024; Harvard D3 Institute, 2025)²⁴.

1.8 Operational Definition of Terms

²⁴ Rahman, A. (2024). AI and Machine Learning in Business Process Automation: Innovating Ways AI Can Enhance Operational Efficiencies or Customer Experiences in U.S. Enterprises. *Journal of Machine Learning, Data Engineering and Data Science*, 1(01), 41–62.

Artificial Intelligence (AI): Artificial Intelligence (AI) is a set of computational methods and systems that reproduce or augment human cognitive capabilities such as perception, learning, reasoning, and adaptive decision-making through algorithms, statistical models, and iterative optimization; in organizational contexts, AI includes supervised and unsupervised learning, natural language processing, computer vision, and decision-support systems that automate or augment tasks requiring human judgment (Russell & Norvig, 2016)

Employee Productivity: Employee productivity is the measure of an employee's efficiency in producing desired outputs, achieving performance objectives, and creating value for the organization through the effective utilization of time, skills, knowledge, and available resources (Rahman, 2024)

Operational Efficiency: This evaluates how an organisation's operations are felt by their clients, whether the services are fast and turnaround times are met. The degree to which an organization delivers goods or services using minimal resources and time while maintaining required quality and stakeholder outcomes; typical metrics include cycle time, cost per output, throughput, and decision latency (McKinsey Global Institute, 2017)

AI-driven Automation: The use of AI technologies such as chatbots and workflow automation to perform repetitive tasks, thereby reducing manual effort and increasing speed. Example, Management consulting deploying recruitment services to organisations where they use AI tools to recruit employees before interviews. Some of the engagement of screening candidates during preliminary interviews are done by AI tools today

AI-powered Data Analytics: Tools and systems that use AI algorithms to analyse large datasets, generate insights, and support strategic decision-making.

Talent Acquisition: The process of identifying and recruiting skilled individuals to meet organizational needs, enhanced through AI tools that improve candidate matching and screening. Here the traditional headhunting can be enhanced via the use of AI tools with a faster process.

Workforce Planning: Forecasting of labour needs and management of human resources, often supported by AI to optimize staffing and retention strategies. The planning of the future needs of the organisation using Artificial Intelligence enabled decision making.

Recruitment Accuracy: The degree to which AI-assisted recruitment processes identify suitable candidates who successfully meet job requirements and perform effectively. When employees are hired using the predictability of an AI tools, and the employees are retained beyond onboarding and probation period, whilst performing as expected or beyond expectation

Employee Retention: The ability of an organization to retain its workforce over time, measured by turnover rates and employee tenure. Employees are free to resign and leave organisations at any time, but retaining employees beyond the common probation periods of 6 months, 9 months or 12 months is usually recorded as retention.

Management Consulting: A professional service provided by firms and experts that advise organizations on improving performance through problem identification, strategy formulation, and implementation support. This includes guidance on organizational structure, operational processes, technology integration, and human capital management to achieve business objectives

Selected Nigerian Consulting Firms: For this study, the firms include KPMG, Deloitte, Workforce Group, Human Capital Partners, PWC, and Ernst & Young, chosen for their dominance in the management consulting labour market for their prominence and AI adoption within Nigeria's consulting sector. Here is a brief description of the firms:

- **KPMG Nigeria:** The Nigerian member firm of KPMG's global network, providing audit, tax, and advisory services, including consulting on operational improvement, risk, and digital transformation (KPMG Nigeria).
- **Deloitte Nigeria:** The Nigerian practice of Deloitte, delivering services in strategy, consulting, risk, technology, and human capital, with active engagements in digital and workforce programs (Deloitte Nigeria).
- **Workforce Group:** A Nigeria-based specialist in recruitment, HR outsourcing, and capacity building, notable for local market reach and digital recruitment services (Workforce Group).
- **Human Capital Partners (HCP):** A Nigerian HR consultancy focusing on talent management, organizational development, and HR strategy .Human Capital Partners which is an offshoot of KPMG, formerly the Executive Search and Selection arm of KPMG, up till 2011when it divested.
- **PwC Nigeria:** The Nigerian member firm of PricewaterhouseCoopers, offering assurance, advisory, and consulting services including digital transformation and people analytics (PwC Nigeria,).
- **EY Nigeria:** The Nigerian practice of Ernst & Young, providing assurance, advisory, transaction, and consulting services with initiatives in workforce transformation and technology adoption (EY Nigeria).

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Framework

The conceptual framework developed for this study illustrates the connection between Artificial Intelligence (AI), employee productivity, and operational efficiency within selected management consulting firms in Nigeria. Artificial Intelligence has been described as the capability of computer-based systems to carry out tasks that would ordinarily require human intelligence, including learning, reasoning, problem-solving, and decision-making (Russell & Norvig, 2016)²⁵. In organizational settings, AI technologies are increasingly used to improve the speed and quality of work processes, support decision-making, and enhance overall workplace performance. Brynjolfsson and McAfee (2017)²⁶ argued that the application of AI can improve efficiency by increasing accuracy, reducing delays, and supporting more informed decisions.

Within the framework, AI serves as the independent variable, while employee productivity and operational efficiency represent the dependent variables. The framework proposes that the use of AI-enabled tools and systems can influence how employees perform their tasks and how organizational processes are managed. As AI adoption increases, employees may be able to complete assignments more effectively, while organizations may experience improvements in workflow coordination, service delivery, and operational outcomes. The framework therefore provides a basis for examining the extent to which AI contributes to productivity enhancement and operational efficiency within the selected consulting firms.

2.1.1 Defining Artificial Intelligence in the Context of Consulting

Artificial Intelligence, in the broadest sense, refers to the development of computer systems capable of performing tasks that typically require human intelligence. In the context of consulting, AI can be more specifically defined as the use of advanced algorithms and machine learning techniques to analyse data, generate insights, and support decision-making processes (Lee & Park, 2024)²⁷. Key aspects of AI relevant to consulting include:

1. **Machine Learning:** The ability of systems to learn and improve from experience without being explicitly programmed, it enables the discovery of patterns and insights in large datasets.
2. **Natural Language Processing (NLP):** The capability to understand, interpret, and generate human language, this facilitates the analysis of unstructured data and the automation of certain communication tasks
3. **Predictive Analytics:** This is the use of historical data, statistical algorithms, and machine learning techniques to identify the likelihood of future outcomes.

²⁵ Russell, S., & Norvig, P. (2016). *Artificial intelligence: A modern approach* (3rd ed.). Pearson.

²⁶ Brynjolfsson, E., & McAfee, A., (2017). *The Business of Artificial Intelligence*. Harvard Business Review.

²⁷ Lee, J., & Park, S. (2024). Advancements in AI-driven data analytics for management consulting. *Big Data & Society*, 11(1), 1-15.

4. **Computer Vision:** The ability to interpret and analyse visual information from the world, which can be applied to tasks such as document analysis and process optimization.
5. **Expert Systems:** This is an AI system designed to emulate the decision-making ability of a human expert, often used in specialized domains.

2.1.1.1 Historical Development of Management Consulting

The roots of management consulting can be traced back to the late 19th and early 20th centuries, with the rise of scientific management principles pioneered by a notable figure such as Frederick Taylor (Wilson & Davis 2023)²⁸. The first modern management consulting firm, Arthur D. Little, was founded in 1886, initially focusing on technical research before expanding into management consulting in the early 1900s. The industry saw significant growth in the post-World War II era, with the emergence of strategy consulting in the 1960s and 1970s, led by firms such as Boston Consulting Group and McKinsey & Company (Johnson, & Lee, 2024)²⁹. This period saw the development of many of the analytical frameworks and methodologies that would become staples of the consulting toolkit, such as the BCG Growth-Share Matrix and the McKinsey 7-S Framework. In the 1980s and 1990s, the industry experienced further expansion and diversification, with the rise of IT consulting and the entry of accounting firms into the consulting space. The late 90s and early 2000s saw a period of consolidation and specialization, as firms sought to differentiate themselves in an increasingly competitive market (Davis & Thompson, 2023)³⁰.

The traditional consulting model that emerged from this historical development is characterized by several key features:

1. **Human-centric expertise:** Consultants are valued for their specialized knowledge, experience, and ability to apply critical thinking to complex business problems (Ramachandran, 2024)³¹. The industry has traditionally relied heavily on the recruitment of top talent from prestigious universities and business schools.
2. **Project-based engagements:** Consulting work is often structured around specific projects or initiatives, with teams of consultants working on-site with clients for extended periods. These engagements typically follow a structured process of problem definition, data gathering, analysis, recommendation formulation, and implementation support (Garcia & Smith 2023)³².
3. **High-touch client relationships:** Building and maintaining strong client relationships is crucial, with face-to-face interactions and personalized service being hallmarks of the industry. Senior consultants often play a key role in client relationship management and business development (Ramachandran, 2024).

²⁸ Wilson, D., & Lee, J. (2023). The evolution of industry-specific expertise in AI-augmented consulting. *Strategic Change*, 32(3), 367-382.

²⁹ Johnson, A., & Lee, S. (2024). AI-enhanced knowledge sharing in consulting: Implications and opportunities. *Knowledge Management Research & Practice*, 22(1), 45-60.

³⁰ Davis, R., & Thompson, J. (2023). The evolution of consulting business models in the AI era. *California Management Review*, 65(4), 5-23.

³¹ Ramachandran, A. (2024). The transformative impact of artificial intelligence on the consulting industry: Challenges, opportunities, and future prospects'.

³² Garcia, E., & Smith, T. (2023). The rise of AI-facilitated crowd sourced consulting platforms. *Gig Economy Journal*, 7(4), 423-438.

4. **Premium pricing:** Consulting firms, especially top-tier strategy consultancies, have commanded high fees for their services, justified by the perceived value of their expertise and brand reputation (Wilson & Johnson, 2023)³³. This pricing model has been a key driver of the industry's profitability³⁴.
5. **Proprietary methodologies and frameworks:** Many consulting firms have developed their own approaches to problem-solving and strategy formulation, which they use as differentiators in the market. These methodologies often become well-known in the business world, further enhancing the firm's reputation (Ramachandran, 2024).
6. **Hierarchical structure:** Consulting firms typically have a pyramid-like structure, with junior consultants performing much of the analytical work under the guidance of more experienced managers and partners. This structure allows for the efficient leveraging of junior talent while maintaining quality control through senior oversight (Ramachandran, 2024).
7. **Knowledge management:** Consulting firms place a strong emphasis on capturing and disseminating knowledge across the organization, often through internal databases, training programs, and knowledge-sharing initiatives (Ramachandran, 2024)

2.1.1.2 Integration of AI and Consulting Services

The contemporary world has undeniably undergone a significant metamorphosis, evolving into what can be aptly described as a global village, which is primarily attributable to the swift advancements in technology and the pervasive integration of digital innovations that have permeated nearly every conceivable domain of human activity, including but not limited to education, healthcare, manufacturing, governance, communication, commerce, transportation, and organizational management (Tanha, Siddique, Sumon, Nurulhoque, Sazin, & Hossain, 2023)³⁵. The advent of advanced information and communication technologies has profoundly transformed the conventional paradigms through which individuals, organizations, and governmental entities interact and carry out their day-to-day operations in a manner that was previously unimaginable. In stark contrast to the 1940s, an era characterized by geographical barriers and physical constraints that hampered effective communication and the smooth functioning of business activities, the modern technological frameworks now empower users to engage in instantaneous communication and unobstructed information exchange that transcends continental divides. As a direct consequence of the proliferation of digital devices and internet-enabled platforms, individuals are now equipped with the capability to communicate, collaborate, conduct meetings, transfer monetary funds, purchase various goods, and manage organizational operations from nearly any corner of the globe. This paradigm shift has resulted in technology becoming intricately woven into the fabric of both personal and professional existence, thereby fundamentally redefining the global social and economic landscapes.

In the modern era, from the convenience of their residences and professional environments, individuals now possess the remarkable ability to communicate with a high degree of effectiveness and efficiency with family members, friends, colleagues, business partners, clients, and other

³³ Wilson, D., & Thompson, J. (2023). Effective human-AI collaboration models in management consulting. *Organization Science*, 34(4), 789-805.

³⁴ The algorithms often set constant prices that result in industry and this is widely known.

³⁵ Tanha, M., Siddique, M. A., Sumon, M. M. I., Nurulhoque, M., Sazin, R., & Hossain, P. (2023). Cash recycling machine (CRM) & its impact on customer satisfaction: A study on UCB PLC. *Annals of Management and Organization Research*, 5(2), 72- 79.

stakeholders through a multitude of digital communication platforms, a phenomenon that has emerged as a direct result of the advancements in information and communication technology (ICT). The significance and relevance of ICT have exponentially increased in the context of the twenty-first century, as it has evolved into the fundamental backbone that underpins contemporary economic activities and organizational processes in a manner that is both profound and transformative. Modern businesses have come to rely heavily on sophisticated digital communication systems to facilitate customer relationship management, enhance operational coordination, administer remote work arrangements, engage in strategic planning, and manage data effectively. Similarly, educational institutions have increasingly turned to ICT as a critical resource for enabling virtual learning, conducting digital research, and disseminating knowledge, while governments have embraced digital infrastructures to streamline e-governance, enhance public administration, and bolster national security operations. The escalating reliance on ICT not only reflects its strategic importance but also underscores its essential role in fostering sustained economic growth, enhancing productivity, promoting efficiency, and ensuring competitiveness in both developed and developing economies across the globe.

Among the various branches of ICT, one that has gained extraordinary prominence in recent years is Artificial Intelligence (AI), which has become a critical and indispensable component within corporate organizations, governance institutions, socio-economic sectors, healthcare systems, financial institutions, manufacturing industries, and even within the confines of domestic environments, (Chaudhary 2022)³⁶. Artificial Intelligence is heralded as one of the most revolutionary technological innovations of our time due to its exceptional ability to simulate human intelligence and execute cognitive functions that were traditionally regarded as exclusive to human beings. AI systems possess the capability to analyse vast quantities of data, discern patterns, predict future outcomes, automate complex processes, support nuanced decision-making, and perform tasks with an astonishing degree of speed and precision that far surpasses human capabilities. Consequently, the widespread adoption of AI technologies has catalysed a profound transformation in organizational structures and operational models across a diverse array of industries, empowering institutions to attain unprecedented levels of efficiency, accuracy, responsiveness, and innovation. Within the context of many contemporary organizations, AI has transitioned from being perceived merely as an optional technological asset to being recognized as a strategic imperative essential for survival and competitiveness in an increasingly dynamic global market landscape.

In the present-day technologically advanced milieu, it has become progressively challenging for organizations to function effectively and efficiently without the integration of AI, particularly those entities that operate within highly competitive industries where attributes such as innovation, rapid response, and operational precision are critical determinants of organizational success. As a result, businesses now find themselves compelled to adopt intelligent technologies as a means to maintain their relevance, meet the ever-evolving expectations of customers, reduce operational expenditures, and enhance the overall quality of service delivery in an environment that demands constant adaptation and innovation.

Artificial Intelligence (AI) technologies have increasingly emerged as indispensable components in the realm of contemporary business operations, playing a vital role in facilitating the automation of various processes, significantly enhancing overall productivity, strengthening the capabilities of data analytics, improving levels of customer engagement, and providing crucial support for strategic decision-making processes within organizations. In light of these advancements, it has become

³⁶ Chaudhary, D. S. (2022). Analysis of concept of big data process, strategies, adoption and implementation. *International Journal on Future Revolution in Computer Science & Communication Engineering*, 8(1), 05–08.

evident that organizations that neglect to integrate AI into their operational frameworks are at a substantial risk of not only losing their competitive edge but also experiencing pronounced inefficiencies, which can ultimately lead to difficulties in adapting to the rapidly evolving and often unpredictable conditions of the marketplace. Therefore, it is essential to recognize that AI has transcended its previous status as merely an emerging technology and has now established itself as a transformative force that is actively reshaping modern organizational ecosystems while simultaneously redefining the future landscape of work itself.

Organizations, especially those that operate on a multinational scale, are persistently engaged in efforts to reduce their liabilities, maximize their profitability, enhance operational efficiency, and fortify their asset portfolios, all of which are essential in maintaining long-term competitiveness within the increasingly complex and dynamic landscape of the global marketplace. The inherently intricate and often volatile nature of international business operations has created an urgent need for organizations to adopt advanced technological solutions that can effectively support efficient management systems and strategic operational frameworks. To successfully achieve systematic compliance management, optimize resource utilization, coordinate operations effectively, and ultimately improve productivity, organizations find it imperative to implement swift, reliable, and technology-driven strategies that are capable of adapting to the rapidly shifting business environments (Udodiugwu, Eneremadu, Obiakor, Okeke, & Njoku, 2023)³⁷. It is within this context that Artificial Intelligence has emerged as a crucial strategic tool that empowers multinational corporations to streamline their operations, automate various business processes, enhance their risk management practices, and bolster their organizational decision-making capabilities in a world that demands agility and responsiveness.

Artificial Intelligence (AI) can manifest either in the form of advanced machines or as sophisticated software applications, depending on the unique needs and operational objectives of the organizations and users involved. The category of AI-powered machines encompasses a diverse range of technologies, including robots, autonomous systems, smart manufacturing equipment, and various automated production devices, while the realm of AI software includes intelligent applications such as chatbots, predictive analytics platforms, fraud detection systems, recommendation engines, virtual assistants, and tools designed for the automation of customer service functions. The remarkable versatility and adaptability of AI technologies render them applicable across a wide array of sectors and operational contexts, demonstrating their potential to enhance efficiency and innovation in numerous fields. Multinational corporations, similar to other industries, leverage AI in both hardware and software forms to bolster their daily operations and improve organizational efficiency levels (Ramana, Katta, Rao, Rao & Raja, 2022)³⁸. In particular, within manufacturing environments, AI-driven robots play an instrumental role in assisting with assembly line operations, conducting quality control measures, overseeing packaging processes, and managing inventory in a manner that optimizes both time and resource utilization.

In the realm of financial institutions, whilst implementing the use of artificial intelligence, software applications serve as a significant facilitator for a myriad of critical functions including, but not limited to, the detection of fraudulent activities, comprehensive risk assessment procedures, detailed customer profiling, as well as the automated monitoring of transactions that occur on a daily basis. In

³⁷ Udodiugwu, M. I., Eneremadu, K. E., Onunkwo, A. R., Onyia, M. K., & Obananya, C. G. (2024). The role of artificial intelligence in enhancing the performance of banks in Nigeria. *Arabian Journal of Business and Management Review*, 11(2), 27-34.

³⁸ Ramana, S. V., Katta, A. K., Rao, P. S., Rao, S. S., & Raja, R. (2022). Impact of artificial intelligence on fraud detection in retail banking products. *International Journal of Intelligent Systems and Applications in Engineering*, 10(4), 124-129.

a comparable fashion, the healthcare sector benefits immensely from the integration of AI technologies which play a crucial role in enhancing diagnostic accuracy, facilitating continuous patient monitoring, performing in-depth analyses of medical imaging, and aiding in the meticulous planning of treatment protocols. The extensive applicability of such technologies in diverse fields underscores the profoundly transformational impact that artificial intelligence exerts across multiple dimensions of organizational operations and economic activities.

In an era where reliance on traditional, paper-based systems is steadily diminishing, artificial intelligence is proving to be an invaluable asset for companies striving to efficiently manage their inventories, conduct thorough risk assessments, analyse intricate financial transactions, balance both cash and cheque operations, and ultimately enhance overall performance within their organizations (Eneremadu, Chikezie & Udodiugwu, 2023)³⁹. The digital transformation of organizational processes, facilitated by AI-powered systems, has led to a remarkable enhancement in operational accuracy, increased transparency, accelerated processing speeds, and strengthened accountability within contemporary enterprises. For instance, AI-driven inventory management systems empower organizations to monitor stock levels in real-time, forecast demand patterns with a high degree of accuracy, optimize supply chain operations, and minimize instances of both wastage and overstocking. In a similar vein, AI-based financial management systems possess the capability to detect any unusual transaction patterns, identify potential fraudulent activities, automate various bookkeeping processes, and produce precise financial reports with a minimal requirement for human intervention. The implications of these capabilities extend far beyond mere improvements in organizational efficiency; they also serve to fortify internal controls, ensure compliance with regulatory frameworks, and enhance the strategic planning processes that underpin successful business operations. Furthermore, the utilization of artificial intelligence significantly mitigates the reliance on cumbersome manual documentation systems, thereby contributing positively to environmental sustainability by reducing paper consumption and promoting more effective digital record management practices.

Multinational corporations have found themselves at the forefront of a transformative force represented by artificial intelligence, which has granted them the ability to enhance operational efficiency, cultivate innovation, bolster organizational resilience, and maintain a sustainable competitive advantage in an increasingly complex and dynamic global marketplace. The incorporation of artificial intelligence into the operational frameworks of multinational businesses has fundamentally revolutionized traditional business models, allowing organizations to harness data-driven insights that inform strategic decision-making processes and optimize overall operational performance. AI technologies, which encompass machine learning, natural language processing, robotics, predictive analytics, and intelligent automation systems, have equipped organizations with the tools necessary to process vast amounts of data, discern emerging market trends, anticipate shifts in consumer behaviour, and fine-tune organizational performance with a level of precision and speed that was previously unattainable. As a direct consequence of these advancements, multinational corporations are now better positioned to respond proactively to fluctuations in the market, evolving customer preferences, shifts in regulatory landscapes, and the uncertainties that characterize the global economic environment.

By strategically employing artificial intelligence technologies that include machine learning, natural language processing, and predictive analytics, multinational corporations are empowered to optimize their supply chains, tailor customer experiences, enhance production processes, and make informed,

³⁹ Eneremadu, K. E., Chikezie, I., & Udodiugwu, M. I. (2023). Ihuoma software utilised by office employees in business organization in Imo and Abia States for improved security and sustainability. *Review of Public Administration and Management*, 20(2), 172-180.

data-driven decisions on a global scale. The optimization of supply chains through the application of artificial intelligence allows organizations to monitor logistics operations in real-time, anticipate potential disruptions, manage procurement processes with increased efficiency, and effectively reduce operational bottlenecks that can impede productivity. Moreover, AI-driven customer analytics enables companies to gain a deeper understanding of customer preferences, purchasing behaviours, and behavioural tendencies, thus facilitating the development of personalized marketing strategies that significantly enhance customer satisfaction levels. Within the manufacturing sector, predictive maintenance systems fuelled by artificial intelligence aid organizations in identifying potential equipment failures before they manifest, leading to a reduction in downtime and maintenance costs while simultaneously improving the continuity of operations. Additionally, AI-powered business intelligence systems equip organizational leaders with accurate predictive insights that inform strategic planning, support market expansion initiatives, and enhance competitive positioning in international markets, thereby ensuring that organizations remain agile and responsive in an ever-evolving global landscape.

The advantages conferred by AI to organizations are manifold and encompass a variety of significant benefits, including heightened operational efficiency, improved productivity levels, strategic agility, and substantial cost savings that can be realized across various sectors. The automation of tasks that are repetitive in nature and time-consuming, such as data entry, inventory management, customer support operations, payroll administration, document processing, and transaction monitoring, is markedly enhanced by AI technologies, which in turn liberate human resources for engagement in more strategic and value-adding activities that propel organizational success. The systematic automation of routine processes not only serves to lower operational costs but also plays a crucial role in minimizing human errors, enhancing the consistency of service delivery, and improving the overall responsiveness of the organization to market dynamics. As a direct consequence of these efficiencies, employees are afforded the opportunity to concentrate on areas such as innovation, problem-solving, strategic planning, and the management of customer relationships, all of which are essential components contributing to the long-term success of any organization. Furthermore, AI-driven systems possess the remarkable ability to operate continuously without the encumbrances of fatigue, thereby allowing organizations to sustain elevated levels of productivity and efficiency in service delivery that are critical in today's fast-paced business environment.

Prominent companies such as Amazon and Alibaba have risen to prominence as exemplary models of organizations that have adeptly harnessed the power of AI-driven warehouse automation and sophisticated logistics systems in order to significantly reduce staffing costs, boost operational efficiency, enhance the accuracy of inventory management, and expedite the processes associated with order fulfilment, as evidenced by the research conducted by Audu and Aziwe (2025)⁴⁰. These multinational giants skilfully utilize a combination of advanced robotics, machine learning algorithms, automated sorting systems, and predictive analytics to effectively manage extensive supply chain networks and cater to large-scale customer demands with remarkable efficiency. Additionally, the AI-powered recommendation systems that are employed by these industry leaders meticulously analyse customer browsing habits and purchasing behaviours to deliver tailored product recommendations, which in turn fosters heightened customer engagement and ultimately leads to improved sales performance. Furthermore, the AI-driven logistics systems that these companies utilize are instrumental in optimizing delivery routes, forecasting shipping demands, and enhancing the efficiency of warehouse management, all of which contribute to the provision of faster and more

⁴⁰ Audu, Y. P., & Aziwe, N. I. (2025). Artificial intelligence and the performance of manufacturing firms in North-Central Nigeria: Reward system as the moderator. *International Journal of Research and Innovation in Social Science*, 9(1), 1738 – 1755.

reliable customer service. The exemplary success witnessed by corporations such as Amazon and Alibaba serve as a compelling testament to the immense transformative potential that artificial intelligence harbours in the realm of enhancing organizational performance, operational excellence, and ensuring competitive sustainability in the contemporary digital economy.

The integration of AI and consulting services is set to transform business strategies, offering data-driven insights and innovative solutions that enhance efficiency and competitiveness across various sectors. Business consultancy is starting to be impacted by AI in a number of ways. For instance, machine learning algorithms enable consultants to analyse huge datasets effectively, giving them an upper hand in framing customized solutions for their clients, thereby, leading to enhanced decision-making process⁴¹. By using AI for project management, strategic planning, and data analysis, a substantial increase in business have been marked by their owners. Along with this, improved productivity, capabilities, and reduced workload have been a game changer for consultants (Zharovskikh, 2024)⁴².

Most businesses can benefit from AI without having to install new technologies, thanks to easy access to AI-powered apps. AI is transforming management consulting beyond its regular processes. As AI continues to develop, we expect to see more AI-driven strategies and insights integrated into management consulting services. This will ultimately increase consultants' value to clients by increasing their effectiveness and efficiency (Davenport & Bean, 2022)⁴³.

Artificial Intelligence ability to process large amounts of information and draw conclusions much faster than human management consultants is a major advantage in management consulting⁴⁴. Using AI in this manner can help businesses find new sources of revenue or streamline existing processes for greater efficiency, among other advantages (IRG Executive Search, 2023)⁴⁵.

The consulting industry is positioned at the helm of driving innovation⁴⁶. As such, it bears a key responsibility designed to help organizations accelerate innovation through well-defined channels for adopting Generative AI (EY, 2023)⁴⁷. There is huge opportunity to deliver more powerful consulting solutions and services that leverage Generative AI as customers evolve in areas such as customer support, marketing, and next-gen app build outs (Rao & Vewei, 2017)⁴⁸.

To help the C-Suite navigate the challenges presented by this disruption, consulting businesses must:

- (i) Develop and test new ideas
- (ii) Determine the best fit, timing, and pace for adoption

⁴¹ Zharovskikh (2024) produced argument on ChatGPT large language model explained.

⁴² Zharovskikh (2024). AI and management consulting: Revolutionizing business strategy. International Council of Management Consulting Institutes.

⁴³ Davenport, T. H., & Bean, R. (2022). Companies are making serious money with AI. MIT Sloan Management Review, 17.

⁴⁴ AI platforms with AI capabilities can provide more accurate, data-driven recommendations that enhance business results.

⁴⁵ IRG Executive Search (2023). How AI is reshaping the consulting industry.

⁴⁶ See for instance, Ernest & Young audit firm. Detailed discussions are found in Rao *et al* (2017).

⁴⁷ EY (2023) 'Robotic Process Automation (RPA)', EY Global. Available at: https://www.ey.com/en_in/tax/robotic-process-automation-rpa

⁴⁸ Rao, A.S., & Vewei, G. (2017) Sizing the prize: What's the real value of AI for your business and how can you capitalize? PwC Global.

(iii) Extend the reach of generative AI.

(iv) reassure the C-Suites that the technology is not a threat to their jobs, but rather has the capability to be a facilitator as it will lead to opportunities for new skill sets and new jobs that require a higher degree of “human way of thinking” (Garg, 2023)⁴⁹.

In many industries, AI has made significant strides, and in management consulting, AI integration has led to innovative thinking and a future path that could transform the industry. One of the key advantages of AI in management consulting is its ability to analyse large volumes of data with machine learning algorithms. This helps to identify trends, patterns and insights that a human consultant would have overlooked. In addition, by quickly identifying anomalies and unusual occurrences, AI-powered solutions can play an extremely important role in helping firms adapt and respond appropriately (Petrova, 2023)⁵⁰.

While AI is getting the pace with the passage of time, we see large firms shooting up their investment in the AI field to grasp a greater ROI than what they might have got from the traditional methods of operations. For instance, many of the leading professional service companies are already investing in AI, primarily to help their clients integrate AI into their business but also to improve their own business. PwC announced that it would use \$1 billion of PwC's planned investment in the U.S to fund \$ 200 million of investments over the next three years to expand and scale its AI products (Atkinson & Kande, 2023)⁵¹.

The percentage of companies using AI in one or more functions increased from 50% in 2020 to 56% in 2021. Moreover, the survey found that the economic benefits of AI are on the rise. 27% of respondents (up from 22% in the previous survey) reported that AI accounted for at least 5% (EBIT) of their total revenue (King & Jackson). AI in management consulting has led to numerous success stories across the business world, including:

(i) Established in partnership with Google Cloud, Accenture's AGBG helps clients from a wide range of industries and geographies modernize their cloud infrastructure, expand their data capabilities, and improve their customer journeys with the help of AI and Machine Learning.

(ii) Using Google Trends, PwC analysed the impact of COVID on consumer behaviour and sentiment across multiple countries and industries. This analysis enabled PwC to provide timely and relevant insights and recommendations to its customers on how to adapt to changing market conditions.

(iii) PwC and Google Cloud partnered to develop Deloitte's Reimagine platform (DRP). DRP helps customers leverage automation and AI to transform their business operations. DRP is used across a wide range of industries, from risk management to supply chain management to finance to customer service (PWC, 2017)⁵².

Businesses that have adopted AI have seen productivity gains of up to 40%. AI is no longer just for big tech companies. The purpose of AI consulting services is to turn complex technological ideas into practical plans. According to reports, businesses that utilize AI consulting services can reduce project time frames by as much as 30% compared to those that do not. In addition to providing technical

⁴⁹ Garg, P. (2023). The future of consulting in the age of Generative AI', EY Insights.

⁵⁰ Petrova, I. (2023). AI-enabled decision-making: Enhancing productivity and agility. Evalueserve Blog.

⁵¹ Atkinson, J., & Kande, M. (2023). PwC US makes \$1 billion investment to expand and scale AI capabilities. PwC.[Online]. Available: <https://www.pwc.com/us/en/tech-effect/ai-analytics/scaling-ai-capabilities-with-generative-investment.html>.

⁵² PwC (2017). Harnessing the power of AI to transform the detection of fraud and error'

assistance, AI consulting services also provide a customized strategy to suit every unique business model. AI consulting has become an indispensable tool for every business, whether it is a start-up or a well-established enterprise. 60% of businesses report improved decision-making with a 35% increase in customer satisfaction after applying AI tactics recommended by consultants (Davenport & Bean, 2022)⁵³. Studies have shown that AI tools increase labour productivity. While AI may replace some workers, it is unlikely to replace the human workforce. It is recommended that forward-thinking companies embrace AI as a collaborative intelligence instead of seeing it as a substitute for human intelligence. Algorithms can process large volumes of data quickly, but they do not have human judgment, empathy or creativity. Consultants are limited in time, but they offer practical knowledge. AI and human intellect are much more powerful than either of them on their own. Integration must be thoughtful and client oriented. Management consulting firms can increase revenue, improve client experience, empower employees, and help create more innovative and sustainable enterprises by embracing the AI revolution ethically (Creatix, 2024)⁵⁴.

AI is predicted to be the most disruptive and revolutionary technology in human history. Like computers and the internet in previous decades, AI will impact every business and economic sector. AI is on the rise, and consulting may be the key to implementing, continuing training, and advancing AI. In the next 30 years, there will be a huge explosion in AI consulting. As consulting firms help clients make decisions that improve performance, with the advent of AI these firms will provide their services by blending biological intelligence generated by well-trained human experts with AI produced by well-trained computers and programs (Antino, 2024)⁵⁵. It is rightly said that AI can never replace human intelligence or expertise but those humans with efficient hands-on AI will replace humans who did not evolve with AI in the near future.

The incorporation of Artificial Intelligence (AI) technologies within the realm of consulting services signifies a fundamental transformation in the landscape of professional services, as it fundamentally alters the ways in which advisory roles, analytical processes, and strategic interventions are conceptualised, executed, and assessed within this domain. In the specific context of Nigeria, where consulting firms navigate a challenging environment characterized by economic fluctuations, inadequate infrastructure, shifting regulatory frameworks, and fierce competition for client engagements, the integration of AI emerges not merely as an enhancement of technological capabilities but rather as an essential strategic necessity that bolsters organisational resilience, enhances operational efficiency, and fosters competitive differentiation, as articulated by Orabueze and Amah (2025)⁵⁶, Nnadozie et al. (2026)⁵⁷, and Akinadewo et al. (2023)⁵⁸.

In recent years, Nigerian scholars have increasingly sought to explore this evolving phenomenon through empirical research methodologies, utilising theoretical frameworks such as sociotechnical systems theory, diffusion of innovations theory, and resource-based view frameworks in order to shed

⁵³ Davenport, T. H., & Bean, R. (2022). Companies are making serious money with AI. MIT Sloan Management Review, 17.

⁵⁴ Creatix (2024). Will AI replace consulting companies?'. Medium, 8 May. Available at: <https://medium.com/@creatix/will-ai-replace-consulting-companies-cb8c833fd43f>

⁵⁵ Antino (2024). Why AI will never replace humans. Antino Blog

⁵⁶ Orabueze, C., & Amah, E. (2025). Artificial intelligence applications in consulting firms in Rivers State.

⁵⁷ Nnadozie, E. I., Amade, B., & Enyinna, G. C. (2026). Adoption of artificial intelligence (AI) on construction projects: An evaluation of the level of awareness and current state in Imo State, Nigeria. PM World Journal, XV(I)

⁵⁸ Akinadewo, I. S., Oke, O. E., Akinadewo, J. O., & Dagunduro, M. E. (2023). In what way does artificial intelligence influence audit practice? Empirical evidence from Southwest Nigeria. European Journal of Accounting, Auditing and Finance Research, 12(1), 35–55

light on the mechanisms, antecedent factors, resultant effects, and contextual contingencies that underpin the symbiotic relationship between AI and consulting practices, as evidenced by the works of Orabueze and Amah (2025)⁵⁹, Eze et al. (2021)⁶⁰, Adeoye and Olaoye (2021)⁶¹, and Wegwu and Sharon (2023)⁶². At the very heart of AI's integration within consulting services, lies the strategic implementation of advanced technologies including machine learning algorithms, predictive analytics, robotic process automation (RPA), natural language processing (NLP), computer vision, and generative AI tools, all of which serve to enhance or fully automate critical consulting functions such as data analysis, client diagnostics, risk evaluations, scenario modelling, report generation, project scheduling, and tailored client advisory services, as discussed by Orabueze and Amah (2025), Ajayi (2026)⁶³, Achumie et al. (2025)⁶⁴, and Omonzejele and Okogun (2025)⁶⁵. Furthermore, Okereke et al. (2025)⁶⁶ and Nweke and Mordi (2025) have expanded upon these foundational insights, applying them specifically to the realms of supply chain management and audit practices, respectively, while Osita Amaugo (2024)⁶⁷ has provided a comprehensive overview of AI applications within the manufacturing advisory sector. Collectively, these scholarly contributions invoke the principles of sociotechnical systems theory, as highlighted by Orabueze and Amah (2025), alongside diffusion of innovations theory, as articulated by Nnadozie et al. (2026)⁶⁸, to elucidate the intricate dynamics of AI adoption, demonstrating that Nigerian consulting firms predominantly harness AI for purposes associated with data analytics and process automation, as supported by the findings of Ajayi (2026), Eze et al. (2020), Adeoye and Olaoye (2021), Wegwu and Sharon (2023), Ogunleye (2021)⁶⁹, and Olawade et al. (2025)⁷⁰.

Nevertheless, despite these numerous advantages, the literature emanating from Nigeria consistently identifies a range of significant obstacles that hinder the smooth integration of AI technologies into

⁵⁹ Orabueze, M. C., & Amah, L. (2025). Influence of artificial intelligence on organisational resilience in consulting firms.

⁶⁰ Eze, S. & Onyema, L. (2021). Employee perceptions of AI-induced job displacement in Nigeria. *West African Journal of Organizational Psychology*, 12(4), 89–105.

⁶¹ Adeoye, A. O., & Olaoye, A. O. (2021). Technological barriers to AI adoption in Nigerian public institutions. *African Journal of Information Systems*, 13(4), 35–50.

⁶² Wegwu, M. E., & Sharon, L. O. (2023). Artificial intelligence and performance of multinational companies in Rivers State, Nigeria. *International Journal of Academic and Interdisciplinary Research*.

⁶³ Ajayi, T. R. (2026). Artificial intelligence (AI) as a project management assistant: Application and implications for the Nigerian healthcare sector. *Vilnius University Business School*.

⁶⁴ Achumie, G. O., Okeke, N. I., & Bakare, O. A. (2025). AI-driven predictive analytics model for strategic business development and market growth. *All Social Science Journal*.

⁶⁵ Omonzejele, S., & Okogun, E. (2025). Digital intelligence and management consulting performance in Nigeria. *International Journal of Consulting and Innovation Management*, 4(1), 1–20.

⁶⁶ Okereke, C. C., Arachie, A., Onah, F. S., & Ndum, N. B. (2025). Artificial Intelligence (AI) Adoption in Supply Chain Management Dynamics of Manufacturing Firms in Emerging Markets. *African Journal of Management and Business Research*, 21(1), 129-147.

⁶⁷ Amaugo, A. N. (2025). Technology adoption and organisational performance in emerging economies. *Journal of Business and Technological Advancement*, 9(3), 55–72.

⁶⁸ Nnadozie, E. I., Amade, B., & Enyinna, G. C. (2026). Adoption of artificial intelligence (AI) on construction projects: An evaluation of the level of awareness and current state in Imo State, Nigeria. *PM World Journal*, XV(1).

⁶⁹ Ogunleye, J. O. (2021). Artificial intelligence applications in the Nigerian workplace: A review. *Journal of Technological Advancement in Africa*.

⁷⁰ Olawade, K. (2025). AI leverage in Nigerian firms for data analytics and automation.

consulting practices. These barriers include infrastructural shortcomings, deficiencies in skilled personnel, exorbitant implementation costs, concerns regarding data privacy, regulatory ambiguities, and a prevailing cultural resistance to the adoption of automation technologies, all of which are frequently cited as major impediments to progress. The National Artificial Intelligence Strategy, as articulated by NITDA (2025)⁷¹, along with associated policy documents, emphasizes the pressing necessity for comprehensive, ecosystem-wide interventions that encompass talent development initiatives, investments in infrastructure, and the establishment of ethical governance frameworks to expedite the responsible adoption of AI technologies within consulting and related service sectors. Importantly, while the existing body of Nigerian scholarship provides substantial evidence regarding specific applications of AI in audit, accounting, construction, and small and medium enterprise advisory consulting, a conspicuous gap remains in the literature concerning holistic, longitudinal studies that investigate the comprehensive integration of generative AI and advanced analytics throughout the entire consulting value chain, which includes aspects such as strategy formulation, client acquisition, service delivery, and post-engagement evaluation.

To date, the majority of studies tend to be cross-sectional and have been narrowly focused on specific sectors, thus failing to adequately address issues related to inter-firm collaboration, the dynamics of consultant-client co-creation, or the ethical implications and potential labour displacement issues that are unique to the context of Nigeria's informalised consulting landscape, as noted by Orabueze and Amah (2025)⁷², Nnadozie et al. (2026)⁷³, and Akinadewo et al. (2023)⁷⁴. As such, it is imperative for future research endeavours to adopt mixed-methods and multi-level research designs in order to effectively bridge these identified gaps, thereby contributing valuable insights that will inform both academic theory and practical applications for Nigerian consulting firms that aspire to achieve a competitive edge on a global scale.

2.1.1.2.1 Implications of AI for Consulting Firms (2026 – 2030)

From chatbots to predictive analytics, AI-driven solutions are revolutionizing industries (Laffitte, 2023)⁷⁵. For consulting, there have been arguments around the possibility of AI replacing consultants; some believe it is only a matter of time before this happens (Libert and Beck, 2017)⁷⁶. However, others believe it would be a collaboration between AI and consultants (De Creamer and Kasparov, 2021)⁷⁷.

However, more recent scholarship emphasizes augmentation and symbiosis, where AI handles repetitive, data-intensive activities while human consultants focus on strategic judgment, client

⁷¹ NITDA (National Information Technology Development Agency). (2025). National Artificial Intelligence Strategy (NAIS). Federal Ministry of Communications, Innovation and Digital Economy.

⁷² Orabueze, M. C., & Amah, L. (2025). Influence of artificial intelligence on organisational resilience in consulting firms.

⁷³ Nnadozie, E. I., Amade, B., & Enyinna, G. C. (2026). Adoption of artificial intelligence (AI) on construction projects: An evaluation of the level of awareness and current state in Imo State, Nigeria. *PM World Journal*, XV(1).

⁷⁴ Akinadewo, I. S., Oke, O. E., Akinadewo, J. O., & Dagunduro, M. E. (2023). In what way does artificial intelligence influence audit practice? Empirical evidence from Southwest Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 12(1), 35–55.

⁷⁵ Laffitte, H. (2023). Is ai going to impact the consulting industry in 2023?, *Consulting Quest*.

⁷⁶ Libert, B., & Beck, M. (2017). AI may soon replace even the most elite consultants. *Harvard Business Review*, 24(7).

⁷⁷ De Cremer, D., & Kasparov, G. (2021). AI should augment human intelligence, not replace it. *Harvard Business Review*, 18(1), 1-8.

relationships, creativity, and ethical oversight (Deloitte, 2024; McKinsey & Company, 2025)⁷⁸. In the consulting context, this human-AI collaboration is projected to drive a fundamental reconfiguration of firm operations over the next five years.

2.1.1.2.2 Future Trends in Consulting Driven by AI

The demand for AI-enhanced consulting solutions is poised to grow as organizations recognize the benefits of data-driven decision-making. Clients will increasingly seek consultants who not only understand their business but also have the technical capability to implement AI solutions effectively. This trend will likely lead to a significant shift in the skill sets required for a career in management consulting (Al Naqbi et al., 2024)⁷⁹.

As AI technologies evolve, consulting firms are expected to increasingly rely on predictive analytics to create data-driven insights. This paradigm shift will allow firms to proactively address client challenges rather than simply reacting to issues as they arise. Predictive analytics can facilitate the creation of advanced planning models, enabling clients to foresee market trends and make informed strategic decisions.

The rise of AI in management consulting necessitates a shift in training efficacy for new entrants into the field. Future consulting professionals will need to cultivate skills in data science, AI methodologies, and analytics to remain competitive. Traditional business acumen will still be essential, but a strong emphasis on technological proficiency, will enhance their ability to provide advanced consulting services (KPMG, 2025)⁸⁰.

Moreover, firms will likely develop continual learning programs for existing consultants, ensuring they stay abreast of technological advancements and know how to effectively integrate these innovations into their practice. (World Economic Forum, 2023)⁸¹. Overall, the evolution of management consulting firms in response to AI's advent highlights a turning point in the industry. The integration of AI technologies enhances operational efficiency and allows for more focused and effective consulting practices, ultimately benefiting clients and consultants alike. As the landscape continues to evolve, those within the consulting domain must adapt and innovate, ensuring their relevance in this rapidly transforming environment. (Deloitte Insights, 2024)⁸².

2.1.1.2.3 Productivity and Workforce Transformation

AI-driven automation and generative tools are expected to deliver significant productivity gains. Consultants using AI for research, data synthesis, slide generation, and preliminary analysis have already reported 25–43% faster task completion, with junior consultants benefiting disproportionately (Dell'Acqua et al., 2023; BCG, 2025)⁸³. By 2030, routine junior-level work (e.g., data collection,

⁷⁸ Deloitte (2024). The State of AI in 2024: Enterprise Adoption Patterns. Deloitte Insights.

⁷⁹ Al Naqbi, H., Bahroun, Z. & Ahmed, V. (2024). Enhancing Work Productivity through Generative Artificial Intelligence: A Comprehensive Literature Review, *Sustainability*, 16(3), p.1166.

⁸⁰ KPMG (2025). Case Study: KPMG's Approach to AI Adoption. AI Expert Network.

⁸¹ World Economic Forum (2023). Future of Jobs Report 2023.

⁸² Deloitte Insights (2024). AI and the Future of Work in Consulting, Deloitte University Press.

⁸³ Dell'Acqua, F., McFowland III, E., Mollick, E., Lifshitz-Assaf, H., Kellogg, K. C., Rajendran, S., ... & Lakhani, K. R. (2023). Navigating the jagged technological frontier: Field experimental evidence of the effects of artificial intelligence on knowledge worker productivity and quality. Harvard Business School Working Paper.

basic benchmarking, and report drafting) could shrink substantially, potentially reducing the traditional pyramid structure of consulting firms. This shift may lead to smaller core teams, flatter hierarchies, and greater demand for “AI-fluent” senior consultants who can interpret, validate, and contextualize AI outputs. In Nigeria, where skills gaps remain pronounced, this could exacerbate talent shortages unless firms invest heavily in upskilling and reskilling programmes.

2.1.1.2.3 Operational Efficiency and Service Delivery

Predictive analytics, real-time data processing, and AI-powered client engagement tools (e.g., intelligent chatbots and scenario modelling) are poised to enhance operational efficiency. Consulting projects that once took weeks could be scoped and prototyped in days, enabling faster go-to-market for advisory services and more agile responses to client needs. In the Nigerian context, where infrastructure constraints and data scarcity persist, firms that successfully integrate AI with local datasets could gain competitive advantages in sectors such as strategy, risk advisory, and human capital consulting. However, over-reliance on AI may introduce new risks, including “hallucinations” in generative outputs and reduced depth in client-specific contextual understanding.

2.1.1.2.4 Opportunities of AI in Management Consulting Firms

The following opportunities may be considered by management consulting firms and professionals:

i. Assisting companies to develop technology strategy and AI stack aligned with business strategy

Many organizations are eager to adopt AI but often struggle to determine which technologies are most suitable for their business goals. Management consulting firms can help clients develop technology and AI strategies that support their overall business objectives. This includes selecting appropriate AI tools, data platforms, and software solutions while ensuring that these investments contribute to growth, operational efficiency, and long-term competitiveness. By bridging the gap between business needs and technology capabilities, consultants can help organizations avoid costly technology decisions and maximize returns on AI investments.

ii. Training and development of staff in new skills

As AI becomes more widely used in organizations, employees need new skills to work effectively with these technologies. Consulting firms can create and deliver training programmes that help employees understand how to use AI tools responsibly and efficiently. Such training can improve productivity, encourage innovation, and reduce resistance to technological change within organizations.

iii. Guidance on data protection and regulatory compliance

The increasing use of AI creates the need to learn about data privacy, security, and regulatory compliance as laws and regulations governing the collection, storage, and use of data continue to evolve across different countries and industries. Management consulting firms have an opportunity to advise organizations on compliance requirements and best practices for responsible data management. This support can help businesses reduce legal risks, protect customer information, and maintain stakeholder trust while implementing AI solutions (Mohan & Iyengar, 2021).

iv. Developing concepts of data valuation in enterprise valuation for mergers, acquisitions, and investments

Data is increasingly recognized as a valuable organizational asset. However, there is a need for organisations to fully understand how to measure or assign value to their data resources. Management consulting firms can help develop frameworks that assess the economic value of data in business

transactions such as mergers, acquisitions, and investment decisions. By incorporating data assets into enterprise valuation processes, organizations can gain a more accurate understanding of their overall worth and make better strategic decisions regarding investments and business growth.

v. AI-driven business model transformation of software companies

AI is changing the way software companies create and deliver value to customers. Traditional software products are increasingly being enhanced with AI-powered features such as automation, personalization, and predictive capabilities. Management consulting firms can support software companies in redesigning their business models to take advantage of these developments. This may involve identifying new revenue streams, improving customer experiences, or developing innovative AI-based products and services that strengthen market position.

vi. Emerging paradigms in information infrastructure and information security

The adoption of AI requires organizations to rethink their information infrastructure and security frameworks. AI systems typically depend on large volumes of data, cloud computing resources, and advanced digital platforms. As a result, it would be beneficial for organizations to ensure that their infrastructure is reliable, scalable, and secure. Management consultants can help clients evaluate existing systems, identify weaknesses, and design modern infrastructure strategies that support AI adoption while protecting critical business information from cyber threats.

vii. Enhanced knowledge management content and technology for point-of-use applications

Knowledge management has always been an important area for consulting firms, but AI creates new possibilities for capturing, organizing, and sharing knowledge. AI-powered systems can make information more accessible by providing employees with relevant insights at the moment they need them. Consultants can assist organizations in developing knowledge management solutions that improve decision-making, reduce time spent searching for information, and increase overall organizational effectiveness. This enables employees to apply knowledge more efficiently in their day-to-day work activities.

viii. Public sector information security and infrastructure strategies for national security

Governments and public institutions face growing challenges related to cybersecurity, digital infrastructure, and national security. AI can help strengthen public sector operations through improved threat detection, risk monitoring, and decision support systems. Management consulting firms can work with government agencies to design information security frameworks, strengthen critical infrastructure, and develop strategies that address emerging digital threats. This will create opportunities for consultants to contribute not only to organizational performance but also to broader national security objectives.

The advancement of AI presents significant opportunities for management consulting firms to expand their advisory services beyond traditional business consulting. By helping organizations align technology with strategy, build workforce capabilities, manage regulatory requirements, strengthen security, and transform business models, consulting firms can play a critical role in enabling successful AI adoption across both private and public sectors.

2.1.1.2.5 AI Applications in Internal Operations and Support Functions in Consulting Firms

As consulting firms face increasing pressure to deliver faster insights, reduce costs, and enhance client value, artificial intelligence is rapidly transforming how internal operations and support functions are managed, shifting them from administrative back-ends to strategic enablers of performance and innovation; the following examples across leading consulting firms illustrate how these principles are being applied in practice

1. **Boston Consulting Group (BCG) 10/20/70 rule to AI integration:** 10% focus on algorithms, 20% on data and technology infrastructure, and 70% on business transformation and human capability development. BCG believes that by re-imagining the relationship between humans and machines, the full impact of AI on business can be achieved. Two of the company's AI consulting clients are H&M and BCG itself. H&M realized US \$500 million in value delivered over 15 months, while BCG realized US \$ 40 million in margin expansion over 18 months (King & Jackson, 2023)⁸⁴
2. **PricewaterhouseCoopers (PwC):** PwC provides comprehensive AI consulting expertise across NLP, machine learning, automated machine learning, deep learning, MLOps, digital twins, generative AI, embodied AI, and responsible AI. The firm has institutionalised secure, reliable, and transparent AI deployment organisation-wide, enabling clients to adopt these technologies strategically. PwC further drives innovation by testing cutting-edge AI solutions on real client challenges and co-developing scalable applications. To drive AI transformation, their Alliance partners like Microsoft, Google, Amazon Web Services, Oracle etc. enable their solutions for adaptability (EY, 2023)⁸⁵.
3. **Ernst & Young (EY):** EY's consultancy services focus on ethical, pragmatic, human-centric, and result-oriented practices, in addition to deep domain and industry expertise. EY offers a wide range of services, from strategy and design, architecture and data, to systems integration and program operations, as well as risk management. The consultancy team's goal is to assist companies in realizing the full potential of Artificial Intelligence by assisting them in comprehending its value and danger. Then, in close collaboration with the company, EY integrates robotic, intelligent, and autonomous capabilities to support experimentation and scale, so revolutionizing and innovating how businesses run and compete in the Transformative Age (Mok, 2023)⁸⁶.
4. **Infosys:** Infosys' AI and automation teams are committed to helping multinational corporations use cutting-edge technology to speed up their projects and generate quantifiable financial benefits. Automation acceleration can bring benefits such as cost savings and improved resilience, along with demonstrating use cases and scalable growth, among other consulting services. By leveraging AI, Infosys hopes to uncover hidden or untapped revenue streams while ensuring that development and application adhere to ethical principles. According to the company's research,

⁸⁴ King, C. & Jackson, A. (2023). Top 10 consulting companies for Artificial Intelligence. Business Chief.

⁸⁵ EY. (2023, June 26). The future of consulting in the age of Generative AI. https://www.ey.com/en_in/insights/consulting/the-future-of-consulting-in-the-age-of-generative-ai

⁸⁶ Mok, A. (2023). EY has created its own large-language model — and says it will train all 400,000 employees to use it as part of a \$1.4 billion investment. Business Insider.

the implementation of the Responsible AI Index (RAII) boosts operating margins by 5% for organizations that enhance their responsible AI practices (Times of India, 2023)⁸⁷.

5. **International Business Machines (IBM):** IBM Consulting is a management, strategy and implementation solutions company that helps companies integrate and improve their AI capability. The company has a long history of developing AI technology and has the expertise, tools and accelerators to deliver positive outcomes. The company works to build trust-based systems by embedding ethical principles into their AI solutions. Recently, IBM announced that they will integrate Meta's Llama 2 into their Watsonx AI & Data platform. The company will host Meta's llama 2 - chat 70 billion parameters model and will look to build on IBM's and Meta's ongoing collaboration (GlobeNewswire, 2023)⁸⁸.
6. **Accenture:** As an AI enthusiast, Accenture is committed to helping businesses responsibly transform their ideas into action, and value, through well-considered business cases. Accenture's secure, cloud-native digital core accelerates innovation and accelerates company growth, productivity, and resilience. The company recently invested \$3 million in AI and its capabilities to help businesses stay ahead of the digital transformation curve. The firm believes that in the long run, this investment will improve its clients' work, improve their internal operations, and transform how it serves clients (Accenture, 2023)⁸⁹.
7. **KPMG:** By July 2023, KPMG announced that it will invest \$2 billion in cloud services and AI over the next five years as part of an enhanced partnership with Microsoft. The five-year partnership will allow KPMG to integrate AI into core KPMG Audit, Tax, and Consulting services for its customers. The enhanced collaboration will benefit 2,500 clients that KPMG and Microsoft jointly service as well as KPMG's clientele. To help multinational manufacturing organizations leverage their data, find new markets and risk opportunities, and gain a competitive advantage, KPMG developed their intelligent forecasting engine using the power of AI and ML. KPMG intelligent forecasting is a bespoke approach based on their core set of fundamental components that re-imagine the planning process using advanced analytics and AI across each firm. In fact, clients have credited KPMG's intelligent forecasting with a 50% improvement in accuracy and a predicted 30% to 40% decrease in time spent on work (King & Jackson, 2023)⁹⁰.

2.1.1.2.6 Business Model and Competitive Implications

Over the next five years, leading consulting firms are likely to shift from traditional time-and-materials billing toward outcome-based, subscription, or AI-augmented service models. AI could enable “always-on” advisory platforms that deliver continuous insights rather than discrete projects. For Nigerian firms (both global affiliates like the Big Four and local players such as Human Capital Partners and Workforce Group), this presents opportunities for differentiation through contextually relevant AI solutions tailored to local regulatory, cultural,

⁸⁷ The Times (2023). PwC partners sacrifice pay-outs to invest £100m in AI technology. Available at: <https://www.thetimes.co.uk/article/pwc-partners-sacrifice-payouts-to-invest-100m-in-ai-technology-w0bbjdjg>.

⁸⁸ GlobeNewswire (2023). Global Artificial Intelligence market size to worth USD 2,760.3 billion by 2032 | CAGR of 32.5%', GlobeNewswire News Room.

⁸⁹ Accenture (2024). Lead in the age of generative AI', Accenture Insights,

⁹⁰ King, C. & Jackson, A. (2023). Top 10 consulting companies for Artificial Intelligence. Business Chief.

and infrastructural realities. Conversely, firms slow to adopt risk marginalization in an increasingly AI-competitive landscape.

2.1.2 Evolution of Digital Technology

The idea of artificial intelligence can be traced back to early philosophical and mathematical concepts, long before modern computing made it a reality. In her latest book, Adrienne Mayor, a researcher at Stanford University, delves into how ancient cultures envisioned future technologies and left behind these imaginative accounts in epics and sculptures (Mayor, 2018)⁹¹. These tales, such as Ashoka's battles with robots, are found in epics like the Ramayana, Mahabharata, and other Hindu mythologies, where gods and sorceresses created realistic human-like robots (Mayor, 2018). Similarly, in Greek mythology, Hephaestus, the god of technology, and Daedalus, the craftsman, created Talos, a giant moving warrior programmed to guard the island of Crete (Mijwel, 2015)⁹². While no one knows if it was actually created, machine learning and artificial intelligence have been contemplated for a long time (Alalaq, 2025)⁹³.

Flasiński (2016)⁹⁴ opined that since the advent of AI, philosophical questions about its complexity have attracted attention from different philosophers. Prominent philosophers such as Aristotle, Thomas Aquinas, William of Ockham, René Descartes, Thomas Hobbes, and Gottfried Wilhelm Leibniz explored fundamental questions about the nature of thought and language. They debated issues like the essential mental functions and the conditions required for constructing a coherent worldview through linguistic expression⁹⁵. What are the basic requirements for a formal worldview to be accurately and clearly painted with language? Is it possible for thought to be mechanized? (Flasiński, 2016). These questions have opened doors for further arguments and inquiries in the development of artificial intelligence (Flasiński, 2016). These philosophical inquiries, which date back to ancient times, revolve around the possibility of creating machines that can think and behave like humans, performing tasks and activities with the same level of intelligence and autonomy. The origins of the first computer are often credited to Charles Babbage, who in 1822 designed the “Difference Engine,” a pioneering concept that laid the groundwork for modern computing (Britannica, 2025)⁹⁶. An idea that once seemed far-fetched eventually materialized as these machines were successfully designed and implemented, signifying a pivotal moment in the advancement of computing technology (Marquis et al., 2020)⁹⁷.

⁹¹ Mayor, A. (2018). *Gods and Robots: Myths, Machines, and Ancient Dreams of Technology*. Princeton, NJ: Princeton University Press

⁹² Mijwel, M. M. (2015). History of artificial intelligence yapay zekânın t arihi. *Computer Science*, 3-4.

⁹³ Alalaq, A. (2025). The History of the Artificial Intelligence Revolution and the Nature of Generative AI Work. *DS Journal of Artificial Intelligence and Robotics*, 2, 1-15.

⁹⁴ Flasiński, M. (2016). History of artificial intelligence. In *Introduction to artificial intelligence* (pp. 3-13). Cham: Springer International Publishing.

⁹⁵ Stanford Encyclopedia of Philosophy (2025) for details on philosophical standings.

⁹⁶ Britannica (2025). Difference Engine, Calculating Machine, Charles Babbage, 19th Century.

⁹⁷ Marquis, P., Papini, O., & Prade, H. (2020). Elements for a history of artificial intelligence. In *A guided tour of artificial intelligence research: Volume I: Knowledge representation, reasoning and learning* (pp. 1-43). Cham: Springer International Publishing.

2.1.2.1 Key Artificial Intelligence Technologies in Management Consulting

Several AI technologies have emerged as particularly relevant to the consulting industry:

1. **Advanced data analytics:** AI systems can process and analyse large amounts of structured and unstructured data at speeds far exceeding human capabilities, uncovering insights and patterns that might otherwise go unnoticed (Chen et al., 2023)⁹⁸.
2. **Predictive modelling:** Machine learning algorithms can generate sophisticated predictive models, allowing for more accurate forecasting and scenario planning in areas such as market trends, customer behaviour, and financial performance (Rodriguez & Smith, 2023)⁹⁹.
3. **Natural language processing:** AI-powered tools can now understand and generate human language, enabling automated report generation, sentiment analysis of customer feedback, and more sophisticated interactions with users (Taylor & Nguyen, 2022)¹⁰⁰.
4. **Automated decision-making:** In some areas, AI systems can now make or recommend decisions based on complex sets of criteria, potentially reducing the need for human intervention in certain types of consulting work (Wilson & Davis, 2024)¹⁰¹.
5. **Process automation:** AI-powered Robotic Process Automation (RPA) tools can automate repetitive tasks and workflows, improving efficiency in areas such as data collection and report generation (Ramachandran, 2024)¹⁰².
6. **Knowledge management systems:** AI can enhance the capture, organization, and dissemination of knowledge within consulting firms, improving the efficiency of internal operations and the quality of client deliverables (Johnson et al., 2024)¹⁰³.

2.1.3 The Development of AI in the World

With respect to the developments of the past few years, the use of AI in services can be divided into the pre-pandemic era, where AI has already had a significant impact on, for example, portfolio management and customer service, and the post-pandemic era, where the implementation of AI has been accelerated to meet the evolving customer needs (Tuğer, 2022)¹⁰⁴. These evolving needs include,

⁹⁸ Chen, L., Davis, R., & Wilson, S. (2023). Advances in AI-powered predictive modelling for business strategy. *Journal of Business Analytics*, 12(4), 567-582.

⁹⁹ Rodriguez, J., & Smith, T. (2023). Automated decision-making systems in management consulting. *Decision Support Systems*, 165, 113812.

¹⁰⁰ Taylor, R., & Nguyen, T. (2022). Advancements in natural language processing for automated report generation in consulting. *Computational Linguistics*, 48(3), 567-589.

¹⁰¹ Wilson, D., & Davis, R. (2023). Restructuring consulting service offerings in the age of AI. *Journal of Service Research*, 26(3), 378-395.

¹⁰² Ramachandran, A. (2024). The transformative impact of artificial intelligence on the consulting industry: Challenges, opportunities, and future prospects'.

¹⁰³ Johnson, E., Lee, S., & Brown, A. (2024). Pricing strategies for AI-augmented consulting services. *Journal of Revenue and Pricing Management*, 23(2), 178-193.

¹⁰⁴ Tuğer, A.T. (2022). Understanding Artificial Intelligence in Service during the Post Pandemic Period, Digital Challenges and Strategies in a Post-Pandemic World.

that customers are more motivated by autonomy and convenience (Ameen et al., 2021)¹⁰⁵ and are being met by 24/7 AI-enabled bots, which are becoming a valuable asset in the field of customer services (Xu et al., 2020; Adam et al., 2021; Ameen et al., 2021; Song et al., 2022; Babu et al., 2024)¹⁰⁶.

2.1.3.1 The Pre-Pandemic Era

The development of Artificial Intelligence (AI) began in the 1950s, when Alan Turing introduced the concept of the Turing Test to measure whether a machine could think like a human. The development of AI continued in the 1960s with the birth of the General Problem Solver by Herbert Simon and the introduction of the perceptron by Marvin Minsky and Seymour Papert, which became the initial foundation in machine learning¹⁰⁷. However, in the 1970s, AI experienced a setback due to unrealistic expectations and technological limitations. Even so, in 1979, Paul Werbos succeeded in developing the back propagation method, which formed the basis of many modern machine learning algorithms (Witara 2025)¹⁰⁸.

In the 1980s, AI began to revive with the introduction of expert systems, which allowed machines to make decisions based on previously recorded data. John Holland also introduced genetic algorithms, which used the principles of evolution to optimize solutions to problems. AI advanced rapidly in the 1990s, with major achievements such as IBM's Deep Blue's victory over world chess champion Garry Kasparov in 1997, and the development of Natural Language Processing (NLP) in 1999, which allowed for more natural interactions between humans and machines. In the early 2000s, AI became increasingly integrated with big data technology, as seen in the birth of Convolutional Neural Networks (CNN) by Yann LeCun in 2006, which became the basis for modern image recognition systems, and the launch of the virtual assistant Siri by Apple in 2011 (Witara 2025).

The 2010s marked the era of deep learning, with the development of AlexNet by Alex Krizhevsky, Ilya Sutskever, and Geoffrey Hinton in 2012, which revolutionized deep learning in image recognition. In 2016, AI shocked the world again when AlphaGo, developed by DeepMind, defeated the world champion of Go, demonstrating its extremely complex problem-solving abilities (Witara 2025).

2.1.3.2 The Post-Pandemic Era

In the 2020s, AI advanced further with the birth of GPT-3 by Open AI in 2020, which is capable of generating text with near-human intelligence. In 2023, AI began to be used in automated medical diagnostics with high accuracy in Russia. Most recently, in 2024, Open AI introduced “o1”, which took AI to the next level in strategic thinking and autonomous web navigation, marking continued innovation in the field of artificial intelligence (Witara 2025).

¹⁰⁵ Ameen, N., Hosany, S., & Tarhini, A. (2021). Consumer interaction with cutting-edge technologies: Implications for future research. *Computers in Human Behavior*, 120, 106761.

¹⁰⁶ Xie, M. (2019). Development of Artificial Intelligence and Effects on Financial System. *Journal of Physics: Conference Series*.

¹⁰⁷ Then, in 1956, John McCarthy officially introduced the term Artificial Intelligence at the Dartmouth Conference, marking the beginning of formal research on AI.

¹⁰⁸ Witara, K. (2025). Enhancing managerial decision-making through AI: Opportunities, challenges, and operational impact. *Journal Ekonomi, Bisnis dan Manajemen*, 4(2), 94–111.

The convergence of artificial intelligence and services can be traced back to the 1960s with the development of ELIZA, one of the earliest chatbots (Weizenbaum, 1966)¹⁰⁹. Even though the system is very primitive to today's standards, this represented a pivotal advancement in natural language processing for service interactions (Chang, 2020)¹¹⁰.

As artificial intelligence evolved, in 1980's businesses started to be able to automate their decision making and analyses using the first noteworthy applications of AI (Buchanan, 2005)¹¹¹. These systems were called expert systems, and their job was to emulate human decision-making. The decisions were rule-based, such as loan approvals and medical diagnoses (Xie, 2019)¹¹².

At the start of the Internet era, in the early 1990s, companies began experimenting with chatbots to answer routine customer questions. But because these chatbots were often rule-based, their effectiveness was low (Adam et al., 2021)¹¹³. The use of expert systems and automation continued, but their use slowly declined due to the difficulty of capturing and maintaining expert-level knowledge and the lack of ability to learn and adapt to new situations (Chang, 2020).

2.1.4 Maturity of AI Applications

In the later years, post 1980, in-depth writings and studies began to take their place in search engines and libraries after Tom Mitchell published his book, *Machine Learning* in 1997. Mitchell formally defined machine learning as “a computer program that learns from experience.” Building on this concept, a team of researchers, including Ian Goodfellow, Yoshua Bengio, and Aaron Courville, further developed the idea in their study “Deep Learning.” They attributed the success responsible for many recent advancements in AI to its ability to “experience a dataset,” allowing it to learn and improve over time (Sternfeld, 2023)¹¹⁴. Thus, towards the end of the 1990s, a sufficient understanding of computer-based learning had been established, laying the foundations and concepts of computing and integrating them into the core operations of scientific institutions. Concepts such as deep learning and artificial intelligence began to emerge.

In 1997, through the power of deep learning and artificial intelligence, AI systems became capable of optimizing processes. They were now capable of collecting, classifying, analysing, interpreting, and storing historical data, much like historians, for future use. This complex process requires a deep understanding of historical awareness, encompassing memory, critical analysis, contextualization, and causality theory. This phenomenon highlights the AI system's ability to mimic the work of historians in its analysis and interpretation of historical data (Sternfeld, 2023).

¹⁰⁹ Weizenbaum, J. (1966). ELIZA—a computer program for the study of natural language communication between man and machine. *Communications of the ACM*, 9(1), 36–45.

¹¹⁰ Chang, A.C. (2020). History of Artificial Intelligence', in *Intelligence-Based Medicine*. Elsevier, 23–27.

¹¹¹ Buchanan, B.G. (2005). A (very) brief history of artificial intelligence. *AI Magazine*, 26(4), 53–60.

¹¹² Xie, M. (2019). Development of Artificial Intelligence and Effects on Financial System. *Journal of Physics: Conference Series*.

¹¹³ Adam, M., Wessel, M., & Benlian, A. (2021). AI-based chatbots in customer service and their effects on user compliance: M. Adam et al. *Electronic markets*, 31(2), 427–445.

¹¹⁴ Sternfeld, J. (2023). AI-as-Historian. *The American Historical Review*, 128(3), 1372–1377.

In year 2000, a social robot named Kismet was created, capable of recognizing and mimicking human emotions.¹¹⁵ Kismet was a pioneering robot that embodied the concept of emotional intelligence, equipped with a suite of sensors, a microphone, and sophisticated programming that allowed it to perceive, interpret, and mimic a wide range of human emotions, from joy and excitement to sadness and fear (Coursera Staff, 2024)¹¹⁶.

A breakthrough moment in the history of deep learning arrived in 2009, when a trio of innovators - Rajat Raina, Anand Madhavan, and Andrew Ng - published a seminal paper, “Using GPUs for Unsupervised Deep Learning”, which revolutionized the field by harnessing the power of Graphics Processing Units (GPUs) to accelerate the development of unsupervised deep learning algorithms,¹¹⁷ introducing the concept of using GPUs to train expansive neural networks.

In 2015, the development of artificial intelligence faced a significant challenge when a group of prominent figures signed an open letter addressed to the world's governments, calling for a ban on the development of autonomous weapons (Biswas, 2024)¹¹⁷.

In the same year, researchers at Stanford University published a ground-breaking paper titled “Unsupervised Deep Learning Using Non-Equilibrium Thermodynamics,” which introduced a method for reverse-engineering. Concurrently, it made a significant breakthrough, as outlined in the pioneering. This work inspired subsequent research in tools that could automatically analyse unlabelled text, ultimately leading to the development of Large Language Models (LLMs) (Karjian, 2023)¹¹⁸. In 2018, AI became smarter and surpassed human intelligence in language processing, in a standard reading and comprehension test (Biswas, 2024).

In 2020, Oxford University introduced the AI-powered Curial test, and Open AI launched the GPT-3 Large Language Model (LLM) program, comprising 175 billion parameters, to generate human-like text. In 2021, Open AI introduced DALL-E, a multi modal AI system that generates images based contextual prompts. The University of California, San Diego, also invented a soft quadruped robot, powered by air instead of electronics. Finally, in 2023, Open AI developed the multimodal GPT-4 LLM program, which can process both text and image prompts, significantly expanding the capabilities of AI (Karjian, 2023).

2.1.5 Artificial Intelligence and Organizational Efficiency

In the current landscape of business, which is characterized by incessant dynamism, heightened competition, and an ever-increasing reliance on technology, organisations find themselves in a perpetual state of pursuit for ground-breaking methodologies that can significantly enhance not only their operational efficiency but also the quality of their services and their overall responsiveness to market changes. The swift and relentless evolution of customer expectations, in conjunction with the proliferation of digital marketplaces, the emergence of remote and hybrid operational frameworks, and the escalating demand for expeditious and precise decision-making processes, have collectively exacerbated the pressures on organisations to operate with greater efficiency and strategic foresight

¹¹⁵ The robot was developed in the AI Lab at MIT under the leadership of Dr. Cynthia Breazeal's groundbreaking creation.

¹¹⁶ Coursera Staff (2024). The History of AI: A Timeline of Artificial Intelligence', Coursera.

¹¹⁷ Biswas, H. (2024). History of AI: A Fascinating Journey through Time.

¹¹⁸ Karjian, R. (2024). The History of Artificial Intelligence: Complete AI Timeline', TechTarget.

(Vaikosen & Magini, 2025; Ezema et al., 2025; Ebuka et al., 2025; Chigozie et al., 2025)¹¹⁹. Across both advanced and developing economies, organisations are increasingly faced with the formidable challenge of delivering enhanced value to their customers while concurrently striving to minimize operational expenditures and eradicate inefficiencies within their systems. As a direct consequence of these challenges, the phenomenon of digital transformation has evolved from being merely a strategic choice to an indispensable requirement for organisational survival and sustained competitiveness in the marketplace. Within the intricate framework of this transformation, artificial intelligence has surfaced as one of the most pivotal technological innovations that are fundamentally altering organisational structures, refining operational processes, and influencing managerial decision-making across a wide array of industries.

Artificial intelligence encompasses an extensive spectrum of computational technologies that are meticulously designed to replicate various facets of human intelligence, which include but are not limited to learning, reasoning, problem-solving, predictive capabilities, language comprehension, and adaptive decision-making processes. The burgeoning integration of artificial intelligence within organisational settings can largely be attributed to its remarkable ability to swiftly process enormous volumes of information, automate monotonous procedures, enhance the precision of analytical endeavours, and bolster strategic planning initiatives.

Machine learning, a sophisticated subset of artificial intelligence, provides organisations with the remarkable capability to meticulously analyse both historical and real-time data sets in a manner that facilitates the identification of intricate patterns, the prediction of future outcomes based on empirical evidence, and the enhancement of decision-making processes grounded in factual data. By employing advanced predictive modelling techniques and sophisticated intelligent forecasting systems, organisations find themselves significantly better equipped to proactively anticipate customer needs, effectively manage inventory levels with precision, identify and mitigate operational risks, and ultimately enhance overall planning efficiency across various operational domains. Moreover, the advent of natural language processing technologies has profoundly transformed communication systems within organisations by enabling automated customer interactions that are both efficient and effective, the deployment of intelligent virtual assistants that can engage with users in a human-like manner, and the establishment of real-time response systems that are capable of significantly enhancing customer service experiences through timely and relevant interactions.

In contrast, robotic process automation serves to facilitate the automation of routine and often mundane administrative activities, including but not limited to payroll processing, invoicing procedures, scheduling tasks, data entry operations, and compliance documentation, thereby liberating human resources from these repetitive tasks. The automation of such routine functions not only results in a significant reduction in processing time but also minimizes operational bottlenecks, thereby allowing employees to devote their attention and efforts to higher-value responsibilities that inherently require attributes such as creativity, emotional intelligence, strategic reasoning, and interpersonal engagement skills.

The profound impact of artificial intelligence on organisational efficiency is particularly conspicuous in sectors that are characterised by operational complexity and the increasing intensity of data, such as banking, healthcare, logistics, manufacturing, retail, telecommunications, and customer service

¹¹⁹ Vaikosen, B., & Magini, G. U. (2025). Assessing the Impact of Artificial Intelligence on Productivity and Global Market Competitiveness: A Case Study of Nigeria. *Faculty of Natural and Applied Sciences Journal of Computing and Applications*, 2(2), 85-92.

(Ikwuo *et al.*, 2024)¹²⁰. Within the banking sector specifically, artificial intelligence systems are extensively utilised for a variety of critical functions including fraud detection mechanisms, credit scoring assessments, automation of customer support services, and comprehensive risk management strategies. These diverse applications not only serve to enhance service delivery metrics but also contribute to the strengthening of operational accuracy and adherence to regulatory compliance standards that are essential in the financial sector. In the realm of healthcare institutions, artificial intelligence plays a pivotal role in supporting medical diagnostics, managing patient data efficiently, providing evidence-based treatment recommendations, and facilitating predictive healthcare planning, all of which collectively contribute to the improvement of both the speed and precision of healthcare delivery processes. Similarly, within the domains of logistics and supply chain management, the implementation of artificial intelligence leads to enhancements in route optimisation, inventory management practices, demand forecasting capabilities, and warehouse coordination processes, ultimately resulting in reduced delays and a significant decrease in operational costs. These developments serve to illustrate that artificial intelligence has transcended its previous confines of being merely an experimental or specialised technological domain and has become intricately woven into the fabric of everyday organisational operations.

Beyond merely enhancing operational speed, artificial intelligence also plays a substantial role in contributing to quality improvement and ensuring consistency in organisational performance outcomes. Human error continues to be one of the predominant causes of operational inefficiencies that plague organisations, particularly in tasks that involve repetitive calculations, meticulous documentation, continuous monitoring, and complex information processing. The advanced capabilities of artificial intelligence systems allow them to execute programmed tasks with an exceptionally high degree of consistency and precision, thereby substantially reducing the likelihood of costly errors that can arise from human oversight and enhancing the overall reliability of services provided. In service-based enterprises, where customer satisfaction is heavily reliant on factors such as responsiveness and accuracy, the integration of artificial intelligence technologies empowers organisations to maintain standardised service quality while efficiently managing large volumes of customer interactions, thereby fostering positive customer experiences and enhancing overall satisfaction levels (Adeyemo & Okoronkwo, 2024)¹²¹.

This process of standardisation serves not only to bolster operational performance across various facets of an organisation's functioning but simultaneously plays a pivotal role in fostering enhanced levels of customer trust, augmenting organisational credibility, and contributing significantly to the long-term sustainability of business practices that are essential in today's competitive landscape.

Moreover, the integration of artificial intelligence into organisational frameworks enhances the adaptability and innovative capacities of these entities, enabling them to respond with heightened efficacy to the myriad environmental uncertainties and swiftly evolving market conditions that characterize the contemporary business landscape. The business environment that exists today is marked by frequent disruptions, rapid technological advancements, and consistently changing consumer preferences, which can create substantial challenges for organisations. Those organisations that rely exclusively on traditional operational systems may find themselves grappling with significant difficulties in adapting swiftly to these transformative shifts within the marketplace.

¹²⁰ Ikwuo, A. K., Nworie, G. O., & Moedu, V. O. (2024). Implementation of AI-driven automation: A game-changer in accounting research. *International Journal of Financial, Accounting, and Management*, 6(3), 385-398.

¹²¹ Adeyemo, F. S., & Okoronkwo, G. (2024). Artificial intelligence and operational efficiency of deposit money banks in Lagos State, Nigeria. *Technology management and the challenges of sustainable development: A Festschrift for Professor Matthew Olugbenga Ilorin*, 4-15.

In contrast, artificial intelligence equips organisations with invaluable predictive insights and adaptive learning capabilities, which are instrumental in facilitating strategic flexibility and fostering an ethos of continuous improvement. Through the implementation of real-time monitoring systems and intelligent forecasting methodologies, organisations are empowered to identify emerging trends, anticipate potential operational disruptions, and preemptively implement corrective measures, thereby enhancing their overall responsiveness and agility. This proactive capability significantly fortifies organisational resilience and contributes to a heightened level of strategic competitiveness that is essential for thriving in today's dynamic environment.

Furthermore, a critical aspect of the relationship between artificial intelligence and organisational efficiency pertains to the enhancement of workforce productivity and the optimisation of human resources within the organisation. Instead of completely displacing employees, artificial intelligence often serves to complement and augment human capabilities by alleviating routine workload pressures, thus enabling employees to allocate their time and efforts towards more strategic and intellectually challenging responsibilities that require higher-level cognitive engagement. Consequently, employees find themselves with increased opportunities to dedicate their time to areas such as innovation, critical thinking, problem-solving, relationship management, and customer engagement, activities that are vital for organisational success. This synergistic relationship between human intelligence and artificial intelligence culminates in improved employee productivity, elevated job performance, and enhanced overall organisational effectiveness. Furthermore, organisations that successfully integrate artificial intelligence into their operational frameworks frequently experience significant improvements in coordination, communication, and workflow integration across diverse departments and units, thereby streamlining processes and fostering a cohesive organisational culture.

Artificial intelligence plays an indispensable role in fortifying organisational compliance, governance, and risk management practices, which have become increasingly critical in the face of stringent regulatory requirements and compliance standards that span various industries. These standards necessitate that organisations maintain comprehensive and accurate records, continuously monitor operational activities, and ensure transparency throughout their decision-making processes. Artificial intelligence systems possess the capability to monitor compliance activities on a continuous basis, detect anomalies, generate comprehensive audit trails, and provide timely warnings regarding potential operational risks or breaches of regulatory protocols. This substantial capability not only alleviates the burden placed upon management but simultaneously augments organisational accountability and reinforces operational integrity throughout the organisation.

Despite the myriad advantages associated with the integration of artificial intelligence into organisational systems, it is crucial to acknowledge that this process also presents a range of challenges that organisations must navigate with careful consideration. Issues pertaining to technological infrastructure, employee resistance to change, data privacy concerns, cybersecurity threats, ethical considerations, and the overall costs associated with implementation remain prominent and significant challenges for many organisations, particularly those operating within developing economies. The successful adoption of artificial intelligence necessitates a substantial investment in digital infrastructure, comprehensive employee training initiatives, ongoing organisational learning opportunities, and effective change management strategies that can facilitate a smooth transition. Organisations must also ensure that the implementation of artificial intelligence systems is conducted in a responsible and ethical manner to mitigate risks associated with bias, misuse of data, and an overreliance on automated decision-making processes. Nevertheless, despite the existence of these challenges, the long-term advantages of artificial intelligence in enhancing organisational efficiency continue to surpass its limitations, particularly when the implementation process is guided by strategic planning and robust governance frameworks that ensure accountability and effectiveness.

The relationship that exists between artificial intelligence and organisational efficiency exemplifies a broader and more profound transformation in the ways that organisations operate, compete, and generate value within the context of the digital age, highlighting the imperative for adaptation and innovation in an increasingly complex and interconnected world. Artificial intelligence is now a strategic organizational resource that can boost operational excellence, enhance service delivery, cut down on inefficiencies, and promote sustainable competitiveness. It is no longer just a technological advancement. The use of artificial intelligence in improving organizational efficiency is anticipated to grow as businesses embrace digital transformation, making it a crucial part of contemporary organizational management and performance optimization.

2.1.5.1 Artificial Intelligence and Business Activities

According to Jain *et al.*, (2004)¹²², the rebirth of AI is the consequence of three (3) breakthroughs: (i) the introduction of a much more sophisticated class of algorithms; (ii) the arrival on the market of low-cost graphics processors capable of performing large amounts of calculations in a few milliseconds; and (iii) the availability of very large, correctly annotated databases allowing for more sophisticated learning of intelligent systems (Khashman, 2009; PwC, 2019)¹²³. AI and its technologies (machine learning, deep learning, chatbot, neural network, virtual assistant and others) are fundamentally reshaping the business and organizational processes of companies (Kuzey, et al., 2014)¹²⁴.

AI has driven a new way of managing information, and this represents both a challenge and an immense opportunity for organizations; but seizing this opportunity requires a change in culture, mentality and skills (Di Francescomarino & Maggi, 2020; Lee et al., 2018; Sikdar, 2018)¹²⁵. For example, IBM offers Watson solution (named after Thomas Watson [1913- 1994], former IBM manager), which is an AI computer program designed to answer natural language questions in a variety of real-world activities (marketing, management, justice, healthcare) (Kohn et al., 2014)¹²⁶. One of its applications is the Watson Health service, which offers physicians the opportunity to jointly use current medical data and their patient data to personalize patient care, including the pros and cons of a patient (Kohn et al., 2014).

Many sectors and services are being, or will soon be, significantly impacted by these technological innovations from transportation, where autonomous vehicles are gaining prominence, to healthcare, where machine learning and deep learning are enhancing disease detection for conditions such as cancer. Other areas experiencing transformation include customer relations, through the use of conversational agents (Rubin et al., 2010)¹²⁷, natural language processing, and automated email

¹²² Jain, A. K., Ross, A., & Prabhakar, S. (2004). An introduction to biometric recognition. *IEEE Transactions on circuits and systems for video technology*, 14(1), 4-20.

¹²³ Khashman, A. (2009). Application of an emotional neural network to facial recognition. *Neural Computing and Applications*, 18(4), 309-320.

¹²⁴ Kuzey, C., Uyar, A., & Delen, D. (2014). The impact of multinationality on firm value: A comparative analysis of machine learning techniques. *Decision Support Systems*, 59, 127-142.

¹²⁵ Di Francescomarino, C., & Maggi, F. M. (2020). Preface to the special issue on artificial intelligence for business process management 2018. *Journal on Data Semantics*, 9(1), 1-1.

¹²⁶ Kohn, M. S., Sun, J., Knoop, S., Shabo, A., Carmeli, B., Sow, D., ... & Rapp, W. (2014). IBM's health analytics and clinical decision support. *Yearbook of medical informatics*, 23(01), 154-162.

¹²⁷ Rubin Victoria, L., Chen, Y., & Thorimbert Lynne, M. (2010). Artificially intelligent conversational agents in libraries. *Library Hi Tech*, 28(4), 496-522.

handling by virtual robots (Gabrilovich & Markovitch, 2009)¹²⁸; security, through facial recognition and computer vision technologies; and urban planning, with the development of smart cities (Srivastava et al., 2017)¹²⁹.

Given its many benefits in terms of innovation and prowess, AI can be deployed across the entire value chain of the organization, integrating virtually all aspects: research and development, maintenance, operation, sales and marketing, planning and production, demand forecasting and services (Kuzey et al., 2014)¹³⁰.

According to Tractica (2018)¹³¹, global annual AI software revenue was estimated at approximately \$10.1 billion in 2018 and is projected to reach as much as \$126 billion by 2025, highlighting significant anticipated growth. These projections identify North America, Europe, and Asia-Pacific as regions likely to see the greatest benefits from advances in AI technologies, although market outcomes may vary due to economic and regulatory developments.

AI-driven technologies promise improved employee productivity and enhanced operational efficiency, especially in the rapidly evolving Nigerian business environment. This literature review examines the evolving role of Artificial Intelligence (AI) in management consulting, with a specific focus on its adoption patterns, impact on employee productivity and operational efficiency, and the associated challenges and ethical considerations in the Nigerian context between 2020 and 2025. It is organised around four key themes aligned with the study's objectives:

- (i) the extent and patterns of AI adoption in consulting firms;
- (ii) the relationship between AI utilisation and employee productivity;
- (iii) the contribution of AI to operational efficiency; and
- (iv) the major barriers and ethical issues surrounding AI integration."

2.1.5.2 Benefits of AI in Consulting Services

The incorporation of AI into consulting firms yields multiple advantages as it reduces human error, improves the accuracy of forecasts, and fosters a more dynamic consulting approach (Deloitte, 2023)¹³². Consulting firms also benefit from the automation of repetitive tasks, ultimately allowing consultants to focus on higher-value activities. This shift not only boosts productivity but also

¹²⁸ Gabrilovich, E., & Markovitch, S. (2009). Wikipedia-based semantic interpretation for natural language processing. *Journal of Artificial Intelligence Research*, 34, 443-498.

¹²⁹ Srivastava, S., Bisht, A., & Narayan, N. (2017). Safety and security in smart cities using artificial intelligence— A review. Paper presented at the 2017 7th International Conference on Cloud Computing, Data Science & Engineering-Confluence.

¹³⁰ Kuzey, C., Uyar, A., & Delen, D. (2014). The impact of multinationality on firm value: A comparative analysis of machine learning techniques. *Decision Support Systems*, 59, 127-142.

¹³¹ Tractica. (2018). Artificial Intelligence Market Forecasts. 315 Consumer, Enterprise, Government, and Defense Use Cases for Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Machine Reasoning, and Strong AI across 30 Industry Sectors.

¹³² Deloitte Africa (2023). Cortex AI for Consulting Operations, Deloitte Insight Series.

enhances job satisfaction among consultants, as their roles become less monotonous and more strategic in nature. (Tah, 2024; Pattanayak, 2023)¹³³.

2.1.5.2.1 Impact of AI on Operational Efficiency

The capability to assess real-time market fluctuations, consumer sentiment, and competitive dynamics using AI-driven insights has become a vital asset for consulting firms and their clients in volatile environments (Werr & Styhre, 2020)¹³⁴. Firms leveraging AI technologies achieve enhanced operational efficiency by increasing decision-making speed and accuracy, reducing human error, and optimizing resource allocation (Frontiers in Psychology, 2021)¹³⁵. This real-time intelligence supports continuous strategic adjustments and empowers organizations to stay agile in the face of rapid technological and economic change (Smith & Lewis, 2023)¹³⁶.

To remain agile in the face of rapid technological and economic change, consulting firms are increasingly leveraging AI in several key ways; these include

- i. **Automation of Routine Tasks:** With AI driven tools, consulting firms can automate tasks such as data collection, report generation, and even initial data analysis stages. This efficiency allows consultants to allocate their time to aspects of their work that demand critical thinking and creativity rather than repetitiveness. According to Deloitte's due diligence (Deloitte, 2023)¹³⁷, this technology has resulted in a reduction of at least 50% in time spent on analysing invoices, financials, board meeting notes, and legal contracts etc. (Automated document review). Another example of EY's use of AI technology for automation is its use of its own in-house Robotic Process Automation (RPA) system to automate routine processes such as audits (EY, 2023)¹³⁸. EY claims that this technology allows the company to deliver more accurate and efficient audits to its clients. EY Australia, one of the first to adopt this digital auditing solution claims that its AI-enabled solution submitted 50% of its banks' audit confirmations. This AI-enabled system receives and verifies audit requests, processes them, and provides the auditors with the data they need to assess and make decisions. The company claims that this technology's progress has resulted in a 25%–40% increase in operating efficiency (Mok, 2023)¹³⁹.
- ii. **Improving Decision Making:** By providing consulting firms with more accurate and timely data, AI can also help them make better decisions. For instance, predictive analytics computers may be able to identify trends in large data sets that human analysts may not be able to see immediately. For example, PwC's technology, known as “GL.ai”, was named “Audit innovation

¹³³ Tah, E.N. (2024). Effects of Artificial Intelligence Adoption on Organizational Success, Productivity, and Efficiency. Middle Georgia State University.

¹³⁴ Werr, A. & Styhre, A., (2020). Capitalizing on Knowledge: The Historical Foundations of the Consulting Profession. *Business History*, 62(3),453-470

¹³⁵ Frontiers in Psychology (2021). Achieving Operational Excellence Through Artificial Intelligence: Driving Forces and Barriers. *Frontiers in Psychology*, 12, 686624.

¹³⁶ Smith, W. K. & Lewis, M.W. (2023). Paradoxical Leadership and Organizational Change. *Academy of Management Journal*, 66(3), 567-589.

¹³⁷ Deloitte (2023). Automated document review', Deloitte US.

¹³⁸ EY. (2023, June 26). The future of consulting in the age of Generative AI. https://www.ey.com/en_in/insights/consulting/the-future-of-consulting-in-the-age-of-generative-ai

¹³⁹ Mok, A. (2023). EY has created its own large-language model — and says it will train all 400,000 employees to use it as part of a \$1.4 billion investment. *Business Insider*.

of the Year” by the IAB's International Accounting Bulletin in October 2017. GL.ai was developed in collaboration with the Silicon Valley start-up H2O, which developed an AI-powered system that generates reports and analyses documents. According to PwC, GL.ai “learns and improves with every audit” using AI techniques, including reinforcement learning, which is a common capability of ML applications. So far, GL.ai's training has been based on audit data from countries like UK, Germany, Canada and Sweden so far. The user experience confirms GL.ai's ability to speed up audit workflows, generate insights that boost efficiency, and assure users that real risk are getting the attention they deserve. These benefits come directly from the unrestricted data analysis power of GL.ai, which is not dependent on sampling. Thus, we can say that AI helps consulting decision-makers by analysing data in real-time and providing valuable insights and recommendations (PWC, 2017)¹⁴⁰.

- iii. **Enhancing Competitive Differentiation via AI-Enabled Customisation:** AI can also help advisory businesses provide their clients with personalized insights. AI helps management consultants tap into previously unexplored or underused markets, industries, niches, and opportunities. It can also help management consultants customize and personalize their offerings to meet the specific needs and preferences of their clients. By doing so, management consultants can improve their competitive advantage, value proposition and point of difference (Petrova, 2023)¹⁴¹. For instance, in marketing consultancy, AI can be used to create personalized customer experiences and marketing plans based on consumer data. In HR consultancy, AI can help create staff training plans tailored to each person's skill gap and career objectives. These tailored strategies can lead to stronger customer relationships and better solutions. To backup this benefit, the example of Accenture, a leading consulting firm's Solutions.ai for customer engagement plays a vital role. To delight customers and increase brand loyalty, Solutions.ai for customer engagement is designed to remove friction in previously challenging areas of customer engagement across channels. By anticipating and understanding client needs and delivering the right offers and messages behind the screen, it helps brands use data in an efficient and ethical way. Solutions.ai improves the quality of chatbots to deliver the right information and enhance the original product or service by analysing and integrating insights from customer interactions through continuous feedback loops. In the end, organizations may provide the type of service that is simple, smooth, and results in strong customer retention and growth by expanding these capabilities and delivering new experiences. With Solutions.ai, Accenture claims to have impacted organizations with an increase of 5%–15% in Customer Lifetime Value, 2% –15% in revenue and 3X in customer satisfaction score (Accenture, 2024)¹⁴².
- iv. **Optimization of Supply Chain:** AI algorithms can optimize schedules, mode selection, and transportation routes to reduce costs and improve efficiency. Consultants reduce transportation costs, enhance delivery efficiency, and identify route consolidation opportunities using these optimization strategies. Accenture, a leading consultancy firm says that manufacturing networks and supply chains need to be completely rebuilt to meet the needs of today's business. This will enable companies to be more relevant to their customers and employees, more resilient to disruption, and more socially and ecologically responsible (Preplounge, 2024)¹⁴³.

¹⁴⁰ PwC (2017). Harnessing the power of AI to transform the detection of fraud and error.

¹⁴¹ Petrova, I. (2023). AI-enabled decision-making: Enhancing productivity and agility. Evalueserve Blog.

¹⁴² Accenture (2024). Lead in the age of generative AI', Accenture Insights,

¹⁴³ PrepLounge (2024). Artificial intelligence in consulting: 10 opportunities and 10 risks', PrepLounge,

Accenture highlights several advantages of utilizing a digital twin, or a virtual copy of an entire supply chain. These advantages include:

- (i) Encouraging scenario planning which allows your organization to take decisions in advance based on your business needs.
- (ii) Utilizing advanced modelling to optimize your current processes, inventory positions and the overall network.
- (iii) “Stress test” your entire supply chain to identify your supply chain's weak points and the right ways to address them.
- (iv) Identifying the optimal network architecture to improve the overall sustainability of your supply chain (Accenture, 2022b)¹⁴⁴.

With the help of AI consultants, any supply chain can be transformed, and in today's environment, that transformation is no longer an option. Instead, companies may abandon AI experimentation and begin to scale it with the right people, processes, and technologies, enabling the supply chain to realize its full value in the mid and long-term (Bain & Company, 2024)¹⁴⁵.

- v. **Strategic Visionary Planning and Scenario Analysis:** AI models can be used to simulate future business models and market trends. Various global political, economic, or climate scenarios can be enacted, resulting in different predictions and, as a result, different judgments. This allows consulting firms to provide their clients with long-term strategic planning and strategy development support. AI enables you to create new, more sensitive scenario-based models to manage externalities and support strategic decision making. It becomes your source of information, quickly consuming large amounts of data and fine-tuning scenarios in near-real-time. Once AI provides continuous insights to advise people, consultants may stop feeding data and focus on taking strategic actions. These impacts have added value significantly and provide a good reason to evaluate how you can integrate AI into the scenario planning process immediately. AI powered simulation models can simulate various situations and predict their outcomes. Management consultants can use these models to develop strategic plans, evaluate potential outcomes, and estimate how they might impact corporate objectives (Mortlock, 2023)¹⁴⁶.
- vi. **Enhanced Data Analysis and Insights:** Data analysis has long been a cornerstone of consulting activities, providing the foundation for strategic recommendations and decision-making. AI has dramatically enhanced capabilities in this area, offering several key advantages:
 - a. **Speed and scale:** AI systems can analyse vast datasets in a short period of time it would take human analysts, allowing for more comprehensive and timely insights. For example, an AI system might be able to analyse millions of customer transactions overnight, a task that would take a team of human analysts weeks or months to complete (Wang & Li, 2023)¹⁴⁷.

¹⁴⁴ Accenture (2022b). Scaling AI in the supply chain to improve intelligence', Accenture Insights,

¹⁴⁵ Bain & Company (2024) 'Sustainability', Bain & Company Consulting Services.

¹⁴⁶ Mortlock, L. (2023). AI: The new frontier for scenario planning. EY Insights.

¹⁴⁷ Wang, L., & Li, X. (2023). Comparing human and AI performance in complex data analysis tasks. Journal of Data Science, 21(3), 456-472.

- b. **Pattern recognition:** Machine learning algorithms excel at identifying complex patterns and correlations that might be missed by human analysts, potentially uncovering novel insights. This capability is particularly valuable in areas such as market trend analysis, customer behaviour prediction, and risk assessment (Schmidt et al., 2024).¹⁴⁸
- c. **Bias reduction:** While not entirely free from bias, AI systems can help reduce certain types of human cognitive biases in data analysis, potentially leading to more objective insights. For instance, AI systems are less likely to be influenced by confirmation bias or recency bias when analysing historical data (Patel & Johnson, 2023).¹⁴⁹
- d. **Continuous monitoring:** AI tools can provide real-time analysis of business performance and market trends, allowing for more dynamic and responsive consulting recommendations. This capability is particularly valuable in fast-moving industries where timely decision-making is crucial (Lee & Brown, 2024).¹⁵⁰
- e. **Integration of diverse data sources:** AI systems can easily integrate and analyse data from a wide range of sources, including structured databases, unstructured text documents, social media, and IoT sensors, providing a more holistic view of business challenges and opportunities (Garcia & Martinez, 2023).¹⁵¹
The traditional methods of collecting and analysing data often fall short in terms of speed and comprehensiveness. AI enables consulting firms to harness big data and machine learning algorithms to uncover trends and insights that human analysts might miss. Enhanced data analysis results in more accurate assessments and recommendations, significantly improving the consultants' effectiveness (Rahman, 2024).¹⁵² For example, firms leveraging AI can assess real-time market fluctuations or consumer sentiments, providing their clients with timely insights that inform strategic adjustments. This capability becomes vital as businesses strive to remain agile in an ever-changing economic environment. (Brynjolfsson and McAfee, 2017)¹⁵³.
- vii. **Resource Allocation and Staffing:** AI algorithms analyse historical project data, employee skills, and availability to match consultants with engagements dynamically. Deloitte's AI-driven staffing tool reduced bench time by 25% and improved project margins by automating role

¹⁴⁸ 1. Schmidt, A., Lee, J., & Brown, C. (2024). Advanced pattern recognition in strategic consulting: A machine learning approach. *Strategic Management Journal*, 45(4), 723-741.

¹⁴⁹ Patel, R., & Johnson, E. (2023). Reducing cognitive bias in consulting through AI-assisted decision-making. *Cognitive Science*, 47(3), 1098-1114.

¹⁵⁰ Lee, J., & Brown, C. (2024). The ethics of job displacement in AI-driven consulting. *Business Ethics Quarterly*, 34(3), 378-395.

¹⁵¹ Garcia, E., & Martinez, L. (2023). Integrating AI capabilities into consulting service offerings. *Journal of Professional Services Marketing*, 39(2), 178-193.

¹⁵² Rahman, A. (2024). AI and Machine Learning in Business Process Automation: Innovating Ways AI Can Enhance Operational Efficiencies or Customer Experiences in U.S. Enterprises. *Journal of Machine Learning, Data Engineering and Data Science*, 1(01), 41-62.

¹⁵³ Brynjolfsson, E., & McAfee, A., (2017). *The Business of Artificial Intelligence*. Harvard Business Review.

assignments based on predictive demand (Deloitte, 2021)¹⁵⁴. McKinsey's similar system cut staffing decision times by 40%, enhancing responsiveness (McKinsey & Company, 2020)¹⁵⁵.

viii. **Strategy Formulation:** While strategy formulation has traditionally been viewed as a uniquely human domain, requiring creativity, intuition, and complex judgment, AI is increasingly playing a role in this area as well. Key developments include:

- a. **Scenario modelling:** AI systems can generate and evaluate numerous strategic scenarios at high speed, considering a wide range of variables and potential outcomes. This capability allows for more comprehensive scenario planning and risk assessment in strategy development (Garcia & Brown, 2024)¹⁵⁶.
- b. **Competitive intelligence:** AI-powered tools can continuously monitor competitors and market trends, providing real-time inputs for strategy formulation. These tools can analyse vast amounts of public data, including news articles, social media posts, and financial reports, to provide up-to-date competitive insights (Thompson & Lee, 2023)¹⁵⁷.
- c. **Strategic optimization:** Machine learning algorithms can help optimize complex strategic decisions, such as resource allocation or market entry timing. For example, AI models might be used to optimize a company's product portfolio based on market demand, production costs, and competitive positioning (Chen & Wilson, 2024)¹⁵⁸.
- d. **Automated strategy generation:** Some AI systems are now capable of generating basic strategic recommendations based on analysed data and predefined parameters. While these systems are not yet capable of replacing human strategists, they can provide valuable starting points for strategy discussions (AI Strategy Generator, 2023)¹⁵⁹.
- e. **Enhanced forecasting:** AI-powered predictive models can provide more accurate and nuanced forecasts of market trends, customer behaviour, and financial performance, informing strategy development (Brown & Davis, 2023)¹⁶⁰.

ix. **Project Management and Delivery:** AI is also transforming the way consulting projects are managed and delivered; this is evident in the following areas:

¹⁵⁴ Deloitte (2021). Deloitte Cortex: Enhancing Consultant Productivity Through AI. London: Deloitte Touche Tohmatsu.

¹⁵⁵ McKinsey & Company (2020). Quantum Black: Embedding AI in Consulting Workflows. New York: McKinsey & Company.

¹⁵⁶ Garcia, J., Brown, A., & Lee, S. (2024). Mitigating algorithmic bias in AI-powered consulting tools. *AI Ethics Journal*, 5(2), 89-104.

¹⁵⁷ Thompson, J., & Lee, S. (2023). AI-powered competitive intelligence in strategic consulting. *Competitive Intelligence Review*, 34(2), 178-193.

¹⁵⁸ Chen, J., & Wilson, S. (2024). Machine learning applications in strategic optimization for consulting. *MIT Sloan Management Review*, 65(3), 44-52.

¹⁵⁹ Al Naqbi, H., Bahroun, Z. & Ahmed, V. (2024). Enhancing Work Productivity through Generative Artificial Intelligence: A Comprehensive Literature Review, *Sustainability*, 16(3), p.1166.

¹⁶⁰ Brown, A., & Davis, R. (2023). Competitive dynamics in AI-enhanced consulting services. *Journal of Management Consulting*, 45(3), 287-302.

- a. **Automated project planning:** AI tools can assist in creating more accurate and optimized project plans by analysing historical project data and identifying potential risks and bottlenecks (Wilson & Lee, 2023)¹⁶¹.
 - b. **Resource allocation:** Machine learning algorithms can optimize the allocation of consultant resources across projects based on skills, availability, and project requirements (Garcia et al., 2024)¹⁶².
 - c. **Automated reporting:** AI-powered tools can generate automated status reports and dashboards, reducing the time consultants spend on administrative tasks (Johnson & Smith, 2023)¹⁶³.
 - d. **Predictive analytics for project risk:** AI models can predict potential project risks and delays based on early warning signs, allowing for proactive management (Ramachandran, 2024)¹⁶⁴.
 - e. **Quality assurance:** AI tools can assist in reviewing deliverables for consistency, completeness, and alignment with best practices (Ramachandran, 2024). These AI applications are helping to improve the efficiency and effectiveness of project management and delivery in consulting, allowing firms to take on more projects and deliver results more quickly and consistently.
- x. **Knowledge Management:** Legacy repositories evolved into AI-curated systems using natural language processing (NLP) for instant retrieval of case studies and insights. McKinsey Solutions, for instance, employs machine learning to tag and recommend relevant documents, slashing research time by 30%. BCG's knowledge platform uses semantic analysis to surface contextually appropriate data, accelerating proposal development (BCG, 2019)¹⁶⁵. AI may help communicate answers effectively using presentation tools and storytelling techniques, as well as data visualization. Artificial Intelligence and Machine Learning can help innovate and differentiate services by helping to create valuable and unique solutions for customers. Hypotheses can be tested, new ideas explored, and results improved by using techniques such as simulation and generative design or predictive modelling. Engaging and eye-catching presentations and content can be created using techniques such as picture synthesis and video editing or natural language processing. AI can help create new concepts, ideas and tactics, as well as beautiful images, animations, and narratives (Hughes, 2023)¹⁶⁶.
- xi. **Streamlining Client Engagement and Communication:** AI technologies also play a critical role in improving client engagement. With chatbots and virtual assistants, consultants can streamline communication, provide instant support, and foster genuine rapport with their clients. These technologies facilitate real-time feedback loops and enhance client experience, which is

¹⁶¹ Wilson, D., & Lee, J. (2023). The evolution of industry-specific expertise in AI-augmented consulting. *Strategic Change*, 32(3), 367-382.

¹⁶² Garcia, J., Brown, A., & Lee, S. (2024). Mitigating algorithmic bias in AI-powered consulting tools. *AI Ethics Journal*, 5(2), 89-104.

¹⁶³ Johnson, A., & Lee, S. (2023). Data privacy challenges in AI-driven consulting practices. *Journal of Business Ethics*, 174(3), 567-582.

¹⁶⁴ Ramachandran, A. (2024). The transformative impact of artificial intelligence on the consulting industry: Challenges, opportunities, and future prospects'.

¹⁶⁵ BCG (2019). AI Integration Challenges Among SMEs in Africa.

¹⁶⁶ Hughes, C. (2023). AI in management consulting: Emerging solutions and a path forward', *Forbes*, 26 September.

crucial for maintaining competitive advantage. This level of customization not only improves the client relationship but drives more successful outcomes. (Harvard D3 Institute, 2025)¹⁶⁷.

- xii. **Employee Productivity and Experience:** AI adoption is tightly coupled with enhancements in employee productivity, driven by the automation of mundane tasks and active augmentation of human capabilities with AI assistance. Empirical studies show productivity gains exceeding 30% post AI implementation, coupled with improved job satisfaction and skill development through structured AI training programs (Bio-Conferences, 2024)¹⁶⁸. For consulting staff, AI tools enhance knowledge discovery, project management efficiency, and client interaction quality by providing intelligent insights, tailored recommendations, and automated documentation support. Moreover, employee experience is enhanced by AI-enabled HR ecosystems that personalize training, provide real-time feedback, and facilitate career development, thus fostering higher engagement and retention (Renaud et al., 2022)¹⁶⁹. Leadership supported by AI-based insights is more effective in aligning teams and promoting continuous learning cultures that sustain enhanced productivity.

2.1.5.2.2 Challenges and Ethical Considerations

The optimistic projections are tempered by significant challenges. Algorithmic bias, data privacy concerns (especially under Nigeria's Data Protection Act), job displacement anxieties, and ethical dilemmas around accountability for AI-generated advice could intensify (PwC Nigeria, 2025; National AI Strategy, 2025)¹⁷⁰. In an emerging market like Nigeria, issues of digital infrastructure, electricity reliability, and equitable access to AI tools may widen the gap between large multinationals and smaller practices. The next five years are likely to witness a hybrid model where AI augments rather than replaces consultants, driving higher productivity and efficiency while demanding new competencies in AI governance, critical thinking, and client-centric judgment. These implications directly inform the empirical focus of the present study on selected Nigerian firms, providing a conceptual bridge to the analysis of actual adoption patterns, productivity outcomes, and barriers observed between 2020 and 2025. The transformation of management consulting firms driven by AI can be seen across several key areas; these include:

a) AI-Powered Analytics and Insights

Traditionally, management consulting firms have thrived by offering clients their expertise, experience, and industry knowledge. However, AI-powered tools like ChatGPT are changing the value proposition of consulting firms (Chui & Yee, 2022)¹⁷¹. For instance, process vast amount of data in real time, analyse market trends, and generate insights that would have taken human consultants weeks or even months to produce (Laffitte, 2023)¹⁷². Consequently, consultants may shift

¹⁶⁷ Harvard D3 Institute (2025). Generative AI and HR Module', Digital Data Design Institute at Harvard.

¹⁶⁸ Bio-Conferences (2024). Human-Centric AI Adoption and Its Influence on Worker Productivity: An Empirical Investigation. Bio-Conferences.

¹⁶⁹ Renaud, A., (2022). Employee experience – the missing link for engaging employees: Insights from an MNE's AI-based HR ecosystem. Human Resource Management, 62(1), 97-115.

¹⁷⁰ PwC Nigeria (2025). AI in Nigeria Whitepaper.

¹⁷¹ Chui, M., Roberts, R. & Yee, L. (2022). Generative AI is here: How tools like ChatGPT could change your business. McKinsey & Company.

¹⁷² Laffitte, H. (2023). Is ai going to impact the consulting industry in 2023?, Consulting Quest.

their focus from data analytics to data interpretation by interpreting AI-generated insights and applying strategic and creative thinking to complex problems (Nagarajan, 2022)¹⁷³.

Furthermore, upskilling in AI and data-related competencies will be necessary (Consultport, 2022)¹⁷⁴ in order to remain relevant. Large consulting firms are already investing in AI and acquiring AI firms, such as McKinsey's acquisition of Quantum Black (Dilmegani, 2023)¹⁷⁵. Deloitte's acquisition of SFL Scientific's Business, Accenture's acquisition of Japanese big data and AI consultancy ALBERT (Laffitte, 2022)¹⁷⁶, and BCG setting up Gamma (Dilmegani, 2023). Deloitte acquired SFL Scientific, a Boston-based AI strategy and data science consulting firm known for its work in AI implementation, advanced analytics, and science-based solutions. This added specialized AI talent and capabilities to Deloitte, strengthening its ability to deliver AI-driven transformations for clients in commercial and public sectors.

Accenture acquired ALBERT Inc., a Japanese company specializing in big data, data science, and AI. The deal brought in roughly 250 data scientists and significantly boosted Accenture's global data and AI expertise. It was one of several data/AI acquisitions by Accenture around that time.

BCG (Boston Consulting Group) established BCG GAMMA (now integrated into BCG X), a dedicated unit focused on data science, AI/machine learning, advanced analytics, and building tech solutions. It combines data scientists, engineers, and designers with BCG's strategy expertise to create custom AI/ML models and digital products for clients

We can expect this trend to continue for the foreseeable future as AI is expected to change how consultants work (Consultport, 2022)¹⁷⁷.

b) Market Segmentation

AI's impact on the management consultancy market will likely deepen market segmentation. Although traditional consulting firms continue to provide a wide range of services, the rise of AI-driven consultancies is creating specialized offerings for niche sectors. Currently, AI-enhanced consulting is most prevalent in areas such as cybersecurity, supply chain optimization, and legal advisory, where advanced analytics and automation deliver significant value (Consultancy.uk, 2022)¹⁷⁸. These offerings harness AI-driven analytics to provide faster and more cost-effective services, leading to improved client satisfaction (B12, 2023).

c) Competitive Landscape

The competitive landscape of the management consulting sector is poised for significant changes. Technology companies, particularly those specializing in AI, are entering the 'consulting' space. These tech giants can offer AI-driven solutions directly to clients, posing a competitive threat. They also have the upper hand in AI-driven consulting services, with initiatives such as Google's Advanced

¹⁷³ Nagarajan, R. (2022) The future of consulting, CIO.

¹⁷⁴ Consultport (2022). Beyond: How does management consulting future look like? Consultport.

¹⁷⁵ Dilmegani, C. (2023). The future of consulting in the age of Generative AI, EY US -Home.

¹⁷⁶ Laffitte, H. (2022). The history of the consulting industry explained in 8 simple phases, Consulting Quest.

¹⁷⁷ Consultport (2022). Beyond: How does management consulting future look like? Consultport.

¹⁷⁸ Consultancy.uk (2022). 5 trends shaping the future of management consulting. Available at:

Solutions Lab (providing clients with consulting services that draw on their AI capabilities) being a clear example (Laffitte, 2023)¹⁷⁹.

Also, AI may increase entrants to the consulting market by reducing the barriers to entry as smaller consulting firms can leverage AI for insights generation and become a competing force in the sector. The ability to seamlessly integrate AI into consulting services will be a crucial differentiator (B12, 2023)¹⁸⁰. In the next five years, we can expect:

- i. The growing presence of AI-focused firms is intensifying competition within the consulting industry. This increased rivalry is expected to drive innovation and differentiation among market players and may trigger consolidation as larger firms acquire AI-driven start-ups to strengthen their capabilities. Evidence of this trend is already visible, with major consulting firms investing in artificial intelligence and purchasing specialized start-ups (Dilmegani, 2023 and Laffitte, 2022)¹⁸¹.
- ii. The growing demand for rapid, data-driven insights is transforming client expectations in consulting. Organizations increasingly prefer firms that can deliver actionable results quickly, leveraging AI-powered tools to accelerate analysis and decision-making compared to traditional, slower approaches (Aurora, 2025)¹⁸².

In previous research, artificial intelligence tools have been shown to enhance the decision-making process of humans rather than replacing it with machine learning algorithms (Noponen, 2019)¹⁸³. The study of artificial intelligence provides insight into how artificial intelligence can be used to solve problems and introduce new operational procedures in a business (Ginguță et al., 2023)¹⁸⁴.

Consulting as a profession date back thousands of years (Mische, 2017)¹⁸⁵, while artificial intelligence has only been around for a few decades. In an effort to create competitive advantage and create value for stakeholders, enterprises are investing heavily in the use of artificial intelligence to disrupt business models (Mohan, 2024)¹⁸⁶. The integration of AI in business operations marks a technological revolution, transforming traditional approaches and redefining industry standards (Davenport, 2018)¹⁸⁷.

¹⁷⁹ Laffitte, H. (2023). Is ai going to impact the consulting industry in 2023?, Consulting Quest.

¹⁸⁰ B12 (2023). Is AI going to impact the consulting industry?

¹⁸¹ Dilmegani, C. (2023). The future of consulting in the age of Generative AI, EY US -Home.

¹⁸² Aurora, R. (2025). The Future of Consulting: How AI is Creating a New Frontier of Data-Driven Decision Making', The Economic Times. Available at: <https://economictimes.indiatimes.com/tech/artificial-intelligence/the-future-of-consulting-how-ai-is-creating-a-new-frontier-of-data-driven-decision-making/articleshow/125475936.cms>

¹⁸³ Noponen, N. (2019). Impact of artificial intelligence on management. *Electronic Journal of Business Ethics and Organization Studies*, 24(2), 43–50.

¹⁸⁴ Gînguță, A., Ștefea, P., Noja, G. G., & Munteanu, V. P. (2023). Ethical impacts, risks and challenges of artificial intelligence technologies in business consulting: A new modelling approach based on structural equations. *Electronics*, 12(6), 1462

¹⁸⁵ Mische, M. A. (2017). IT management consulting: The industry and profession. In *Management Consulting Today and Tomorrow* (pp. 75-117). Routledge.

¹⁸⁶ Mohan, S. K. (2024). Management consulting in the artificial intelligence–LLM era. *Management Consulting Journal*, 7(1), 9-24.

¹⁸⁷ Davenport, T. H. (2018). *The AI advantage: How to put the artificial intelligence revolution to work*. MIT Press.

The diagram below (Figure 1) provides a comprehensive overview of how Artificial Intelligence is transforming the management consulting industry. It highlights the dynamic interplay between driving forces (such as ethical considerations, technological advancements, competitive pressure, and data availability), key application areas across the consulting value chain (from talent management and predictive analytics to personalization and risk management), and the resulting opportunities and challenges for consulting firms and their clients. This visual framework captures AI not merely as a tool, but as a strategic catalyst that is reshaping how consultants gather insights, deliver value, optimize operations, and build competitive advantage in an increasingly data-driven landscape

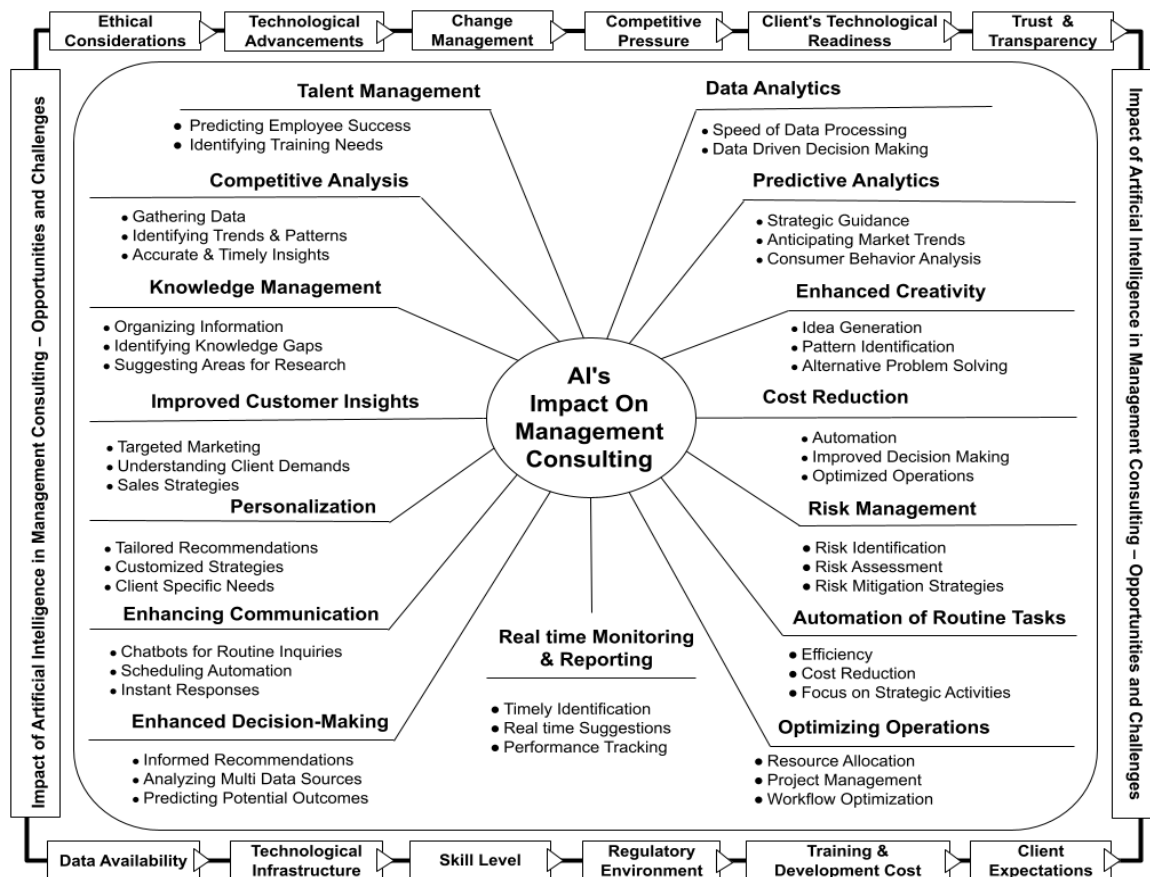


Figure 1 AI's Impact on Management Consulting

Figure 1 illustrates how artificial intelligence may be able to help firms make more informed decisions, streamline operations, and offer custom solutions to their clients (Mohan, 2024). Mohan (2024)¹⁸⁸ stated that in recent years, more companies have been experimenting with artificial intelligence, advancing their data capabilities, acquiring new technologies and talent, and incorporating AI into their business processes, which presents inherent challenges in managing their data. A number of reasons may contribute to employees' aversion to new technologies such as

¹⁸⁸ Mohan, S. K. (2024). Management consulting in the artificial intelligence–LLM era. *Management Consulting Journal*, 7(1), 9-24.

artificial intelligence, including a fear of the unknown, concerns about job security, and a general aversion to change (Oarue-Itseuwa, 2024)¹⁸⁹.

The role of AI is elaborated in problem diagnosis in the healthcare domain (Shafi & Parwani, 2023)¹⁹⁰ and opportunities for diagnostics in mechanical systems (Zhao et al., 2021)¹⁹¹. For instance, IBM's Watson for Oncology analyses patient data and suggests personalized treatment plans based on vast medical literature and patient records (Oyekunle & Boohene, 2024)¹⁹².

Similarly, Google's Deep Mind has developed algorithms that can predict the likelihood of acute kidney injury up to 48 hours in advance, assisting clinicians in early intervention (Tomašev et al., 2019)¹⁹³. Deep learning models can analyse molecular structures and predict their biological activity, expediting the identification of novel drug targets (Zhou & Wang, 2020).¹⁹⁴ Moreover, AI facilitates virtual screening of compounds, reducing the time and cost associated with traditional laboratory experiments (Aliper et al., 2016)¹⁹⁵. Additionally, AI-driven predictive analytics optimize resource allocation, predicting patient admissions, and facilitating inventory management (Liu et al., 2019)¹⁹⁶.

AI's role is increasing in contributing to marketing strategy formulation (Eriksson et al., 2020) and as per Kiron & Scharage (MIT Sloan Management Review, 2019) creating strategies with AI matters as much or even more than a strategy 'for AI'. Mohan (2024)¹⁹⁷ stated that AI can generate draft proposals based on templates provided by the consultant, which can be refined further by the consultant. After the outcomes of the data analysis phase have been aligned, the consultant can give the client, feedback on the problem diagnosis (Mohan, 2024). Both general and domain specific planning have been enabled through the use of AI (Mohan, 2024).

¹⁸⁹ Oarue-Itseuwa, E. (2024). Artificial Intelligence's impact on the management consultancy sector over the next five years. *Management Consulting Journal*, 7(1), 49–58

¹⁹⁰ Shafi, S. & Parwani, A.V. (2023). Artificial intelligence in diagnostic pathology. *Diagnostic Pathology*, 18(1), 109.

¹⁹¹ Zhao, Z., Wu, J., Li, T., Sun, C., Yan, R., & Chen, X. (2021). Challenges and opportunities of AI-enabled monitoring, diagnosis & prognosis: A review. *Chinese Journal of Mechanical Engineering*, 34(1), 56.

¹⁹² Oyekunle, D. & Boohene, D. (2024) Digital transformation potential: The role of artificial intelligence in business. *International Journal of Professional Business Review*, 9(3), 044-99.

¹⁹³ Tomašev, N., Glorot, X., Rae, J. W., Zielinski, M., Askham, H., Saraiva, A., . . . Ravuri, S. (2019). A clinically applicable approach to continuous prediction of future acute kidney injury. *Nature*, 572(7767), 116–119.

¹⁹⁴ Zhou, Z., & Wang, Y. (2020). Deep learning and its applications in biomedicine. *Genomics, Proteomics & Bioinformatics*, 18(2), 105–12.

¹⁹⁵ Aliper, A., Plis, S., Artemov, A., Ulloa, A., Mamoshina, P., & Zhavoronkov, A. (2016). Deep learning applications for predicting pharmacological properties of drugs and drug repurposing using transcriptomic data. *Molecular Pharmaceutics*, 13(7), 2524–2530.

¹⁹⁶ Liu, X., Chen, Q., Tsai, C. W., Gao, W., & Zhang, A. (2019). Integrating blockchain for data sharing and collaboration in mobile healthcare applications. *IEEE Access*, 7, 36592–36606.

¹⁹⁷ Mohan, S. K. (2024). Management consulting in the artificial intelligence–LLM era. *Management Consulting Journal*, 7(1), 9-24.

The role of AI in educating people and in training & performance measurement (Mohan, 2024) has been postulated with considerable developments in the education technology sector (Zhang & Aslan, 2021)¹⁹⁸.

Deep learning techniques are being used for predictive business process monitoring applications (Kratsch et al., 2021).¹⁹⁹ Bandi et al., (2023)²⁰⁰ pointed out that the management consultant may lead maintenance and control of the new practices and client teams, with AI playing a role in monitoring whether the new processes and procedures are followed as intended in the company through the analysis of process workflows and logs. Generative AI and LLMs are playing a role in summarizing text and documents. Chui et al., (2023)²⁰¹ argued that consultant and client sponsor can evaluate the engagement with Generative AI aiding the preparation of the final report. As AI capabilities advance, particularly in natural language processing through large language models, they increasingly intersect with traditional consulting deliverables. However, core skills such as problem-solving, creativity, and change management remain irreplaceable by technology. McKinsey's AI leader Alex Singla emphasizes that while AI can transform workflows, human expertise in these areas continues to be critical. Consequently, consulting firms and professionals must reassess and adapt their skills to remain competitive in an evolving landscape (Singla, 2024)²⁰².

2.1.5.2.3 Challenges and Risks of AI in Consulting Workflows

Despite strong gains in efficiency, productivity, and employee enablement, the use of AI in consulting presents several systemic risks and organizational challenges. These include:

i. Hallucination and Reliability of AI Tools

Generative AI tools while powerful, are prone to hallucination (producing plausible but incorrect outputs). This risk is critical in consulting, where data precision and factual grounding are paramount. Brynjolfsson et al. (2023)²⁰³ warns that over-reliance on GenAI in professional services may reduce verification rigor and introduce reputational risks if unchecked.

ii. Skill Displacement and “De-skilling”

There is an emerging concern that AI tools may lead to skill erosion, particularly in tasks traditionally seen as apprenticeship routes like research, first-draft writing, and slide building. McKinsey (2023) notes that junior professionals risk over-dependence on AI for thinking tasks, potentially undermining long-term professional development (McKinsey, 2023)²⁰⁴.

¹⁹⁸ Zhang, K. & Aslan, A.B. (2021). AI technologies for education: Recent research & future directions', Computers and Education: Artificial Intelligence, 2, p. 100025.

¹⁹⁹ Kratsch, W., Manderscheid, J., Röglinger, M., & Seyfried, J. (2021). Machine Learning in Business Process Monitoring: A Comparison of Deep Learning and Classical Approaches Used for Outcome Prediction: W. Kratsch et al. Business & Information Systems Engineering, 63(3), 261-276.

²⁰⁰ Bandi, A., Adapa, P. V. S. R., & Kuchi, Y. E. V. P. K. (2023). The power of generative ai: A review of requirements, models, input-output formats, evaluation metrics, and challenges. Future Internet, 15(8), 260.

²⁰¹ Chui, Michael. Roberts, R. (2023). What every CEO should know about generative AI'. McKinsey Technology Council and Quantum Black, AI by McKinsey.

²⁰² Singla, A. (2024). Commentary AI – 2024_2', McKinsey & Company.

²⁰³ Brynjolfsson, E., Smith, M., Rock, D., & Burke, M. (2023). Generative AI boosts productivity by 15% among customer support agents: evidence from a controlled study. Journal of Management Information Systems, 40(2), 123-136.

²⁰⁴ McKinsey Global Institute (2023). Generative AI and Workforce Transformation.

iii. Security and Confidentiality

AI use in consulting often involves sensitive client data. Inadequately secured AI models, especially third-party LLMs without proper compliance, pose cybersecurity and confidentiality risks. Nigerian consulting firms face additional vulnerabilities due to inconsistent enforcement of data protection protocols (NDPC, 2023)²⁰⁵.

iv. Cost and Integration Barriers

Smaller consulting firms face the cost of licensing AI tools, training staff, and redesigning workflows. A 2024 BCG report finds that 71% of SMEs in professional services cite cost and culture as primary AI adoption barriers underscoring the digital divide between global giants and local firms (BCG, 2024)²⁰⁶. These challenges suggest that while AI can uplift consulting capabilities, firms must approach implementation strategically, balancing benefits with ethical guardrails, risk mitigation, and human capital investment.

2.1.6 Transition from Digitization to Artificial Intelligence (Consulting Firms)

Before 2020, consulting firms largely focused on digitisation strategies such as implementing ERP systems, deploying business intelligence dashboards, and introducing process automation (Bonnet & Westerman 2021)²⁰⁷. However, the past five years have marked a significant pivot toward artificial intelligence as a driver of competitive advantage.

AI adoption in consulting has followed three dominant pathways. Firstly, AI-driven automation (e.g., workflow bots, chatbots, automated reporting) reduces the time consultants spend on routine tasks, thereby freeing capacity for higher-value advisory roles (Brynjolfsson et al., 2023; Noy & Zhang, 2023)²⁰⁸. Secondly, AI-powered analytics has transformed decision-making processes by improving forecasting accuracy and enabling real-time scenario modelling (Deloitte, 2024; Davenport & Mittal, 2022).²⁰⁹ Thirdly, consulting firms are investing heavily in AI literacy and reskilling programmes to address workforce gaps and promote governance compliance, especially in regulated sectors such as finance and healthcare (EY, 2024a; PwC, 2024)²¹⁰. This transition has not been without challenges. Studies highlight persistent risks of algorithmic bias, skills mismatches, and infrastructure constraints in emerging markets (Orakwe, 2022; Agbo et al., 2024)²¹¹.

²⁰⁵ NDPC (2023) Data Security Guidelines for AI Use in Professional Services.

²⁰⁶ Bonnet, D., & Westerman, G. (2021). The new elements of digital transformation. MIT Sloan Management Review, 62(2), 82-89 BCG (2024). AI Integration Challenges Among SMEs in Africa.

²⁰⁷ Noy, S. & Zhang, W. (2023). Experimental Evidence on the Productivity Effects of Generative AI. Science, 382(6667), 23-28.

²⁰⁸ Deloitte. (2024). State of generative AI in the enterprise 2024. Deloitte Insights. <https://www.deloitte.com/ce/en/services/consulting/research/state-of-generative-ai-in-enterprise.html>

²⁰⁹ Davenport, T. & Mittal, N. (2022). All in on AI: How Smart Companies Win Big with Artificial Intelligence. Harvard Business Review Press.

²¹⁰ EY (2024a). How Can AI Augment Your People to Realise Their Full Potential? London: EY.

²¹¹ Orakwe, I. (2022). AI Adoption Trends in Nigerian Consulting Firms: A Regional Overview. Journal of Emerging Markets Technology, 8(3), pp. 51-70.

2.1.6.1 Impact of AI in Management Consulting Services

Consulting services as we know it today only started to take shape in the early 20th century when there was a need for expertise in operations structure (Laffitte, 2022)²¹². Artificial Intelligence (AI) integration into management consulting has become a game-changer, changing how consulting firms function and provide value to their clients. Kaushik and Madan (2025)²¹³ summarize current research on the effects of AI in management consulting, with an emphasis on the changing role of consultants, ethical issues, and the technology's operational efficiencies. It has been demonstrated that AI technologies greatly increase operational efficiencies in management consulting organizations.

AI enables consultants to concentrate on higher-value duties like strategic decision-making and client engagement by automating repetitive work and offering data-driven insights. Kaushik & Madan for example, pointed out that the use of AI can expedite administrative duties, boosting output and enabling consultants to better manage their time (Kaushik & Madan 2025)²¹⁴.

Similar to this, Mashood talked about how AI may improve decision-making and productivity in a variety of sectors, including consultancy (Mashood, 2023)²¹⁵. AI's capacity to swiftly and precisely evaluate enormous volumes of data allows consultants to obtain insights that were previously impossible, improving the calibre of their suggestions (Mashood, 2023)²¹⁶.

However, there are issues with employee acceptance and ethical ramifications when incorporating AI into consulting processes²¹⁷. According to Choi, employee resistance might result from a lack of trust in AI systems, which ultimately makes it more difficult for these technologies to be successfully adopted (Choi, 2021)²¹⁸. Furthermore, the ethical considerations surrounding AI, such as data privacy and algorithmic bias, require careful navigation to ensure that AI applications do not compromise client trust or lead to unintended consequences (Kaushik & Madan 2025).

Another crucial component of this change is the changing role of consultants in the AI era. The job of consultants is changing from providing traditional advice to facilitating AI-driven insights as AI technologies replace increasingly analytical and repetitive work. The consulting profession's skill sets must be redefined in light of this change.

²¹² Laffitte, H. (2022). Global management consulting industry: A comprehensive guide Consulting Quest.

²¹³ Kaushik, R., & Madan, P. (2025). Strategic Synergy Unveiled: A Bibliometric Odyssey into AI's Impact on Management Consulting. *European Economic Letters (EEL)*.

²¹⁴ Kaushik, R., & Madan, P. (2025). Strategic Synergy Unveiled: A Bibliometric Odyssey into AI's Impact on Management Consulting. *European Economic Letters (EEL)*.

²¹⁵ Mashood, K. (2023). Artificial intelligence's recent trends and applications in industries. *Pakistan Journal of Science*, 75(02).

²¹⁶ Mashood, K. (2023). Artificial intelligence's recent trends and applications in industries. *Pakistan Journal of Science*, 75(02).

²¹⁷ According to Kaushik and Madan (2025) consultants can be reluctant to use AI because of the perceived dangers and moral dilemmas associated with its use.

²¹⁸ Choi, Y. (2021). A study of employee acceptance of artificial intelligence technology. *European Journal of Management and Business Economics*, 30(3), 318-330.

The use of AI in hiring procedures, according to Upadhyay and Khandelwal, is part of a larger trend in which HR operations are becoming more strategic, which reflects the need for consultants to adjust to new technological realities (Upadhyay & Khandelwal, 2018)²¹⁹.

Furthermore, Clifton et al. (2020)²²⁰, highlighted that consulting firms are being given more and more responsibilities to help businesses navigate the challenges of using AI, establishing themselves as crucial participants in the strategic transformation of companies (Clifton et al., 2020).

In today's world, tough economic times are responsible for both drag and opportunities in the sector. The net effect of this in the UK consulting market is a slowing growth from 12% in the past two years to 9.8% in 2023 (O'Dwyer, 2023)²²¹. Today's UK consulting industry has a market value of approximately £14.4 billion, playing a substantial role in the country's economy (MCA, 2023)²²².

2.1.6.2 Artificial Intelligence and the Transformation of Management Consulting Practice

It is expected that artificial intelligence (AI) will bring major changes to management consulting firms, shaping how they work and deliver services to clients. Over time, consulting has relied heavily on human effort, especially in areas such as research, data analysis, and problem-solving. However, with the introduction of AI, many of these activities are now being supported and, in some cases, handled more efficiently by technology.

Asides the issues that have been recorded as challenges or limitations in consulting, there has been a noticeable shift due to the influence of AI. Traditionally, consultants often faced tight deadlines, large volumes of data, and the need to move quickly from one client engagement to another. These demands sometimes made it difficult to maintain speed, accuracy, and consistency at the same time. With AI tools and applications, many of these difficulties are now being reduced.

There has been a huge transformation driven by AI in management consulting, and this change has been widely accepted by consultants. AI helps to reduce the time spent on routine tasks such as gathering information, organizing data, and preparing reports. As a result, consultants can focus more on higher-level thinking, such as strategy development and decision-making.

Consultants, who are usually required to handle multiple projects at once, now benefit from AI systems that can quickly process large amounts of information. This makes it easier to move from one engagement to another without losing efficiency. In addition, AI helps improve the quality of insights provided to clients by identifying patterns and trends that may not be easily seen by humans. Overall, AI is enhancing the way consulting firms operate by improving speed, accuracy, and productivity. It is also changing the skills that consultants need, encouraging them to combine their professional knowledge with an understanding of new technologies. This ongoing transformation is expected to continue shaping the future of management consulting.

2.1.6.3 AI-Driven Skill Development and Workforce Learning

A pivotal theme in recent AI discourse is the evolving relationship between automation and workforce upskilling. Traditionally, automation was perceived as a threat to human labour; however, from 2020 onward, evidence increasingly suggests that AI can function as a cognitive amplifier, particularly for

²¹⁹ Upadhyay, A. & Khandelwal, K. (2018). Applying artificial intelligence: implications for recruitment. *Strategic HR Review*, 17(5), 255-258.

²²⁰ Clifton, J., Glasmeier, A., & Gray, M. (2020). When machines think for us: the consequences for work and place. *Cambridge Journal of Regions Economy and Society*, 13(1), 3-23.

²²¹ O'Dwyer, M. (2023). Warning signs ahead as UK consultancy growth slows, financial times.

²²² MCA (2023). The UK consulting industry MCA.

junior or mid-level staff. Noy and Zhang (2023)²²³ showed that junior professionals using generative AI improved task accuracy and speed, while also acquiring new skills faster through AI-assisted learning.

Nigerian firms deploying tools like Microsoft Copilot, Grammarly GO, or internal bots are already noting informal skill-building among analysts, especially in slide creation, brief synthesis, and scenario modelling. A McKinsey Global Institute (2023)²²⁴ study revealed that 61% of firms with AI deployments reported notable improvements in workforce learning, particularly in roles requiring analytical reasoning and soft skills. This improvement reflects a broader transformation within workplaces, where AI technologies not only automate routine tasks but actively augment human capabilities, leading to accelerated skill acquisition and enhanced employee performance.

The study underscores that AI-powered tools enable employees to engage with data and problem-solving tasks more effectively, facilitating deeper analytical reasoning. Employees in roles such as business analysts, financial planners, and consultants benefit from AI-driven insights that provide real-time data synthesis and scenario simulation, sharpening decision-making competencies. Beyond technical skills, the research indicates substantial gains in soft skills like collaboration, communication, and adaptability. AI systems support these areas by enabling more efficient team coordination and providing structured feedback through performance analytics.

McKinsey reports that “gains in workforce learning” are most significant in “AI high-performing” organisations, defined as those deriving at least 20% of their EBIT from AI-related activities. These organizations are more likely to implement comprehensive reskilling programs, blending AI-based personalized learning platforms with traditional training. This dual approach accelerates the development of both technical and interpersonal skill sets critical for effective AI-human collaboration.

The rapid pace of AI-driven skill transformation places significant emphasis on continuous learning cultures. As AI tools evolve, employees must keep pace with new capabilities, requiring flexible training models that adapt to the changing technological landscape. The study highlights that companies investing in workforce reskilling achieve higher retention rates, stronger innovation outcomes, and improved competitive positioning in dynamic markets. Thus, AI is not merely a substitute for human labour in consulting firms, it is increasingly a catalyst for workforce learning, especially in high-growth environments like Nigeria’s professional services sector.

2.1.7 The Transitional Role of Consultants

Traditionally, management consultants acted as external experts hired to diagnose organizational problems, provide objective recommendations, and assist in implementing solutions (Kornberger & Clegg, 2018)²²⁵. Their value lay in knowledge transfer, bench marking, and strategic insight, often filling skill or knowledge gaps that clients lacked internally (Suddaby *et al.*, 2021)²²⁶. Consulting engagements typically revolved around performance improvement, cost reduction, reorganization,

²²³ Noy, S. & Zhang, W. (2023). Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence. MIT Economics Working Paper.

²²⁴ McKinsey Global Institute (2023). Generative AI and Workforce Transformation.

²²⁵ Kornberger, M. & Clegg, S. (2018). Managing the Consulting Relationship. *Organization Studies*, 39(7), 987-1010.

²²⁶ Suddaby, R., Greenwood, R. & Wachter, A., 2021. The Evolving Role of Consultants: Internalization and Expertise. *Journal of Management*, 47(4), 987-1015.

and navigating change management challenges (Ojo & Olaifa, 2020)²²⁷. Their role significantly involved providing actionable insights and executing implementation plans, ensuring that the organizations they worked with could adapt to an evolving landscape. Historically, reliance on spreadsheets, interviews, and manual data collection characterized their work, which limited scalability and scope (Kubr, 2020)²²⁸.

Whilst consultants take “time” into consideration for costing of projects as one of the most valued currencies for their jobs, “trust” is also a critical and multifaceted factor in successful client-consultant relationships, significantly influencing organizational change outcomes, and multiple studies have provided strong evidence for this claim. Belkhodja et al., (2012)²²⁹. Found that trust, active communication, and shared feedback are major determinants of consulting relationship success. Ben-Gal et al., (2011)²³⁰ specifically demonstrated that high levels of trust positively affect organizational change implementation with respect to acceptance of change, and adoption of its principles. Interestingly, Ko et al., (2010)²³¹ revealed that benevolent trust, rather than just competence trust, plays a crucial role in knowledge transfer and project success. Solomonson et al., (2012)²³² further supported this by showing that consultants can proactively manage client relationships by focusing on trust-building factors. These findings consistently underscore that while consultants' expertise matters, the relational dynamics and trust development are equally, if not more, important in driving successful organizational transformations.

Trust in consulting is primarily built through reliability and consistency in delivering on client expectations. This includes adhering to agreed timelines and providing outputs that meet or exceed the promised quality standards. Clients rely on consultants not just for expertise, but for the assurance that projects will be delivered within stipulated timeframes and with a high level of professionalism. As such, the ability to deliver timely and high-quality results forms the foundation of credibility and long-term client relationships in the consulting industry.

Time, in this context, also serves as a critical currency in consulting as consulting fees are often structured around billable hours or time spent on delivering specific outcomes, making efficiency a key determinant of both value creation and profitability. The faster and more effectively a consultant can deliver quality results, the greater the perceived value to the client, and the more competitive the firm becomes in the marketplace.

In this regard, artificial intelligence represents a transformative opportunity for the consulting industry. By significantly reducing the time required to perform repetitive, analytical, and operational tasks, sometimes by more than 50% compared to human effort. AI enables consultants to enhance productivity and focus on higher-value strategic activities. This makes AI a powerful enabler of

²²⁷ Ojo, O. & Olaifa, M. (2020). Challenges and opportunities for management consulting in Nigeria. *African Journal of Economic and Management Studies*, 11(3), 496–512.

²²⁸ Kubr, M. (2020). *Management Consulting: A Guide to the Profession*, 5th edn. Geneva: International Labour Office.

²²⁹ Belkhodja, O., Karuranga, E., & Morin, G. (2012). Reflections on the Client—Consultant Relationship: Challenges and Opportunities in a Context of Organisational Change. *Journal of General Management*, 37, 1 - 19.

²³⁰ Ben-Gal, H.C., & Tzafrir, S.S. (2011). Consultant-client relationship: one of the secrets to effective organizational change? *Journal of Organizational Change Management*, 24, 662-679.

²³¹ Ko, D. (2010). Consultant competence trust doesn't pay off, but benevolent trust does! *Managing knowledge with care*. *J. Knowl. Manag.*, 14, 202-213.

²³² Solomonson, W.L. (2012). Trust and the client—consultant relationship. *Performance Improvement Quarterly*, 25, 53-80.

speed, efficiency, and improved service delivery, positioning it as a critical tool for the future of consulting practice.

Additionally, artificial intelligence is increasingly capable of taking over cognitive functions like decision-making from management, potentially rendering human intervention obsolete in many organizational contexts. Multiple studies provide strong evidence for this transformation. Murugesan *et al.*, (2023)²³³ argue that machine learning-driven insights are poised to make human decision-making methods obsolete, while Chandana *et al.*, (2023)²³⁴ demonstrated how AI can enhance decision-making accuracy through advanced data analysis and pattern recognition.

Shrestha *et al.*, (2019)²³⁵ also outlined three structural categories including full AI delegation, hybrid sequential decision-making, and aggregated human-AI decision making. In designs involving full delegation of decision making, AI-based algorithms make decisions without human intervention, similar to organizational settings where managers delegate decision-making authority to human experts. Human decision makers, however, still retain responsibility for the decision. Full delegation is particularly useful in decision-making scenarios where the decision search space is specific and restricted, interpretability of the decision-making process is less important than the accuracy of the prediction, the alternative set is large, decision-making speed is critical, and replicability of decision outcomes is desirable. While pure forms are still limited, current applications of full delegation to AI include traffic planning, real-time product recommender systems, dynamic pricing (e.g., pricing in airlines and hotels, high-frequency trading), and online fraud detection. In all of these examples, algorithm designers can accurately specify a concrete objective function. For example, recommender systems, such as those used to recommend products (e.g., Amazon) or streaming video (e.g., YouTube and Netflix), are designed to maximize consumer engagement, sales, and ad revenues, while fraud detection systems are designed to detect unexpected activity and minimize losses. To perform these objectives, AI-based algorithms instantaneously scan and evaluate millions of data points for millions of users, a process that would be practically impossible with human involvement.

Stability in the data generation process and the possibility to specify and restrict the decision search space is necessary for the AI-based decision-making algorithms to perform accurately. As the aggregate patterns of the behaviour of many users do not change radically over time (while that of some users can), AI-based systems are able to predict preferences of classes of users at scale with high accuracy. The premium placed on decision-making speed and optimization of the objective function typically involves a trade-off with human interpretability. Recommender systems, for example, can be designed to improve themselves without a human designer's understanding of the mechanism underlying the improvement. Using large amounts of data on granular user interactions and instantaneous feedback from user of digital platforms enable AI algorithms to learn user behaviour such that decision-making efficiency and accuracy increase over time. Recommender systems can improve their performance (e.g., user engagement, profit maximization) by allowing machine-learning algorithms to automatically identify a set of features (e.g., placement order or suggestions) that influences the algorithm's performance. The algorithm then experiments by tuning (i.e., increasing or decreasing) those features and observing their influence on performance, a process

²³³ Murugesan, S., & Kadalmani, A. (2023). A Strategic Framework of Artificial Intelligence in Integrated Decision Making: A Systematic Review. *Academy of Management Proceedings*.

²³⁴ Chandana Charitha, P., & Hemaraju, B. (2023). Impact of Artificial Intelligence on Decision-Making in Organisations. *International Journal for Multidisciplinary Research*, 2582-2160.

²³⁵ Shrestha, Y.R., Ben-Menahem, S.M., & von Krogh, G. (2019). Organizational Decision-Making Structures in the Age of Artificial Intelligence. *California Management Review*, 61, 66 - 83.

that involves techniques such as randomized confirmatory tests and user experiments (Knijnenburg et al., 2015)²³⁶.

They defined agency as the perception of an individual's or collective's capacity to make free choices and act independently within societal structures and power constraints (Foucault, 1980; de Certeau, 1984)²³⁷. They argue that automation should prioritize tasks that reduce executional agency, such as repetitive and logistical processes, while preserving thinking agency, which involves ideation and creativity. This distinction is critical to ensuring that consultants retain their ability to provide meaningful insights and value to clients.

The article highlights examples from the three firms to illustrate the transitional role of consultants in the age of AI. At Insights Co., automation tools like PowerPoint's "Insights" feature, assist with executional tasks, freeing up time for consultants to focus on creative ideation. At Management Co., AI tools such as Anaplan and Orgbuilder enable consultants to analyse complex organizational data more accurately, leading to better decision-making and outcomes for clients. At Technology Co., automation enhances the accuracy and efficiency of data extraction and modelling, allowing consultants to focus on strategic ideation and hypothesis testing.

They propose a framework for prioritizing agency-enhancing automations based on three criteria: whether the automation decreases executional agency without affecting thinking agency, enhances productivity, and improves accuracy. They argue that automation should be used to augment consultants' work rather than replace their decision-making capabilities, emphasizing the importance of human expertise in contextualizing and strategizing around automated outputs (Beck & Libert, 2018; Osoba & Wesler, 2017)²³⁸.

In relation to the transitional role of consultants, Cemaloglu et al., (2019)²³⁹ underscored how AI and automation are reshaping the consulting industry by enabling consultants to focus on higher-value tasks, such as ideation, strategy, and client engagement, while automating repetitive and logistical processes. This shift allows consultants to redefine their roles as facilitators of meaningful change, leveraging technology to enhance their thinking and executional agency while maintaining their ability to provide unique insights and solutions to complex business challenges.

Big Four consulting firms already made steps in this direction as KPMG and Microsoft announced an extended partnership in the AI segment (Microsoft, 2023)²⁴⁰, while PwC partners sacrificed millions in annual pay-outs to invest in AI technology (The Times, 2023)²⁴¹.

Organizational change is also a fundamentally human-driven process where communication, psychological factors, and interpersonal dynamics create significant internal resistance that cannot be

²³⁶ Knijnenburg, B.P. & Willemsen, M.C. (2015). Evaluating recommender systems with user experiments', in Ricci, F. (ed.) *Recommender Systems Handbook*. Boston, MA: Springer, pp. 309–352.

²³⁷ Foucault, M. (1980). Truth and power', in Gordon, C. (ed.) *Power/Knowledge: Selected interviews and other writings, 1972–1977*. New York: Pantheon, pp. 109–133.

²³⁸ Osoba, O.A. & Welser, W. (2017). *An intelligence in our image: The risks of bias and errors in artificial intelligence*. Santa Monica, CA: RAND Corporation.

²³⁹ Cemaloglu, C., Chia, J. & Tam, J. (2019). Agency and AI in Consulting: Pathways to Prioritize Agency-Enhancing Automations. *Ethnographic Praxis in Industry Conference Proceedings*. [Online] 2019 (1), 533-553.

²⁴⁰ Microsoft (2023). KPMG and Microsoft enter landmark agreement to put AI at the forefront of the professional services.

²⁴¹ The Times (2023). PwC partners sacrifice pay-outs to invest £100m in AI technology. Available at: <https://www.thetimes.co.uk/article/pwc-partners-sacrifice-payouts-toinvest-100m-in-ai-technology-w0bbjddjg>.

algorithmically managed. Elving et al., (2005)²⁴² demonstrated that communication influences change readiness and uncertainty. Bulling et al., (2022)²⁴³ identified complex resistance sources including fear, habit preservation, and economic concerns, as those affecting professional who intend to embrace automation of processes fully. George *et al.*, (2001)²⁴⁴ developed a process model revealing the cognitive and affective components driving change resistance. He opined that evidence consistently show that organizational change involves nuanced human interactions that transcend algorithmic solutions. Jacobs et al., (2013)²⁴⁵ characterizes organizational change as a “risky endeavour” precisely because of these intricate human dynamics. While frameworks exist to guide change, the fundamental challenge remains the unpredictable nature of human reasoning and interaction.

2.7.1 The Role of Human Resources Managers in the adoption of AI in Organisations

Human Resource (HR) managers occupy a very important position in the adoption and successful integration of Artificial Intelligence (AI) within organizations. As organizations continue to embrace digital transformation and introduce AI-driven systems into their operations, HR managers are increasingly expected to help align technological advancement with employee development and organizational growth. Within Nigerian management consulting firms especially, the role of HR managers becomes even more significant because AI adoption directly affects employees, operational structures, workplace relationships, skill requirements, and the overall work environment.

One of the most important responsibilities of HR managers in AI adoption is preparing the workforce for technological change. The introduction of AI systems often changes how employees carry out their duties and requires workers to develop new digital abilities, adapt to new operational methods, and become more flexible in the way they work. HR managers therefore have the responsibility of ensuring that employees are adequately equipped for these changes. This involves identifying skill gaps within the organization and putting training and development initiatives in place to help employees build the knowledge and competence needed to work effectively with AI technologies. Without proper diagnosis of knowledge and skill gap, training needs and preparation, organizations may find it difficult to fully maximize the value that AI systems can provide.

Consequently, a primary responsibility of HR managers is preparation of employees for technological change. The introduction of AI often alters job requirements, work processes, and skill expectations. Consequently, HR managers are responsible for identifying competency gaps and implementing training initiatives that equip employees with the knowledge required to work effectively alongside AI systems. HR departments frequently coordinate workshops, mentoring opportunities, professional development programmes, and digital learning initiatives that support workforce adaptability and long-term employability.

Change management represents another significant area of responsibility. The introduction of AI may generate uncertainty among employees regarding changing work patterns, performance expectations, and future career prospects. HR managers help facilitate smoother transitions by promoting

²⁴² Elving, W.J. (2005). The role of communication in organisational change. *Corporate Communications. An International Journal*, 10, 129-138.

²⁴³ Bulling, T.B. (2022). Implementing Organisational Change. *East African Scholars Journal of Economics, Business and Management*, 5(7), 156-161.

²⁴⁴ George, J.M., & Jones, G.R. (2001). Towards a Process Model of Individual Change in Organizations. *Human Relations*, 54, 419 - 444.

²⁴⁵ Jacobs, G., Witteloostuijn, A.V., & Christe-Zeyse, J. (2013). A theoretical framework of organizational change. *Journal of Organizational Change Management*, 26, 772-792.

communication, addressing employee concerns, and supporting engagement throughout the implementation process. Effective change management contributes to reduced resistance and encourages a more positive attitude towards technological innovation.

Maintaining trust within the workplace is equally important during AI adoption. Employees are more likely to support technological initiatives when organisations communicate openly about the purpose, operation, and implications of AI systems. HR managers therefore play a key role in ensuring transparency and fostering constructive dialogue between employees and organisational leadership.

Ethical governance has become an increasingly important component of HR responsibilities in AI-enabled workplaces. The use of AI introduces considerations relating to privacy, fairness, accountability, transparency, and potential algorithmic bias. HR managers are custodians of various employee data and organisational policies surrounding data privacy and its management. In a similar vein, HR Managers can contribute to the development of policies and guidelines that encourage responsible technology use while protecting employee rights and promoting equitable treatment across organisational processes.

Recruitment and talent management functions have also been influenced by AI technologies. Automated systems may assist with candidate sourcing, resume screening, interview scheduling, and workforce analytics. Despite these technological capabilities, human judgment remains necessary to ensure fairness, contextual understanding, and balanced decision-making. For example, maintaining fairness in the recruitment process for during screening of candidates for qualification which is done using the Applicant Tracking System), whilst it helps to make the screening process faster, real qualified candidates may be screened because the template they used for their application, recognised the text as something different and screened them out. HR managers therefore play an important role in maintaining appropriate oversight of AI-supported recruitment activities.

Employee engagement and retention constitute another area in which HR professionals contribute significantly. Technological transformation can affect employee confidence, motivation, and perceptions of job security. By providing support mechanisms, career development opportunities, and clear communication, HR managers help sustain workforce morale and organisational commitment during periods of change.

Workforce planning has become increasingly important as AI technologies reshape organisational structures and job roles. HR managers are responsible for anticipating future skill requirements, assessing workforce capabilities, and developing talent strategies that align with evolving organisational needs. This approach helps organisations remain competitive while supporting employees' career progression.

Another important responsibility involves promoting effective collaboration between employees and AI systems. Rather than seeing the adoption of technology as a substitute for human contribution, employees are encouraged to embrace AI and organisations are to seek ways to combine human expertise with technological capabilities. HR managers support this objective by helping to redesign work processes, clarify responsibilities, and encourage productive interaction between employees and digital systems.

Performance management practices may also evolve following AI adoption. Digital tools can provide valuable information relating to employee performance and productivity. However, HR managers are responsible for ensuring that performance evaluation processes remain balanced, transparent, and supportive of employee development. Human oversight remains necessary to maintain fairness and contextual understanding in performance-related decisions.

Employee well-being remains a critical consideration throughout digital transformation initiatives. Continuous adaptation to new technologies may create stress or uncertainty for some employees. HR managers therefore help promote supportive work environments that balance organisational efficiency with employee welfare and job satisfaction.

Strategic involvement is another important dimension of HR participation in AI adoption. HR professionals frequently advise organisational leaders on workforce implications associated with technological decisions. Their contributions help ensure that AI implementation strategies consider organisational culture, employee experience, talent requirements, and long-term workforce sustainability.

Finally, HR managers play an important role in promoting inclusiveness during technological transformation. Ensuring that learning opportunities, development programmes, and support mechanisms remain accessible to all employees helps reduce barriers to participation and encourages a more equitable adoption process. Through these various responsibilities, HR managers contribute significantly to the successful integration of AI while supporting organisational effectiveness and workforce development

2.1.8 The Rise of AI in Management Consulting

Artificial intelligence is fundamentally transforming management consulting by revolutionizing data analysis, decision-making, and operational efficiency. Multiple studies demonstrated AI's profound impact on the consulting sector (Mohan et al., 2024)²⁴⁶. AI technologies enable consultants to process large datasets more efficiently, automate routine tasks, and generate deeper strategic insights (Samokhvalov et al., 2024)²⁴⁷. Specifically, generative AI helps consultants solve complex problems by analysing extensive information and optimizing processes at unprecedented levels (Jain et al., 2024)²⁴⁸.

The integration of artificial intelligence (AI) into management consulting has evolved from a peripheral innovation to a central strategic imperative. Historically, consulting firms have relied on human expertise and analytical rigor to solve complex business problems. However, the exponential growth of data, coupled with advancements in machine learning, natural language processing, and generative AI, has reshaped the consulting landscape. As Jain *et al* (2024) highlighted, generative AI is revolutionizing business consulting by enabling transformative models for strategic decision-making, innovation, and operational excellence, thereby redefining the role of consultants in a data-driven economy. From 2019 to 2025, AI transitioned from experimental tools to enterprise-wide solutions embedded in daily workflows (Samokhvalov, 2024)²⁴⁹.

The proliferation of AI technologies such as large language models (LLMs), predictive analytics, and intelligent automation has enabled consultants to process vast datasets, generate insights, and

²⁴⁶ Mohan, S. K. (2024). Management consulting in the artificial intelligence–LLM era. *Management Consulting Journal*, 7(1), 9–24.

²⁴⁷ Samokhvalov, K., (2024). The transformative impact of artificial intelligence on the management consultancy sector. *Management Consulting Journal*, 7(1), 59–68.

²⁴⁸ Jain, S. (2024). Revolutionizing business consulting with generative AI: Exploring transformative models for strategic decision-making, innovation, and operational excellence. *World Journal of Advanced Research and Reviews*, 22(2), 2273–2284.

²⁴⁹ Samokhvalov, K. (2024). The transformative impact of artificial intelligence on the management consultancy sector. *Management Consulting Journal*, 7(1), 59–68.

automate routine tasks with unprecedented speed and accuracy²⁵⁰. McKinsey's deployment of the Lilli AI agent, capable of synthesizing over 100,000 internal documents, exemplifies this transformation.

Industry-specific drivers such as the demand for real-time decision-making, cost optimization, and competitive differentiation have accelerated AI adoption. Consulting firms are increasingly expected to deliver faster, data-driven solutions, prompting investments in AI infrastructure and talent development. The emergence of hybrid consultants; professionals who combine domain expertise with AI literacy, reflects the changing skill requirements in the sector (Vuorenheimo, 2025)²⁵¹.

Globally, AI adoption has been influenced by regional regulatory frameworks, client expectations, and technological readiness. While firms in North America and Europe lead in AI maturity, others are rapidly catching up, driven by digital transformation agendas and strategic partnerships. The COVID-19 pandemic further catalysed AI integration, as remote work and digital collaboration became essential, highlighting the need for intelligent systems that support distributed teams and virtual consulting engagements (Madanchian & Taherdoost, 2025)²⁵².

Consulting firms are deploying a range of AI-driven tools including natural language processing, machine learning algorithms, robotic process automation, and advanced data analytics platforms (Sibony & Tett, 2024)²⁵³. These technologies perform functions such as sentiment analysis, scenario forecasting, and automation of routine report generation—freeing consultants to focus on strategic decision-making and client relationship management (Deloitte, 2022)²⁵⁴. The use of AI is not limited to back-office operations but extends deeply into fieldwork and client interactions, delivering customized, data-driven solutions with precision and scalability (Adetunji, et al., 2023)²⁵⁵.

Several major consulting firms have pioneered the use of AI. For instance, McKinsey & Company has begun leveraging AI tools to enhance client engagements and enable data-driven recommendations. One standout technology is generative AI, which facilitates tasks ranging from market analysis to risk assessment, fundamentally changing how consultants approach problem-solving. (Davenport & Ronanki, 2018; Skoglund, 2024)²⁵⁶.

Generative AI models enable consultants to rapidly synthesize large datasets, generate predictive insights, and identify patterns that would go unnoticed through conventional techniques. This shift

²⁵⁰ Tah (2024) BCG's Deckster tool and Deloitte's chatbot systems have streamlined internal operations, reducing time spent on administrative tasks and enhancing client service delivery.

²⁵¹ Vuorenheimo, E., (2025). AI and change management best practices in consulting: what factors support a successful AI transformation? Master's thesis, Lappeenranta-Lahti University of Technology (LUT).

²⁵² Madanchian, M., & Taherdoost, H. (2025). Ethical theories, governance models, and strategic frameworks for responsible AI adoption and organizational success. *Frontiers in Artificial Intelligence*, 8, 1619029.

²⁵³ Sibony, O. & Tett, G., (2024). The Future of Consulting: From Advice to Impact. *Harvard Business Review*, Jan-Feb, 112-123

²⁵⁴ Deloitte, (2022). The Future of Consulting in a Digital World. Deloitte Insights.

²⁵⁵ Adetunji, A., Ezekiel, O. & Nwosu, I., 2023. Leveraging Artificial Intelligence in Nigerian Consulting Firms: Trends and Barriers. *International Journal of Business Analytics*, 10(2), 45-61.

²⁵⁶ Skoglund, B.M. (2024). Analysing the Themes of Artificial Intelligence as Framed by the Big Four Accounting Firms: A Document Analysis', University of Gothenburg.

not only elevates consulting's intellectual rigor but also accelerates project delivery times and improves recommendation accuracy (Accenture, 2023; Ries & Trout, 2019)²⁵⁷.

A notable example of AI integration in management consulting comes from Accenture, which has developed proprietary AI software to automate various project management tasks. The firm reports that employing AI has led to significant reductions in project turnaround time and improved operational efficiency.

Meanwhile, Deloitte has created advanced analytics solutions that empower clients with predictive insights based on their business data. These tools allow organizations to forecast future trends, aiding in resource allocation and risk management (Accenture, 2022a)²⁵⁸.

As AI continues to evolve, the consulting industry will likely undergo a profound transformation. Firms that fail to manage risk becoming obsolete, while those that successfully harness AI's potential may find new ways to deliver value in an increasingly automated world. The integration of AI into business processes and decision-making has accelerated rapidly in recent years, driven by advancements in machine learning, natural language processing, and big data analytics. This trend has had significant implications for the consulting industry, both in terms of how consultants work and the types of services they provide to clients.

Furthermore, data analytics in Nigerian consulting firms primarily relied on traditional BI tools with limited predictive or prescriptive capabilities. The integration of AI particularly in the form of real-time data dashboards and pattern-recognition systems marked a significant shift in how operational decisions were made. From 2020 onward, the COVID-19 pandemic was a powerful accelerator for digital transformation and AI adoption across industries, including management consulting. Brynjolfsson et al., (2023)²⁵⁹ provide empirical evidence highlighting this shift through a controlled study of customer support agents. Their research shows that agents using generative AI assistants were able to resolve 15% more customer issues per hour compared to those without such assistance. Notably, the most significant improvements were observed among less experienced agents, suggesting that junior consultants or employees new to a role benefit disproportionately from AI augmentation. This implies that AI effectively acts as a skill multiplier, helping less experienced workers perform at levels closer to their senior counterparts by providing real-time data, insights, and suggestions.

The pandemic created unprecedented remote-work environments and disrupted traditional workflows, forcing firms to rapidly implement digital solutions. According to OECD (2024)²⁶⁰, firms accelerated their adoption of AI-based tools such as virtual assistants, collaborative platforms, and analytics software by several years in just a few months, shifting operational models toward greater automation and digital interaction²⁶¹. This rapid adoption unlocked value but also exposed firms to new challenges, including the requirement to integrate AI seamlessly within human workflows and reskill workers.

²⁵⁷ Accenture (2023). Accenture to invest \$3 billion in AI to accelerate clients' reinvention', Accenture Newsroom,

²⁵⁸ Accenture (2022a). AI in Consulting: Transforming Project Management. Accenture Insights.

²⁵⁹ Brynjolfsson, E., Li, D. & Raymond, L. (2023). Generative AI at Work. NBER Working Paper.

²⁶⁰ OECD (2024). Digital Adoption During COVID-19. Paris: OECD Publishing.

²⁶¹ McKinsey (2020) similarly reported that firms executed digital transformations up to 20-25 times faster than expected due to pandemic pressures, with investments flooding into AI technologies focused on improving productivity and customer engagement.

In management consulting specifically, firms must design effective change management strategies to capitalize on AI while addressing workforce concerns about evolving job roles and skills requirements (Brynjolfsson et al., 2023)²⁶².

LexisNexis (2025)²⁶³ reported that 56% of consultants' report are saving 3-4 hours per day using GenAI, redirecting time to analysis and client engagements rather than admin work. Deloitte's 2024 study further noted that 82% of consultant users felt more confident and productive with GenAI, signalling qualitative shifts in employee experience (BCG survey via Deloitte, 2024)²⁶⁴.

A related MIT Sloan analysis by Dell'Acqua et al., (2023)²⁶⁵ presents compelling evidence that the use of GPT-4 in consulting significantly enhances performance, especially on complex, high-stakes tasks classified as "outside-frontier" assignments. Their experimental study involving over 700 consultants at Boston Consulting Group found that employing GPT-4 increased overall consultant performance by up to 49 percentage points on these challenging tasks. This improvement is particularly noteworthy among junior consulting staff, those with less experience, who showed the most pronounced gains. This "skill levelling" effect is a critical insight, demonstrating that AI can effectively reduce performance disparities based on experience, enabling less seasoned consultants in Nigerian firms to ramp up faster and produce higher-quality deliverables comparable to their senior peers.

The study categorized consulting tasks into creative, analytical, writing/marketing, and persuasive assignments, with GPT-4 significantly boosting productivity and quality, including market analysis, drafting client communications, and generating innovative ideas. The results imply that AI is not just as a productivity tool but a transformative enabler used for talent development within consulting firms by compensating for gaps in experience. This is particularly relevant in Nigeria, where management consulting firms face challenges related to talent development and retention amid competitive pressures and resource constraints. GPT-4-supported junior consultants can deliver superior outputs earlier in their careers, improving client satisfaction and firm competitiveness.

However, the study also highlights the importance of the AI-human interface in organizational decision-making. While AI tools can process large amounts of data, identify patterns, and generate recommendations quickly, they do not possess human judgment, experience, ethical reasoning, or contextual understanding. As a result, human supervision remains essential when using AI systems.

It then becomes very important for employees and managers to review AI-generated outputs, verify their accuracy, and assess whether the recommendations are appropriate for the specific business situation. Human oversight is important in complex, high-risk, or sensitive decisions where errors could have significant consequences.

While AI is not meant to replace human expertise AI should be viewed as a tool that supports and enhances human decision-making. Effective outcomes will be achieved when AI capabilities are combined with human judgment, critical thinking, and accountability. In this way, organizations can

²⁶² Brynjolfsson, E., Smith, M., Rock, D., & Burke, M. (2023). Generative AI boosts productivity by 15% among customer support agents: evidence from a controlled study. *Journal of Management Information Systems*, 40(2), 123-136.

²⁶³ LexisNexis (2025). How Generative AI is Redefining Productivity for Consulting Firms.

²⁶⁴ Deloitte Africa. (2024). Digital Consulting Transformation in West Africa.

²⁶⁵ Dell'Acqua, F., McFowland III, E., Mollick, E. R., Lifshitz-Assaf, H., Kellogg, K., Rajendran, S., ... & Lakhani, K. R. (2023). Navigating the jagged technological frontier: Field experimental evidence of the effects of AI on knowledge worker productivity and quality. *Harvard business school technology & operations mgt. Unit working paper*, (24-013).

benefit from the speed and efficiency of AI while ensuring that final decisions remain under human control.

The research highlights two modes of AI integration: “centaurs,” who delegate specific AI tasks selectively, and “cyborgs,” who integrate AI continuously into their workflow. Most consultants tend to be cyborgs, engaging deeply with AI to maximize its benefits.

For Nigerian consulting firms, adopting GPT-4 and similar tools offers an opportunity to accelerate workforce upskilling and level the consultancy skill playing field, helping junior consultants overcome typical experience barriers and close delivery gaps. This can lead to operational efficiencies, increased client value, and stronger firm reputations domestically and internationally.

Moreso, the rapid advancement of artificial intelligence technologies is poised to disrupt this lucrative sector, potentially spelling the end of consulting as we know it. Some key developments driving this shift include:

1. **Automated insights:** AI systems can rapidly analyse vast datasets to surface trends, opportunities, and potential issues that might take human analysts weeks or months to uncover.
2. **Customized recommendations:** Machine learning algorithms can generate tailored strategic recommendations based on a company's specific situation and goals.
3. **Real-time adaptability:** AI tools can continuously monitor business conditions and adjust recommendations on the fly, providing more dynamic guidance than traditional consulting engagements
4. **Democratized expertise:** AI platforms are making high-level strategic insights more accessible and affordable for small and medium-sized businesses that previously couldn't afford top-tier consultants.

While AI is unlikely to completely replace human consultants in the near term, it is already reshaping the industry in significant ways:

- i. **Commoditization of analysis:** Basic data analysis and reporting are becoming automated, putting pressure on firms to justify high fees for these services.
- ii. **Focus on implementation:** Consultants may shift towards helping clients implement AI-generated strategies rather than developing the strategies themselves.
- iii. **Hybrid models:** Some firms are integrating AI tools into their practices, using technology to augment and scale human expertise.
- iv. **Specialization:** Human consultants may need to focus on areas where their judgment, creativity, and interpersonal skills provide unique value that AI cannot easily replicate

2.1.8.2 Challenges and Barriers of AI's Impact on Management Consulting

Based on the results of the research conducted on the impact of artificial intelligence on the consulting industry, it can be concluded that implementing Artificial Intelligence in consulting practices is not an easy task, and that it can have a significant impact inducing economic and organizational impacts (Alexandre et al., 2020)²⁶⁶. In consulting, AI programs can help reduce administrative tasks or do

²⁶⁶Alexandre, C., Blanckaert, L., & Belleflamme, P. (2020). The Influence of Artificial Intelligence on The Consulting Industry (Doctoral dissertation). Université Catholique de Louvain.

accurate and rapid analysis, but they also come with limitations and ethical risks (Gînguță et al., 2023)²⁶⁷. The factors shown in Figure 2 includes concerns about data privacy, resistance to change, a lack of AI expertise, and the difficulty of integrating AI technologies into existing workflows. By removing these barriers, AI can maximize its potential in the field of management consulting (Oarue-Itseuwa, 2024)²⁶⁸.

Management consulting firms handle sensitive information of their clients, and AI systems, which are vulnerable to hacking and data breaches, may compromise the confidentiality of their clients (Keding & Meissner, 2021)²⁶⁹. This risk highlights the importance of robust data governance frameworks to mitigate potential breaches.

A bias or incomplete data set can adversely affect decisions, resulting in flawed AI-generated advice (Mohan, 2024)²⁷⁰.

Such issues underscore the need for high-quality, representative datasets to ensure fair and accurate outcomes (Mittal et al., 2023)²⁷¹. The costs of these services may be prohibitive for smaller consulting firms, creating a digital divide within the industry (Samokhvalov, 2024)²⁷².

As AI systems become more complex, specialized skills are required for their operation and interpretation, necessitating the training and development of management consultants (Oarue-Itseuwa et al., 2024)²⁷³. Management consultants may find it difficult to explain the reasoning behind certain recommendations made by AI algorithms to clients due to their complexity and opaque nature (Ko, 2010; Keding, 2021)²⁷⁴. Although artificial intelligence provides opportunities for innovation in management consulting, its negative aspects, risks, and barriers must be carefully managed to ensure its ethical, secure, and effective application

2.1.8.2.1 High Implementation Costs of AI Technologies

One of the foremost barriers Nigerian consulting firms encounter in adopting artificial intelligence (AI) is the high cost associated with procuring, integrating, and maintaining AI systems (Adebayo &

²⁶⁷ Gînguță, A., Ștefea, P., Noja, G. G., & Munteanu, V. P. (2023). Ethical impacts, risks and challenges of artificial intelligence technologies in business consulting: A new modelling approach based on structural equations. *Electronics*, 12(6), 1462.

²⁶⁸ Oarue-Itseuwa, E. (2024). Artificial Intelligence's impact on the management consultancy sector over the next five years. *Management Consulting Journal*, 7(1), 49–58.

²⁶⁹ Keding, C. & Meissner, P. (2021). Managerial overreliance on AI-augmented decision-making processes: How the use of AI-based advisory systems shapes choice behaviour in R&D investment decisions. *Technological Forecasting and Social Change*, 171, Article 120970.

²⁷⁰ Mohan, S. K. (2024). Management consulting in the artificial intelligence–LLM era. *Management Consulting Journal*, 7(1), 9–24.

²⁷¹ Mittal, S., Thakral, K., Singh, R., Vatsa, M., Glaser, T., Ferrer, C. C., & Hassner, T. (2023). On responsible machine learning datasets with fairness, privacy, and regulatory norms. *arXiv preprint arXiv:2310.15848*.

²⁷² Samokhvalov, K., (2024). The transformative impact of artificial intelligence on the management consultancy sector. *Management Consulting Journal*, 7(1), 59–68.

²⁷³ Oarue-Itseuwa, E. (2024). Artificial Intelligence's impact on the management consultancy sector over the next five years. *Management Consulting Journal*, 7(1), 49–58.

²⁷⁴ Ko, D. (2010). Consultant competence trust doesn't pay off, but benevolent trust does! Managing knowledge with care. *J. Knowl. Manag.*, 14, 202–213.

Okonkwo, 2022)²⁷⁵. Initial investments extend beyond software licenses to encompass hardware upgrades, data infrastructure development, and ongoing expenses such as cloud computing fees, cybersecurity measures, and AI system training. This also entails recoding the models that are used to serve fresh data to the artificial intelligent frameworks while at the same time checking on the securities and performance of the frameworks from time to time, as performance auditing is a key process in practical AI. In this case, the total cost incidence of AI systems is thus high which therefore means that the organizations adopting the use of AI must therefore consider the costs of adopting the technology with the intended benefits of adopting the AI systems. Creating the right financial strategies becomes crucial to cater the long-term recurring costs required for AI implementations (Pattanayak, 2019)²⁷⁶.

These financial demands are particularly burdensome for small and mid-sized consulting firms operating under tight budget constraints and limited access to venture capital or technology grants (Audu & Nwagbala, 2024)²⁷⁷.

Furthermore, high costs delay AI project rollouts and reduce firms' ability to scale AI solutions across multiple client engagements. This financial barrier is compounded by the lack of immediate financial returns on AI investments, which requires firms to adopt incremental deployment strategies and pursue cost-sharing partnerships with AI technology providers to manage budgetary risks effectively (Mohammed et al., 2025)²⁷⁸.

In addition to costs, data security and privacy aspects are also major concerns in the implementation of AI, as stated by Nguyen (2023)²⁷⁹. AI relies on large amounts of data, including customer data and sensitive business information. If not managed properly, the risk of data leakage and privacy violations can increase, especially when AI is used for automated decision-making. In addition, Taylor (2024)²⁸⁰ highlighted that AI still has limitations in understanding context and handling complex decisions, especially in situations that require human intuition or long-term strategic thinking. Therefore, AI still requires human supervision and intervention, especially in critical decision-making processes that cannot be fully automated.

2.1.8.2.2 Employee Resistance and Workforce Adaptation Challenges

Resistance from employees represents a significant challenge hindering the smooth adoption of artificial intelligence (AI) technologies within Nigerian consulting firms. This resistance largely stems from underlying fears and uncertainties about job security, coupled with discomfort regarding the pace and complexity of technological transformation (Eze & Onyema, 2021)²⁸¹. Many employees

²⁷⁵ Adeyemo, F. S., & Okoronkwo, G. (2024). Artificial intelligence and operational efficiency of deposit money banks in Lagos State, Nigeria. Technology management and the challenges of sustainable development: A Festschrift for Professor Matthew Olugbenga Ilorin, 4-15.

²⁷⁶ Pattanayak, S.K. (2019). Transforming business consulting through generative AI: A framework for enhanced strategic decision-making and value creation. *World Journal of Advanced Research and Reviews*.

²⁷⁷ Audu, J. & Nwagbala, C. (2024). Sustainability and technology adoption challenges in African SMEs. *International Journal of Science and Research Archive*, 14(1), 467–475.

²⁷⁸ Mohammed, A.L., Kutar, M., and Albakri, M. (2025). Bridging the AI Divide: Barriers and Challenges to AI Adoption for Nigerian SMEs. *UK Academy for Information Systems Conference*.

²⁷⁹ Nguyen, T. (2023). Data privacy and security in AI applications. *Information Security Journal*, 15(3), 210-225.

²⁸⁰ Taylor, K. (2024). Limitations of AI in complex decision-making. *Journal of Advanced AI Research*, 22(1), 34-48.

²⁸¹ Eze, S. & Onyema, M. (2021). AI and Workforce Planning in Nigerian Professional Services. Nigerian Institute of Management Press.

perceive AI as a potential threat to their roles, worrying that automation could displace them, especially in task-oriented or entry-level positions. Such apprehensions lead to psychological resistance manifesting in lowered workplace morale, reduced motivation, and diminished productivity levels. In more severe cases, reluctance to engage proactively with AI-enabled workflows can hinder implementation progress and diminish the expected gains from AI investments (Saint-Paul et al., 2024)²⁸².

Beyond fears of displacement, a critical issue fuelling resistance is the pronounced skills gap within the Nigerian workforce. There is a scarcity of employees equipped with the necessary digital literacy and expertise in AI tools, data analytics, and collaboration with AI systems. Many organizations report difficulties recruiting or training staff with such competencies, which impairs their ability to fully leverage AI's potential (Afropolitan Journals, 2024)²⁸³. This skills deficiency exacerbates employee anxiety, as workers feel unprepared to navigate new AI-augmented roles. Consequently, firms must invest heavily in comprehensive upskilling initiatives to bridge the gap, incurring increased operational costs and requiring persistent management focus. The necessity and scope of these training programs demand strategic planning, aligned incentives, and continuous learning opportunities to keep pace with rapid technological evolution (OECD, 2024)²⁸⁴.

Moreover, cultural and organizational factors influence how AI adoption is perceived and embraced. Resistance is often deeper when communication around AI initiatives lacks transparency or when employees feel excluded from decision-making processes. Nigerian consulting firms that successfully mitigate resistance tend to foster a positive AI adoption mindset by actively involving employees through participatory change management, transparent communication of AI's role as a complement (not a substitute) to human skills, and emphasizing AI's potential to enhance job satisfaction and career growth opportunities (McKinsey, 2025)²⁸⁵. For instance, articulating AI as a tool that handles repetitive tasks, liberates consultants to focus on higher-value strategic work, and can alleviate fears and enhance acceptance. Additionally, embedding trust through pilot projects, feedback loops, and ethical AI governance complements behavioural interventions aimed at reducing resistance.

Empirical evidence suggests that Nigerian employees are generally open to AI adoption if provided with sufficient support and clarity. A 2024 study by Boston Consulting Group and African Talent Company reported that 75% of Nigerian workers expressed readiness to adopt generative AI technologies in the workplace and were willing to undertake reskilling efforts to remain competitive (BusinessDay, 2024)²⁸⁶. Only a marginal 5% harboured fears of total job replacement due to AI, indicating that resistance is often rooted in uncertainty rather than outright opposition.

2.1.8.2.3 Accuracy and Reliability Issues in AI Systems

The technical limitations of AI systems, particularly in areas such as candidate shortlisting or predictive modelling, introduce risks related to false positives and false negatives, which can

²⁸² Saint-Paul, G. (2024). Artificial Intelligence Adoption and Employee Performance in Nigerian Firms. *International Journal of Human Resource Studies*, 14(2), 112-130.

²⁸³ Afropolitan Journals (2024). Impact of Artificial Intelligence (AI) in Enhancing Economic Growth and Operational Efficiency in Nigerian Enterprises. *African Journal of Management and Business Research*, 17(1), 79-90.

²⁸⁴ OECD (2024). *Digital Adoption During COVID-19*. Paris: OECD Publishing.

²⁸⁵ McKinsey & Company. (2025). The state of AI: Global survey 2025. <https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai>

²⁸⁶ BusinessDay (2024, August 12). 75% of Nigerian employees ready to adopt GenAI at workplace: report', BusinessDay NG.

undermine decision quality and stakeholder trust (Okafor & Balogun, 2020)²⁸⁷. For example, AI algorithms used in recruitment may inadvertently exclude qualified candidates (false negatives) or inappropriately advance unfit candidates (false positives) due to biases in training data or algorithmic inaccuracies. In consulting contexts, such errors can damage client relationships and the firm's reputation if AI-derived recommendations do not align with business realities or ethical standards. Transparency, continuous monitoring, and validation of AI outputs are therefore critical. Firms must establish robust AI governance frameworks, implement bias auditing protocols, and ensure human oversight to manage and mitigate inaccuracies, calling for investments in data quality and AI model explain ability as part of the adoption process (McKinsey, 2025; People Managing People, 2025)²⁸⁸.

AI-powered workforce analytics enable firms to predict employee turnover risks. Eze & Onyema (2021)²⁸⁹ found that PwC Nigeria's AI attrition model predicted turnover with 85% accuracy, allowing proactive retention strategies. Similarly, Nwachukwu & Adeleke (2023)²⁹⁰ reported that predictive turnover models saved firms \$500,000 annually in replacement costs.

Employee retention is a crucial element of organizational success, and it significantly impacts productivity, efficiency, and financial performance (Darko, 2024)²⁹¹. This involves implementing strategies to maintain a skilled workforce (Kadiresan et al., 2016) and is vital for businesses to reach their objectives (Elangkumaran et al., 2023)²⁹². Effective retention strategies include positive employer branding, effective appraisal systems, and innovative HR practices (Ahmed, 2024)²⁹³.

Employee retention is defined as the practices adopted by companies to sustain an efficient workforce while satisfying operational needs (Coetzee et al., 2018)²⁹⁴. Factors influencing retention, including job embeddedness (Holtom et al., 2021), quality of working life (Mosadeghrad, 2013)²⁹⁵, and socially

²⁸⁷ Okafor, T. & Balogun, J. (2020). Machine Learning in Recruitment: A Nigerian Perspective. 3rd International Conference on AI in Business, Lagos.

²⁸⁸ McKinsey & Company. (2025). The state of AI: Global survey 2025. <https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai>

²⁸⁹ Eze, S. & Onyema, L. (2021). Employee perceptions of AI-induced job displacement in Nigeria. *West African Journal of Organizational Psychology*, 12(4), 89–105.

²⁹⁰ Nwachukwu, C. & Adeleke, O. (2023). Talent Analytics and AI: Transforming Workforce Planning in Nigerian Consulting Firms. *African Journal of Management Research*, 8(3), 112-130.

²⁹¹ Darko, I. (2024). Employee retention and organizational performance: evidence from Ghana police service. *Annals of Management and Organization Research*, 5(3), 219-230.

²⁹² Elangkumaran, P., Antony, S., & Pratheepan, J. (2023). The factors influencing on employee retention in service organization. a study on financial institutions in northern province. *International Journal of Research Publication and Reviews*, 4(3), 4540-4547.

²⁹³ Ahmed, U. S. A. (2024, February). Unlocking the Keys to Employee Retention: Insights from Bibliometric Analysis and Systematic Review in the Indian Pharmaceutical Sector. In 3rd International Conference on Reinventing Business Practices, Start-ups and Sustainability (ICRBSS 2023) (pp. 567-579). Atlantis Press.

²⁹⁵ Mosadeghrad, A. (2013). Quality of working life: an antecedent to employee turnover intention. *International Journal of Health Policy and Management*, 1(1), 43-50.

responsible leadership (Arishi et al., 2018)²⁹⁶, vary among industries. Understanding these factors is essential for optimizing retention efforts (Masood, 2024)²⁹⁷.

In the domain of business management, artificial intelligence (AI) has become increasingly integral, particularly regarding employee management frameworks (Nawaz et al., 2024)²⁹⁸. AI technologies are reshaping organizational operations by enhancing efficiency, automating repetitive and manual tasks, and delivering personalized experiences for employees, which together contribute to improved workforce productivity and satisfaction (Basnet, 2024)²⁹⁹.

In Nigeria, where firms often contend with high recruitment volumes, manual human resource (HR) workflows, and talent retention challenges, AI offers strategic advantages by streamlining processes and empowering HR professionals. For instance, AI-driven applicant tracking systems facilitate automated resume screening and shortlisting, greatly reducing time-to-hire and improving candidate-job matching accuracy (Ajala & Adeyemi, 2025)³⁰⁰. Such automation ensures that recruiters and HR managers can focus more on strategic human capital functions such as candidate engagement and workforce planning rather than time-consuming administrative tasks.

Beyond recruitment, AI enhances employee management through intelligent onboarding platforms that use chatbots to guide new employees, ensuring compliance with paperwork and company policies while providing real-time support (Human Capital Partners, 2025)³⁰¹. AI chatbots also assist existing employees by addressing routine queries about policies, payroll, and benefits, thereby improving engagement and internal service efficiency (Basnet, 2024). Furthermore, sentiment analysis tools powered by AI, capture employee feedback from surveys and internal communications, enabling firms to identify morale issues early and tailor interventions to boost satisfaction and retention (Workforce Group, 2024)³⁰².

Performance management benefits notably from AI's capacity to analyze large datasets and predict employee outcomes. Platforms like Workday and Zoho People, increasingly adopted by Nigerian firms, deliver personalized learning and development programs, guiding employees through skill-building aligned with both organizational goals and individual career aspirations (Ajala & Adeyemi, 2025). This personalization fosters continuous growth and addresses skill gaps proactively, essential in today's fast-evolving work environments.

AI also aids operational compliance by automating report generation and ensuring adherence to regulatory mandates, such as Nigeria's Data Protection Regulation (NDPR), promoting transparency and data security in employee management processes (Workforce Group, 2024). However, successfully deploying AI in Nigerian business management requires adapting global solutions to

²⁹⁶ Arishi, M., Elsaid, A. M., Dawi, S., & Elsaid, E. (2018). Impact of socially responsible leadership on employee leave intention: Exploratory study on IT companies in Egypt. *Business and Management Research*, 7(2), 17-33.

²⁹⁷ Masood, D. (2024). Strategies for employee retention in high turnover sectors: an empirical investigation. *International Journal of Research in Human Resource Management*, 6(1), 33-41.

²⁹⁸ Nawaz, N., Arunachalam, H., Pathi, B. K., & Gajenderan, V. (2024). The adoption of artificial intelligence in human resources management practices. *International Journal of Information Management Data Insights*, 4(1), Article 100208.

²⁹⁹ Basnet, S. (2024). Artificial intelligence and machine learning in human resource management: Prospect and future trends. *International Journal of Research Publication and Reviews*, 5(1), 281-287.

³⁰⁰ Ajala, O. & Adeyemi, T. (2025) 'Enhancing Recruitment Efficiency with AI in Nigerian Enterprises. *Nigerian Journal of Human Resources Management*, 13(1), 45-62.

³⁰¹ Human Capital Partners (2025). Internal Report on AI-powered HR Transformations in Nigeria.

³⁰² Workforce Group (2024). Talent Management in Nigeria's Consulting Sector. Workforce Research Unit.

local cultural, regulatory, and infrastructural contexts. When aligned effectively, AI acts as a strategic enabler that transforms traditionally manual processes, elevates employee experience, and contributes to sustainable organizational growth (Basnet, 2024)

In HRM, AI aids in recruitment by identifying suitable candidates, supports employee performance management, and enhances career development through personalized recommendations (Halid et al., 2024)³⁰³. AI can influence loyalty by improving job satisfaction and career development opportunities (Singh & Khatun, 2024)³⁰⁴. AI contributes to retention by addressing common turnover factors such as job dissatisfaction and lack of advancement opportunities (Vrontis et al., 2023)³⁰⁵. AI represents a significant technological advancement with the potential to drive improvements in various business aspects, including employee management (Sabil et al., 2023)³⁰⁶.

By positively influencing employee loyalty and retention, AI helps create a more engaged and stable workforce (Bujold et al., 2023)³⁰⁷. Comprehensive strategies addressing the unique needs of different demographic groups, such as millennials and Generation Y, are essential (Thompson & Muda, 2021; Ruiz, 2017)³⁰⁸. Creating a positive work culture, providing meaningful work, and ensuring psychological safety are vital for retaining talent (Irabor & Okolie, 2019)³⁰⁹.

AI provides valuable insights into employee engagement and reasons for attrition, aiding in decision-making processes related to retention strategies (Durairaj & Vetrivel, 2024)³¹⁰. AI supports various HR functions, such as recruitment, selection, training, and development, ultimately leading to increased employee engagement and retention (Baki et al., 2023)³¹¹. AI transparency is crucial for promoting trust in AI systems, impacting employees' challenges and threat appraisals (Yu et al., 2023)³¹². However, while AI can enhance productivity, it can also lower employee engagement and

³⁰³ Halid, H., Ravesangar, K., Mahadzir, S. L., & Halim, S. N. A. (2024). Artificial intelligence (AI) in human resource management (HRM). In C. Machado (Ed.), *Building the future with human resource management* (pp. 37–70). Springer.

³⁰⁴ Singh, V., & Khatun, A. (2024). Application of artificial intelligence in human resource management: A conceptual framework. In A. Pandey, S. Grima, S. Pandey, & B. Balusamy (Eds.), *The role of HR in the transforming workplace: Challenges, technology, and future directions* (pp. 32–49). Productivity Press.

³⁰⁵ Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2023). Artificial intelligence, robotics, advanced technologies and human resource management: A systematic review. In A. Malik & P. Budhwar (Eds.), *Artificial intelligence and international HRM: Challenges, opportunities and a research agenda* (pp. 172–201). Routledge.

³⁰⁶ Sabil, S., Bangkara, B. M. A. S. A., Moge, T., Niswan, E., & Timotius, E. (2023). Identification of HRM improvement strategy using artificial intelligence in modern economic development. *International Journal of Professional Business Review*, 8(6), Article e01835.

³⁰⁷ Bujold, A., Roberge-Maltais, I., Parent-Rochelleau, X., Boasen, J., Sénécal, S., & Léger, P.-M. (2023). Responsible artificial intelligence in human resources management: A review of the empirical literature. *AI and Ethics*, 4, 1185–1200.

³⁰⁸ Thompson, D. & Muda, A. (2021). Exploring managers' perspective on factors affecting generation y retention. *Journal of Cognitive Sciences and Human Development*, 7(2), 159-174.

³⁰⁹ Irabor, I. & Okolie, U. (2019). A review of employees' job satisfaction and its effect on their retention. *Annals of Spiru Haret University Economic Series*, 19(2), 93-114.

³¹⁰ Durairaj, S., & Vetrivel, V. (2024, June). The effect of AI (artificial intelligence) in employee performance evaluation on employee retention in the information technology sector. In *International Conference on Digital Transformation in Business: Navigating the New Frontiers Beyond Boundaries (DTBNNF 2024)* (pp. 88-108). Atlantis Press.

³¹¹ Baki, N. U., Rasdi, R. M., Krauss, S. E., & Omar, M. K. (2023). Integrating artificial intelligence in human resource functions: Challenges and opportunities. *International Journal of Academic Research in Business and Social Sciences*, 13(8), 1262-1277.

³¹² Yu, L., Li, Y., & Fan, F. (2023). Employees' appraisals and trust of artificial intelligences' transparency and opacity. *Behavioral Sciences*, 13(4), 344.

weaken relational aspects of psychological contracts (Wang et al., 2023)³¹³. Effective HRM practices reduce turnover and increase retention rates (Dubisetty & K, 2021)³¹⁴. Employee retention involves rewarding effective job performance, fostering positive relationships between employees and managers, and maintaining a safe and healthy work environment (Adjei et al., 2022)³¹⁵. Employee retention acts as a mediator of the effect of employer branding on employee performance, highlighting its significance for organizational success (Srimulyani & Hermanto, 2022)³¹⁶.

AI tools such as sentiment analysis chatbots and personalized career pathing systems have enhanced retention. Chukwuma & Ibrahim (2023)³¹⁷ found that AI-driven engagement tools at Ernst & Young (EY), Lagos increased retention rates by 15%. However, Nwachukwu & Adeleke (2023)³¹⁸ highlight that cultural adaptation is crucial for AI tools to be effective in Nigeria. AI helps firms identify skills gaps and recommend training programs. Nwachukwu & Adeleke (2023) noted that Nigerian consulting firms using AI-powered skills and analytics, reduced reskilling costs by 30%. However, Adebayo & Okonkwo (2022)³¹⁹ argue that localized training datasets are needed for optimal results.

2.1.9 Challenges Associated with the Use of Artificial Intelligence (AI) Systems

2.1.9.1 Job Displacement and Employment Uncertainty

AI-driven automation threatens to replace many routine and monotonous tasks traditionally performed by workers. While some jobs will be transformed, there is widespread concern about actual job losses, especially in sectors such as manufacturing, transportation, and administrative roles. Studies show that up to 22% of current jobs may be significantly affected by 2030, with millions of positions potentially eliminated due to AI and robotics automation (Volberda, 2025; Apollo Technical, 2025)³²⁰. This generates anxiety among workers about their future employability and economic security.

2.1.9.2 Skill Gaps and the Need for Reskilling

The rapid adoption of AI requires workers to develop new competencies, including digital literacy, AI fluency, and higher-order cognitive and interpersonal skills. However, many employees may lack

³¹³ Wang, L., & Li, X. (2023). Comparing human and AI performance in complex data analysis tasks. *Journal of Data Science*, 21(3), 456-472.

³¹⁴ Dubisetty, S., & K, S. (2021). The impact of human resource management (HRM) practices on employee satisfaction level and performance. *Journal of Management and Science*, 11(3), 40-43.

³¹⁵ Adjei, B. F., Boateng, V., Anim, J., Agyemang, O. O., & Buabeng, B. (2022). Employee satisfaction and retention of Stanbic Bank head office in Accra, Ghana. *Journal of Corporate Finance Management and Banking System*, 22, 11-21.

³¹⁶ Srimulyani, V. A., & Hermanto, Y. B. (2022). Analysis of employee engagement as a mediator of the relationship between perceived organizational support, organizational justice, and servant leadership with organizational citizenship behavior. *Journal Dinamika Manajemen*, 13(2), 202-220.

³¹⁷ Chukwuma, B. & Ibrahim, A. (2023). The Impact of AI on Employee Retention in Nigerian Consulting Firms. *International Journal of Business and Human Resource Management*, 12(1), 78-95.

³¹⁸ Nwachukwu, C. & Adeleke, O. (2023). Talent Analytics and AI: Transforming Workforce Planning in Nigerian Consulting Firms. *African Journal of Management Research*, 8(3), 112-130

³¹⁹ Adebayo, T. & Okonkwo, P. (2022). Financial barriers to AI adoption in Nigerian SMEs. *Journal of African Business and Technology*, 8(2), 152-170.

³²⁰ Volberda, H. (2025). AI will perform most work tasks by 2030. *World Economic Forum - Future of Jobs Report 2025*.

access to sufficient training or face challenges adapting to evolving role expectations (People Managing People, 2025)³²¹. Companies must invest extensively in upskilling programs to prevent large talent gaps and ensure workforce agility. Failure to do so risks exacerbating inequality, with low-skilled workers disproportionately affected.

2.1.9.3 Workforce Apprehension and Resistance

Employees often experience fear and mistrust of AI implementations, worrying about job loss or deskilling. Research indicates that a substantial portion of workers express concern about AI's future impact, which slows down organizational acceptance and adoption (Apollo Technical, 2025)³²². Such apprehension can reduce morale, engagement, and productivity if not deliberately managed.

2.1.9.4 Ethical and Psychological Challenges

The shift toward AI can depersonalize work and undermine employee autonomy, especially if AI systems are over-relied upon for decision-making without sufficient human oversight. This can create ethical dilemmas around surveillance, privacy, bias, and fairness (People Managing People, 2025). Additionally, employees may face increased stress due to constant learning demands and changes in work processes (KPMG, 2025)³²³.

2.1.9.5 War for Talent

Many organisations already use AI to create value; however, ready-to-use AI systems are not available to respond to the bespoke challenges companies face due to the level of maturity of this field (Vial et al., 2023)³²⁴. OECD analysed online job platforms and reported a growing number of AI-related job postings across all sectors of the economy (Samokhvalov et al., 2024)³²⁵. Boston Consulting Group (BCG) in their study of workforce supply and demand projected a shortfall in key occupations especially computing (BCG, 2021).³²⁶

The OECD report emphasized that soft skills such as communication, problem-solving, creativity, and teamwork have grown increasingly important over time, complementing technical and engineering expertise to meet the demands of modern workplaces (OECD, 2019)²⁰³. It can be argued that AI is not fully capable of independent implementation and “human-in-the-loop” frameworks will still be required (Feuerriegel et al., 2022)³²⁷.

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³²¹People Managing People (2025). The State of Work 2025: AI + HI And the Trends

³²² Apollo Technical (2025). 25 Surprising Statistics on AI in the Workplace.

³²³ KPMG (2025). Trust, attitudes and use of artificial intelligence: A global study 2025.

³²⁴ Vial, G., Cameron, A.F., Giannelia, T. & Jiang, J. (2023). Managing artificial intelligence projects: Key insights from an AI consulting firm. *Information Systems Journal*, 33 (3), 669-691.

³²⁵ Samokhvalov, K., (2024). The transformative impact of artificial intelligence on the management consultancy sector. *Management Consulting Journal*, 7(1), 59–68.

³²⁶ BCG (2021). The Future of Jobs in the Era of AI. Available at:<https://www.bcg.com/publications/2021/impact-of-new-technologies-on-jobs>.

³²⁷ Feuerriegel, S., Shrestha, Y.R., von Krogh, G. & Zhang, C. (2022). Bringing artificial intelligence to business management. *Nature Machine Intelligence*. [Online] 4 (7), 611-613.

2.1.9.6 Algorithmic Bias, Data Privacy, and Ethical Concerns

Organisations may also face challenges relating to algorithmic bias, privacy, and data security. Biased AI outputs can influence decision-making and reduce trust in AI-enabled systems, while inadequate protection of sensitive information may expose organisations to operational and reputational risks. Ethical concerns regarding transparency, accountability, and fairness in AI-driven decisions further highlight the need for appropriate governance mechanisms.

2.1.9.7 Technology Dependence and Financial Constraints

Another challenge is the risk of overdependence on automated systems, which may limit the application of human judgement and creativity in complex situations. Furthermore, the financial cost of acquiring, implementing, and maintaining AI technologies may constrain adoption, particularly where organisational resources are limited.

These challenges can affect employee performance, organisational productivity, and operational efficiency if not properly managed. Therefore, organisations may benefit from adopting effective change management practices, investing in employee development, implementing strong data governance frameworks, and maintaining appropriate human oversight in AI-supported processes. Such measures can support the responsible and effective integration of AI within management consulting firms.

2.1.10 Factors Influencing the Adoption of Artificial Intelligence in Business

The integration of Artificial Intelligence (AI) in business operations has become a strategic imperative, promising transformative impacts on efficiency, innovation, and competitiveness (Oyekunle & Boohene, 2024)³²⁸. Davenport *et al.* (2010)³²⁹ mentioned that organizational leadership plays a pivotal role in influencing the adoption of AI technologies. Leaders who demonstrate a clear commitment to technological advancements and are willing to invest in AI initiatives create a conducive environment for adoption. The vision and enthusiasm of leadership act as a catalyst, driving the organization toward a digital future.

The availability of resources, both financial and technological, is a critical factor. Organizations equipped with the necessary financial backing and robust technological infrastructure are better positioned to adopt AI effortlessly. Investment in hardware, software, and skilled personnel is essential for the successful deployment of AI technologies (Manyika *et al.*, 2017)³³⁰.

Venkatesh *et al.*, (2003)³³¹ stated that the perceived utility and benefits of AI solutions significantly impact adoption decisions. Organizations assess how AI aligns with their strategic goals and addresses specific business challenges. Clear communication of the tangible benefits, such as

³²⁸ Oyekunle, D. & Boohene, D. (2024) Digital transformation potential: The role of artificial intelligence in business. *International Journal of Professional Business Review*, 9(3), 044-99.

³²⁹ Davenport, T. H., Harris, J., & Shapiro, J. (2010). Competing on Talent Analytics. *Harvard Business Review*, 88(10), 52–58.

³³⁰ Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., ... & Sanghvi, S. (2017). Jobs lost, jobs gained: Workforce transitions in a time of automation. *McKinsey Global Institute*, 150(1), 1-148.

³³¹ Venkatesh, V. & Davis, F.D. (2000) A Theoretical Extension of the TAM. *Management Science*, 46(2), 186–204.

improved efficiency, cost savings, and competitive advantages, enhances the attractiveness of AI adoption.

Data security and privacy concerns are pivotal considerations in the adoption of AI. Organizations must establish robust data governance frameworks to address issues related to data privacy, security breaches, and ethical use of customer information. A failure to address these concerns can hinder AI adoption efforts (Chen et al., 2012)³³².

The regulatory environment and compliance requirements influence the adoption of AI, especially in highly regulated industries. A clear understanding of regulatory constraints is essential for successful adoption (Haller et al., 2009)³³³. The choice of AI vendors and technologies significantly influence adoption outcomes. A well-informed selection process is crucial for aligning AI technologies with organizational needs (Rogers, 2003)³³⁴. The existing organizational culture significantly shapes the willingness to adopt AI. The readiness of employees to embrace change, supported by a culture of adaptability, influences the successful incorporation of AI into daily operations (Chen et al., 2012)

Brynjolfsson and McAfee (2014)³³⁵ argued that the skillset of the existing workforce and the availability of training programs influence the feasibility of AI adoption. Organizations invest in training initiatives to upskill employees and ensure that they can effectively collaborate with AI systems. Workforce preparedness is integral to maximizing the benefits of AI technologies.

2.1.11 AI in Talent Acquisition, Workforce Planning and Employee Retention

Prior to 2020, recruitment and workforce planning in consulting firms remained largely manual, often constrained by bias, inefficiencies, and poor alignment between candidate capabilities and role requirements. Consulting firms depended on manual resume reviews and face-to-face interviews. Recruitment was slow, bias-prone, and workforce planning was retrospective.

The rise of AI in human resource management, particularly through natural language processing (NLP)-driven resume screening and predictive analytics, has redefined how firms identify, select, and retain top talent. According to the OECD (2025)³³⁶, AI tools have enabled employers to reduce time-to-hire, minimize hiring bias, and improve long-term fit through predictive modelling based on historical employee data.

Global studies (Johnson, 2020)³³⁷ note early AI tools automating resume scanning and candidate sentiment analysis. In Nigeria, platforms like Fuzu began offering AI-matched candidate filtering in 2021–2022, tripling selection speed and improving candidate-job fit (TechCabal, 2022)³³⁸.

³³² Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. IEEE access, 8, 75264-75278.

³³³ Haller, S., Karnouskos, S., & Schroth, C. (2009). The Internet of Things in an Enterprise Context. Future Internet Symposium.

³³⁴ Rogers, E. M., Simon, & Schuster (2003). Diffusion of Innovations. (5th ed.).

³³⁵ Brynjolfsson, E., & McAfee, A. (2014). Machine, platform, crowd: Harnessing our digital future. W.W. Norton & Company.

³³⁶ OECD (2025). The Effects of Generative AI on Productivity, Innovation and Entrepreneurship.

³³⁷ Johnson, R., Stone, D., & Lukaszewski, K. (2020). The benefits of e-hrm and ai for talent acquisition. Journal of Tourism Futures, 7(1), 40-52.

³³⁸ TechPoint Africa (2023) AI Readiness of Nigerian Professional Service Firms.

A 2024 BCG HR survey shows 70% of firms using AI in HR functions, particularly for talent acquisition; 92% observed recruitment productivity gains over 30%—allowing recruiting teams to focus on relationship building instead of administrative tasks (BCG People Strategy, 2025)³³⁹. In parallel, global consulting firms have begun to implement AI-enhanced internal mobility platforms that help predict career trajectories and proactively suggest upskilling pathways. These tools not only improve employee retention but also enable more strategic workforce planning.

Brynjolfsson et al. (2023)³⁴⁰ noted that AI tools are increasingly being used to map out competency frameworks and training pathways, making it easier for firms to optimize their human capital investments. While Nigerian firms may be in earlier stages of this transition, anecdotal evidence and early-adopter case studies suggest that AI in talent strategy is becoming more prevalent and influential in shaping HR outcomes.

AI-driven predictive models for internal mobility and attrition forecast (e.g., HP's flight-risk tools, Unilever's candidate matching) delivered measurable ROI, reducing turnover costs and enhancing retention (Aifa Consulting, 2023)³⁴¹. Nigerian firms investing in predictive HR analytics initiatives (e.g. via the 3 Million Technical Talent -3MTT-trained professionals) can mirror these gains (NITDA, 2023)³⁴².

Talent acquisition is increasingly recognized as a critical area where AI can deliver substantial benefits. AI technologies streamline recruitment processes by facilitating resume screening and improving candidate matching, leading to higher recruitment accuracy (Baakeel, 2020; Agadi & Kinange, 2024)³⁴³. This process reduces the time required for talent acquisition, addressing persistent challenges in human resources (Siapka, 2023)³⁴⁴.

Leveraging data-driven insights to match candidates' skills with organizational needs, firms can enhance retention (Johnson et al., 2020)³⁴⁵. Additionally, it is important to consider ethical considerations in AI recruitment processes, ensuring that biases in AI algorithms do not undermine fairness (Burrell & McAndrew, 2023)³⁴⁶. Implementing robust and transparent mechanisms to detect and prevent biases is essential for fostering trust among candidates and employees.

³³⁹ BCG (2025). GenAI Tools in Professional Services.

³⁴⁰ Brynjolfsson, E., Smith, M., Rock, D., & Burke, M. (2023). Generative AI boosts productivity by 15% among customer support agents: evidence from a controlled study. *Journal of Management Information Systems*, 40(2), 123-136.

³⁴¹ Aifa Consulting (2023) Artificial Intelligence and Analytics in HR Today.

³⁴² NITDA (National Information Technology Development Agency). (2025). National Artificial Intelligence Strategy (NAIS). Federal Ministry of Communications, Innovation and Digital Economy.

³⁴³ Baakeel, O. A. (2020). The association between the effectiveness of human resource management functions and the use of artificial intelligence. *International Journal of Advanced Trends in Computer Science and Engineering*, 9(1), 606-612.

³⁴⁴ Siapka, A. (2023). Ai-driven automation as a pre-condition for eudaimonia., 993-994.

³⁴⁵ Johnson, R., Stone, D., & Lukaszewski, K. (2020). The benefits of e-hrm and ai for talent acquisition. *Journal of Tourism Futures*, 7(1), 40-52.

³⁴⁶ Burrell, D., & McAndrew, I. (2023). Exploring the ethical dynamics of the use of artificial intelligence (ai) in hiring in healthcare organizations. *Land Forces Academy Review*, 28(4), 309-321.

The integration of Artificial Intelligence (AI) in talent acquisition and workforce planning has revolutionized human resource management (HRM) in Nigerian consulting firms. AI-driven tools such as machine learning algorithms, predictive analytics, and automated recruitment systems have enhanced recruitment accuracy, reduced hiring biases, and improved employee retention (Adebayo & Okonkwo, 2022)³⁴⁷.

AI has significantly improved recruitment efficiency in Nigerian consulting firms by automating CV screening, candidate matching, and interview scheduling. According to Okafor and Balogun (2020)³⁴⁸, AI-based automated CV screening reduced hiring time by 40% in mid-sized consulting firms. Similarly, Adebayo and Okonkwo (2022) found that predictive hiring algorithms improved candidate-job fit accuracy by 35% in firms like KPMG Nigeria and PwC Nigeria.

AI has helped mitigate unconscious biases in recruitment by anonymizing candidate data (e.g., gender, ethnicity). Chukwuma and Ibrahim (2023)³⁴⁹ observed that AI-driven anonymized screening in Deloitte Nigeria led to a 25% increase in diversity hires. However, Okafor and Balogun (2020) caution that AI may still perpetuate biases if trained on historically skewed datasets.

AI algorithms are often trained on large datasets, which may contain biases that can be unintentionally encoded into the system, leading to skewed or discriminatory outcomes (O'Neil, 2016)³⁵⁰.

While AI has proven to be highly effective in certain contexts, its “black-box” nature, where the decision-making process is not always transparent or understandable, can lead to skepticism and reluctance to adopt AI-based systems (Russell & Norvig, 2016)³⁵¹. Despite its benefits, AI adoption in Nigerian consulting firms faces challenges: High implementation costs (Adebayo & Okonkwo, 2022), employee resistance due to fears of job displacement (Eze & Onyema, 2021)³⁵² and false positives/negatives in AI shortlisting (Okafor & Balogun, 2020).

2.1.12.1 The Nigerian Context of Policy and Strategic Framework for AI Adoption

Nigeria has actively pursued digital transformation, with government institutions playing a pivotal role in shaping the AI landscape. The Draft National Artificial Intelligence Strategy released by NITDA in 2024 emphasizes infrastructure readiness, local talent development, and ethical deployment frameworks (NITDA, 2024)³⁵³. Complementing this, the Government AI Readiness Index ranked Nigeria among Africa's top five nations in AI preparedness (Oxford Insights, 2024)³⁵⁴.

³⁴⁷ Adebayo, T. & Okonkwo, P. (2022). Financial barriers to AI adoption in Nigerian SMEs. *Journal of African Business and Technology*, 8(2), 152–170.

³⁴⁸ Okafor, C. & Balogun, A. (2020). Bias and error rates in AI recruitment: Implications for Nigerian HR practices. *African Journal of Human Resource Management*, 6(1), 34–49.

³⁴⁹ Chukwuma, B. & Ibrahim, A. (2023). The Impact of AI on Employee Retention in Nigerian Consulting Firms. *International Journal of Business and Human Resource Management*, 12(1), 78–95.

³⁵⁰ O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Crown Publishing.

³⁵¹ Russell, S., & Norvig, P. (2016). *Artificial intelligence: A modern approach* (3rd ed.). Pearson.

³⁵² Eze, S. & Onyema, M. (2021). *AI and Workforce Planning in Nigerian Professional Services*. Nigerian Institute of Management Press.

³⁵³ NITDA (2024). *Nigeria's Draft National Artificial Intelligence Strategy*. Abuja: National Information Technology Development Agency.

³⁵⁴ Oxford Insights (2024). *Government AI Readiness Index 2024*. Oxford Insights.

Consulting firms in Nigeria have responded to these policy shifts by incorporating AI in client delivery, HR management, and compliance services. PwC Nigeria (2025)³⁵⁵ reports significant uptake of AI in tax compliance automation and workforce analytics. Similarly, KPMG (2024)³⁵⁶ has piloted predictive analytics platforms to optimise client risk assessments, while local firms such as Workforce Group and Human Capital Partners have deployed AI-powered recruitment platforms (Talent Recruit) and HR chatbots to streamline employee support. These developments signal an expanding reliance on AI within the Nigerian consulting ecosystem, though infrastructure gaps such as unstable power supply and limited broadband remain barriers (Okolo & Adeoye, 2021)³⁵⁷.

2.1.12.2 The Role of Leaders in the adoption of Artificial Intelligence in Organisations

Leaders play a critical role in the successful adoption and integration of Artificial Intelligence (AI) within organisations. As organisations increasingly embrace digital technologies, leadership becomes essential in providing direction, setting priorities, and creating an environment that supports innovation and technological advancement. The decisions made by organisational leaders often influence the extent to which AI initiatives are accepted, funded, and successfully implemented across different functional areas.

One of the primary responsibilities of leaders is to establish a clear vision for the use of AI within the organisation. This involves identifying areas where AI can improve efficiency, support decision-making, enhance service delivery, and contribute to overall organisational objectives. By communicating this vision effectively, leaders help employees understand the purpose of AI adoption and its relevance to organisational growth and performance.

Leaders are also responsible for fostering and enforcing cultures that encourage learning, adaptability, and openness to change. The introduction of AI often requires employees to acquire new skills and adjust to different ways of working. Through support for training, professional development, and knowledge-sharing initiatives, leaders can help build workforce readiness and improve employee confidence in using AI-enabled systems.

In addition, leaders play an important role in ensuring that AI technologies are implemented responsibly. This includes promoting transparency, accountability, ethical decision-making, and appropriate governance practices. By balancing technological innovation with employee well-being and organisational values, leaders can create conditions that support sustainable and effective AI adoption.

Furthermore, leadership is essential during periods of organisational change. The transition to AI-supported operations may create uncertainty among employees, making clear communication and active engagement particularly important. Leaders who provide guidance, encourage participation, and address concerns openly are more likely to achieve successful technology adoption and long-term organisational benefits.

2.1.13 Adoption of Artificial Intelligence by Nigerian Management Consulting Firms

³⁵⁵ PwC Nigeria (2025). AI in Nigeria Whitepaper. PwC.

³⁵⁶ KPMG (2025). Case Study: KPMG's Approach to AI Adoption. AI Expert Network

³⁵⁷ Okolo, C. & Adeoye, A. (2021). Digital Transformation in Africa's Professional Services Sector. *African Journal of Management*, 7(2), 145-160.

Among the Nigerian consulting firms, PwC and Deloitte have been early adopters of AI for audit automation and business intelligence. PwC Nigeria, for example, utilizes bots and automated risk engines to reduce repetitive manual audit tasks, freeing up staff for higher-order consulting work. Deloitte Nigeria has deployed AI within its audit and tax units, reporting measurable time savings and consistency in deliverables (Deloitte Africa, 2024)³⁵⁸.

Workforce Group and MacTay, while not as technologically mature, are investing in AI-driven HR solutions such as candidate screening bots and internal help desk assistants. These tools improve consultant productivity by reducing administrative burdens and improving response time. For example, Workforce Group introduced an internal AI chatbot in 2022 to assist consultants in retrieving HR policy documents and internal training guides, reducing email traffic by 30% (Workforce Group, 2023)³⁵⁹.

Human Capital Partners (HCP), Star Guide Consulting, and HUCAP, which specialize in talent advisory and organizational design, have also begun leveraging AI for productivity analytics, especially in remote workforce management. These tools support consultants in tracking deliverables, feedback loops, and time-on-task metrics that inform future client strategies.

Building on this, the OECD (2025)³⁶⁰ highlights how generative AI enables professionals, particularly in knowledge-intensive sectors to accelerate document preparation, reduce errors in communication, and shift time away from mundane tasks toward higher-order analysis. Such transformations are particularly relevant to consulting firms, where billable time is highly valued and operational precision is crucial. Although direct empirical evidence from Nigerian consulting firms remains limited, this growing global consensus suggests that AI-driven automation is likely to have a measurable, positive impact on productivity across administrative, research, and client-facing activities. This forms a robust foundation for examining sector-specific AI adoption in Nigeria's management consulting landscape.

With the widespread accessibility of AI platforms post-2020, some consulting firms began integrating data analytics tools to automate internal reporting, accelerate decision-making, and optimize workflows.

The Big Four management consulting and professional services firms in Nigeria such as PwC, Deloitte, Ernst & Young (EY), and KPMG alongside local entities such as Workforce Group and Human Capital Partners (HCP), are increasingly integrating advanced artificial intelligence (AI) systems across multiple operational domains to enhance service delivery, operational excellence, and strategic decision-making. Unlike earlier portrayals of AI adoption by smaller firms, these industry leaders leverage AI at scale, investing in both proprietary platforms and strategic partnerships with global AI technology providers to create transformational value within the Nigerian consulting landscape.

PwC Nigeria, for instance, exemplified an advanced AI adoption strategy through its formal AI assurance services. These services independently validate the design, deployment, and governance of AI systems for clients, addressing growing trust and compliance concerns linked to AI's increasing role in business decision-making. This initiative complements PwC's broader advisory offerings that

³⁵⁸ Deloitte (2024). The State of AI in 2024: Enterprise Adoption Patterns. Deloitte Insights.

³⁵⁹ Workforce Group. (2023). Internal Productivity Tools Post-COVID: AI Integration Impact Report.

³⁶⁰ OECD (2025). The Effects of Generative AI on Productivity, Innovation and Entrepreneurship.

focus on responsible AI governance, risk management, and data privacy compliance (PwC, 2025)³⁶¹. By delivering assurance around AI controls, PwC helps Nigerian organizations adopt AI with greater confidence, directly supporting digital transformation and regulatory adherence.

Similarly, Deloitte Nigeria has committed substantial resources towards embedding AI-driven solutions in consulting workflows, including strategic investment partnerships with global AI and cloud providers such as Google Cloud and NVIDIA. These collaborations enable Deloitte to integrate AI for analytical modelling, natural language processing, and process automation within client projects spanning finance, risk management, and human capital advisory. Deloitte's AI-enhanced approaches facilitate faster insight generation, scenario planning, and automated compliance tracking, thereby reducing project turnaround times and increasing consulting throughput (Deloitte, 2025)³⁶².

Ernst & Young's Nigerian practice has embraced advanced generative AI platforms, most notably EY.ai, developed in partnership with NVIDIA, which deploy AI agents across business functions including tax compliance, risk management, and finance optimization. EY.ai integrates proprietary domain-specific AI models with human knowledge to optimize operational processes for clients across sectors, improving the speed and accuracy of regulatory compliance workflows and risk assessments. The platform's scalable architecture currently supports thousands of EY tax and audit professionals worldwide, with localized applications for Nigerian clients to navigate fast-evolving regulatory environments (EY, 2024a)³⁶³.

KPMG Nigeria similarly integrates AI at multiple organizational levels, deploying machine learning algorithms and automated data tools to streamline audit quality, workforce planning, and client reporting. KPMG's AI initiatives focus on enhancing decision-making precision through real-time data analysis and predictive risk modelling. By automating labour-intensive workflows such as data cleansing, reconciliation, and scenario analysis, KPMG frees consulting consultants to concentrate on high-value strategic advice and client engagement, resulting in improved operational efficiency and client satisfaction (KPMG, 2025)³⁶⁴.

Local firms such as Workforce Group and Human Capital Partners (HCP) have also embraced AI technologies but typically concentrate on applied operational domains like recruitment process automation, workforce allocation, and internal analytics. Workforce Group has deployed AI-powered systems to optimize candidate screening and matching, using algorithmic insights to reduce hiring biases and accelerate recruitment cycles. HCP employs AI-augmented reporting tools that automate data synthesis and cleanse datasets, substantially reducing manual report production time from over 12 staff-hours weekly, thereby improving internal decision-making speed and consistency (Human Capital Partners, 2025)³⁶⁵.

Collectively, these AI integrations across top-tier and local Nigerian consulting firms underscore a broader industry trend: the shift from experimental AI projects to strategic, embedded AI deployments that enhance productivity, governance, and client value creation. This evolution is amplified by the firms' focus on responsible AI usage, including compliance with Nigeria's Data

³⁶¹ PwC Nigeria (2025). AI in Nigeria Whitepaper. PwC

³⁶² Deloitte (2024). The State of AI in 2024: Enterprise Adoption Patterns. Deloitte Insights.

³⁶³ EY (2024a). How Can AI Augment Your People to Realise Their Full Potential? London: EY.

³⁶⁴ KPMG (2025). Case Study: KPMG's Approach to AI Adoption. AI Expert Network.

³⁶⁵ Human Capital Partners (2025). Internal Report on AI-powered HR Transformations in Nigeria.

Protection Regulation (NDPR) and anticipation of forthcoming AI regulatory frameworks. In this context, AI adoption is positioned not simply as a technological upgrade but as a core driver of competitive differentiation and sustainable consulting excellence in the Nigerian marketplace.

PwC Nigeria and Deloitte Nigeria are leading in this domain, using AI-enhanced applicant tracking systems (ATS) and data-driven workforce planning models. For instance, PwC implemented an AI-driven screening engine that evaluates Resumes against job competencies using natural language processing (NLP). According to their 2023 Talent Report, this system reduced time-to-hire by 40% and improved candidate fit scores by 27%.

Workforce Group has developed proprietary algorithms to evaluate psychometric assessments and align candidates with job roles more accurately. Their AI-driven talent matching platform supports clients across sectors and enhances internal consultant placements as well. Similarly, MacTay has integrated AI into performance evaluation systems that predict consultant attrition risk based on engagement metrics and historical data trends (MacTay, 2024)³⁶⁶.

For firms like HUCAP and Star Guide Consulting, which are more focused on talent advisory and organizational development, AI tools have been used to create dynamic succession planning models and skills heat maps. Human Capital Partner's 2023 project with a multinational client in Lagos used AI to visualize talent mobility across teams, helping to proactively plan for retirement and re-skilling.

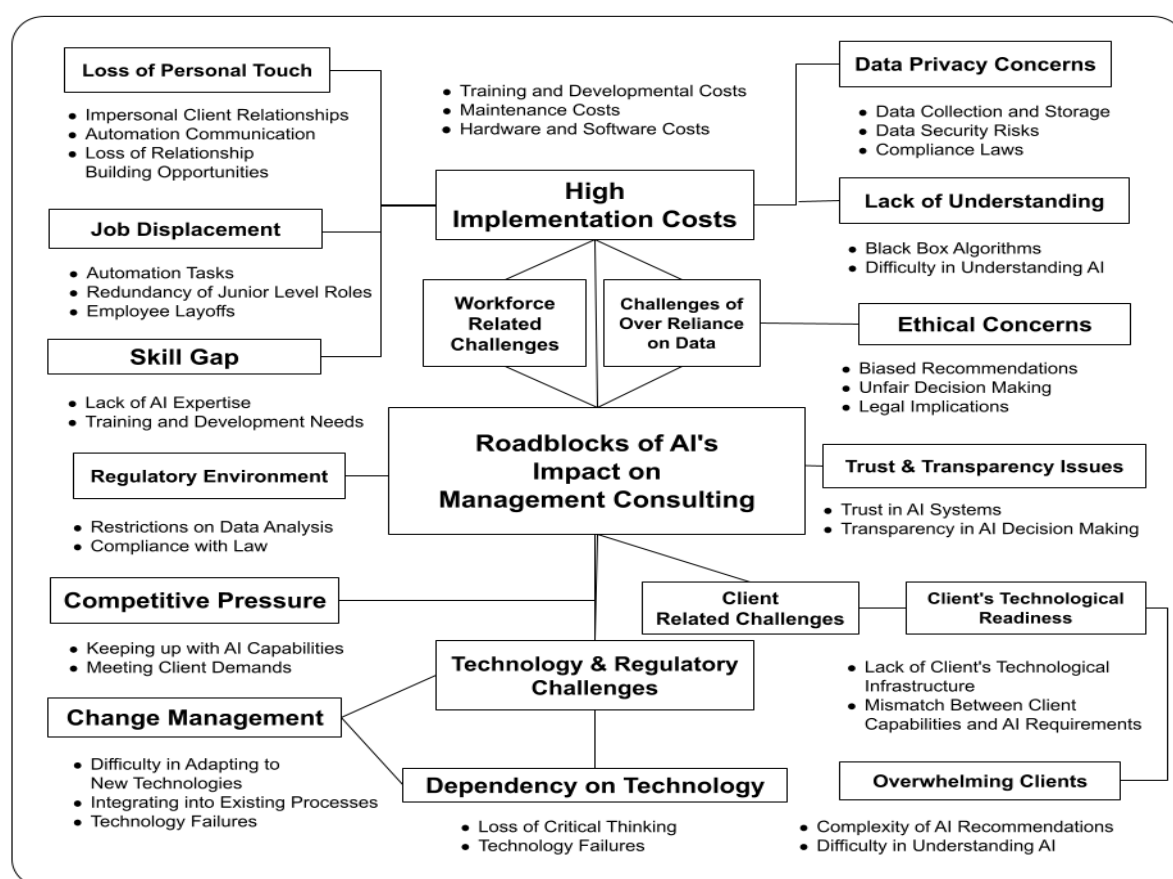


Figure 2. Roadblocks of AI's Impact on Management Consulting.

³⁶⁶ MacTay Consulting (2024). AI-Driven Workforce Insights for Consulting Firms.

2.1.14 AI Ethics and Algorithmic Bias in Consulting Workflows

As AI technologies become deeply embedded in organizational operations, ethical concerns regarding fairness, accountability, and bias have emerged. Pre-2020 studies primarily warned of these risks in algorithmic decision-making in sectors such as finance and healthcare (Barocas & Selbst, 2016)³⁶⁷.

In consulting firms, ethical concerns gained traction post-2020 as AI tools were applied in talent selection, performance evaluation, and automated project staffing. Binns (2022) notes that without oversight, algorithms can replicate existing workplace inequalities, especially in firms where human oversight of AI outputs is limited.

According to the OECD (2025)³⁶⁸, biases in AI systems may arise from imbalanced training data or misaligned incentive structures, particularly when AI models are trained on western-centric data and then deployed in African contexts without localization. For Nigerian consulting firms, this presents challenges: uncritical adoption of AI-based hiring tools can lead to cultural mismatch, socioeconomic bias, and exclusion of talented candidates who don't fit predefined digital profiles.

Deloitte (2024)³⁶⁹ has emphasized the need for “ethical AI playbooks” that align automation with diversity and inclusion objectives. Ethical AI adoption frameworks, such as IBM's AI Fairness 360, are becoming increasingly necessary in corporate environments to mitigate bias and enhance explainability. Therefore, while AI has operational advantages, Nigerian consulting firms must consider fairness audits, localized training datasets, and human-in-the-loop systems to mitigate unintended bias and ensure ethical deployment.

2.2 Theoretical Framework

This study adopts a multi-theoretical lens to examine AI adoption and its organizational effects in Nigerian management consulting firms. The Technology Acceptance Model (TAM), Socio-Technical Systems Theory, and the Resource-Based View (RBV) of the firm collectively provide a robust framework. These theories link consulting-specific dynamics such as knowledge-intensive project delivery, client-facing advisory roles, and competitive differentiation to AI adoption. They address individual acceptance, organizational alignment, and strategic resource orchestration. Here are three key frameworks that explain the adoption and effects of AI in consulting firms:

2.2.1 Technology Acceptance Model (TAM)

Originally developed by Davis (1989)³⁷⁰, TAM posits that two factors Perceived Usefulness and Perceived Ease of Use determine technology adoption. It explains and predicts user acceptance of information technology. TAM's core assumptions include that technology adoption stems primarily from individual cognitive evaluations rather than solely from external mandates or technical specifications. Its two primary constructs Perceived Usefulness (PU) (the degree to which a person believes that using the system would enhance job performance) and Perceived Ease of Use (PEOU)

³⁶⁷ Barocas, S. & Selbst, A.D. (2016) Big Data's Disparate Impact. *California Law Review*, 104(3), 671–732.

³⁶⁸ OECD (2025). The Effects of Generative AI on Productivity, Innovation and Entrepreneurship.

³⁶⁹ Deloitte. (2024). State of generative AI in the enterprise 2024. Deloitte Insights. <https://www.deloitte.com/ce/en/services/consulting/research/state-of-generative-ai-in-enterprise.html>

³⁷⁰ Davis, F.D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319–340.

(the degree to which a person believes that using the system would be free of effort) drive attitude toward use, behavioural intention, and actual system use.

Key propositions state that PU and PEOU are influenced by external variables (e.g., system design, training, and user characteristics), with PU often exerting a stronger direct effect on intention. In the context of AI in consulting, this model explains why certain tools (e.g., chatbots or workflow automation) achieve high uptake especially when users find them intuitive and valuable for everyday work (Venkatesh & Davis, 2000)³⁷¹. Underlying mechanisms operate through a parsimonious causal chain: external stimuli shape beliefs (PU and PEOU), which form attitudes and intentions, ultimately leading to usage behavior. In consulting contexts, this manifests as consultants evaluating AI tools (e.g., generative AI for research synthesis, chatbots for client query handling, or workflow automation for proposal generation) based on whether they accelerate deliverable production or reduce cognitive load without disrupting client interactions.

Critically, TAM has strengths in its simplicity and predictive power, validated across numerous studies, but faces limitations in overlooking broader organizational, cultural, or ethical factors, especially in developing contexts like Nigeria, where digital literacy gaps, infrastructure constraints, and hierarchical firm cultures may moderate PEOU. This study addresses these by integrating TAM with contextual variables. It informs the research problem by guiding analysis of why certain AI tools achieve high uptake among consultants (e.g., intuitive analytics platforms that demonstrably improve project efficiency) while others face resistance. It supports interpretation of findings on productivity gains versus adoption barriers.

The Technology Acceptance Model (TAM) is relevant to this study as it helps explain how and why consultants adopt AI tools in their daily work. The model suggests that employees are more likely to use AI when they believe it will improve their job performance and when it is easy to use. In the context of Nigerian management consulting firms, the perceived usefulness and ease of use of AI tools can influence the extent to which employees integrate these technologies into their work processes. This is important because the successful adoption of AI is closely linked to improvements in employee productivity and operational efficiency, which are the main focus of this study. Therefore, TAM provides a useful framework for understanding the factors that encourage or hinder AI adoption and its resulting impact on organizational performance.

2.2.2 Socio-Technical Systems Theory

The Socio-Technical Systems Theory argues that successful technology implementation depends on the alignment between technical systems and the social context of work (Baxter & Sommerville, 2011)³⁷². Consulting firms that implement AI without reconfiguring workflows or providing training often fail to achieve desired outcomes. In Nigeria, socio-cultural alignment (e.g., training style, digital literacy) is critical to AI success.

Core assumptions include interdependence between people, processes, technology, and organizational context; systems are open and influenced by their environment; and design must prioritize human well-being alongside technical efficiency.

³⁷¹ Venkatesh, V. & Davis, F.D. (2000) A Theoretical Extension of the TAM. *Management Science*, 46(2), 186–204.

³⁷² Baxter, G. & Sommerville, I. (2011). Socio-technical systems: From design methods to systems engineering. *Interacting with Computers*, 23(1), 4–17.

Key propositions emphasize that mismatches between technical capabilities and social structures (e.g., workflows, culture, skills) lead to suboptimal outcomes, such as low adoption, errors, or unintended consequences. Underlying mechanisms involve iterative alignment: redesigning tasks, roles, training, and organizational practices concurrently with technology introduction to achieve “joint optimization.”

In consulting firms, this theory highlights the need to reconfigure project workflows, team collaboration norms, and client engagement protocols alongside AI deployment. For instance, implementing AI-driven data analytics requires not only robust tools but also upskilling consultants, adjusting performance metrics, and addressing socio-cultural factors like trust in AI recommendations within Nigeria’s context of varying digital literacy and preference for human judgment in advisory roles.

Critically, STS provides a holistic counterbalance to purely technology-centric models but can be challenging to operationalize due to its breadth. In this Nigerian consulting study, it directly informs the research problem by underscoring risks of failed AI integration without socio-cultural alignment (e.g., training styles adapted to local contexts). It guides analysis toward examining workflow reconfigurations and training impacts, while supporting findings on ethical implications and employee transitions.

The Socio-Technical Systems (STS) Theory recognizes that the successful use of AI in management consulting firms depends not only on the technology itself but also on the people and organizational systems that interact with it. The theory suggests that improvements in employee productivity and operational efficiency can only be achieved when AI tools are effectively integrated into existing work processes and supported by appropriate training, leadership, and organizational culture. In the context of Nigerian management consulting firms, employees may possess different levels of digital literacy, experience, and willingness to adopt AI-driven tools. As a result, introducing AI without preparing employees or adapting workflows may limit its effectiveness and reduce the expected productivity benefits. The theory supports the examination of how training, workflow redesign, employee acceptance, and organizational support influence the overall impact of AI on productivity and operational efficiency. By considering both technological and human factors, STS provides a comprehensive framework for understanding the opportunities and challenges associated with AI implementation in Nigerian management consulting firms between 2020 and 2025.

2.2.3. Resource-Based View (RBV) of the Firm

Resource-based view emphasizes the importance of strategic resources such as talent, innovation capability, and technological advantage in maintaining competitive edge (Barney, 1991)³⁷³. AI capabilities in consulting when unique, hard to imitate, and embedded in firm culture become strategic assets. Nigerian firms investing in proprietary AI models and upskilling teams may achieve sustainable differentiation.

The literature indicates a considerable impact of AI technologies on employee productivity and operational efficiency in Nigerian management consulting firms. As firms adopt AI-driven automation, data analytics, and streamlined talent acquisition processes, they position themselves to improve their competitive advantage in the marketplace. However, successfully integrating AI requires a thoughtful approach that addresses ethical implications and prepares employees for the technological transition.

³⁷³ Barney, J. (1991) Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99–120.

Core assumptions are resource heterogeneity (firms possess unique resource bundles) and resource immobility (resources are not easily transferred across firms). Valuable, rare, inimitable, and non-substitutable (VRIN) resources enable sustained competitive advantage.

Key propositions state that strategic resources tangible (e.g., technology infrastructure) and intangible (e.g., talent, culture, knowledge) drive superior performance when organized effectively (extended to VRIO framework). Underlying mechanisms involve resource orchestration: acquisition, bundling, and leveraging resources to create capabilities that competitors cannot readily replicate.

In consulting, AI capabilities become strategic assets when embedded in proprietary models, data assets, upskilled talent pools, and firm-specific innovation cultures. Nigerian firms investing in custom AI solutions and continuous upskilling can differentiate through faster, more insightful client deliverables that are hard to imitate due to localized knowledge integration.

Critically, RBV excels in explaining performance differentials but has been critiqued for underspecifying dynamic capabilities in rapidly evolving technological environments and potential tautology in resource valuation. This study links RBV explicitly to the context by demonstrating how AI-related resources (e.g., talent with AI fluency) address the research problem of competitive positioning in Nigeria's consulting market. It guides analysis of resource investments versus outcomes and interprets findings on sustainable differentiation amid ethical and transitional challenges.

Collectively, these frameworks provide complementary insights: TAM at the individual level, STS at the implementation/organizational alignment level, and RBV at the strategic/resource level. They inform the study's emphasis on productivity gains, operational efficiency, competitive advantage, and the need for thoughtful integration addressing ethics and employee preparation in Nigerian management consulting firms. This multi-theoretical approach strengthens the scholarly contribution by offering a nuanced, contextually grounded understanding of AI's organizational impact.

The literature indicates a considerable impact of AI technologies on employee productivity and operational efficiency in Nigerian management consulting firms. As firms adopt AI-driven automation, data analytics, and streamlined talent acquisition processes, they position themselves to improve their competitive advantage in the marketplace. However, successfully integrating AI, requires a thoughtful approach that addresses ethical implications and prepares employees for the technological transition.

2.3 Empirical Review

According to the research conducted by Adeyemo and Okoronkwo (2024)³⁷⁴, artificial intelligence has proven to be exceptionally beneficial in service-centric industries, where factors such as operational speed, accuracy, customer responsiveness, and the coordination of processes are paramount determinants of organisational success. The increasing dependence on artificial intelligence is thus indicative of a more comprehensive organisational paradigm shift from conventional manual systems towards intelligent, data-driven operational frameworks that are capable of sustaining efficiency amidst fiercely competitive market conditions.

³⁷⁴ Adeyemo, F. S., & Okoronkwo, G. (2024). Artificial intelligence and operational efficiency of deposit money banks in Lagos State, Nigeria. Technology management and the challenges of sustainable development: A Festschrift for Professor Matthew Olugbenga Ilorin, 4-15.

Ifekanandu et al. (2023)³⁷⁵ further contend that the relevance of artificial intelligence in contemporary organisational environments has escalated significantly due to its inherent capability to enhance decision-making processes, diminish the incidence of human error, and automate repetitive tasks that frequently consume invaluable time and resources within organisations. Historically, organisations relied heavily on manual labour, routine administrative systems, and human judgement to navigate their operational landscapes. While these traditional methodologies proved effective in less complex environments, they have increasingly demonstrated their inadequacy in an era that is marked by digital disruption, an overload of information, and escalating consumer expectations. Modern organisations are now acutely aware that sustaining a competitive edge necessitates the incorporation of intelligent technologies that can augment operational flexibility, responsiveness, and the capacity for innovation. Consequently, advanced technologies such as machine learning, natural language processing, predictive analytics, and robotic process automation are progressively being woven into the fabric of organisational workflows, with the intent of enhancing operational outcomes and optimizing the utilization of resources (Omemgbeoji & Ofor, 2024)³⁷⁶.

Ndubuisi-Okolo et al. (2025)³⁷⁷ have articulated that as organisations progressively embrace data-driven management methodologies, the strategic significance of artificial intelligence in realising operational excellence and sustainable performance becomes increasingly pronounced and vital.

Ola-Oluwa (2024) ~~has keenly~~ observed that artificial intelligence significantly contributes to organisational efficiency through the automation of time-consuming tasks that would typically burden human operators, the augmentation of analytical capabilities that enhance data interpretation, and the facilitation of rapid responses to various operational challenges that organisations may encounter. In many contemporary organisations, vast volumes of operational data are generated on a daily basis through a multitude of sources including customer transactions, employee activities, financial records, and various forms of digital communications. The manual management of such extensive data sets often leads to inefficiencies, delays, and inaccuracies that can detrimentally affect overall performance. However, artificial intelligence systems possess the advanced capacity to analyse and interpret complex datasets within remarkably shorter timeframes than their human counterparts, thereby enabling organisations to make faster, more accurate, and data-driven decisions that significantly improve operational effectiveness and enhance strategic positioning in competitive environments.

In alignment with the findings of Omemgbeoji and Ofor (2023)³⁷⁸, it can be posited that multinational corporations are strategically situated to secure enduring success in the context of the digital economy, primarily due to the profound integration of artificial intelligence (AI) into various facets of their business operations, which has markedly contributed to significant reductions in costs, enhancements in operational effectiveness, advancements in innovation, and the establishment of new streams of revenue. The implementation of AI technologies empowers organizations to automate a plethora of repetitive tasks, thereby diminishing administrative expenditures, curtailing operational

³⁷⁵ Ifekanandu, C. C., Ezirim, A. C., & Kingsley, U. A. (2023). Artificial Intelligence Adoption and Marketing Performance of Quoted Manufacturing Firms in Nigeria. *Int. J. Innov. Sci. Res. Technol*, 8, 1194-1207.

³⁷⁶ Omemgbeoji, I. S., & Ofor, N. (2024). Artificial intelligence in accounting and firm effectiveness among manufacturing companies in Nigeria. *International Journal of Social Sciences and Management Research*, 10(8), 30-46.

³⁷⁷ Ndubuisi-Okolo, U. P., Eneh, O. M., & Anyahara, I. O. (2025). The impact of artificial intelligence on sustainability and operational efficiency of small and medium scale businesses in south-east, Nigeria. *European Journal of Research and Reflection in Management Sciences*, 13(1).

³⁷⁸ Omemgbeoji, I. S., & Ofor, N. (2023). Artificial intelligence in accounting and firm effectiveness among manufacturing companies in Nigeria. *International Journal of Social Sciences and Management Research*, 10(4), 30 – 46.

inefficiencies, and ultimately augmenting overall productivity levels across the board. Through the lens of intelligent automation, organizations can expedite transaction processing, alleviate labour-intensive activities, and reallocate human resources towards higher-value strategic functions that require cognitive engagement. Moreover, the innovative capabilities driven by AI foster the creation of novel products, services, and business models that are adept at meeting the continuously evolving demands of consumers and the expectations prevailing in the market landscape. Consequently, organizations that adeptly weave AI into their strategic frameworks stand a significantly higher chance of attaining sustainable growth, enhanced profitability, fortified customer loyalty, and amplified market competitiveness in an era that is increasingly defined by digital transformation.

2.3.1 Empirical Studies Associated with Early Years of AI Technologies

The early development of artificial intelligence can be understood through a series of foundational theories and experiments that emerged in the mid-20th century. This period marked the beginning of efforts to model human cognition and decision-making using computational systems. Key contributions during this time established the theoretical and structural basis for AI, particularly in the areas of neural networks, learning processes, and rational decision-making, which continue to influence the field today.

In the 1940s and 1950s, Period Artificial neurons were developed by Warren McCulloch, and Walter Pitts, laying the grounds for creating an artificial intelligence model (Benko, 2009)³⁷⁹. In 1944, the authors, J. Neumann and O. Morgenstern articulated the theory of decisions that gave formal and integrated ways of specifying agents' orders of preference (Benko, 2009). In 1949, Donald Hebb created the rule to change the weight of the connections between artificial neurons, making learning possible (Benko, 2009).

In 1949, computer scientist Edmund Callis Berkeley published *Giant Brains: Or, Machines That Think*, which explored the capabilities of early computers and compared them to the human brain (Berkeley, 1949)³⁸⁰. It shows how all these theoretical leaps translate into real-world advancement that helped lay the foundations for many of the concepts and structures that would be developed in the coming decades (Guerrero, 2023)³⁸¹.

According to Rockwell (2017)³⁸² prior to 1949, computers were limited in their ability to demonstrate intelligence, as they could only execute commands but could not store them. Early computers could follow instructions but lacked the ability to retain previous operations. Additionally, computing was extremely expensive, with leasing costs reaching as high as \$200,000 per month, restricting access to only top universities and major technology firms. To secure funding for artificial intelligence research, advocates had to provide convincing demonstrations and strong support from influential figures (Marquis et al., 2020; Reiff, 2023)³⁸³.

³⁷⁹ Benko, A. & Sik Lányi, C. (2009). History of Artificial Intelligence in Encyclopedia of Information Science and Technology, 2nd edn. IGI Global, pp. 1759–1762.

³⁸⁰ Berkeley, E.C. (1949). *Giant Brains: Or, Machines That Think*. New York: John Wiley & Sons.

³⁸¹ Guerrero, J.M. (2023). Chapter 5 - The History of Modern Artificial Intelligence in *Mind Mapping and Artificial Intelligence*. Academic Press, USA, 131–161.

³⁸² Rockwell, A. (2017). *The History of Artificial Intelligence*. Harvard University.

³⁸³ Marquis, P., Papini, O., & Prade, H. (2020). Elements for a history of artificial intelligence. In *A guided tour of artificial intelligence research: Volume I: Knowledge representation, reasoning and learning* (pp. 1–43). Cham: Springer International Publishing.

In 1950, British mathematician Alan Turing gave a revolutionary paper called “Computing Machinery and Intelligence”, where he tried to answer the question of whether machines can be made to think like men and reason. This insightful paper inspired him to create the Turing Test, a criterion of intelligence referring to a human-level performance equal to or indistinguishable from an intelligent agent-achieving artificial machine (Kaul et al., 2020)³⁸⁴. This test determined whether a computer can think intelligently like a human (Turing, 2009)³⁸⁵. In his 1950 paper, Alan Turing suggested that by the end of the century, computers might reach a level of sophistication where they could imitate human thinking so effectively that an interrogator would often mistake them for a person during a short conversation (Turing, 1950).

Copeland (2024)³⁸⁶ opined that in the early 1950s, significant milestones were achieved in the development of computer systems. In 1950, Claude Shannon developed an electromechanical device called Theseus, a maze-solving mouse capable of learning and remembering its route using relay circuits, marking an early example of machine learning (Klein, 2018)³⁸⁷.

According to Rockwell (2017) in 1956, the activation of the Logic Theorist program written by Allen Newell, Cliff Shaw and Herbert Simon marked a turning point in the development of artificial intelligence.

One of the pivotal moments in AI history was the Dartmouth Summer Research Project in 1956, organized by John McCarthy along with Marvin Minsky, Nathaniel Rochester, and Claude Shannon. This event is widely regarded as the birth of artificial intelligence as a field, and it was here that McCarthy introduced the term “**Artificial Intelligence**” (Dartmouth workshop, 1956)³⁸⁸.

McCarthy saw his glass as half-full, and the conference ushered in a new era in the race to attain Artificial Intelligence (Rockwell, 2017). It was at this conference that Artificial Intelligence acquired its official name, articulated its core mission, celebrated its earliest successes, and assembled the foundational key players who would shape the field (Moor, 2006)³⁸⁹.

As the dust settled after the conference, the term “Artificial Intelligence” underwent a profound transformation, evolving from a narrow focus on rule-based systems to encompass the broader realm of complex, data-driven decision-making and predictive analytics, fuelled by the exponential growth of massive datasets and sophisticated machine learning algorithms (Jones, 2023)³⁹⁰.

Rockwell (2017) highlighted that between 1957 and 1974, the field of artificial intelligence witnessed rapid development and significant growth in a short period. Advances in computer technology significantly enhanced storage capacity, processing speed, and affordability, making systems more accessible. These improvements allowed machine learning techniques to progress, enabling specialists to choose algorithms best suited for specific tasks. This synergy between technological

³⁸⁴ Kaul, V., Enslin, S. & Gross, S.A. (2020). History of Artificial Intelligence in Medicine. *Gastrointestinal Endoscopy*, 92(4), 807–812.

³⁸⁵ Turing, A.M. (2007) ‘Computing Machinery and Intelligence’, in *Parsing the Turing Test*, pp. 23–65.

³⁸⁶ Copeland, B.J. (2024). History of Artificial Intelligence (AI)’, *Encyclopedia Britannica*.

³⁸⁷ Klein, D. (2018). Mighty Mouse. *MIT Technology Review*, 19 December.

³⁸⁸ Dartmouth workshop (1956). *Dartmouth Summer Research Project on Artificial Intelligence*.

³⁸⁹ Moor, J. (2006). The Dartmouth College artificial intelligence conference: The next fifty years. *AI magazine*, 27(4), 87-87.

³⁹⁰ Jones, M.L. (2023). AI in History. *The American Historical Review*, 128(3), 1360–1367.

development and expert knowledge created a strong foundation for continued innovation in artificial intelligence (Iyengar et al., 2025)³⁹¹.

Coursera Staff (2024)³⁹² pointed out that in 1966, this pioneering program was designed to mimic a therapy session by reusing user-provided answers to questions, prompting further conversation. Joseph Weizenbaum created ELIZA (a program that acted like a therapist) in the 1960s to illustrate the simplicity of machine intelligence, expecting its limitations to be obvious. Surprisingly, users often perceived the program as genuinely human-like, with some even believing they were conversing with a real therapist. Weizenbaum later expressed concern over this reaction, noting how challenging it was to persuade people that ELIZA was not a person (Weizenbaum, 1976)³⁹³.

According to Mijwel (2015)³⁹⁴, since the mid-1970s, researchers' focus on artificial intelligence have shifted from experimental projects to building practical systems, with knowledge representation methods taking the forefront. With the growing interest in AI, expert systems became a dominant focus, using rule-based knowledge to assist decision-making in specialized domains. The 1980s marked a major boom in AI research, fueled by expanded algorithmic approaches and substantial financial investment. This era also saw the rise of neural network models, including Hopfield networks and backpropagation methods introduced by John Hopfield and David Rumelhart, which allowed machines to learn from data and enhance performance through experience (Hopfield, 1982)³⁹⁵.

The leaders of the Fifth-Generation Project envisioned it as a revolutionary leap in computer technology with the potential to propel Japan to the forefront of technological innovation for years to come (Rockwell, 2017). Smith (2006)³⁹⁶ mentioned that unlike traditional computers, which relied on standard microprocessors, the project focused on developing multi-process or machines designed explicitly for logic programming. The project's proponents believed that these powerful logic machines would profoundly impact the world of information processing, ultimately enabling the achievement of artificial intelligence.

Basuru (2020)³⁹⁷ stated that in 1985, Dr. Geoffrey Hinton introduced a multi-layer neural network with greater capabilities called, the Boltzmann Machine. It was one of the first multi-layer neural networks capable of learning internal representations and solving combinatorial problems in a given time. In the late 1980s, the American Association for Artificial Intelligence (AAAI) was established, driven by the rapid advancements in AI research and the desire to develop further and promote the field.

The organization's initial goals included publishing a journal, hosting workshops, and organizing an annual conference. Over time, the AAAI became a leading authority in the field, aiming to advance

³⁹¹ Iyengar, S.S., Nabavirazavi, S., Hariprasad, Y., Prasad, H.B. & Mohan, C.K. (2025). The Evolution of Artificial Intelligence and Machine Learning in Artificial Intelligence in Practice. Signals and Communication Technology. Springer. pp. 3–26.

³⁹² Coursera Staff (2024). The History of AI: A Timeline of Artificial Intelligence', Coursera.

³⁹³ Weizenbaum, J. (1976). Computer Power and Human Reason: From Judgment to Calculation. San Francisco: W.H. Freeman.

³⁹⁴ Mijwel, M. M. (2015). History of artificial intelligence yapay zekânın t arihi. Computer Science, 3-4.

³⁹⁵ Hopfield, J.J. (1982). Neural networks and physical systems with emergent collective computational abilities. Proceedings of the National Academy of Sciences, 79(8), 2554–2558.

³⁹⁶ Smith, C. (2006). The History of Artificial Intelligence. University of Washington.

³⁹⁷ Basuru, V. (2020). The Evolution of Artificial Intelligence.

the scientific understanding of the mechanisms underlying thought and intelligent behaviour and explore ways to embody these mechanisms in machines (Coursera Staff, 2024)³⁹⁸.

The concept of digitizing physical literature gained momentum when the initiative focused on analysing a digital collection of 359 astronomy textbooks published between 1472 and 1650 to uncover new insights into developing scientific thoughts (Alalaq, 2025)³⁹⁹.

One of the most ambitious efforts was led by Jürgen Renn, a physicist turned historian and Director at the Berlin-based Max Planck Institute for History of Science. Renn imagined putting all knowledge written over the past millennium within reach of everyone on Earth with a computer and Internet connection, thereby breaking down constraints imposed by language and academic specialization. Digitizing historical documents is not new, but Renn is part of a new generation of historians who wanted to push it further. They have layered many annotation types and are organizing their databases to be fully searchable so researchers can follow concepts across languages and fields. Renn was also involved in another collaboration with a team based in Florence to create “The Dome Years,” an electronic archiving of more than 14,000 administrative entries on the construction of the city's cathedral (Abbott, 2001)⁴⁰⁰.

In 1992, Jürgen Renn, Peter Damerow, and Paolo Galluzzi launched the “Galileo Einstein Electronic Archive,” a ground breaking initiative to make historical sources freely accessible online, supported by the European community. Building on this success, Renn established the European Cultural Heritage Online (ECHO) initiative to promote the study of historical sources online and foster a new era of digital scholarship (Alalaq, 2025)⁴⁰¹.

2.3.2 Studies on Artificial Intelligence Adoption in Nigerian Management Consulting Firms

In the expansive field of management consulting, the integration of artificial intelligence has grown increasingly prevalent, manifesting itself in a diverse array of sophisticated tools that are specifically engineered to fulfill numerous objectives, which include, but are not limited to, the comprehensive analysis of data, the intricate generation of insights pertinent to clients, the automation of various business processes, the modeling of potential scenarios, and the delivery of personalized advisory services meticulously crafted to align with the distinct requirements of individual clients, as elucidated by Orabueze and Amah (2025)⁴⁰², alongside the contributions of Olayanju (2025)⁴⁰³.

The management consulting entities that are operational within the geographical confines of Nigeria carry the substantial responsibility of providing an extensive spectrum of advisory services, which encompass critical domains such as strategic planning, operational enhancement, financial advisory, human resource management, and initiatives aimed at digital transformation, thereby addressing the needs of both public sector organizations as well as private sector enterprises alike. These consulting firms navigate a highly knowledge-intensive and project-oriented environment, a landscape that is

³⁹⁸ Coursera Staff (2024). The History of AI: A Timeline of Artificial Intelligence', Coursera.

³⁹⁹ Alalaq, A. (2025). The History of the Artificial Intelligence Revolution and the Nature of Generative AI Work. DS Journal of Artificial Intelligence and Robotics, 2, 1–15.

⁴⁰⁰ Abbott, A. (2017). The Time Machine' Reconstructing Ancient Venice's Social Networks. *Nature*, 546, 341–344.

⁴⁰¹ Alalaq, A. (2025). The History of the Artificial Intelligence Revolution and the Nature of Generative AI Work. DS Journal of Artificial Intelligence and Robotics, 2, 1–15.

⁴⁰² Orabueze, M. C., & Amah, L. (2025). Influence of artificial intelligence on organisational resilience in consulting firms.

⁴⁰³ Olayanju, A. (2025). Artificial intelligence tools and consulting service delivery in Nigeria.

distinctly characterized by significant levels of interaction with clients, a pronounced reliance on insights derived from data analytics, and a strategic differentiation of their services that is heavily contingent upon the demonstration of specialized expertise, as indicated by Ossai in (2025)⁴⁰⁴ and Nwosu (2024)⁴⁰⁵.

In their research, Sehirli and Alesmaeil (2022)⁴⁰⁶ posited that the fundamental objective of AI is to serve as an assistant to human beings in performing a variety of specific functions and activities, given that these technologies have been meticulously designed to emulate human thought processes and learning patterns. This perspective suggests that Artificial Intelligence does not inherently aim to entirely replace human labour; rather, it seeks to complement and augment human capabilities by efficiently managing complex computations, executing repetitive tasks, conducting predictive analyses, and automating routine operational activities that would otherwise consume significant human resources.

Moreover, AI systems are crafted to replicate various facets of human cognition, including reasoning, learning, problem-solving, perception, and decision-making, thereby bridging the gap between human intelligence and machine capabilities. By leveraging advanced technologies such as machine learning, deep learning, natural language processing, robotics, and computer vision, these AI systems exhibit a remarkable ability to continuously refine their performance by learning from vast datasets and previous experiences. This inherent adaptability renders AI exceptionally valuable in organizational settings where there is a pressing need to process substantial volumes of information swiftly and accurately to facilitate effective decision-making.

Furthermore, the integration of AI serves to alleviate the workload pressures faced by employees, minimize the occurrence of human errors, enhance the consistency of operations, and empower workers to devote their efforts toward more strategic and creatively demanding responsibilities that inherently require emotional intelligence, critical thinking, and meaningful interpersonal interactions.

It is particularly noteworthy that Nigerian scholars have discerned that the incorporation of artificial intelligence within this consulting sector harbors the potential to substantially augment efficiency across a multitude of areas, including research initiatives, the processes involved in report generation, techniques for predictive forecasting, and the management of relationships with clients; nonetheless, this transformative potential remains predominantly underutilized when compared to its application in other sectors, such as financial technology or manufacturing, as outlined by Ifekanandu (2025)⁴⁰⁷ and further analyzed by Obichili and Asiegbu (2025)⁴⁰⁸. For instance, the scholarly work conducted by Orabueze and Amah (2025)⁴⁰⁹ conceptualizes the multifaceted role of artificial intelligence within consulting firms located in Rivers State, encompassing applications of machine learning aimed at the identification of intricate patterns, the employment of advanced data analytics to generate evidence-

⁴⁰⁴ Ossai, P. (2025). Project-based consulting environments and organizational performance in Nigeria.

⁴⁰⁵ Nwosu, E. (2024). Knowledge-intensive service environments and consulting practices in Nigeria. [Publication details not fully available].

⁴⁰⁶ Sehirli, E., & Alesmaeil, A. (2022). Detecting face-touch hand moves utilising smartwatch inertial sensors and convolutional neural networks. *International Journal of Intelligent Systems and Applications in Engineering*, 10(1), 122–128.

⁴⁰⁷ Ifekanandu, C. C., Ezirim, A. C., & Kingsley, U. A. (2023). Artificial Intelligence Adoption and Marketing Performance of Quoted Manufacturing Firms in Nigeria. *Int. J. Innov. Sci. Res. Technol*, 8, 1194-1207.

⁴⁰⁸ Obichili, M., & Asiegbu, B. (2025). Artificial intelligence adoption in Nigeria's consulting sector.

⁴⁰⁹ Orabueze, C., & Amah, E. (2025). Artificial intelligence applications in consulting firms in Rivers State.

based recommendations, and the implementation of robotics or process automation techniques designed to optimize operational workflows, each of these facets is inherently connected to the overarching theme of bolstering organizational resilience in the face of market challenges.

On an international scale, the integration of artificial intelligence within management consulting firms has instigated a profound transformation in the manner in which services are delivered, a shift that is characterized by the automation of routine tasks, enhanced capabilities in analytics, and the strategic utilization of generative AI technologies for the formulation of comprehensive strategic frameworks, as highlighted by Kraus *et al.* (2022)⁴¹⁰, and referenced in the works of Uzoamaka (2025)⁴¹¹. In the context of developed economies, leading consulting firms such as McKinsey and the Boston Consulting Group have documented substantial enhancements in productivity, with reported improvements ranging from an impressive 20% to an astonishing 40% due to the strategic implementation of artificial intelligence tools within their operational frameworks, as noted in the findings presented by PwC/LBS (2025). However, it is imperative to recognize that Nigerian authors approach these optimistic findings with a degree of prudence, particularly within the framework of developing markets, as they underscore the prevailing infrastructural challenges and the existence of skill shortages that compound the obstacles to the effective adoption of these advanced technological solutions, as articulated by Hassan (2024)⁴¹² and Ogunbodede (2025)⁴¹³. Furthermore, in other African nations or emerging economies, research has similarly illuminated comparable trends indicating low to moderate rates of adoption of artificial intelligence, which are predominantly driven by a careful consideration of the balance between costs and benefits associated with the deployment of such technologies, as observed by Yesuf (2025)⁴¹⁴.

The implications that emerge from these critical research findings suggest that artificial intelligence systems inherently possess an extraordinary capacity to significantly enhance the efficiency of organizational operations, effectively reduce delays, and remarkably minimize redundancies, and substantially improve the coordination of various business activities, as thoroughly documented in the scholarly contributions of Omonzejele and Okogun (2025)⁴¹⁵ in conjunction with the insights provided by Ahmad (2026)⁴¹⁶.

In the intricate framework of management consulting firms, where pivotal operational elements encompass project timelines, client reporting, strategic analysis, and the management of communication, the integration of artificial intelligence (AI)-driven systems has the potential to significantly alleviate administrative bottlenecks while concurrently enhancing the organization's overall responsiveness to both internal and external demands, a phenomenon that has been aptly

⁴¹⁰ Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2022). Digital transformation in business and management research: An overview of the current status quo.

⁴¹¹ Uzoamaka, H. (2025). Sustainability improvements in Anambra State SMEs through AI.

⁴¹² Hassan, M. (2024). Infrastructure challenges and artificial intelligence adoption in developing economies.

⁴¹³ Ogunbodede, K. F. (2025). Artificial intelligence in Nigeria: A catalyst for economic growth, innovation, and technological advancement. Faculty of Natural and Applied Sciences Journal of Computing and Applications.

⁴¹⁴ Yesuf, A. (2025). Artificial intelligence adoption trends in African emerging economies.

⁴¹⁵ Omonzejele, S., & Okogun, E. (2025). Digital intelligence and management consulting performance in Nigeria. International Journal of Consulting and Innovation Management, 4(1), 1–20.

⁴¹⁶ Ahmad, R. (2026). Artificial intelligence and strategic decision-making in modern enterprises. International Journal of Intelligent Systems and Business Analytics, 14(1), 1–18.

highlighted by the scholarly works of Ola-Oluwa (2024)⁴¹⁷, as well as the investigations conducted by Chukwuka and Imide (2025)⁴¹⁸.

Furthermore, comprehensive research performed by Vaikosen (2025)⁴¹⁹, in conjunction with the empirical studies conducted by Efosa and Faith within the same year, provides robust support for the claim that the adoption of AI technologies can effectuate notable advancements in operational efficiency, primarily through the considerable reduction of manual processes, the eradication of repetitive tasks, and the substantial minimization of operational errors that frequently plague traditional consulting methodologies. Such findings carry significant implications for the consulting industry, particularly given that consulting operations typically require extensive documentation, scrupulous report preparation, systematic scheduling, thorough data interpretation, and ongoing client engagement, as extensively discussed by Anushiem (2024)⁴²⁰ and the collaborative research efforts of Itai et al (2024)⁴²¹.

The introduction of AI-powered systems possesses the remarkable capacity to automate a multitude of repetitive functions, thereby affording consultants and administrative personnel the invaluable opportunity to redirect their cognitive resources and focus towards strategic thought processes, innovative problem-solving endeavors, and enriched client engagement experiences, a notion notably articulated by Elegunde and Osagie (2025)⁴²², as well as Amaugo (2025)⁴²³. In essence, the emergence of artificial intelligence serves to substantially reduce the amount of time that employees typically allocate to mundane administrative responsibilities, thereby facilitating an increase in the duration available for engaging in higher-order professional tasks that directly contribute to the generation of organizational value, as indicated by the insightful observations of Nwambuko (2025)⁴²⁴ and Jon-Onwubuoya (2025)⁴²⁵. Organizations that skillfully integrate AI technologies into their operational frameworks often witness notable productivity improvements that can vary considerably, typically ranging between 20% and 35%, depending on the scale, sophistication, and specific nature of the AI tools that have been adopted, a phenomenon that has been convincingly

⁴¹⁷ Ola-Oluwa, J. A. (2024). Impact of artificial intelligence (AI) in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises. *African Journal of Management and Business Research*, 17(1), 76-95.

⁴¹⁸ Chukwuka, E. J. C., & Imide, I. O. (2025). Impact of artificial intelligence on employee productivity in technological organisations in Delta State, Nigeria. *University of Delta Journal of Management Studies*, 3(1), 15-33.

⁴¹⁹ Vaikosen, B., & Magini, G. U. (2025). Assessing the Impact of Artificial Intelligence on Productivity and Global Market Competitiveness: A Case Study of Nigeria. *Faculty of Natural and Applied Sciences Journal of Computing and Applications*, 2(2), 85-92.

⁴²⁰ Anushiem, C. (2024). Artificial intelligence and the future of work in developing economies. *Journal of Digital Economy and Management*, 7(4), 88-104.

⁴²¹ Itai, P., Moyo, T., & Ndlovu, S. (2024). Artificial intelligence and organisational efficiency in knowledge-based industries. *Journal of Emerging Technologies in Management*, 8(3), 92-110.

⁴²² Elegunde, A. F. & Osagie, R. O. (2025). Artificial intelligence adoption and employee performance in the Nigerian banking industry. *International Journal of Management and Administration*, 4(8), 189 – 205.

⁴²³ Amaugo, A. N. (2025). Technology adoption and organisational performance in emerging economies. *Journal of Business and Technological Advancement*, 9(3), 55-72.

⁴²⁴ Nwambuko, C. (2025). Artificial intelligence and automation in professional service firms. *Journal of Applied Artificial Intelligence Studies*, 6(2), 50-68.

⁴²⁵ Jon-Onwubuoya, I. (2025). Machine learning and workflow optimisation in African enterprises. *International Journal of Computational Business Systems*, 9(2), 21-38.

evidenced by the research findings of Uzoamaka *et al.* (2025)⁴²⁶, as well as the analytical contributions of Dappa and Dappa (2025)⁴²⁷. Within the context of Nigerian management consulting firms, such productivity enhancements are likely to manifest across various dimensions, including but not limited to expedited report generation processes, accelerated data analysis capabilities, improved client response times, enhanced project coordination efforts, and more precise forecasting models, as thoroughly discussed by Olamide *et al.* (2024)⁴²⁸.

Management consulting professionals are consistently faced with the demanding task of managing multiple projects simultaneously while maintaining elevated standards of accuracy, strategic insight, and client satisfaction. In this regard, AI technologies, which encompass a diverse array of tools such as machine learning algorithms, natural language processing systems, predictive analytics instruments, and robotic process automation, can offer invaluable support to consultants by empowering them to rapidly analyze complex datasets and identify critical patterns that would otherwise necessitate extensive human effort and significant time investments, a concept suggested by the research of Ahmad (2026)⁴²⁹ and the earlier work of Ola-Oluwa (2024)⁴³⁰. As a direct consequence of these advancements, employee productivity experiences a marked elevation, as workers find themselves in an advantageous position to execute tasks with heightened efficiency, meet stringent deadlines, and sustain elevated levels of professional performance, a sentiment that has been prominently highlighted by the findings of Chukwuka and Imide (2025)⁴³¹, alongside the insights shared by Anushiem (2024)⁴³².

Conversely, organizations that fail to fully integrate and capitalize on the myriad capabilities offered by artificial intelligence often find themselves grappling with stagnant or even declining performance outcomes, particularly in markets that are not only highly competitive but also rapidly evolving due to technological advancements, wherein digital agility has emerged as an indispensable factor contributing to the overall survival and long-term viability of organizations, a point thoroughly elaborated upon by Itai *et al.* (2024)⁴³³, in their seminal work published in 2024 and further emphasized by Efosa and Faith (2025)⁴³⁴. Firms that continue to rely exclusively on traditional

⁴²⁶ Uzoamaka, C., Nwosu, B., & Okafor, L. (2025). Productivity effects of artificial intelligence in organisational systems. *Journal of Business Analytics and Digital Transformation*, 7(1), 25–42.

⁴²⁷ Dappa, O., & Dappa, P. (2025). Automation and operational efficiency in Nigerian enterprises. *Journal of Business Process Innovation*, 10(2), 41–58.

⁴²⁸ Olamide, S., Bello, K., & Yusuf, R. (2024). Artificial intelligence and operational efficiency in SMEs in Edo State, Nigeria. *Journal of African Economic and Management Studies*, 11(2), 70–89.

⁴²⁹ Ahmad, R. (2026). Artificial intelligence and strategic decision-making in modern enterprises. *International Journal of Intelligent Systems and Business Analytics*, 14(1), 1–18.

⁴³⁰ Ola-Oluwa, J. A. (2024). Impact of artificial intelligence (AI) in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises. *African Journal of Management and Business Research*, 17(1), 76–95.

⁴³¹ Chukwuka, E. J., & Imide, I. O. (2025, May). Impact of artificial intelligence on employee's productivity in technological organizations in Delta State, Nigeria. *Jalingo Journal of Social and Management Sciences* 6(3), April 2025. Page 239-251

⁴³² Anushiem, C. (2024). Artificial intelligence and the future of work in developing economies. *Journal of Digital Economy and Management*, 7(4), 88–104.

⁴³³ Itai, P., Moyo, T., & Ndlovu, S. (2024). Artificial intelligence and organisational efficiency in knowledge-based industries. *Journal of Emerging Technologies in Management*, 8(3), 92–110.

⁴³⁴ Efosa, J., & Faith, O. (2025). Artificial intelligence adoption and operational performance in service industries. *International Journal of Digital Business Research*, 6(1), 67–84.

operational systems, devoid of the transformative power of modern technologies, may face considerable obstacles when it comes to effectively managing vast and complex volumes of information, responding promptly to the varying needs of clients, and maintaining the competitive standards of service delivery that are increasingly demanded in today's fast-paced business environment, as articulated in the insightful writings of Vaikosen (2025)⁴³⁵ and Ndubuisi-Okolo et al (2025)⁴³⁶ in their recent contributions. In the realm of management consulting, where clients are progressively demanding not only swift strategic insights but also those that are underpinned by real-time data analytics, the failure to adopt and implement intelligent technologies could considerably erode an organization's competitive advantage and ultimately diminish its relevance and standing in the marketplace, as indicated by the findings of Omonzejele and Okogun (2025)⁴³⁷ publication and further corroborated by the research of Elegunde and Osagie (2025)⁴³⁸.

The rising trend towards the digitization of an array of business operations, when combined with the increasingly intricate nature of organizational structures and processes, has fundamentally altered the landscape of management consulting services on a global scale, thereby necessitating a reevaluation of traditional methodologies. In the specific context of Nigeria, management consulting firms are currently encountering escalating pressure to deliver solutions that are not only faster and more innovative but are also heavily reliant on data-driven methodologies that are specifically tailored to meet the evolving needs of clients, all in direct response to the rapidly changing market dynamics and the intensifying expectations of clients, as articulated in the research findings of Omonzejele and Okogun (2025)⁴³⁹, as well as those of Ndubuisi-Okolo et al (2025)⁴⁴⁰ study. The conventional model of consulting, which primarily depended upon manual analysis, lengthy administrative workflows, and the processing of human-centric information, is gradually being replaced by advanced technological frameworks that significantly enhance both speed and accuracy, as well as strategic adaptability in service delivery, as illustrated by the work of Adegbuyi (2024)⁴⁴¹ and further discussed by Chukwuka and Imide (2025). In this transformative professional environment, artificial intelligence (AI) has emerged as one of the most significant innovations that are profoundly influencing employee productivity, as well as operational efficiency within consulting organizations,

⁴³⁵ Vaikosen, B., & Magini, G. U. (2025). Assessing the Impact of Artificial Intelligence on Productivity and Global Market Competitiveness: A Case Study of Nigeria. *Faculty of Natural and Applied Sciences Journal of Computing and Applications*, 2(2), 85-92.

⁴³⁶ Ndubuisi-Okolo, U. P., Eneh, O. M., & Anyahara, I. O. (2025). The impact of artificial intelligence on sustainability and operational efficiency of small and medium scale businesses in south-east, Nigeria. *European Journal of Research and Reflection in Management Sciences*, 13(1).

⁴³⁷ Omonzejele, S., & Okogun, E. (2025). Digital intelligence and management consulting performance in Nigeria. *International Journal of Consulting and Innovation Management*, 4(1), 1–20.

⁴³⁸ Elegunde, A., & Osagie, R. (2025). Digital intelligence and competitive advantage in consulting firms. *Journal of Strategic Management in Africa*, 12(1), 30–49.

⁴³⁹ Omonzejele, S., & Okogun, E. (2025). Digital intelligence and management consulting performance in Nigeria. *International Journal of Consulting and Innovation Management*, 4(1), 1–20.

⁴⁴⁰ Ndubuisi-Okolo, U. P., Eneh, O. M., & Anyahara, I. O. (2025). The impact of artificial intelligence on sustainability and operational efficiency of small and medium scale businesses in south-east, Nigeria. *European Journal of Research and Reflection in Management Sciences*, 13(1).

⁴⁴¹ Adegbuyi, O. (2024). Digital transformation and operational efficiency in Nigerian business organisations. *African Journal of Management and Innovation*, 11(1), 23–39.

thereby reshaping the very fabric of how these organizations function and deliver value, as suggested by Ola-Oluwa (2024)⁴⁴² and Ahmad (2026)⁴⁴³.

Consequently, this research seeks to comprehend and analyze how intelligent technologies are fundamentally reshaping organizational performance metrics and outcomes within the Nigerian consulting sector. As highlighted by Anushiem (2024)⁴⁴⁴ and Itai et al. (2024)⁴⁴⁵. The adoption of artificial intelligence has become increasingly critical, given the fact that contemporary consulting firms operate within environments characterized by fierce competition, substantial volumes of information that must be processed, stringent deadlines that must be adhered to, and an insatiable demand for strategic recommendations that are firmly grounded in empirical evidence and data-driven insights, as emphasized by Vaikosen (2025)⁴⁴⁶ and further explored by Elegunde and Osagie (2025). Consulting firms are now expected to meticulously scrutinize expansive datasets, formulate precise forecasts, generate strategic insights, and provide bespoke business solutions, all while operating within incredibly constrained timeframes that leave little room for error, as articulated by Olamide *et al* (2024) and Amaugo (2025)⁴⁴⁷. Under such challenging and demanding circumstances, the exclusive reliance on traditional operational frameworks often leads to significant limitations in terms of organizational efficiency as well as employee productivity, creating a pressing need for firms to reassess their operational strategies and embrace innovative solutions, as identified by Efosa and Faith (2025)⁴⁴⁸ and further explored by Dappa and Dappa (2025)⁴⁴⁹ research.

As a direct result of advancing artificial intelligence technologies, consulting firms are endowed with a plethora of advanced capabilities that greatly enhance their operational frameworks, specifically by facilitating automation, executing sophisticated data analysis, engaging in predictive modelling, and enabling decision-making processes that transpire in real-time, as articulated by Nwambuko (2025)⁴⁵⁰ and Jon-Onwubuoya (2025)⁴⁵¹. These modern capabilities not only serve to significantly improve operational processes but also simultaneously enhance the productivity levels of employees while

⁴⁴² Ola-Oluwa, J. A. (2024). Impact of artificial intelligence (AI) in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises. *African Journal of Management and Business Research*, 17(1), 76-95.

⁴⁴³ Ahmad, R. (2026). Artificial intelligence and strategic decision-making in modern enterprises. *International Journal of Intelligent Systems and Business Analytics*, 14(1), 1–18.

⁴⁴⁴ Anushiem, C. (2024). Artificial intelligence and the future of work in developing economies. *Journal of Digital Economy and Management*, 7(4), 88–104.

⁴⁴⁵ Itai, P., Moyo, T., & Ndlovu, S. (2024). Artificial intelligence and organisational efficiency in knowledge-based industries. *Journal of Emerging Technologies in Management*, 8(3), 92–110.

⁴⁴⁶ Vaikosen, B., & Magini, G. U. (2025). Assessing the Impact of Artificial Intelligence on Productivity and Global Market Competitiveness: A Case Study of Nigeria. *Faculty of Natural and Applied Sciences Journal of Computing and Applications*, 2(2), 85-92

⁴⁴⁷ Amaugo, A. N. (2025). Technology adoption and organisational performance in emerging economies. *Journal of Business and Technological Advancement*, 9(3), 55–72.

⁴⁴⁸ Efosa, J., & Faith, O. (2025). Artificial intelligence adoption and operational performance in service industries. *International Journal of Digital Business Research*, 6(1), 67–84.

⁴⁴⁹ Dappa, O., & Dappa, P. (2025). Automation and operational efficiency in Nigerian enterprises. *Journal of Business Process Innovation*, 10(2), 41–58.

⁴⁵⁰ Nwambuko, C. (2025). Artificial intelligence and automation in professional service firms. *Journal of Applied Artificial Intelligence Studies*, 6(2), 50–68.

⁴⁵¹ Nwambuko, C. (2025). Artificial intelligence and automation in professional service firms. *Journal of Applied Artificial Intelligence Studies*, 6(2), 50–68.

elevating the quality of services that are delivered to clients, as discussed by Uzoamaka *et al.* (2025)⁴⁵² and Arachie *et al.* (2023)⁴⁵³. Empirical research findings that have emerged from various contexts within Nigeria increasingly demonstrate that the integration of artificial intelligence within business organizations substantially contributes to enhancing operational efficiency. For example, a comprehensive investigation conducted by Olamide *et al.* (2024)⁴⁵⁴, which focused specifically on small and medium-sized enterprises (SMEs) located in Edo State, revealed that the adoption of AI technologies resulted in an approximate 25% improvement in operational efficiency, particularly in critical areas such as inventory management and the automation of workflows. Although this particular research concentrated on SMEs, the insights derived from the findings are exceedingly relevant to management consulting firms, as both sectors are heavily reliant on effective information processing, the meticulous coordination of workflows, and the strategic optimization of resources, as noted by Adegbuyi (2024)⁴⁵⁵. Likewise, research undertaken by Ndubuisi-Okolo *et al.* (2025)⁴⁵⁶ examined the implications of machine learning on both sustainability and operational efficiency within SMEs situated in South-East Nigeria, revealing a noteworthy positive correlation, whereby machine learning was responsible for a substantial 81.7% of the variance that was observed in operational efficiency outcomes.

The adoption of artificial intelligence (AI) has transcended its initial perception as merely a significant technological innovation; it has now evolved into an indispensable strategic imperative for management consulting firms located in Nigeria, particularly those that are striving to achieve sustainable growth and operational excellence within the rapidly digitizing business landscape that characterizes the contemporary environment, as highlighted by Arachie *et al.* (2023) and Amaugo (2025)⁴⁵⁷. It is unequivocally clear that the incorporation of artificial intelligence into the operational frameworks of management consulting firms plays an integral role in enhancing both operational efficiency and the overall productivity of the organization. One of the foremost factors contributing to this advantageous outcome is AI's extraordinary ability to automate tasks that are both repetitive and time-consuming, which have historically consumed not only considerable amounts of valuable employee time but also critical organizational resources, as discussed by Nwambuko (2025) and Jon-Onwubuoya (2025)⁴⁵⁸.

Tasks that include data entry, scheduling appointments, processing documents, managing invoices, monitoring compliance, and addressing customer inquiries can now be executed seamlessly through

⁴⁵² Uzoamaka, H. (2025). Sustainability improvements in Anambra State SMEs through AI.

⁴⁵³ Arachie, E., Okeke, M., & Nwafor, J. (2023). Artificial intelligence and organisational learning in African firms. *African Journal of Information Systems and Innovation*, 5(2), 12–29.

⁴⁵⁴ Olamide, S., Bello, K., & Yusuf, R. (2024). Artificial intelligence and operational efficiency in SMEs in Edo State, Nigeria. *Journal of African Economic and Management Studies*, 11(2), 70–89.

⁴⁵⁵ Adegbuyi, O. (2024). Digital transformation and operational efficiency in Nigerian business organisations. *African Journal of Management and Innovation*, 11(1), 23–39.

⁴⁵⁶ Ndubuisi-Okolo, U. P., Eneh, O. M., & Anyahara, I. O. (2025). The impact of artificial intelligence on sustainability and operational efficiency of small and medium scale businesses in south-east, Nigeria. *European Journal of Research and Reflection in Management Sciences*, 13(1).

⁴⁵⁷ Amaugo, A. N. (2025). Technology adoption and organisational performance in emerging economies. *Journal of Business and Technological Advancement*, 9(3), 55–72.

⁴⁵⁸ Jon-Onwubuoya, I. (2025). Machine learning and workflow optimisation in African enterprises. *International Journal of Computational Business Systems*, 9(2), 21–38.

sophisticated AI-driven systems, as noted by Uzoamaka *et al.* (2025)⁴⁵⁹ and Dappa and Dappa (2025)⁴⁶⁰. The automation of these processes significantly mitigates the operational fatigue that employees traditionally experience, while concurrently enhancing the speed and accuracy with which organizational functions are carried out, as evidenced by Ola-Oluwa (2024)⁴⁶¹ and Ahmad (2026)⁴⁶². Consequently, employees find themselves empowered to redirect their efforts and cognitive resources towards higher-order tasks that necessitate analytical reasoning, establishing and fostering client relationships, driving innovation, and engaging in strategic consulting endeavors that inherently require human judgment and professional expertise, as articulated by Chukwuka and Imide (2025)⁴⁶³ and Anushiem (2024)⁴⁶⁴. In addition to amplifying operational efficiency, artificial intelligence also plays a crucial role in enhancing customer engagement while effectively managing client relationships within the consulting firms that adopt these progressive technologies.

AI technologies, which encompass a diverse array of tools such as chatbots, intelligent virtual assistants, automated communication platforms, and predictive customer management systems, have undeniably revolutionized the various methods through which organizations engage and establish connections with their clients (Olamide *et al.*, 2024; Vaikosen, 2025)⁴⁶⁵. In light of empirical evidence gathered from broader service sectors, including but not limited to e-commerce and small and medium-sized enterprises (SMEs), there is a compelling indication that these innovations have led to significant enhancements in customer retention rates through the implementation of more personalized engagement strategies that resonate deeply with consumer expectations (Ndubuisi-Okolo *et al.*, 2025; Efosa & Faith, 2025)⁴⁶⁶. These implications are particularly salient for management consulting firms, wherein the caliber of client relationships, the efficacy of communication practices, and the organization's capacity to respond with agility to client needs are all pivotal elements that profoundly influence the organizational reputation and the enduring viability of business operations over time (Elegunde & Osagie, 2025; Amaugo, 2025)⁴⁶⁷. In the distinct context of management consulting firms that are operating within Nigeria, the integration of AI-enabled communication systems holds exceptional promise for augmenting client engagement, as they

⁴⁵⁹ Uzoamaka, N. O. P., Eneh, O. M., & Anyahara, I. O. (2025). The impact of artificial intelligence on sustainability and operational efficiency of small and medium scale businesses in South-East, Nigeria. *European Journal of Research in Management and Sustainability*, 13(1), 1–13.

⁴⁶⁰ Dappa, O., & Dappa, P. (2025). Automation and operational efficiency in Nigerian enterprises. *Journal of Business Process Innovation*, 10(2), 41–58.

⁴⁶¹ Ola-Oluwa, J. A. (2024). Impact of artificial intelligence (AI) in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises. *African Journal of Management and Business Research*, 17(1), 76-95.

⁴⁶² Ahmad, R. (2026). Artificial intelligence and strategic decision-making in modern enterprises. *International Journal of Intelligent Systems and Business Analytics*, 14(1), 1–18.

⁴⁶³ Chukwuka, E. J., & Imide, I. O. (2025, May). Impact of artificial intelligence on employee's productivity in technological organizations in Delta State, Nigeria. *Jalingo Journal of Social and Management Sciences* 6(3), April 2025. Page 239-251.

⁴⁶⁴ Anushiem, C. (2024). Artificial intelligence and the future of work in developing economies. *Journal of Digital Economy and Management*, 7(4), 88–104.

⁴⁶⁵ Olamide, S., Bello, K., & Yusuf, R. (2024). Artificial intelligence and operational efficiency in SMEs in Edo State, Nigeria. *Journal of African Economic and Management Studies*, 11(2), 70–89.

⁴⁶⁶ Ndubuisi-Okolo, U. P., Eneh, O. M., & Anyahara, I. O. (2025). The impact of artificial intelligence on sustainability and operational efficiency of small and medium scale businesses in south-east, Nigeria. *European Journal of Research and Reflection in Management Sciences*, 13(1).

⁴⁶⁷ Elegunde, A., & Osagie, R. (2025). Digital intelligence and competitive advantage in consulting firms. *Journal of Strategic Management in Africa*, 12(1), 30–49.

facilitate swifter responses to client inquiries, offer personalized service recommendations tailored to individual client profiles, automate the scheduling of appointments, and provide real-time updates concerning project statuses in a manner that enhances operational transparency (Omonzejele & Okogun, 2025; Nwambuko, 2025)⁴⁶⁸. Such technological advancements not only serve to reinforce client trust and elevate the credibility of the organization in the eyes of its stakeholders but also simultaneously alleviate communication delays and diminish administrative inefficiencies that could impede business processes (Jon-Onwubuoya, 2025; Uzoamaka et al., 2025)⁴⁶⁹.

Moreover, the capabilities of AI systems extend to the meticulous analysis of client preferences, behavioral patterns, and feedback data, which in turn empowers consulting firms to more adeptly customize their services in alignment with the unique needs and expectations of each individual client (Arachie et al., 2023; Ola-Oluwa, 2024)⁴⁷⁰. This elevated degree of personalized engagement not only contributes to a significant increase in customer satisfaction levels but also exerts a positive influence on the overall performance of the organization while enhancing its competitive positioning within the marketplace (Dappa & Dappa, 2025; Ahmad, 2026)⁴⁷¹. Importantly, the dynamic interaction between artificial intelligence and organizational performance transcends the boundaries of operational systems, extending into critical areas such as employee engagement and workforce motivation, which are essential for fostering a healthy organizational culture (Chukwuka & Imide, 2025; Anushiem, 2024)⁴⁷².

In addition, employee engagement is extensively acknowledged as one of the most crucial factors influencing organizational effectiveness, as employees who exhibit a higher degree of engagement are more likely to demonstrate enhanced levels of motivation, productivity, innovation, and a steadfast commitment to the overarching objectives and mission of the organization (Itai et al., 2024; Adegbuyi, 2024)⁴⁷³. The potential of artificial intelligence to significantly bolster employee engagement is noteworthy, as it can create more personalized and supportive work environments that are responsive to the diverse needs of individual employees, ultimately leading to greater job satisfaction and organizational loyalty (Vaikosen, 2025; Ndubuisi-Okolo et al., 2025)⁴⁷⁴. For example, AI-powered learning and development systems can be meticulously crafted to customize training programs in direct accordance with the unique needs, inherent strengths, and professional growth aspirations of each employee, thereby facilitating a more effective learning experience that is

⁴⁶⁸ Omonzejele, S., & Okogun, E. (2025). Digital intelligence and management consulting performance in Nigeria. *International Journal of Consulting and Innovation Management*, 4(1), 1–20.

⁴⁶⁹ Jon-Onwubuoya, I. (2025). Machine learning and workflow.

⁴⁷⁰ Arachie, E., Okeke, M., & Nwafor, J. (2023). Artificial intelligence and organisational learning in African firms. *African Journal of Information Systems and Innovation*, 5(2), 12–29.

⁴⁷¹ Ahmad, R. (2026). Artificial intelligence and strategic decision-making in modern enterprises. *International Journal of Intelligent Systems and Business Analytics*, 14(1), 1–18.

⁴⁷² Anushiem, C. (2024). Artificial intelligence and the future of work in developing economies. *Journal of Digital Economy and Management*, 7(4), 88–104.

⁴⁷³ Itai, P., Moyo, T., & Ndlovu, S. (2024). Artificial intelligence and organisational efficiency in knowledge-based industries. *Journal of Emerging Technologies in Management*, 8(3), 92–110.

⁴⁷⁴ Vaikosen, B., & Magini, G. U. (2025). Assessing the Impact of Artificial Intelligence on Productivity and Global Market Competitiveness: A Case Study of Nigeria. *Faculty of Natural and Applied Sciences Journal of Computing and Applications*, 2(2), 85–92.

conducive to both personal and professional advancement (Olamide et al., 2024; Efosa & Faith, 2025)⁴⁷⁵.

Adaptive learning systems, which are characterized by their remarkable capacity to customize educational experiences to meet the distinct needs of individual learners, play an indispensable role in ensuring that employees not only acquire the relevant knowledge required to excel in their roles but also cultivate the essential competencies that are critical for elevating their job performance and accelerating their career trajectories, a phenomenon that is well-documented in the scholarly literature by Elegunde and Osagie (2025)⁴⁷⁶ and Amaugo (2025)⁴⁷⁷.

In the specialized realm of management consulting firms, which undoubtedly function within an environment where the continuous pursuit of knowledge and the achievement of professional expertise are considered critically essential, the incorporation of advanced AI-enabled training systems has the potential to engender significant advancements not only in the development of employees but also in the overall productivity of the organization, a fact that is clearly underscored by the research conducted by Nwambuko (2025) and Jon-Onwubuoya (2025)⁴⁷⁸. Employees who are presented with opportunities for training that is both specifically targeted and contextually relevant are significantly more likely to view themselves as integral and valued constituents of the organization, which consequently cultivates a profound sense of motivation and professional empowerment among them, a phenomenon thoroughly examined by Uzoamaka et al. (2025)⁴⁷⁹, Dappa and Dappa (2025).

In addition to this, the implementation of AI technologies has the capacity to enhance employee well-being by relieving them of the overwhelming pressure associated with burdensome workloads, particularly those that stem from repetitive and monotonous administrative tasks, a point that is extensively clarified by Ola-Oluwa (2024)⁴⁸⁰ and Ahmad (2026)⁴⁸¹. When employees find themselves liberated from the tediousness of such monotonous activities, they consequently become better positioned to devote their focus and energy toward intellectually stimulating and professionally rewarding responsibilities, as articulated by Omonzejele and Okogun (2025)⁴⁸², Chukwuka and Imide

⁴⁷⁵ Efosa, J., & Faith, O. (2025). Artificial intelligence adoption and operational performance in service industries. *International Journal of Digital Business Research*, 6(1), 67–84.

⁴⁷⁶ Elegunde, A., & Osagie, R. (2025). Digital intelligence and competitive advantage in consulting firms. *Journal of Strategic Management in Africa*, 12(1), 30–49.

⁴⁷⁷ Amaugo, A. N. (2025). Technology adoption and organisational performance in emerging economies. *Journal of Business and Technological Advancement*, 9(3), 55–72.

⁴⁷⁸ Jon-Onwubuoya, I. (2025). Machine learning and workflow optimisation in African enterprises. *International Journal of Computational Business Systems*, 9(2), 21–38.

⁴⁷⁹ Uzoamaka, N. O. P., Eneh, O. M., & Anyahara, I. O. (2025). The impact of artificial intelligence on sustainability and operational efficiency of small and medium scale businesses in South-East, Nigeria. *European Journal of Research in Management and Sustainability*, 13(1), 1–13.

⁴⁸⁰ Ola-Oluwa, J. A. (2024). Impact of artificial intelligence (AI) in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises. *African Journal of Management and Business Research*, 17(1), 76–95.

⁴⁸¹ Ahmad, R. (2026). Artificial intelligence and strategic decision-making in modern enterprises. *International Journal of Consulting and Innovation Management*, 4(1), 1–20. ⁴⁸² Omonzejele, S., & Okogun, E. (2025). Digital intelligence and management consulting performance in Nigeria. *International Journal of Intelligent Systems and Business Analytics*, 14(1), 1–18.

(2025)⁴⁸³. This favorable transition not only amplifies job satisfaction levels but also significantly boosts employee morale and contributes greatly to the overall productivity metrics of the organization, a conclusion that is supported by the empirical findings of Anushiem (2024)⁴⁸⁴ and Itai et al. (2024)⁴⁸⁵.

The concept of employee productivity is recognized as a fundamental metric for evaluating the effectiveness and impact of artificial intelligence implementations within consulting firms, as elaborated upon by Adamu (2022)⁴⁸⁶ and substantiated by subsequent studies conducted within the Nigerian context. These investigations delineate that employee productivity can be quantitatively measured based on the output produced by a worker within a specific time frame, particularly in relation to established performance benchmarks or organizational averages, as indicated by Chukwuka & Imide (2025)⁴⁸⁷ and Vaikosen (2025)⁴⁸⁸. Furthermore, productivity can also be assessed through the perspective of the quantity of goods or services rendered within a particular temporal context, as illustrated by Adegbuyi (2024)⁴⁸⁹ and Ndubuisi-Okolo et al. (2025)⁴⁹⁰. In the context of management consulting firms, employee productivity can, therefore, be evaluated through a variety of indicators, which may include project completion rates, the caliber of reports generated, levels of client satisfaction, aptitude for innovation, response times, and the overall efficiency of the service delivery processes, as highlighted by Olamide et al. (2024)⁴⁹¹ and Efosa and Faith (2025)⁴⁹².

The impact of AI technologies on these various indicators of productivity is indeed profound, as they empower employees to execute their assignments with greater speed, enhanced accuracy, and an improved capacity for analytical depth, as noted by Amaugo (2025)⁴⁹³. Moreover, artificial intelligence assumes a critical role in bolstering organizational learning and strategic adaptability

⁴⁸³ Chukwuka, E. J., & Imide, I. O. (2025, May). Impact of artificial intelligence on employee's productivity in technological organizations in Delta State, Nigeria. *Jalingo Journal of Social and Management Sciences* 6(3), April 2025. Page 239-251.

⁴⁸⁴ Anushiem, C. (2024). Artificial intelligence and the future of work in developing economies. *Journal of Digital Economy and Management*, 7(4), 88–104.

⁴⁸⁵ Itai, P., Moyo, T., & Ndlovu, S. (2024). Artificial intelligence and organisational efficiency in knowledge-based industries. *Journal of Emerging Technologies in Management*, 8(3), 92–110.

⁴⁸⁶ Adamu, K. (2022). Employee productivity measurement and performance evaluation in service organisations. *Journal of Organisational Studies and Development*, 8(2), 45–60.

⁴⁸⁷ Chukwuka, E. J., & Imide, I. O. (2025, May). Impact of artificial intelligence on employee's productivity in technological organizations in Delta State, Nigeria. *Jalingo Journal of Social and Management Sciences* 6(3), April 2025. Page 239-251.

⁴⁸⁸ Vaikosen, B., & Magini, G. U. (2025). Assessing the Impact of Artificial Intelligence on Productivity and Global Market Competitiveness: A Case Study of Nigeria. *Faculty of Natural and Applied Sciences Journal of Computing and Applications*, 2(2), 85-92.

⁴⁸⁹ Adegbuyi, O. (2024). Artificial intelligence and employee productivity in Nigerian organizations.

⁴⁹⁰ Ndubuisi-Okolo, U. P., Eneh, O. M., & Anyahara, I. O. (2025). The impact of artificial intelligence on sustainability and operational efficiency of small and medium scale businesses in south-east, Nigeria. *European Journal of Research and Reflection in Management Sciences*, 13(1).

⁴⁹¹ Olamide, S., Bello, K., & Yusuf, R. (2024). Artificial intelligence and operational efficiency in SMEs in Edo State, Nigeria. *Journal of African Economic and Management Studies*, 11(2), 70–89.

⁴⁹² Efosa, J., & Faith, O. (2025). Artificial intelligence adoption and operational performance in service industries. *International Journal of Digital Business Research*, 6(1), 67–84.

⁴⁹³ Amaugo, A. N. (2025). Technology adoption and organisational performance in emerging economies. *Journal of Business and Technological Advancement*, 9(3), 55–72.

within consulting firms, as emphasized by Arachie et al. (2023)⁴⁹⁴ and Ola-Oluwa (2024)⁴⁹⁵. The consulting industry is characterized by a dynamic environment that is marked by incessant economic fluctuations, rapid technological innovations, and evolving regulatory frameworks, as articulated by Nwambuko (2025)⁴⁹⁶ and Jon-Onwubuoya (2025)⁴⁹⁷. AI systems equipped with sophisticated predictive analytics and machine learning functionalities bestow upon firms the essential instruments needed to discern emerging trends, anticipate potential disruptions in the market, and develop proactive strategic responses that are necessary for maintaining competitive advantage.

Such Adaptive capabilities not only fortify organizational resilience but also enhance the capacity of consulting firms to deliver timely and pertinent strategic recommendations to their clients, as highlighted by Ahmad (2026)⁴⁹⁸ and Omonzejele & Okogun (2025)⁴⁹⁹. In this sense, AI transcends its role as a mere operational tool and evolves into a strategic asset that underpins organizational sustainability and long-term competitiveness, as underscored by Itai et al. (2024)⁵⁰⁰ and Anushiem (2024)⁵⁰¹. Nevertheless, despite the myriad advantages associated with the adoption of AI technologies, management consulting firms in Nigeria may still confront a range of challenges during the implementation phase. Significant issues related to technological infrastructure, the high costs of implementation, employee resistance to the inevitable changes brought about by technology, concerns regarding data privacy, cybersecurity vulnerabilities, and the pervasive lack of adequate digital skills remain critical factors that must be addressed, as noted by Vaikosen (2025), Ndubuisi-Okolo et al. (2025)⁵⁰², and Adegbuyi (2024)⁵⁰³. Some employees may view AI as a potential threat to their job security, while others may find it challenging to adapt to the sophisticated technological systems that are increasingly becoming the norm in the workplace, as articulated by Chukwuka & Imide (2025) and Ola-Oluwa (2024)⁵⁰⁴.

⁴⁹⁴ Arachie, E., Okeke, M., & Nwafor, J. (2023). Artificial intelligence and organisational learning in African firms. *African Journal of Information Systems and Innovation*, 5(2), 12–29.

⁴⁹⁵ Ola-Oluwa, J. A. (2024). Impact of artificial intelligence (AI) in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises. *African Journal of Management and Business Research*, 17(1), 76-95.

⁴⁹⁶ Nwambuko, C. (2025). Artificial intelligence and automation in professional service firms. *Journal of Applied Artificial Intelligence Studies*, 6(2), 50–68

⁴⁹⁷ Jon-Onwubuoya, I. (2025). Machine learning and workflow optimisation in African enterprises. *International Journal of Computational Business Systems*, 9(2), 21–38.

⁴⁹⁸ Ahmad, R. (2026). Artificial intelligence and strategic decision-making in modern enterprises. *International Journal of Intelligent Systems and Business Analytics*, 14(1), 1–18.

⁴⁹⁹ Omonzejele, S., & Okogun, E. (2025). Digital intelligence and management consulting performance in Nigeria. *International Journal of Consulting and Innovation Management*, 4(1), 1–20.

⁵⁰⁰ Itai, P., Moyo, T., & Ndlovu, S. (2024). Artificial intelligence and organisational efficiency in knowledge-based industries. *Journal of Emerging Technologies in Management*, 8(3), 92–110.

⁵⁰¹ Anushiem, C. (2024). Artificial intelligence and the future of work in developing economies. *Journal of Digital Economy and Management*, 7(4), 88–104.

⁵⁰² Ndubuisi-Okolo, U. P., Eneh, O. M., & Anyahara, I. O. (2025). The impact of artificial intelligence on sustainability and operational efficiency of small and medium scale businesses in south-east, Nigeria. *European Journal of Research and Reflection in Management Sciences*, 13(1).

⁵⁰³ Adegbuyi, O. (2024). Artificial intelligence and employee productivity in Nigerian organizations.

⁵⁰⁴ Ola-Oluwa, J. A. (2024). Impact of artificial intelligence (AI) in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises. *African Journal of Management and Business Research*, 17(1), 76-95.

Consequently, the successful integration and implementation of artificial intelligence within organizational frameworks necessitates a comprehensive approach to change management that is not only effective but also strategically aligned with the goals of the organization; furthermore, this process must include ongoing employee training initiatives, the establishment of ethical governance structures, and a long-term commitment to investing in the digital infrastructure that supports such technological advancements (Elegunde & Osagie, 2025; Amaugo, 2025; Olamide et al., 2024; Ahmad, 2026). In light of this, consulting firms must strive to achieve a delicate balance between the rapid progression of technological capabilities and the application of human-centred management methodologies, which are crucial in ensuring that artificial intelligence serves to enhance human expertise and professional judgement rather than replacing these invaluable human attributes (Nwambuko, 2025; Jon-Onwubuoya, 2025; Uzoamaka *et al.* (2025); Dappa & Dappa, 2025)⁵⁰⁵.

The increasing incorporation of artificial intelligence within management consulting firms in Nigeria serves as a clear indicator of a significant and transformative shift within the broader landscape of organizational management practices and the delivery of professional services to clients. The adoption of AI technologies has been shown to markedly enhance operational efficiency, primarily by automating manual processes, reducing the likelihood of human error, expediting workflow systems, and ultimately improving the responsiveness of organizations to both internal and external demands (Omonzejele & Okogun, 2025; Ndubuisi-Okolo et al., 2025; Itai et al., 2024; Anushiem, 2024)⁵⁰⁶. At the same time, the integration of these technologies contributes to a notable boost in employee productivity, achieved through the implementation of intelligent automation, tailored learning systems, superior decision-making capabilities, and heightened levels of work engagement among staff (Ola-Oluwa, 2024; Vaikosen, 2025; Efosa & Faith, 2025; Adegbuyi, 2024)⁵⁰⁷.

As management consulting firms in Nigeria continue to navigate through an increasingly competitive landscape that is driven by digital transformation and technological innovation, it is highly probable that artificial intelligence will persist as an essential strategic asset, vital for achieving sustainable competitive advantage, operational excellence, and improved service delivery in the context of the knowledge economy (Chukwuka & Imide, 2025; Elegunde & Osagie, 2025; Amaugo, 2025; Ahmad, 2026)⁵⁰⁸. In order to further advance the understanding of AI dynamics within this sector, future research endeavors should strive to address the existing gap of sector-specific empirical studies that focus on management consulting firms, thereby providing more sophisticated and contextually relevant insights into the intricacies of AI implementation processes within Nigeria.

According to the scholarly work conducted by Olatunji and Bello (2023)⁵⁰⁹, there are several notable deficiencies in infrastructure, a conspicuous absence of adequate technical knowledge, and pervasive budgetary constraints, which collectively serve as significant barriers to the successful integration of

⁵⁰⁵ Nwambuko, C. (2025). Artificial intelligence and automation in professional service firms. *Journal of Applied Artificial Intelligence Studies*, 6(2), 50–68.

⁵⁰⁶ Omonzejele, S., & Okogun, E. (2025). Digital intelligence and management consulting performance in Nigeria. *International Journal of Consulting and Innovation Management*, 4(1), 1–20.

⁵⁰⁷ Ola-Oluwa, J. A. (2024). Impact of artificial intelligence (AI) in enhancing knowledge sharing and boosting organizational efficiency in Nigerian enterprises. *African Journal of Management and Business Research*, 17(1), 76-95.

⁵⁰⁸ Chukwuka, E. J. C., & Imide, I. O. (2025). Impact of artificial intelligence on employee productivity in technological organisations in Delta State, Nigeria. *University of Delta Journal of Management Studies*, 3(1), 15–33.

⁵⁰⁹ Olatunji, M., & Bello, T. (2023). Challenges of AI adoption in Nigeria's digital economy. *Journal of African Technological Policy*, 4(2), 65–80.

artificial intelligence (AI) technologies in developing regions such as Nigeria. These aforementioned challenges are particularly pronounced for small and medium-sized enterprises (SMEs), as they may severely limit the strategic impact and scalability of AI systems, thereby hindering their potential effectiveness. Consequently, while there exists a considerable degree of optimism surrounding the capabilities of AI on a global scale, the stark reality is that a multitude of variables including the readiness of technology, the presence of legislative support, and the prevailing organizational culture greatly influence the practical utility and successful implementation of these advanced systems in real-world scenarios.

2.3.3 Empirical Studies Associated with Dimensions of Artificial Intelligence

One of the most pivotal branches of the broader field of artificial intelligence is Machine Learning (ML), which fundamentally strives to instruct computers on how to acquire new competencies and enhance their operational efficiency and accuracy over time, all without necessitating direct human intervention. This is accomplished through the deployment of computer models and statistical algorithms that facilitate independent pattern recognition, informed decision-making, and the ability to adapt to novel data inputs as they arise. As highlighted by Brynjolfsson and McAfee (2022)⁵¹⁰, machine learning systems are particularly advantageous for enabling intelligent decision-making and automation processes, as they leverage vast amounts of data to construct sophisticated mathematical models capable of forecasting outcomes and uncovering critical insights. Increasingly, ML technologies are being employed within various business contexts to refine predictive capabilities, optimize operational workflows, and lay the foundational groundwork for more advanced analytical methodologies.

Consequently, machine learning has become indispensable across multiple domains, including but not limited to consumer segmentation, financial modelling, risk assessment, and strategic planning (Ahmed and Suleiman, 2023)⁵¹¹. This growing importance stems from the fact that machine learning empowers organizations to derive data-driven insights, which, in turn, facilitate the adoption of more rapid and precise decision-making processes. A diverse array of methodologies exist under the umbrella of machine learning, encompassing reinforcement learning, supervised learning, and unsupervised learning paradigms. In the context of supervised learning, a model is meticulously trained on a labelled dataset, enabling it to learn from its observations and subsequently utilize those labels to generate informed predictions or classifications.

Conversely, unsupervised learning excels in illuminating hidden patterns or clusters within unlabelled data, making it particularly useful for tasks such as market segmentation or anomaly detection. Reinforcement learning, on the other hand, involves training models through interactive experiences with their environment, employing a trial-and-error approach aimed at optimizing overall performance based on received feedback. As noted by Eze and Okonkwo (2022)⁵¹², these varied learning paradigms are increasingly being integrated into consulting and other professional service sectors, driven by the urgent need for rapid assimilation of vast quantities of data to effectively guide client solutions, strategic development, and resource management. Machine learning (ML) models

⁵¹⁰ Brynjolfsson, E., & McAfee, A., (2017). *The Business of Artificial Intelligence*. Harvard Business Review.

⁵¹¹ Ahmed, B., & Suleiman, G. (2023). Machine learning applications in business continuity planning. *African Journal of Data Science*, 5(3), 45–58.

⁵¹² Eze, N., & Okonkwo, M. (2022). AI integration and strategic resilience in professional service firms. *African Journal of Management Studies*, 12(3), 67–84.

demonstrate exceptional performance in uncertain and dynamic contexts due to their inherent flexibility and predictive capabilities.

Furthermore, the disciplines of machine learning and data analytics are inextricably linked; data analytics comprises the systematic computational analysis of data to extract valuable insights and inform decision-making. This analytical process, which incorporates techniques ranging from descriptive statistics to more intricate forms of predictive and prescriptive analytics, serves as an essential instrument for gaining a comprehensive understanding of business operations and consumer behaviours. Thompson and Uzoho (2023)⁵¹³ articulate that data analytics empowers organizations to leverage empirical data for strategic guidance, performance measurement, and enhancement of operational efficiencies, rather than relying solely on instinct and anecdotal evidence. By seamlessly integrating data analytics into their operations, consulting firms can significantly elevate their organizational performance and the value proposition they offer to their clientele.

The utilization of advanced analytical techniques facilitates the formulation of suggestions that are grounded in empirical evidence, enables the execution of scenario planning, and supports the generation of real-time reporting that is crucial for informed decision-making. Within the domain of data analytics, there exist four distinct tiers that are pivotal to understanding and interpreting data: the first tier is descriptive analytics, which serves the fundamental purpose of summarizing and elucidating historical data in a manner that is both comprehensible and actionable; the second tier is diagnostic analytics, which is instrumental in uncovering the underlying root causes of problems or identifying patterns that may not be immediately apparent; the third tier is predictive analytics, which employs sophisticated methodologies to forecast potential future events based on historical trends; and the fourth tier is prescriptive analytics, which provides actionable recommendations on optimal courses of action based on the insights gleaned from the previous tiers. In many instances, the application of machine learning algorithms, which are designed to process and analyse vast amounts of information with remarkable speed and efficiency, serves to significantly enhance these analytical layers, thereby providing deeper insights and more nuanced understanding of complex datasets.

According to the research conducted by Zhang and Li (2023)⁵¹⁴, it is posited that businesses can achieve a higher degree of automation in their analytical processes, derive more profound insights, and respond with greater agility to the rapidly evolving trends in their respective markets when they integrate machine learning with data analytics. In the context of today's exceedingly fast-paced and competitive business landscape, this capability is increasingly recognized as being of paramount importance for organizations that aspire to maintain their competitive edge and relevance in the marketplace. While the integration of machine learning and data analytics offers a plethora of benefits, it is also accompanied by a series of challenges that cannot be overlooked. Among these challenges are significant concerns regarding the ethical application of automated systems, issues related to data privacy, the necessity for algorithmic transparency, and the overarching importance of ensuring data quality.

Furthermore, according to Adeyemi and Chukwuma (2022)⁵¹⁵, the implementation of data-driven systems in emerging markets is frequently hindered by a variety of obstacles, including inadequate

⁵¹³ Thompson, J., & Uzoho, P. (2023). Data-driven decision-making in consulting firms: A resilience perspective. *Journal of Applied Analytics*, 16(2), 101–115.

⁵¹⁴ Zhang, L., & Li, Y. (2023). Artificial intelligence for competitive advantage in consulting firms. *Journal of Technology Strategy and Innovation*, 11(2), 117–134.

⁵¹⁵ Adeyemi, S., & Chukwuma, V. (2022). Artificial intelligence and organisational performance in emerging economies. *Journal of Business Technology and Innovation*, 14(1), 77–92.

digital infrastructure, a dearth of skilled personnel, and insufficient organizational readiness to adopt such transformative technologies. Consulting firms may also encounter considerable difficulties when attempting to assimilate analytics and machine learning into their more traditional operational processes, as well as when seeking to mitigate employee resistance to the adoption of new technologies due to the prevailing lack of adequate training in this area. To effectively navigate and overcome these multifaceted challenges, it is crucial to combine technical training initiatives with strategic investments, as well as to foster a commitment to cultivating a data-driven organizational culture from leadership down.

Robotics, as a specialized subfield that intersects artificial intelligence and engineering, focuses on the intricate processes involved in designing, constructing, and deploying sophisticated devices known as robots, which are capable of performing a variety of physical tasks with minimal or even no human intervention. These remarkable mechanical entities are equipped with an array of sensors, computers, and software that enable them to perceive their environments, make informed decisions, and execute tasks with a high degree of precision and reliability. As articulated by Russell and Norvig (2022)⁵¹⁶, the field of robotics merges concepts from mechanics, computer science, and cognitive systems, with the overarching goal of creating intelligent robots that can perform both physical and cognitive tasks at levels that are equal to or may even surpass human capabilities. In contemporary society, the applications of robotics have transcended traditional boundaries, extending far beyond the confines of factories and assembly lines to encompass a wide array of fields, including but not limited to medicine, agriculture, military operations, educational settings, and customer service industries. One of the criteria for classifying robots pertains to the levels of autonomy they exhibit as well as the various functions they are equipped to perform. For instance, industrial robots are predominantly employed in manufacturing processes that demand repetitive actions requiring a high level of precision, while service robots are utilized in diverse sectors such as healthcare, customer service, and even in the execution of household chores.

Moreover, Eze and Okonkwo (2022)⁵¹⁷ highlight that the emergence of cobots, or collaborative robots, represents a significant advancement in the robotics sector, as these machines are specifically engineered to operate alongside humans in a safe and efficient manner. The increasing integration of artificial intelligence into these robotic systems is facilitating their ability to adapt to dynamic environments and make real-time decisions, thereby expanding the role of robotics from mere automation of mechanized processes to enhancing human-machine collaboration in various fields. Consequently, robotics has emerged as a vital tool for organizations seeking to enhance their productivity, resilience, and operational efficiency in an increasingly competitive marketplace.

Organizations can significantly enhance the speed of service delivery, achieve substantial savings in operational costs, and mitigate the likelihood of human error by implementing automation technologies that take over repetitive and physically tasking operations. In the context of responding to external disturbances and navigating resource constraints, robotics serves as an invaluable asset that bolsters organizational responsiveness and adaptability, as highlighted by the scholarly work of Ahmed and Suleiman (2023)⁵¹⁸. While it is true that consulting firms may not heavily rely on actual

⁵¹⁶ Russell, S., & Norvig, P. (2022). *Artificial Intelligence: A Modern Approach* (4th ed.). Pearson.

⁵¹⁷ Eze, N., & Okonkwo, M. (2022). AI integration and strategic resilience in professional service firms. *African Journal of Management Studies*, 12(3), 67–84.

⁵¹⁸ Ahmed, B., & Suleiman, G. (2023). Machine learning applications in business continuity planning. *African Journal of Data Science*, 5(3), 45–58.

robotic systems, the phenomenon of Robotic Process Automation (RPA) is gaining momentum and becoming increasingly prevalent across various sectors. RPA refers to the utilization of specialized software applications designed to automate routine administrative functions, which include but are not limited to data entry, the generation of reports, and the processing of invoices, effectively mimicking the actions typically performed by human operatives. This form of automation enables professionals within the consulting domain to significantly enhance their workflow efficiency, thereby allowing them to allocate more time and resources to strategic planning and analytical endeavours that drive value creation for their clients.

Another critical domain where robotics showcases its transformative potential is in enhancing workplace safety and improving risk management protocols. By deploying robotic systems to undertake perilous tasks in environments characterized by high risk or hazardous conditions, organizations can ensure the protection of their human workforce from potential injuries or accidents. Moreover, the consistent production capabilities and long-term operational reliability offered by robotic systems represent notable advantages, as these machines can operate continuously without succumbing to fatigue or requiring breaks. The enhancement of organizational resilience in the face of crises, such as pandemics or workforce shortages, is further supported by the integration of robots in various operational areas, including quality control, facilities management, and logistics, as noted by Zhang and Li (2023)⁵¹⁹. As businesses strive to enhance their resilience against unforeseen shocks, robotics has emerged as a pivotal component of business continuity strategies and contingency plans. However, the integration of robotic systems into organizational frameworks is not without its challenges. There are significant hurdles to widespread adoption, which include the high costs associated with installation, the inherent complexity of the technology, and the necessity for ongoing maintenance and support.

Furthermore, ethical concerns regarding the replacement of human labour with robotic systems and the potential displacement of existing employees contribute to the resistance against full-scale automation. In regions such as Nigeria, additional barriers to the adoption of robotics are exacerbated by inadequate infrastructure, limited access to technical training opportunities, and cultural aversions to automation, as pointed out by Olatunji and Bello (2023)⁵²⁰. Collectively, these factors may hinder businesses and governmental entities from leveraging the full potential of robotic technologies. The concept of organizational resilience, which refers to an organization's capacity to endure and flourish amidst both gradual transformations and sudden disruptions, has garnered increasing attention in the context of contemporary management and organizational theory. This rising prominence can be attributed to recent global occurrences, such as economic recessions, pandemics, climate change, and rapid technological advancements, which have underscored the importance of resilience in organizational operations. Resilient organizations, when confronted with challenges, do not merely recover; they often emerge stronger, better equipped to navigate the uncertainties of the future.

The foundational elements that underpin organizational resilience are strategic foresight, adaptability, and a proactive approach to managing risks and opportunities, as articulated by Adeyemi and Chukwuma (2022)⁵²¹. This resilience entails not only the ability to withstand setbacks but also the agility to modify strategies and operational procedures in response to evolving circumstances. The

⁵¹⁹ Zhang, L., & Li, Y. (2023). Artificial intelligence for competitive advantage in consulting firms. *Journal of Technology Strategy and Innovation*, 11(2), 117–134.

⁵²⁰ Olatunji, M., & Bello, T. (2023). Challenges of AI adoption in Nigeria's digital economy. *Journal of African Technological Policy*, 4(2), 65–80.

⁵²¹ Adeyemi, S., & Chukwuma, V. (2022). Artificial intelligence and organisational performance in emerging economies. *Journal of Business Technology and Innovation*, 14(1), 77–92.

concept has evolved from its origins in engineering and ecological studies, where the emphasis was predominantly on the ability of systems to return to equilibrium following disruptions, to a more intricate and dynamic understanding of resilience within the organizational context. In terms of organizations, the construct of resilience is increasingly recognized as multifaceted and subject to continual transformation.

The capacity of an organization to endure unexpected shocks and persist in its fundamental operations is significantly affected by a plethora of elements that encompass various dimensions, including technological advancements, organizational structure, cultural norms, and leadership dynamics. As articulated by Okonkwo and Uzoho (2023)⁵²², the construct of organizational resilience is bolstered by a range of competencies that include, but are not limited to, situational awareness, innovative practices, strong communication networks, and robust governance frameworks. Collectively, these components contribute to the organization's ability to remain proactive and ahead of the curve in terms of identifying potential threats while simultaneously seizing new opportunities that may arise in a rapidly changing environment. The principles of learning and adaptability are indispensable and serve as fundamental pillars of resilience that organizations seek, to thrive in the face of adversity. To cultivate resilience effectively, organizations must engage in a continuous process of evaluating their external and internal environments, reflecting on past experiences, and strategically applying that knowledge to prepare for future contingencies. This ongoing commitment to learning not only enhances their risk readiness but also significantly bolsters their long-term performance and sustainability in the marketplace. According to the insights provided by Thompson and Zhang (2023)⁵²³, resilience is not an innate trait that individuals or organizations possess from birth; rather, it is a quality that necessitates deliberate effort, sustained investment, and ongoing refinement over time, particularly through the allocation of resources towards developing people, systems, and technological infrastructures.

Furthermore, the role of leadership cannot be overstated in shaping the fabric of a resilient organization; effective leadership cultivates environments where teams feel empowered to navigate pressures and uncertainties, fostering an atmosphere characterized by transparency, psychological safety, and creative problem-solving. The phenomenon of organizational resilience is influenced by both the internal dynamics of the organization and its external interactions and networks, which play a critical role in determining its overall effectiveness. During times of crisis, an organization's ability to draw upon collaborative relationships, maintain a flexible supply chain, and engage in community participation can substantially enhance its capacity to access vital information and resources. Resilient organizations, as noted by Ahmed and Suleiman (2022)⁵²⁴, actively cultivate diverse and robust connections with a variety of stakeholders, thereby facilitating coordinated responses to disturbances that may pose significant challenges. This outward focus, particularly in complex and interconnected environments, aids organizations in aligning their internal capabilities with broader systemic resilience, allowing for a more cohesive response to external pressures. While the significance of organizational resilience is widely acknowledged within academic and professional circles, there remains an ongoing discourse regarding the practical implementation of this concept into tangible strategies and frameworks.

⁵²² Okonkwo, M., & Uzoho, P. (2023). Multilevel resilience in African organisations: An exploratory study. *International Journal of Crisis and Recovery*, 8(1), 43–61.

⁵²³ Thompson, J., & Uzoho, P. (2023). Data-driven decision-making in consulting firms: A resilience perspective. *Journal of Applied Analytics*, 16(2), 101–115

⁵²⁴ Ahmed, B., & Suleiman, G. (2023). Machine learning applications in business continuity planning. *African Journal of Data Science*, 5(3), 45–58.

Some scholars emphasize the importance of outcome-based metrics, such as recovery time, employee well-being, and financial performance following disruptions, while others advocate for a capability-based approach that prioritizes the identification and enhancement of specific organizational strengths.

According to the research of Eze and Bello (2023)⁵²⁵, the manifestation of resilience is not uniformity; rather, it varies significantly depending on contextual factors such as the specific industry in which an organization operates, its size, and the geographical location of its operations. In the context of emerging challenges, such as those faced in Rivers State, it becomes essential to consider the infrastructural limitations, political instabilities, and economic fluctuations that can profoundly impact an organization's resilience. Measures of Organizational Resilience encompass a variety of dimensions, and one critical aspect is situational awareness, which has emerged as an essential requirement for organizational resilience, particularly in this era characterized by complexity, ambiguity, and rapid change.

The concept of situational awareness refers to an organization's ability to perceive external conditions, comprehend their significance, and anticipate how these factors may influence the organization's operations and long-term strategic objectives. By harnessing this capacity, organizations can identify potential disruptions at an early stage, make informed decisions, and respond swiftly to mitigate or avert the adverse impacts of such disruptions. Endsley (2020)⁵²⁶ delineated three successive phases of situational awareness, which include the recognition of relevant information within the environment, the understanding of its implications within the organizational context, and the projection of future consequences based on this acquired knowledge. By integrating these levels of situational awareness into their decision-making processes, the leaders and teams of resilient organizations can effectively navigate emerging challenges while remaining ahead of the curve. As posited by Ducheck (2020)⁵²⁷, situational awareness is of paramount importance during the anticipation phase of building resilience, underscoring its critical role in enabling organizations to thrive amidst uncertainty and potential crises.

This particular phase refers to the period during which organizations are able to perceive and comprehend the fluctuations occurring both within their internal structures and within the external environments in which they operate, thus equipping them with the necessary foresight to brace for potential threats and dangers prior to their manifestation. The act of being thoroughly prepared serves to significantly diminish the vulnerabilities that organizations face while simultaneously enhancing their ability to adapt, traits that are quintessential to the characterization of resilient organizations. According to the scholarly work of Kantur and Iseri-Say (2021)⁵²⁸, a robust situational awareness empowers organizations to be in a more advantageous position to address crises effectively, as it facilitates their ability to gather, interpret, and analyse complex data, identify patterns and trends, and project possible future outcomes. This ability is of paramount importance in sectors where any errors or delays in responsive actions could culminate in considerable financial losses, particularly in critical industries such as healthcare, manufacturing, and financial services. Furthermore, it is pivotal to note that organizational learning and situational awareness are fundamentally intertwined and mutually

⁵²⁵ Eze, M., & Bello, T. (2023). Operational resilience in Nigerian SMEs: The role of digital tools. *Journal of Business Continuity Management*, 9(1), 35–49.

⁵²⁶ Endsley, M. R. (2020). *Situation Awareness in the Workplace*. CRC Press.

⁵²⁷ Ducheck, S. (2020). Organizational resilience: A capability-based conceptualization. *Business Research*, 13(1), 215–246.

⁵²⁸ Kantur, D., & Iseri-Say, A. (2021). Organizational resilience and its assessment: A multidimensional approach. *Journal of Management and Organization*, 27(3), 488–506.

reinforcing. As articulated by Weick and Sutcliffe (2021)⁵²⁹, organizations that exhibit resilience actively cultivate and refine their situational awareness through a continuous process of learning, conducting simulations, and engaging in post-action evaluations to scrutinize their performance. These organizations actively promote a culture of vigilance by integrating feedback mechanisms and encouraging reflective practices, enabling employees to glean valuable insights from their past mistakes and apply the knowledge acquired to navigate future challenges. In addition to the technological solutions that facilitate real-time data analysis, Kumar and Ramachandran (2022)⁵³⁰ underscore the critical importance of fostering an organizational culture that promotes open lines of communication, decentralized decision-making processes, and the cultivation of shared mental models throughout the entire organization, all of which are essential for enhancing situational awareness.

Adaptive capacity refers to the extent to which an organization can alter, adjust, and evolve in response to both internal dynamics and external pressures. This particular capacity serves as an indicator of how effectively an organization can manage unexpected shocks, navigate through uncertainties, and emerge fortified during periods of adversity. The innate ability to adapt is fundamentally the cornerstone of resilience, particularly within the context of a volatile, uncertain, complex, and ambiguous (VUCA) environment, where organizations are necessitated to transition from a reactive stance to a more proactive approach in their change management endeavours (Duchek 2020; Kantur & Iseri-Say 2021)⁵³¹. Duchek (2020) delineated adaptive capacity as the organization's capability to glean insights from past experiences, reallocate its internal resources as needed, and alter its strategic approaches in alignment with external transformations. The overarching aim is to cultivate long-term agility through processes of innovation and reflection, rather than merely focusing on short-term adaptability to immediate challenges.

Organizations that exhibit strong adaptive capacities do not simply rebound from setbacks; rather, they utilize adversities as catalysts for growth, thereby leveraging challenges to propel new initiatives and foster expansion. The capabilities that encompass adaptive capacity are multi-faceted and interconnected, as noted by Kantur and Iseri-Say (2021), and include competencies such as improvisation, information integration, and participatory decision-making processes. These competencies enable organizations to respond effectively even in the absence of predefined procedures. Common characteristics of adaptable organizations, as highlighted in their study, include the principles of decentralization, fostering open communication, and nurturing a culture that celebrates innovation, views failure as an opportunity for learning, and empowers teams. The presence of effective leadership and a conducive organizational culture is a prerequisite for adaptability; therefore, the enhancement of an organization's adaptive capacity is facilitated when its leaders exhibit mindfulness by attentively recognizing subtle cues, promoting diverse perspectives, and embracing the inherent ambiguity of complex situations (Weick & Sutcliffe, 2021)⁵³². This particular style of leadership cultivates an environment in which employees feel sufficiently empowered to take initiative, challenge existing assumptions, and contribute to the collective capacity of the organization to make sense of complex scenarios. According to Kumar and Ramachandran

⁵²⁹ Weick, K. E., & Sutcliffe, K. M. (2021). *Managing the Unexpected: Sustained Performance in a Complex World* (4th ed.). Wiley.

⁵³⁰ Kumar S and Ramachandran S (2022) Developing adaptive capacity for organizational resilience in complex systems. *Journal of Business Continuity and Emergency Planning* 15(2) 146–161.

⁵³¹ Duchek, S. (2020). Organizational resilience: A capability-based conceptualization. *Business Research*, 13(1), 215–246.

⁵³² Weick, K. E., & Sutcliffe, K. M. (2021). *Managing the Unexpected: Sustained Performance in a Complex World* (4th ed.). Wiley.

(2022)⁵³³, investing in both human capital and technology infrastructure is essential for building adaptable capabilities. They argued that in complex systems with high degrees of uncertainty and frequent failure of traditional methods, resilience is maintained by the combination of collaborative trust-based cultures and real-time information technologies.

2.3.4 Empirical Studies on AI-Driven Automation and Employee Productivity

AI-driven automation is the use of intelligent systems to execute tasks traditionally performed by humans, such as scheduling, reporting, and data processing. In consulting, automation tools streamline administrative functions, freeing consultants to focus on strategic problem-solving and client interaction (Chui et al., 2016)⁵³⁴.

From 2020 onwards, following the impact of the COVID-19 pandemic on manual processes and onsite processes, organisations sought new ways of work to embrace the new normal or hybrid and remote work. During this period, management consulting firms and other organisations increasingly adopted technology to replace or improve manual processes, creating greater opportunities for the use of AI and automation tools, remote way of work and hybrid became the new normal. As these digital solutions continued to evolve after the pandemic, AI became an increasingly important tool for improving productivity and operational efficiency in management consulting firms. Hence choosing 2020 as the starting point for this research is very significant as it captures the post-Covid - 19 work practices adopted by consulting firms in Nigeria.

Post Covid-19, management Consulting firms commenced the implementation of automation solutions such as robotic process automation (RPA), intelligent chatbots for client queries, and AI-powered workflow management platforms. These tools reduce repetitive workload and increase overall productivity. For example, Deloitte West Africa reported a 25% reduction in manual documentation time after implementing RPA for client deliverables in 2023 (Deloitte Africa, 2023)⁵³⁵. Automation's benefits extend beyond time savings. It enhances data accuracy, reduces fatigue-related errors, and promotes consistency across deliverables. In PwC Nigeria, the integration of AI-based workflow systems has minimized duplication of tasks and improved project turnaround time. Similarly, smaller consulting firms have adopted Microsoft Power Automate and UiPath to manage routine client communication and project updates.

However, the introduction of automation is not without its challenges. Employees often express concern over job displacement and the erosion of traditional consulting roles. The perceived “replacement effect” of AI creates psychological resistance that can lower morale if not managed properly (Brynjolfsson & McAfee, 2017)⁵³⁶. To mitigate these fears, successful consulting firms have adopted hybrid strategies combining automation with targeted upskilling programs that

⁵³³Kumar S and Ramachandran S (2022) Developing adaptive capacity for organizational resilience in complex systems. *Journal of Business Continuity and Emergency Planning* 15(2) 146–161.

⁵³⁴ Chui, Michael. Roberts, R. (2023). What every CEO should know about generative AI'. McKinsey Technology Council and Quantum Black, AI by McKinsey.

⁵³⁵ Deloitte Africa (2023). Cortex AI for Consulting Operations, Deloitte Insight Series.

Brynjolfsson, E., & McAfee, A. (2017). *Machine, platform, crowd: Harnessing our digital future*. W.W. Norton & Company.⁵³⁶

reposition employees for higher-value tasks such as data interpretation, client relationship management, and innovation strategy.

A 2024 Accenture report reveals that firms combining AI automation with human expertise achieve up to 40% higher employee satisfaction and 37% greater project accuracy than those relying solely on manual systems (Accenture, 2024)⁵³⁷. In Nigeria, similar outcomes have been observed in firms that integrate digital transformation with human-centred leadership models. By viewing AI not as a replacement but as a productivity partner, managers foster a culture of collaboration and trust.

Furthermore, automation promotes remote and hybrid consulting models, which became crucial during the COVID-19 pandemic. Through cloud-based AI platforms, consultants can now manage multiple client projects simultaneously, track performance metrics in real time, and ensure consistent service delivery.

Yet, automation must be balanced with human oversight. Excessive reliance on automated systems can lead to over-standardization and creativity loss in consulting engagements. Effective automation strategies emphasize augmentation where AI handles routine work, and consultants focus on critical thinking and innovation (Wilson, et al., 2018)⁵³⁸. In Nigerian consulting firms, the most successful automation initiatives are those supported by strong leadership and continuous learning environments. Organizations that implement clear change management frameworks and digital literacy training, experience smoother adoption and higher productivity outcomes (OECD, 2024)⁵³⁹.

AI-driven automation has revolutionized job functions in numerous industries, including management consulting. Tools like chatbots and workflow automation systems have emerged as integral components designed to boost employee productivity. Research indicates that automation alleviates employees of mundane tasks, allowing them to concentrate on higher-order functions requiring human ingenuity and strategic thinking (Sattu *et al.*, 2024; Pillai & Sivathanu, 2020)⁵⁴⁰. This shift has been particularly advantageous in consulting firms, where employees often juggle multiple projects that demand superior time management and efficiency.

Moreover, AI's capability to process vast quantities of data instantaneously enables firms to respond swiftly to client needs and market demands, thereby enhancing productivity. Studies show that firms implementing AI technologies experience measurable increases in employee output, partly due to improved workflow and reduced time spent on repetitive tasks (Yuan *et al.*, 2024; Olaniyan *et al.*, 2023)⁵⁴¹. However, firms face challenges aligning AI technologies with their cultural and operational strategies, ensuring that the workforce is adequately prepared for this technological shift (Sjahrudin *et al.*, 2024)⁵⁴².

⁵³⁷ Accenture (2024). Lead in the age of generative AI', Accenture Insights,

⁵³⁸ Wilson, H. J., & Daugherty, P. R. (2018). Collaborative intelligence: Humans and AI are joining forces. *Harvard Business Review*, 96(4), 114-123.

⁵³⁹ OECD (2024). Digital Adoption During COVID-19. Paris: OECD Publishing.

⁵⁴⁰ Sattu, R., Das, S., & Jena, L. (2024). Should I adopt AI during talent acquisition? evidence from HR professionals of Indian and organisations. *Journal of Organizational Effectiveness People and Performance*, 11(4), 1005-1022.

⁵⁴¹ Yuan, F., Shi, R., & Li, Z. (2024). Ai-assisted news content creation: enhancing journalistic efficiency and content quality through automated summarization and headline generation. *Applied and Computational Engineering*, 94(1), 112-117.

⁵⁴² Sjahrudin, H., Boyas, J., & Prayudi, D. (2024). Tech revolution in hr: leveraging ai for smarter talent acquisition. *Journal of Economic Business and Accounting (Costing)*, 7(3), 6424-6429.

Accenture's research in 2018 revealed that organizations using human-AI cooperation saw a 38% enhancement in worker productivity, as AI technologies facilitated more efficient and effective staff performance. In sectors like healthcare and education, human employees are essential for delivering personalised care and assistance, a task that robots cannot readily duplicate (Wilson & Daugherty, 2018)⁵⁴³.

AI-powered tools, such as natural language processing (NLP) and machine learning algorithms, are being used to process vast amounts of data, identify trends, and generate insights that inform decision-making (Akannagbe, 2024)⁵⁴⁴. A study by Susskind and Susskind (2015)⁵⁴⁵ demonstrated that AI-driven systems could reduce the time spent on routine legal tasks by 70%, allowing lawyers to focus on more complex legal issues that require human expertise. Brynjolfsson and McAfee (2014)⁵⁴⁶ argued that AI powered automation, particularly in manufacturing and customer service, has led to significant improvements in productivity.

In their study, Chui et al., (2016)⁵⁴⁷ also discussed the role of AI in optimizing workflows and improving operational efficiency in industries such as logistics and supply chain management.

Automation, a key component of AI, is driving efficiency by handling repetitive and time-consuming tasks. By automating routine activities, organizations can free up human workers to focus on more complex, strategic, and creative endeavours (Akannagbe, 2024)⁵⁴⁸.

2.3.5 Empirical Human Artificial Intelligence Collaboration in Management Consulting Firms

In recent years, the global workforce has seen an extraordinary disruption propelled by technology breakthroughs, particularly in automation and artificial intelligence (AI) (World Economic Forum, 2023)⁵⁴⁹. Artificial Intelligence which is defined as the simulation of human intelligence in machines that are programmed to think, learn, and perform tasks autonomously, has grown to become a central tool for enhancing productivity and decision-making across a range of organisations (Russell & Norvig, 2016)⁵⁵⁰. This growing synergy between human and machine intelligence is known as human-AI collaboration, a partnership that has been shown to significantly improve operational efficiency in organisations and decision-making process (Brynjolfsson & McAfee, 2017)⁵⁵¹.

⁵⁴³ Wilson, H. J., & Daugherty, P. R. (2018). Collaborative intelligence: Humans and AI are joining forces. *Harvard Business Review*, 96(4), 114-123.

⁵⁴⁴ Akinnagbe O. B. (2024). Human-AI Collaboration: Enhancing Productivity. *International Journal of Education, Management, and Technology and Decision-Making* 2(3), 387-417.

⁵⁴⁵ Susskind, R. E., & Susskind, D. (2015). *The future of the professions: How technology will transform the work of human experts*. Oxford University Press.

⁵⁴⁶ Brynjolfsson, E., & McAfee, A. (2017). *Machine, platform, crowd: Harnessing our digital future*. W.W. Norton & Company.

⁵⁴⁷ Chui, M., Manyika, J., & Miremadi, M. (2016). *Where machines could replace humans—and where they can't (yet)*. McKinsey Quarterly.

⁵⁴⁸ Akinnagbe O. B. (2024). Human-AI Collaboration: Enhancing Productivity. *International Journal of Education, Management, and Technology and Decision-Making* 2(3), 387-417.

⁵⁴⁹ World Economic Forum (2023). *Future of Jobs Report 2023*.

⁵⁵⁰ Russell, S., & Norvig, P. (2016). *Artificial intelligence: A modern approach* (3rd ed.). Pearson.

⁵⁵¹ Brynjolfsson, E., & McAfee, A., (2017). *The Business of Artificial Intelligence*. Harvard Business Review.

In contrast to concerns that AI will displace human consultants, AI is more likely to be viewed as a potent ally that will speed up data processing and turn consultants into interpreters and strategists. Oarue-Itseuwa (2024)⁵⁵² highlighted that a hybrid future will exist with better and faster outcomes, with the trend of AI-driven rapid insights and human consultants, providing context, creativity and super enhanced deliverables.

Mohan (2024)⁵⁵³ described various scenarios where artificial intelligence, particularly large language models and human consultants can collaborate in ways that are not competitive but complementary. Instead of replacing the consultant's expertise, AI serves as an enabler by rapidly analysing large sets of data, generating first-draft insights, and identifying potential patterns or risks that may not be immediately visible. Human consultants, on the other hand, bring contextual judgment, industry knowledge, cultural sensitivity, and critical thinking that machines cannot fully replicate. This partnership leads to more efficient problem-solving, faster decision-making, and the delivery of more tailored solutions. For clients, the synergy between AI-driven analytics and human strategic guidance creates immense value by combining speed, scalability, and accuracy with creativity, empathy, and relationship management. Ultimately, Mohan emphasizes that the most powerful consulting engagements in the future will emerge when AI enhances, rather than substitutes, human expertise.

Management consulting companies and professionals must reinvent, or reevaluate their professional opportunities, and skill sets in light of AI's growing capabilities. Although AI might produce patterns of solutions for the consultant to think about, through interactive interfaces, AI may support training and capability development activities. The consultants can plan and oversee the execution of suggestions pertaining to people, processes, and technologies, including data and AI (Mohan, 2024).

Samokhvalov (2024)⁵⁵⁴ disclosed that as artificial intelligence becomes more prevalent across industries, consulting firms are increasingly being pushed to adapt their service delivery models and internal operations. The integration of AI is no longer optional but a competitive necessity, as clients now expect data-driven insights, predictive modeling, and advanced automation to complement traditional consulting expertise. However, this shift also brings forward a complex set of ethical, legal, and regulatory concerns that firms must navigate carefully. On one hand, consultants are leveraging AI tools to accelerate research, enhance decision-making, and provide highly tailored client recommendations. On the other hand, they face challenges around algorithmic transparency, data privacy, intellectual property rights, and potential biases in AI outputs, all of which have significant implications for client trust and long-term relationships.

For instance, consulting firms using AI-powered analytics in human resources or recruitment advisory must ensure compliance with data protection regulations and mitigate risks of discriminatory algorithms. Similarly, in financial and strategic consulting, firms are under pressure to justify the assumptions and processes behind AI-driven models, especially when these influence major investment or restructuring decisions. Governments and regulators are also strengthening oversight, requiring consulting firms to balance innovation with ethical responsibility. As Samokhvalov notes, firms that successfully integrate AI into their business models while establishing

⁵⁵²Oarue-Itseuwa, E. (2024). Artificial Intelligence's impact on the management consultancy sector over the next five years. *Management Consulting Journal*, 7(1), 49–58.

⁵⁵³ Mohan, S. K. (2024). Management consulting in the artificial intelligence–LLM era. *Management Consulting Journal*, 7(1), 9–24.

⁵⁵⁴ Samokhvalov, K. (2024). The transformative impact of artificial intelligence on the management consultancy sector. *Management Consulting Journal*, 7(1), 59–68.

comprehensive responsible AI frameworks including bias audits, transparent reporting, and ethical governance will be better placed to maintain client trust and regulatory compliance. This dual approach will also enable them to gain a significant competitive edge in the evolving consulting industry.

Sayyadi et al., (2023)⁵⁵⁵ found that AI is on the verge of disrupting the management consulting industry. Firms need to revamp their internal processes in order to gain a competitive edge by streamlining and automating procedures. To guarantee buy-in and effective deployment, Chief Executive Officers need to underline the need of using Artificial Intelligence and other automation tools to supplement and improve human talents.

Crișan & Stanca (2021)⁵⁵⁶ opined that digital development is a gradual shift that affects specific aspects of management consulting firms' business models. Management Consulting firms should evaluate their market segments and observe client technology adoption trends in order to better understand and test new technologies for internal use. The COVID-19 crisis has prompted numerous businesses, including management consulting firms, to reconsider digital transformation. This involves developing new business models and consumer interfaces, rather than simply streamlining procedures (Crișan & Stanca, 2021).

Jarrahi (2018)⁵⁵⁷ explored how humans and AI complement each other, and how each can make a unique contribution to the corporate decision-making process that is often characterized by ambiguities, complexities, and uncertainty. Humans can still provide a holistic, instinctual method to managing equivocation in organizational decision-making, but AI can augment human cognition when dealing with complexity with its powerful computational information processing capability and analytical approach.

Fügener et al., (2021)⁵⁵⁸ emphasized that humans are poor judges of their meta-knowledge and struggle to effectively delegate to AI, which could be a critical barrier to understanding this transformation. Guggenberger et al., (2023)⁵⁵⁹ specifically noted that human-AI systems can achieve better results when AI takes a leading role in delegation, but the theoretical foundations remain underdeveloped.

In their paper, Cemaloglu, et al., (2019)⁵⁶⁰ explored the interplay between human agency and the increasing adoption of AI and automation in the consulting industry. Through ethnographic immersions in three consulting firms—Insights Co., Management Co., and Technology Co, they examined how automation impacts consultants' roles and their ability to make decisions, emphasizing

⁵⁵⁵ Sayyadi, M., Collina, L. & Provitera, M.J., 2023. The end of management consulting as we know it? *Management Consulting Journal*, 6(2), 67–77

⁵⁵⁶ Crișan, E.L. & Stanca, L., (2021). The digital transformation of management consulting companies: A qualitative comparative analysis of Romanian industry. *Information Systems and e-Business Management*, 19(4), pp.1143–1173.

⁵⁵⁷ Jarrahi, M.H. (2018). Artificial Intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business Horizons*, 61(4), 577–586.

⁵⁵⁸ Fügener, A., Grahl, J., Gupta, A., & Ketter, W. (2019). Collaboration and Delegation Between Humans and AI: An Experimental Investigation of the Future of Work.

⁵⁵⁹ Guggenberger, T., Lämmerrmann, L., Urbach, N., Walter, A. M., & Hofmann, P. (2023). Task delegation from AI to humans: A principal-agent perspective.

⁵⁶⁰ Cemaloglu, C., Chia, J. & Tam, J. (2019). Agency and AI in Consulting: Pathways to Prioritize Agency-Enhancing Automations. *Ethnographic Praxis in Industry Conference Proceedings*. [Online] 2019 (1), 533-553.

the importance of preserving “thinking agency” while automating “executorial agency” to enhance productivity and accuracy without diminishing the sense of purpose and meaning in work.

2.3.6 Empirical Studies Associated with Business Model Implications

According to Consultancy Uk (2022)⁵⁶¹, one of the key contributions that consultants provide is data analysis and presentation. Tasks that artificial intelligence can now accomplish within minutes. This advancement enables both management teams and consultants to access insights more quickly and at a lower cost compared to traditional methods. Consequently, the emphasis in consulting is shifting towards complex strategic advice that requires senior-level expertise and industry knowledge, as clients increasingly expect high-level engagement rather than routine data processing (Consultancy UK, 2022).

Consultants might need to adapt their business models which often are based on selling billable hours for labour-intensive work (Gonfalonieri, 2020)⁵⁶² to applicable pricing based on market needs such as pay-per-use or performance fees where payment is based on jointly agreed outcomes.

2.3.7 Studies on Impact of AI-Powered Data Analytics on Operational Efficiency

Chui et al., (2016)⁵⁶³ discussed how AI tools such as machine learning algorithms and data mining techniques are transforming business decision-making by improving forecasting accuracy and identifying trends that would otherwise remain unnoticed by human analysts. AI's ability to process large datasets quickly and identify patterns across multiple variables provides decision-makers with enhanced information, enabling more informed and timely decisions. AI-powered data analytics has significantly improved decision-making speed and resource optimization in management consulting firms. The ability to sift through immense amounts of data allows AI systems to provide insights that facilitate timely and informed decisions (Chang, 2024)⁵⁶⁴.

Decision-making is central to consulting operations. Historically, consultants relied on experience, intuition, and manual data analysis to advise clients. However, AI analytics systems now assist consultants in evaluating vast amounts of structured and unstructured data in real-time, enhancing the speed and quality of recommendations.

For instance, predictive analytics algorithms help consulting firms forecast market trends, assess financial performance, and simulate project outcomes under various scenarios. Firms such as KPMG Nigeria have deployed AI-driven analytics tools to predict client revenue streams and operational bottlenecks, enabling more proactive advisory services (KPMG, 2024)⁵⁶⁵. This data-driven approach allows consultants to provide evidence-based insights, reducing reliance on assumptions and intuition.

⁵⁶¹ Consultancy.uk (2022). 5 trends shaping the future of management consulting. Available at: <https://www.consultancy.uk/news/30507/5-trends-shaping-the-future-of-management-consulting>.

⁵⁶² Gonfalonieri (2020). AI & The Future of Consulting: Will Data Scientists Become Consultants?

⁵⁶³ Chui, M., Manyika, J., & Miremadi, M. (2016). Where machines could replace humans—and where they can't (yet). McKinsey Quarterly.

⁵⁶⁴ Chang, K. (2024). Ethical and operational challenges in AI-empowered employee recruitment: Insights and suggestions to the managers and managerial practitioners. *Innovations in Business and Strategic Management*, 2(1), 29-32.

⁵⁶⁵ KPMG (2024). West Africa Banking Industry Customer Experience Survey. KPMG Nigeria.

A 2024 Deloitte Africa survey reported that 78% of Nigerian consulting professionals who used AI analytics tools experienced faster project turnaround times and more precise recommendations compared to those relying on conventional data methods (Deloitte Africa, 2024)⁵⁶⁶. Furthermore, firms utilizing AI-powered decision-support systems reduced report preparation time by up to 30%, demonstrating tangible gains in operational efficiency.

The decision-making advantage of AI stems from its capacity for continuous learning and adaptation. Machine learning algorithms evolve through exposure to new data, thereby improving prediction accuracy over time. This capacity aligns well with consulting's iterative nature, where strategies must adapt to dynamic client environments (Brynjolfsson & McAfee 2017)⁵⁶⁷.

Artificial intelligence (AI) has significantly transformed data-driven decision-making by enabling businesses to extract meaningful insights from vast datasets with unprecedented accuracy and efficiency (Badmus et al., 2024)⁵⁶⁸. Rai and George (2024)⁵⁶⁹ stated that with AI-driven analytics, organizations can now process real-time data, identify patterns, and generate actionable insights that improve operational efficiency and strategic planning

The integration of AI in analytics has been facilitated by advances in machine learning (ML), deep learning, and natural language processing (NLP), allowing businesses to automate data analysis and improve predictive accuracy (Selvarajan, 2021)⁵⁷⁰. These technologies enhance decision-making by providing real-time recommendations based on historical trends and current data streams (Rimon, 2024)⁵⁷¹. As Chui, (2016)⁵⁷² noted, companies like Amazon and Netflix employ sophisticated AI algorithms that analyse past interactions, demographics, and browsing patterns to predict customer preferences and make personalized recommendations.

Brynjolfsson and McAfee (2014)⁵⁷³ highlighted how AI and machine learning models are increasingly being used by financial institutions to analyse market trends, evaluate investment opportunities, and predict market movements. From predictive analytics that help businesses anticipate consumer behavior (Chui et al., 2016)⁵⁷⁴ to diagnostic algorithms that assist doctors in

⁵⁶⁶ Deloitte Africa. (2024). Digital Consulting Transformation in West Africa.

⁵⁶⁷ Brynjolfsson, E., & McAfee, A., (2017). The Business of Artificial Intelligence. Harvard Business Review.

⁵⁶⁸ Badmus, O., Rajput, S.A., Arogundade, J.B. and Williams, M., 2024. AI-driven business analytics and decision making. *World Journal of Advanced Research and Reviews*, 24(1), 616–633.

⁵⁶⁹ Rai, P.R., Nanjundan, P. & George, J.P., (2024). Enhancing Industrial Operations through AI-Driven Decision-Making in the Era of Industry 4.0. In: *AI-Driven IoT Systems for Industry 4.0*, CRC Press, 42–55.

⁵⁷⁰ Selvarajan, G., 2021. Leveraging AI-Enhanced Analytics for Industry-Specific Optimization: A Strategic Approach to Transforming Data-Driven Decision-Making. *International Journal of Enhanced Research in Science, Technology & Engineering*, 10, 78–84.

⁵⁷¹ Rimon, S.T. (2024). Leveraging Artificial Intelligence in Business Analytics for Informed Strategic Decision Making: Enhancing Operational Efficiency, Market Insights, and Competitive Advantage. *Journal of Artificial Intelligence General Science (JAIGS)*, 6(1), 600–624

⁵⁷² Chui, M., Manyika, J., & Miremadi, M. (2016). Where machines could replace humans—and where they can't (yet). *McKinsey Quarterly*.

⁵⁷³ Brynjolfsson, E. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies* (Vol. 236). WW Norton Company.

⁵⁷⁴ Chui, M., Roberts, R. & Yee, L. (2022). *Generative AI is here: How tools like ChatGPT could change your business*. McKinsey & Company.

making more accurate medical decisions (Jiang et al., 2017)⁵⁷⁵, AI is increasingly seen as a powerful tool for augmenting human decision-making.

In Nigerian consulting firms, which often operate with limited resources, integrating AI-driven analytics is particularly crucial. Organizations can leverage advanced analytics to identify trends and forecast market fluctuations, enabling more strategic resource allocation (Roppelt et al., 2024)⁵⁷⁶. This alignment with AI analytics fosters a culture of data-informed decision-making, boosting operational efficiency and long-term strategic planning (Agnihotri et al., 2023)⁵⁷⁷. Research indicates that firms utilizing AI analytics can optimize their operational resources, leading to enhanced overall efficiency (Atwal et al., 2021)⁵⁷⁸.

Prior to 2020, most Nigerian consulting firms operated with limited data integration across their units. Operational processes such as proposal generation, engagement tracking, and performance metrics were largely siloed and reliant on manual compilation. According to GSMA (2019)⁵⁷⁹, even firms with digital platforms lacked advanced analytics tools necessary to support data-driven decision-making. Operational dashboards were static, reliant on manual ETL processes, with limited predictive insight. Decisions were slower and resource allocation reactive.

By early 2022, consulting firms globally were deploying automated dashboards. The OECD (2025)⁵⁸⁰ outlines how AI-powered analytics enabled real-time monitoring, scenario planning, and resource allocation optimization, cutting turnaround times and minimizing waste. Between 2020 and 2023, firms globally began leveraging AI not only to process data more quickly but to interpret it in ways that directly supported managerial decision-making. The OECD (2025) report noted that AI-powered analytics systems allowed firms to enhance resource allocation strategies, reduce project cycle times, and respond to client demands with unprecedented speed and accuracy.

The work of Noy and Zhang (2023) further affirmed that generative AI contributes to operational agility by allowing teams to use rapidly prototype solutions, synthesize research findings, and draft reports at scale. When applied in the consulting sector, these benefits translate into faster proposal turnaround, more accurate market assessments, and leaner project execution especially valuable in highly competitive environments such as management consulting. While much of this evidence originates from global North economies, the underlying technology and organizational dynamics are translatable to the Nigerian context, particularly for digitally progressive firms.

Studies by Noy and Zhang (2023)⁵⁸¹ demonstrated that AI-assisted workflows speed up document synthesis and reduce error rates directly improving operational output. This aligns with global consulting reports showing non-billable prep time reduced by 30% through analytics-enabled systems

⁵⁷⁵ Jiang, F., Jiang, Y., Zhi, H., Dong, Y., Li, H., Ma, S., & Wang, Y. (2017). Artificial intelligence in healthcare: Past, present and future. *Seminars in Cancer Biology*, 38, 25-34.

⁵⁷⁶ Roppelt, J., Greimel, N., Kanbach, D., Stubner, S., & Maran, T. (2024). Artificial intelligence in talent acquisition: a multiple case study on multi-national corporations. *Management Decision*, 62(10), 2986-3007.

⁵⁷⁷ Agnihotri, A., Pavitra, K. H., Balusamy, B., Maurya, A., & Bibhakar, P. (2023). Artificial intelligence shaping talent intelligence and talent acquisition for smart employee management. *EAI Endorsed Transactions on Internet of Things*, 10.

⁵⁷⁸ Atwal, G., Bryson, D., & Williams, A. (2021). An exploratory study of the adoption of artificial intelligence in burgundy's wine industry. *Strategic Change*, 30(3), 299-306.

⁵⁷⁹ GSMA (2019). *Digital Transformation and Enterprise Systems in Sub-Saharan Africa*.

⁵⁸⁰ OECD (2025). *The Effects of Generative AI on Productivity, Innovation and Entrepreneurship*.

⁵⁸¹ Noy, S. & Zhang, W. (2023). *Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence*. MIT Economics Working Paper.

(Business Insider, 2025)⁵⁸². BCG's 2025 survey shows less than 40% of professional services firms deployed domain-specific GenAI tools, but among adopters, quality and time savings outperformed general tools by a wide margin, suggesting that tailored AI analytics is more impactful.

2.13 Digital Maturity and AI Adoption in Nigerian Consulting Firms

While global consulting firms rapidly deploy AI for enhanced productivity and efficiency, the pace of adoption in Nigeria hinges heavily on digital infrastructure, data ecosystems, and organizational readiness. As of 2020, Nigeria's cloud computing and internet penetration, critical enablers of AI, remained limited outside major cities like Abuja and Lagos (GSMA, 2021)⁵⁸³. However, national investments in digital public infrastructure and broadband expansion post-COVID-19 have begun to address these gaps.

The Nigeria Data Protection Commission (NDPC) and the National Information Technology Development Agency (NITDA) jointly launched the National AI Strategy Framework (2023)⁵⁸⁴, which promotes responsible AI adoption, AI research clusters, and workforce development in collaboration with firms like PwC, Data Science Nigeria, and IBM. These efforts, while commendable, still face challenges in consistency of funding, public-private coordination, and implementation among small-to-mid-size consulting firms.

Moreover, infrastructure readiness extends beyond internet or tools, it includes organizational digital maturity. A 2023 survey by Techpoint Africa found that only 22% of Nigerian professional services firms had AI-powered platforms integrated into core decision workflows (Techpoint, 2023). This suggests a significant readiness gap in terms of leadership mindset, data literacy, and ethical awareness required to harness AI tools productively.

As consulting firms in Nigeria build digital foundations, they will need to invest in secure cloud environments, ethical governance frameworks, and AI literacy to fully benefit from automation and analytics tools.

2.3.8 Ethical Issues and Challenges in Artificial Intelligence Adoption

Consulting plays a pivotal role in the contemporary economic landscape (Malikova & Abduganieva, 2023)⁵⁸⁵. The examination of previous research exploring the intricacies of how automation technologies influence employment reveals that this relationship is notably intricate and multifaceted (Filippi et al., 2023)⁵⁸⁶.

⁵⁸² BusinessDay (2024, August 12). 75% of Nigerian employees ready to adopt GenAI at workplace: report', BusinessDay NG.

⁵⁸³ GSMA (2021). Mobile Internet Connectivity Report – Sub-Saharan Africa.

⁵⁸⁴ NITDA (2023). National Artificial Intelligence Strategy Framework for Nigeria.

⁵⁸⁵ Malikova, D., & Abduganieva, F. (2023). The role of consulting in the modern economy. *Global Scientific Review*, 12, 1–4.

⁵⁸⁶ Filippi, E., Bannò, M., & Trento, S. (2023). Automation technologies and their impact on employment: A review, synthesis, and future research agenda. *Technological Forecasting and Social Change*, 191, 122448.

Bessen (2018)⁵⁸⁷ argues that while artificial intelligence will displace certain routine tasks traditionally performed by management consultants creating new ones as a result of AI. As a matter of fact, there are some subfields within the management consulting profession that could still benefit from the advancements of AI in the future, but AI is not able to replicate the empathy and social intelligence that management consultants require on a day-to-day basis (Gromulski & Ericson, 2024)⁵⁸⁸. Deming et al. (2025)⁵⁸⁹ observe, the real danger lies not only in job displacement but in falling behind global and regional peers who successfully harness AI for innovation and cost leadership

Despite the benefits, AI adoption in management consulting faces challenges such as data privacy concerns, employee resistance, and the risk of workforce displacement (Asif et al., 2024; Miller, 2021)⁵⁹⁰. Skill gaps emerged, with 60% of consultants lacking AI literacy in 2019, necessitating upskilling programs (Davis, 2020)⁵⁹¹. Resistance to change also persisted, as employees feared job displacement. Firms addressed this through change management initiatives, emphasizing AI as a “co-pilot” rather than a replacement (Smith and Johnson, 2020)⁵⁹².

Lack of transparency is also an area of distress for businesses dealing with AI's algorithm. AI has earned the tag of a “black box” as it often produces results without any clear explanation making it difficult for consultants to either comprehend it or explain the rationale behind the recommendation to their clients. Furthermore, the risk of errors and discrepancies is always attached to the output generated by AI. Thus, it is indispensable for consultants to realize the limits of AI and provide appropriate controls to avoid false or misleading recommendations caused by mistakes in data or algorithms (Gregory, 2023)⁵⁹³.

A recent investigation on the impact of Artificial Intelligence (AI) in the workplace by BCG and Harvard University indicated that BCG consultants utilized AI to complete 12.2% more work, 25.1% faster, and more than 40% better than those who didn't use AI, sounding incredible. However, the study also found a substantial increase in error rates when tasks were performed outside AI improvement. Despite the productivity gains showed by the employees in these types of situations, consultants who used AI were 19% more likely to provide wrong answers. This study serves as a reminder for businesses to evaluate if their employees are ready to adopt AI while also comprehending its limits. It is about equipping a company's staff with the preparation and resources they need to navigate the world with confidence (Pontefract, 2023)⁵⁹⁴.

⁵⁸⁷ Bessen, J. (2018). AI and jobs: The role of demand. National Bureau of Economic Research, w24235.

⁵⁸⁸ Gromulski, E. and Ericson, J., (2024). Maneuvering the AI Frontier: An In-depth Exploration of Generative Language Models in Contemporary Management Consulting. Master's thesis, University of Gothenburg (GUPEA).

⁵⁸⁹ Deming, D.J., Ong, C. & Summers, L.H. (2025). Technological Disruption in the Labour Market. NBER Working Paper No. 33323.

⁵⁹⁰ Asif, M., & Sandhu, M. S. (2023). Social media marketing revolution in Pakistan: A study of its adoption and impact on business performance. *Journal of Business Insight and Innovation*, 2(2), 67-77.

⁵⁹¹ Davis, R., & Thompson, J. (2023). The evolution of consulting business models in the AI era. *California Management Review*, 65(4), 5-23.

⁵⁹² Smith, J. & Johnson, P. (2020) The consulting industry's AI revolution: 2018–2020. *Harvard Business Review*, 98(4), 56–67.

⁵⁹³ Gregory, C. (2023). Ethical implications of AI in consulting: A deep dive. Tom Spencer.

⁵⁹⁴ Pontefract, D. (2023). Harvard and BCG unveil the double-edged sword of AI in the workplace', *Forbes*, 34.

According to Huggett (2021)⁵⁹⁵, Artificial Intelligence technologies represent a promising field for researchers and constitute a uniquely distinguished relationship through which some historical elements hidden in previous books can be uncovered. However, it is important to recognize that technological innovations often have unintended consequences. Understanding how generative AI approaches scientific research is crucial, so adopting a cautious approach is necessary. While integrating AI in scientific research presents several challenges, including the risk of introducing bias or falsification into the historical record, the potential benefits are substantial. By leveraging AI, historians can uncover connections and patterns across a broader range of historical data than would be feasible by traditional methods, ultimately enriching our understanding of the past (Huggett, 2021).

Using computational machines can raise ethical and practical challenges, as creating false records, whether intentionally or by mistake, would distort our shared sense of scientific understanding (Cain, 2023)⁵⁹⁶. Dzieza (2024)⁵⁹⁷ stated that language posed another problem: many texts were written in regional Latin dialects that machines not trained in these languages often could not recognize. Experts say, this poses a major constraint on natural language processing when you do not have the necessary vocabulary for training in the background. This is part of why natural language processing succeeds in dominant languages like English but is less effective in, for example, ancient Hebrew (Donovan, 2023)⁵⁹⁸. The intelligent revolution faces another challenge among those that may obstruct the path to expanding the base of mutual benefit between researchers and AI tools. Many AI models are trained on datasets from the past fifteen years of contemporary life features, such as mobile phones, cars, or recent historical data. All this makes computer vision less accurate when applied to historical images or ancient manuscript models. Moreover, attention must be paid to another issue related to the same problem we are addressing. The radical changes in lifestyle and work patterns between yesterday's and today's populations in all aspects can be a stumbling block in the way computational models try to understand and analyse ancient literature correctly (Donovan, 2023). Therefore, developing effective AI models for dealing with old images and manuscripts requires a set of foundations and practical steps. So also, is the ability to train the computational model on diverse and comprehensive scientific data, including images and manuscripts with various imaging techniques (Donovan, 2023).

According to Liyy (2024)⁵⁹⁹, the possibility of developing specialized algorithms that consider the nature of scientific forms, symbols, and literature shows the difference between them and their contemporary counterparts. Historians must conduct a thorough and critical examination of the results produced by AI tools. AI models demonstrate remarkable capabilities in handling historical texts that cannot be denied. However, we must explicitly acknowledge the constraints that researchers face when working with them (Langer, 2023)⁶⁰⁰. States must establish legal and ethical guidelines to define the optimal use of AI and prevent students and researchers from over-relying on it (Fengchum & Holmes, 2023). After establishing guiding principles and regulations, the next challenging step is that most academic institutions lack trained specialists in AI technologies. Thus, training educators on proper AI methods is among the biggest challenges facing historians. Historians must be thoroughly knowledgeable about the theory and practice of how AI works before delving into this world, which requires more time. Educational institutions must build robust infrastructures capable

⁵⁹⁵ Huggett, J. (2021). Algorithmic Agency and Autonomy in Archaeological Practice. *Open Archaeology*, 7(1), 417–434.

⁵⁹⁶ Cain, D. (2023). Decoding History: The Role of AI in Unearthing Ancient Secret.

⁵⁹⁷ Dzieza, J. (2024). How AI Can Make History. *The Verge*, February, 15.

⁵⁹⁸ Donovan, M. (2023). How AI is Helping Historians Better Understand Our Past. *MIT Technology Review*.

⁵⁹⁹ Liyy, E. (2024) 'AI Tools for Writing Historical Content', Medium.

⁶⁰⁰ Langer, A. (2023). Generative AI and Historical Authority', NCPH.

of handling the complexities of modern technology (Jackson, 2023)⁶⁰¹. Furthermore, the issue of not fully trusting the results generated by these tools, remains one of the most significant challenges facing historians. Everyone must recognize the seriousness of this particular point.

Some of the serious ethical issues posed by using AI in consulting are to be curbed by practising the following:

- i. **Ensure transparency and disclosure:** When using AI for recommendations, it is important to keep your customers informed about the use of AI technology and all other details related to the same in the consultation process. Understanding the impartiality and reliability of the AI's training data and the risk of errors being made during the process, can sometimes become difficult for clients. For instance, in a consulting firm that uses AI to provide financial advice to clients, their AI system can come up with seemingly attractive recommendations, however the consulting firm finds it difficult to explain the rationale behind the same recommendations. This often leaves customers doubting the credibility of the recommendations, thereby wondering if it is worth investing their time and money. Over and above, if an AI-generated recommendation causes damage, lack of transparency can often result in lack of accountability. For example, it could be difficult to determine who is responsible for a client's loss after an investment recommendation. Thus, establishing trust with your clients by being transparent about how AI-generated information is being used will help them make informed decisions (The Economic Times, 2023)⁶⁰².
- ii. **Protect Privacy & Data Protection:** GenAI often requires large amounts of data to create content. Consultants must ensure they have the necessary authorization and legal safeguards in place to acquire and utilize client data. Data breaches, unauthorized access, and data misuse are potential risks. Therefore, data security must and should be a top priority to ensure compliance with data protection legislation such as the General Data Protection Regulation (GDPR). Protecting your customers' privacy and compliance with data protection laws must be priority.
- iii. **Fairness and Bias:** GenAI systems are highly prone to bias. To give an instance, AI system trained on information from a specific industry, such as the financial sector might be able to predict outcomes accurately for that particular industry; however, predictions for other sectors such as the healthcare industry might not be accurate enough leading to bias against certain groups of people, including those who need medical attention in this example. Therefore, consultants must be conscious of any biases in the content they deal with and take the required steps to regularly assess and audit AI models (Faggella, 2020)⁶⁰³.
- iv. **Algorithm Training Datasets:** GenAI's generated output can be unreliable in business situations where accurate and complete data is required. It is important to use the text from the web instead of a large library of business-related literature to create output for challenging business strategies. This limited knowledge about technology leads the way for mistakes when using AI for business decision making process.
- v. **Workplace changes:** AI-driven consulting industry could pose social and economic impact by creating a future where some jobs may become obsolete, making it harder to re-train and adapt

⁶⁰¹ Jackson, S. (2023). Don't Stop Worrying or Learn to Love AI', Perspectives on History.

⁶⁰² The Economic Times (2023). 'Big 4 accounting firm KPMG to invest \$2 billion in AI, cloud services. The Economic Times.

⁶⁰³ Faggella, D. (2020). AI in the accounting big four – Comparing Deloitte, PwC, KPMG, and EY', Emerj Artificial Intelligence Research.

the workforce. Along with this, loss of human expertise and critical thinking skills will also prevail because of overuse of AI systems leading to problematic situations because AI systems may not always be able to comprehend the nuances or context required in complex scenarios. Due to the swift upgradation of AI technology, adherence to existing legal and regulatory frameworks could be a challenge and therefore, companies using AI for their services always need to ensure that their AI applications comply with the law, both international and domestic as per the requirement. Last but not the least, companies should also ensure high quality of data and algorithms used by AI systems, since they have a significant influence on the analysis and recommendations delivered by these systems. Any inaccurate or misleading results coming out from these AI systems could cause detrimental effect on decision-making process. Thus, it is utterly essential to establish an internal quality assessment that evaluates processes in regular intervals (The Economics, 2023)⁶⁰⁴.

Addressing ethical issues in AI integration in consulting is crucial for maintaining trust, compliance, and responsible innovation. Utilizing representative and diverse data sets can provide an upper hand in reducing bias in AI systems. Transparency about data used to train algorithms and regular monitoring of AI systems can help in mitigating any bias and produce effective outputs. In addition to this, use of explainable AI should be encouraged to ensure the availability of a clear and understandable explanation for the system's decision-making. If a “Glass box” AI model, for example, reveals the inner workings of the system and its decision-making processes to its human users (The Economics Times, 2023).

It is important to consider the impact of AI systems on employment and necessary steps should be taken to mitigate any negative effects such as assisting employees in transitioning into new roles and re-training them and equipping them with the skills they need to succeed. To nullify the risks, consulting businesses must establish vigorous governance frameworks for AI, including ethical principles, data protection controls, quality assurance processes, and continuous evaluation and monitoring of their AI systems (Antino, 2024). Consultants should also build trust, an asset in the era of AI for its customers, employees, and other stakeholders by letting them know that the AI systems they use are reliable, ethical, and responsible. Users are more likely to adopt and use AI-powered products and services when they understand how these systems make decisions and have confidence in their impartiality. Contrary to what many people think, through advisory and consulting services, companies can innovate ethically by providing a framework for ethical AI systems. Innovation and ethics go hand in hand to deliver AI solutions that improve society and give companies a competitive advantage (Gregory, 2023)⁶⁰⁵.

AI governance frameworks evolve over time and will continue to evolve as AI advances. Consulting companies invest in use of ethical AI in their services position to adapt quickly to changing ethical standards and regulations. By avoiding costly retro fits and costly mistakes that damage a company's brand, this proactive approach helps businesses succeed over time in an environment where ethical AI is critical.

⁶⁰⁴ The Economic Times (2023). ‘Big 4 accounting firm KPMG to invest \$2 billion in AI, cloud services. The Economic Times.

⁶⁰⁵ Gregory, C. (2023). Ethical implications of AI in consulting: A deep dive. Tom Spencer.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents the methodological framework that underpins the study on the influence of artificial intelligence (AI) on employee productivity and operational efficiency in selected Nigerian management consulting firms specifically KPMG, PwC, Deloitte, Ernst & Young (EY), Workforce Group, and Human Capital Partners (HCP). The chapter justifies the research design, sampling strategy, instruments of data collection, and analysis techniques. It also explains the procedures adopted to ensure the reliability and validity of findings, addresses ethical considerations, and highlights potential limitations of the chosen approach.

This study adopts a mixed-methods research design. It combines quantitative and qualitative approaches to comprehensively evaluate the impact of Artificial Intelligence (AI) on employee productivity and operational efficiency in selected Nigerian management consulting firms. The quantitative component uses structured questionnaires to gather numerical data. The qualitative component comprises semi-structured interviews to gain deeper insights into organisational practices and perceptions. This triangulation enhances the validity of the findings (Creswell & Creswell, 2018; Tah, 2024)⁶⁰⁶.

3.1 Research Design

This study examines the influence of Artificial Intelligence (AI) on employee productivity and operational efficiency within selected management consulting firms in Nigeria within the selected period of post Covid 19 pandemic, years 2020 - 2025. The major consulting firms included in the study are KPMG, PwC, Deloitte, Ernst & Young (EY), Workforce Group, and Human Capital Partners (HCP). The research design provides the overall structure that guides the process of data collection, analysis, and interpretation in line with the study objectives.

The study adopts a mixed-method research design, combining both quantitative and qualitative approaches. This design was considered appropriate because it allows for a more balanced understanding of the subject matter by capturing both measurable patterns and lived experiences, described by the staff. The quantitative component focuses on numerical data gathered from respondents, while the qualitative component provides for more detailed explanations of employee and managerial experiences, perceptions, and interpretations of AI use within their organisations.

The quantitative aspect of the study involves the use of structured questionnaires administered to employees across the selected consulting firms. The instrument was designed to capture information on the application of AI tools in the workplace and their influence on productivity, efficiency, communication, decision-making, and task execution. Questionnaires were considered suitable because they allow data to be collected from a relatively large number of respondents within a short period, while also enabling comparison across different firms and job categories.

The qualitative component of the research involves open-ended parts of the questionnaire that enable the participants share more practical insights regarding their direct engagement with AI systems in their workplaces. This approach provided an opportunity for respondents to explain their experiences in greater detail and to discuss issues that may not be fully captured through structured questionnaires. From this part of the questionnaire, deeper insight was obtained into organisational practices,

⁶⁰⁶ Creswell, J.W. & Creswell, J.D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 5th ed. Thousand Oaks, CA: Sage Publications.

employee perceptions, implementation challenges, and general attitudes toward AI adoption within the consulting sector.

Using both methods together strengthened the overall study by improving the depth and reliability of the findings. Information gathered through one method can be used to support or cross-check findings from the other, thereby reducing inconsistencies and improving overall credibility. This combination also provided a fuller understanding of the research problem by linking numerical trends with contextual explanations of workplace experiences.

The research design is descriptive in nature, as it focuses on describing the current state of AI adoption and its effects on organisational performance within the selected consulting firms. It does not involve manipulation of variables but rather sought to understand existing conditions as they are observed. In addition, the study adopted a cross-sectional approach, meaning that data was collected at a single point in time. This makes it possible to capture current patterns of AI usage and employee responses across the selected organisations.

The target population consisted of employees and management staff working within the Practice departments or client-facing departments in the selected consulting firms. These groups were chosen because they are directly involved in the use, management, or supervision of AI tools and systems in their daily work activities. Other employees from different departments including operational departments, support roles and job levels were included to ensure that a broad range of perspectives and experiences was captured.

To ensure accurate data collection, the study utilised carefully designed instruments aligned with the research objectives. The questionnaire included both closed-ended and open-ended questions, allowing respondents to provide structured answers as well as more detailed responses where necessary.

Data collected from the questionnaires was analysed using descriptive statistical techniques such as percentages, frequencies, tables, and charts. These methods were used to summarise and present the data in a clear and understandable form. The qualitative data obtained from interviews was analysed thematically by identifying recurring patterns, ideas, and themes expressed by participants. This allowed for a more meaningful interpretation of the experiences shared by respondents.

Ethical considerations were also taken into account throughout the study. Participation was entirely voluntary, and respondents were informed about the purpose of the research before data collection commenced. Confidentiality and anonymity were maintained to protect participants' identities, and all information provided was used strictly for academic purposes.

Although the research design provides a strong framework for the study, certain limitations still exist. Some respondents may have been reluctant to provide detailed information due to organisational policies or concerns about confidentiality. Despite these limitations, efforts were made to ensure that the findings remain credible, objective, and relevant to understanding the impact of AI on productivity and operational efficiency within Nigerian management consulting firms.

3.1.1 Embedded Design Model

The design will adopt an embedded design model which involves primarily quantitative design (the questionnaire) with embedded qualitative open-ended questions in the same survey. This fits, as it avoids separate interviews while still capturing qualitative insights. It is efficient and time - effective.

3.1.1.1 A Comprehensive Overview of the Embedded Design Model

Embedded design in mixed-methods research is a methodological approach that integrates qualitative and quantitative data collection within a single instrument or phase of research. This design allows researchers to gather rich, contextual insights while also obtaining measurable data to support findings. It is particularly beneficial in settings where time and resources are limited, enabling a holistic understanding of complex phenomena.

3.1.1.2 Key Characteristics of Embedded Design

Integration of Qualitative and Quantitative Data: Embedded design combines qualitative open-ended questions with quantitative close-ended questions, allowing researchers to explore participants' perspectives while also measuring specific variables. Insights from this design can provide options such as:

- i. **Efficiency and Contextual Relevance:** By embedding qualitative items within quantitative surveys, researchers can maximize the use of available time and resources. Respondents can provide in-depth feedback without the need for separate qualitative interviews, thus streamlining the data collection process (Creswell & Plano Clark, 2018).⁶⁰⁷
- ii. **Strengthening Validity through Triangulation:** Combining both types of data enhances the validity of the findings. The qualitative data can explain and contextualize the quantitative results, offering a richer interpretation of the data. For example, if a majority of respondents indicate that training is necessary, the qualitative responses can reveal specific training needs or barriers to effective use of analytical tools (Tashakkori & Teddlie, 2010)⁶⁰⁸.

3.1.1.3 Implementation of Embedded Design

To effectively implement an embedded design, the research would aim to:

- i. **Develop a Clear Framework:** Define the research questions and how both qualitative and quantitative data will contribute to answering them.
- ii. **Design the Instrument Thoughtfully:** Structure the survey to include a mix of Likert-scale items for quantitative analysis and open-ended questions for qualitative insights. Ensure that open-ended questions are framed in a way that allows for specific, actionable responses.
- iii. **Pilot Test the Instrument:** Conduct a pilot study to assess the clarity and effectiveness of the questions, making adjustments as needed to improve response quality and reliability.

There are advantages in embedded design. The advantages consist of the following:

1. **Cost-Effectiveness:** Reduces the need for multiple rounds of data collection, saving both time and financial resources (Bazeley, 2018)⁶⁰⁹.

⁶⁰⁷ Creswell, J.W. & Plano Clark, V.L. (2018). *Designing and Conducting Mixed Methods Research*. 3rd edn. Thousand Oaks, CA: SAGE Publications.

⁶⁰⁸ Tashakkori, A. & Teddlie, C. (2010). *SAGE Handbook of Mixed Methods in Social & Behavioral Research*. 2nd edn. Thousand Oaks, CA: SAGE Publications.

⁶⁰⁹ Bazeley, P. (2018) *Mixed Methods in My Experience*. In: *The Sage Handbook of Mixed Methods in Social & Behavioural Research*. 2nd ed. Thousand Oaks, CA: SAGE Publications, 569-588.

2. **Rich Data Capture:** Allows for a comprehensive understanding of participants' experiences and perceptions, which can be particularly valuable in applied fields like management consulting.
3. **Flexibility:** Researchers can adapt existing instruments to suit their specific needs while still adhering to mixed-methods principles (Fetters et al., 2013)⁶¹⁰.

Despite the advantages certain challenges and Considerations abound. In fact, embedded design has many advantages, yet potential challenges must be considered. These include:

1. **Complexity in Data Analysis:** Analysing mixed methods data requires careful planning and familiarity with both qualitative and quantitative analysis techniques.
2. **Integration of Findings:** there is a need to develop strategies to effectively integrate findings from both data types to provide coherent conclusions (Guetterman et al., 2015)⁶¹¹.

Alternative designs such as purely qualitative case studies or survey-only quantitative studies were considered. However, given the study's objectives, particularly the need to link automation to productivity (Objective 1), analytics to efficiency (Objective 2), and AI-driven HR practices to recruitment and retention (Objective 3), a single design would have been insufficient. The mixed-methods approach is therefore justified as both pragmatic and holistic (Venkatesh et al., 2019)⁶¹².

This sequential design capitalizes on the strengths of both approaches: the breadth and generalisability of quantitative data, and the depth and contextual understanding of qualitative data, achieving methodological triangulation (Denzin, 1978)⁶¹³.

3.2 Population and Sample

The study's population includes employees and managers from six Nigerian management consulting firms: KPMG, Deloitte, Workforce Group, Human Capital Partners, PwC, and Ernst & Young. These firms were selected for their industry prominence and documented involvement with AI technologies. The sample comprises 300 participants distributed across departments like human resources, operations, and IT, ensuring diverse role and experience representation.

3.3 Sampling Techniques

Sample size is one of the four inter-related features of a study design that can influence the detection of significant differences, relationships or interactions (Peers, 1996)⁶¹⁴. A stratified random sampling technique will be used to ensure proportional representation from each firm and department. This method improves the findings' generalizability and reduces sampling bias. Participants will be chosen

⁶¹⁰ Fetters, M.D., Curry, L.A. & Creswell, J.W. (2013). Achieving Integration in Mixed Methods Designs: Principles and Practices. *Health Services Research*, 48(6), 2134-2156.

⁶¹¹ Guetterman, T.C., Fetters, M.D. & Creswell, J.W. (2015) 'Integrating Quantitative and Qualitative Results in Health Science Mixed Methods Research Through Joint Displays. *The Annals of Family Medicine*, 13(6), 554-561.

⁶¹² Venkatesh, V. & Davis, F.D. (2000) A Theoretical Extension of the TAM. *Management Science*, 46(2), 186-204.

⁶¹³ Denzin, N.K. (1978). *Sociological Methods: A Sourcebook*. 2nd edn. New York: McGraw-Hill.

⁶¹⁴ Peers, I. (1996). *Statistical analysis for education and psychology researchers*. Bristol, PA: Falmer Press.

based on their engagement with AI tools and processes, ensuring alignment with the study objectives (Bryman, 2016)⁶¹⁵.

The strata will include:

Managers/partners (decision-making roles).

HR professionals (recruitment and retention).

IT/data analytics staff (AI deployment and support).

Consultants/analysts (client-facing roles). Stratification ensures representation across hierarchical levels and functional domains. The sample size will be determined using Krejcie and Morgan's (1970) formula, which recommends a sample of ~350 for a population of 4,000 at 95% confidence level. Accordingly, the study targets 400 respondents with an expectation of ~300 completed responses due to non-response.

3.4 Data Collection Methods

In this study, the primary data collection will involve a structured survey administered to employees across six consulting firms: KPMG, Deloitte, PwC, Ernst & Young, Work-Force Group, and Human Capital Partners. The survey will measure variables such as:

- i. Perceived productivity changes due to AI tools (e.g., chatbots, workflow automation)
- ii. Operational efficiency indicators (e.g., decision-making speed, resource utilization)
- iii. AI usage frequency and training exposure

The embedded qualitative component will consist of open-ended questions. These questions will explore:

- i. Experiences with AI implementation
- ii. Perceived barriers and enablers
- iii. Organizational readiness and change management practices
- iv. Ethical concerns and data governance

Quantitative and qualitative data will be collected simultaneously. The questionnaire includes closed-ended items measured on a Likert scale focusing on AI usage, productivity metrics, and operational efficiency indicators. Secondary data will be obtained from company reports, industry publications, and academic literature (Rahman, 2024).⁶¹⁶

The data collection will proceed in two stages:

Stage 1: Distribution of questionnaires (online via Google Forms and in-person for firms with limited access).

Stage 2: Collection of archival records (annual reports, AI adoption road maps, and Industry reports).

⁶¹⁵ Bryman, A. (2016). *Social Research Methods*. 5th edn. Oxford: Oxford University Press.

⁶¹⁶ Rahman, A. (2024). AI and Machine Learning in Business Process Automation: Innovating Ways AI Can Enhance Operational Efficiencies or Customer Experiences in U.S. Enterprises. *Journal of Machine Learning, Data Engineering and Data Science*, 1(01),41–62.

The data collection process will follow these steps:

- i. **Survey Distribution:** The survey will be distributed electronically via a secure platform (e.g., Online forms), allowing easy access for participants. An introductory email will explain the purpose of the study, the estimated time commitment, and the confidentiality measures in place to protect participants' identities. The form will be accompanied with an introductory letter for notification of the survey, confidentiality and obtaining of consent.
- ii. **Informed Consent:** Participants will be required to provide informed consent digitally before accessing the survey. This ensures that they understand their rights and the voluntary nature of their participation.
- iii. **Survey Completion:** Participants will complete the survey at their convenience, and reminders will be sent to enhance response rates. The embedded qualitative questions will encourage respondents to reflect deeply on their experiences, providing richer data for analysis.
- iv. **Data Storage and Management:** All survey responses will be securely stored on encrypted servers, with access limited to the researcher to maintain confidentiality.

Ethical approval will be sought prior to data collection, and informed consent obtained from participants.

3.5 Instrumentation

The questionnaire will be developed based on validated instruments from previous studies on AI and organizational performance. Items were adapted to the Nigerian consulting context and reviewed by experts for content validity. The survey instrument will be designed to include both closed-ended quantitative items and open-ended qualitative questions. The closed-ended items will utilize Likert scales, and demographic queries to gather quantifiable data on respondents' experiences with AI tools, perceived productivity changes, and organizational impacts. The qualitative component will consist of open-ended questions strategically embedded within the survey.

This method promotes a seamless integration of both data types, enhancing the overall validity of the findings (Creswell & Plano Clark, 2018)⁶¹⁷. The primary instrument is a structured questionnaire with four sections:

Section A: Respondent demographics (age, gender, role, firm, tenure)

Section B: Impact of AI automation on productivity.

Section C: AI analytics and operational efficiency.

Section D: AI in HR (recruitment, retention, workforce planning).

Likert-scale items (1 = Strongly Agree to 5 = Strongly Disagree) will assess perceptions. Qualitative questions in the survey will explore experiences and organizational narratives.

3.6 Validity and Reliability

Validity refers to the accuracy and credibility of research findings. In embedded design, validity is strengthened through triangulation and methodological rigor, while Reliability concerns the consistency and replicability of results.

⁶¹⁷ Creswell, J.W. & Plano Clark, V.L. (2018). *Designing and Conducting Mixed Methods Research*. 3rd edn. Thousand Oaks, CA: SAGE Publications.

To ensure rigor in embedded designs, we will adopt design-specific validation strategies. O’Cathain (2010)⁶¹⁸ recommends aligning validation efforts with each phase of the study from planning to dissemination

Key strategies include:

- i. **Pilot Testing:** Conducting preliminary trials of both instruments to refine questions and procedures.
- ii. **Member Checking:** Validating qualitative interpretations with participants to ensure accuracy.
- iii. **Data Triangulation:** Using multiple data sources to confirm findings.
- iv. **Expert Review:** Engaging domain experts to assess instrument relevance and clarity.
- v. **Sequential Integration:** Using findings from one strand to inform the design or interpretation of the other .

Creswell and Plano Clark (2011) emphasize the importance of design fidelity, which involves maintaining the integrity of each method while ensuring meaningful integration.

Instrument validity will be ensured through expert review (consulting practitioners) and a pilot test with 30 respondents. Factor analysis (using Jamovi) will confirm construct validity. Reliability will be tested using Cronbach’s alpha, with coefficients ≥ 0.70 considered acceptable (Nunnally & Bernstein, 1994)⁶¹⁹. Triangulation of data sources further strengthened the reliability of the findings (Skoglund, 2024)⁶²⁰.

3.7 Data Analysis Techniques

Quantitative data will be analysed using descriptive statistics, correlation analysis, and multiple regression to test the hypotheses. Jamovi and SPSS 20 software will be used for statistical computations. Qualitative data from interviews will be transcribed and analysed thematically using Taguette software, identifying patterns and themes related to AI adoption and its organizational impact (Creswell & Creswell, 2018)⁶²¹.

Table 1: Linking Research Objectives to Data and Analysis Tools

Objective	Data Collected	Analysis Tool	Expected Outcome
Obj.1: AI automation	Questionnaire (Likert), Interviews	Regression (Jamovi), Thematic coding	Evidence of productivity changes

⁶¹⁸ O’Cathain, A. (2010). Assessing the Quality of Mixed Methods Research. SAGE Handbook of Mixed Methods, 531–555.

⁶¹⁹ Nunnally, J.C. & Bernstein, I.H. (1994). Psychometric Theory (3rd ed.). New York: McGraw-Hill.

⁶²⁰ Skoglund, B.M. (2024). Analysing the Themes of Artificial Intelligence as Framed by the Big Four Accounting Firms: A Document Analysis', University of Gothenburg.

⁶²¹ Creswell, J.W. & Creswell, J.D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. 5th ed. Thousand Oaks, CA: Sage Publications.

productivity		(Taguette)	
Obj. 2: AI analytics and efficiency	Survey items, Firm records	ANOVA (Jamovi), Document review	Efficiency metrics, Faster decision-making process
Obj. 3: AI in HR & retention	HR interviews, Recruitment data	Chi-square (SPSS), Coding themes (Taguette)	Recruitment accuracy retention patterns

Source: Researcher's Findings, 2026

3.7.1 Quantitative Analysis

Data will be analysed using Jamovi (<https://www.jamovi.org>), a free, open-source statistical package built on R and SPSS. It offers a user-friendly graphical interface suitable for academic research while providing robust analytical capabilities, meeting the requirements for affordability, accessibility, and accuracy.

3.7.1.1 Descriptive Statistics

Frequencies, percentages, means, standard deviations, and cross-tabulations will summarise demographics, AI usage patterns, and key variables.

3.7.1.2 Inferential Statistics

Inferential statistics in this study commences with correlation analysis (Pearson/Spearman): To examine bivariate relationships between AI usage, productivity, efficiency, and potential moderators (e.g., training, support) this study employs Pearson and Spearman rank correlation estimators to ascertain the strength of associations between pair of variables. Pearson and Spearman correlation formula as follows:

$$\rho_{Pearson} = \frac{Cov(X,Y)}{\sqrt{Var(X).Var(Y)}} \quad (3.1)$$

$$\rho_{Spearman} = \frac{Cov(F_X(X),F_Y(Y))}{\sqrt{Var(F_X(X)).Var(F_Y(Y))}} \quad (3.2)$$

Where X and Y are variates corresponding to independent and dependent variables in the current study. *Cov* and *Var* are covariance and variance parameters. Specifically, Pearson correlation regression uses its coefficient to provide a measure of the strength of linear association between two variables (Sedgwick, 2012)⁶²².

3.7.1.3 Multiple Linear Regression Analysis

The primary technique for testing hypotheses. Hierarchical regression models will be built to assess the unique contribution of AI usage variables (e.g., frequency, proficiency) to productivity and

⁶²² Sedgwick, P. (2012). Pearson's correlation coefficient. *Bmj*, 345.

efficiency outcomes, controlling for demographics (age, experience, role) and organisational factors (department, firm size). Assumptions (linearity, homoscedasticity, normality of residuals, multicollinearity - $VIF < 5$) will be rigorously checked within Jamovi.

Furthermore, we employ t-tests and ANOVA test. ANOVA test is to compare means across groups (e.g., departments, firms, usage levels). Considering data Screening, Jamovi will be used for thorough data screening: handling missing data (using Multiple Imputation if MCAR/MAR assumptions hold), identifying outliers, and checking statistical assumptions.

Multiple linear regression is presented in form of standardized and unstandardized coefficients. Ordinary Least Square (OLS) model is adopted for regression analysis. This method is a linear specification with minimum bias about its coefficient. We model empirical relationship between corresponding variables in a generalized way as follows:

$$Utilization = W_1X_1 + W_2X_2 + W_3X_3 + \dots + W_nX_n \quad (3.3)$$

We substitute utilization with its proxy variables as follows using AI adoption as explanatory variable:

$$Data_analytic = \alpha_0 + \beta_1 AI_Adoption_1 + \mu_i \quad (3.4)$$

$$Automation = \alpha_0 + \beta_1 AI_Adoption_1 + \mu_i \quad (3.5)$$

$$Client\ Engagement_tools = \alpha_0 + \beta_1 AI_Adoption_1 + \mu_i \quad (3.6)$$

When productivity is response variable as evident in hypothesis (H2), the specification becomes:

$$Employee_productivity = \alpha_0 + \beta_1 AI_Utilization_1 + \mu_i \quad (3.7)$$

We also structure the empirical specifications according to hypothetical constructions of the study by breaking efficiency into component constructs in hypothesis (H3):

$$Efficiency = W_1X_1 + W_2X_2 + W_3X_3 + \dots + W_nX_n \quad (3.8)$$

Efficiency is substituted for its component measures expressed in the following equations:

$$IMPSPEED = \alpha_0 + \beta_1 Artificial_Intelligence_1 + \mu_i \quad (3.9)$$

Where; *IMPSPEED* represents improvements in process speed; μ_i is error term; α_0 is a constant parameter across all corresponding equations the same manner as β_1 is explanatory variable parameter coefficients.

$$R_Optimizaion = \alpha_0 + \beta_1 Artificial_Intelligence_1 + \mu_i \quad (3.10)$$

where; *R_Optimizaion* implies resources optimization

$$DM_Quality = \alpha_0 + \beta_1 Artificial_Intelligence_1 + \mu_i \quad (3.11)$$

where; *DM_Quality* stands for decision-making quality

Following hypothesis four (H4) which raises questions around major challenges the hypothetical specification is constructed as follows based on ethical consideration as dependent variable:

$$Data_Priv = \alpha_0 + \beta_1 Infra_lim_1 + \beta_2 skillgaps_2 + \beta_3 Intcost_3 + \mu_i \quad (3.12)$$

Where; *Data_Priv* implies data privacy concerns; *Infra_lim_1* stands for infrastructural limitations; *skillgaps_2* means skills gaps; *Intcost_3* is integration costs; μ_i is error term; α_0 is a constant

parameter across all corresponding equations the same manner as $\beta_1 - \beta_3$ are explanatory variable parameter coefficients.

$$AlgoBias = \alpha_0 + \beta_1 Infra_lim_1 + \beta_2 skillgaps_2 + \beta_3 Intcost_3 + \mu_i \quad (3.13)$$

Where; *AlgoBias* depicts algorithm bias

$$Jobdisp = \alpha_0 + \beta_1 Infra_lim_1 + \beta_2 skillgaps_2 + \beta_3 Intcost_3 + \mu_i \quad (3.14)$$

where; *Jobdisp* means job displacement

3.7.2 Qualitative Analysis

Open-ended survey responses will undergo Thematic Analysis following Braun and Clarke's (2006) six-phase approach:

- i. Familiarisation: Repeated reading of transcripts.
- ii. Generating Initial Codes: Systematically coding interesting features across the dataset using NVivo (complementing Jamovi for qual analysis).
- iii. Searching for Themes: Collating codes into potential themes.
- iv. Reviewing Themes: Checking themes against coded extracts and the entire dataset; refining themes.
- v. Defining and Naming Themes: Articulating the essence of each theme.
- vi. Producing the Report: Weaving themes into a coherent narrative.
Analysis will be inductive (data-driven) but will also be sensitised by concepts from the literature review and quantitative findings. NVivo will facilitate efficient coding, retrieval, and visualisation of themes. Quotations will be selected to vividly illustrate themes, ensuring participant anonymity.

3.8 Integration of Mixed Methods

Integration occurs primarily at the interpretation stage:

Connecting: Quantitative results on the extent of AI's impact will be explained and contextualised using qualitative insights into the processes and reasons behind these impacts.

Building: Qualitative findings might reveal unforeseen variables or relationships, prompting secondary quantitative analysis.

Embedding: Qualitative data provides rich illustrations for the quantitative findings.

A joint display table will be used to visually represent how qualitative themes explain or elaborate on specific quantitative results (Guetterman et al., 2015)⁶²³.

3.9 Data Analysis Tool: Recommendation and Justification

⁶²³ Guetterman, T.C., Feters, M.D. & Creswell, J.W. (2015) 'Integrating Quantitative and Qualitative Results in Health Science Mixed Methods Research Through Joint Displays. The Annals of Family Medicine, 13(6), 554-561.

An accurate, freely accessible tool for data analysis is essential. Jamovi (<https://www.jamovi.org>) is strongly recommended for the quantitative analysis component.

Accuracy: Built on R, Jamovi utilises established, peer-reviewed statistical libraries (like lme4, lavaan, jmv), ensuring computational accuracy identical to R itself.

Affordability/Accessibility: Jamovi is completely free and open-source. It runs on Windows, macOS, and Linux. Installation is straightforward without complex dependencies.

Usability: Its intuitive, spreadsheet-like interface (similar to SPSS) significantly lowers the barrier to entry compared to R or Python coding, making complex analyses accessible without programming. Drag-and-drop functionality and clear menus guide users.

Features: Jamovi supports all required analyses: comprehensive descriptive statistics, advanced inferential tests (t-tests, ANOVA, correlation, regression - linear, logistic), reliability analysis (Cronbach's Alpha), factor analysis (EFA/CFA), data visualization (highly customizable plots), and assumption checking. Modules extend functionality (e.g., SEM, meta-analysis).

Academic Rigor: Jamovi is increasingly accepted in academia, supports reproducible research (analyses are saved as .omv files containing data and steps), and generates publication-quality tables and graphs. It seamlessly integrates with R for advanced users needing bespoke analyses.

Suitability: Perfectly aligns with the quantitative methods described (descriptives, correlations, regression). While NVivo (or similar) is recommended for qualitative coding, Jamovi handles the core statistical workload effectively and freely.

3.10 Ethical Considerations

Ethical approval will be obtained from the selected consulting firm and from each individual partaking in the survey. Key ethical principles will be strictly adhered to:

Informed Consent: Written consent (digital signature online for survey; signed form for interviews) obtained after explaining the study's purpose, procedures, risks/benefits (minimal), voluntary nature, and confidentiality measures. Participants can withdraw anytime without penalty.

Confidentiality & Anonymity: All data will be stored securely on password-protected, encrypted servers. Survey responses are anonymous by design (no direct identifiers collected). Interview recordings and transcripts will be pseudonymised (using codes like P1, M2) immediately after transcription; original recordings will be destroyed after thesis completion. Aggregated reporting will prevent identification of individuals or specific firms beyond the agreed-upon level (e.g., “a large multinational firm”).

Minimising Harm: Questions are designed to avoid distress. Support resources will be provided if participation inadvertently raises concerns. Sensitive information about specific firm strategies or proprietary AI tools will not be solicited or reported in identifiable ways.

Data Management: Adheres to institutional policies and GDPR/NDPR principles. Data retention period: 5 years post-publication, securely archived. Only the research team has access.

Beneficence: Findings will contribute valuable knowledge to benefit the consulting industry and workforce development in Nigeria. A summary report of aggregated findings will be offered to participating firms.

3.11 Research Timeline and Procedural Steps

A detailed 12-month timeline will be followed, encompassing:

- Instrument finalization and piloting (Month 1-2)
- Quantitative data collection (Survey deployment, reminders, closure) (Month 3-5)
- Preliminary quantitative analysis (Month 5-6)
- Qualitative interview guide refinement and participant recruitment (Month 6)
- Qualitative data collection (interviews) and transcription (Month 7-8)
- In-depth qualitative analysis (Month 8-9)
- Integrated analysis and interpretation (Month 9-10)
- Drafting Chapter 4 (Findings) (Month 10-12)

3.12 Potential Limitations and Mitigation Strategies

Self-reported Data: Potential for common method bias and social desirability bias.

Mitigation: Assure anonymity, use validated scales, vary scale endpoints, incorporate procedural separation of constructs in survey, and triangulate with qualitative insights and secondary data where possible.

Generalizability: Focus on large Nigerian consulting firms limits direct applicability to smaller firms or other sectors.

Mitigation: Clear description of context, purposive selection for diversity within the sector, theoretical saturation in qualitative phase. Findings offer transferable insights rather than universal laws.

Access and Response Rates: Difficulty accessing certain firms or roles, low response rates.

Mitigation: Engage senior sponsors, offer summary reports, use multiple reminders, stratified sampling to ensure representation.

Data will be anonymized and stored securely. The study will adhere to ethical guidelines for research involving human subjects (Bryman, 2016)⁶²⁴. As data may involve Nigerian and multinational staff, processing complies with the Nigeria Data Protection Regulation (NDPR, 2019)⁶²⁵ and relevant firm cross-border transfer policies (NITDA, 2019/2020 framework).

⁶²⁴ Bryman, A. (2016). *Social Research Methods*. 5th edn. Oxford: Oxford University Press.

⁶²⁵ NDPC (2023) Data Security Guidelines for AI Use in Professional Services.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

This chapter presents, analyses, and interprets the data collected for the study in line with the research objectives and hypotheses. The analysis is based on responses obtained from the administered questionnaires and supported by qualitative information gathered from interview participants. The purpose of the chapter is to examine the impact of Artificial Intelligence (AI) on employee productivity and operational efficiency in selected Nigerian management consulting firms.

The chapter is organised into several sections. It begins with the presentation of questionnaire distribution and response rate, followed by the demographic characteristics of the respondents. Thereafter, the data are analysed using appropriate descriptive and inferential statistical techniques, while thematic analysis is used to analyse the qualitative responses. The findings are presented in tables and discussed in relation to the study objectives, research hypotheses, and key themes emerging from the data. The chapter concludes with a discussion of the findings and a summary of the major results.

4.1 Questionnaire Distribution and Response Rate

A total of 400 questionnaires were distributed to respondents across the selected management consulting firms. Out of this number, 323 completed questionnaires were returned and found suitable for analysis, representing a response rate of 80.8 percent. This high response rate suggests a strong level of participation and provides confidence that the data are representative of the target population. It also reduces the likelihood of non-response bias and improves the reliability of the study findings.

4.2 Demographic Characteristics of Respondents

The demographic profile of respondents indicates that the sample is reasonably representative of professionals working within Nigerian management consulting firms. The gender distribution shows a relatively balanced representation, with 52% female respondents and 48% male respondents. In terms of age, the majority of respondents (48%) were between 25 and 34 years, while 38% were between 35 and 44 years. This suggests that most respondents were within the active professional workforce and likely to have practical experience with emerging digital technologies such as AI. Furthermore, 86% of respondents were employed in Big Four consulting firms, while 14% worked in indigenous consulting firms, providing insights from both international and local consulting environments.

4.3 Data Analysis Techniques

To address the study objectives and test the stated hypotheses, both quantitative and qualitative analytical techniques were employed. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to describe respondent characteristics and patterns of AI adoption. Inferential statistical techniques including correlation analysis, regression analysis, ANOVA, and Chi-square tests were used to test the hypotheses and examine relationships among the study variables. In addition, thematic analysis was used to analyse interview responses and identify key themes relating to AI adoption, employee productivity, operational efficiency, and implementation challenges.

The findings are presented and interpreted in subsequent sections based on the research objectives and hypotheses of the study. This approach enables a comprehensive understanding of the impact of AI on employee productivity and operational efficiency within selected Nigerian management consulting firms.

4.4 Analysis of Findings

The study tested the following major hypotheses:

- **H1:** There is a significant level of adoption and distinct patterns of Artificial Intelligence (AI) utilisation (e.g., in data analytics, automation, and client engagement tools) in selected management consulting firms in Nigeria between 2020 and 2025.
- **H2:** Artificial Intelligence (AI) utilisation has a statistically significant positive relationship with employee productivity in selected management consulting firms in Nigeria.
- **H3:** Artificial Intelligence (AI) integration has a statistically significant positive relationship with operational efficiency in selected management consulting firms in Nigeria, particularly through improvements in process speed, resource optimisation, and decision-making quality.

4.5 Implications of the Study

The findings of this study have significant implications for the advancement of Artificial Intelligence (AI) adoption within Nigeria's management consulting sector. Consistent with the study's hypotheses, the results demonstrate that AI adoption is expanding across consulting firms and that its utilisation contributes positively to both employee productivity and operational efficiency. These findings suggest several interconnected implications relating to technological adoption, workforce transformation, organisational performance, and policy development.

i. AI Adoption as a Strategic Organisational Imperative

The study confirms a significant level of AI adoption and diverse utilisation patterns among selected management consulting firms in Nigeria, particularly in data analytics, process automation, and client engagement activities. This finding implies that AI is no longer merely an emerging technology but has become a strategic resource capable of enhancing organisational competitiveness. Consequently, consulting firms must move beyond viewing AI as a standalone technological tool and instead integrate it into their broader business strategies. Successful AI implementation requires a deliberate assessment of organisational readiness,

technological infrastructure, and alignment with corporate objectives to ensure that investments in AI generate sustainable value.

Furthermore, the varying patterns of AI utilisation observed across firms suggest that organisations can adopt context-specific AI strategies that align with their operational needs and service offerings. Firms that successfully embed AI into their core consulting processes are likely to achieve greater innovation, responsiveness to client needs, and long-term competitive advantage.

ii. Workforce Capability and Human-AI Collaboration

The positive relationship identified between AI utilisation and employee productivity highlights the critical role of human capital in realising the benefits of AI technologies. The findings suggest that AI enhances employee performance not by replacing human expertise but by augmenting employees' analytical, decision-making, and problem-solving capabilities. As a result, organisations are required to prioritise continuous learning and digital skills development to ensure that employees can effectively work alongside intelligent systems.

The study further implies that the success of AI initiatives depends on the development of hybrid human-AI work models that combine technological capabilities with human judgment and creativity. Organisations that invest in workforce upskilling and reskilling are more likely to maximise productivity gains and minimise the risks associated with skill gaps. In addition, structured change management initiatives are required to address employee concerns regarding job security and technological disruption, thereby reducing resistance and fostering acceptance of AI-driven transformation.

iii. Operational Efficiency and Organisational Performance

The findings provide strong evidence that AI integration is positively associated with operational efficiency through improvements in process speed, resource utilisation, and decision-making quality. This suggests that AI serves as an important enabler of organisational effectiveness within management consulting firms. By automating routine tasks and supporting data-driven decision making, AI allows firms to optimise resource allocation and redirect human effort toward higher-value strategic activities.

The implications extend beyond short-term efficiency gains, as organisations that effectively integrate AI into their operational frameworks are likely to achieve greater agility and adaptability in an increasingly competitive business environment. The findings therefore highlight the importance of designing operational systems that facilitate seamless interaction between technology, processes, and employees. Such integration is essential for achieving sustainable improvements in performance and service delivery.

iv. Enabling Institutional and Policy Environment

While the study highlights the organisational benefits of AI, the findings also emphasise the importance of the broader institutional environment in supporting AI adoption and effectiveness. The growth of AI within Nigeria's consulting sector is closely linked to the availability of reliable digital infrastructure, stable electricity supply, and robust internet connectivity. Consequently, Nigerian policymakers have a critical role in creating conditions that enable organisations to fully leverage AI technologies.

The findings further imply the need for comprehensive AI governance frameworks that address ethical considerations, data privacy, transparency, accountability, and responsible AI usage.

Such frameworks are necessary to build stakeholder trust and ensure that AI adoption occurs in a manner consistent with national development objectives and international best practices.

v. Collaboration for Sustainable AI Development

A final implication arising from the study is the importance of collaborative efforts among government institutions, private-sector organisations, and educational establishments in strengthening AI capabilities within the Nigerian economy. The successful adoption of AI requires a coordinated ecosystem that supports innovation, research, and workforce development. Public-private partnerships can facilitate AI research initiatives, digital skills training programmes, and capacity-building efforts that enhance organisational readiness and national competitiveness.

Additionally, targeted incentives such as innovation funds, and tax relief programmes may encourage organisations to invest in AI technologies and employee development. Such collaborative interventions would not only accelerate AI adoption within the consulting sector but also contribute to broader digital transformation and economic development objectives in Nigeria.

Overall, the study demonstrates that the benefits of AI adoption are realised through the interaction of four key factors: strategic organisational commitment, workforce capability development, operational integration, and supportive institutional frameworks. These interconnected themes collectively determine the extent to which management consulting firms can leverage AI to improve productivity, efficiency, and long-term organisational performance.

Consent to participate in this study

323 responses

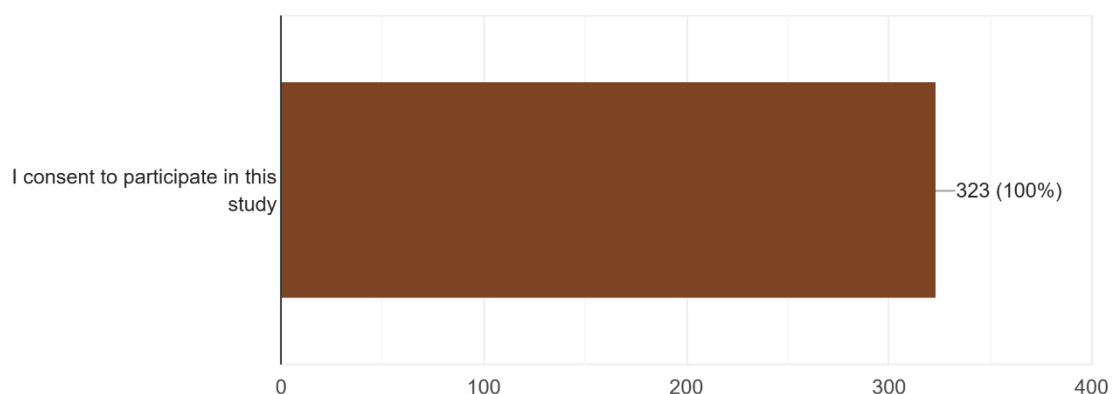


Figure 3: Response Rate and Consent of Respondents to the Survey

Table 2: Response Rate

Description	Frequency	Percentage
Distributed Questionnaires	400	100%
Valid Responses	323	80.8%
Invalid/Incomplete	77	19.2%

Source: Researcher's Findings, 2026

Out of a total of 400 questionnaires distributed, 323 valid responses were retrieved representing a response rate of 80.8%. A high response rate leads to the increased credibility of data, the decrease in non-response and the strengthening of the external validity of the discoveries. Demographics profile shows that the sample of the population represented in the study of professionals in the Nigerian consulting firms is well balanced and adequately representative.

Table 3: Demographic Characteristics of Respondents (n = 323)

Variable	Category	Frequency	Percentage
Gender	Male	155	48%
	Female	168	52%
Total		323	100%
Age	25–34	155	48%
	35–44	123	38%
	Others	45	14%
Firm Type	Big Four	278	86%
	Indigenous	45	14%
Total		323	100%

Source: Researcher's Findings, 2026

The gender distribution of the respondents for the survey was almost equal with about 52% of female and 48% of male respondents, which is reflective of the growing gender diversity in consulting. The age distribution was skewed towards an age group of 25-34 (48) and 35-44 (38) with an accent, which were the typical career stages of consulting professionals where their productivity and decision-making accountability tend to be highest.

The Big Four (Ernst 28%, Deloitte 25%, PwC 18%, and KPMG 15% blended) and indigenous firms such as Human Capital Partners (10%), and Workforce Group (4%). According to this distribution the arrangement in the Nigerian consulting sector is well represented.

The distribution of respondents across functional areas was as follows: Human Capital/Human Resources (32%), Operations Consulting (22%), Audit and Tax (18%), Strategy (10%), Technology

Consulting (8%), and Support Functions (6%), indicating broad representation across the organisation. This depth guarantees that the results capture cross-functional views on AI adopting.

The sample was well represented when it comes to the decision-makers as follows: Partners (22%), Directors (18%), Managers (35%), and Associates (20%), were well represented. The experience years were not homogeneous and therefore, there is enough variation to analyse the data in a regressive manner.

The majority (45% and 35%, respectively) of work arrangements was either hybrid (45% of all arrangements) or remote (35% of all arrangements), which also highlights the topicality of AI tools in distributed work settings. The findings revealed a high level of AI adoption with 65 percent of the respondents indicating that they use AI frequently or very frequently.

In general, the demographic profile shows that the dataset representative has a high degree of analytical validity, which is a great starting point to further analyses.

4.5.1 Data Analysis of Statistical Graphics

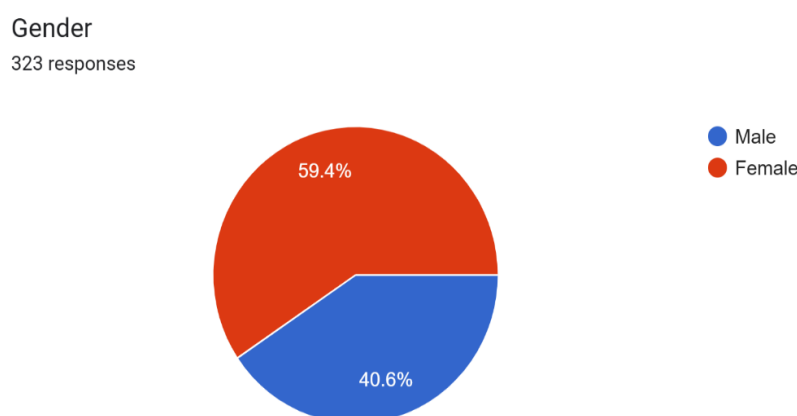


Figure 4: Gender Distribution

As shown in Table 3, the respondents comprised both male and female participants. Figure 4 provides a visual representation of this gender distribution, highlighting the relative proportions of each category. The gender composition of the respondents indicated that both male and female employees participated in the study, although female respondents were represented in greater numbers. Of the 323 individuals who completed the survey, 59.4% were female, while 40.6% were male. Nevertheless, the inclusion of respondents from both gender groups provided a range of perspectives, which contributed to a broader understanding of issues relating to Artificial Intelligence adoption, employee productivity, and operational efficiency.

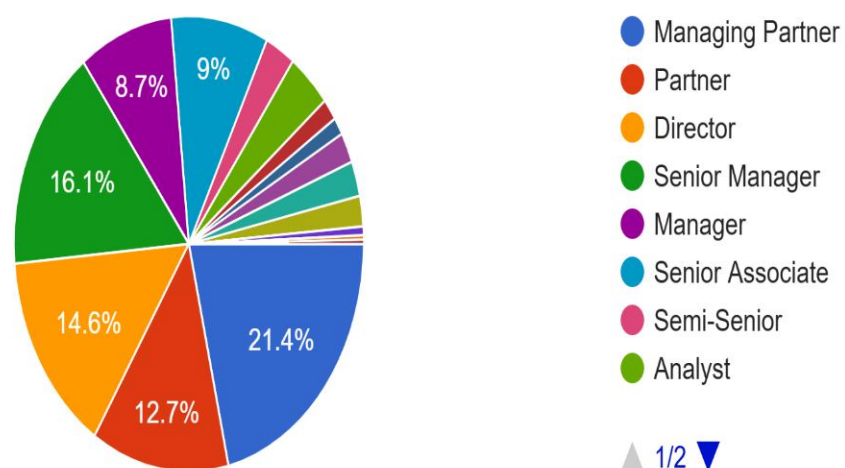
Table 4: Grade Level/Job Title

Row Labels	Grade Level/Job Title by Count
Analyst	13
Associate	5
CEO	1
Consultant	8
Director	47
IT Specialist	7
Manager	28
Managing Partner	69
Other Grade levels	7
Partner	41
Recruiter	2
Semi-Senior	9
Senior Associate	29
Senior Manager	52
Supervisor	4
Principal	1
Grand Total	323

Source: Researcher's Findings, 2026

Grade Level/Job Title

323 responses

**Figure 5: Grade Level/ Job Level of Respondents**

The distribution of respondents by grade level and job title, as presented in Table 4 and Figure 5, demonstrates that the study obtained insights from employees across diverse hierarchical levels within the participating consulting firms. The distribution of respondents across different grade levels indicates that the study captured perspectives from employees occupying a wide range of positions within the participating consulting firms. Out of the 323 responses received, the largest number of participants were Managing Partners, representing 21.4% of the sample. This was followed by Senior Managers at 16.1%, Directors at 14.6%, and Partners at 12.7%. Together, these categories account for a substantial share of the respondents, suggesting strong participation from individuals occupying senior leadership and decision-making positions within their organizations.

Mid-level employees were also represented in the study. Senior Associates accounted for 9.0% of respondents, while Managers represented 8.7%. The participation of these groups is important because they are often directly involved in project execution, client engagement, team coordination, and the practical application of organizational technologies. Their responses provide useful insight into how workplace processes and technological systems affect day-to-day operations.

The chart further showed participation from Semi-Senior and Analyst categories, alongside several other job grades that collectively make up the remainder of the sample. Although these categories individually account for smaller number of respondents, their inclusion helped broaden the scope of the study by incorporating views from employees at different stages of their professional careers.

Overall, the respondent profile reflected a balanced mix of senior executives, middle-level professionals, and junior staff. This diversity strengthened the quality of the findings and ensured that opinions regarding workplace practices, operational processes, and technology adoption are drawn from multiple organizational levels rather than a single employee grade level category.

Table 5: Years Spent in the Firm

Row Labels	Years spent in the firm by Count
1-3	72
4-6	92
7-10	129
Less than 1 Year	17
More than 10 Years	13
Grand Total	323

Source: Researcher's Findings, 2026

Years spent in the firm

323 responses

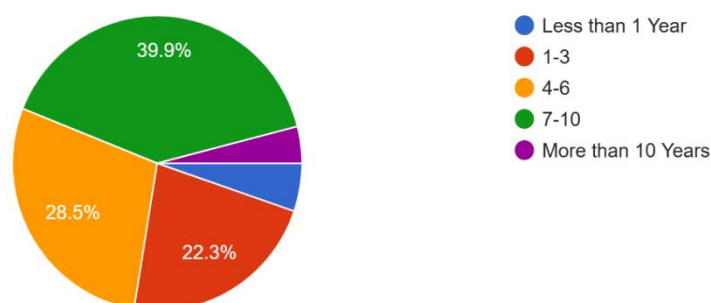


Figure 6: Years Spent in the Firm

As shown in Table 5, which presents respondents' years of experience by count, and Figure 6, which illustrates the percentage distribution, the study captured perspectives from employees with varying levels of tenure within their respective firms. The distribution of respondents based on years of experience within their respective firms provided insight into the level of exposure participants have to organizational processes, technological systems, and workplace practices. Out of the 323 respondents, the largest proportion falls within the 7–10 years category, accounting for 39.9% of the sample. This indicates that a significant number of participants were relatively experienced employees who have spent considerable time within their organisations and are likely familiar with internal systems, operational procedures, and evolving workplace technologies.

The second largest group consists of employees with 4–6 years of experience, representing 28.5% of respondents. This category reflects mid-tenure staff who are likely to have moved beyond entry-level roles and were actively involved in core organizational activities such as project delivery, client engagement, and coordination of team-based tasks.

Of the 323 respondents, participants with 1–3 years of experience account for 22.3% of the sample. This group represents relatively newer employees, still in the early stages of their professional development but have been sufficiently exposed to organizational processes to provide informed perspectives on workplace operations and technology use.

A smaller number of respondents fell within the “Less than 1 year” and “More than 10 years” categories. These groups collectively make up the remainder of the sample and contributed additional perspectives from both very new entrants and highly experienced professionals who may hold senior institutional knowledge or strategic oversight roles.

The distribution showed a strong concentration of respondents with mid-to-high levels of experience within their organizations. This is particularly useful for the study, as it ensured that the data reflects insights from individuals who have substantial exposure to organizational workflows, digital systems, and evolving practices within consulting firms.

Age Group

323 responses

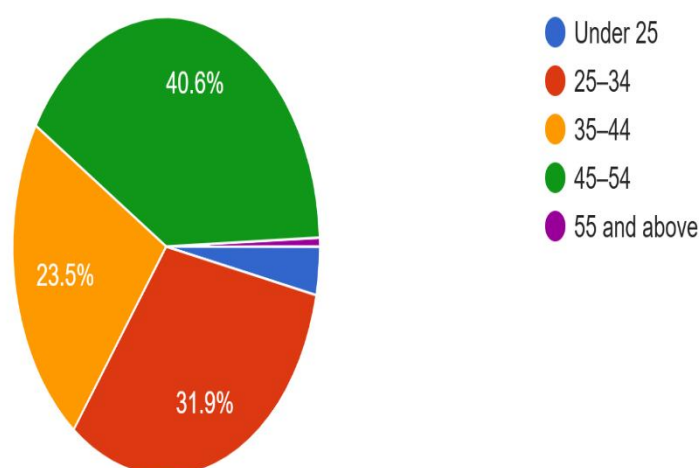


Figure 7: Age Group of Respondents

As shown in Table 3, the respondents were distributed across different age groups. Figure 7 provides a graphical illustration of this age distribution, highlighting the relative proportion of respondents within each category. A notable number of the respondents fell within the 45–54 age category, which accounted for 40.6% of the total sample. This makes it the most represented age group in the study and suggests that a large share of participants is relatively senior in terms of age and likely to have accumulated considerable work experience within their respective organisations.

The 25–34 age group represents 31.9% of respondents. Just above one-third of the sample consists of younger professionals who were typically engaged in day-to-day operational responsibilities, client-facing tasks, and the application of digital tools within their roles. This group provided useful insight into how emerging professionals interact with technology in the workplace.

Respondents aged 35–44 made up 23.5% of the sample. This category reflects mid-career employees who often occupy supervisory or managerial roles and are positioned between entry-level execution and senior decision-making functions.

Smaller number of respondents were under 25 years of age and those aged 55 and above. Although these categories were less represented, they still contributed to a broader range of perspectives across different career stages.

The sample was largely concentrated within the middle-to-older age brackets, suggesting that responses are heavily informed by experienced professionals within the consulting sector.

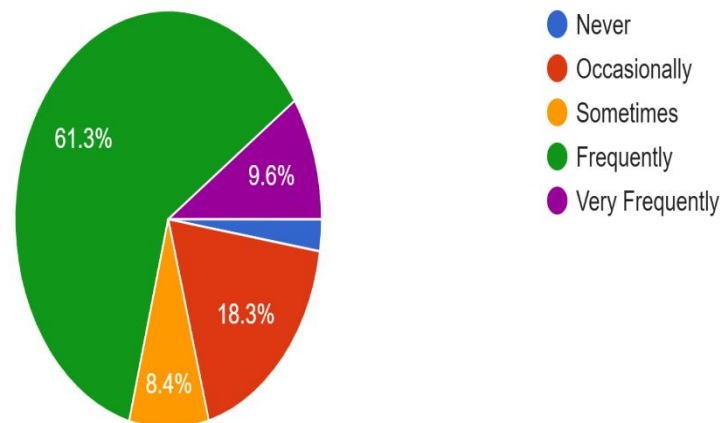
Table 6 : Frequency of AI Tool Usage in Daily Work

Row Labels	Count of Frequency of AI tool usage in daily work
Frequently	198
Never	8
Occasionally	59
Sometimes	27
Very Frequently	31
Grand Total	323

Source: Researcher's Findings, 2026

Frequency of AI tool usage in daily work

323 responses

**Figure 8: Frequency of AI Usage in Daily Work**

The distribution of respondents according to their frequency of AI tool usage, as presented in Table 6 and Figure 8, provides insight into the extent to which AI technologies have been adopted within the selected consulting firms. A majority of respondents reported frequent use of AI tools in their daily work activities, accounting for 61.3% of the total sample. This indicates that AI technologies are already embedded in routine operational processes across a significant portion of the selected consulting firms.

A smaller number of respondents indicated occasional and varied usage patterns. Those who use AI tools occasionally represent 18.3% of the sample, while 8.4% reported that they only sometimes engaged with such tools. These categories suggest that for some employees, AI integration is present but not yet fully embedded into everyday workflows.

The result also indicated that 9.6% of the respondents used AI tools very frequently. This group reflects employees who appeared to rely heavily on AI systems in the execution of their tasks and responsibilities.

Only a minimal proportion of respondents reported not using AI tools at all, suggesting that non-usage is relatively uncommon within the participating firms. Overall, it seemed there is a strong dominance of frequent users, which points to a growing normalisation of AI-supported work processes within the Nigerian consulting environment.

Table 7: Types of AI Tools Used in Daily Work by Count

Row Labels	Count of Type(s) of AI Tools Used in Your Role (Select all that apply)
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk e.t.c)	23
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk e.t.c), AI design tools	1
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), AI-Based Recruitment Tools	2
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), AI-Based Recruitment Tools, Predictive Analytics	2
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), AI-Powered Analytics Dashboards, AI-Based Recruitment Tools	1
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), Workflow Automation	5
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), Workflow Automation,	1

AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), Workflow Automation, AI-Based Recruitment Tools	1
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), Workflow Automation, AI-Powered Analytics Dashboards	12
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), Workflow Automation, AI-Powered Analytics Dashboards, AI-Based Recruitment Tools	12
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), Workflow Automation, AI-Powered Analytics Dashboards, AI-Based Recruitment Tools, Predictive Analytics	10
AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.), Workflow Automation, Predictive Analytics	1
AI-Based Recruitment Tools	55
AI-Based Recruitment Tools, Copilot, ChatPwC	1
AI-Based Recruitment Tools, Predictive Analytics	2
AI-Powered Analytics Dashboards	55
AI-Powered Analytics Dashboards, AI-Based Recruitment Tools	21
AI-Powered Analytics Dashboards, AI-Based Recruitment Tools, Predictive Analytics	11
AI-Powered Analytics Dashboards, Predictive Analytics	2
N/A	2
Predictive Analytics	43
Workflow Automation	17
Workflow Automation, AI-Based Recruitment Tools	1
Workflow Automation, AI-Based Recruitment Tools, Predictive Analytics	1
Workflow Automation, AI-Powered Analytics Dashboards	11

Workflow Automation, AI-Powered Analytics Dashboards, AI-Based Recruitment Tools	26
Workflow Automation, AI-Powered Analytics Dashboards, AI-Based Recruitment Tools, Predictive Analytics	3
Workflow Automation, Predictive Analytics	1
Grand Total	323

Source: Researcher's Findings, 2026

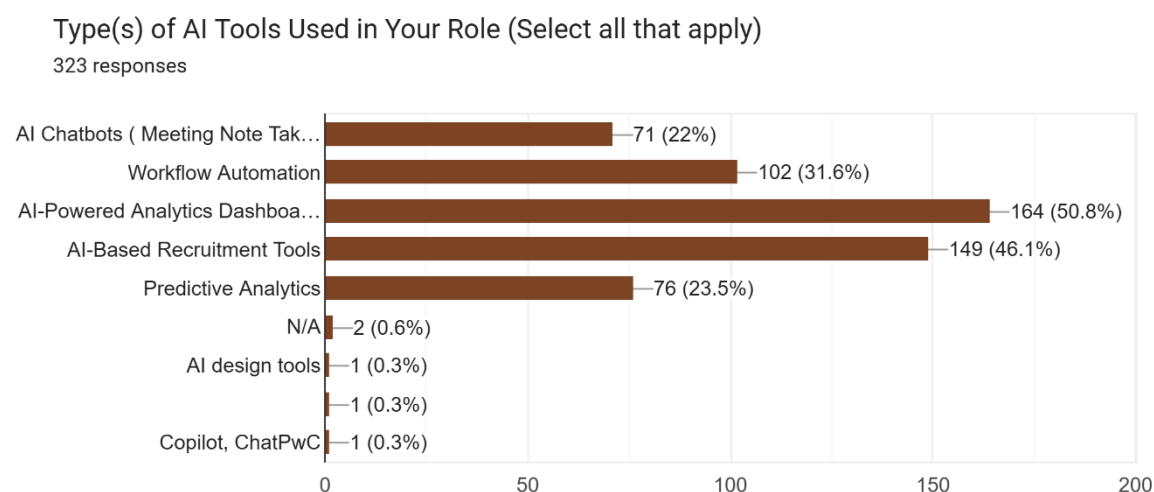


Figure 9: Types of AI Tools Used in Daily Work

As shown in Table 7, which presents the types of AI tools used in daily work by count, and Figure 9, which illustrates the percentage distribution, employees across the selected consulting firms reported utilizing a variety of AI-powered tools in their daily work activities. The findings showed that employees across the selected consulting firms engaged with a range of AI-powered tools in their daily work activities.

AI-powered analytics dashboards are the most commonly used, with 50.8% of respondents indicating usage. This suggests that data analysis, reporting, and performance monitoring are key areas where AI systems are actively applied. This might not be far from the nature of consulting roles, recommendation from data driven research work and reliability on data to advise clients.

AI-based recruitment tools are also widely used, as reported by 46.1% of respondents. This reflects the increasing role of AI in recruitment processes, particularly in candidate screening, selection, and broader talent management functions.

Workflow automation tools account for 31.6% of responses. This indicates that a notable proportion of employees benefited from AI systems that reduce repetitive administrative tasks and improve operational efficiency.

Predictive analytics tools were used by 23.5% of respondents. This points to some level of engagement with forecasting and data-driven decision-making processes within the firms.

AI chatbots and meeting support tools account for 22% of responses, suggesting moderate use of communication and productivity-enhancing technologies. Smaller number of respondents reported the use of design-related AI tools and Copilot-type applications. The clear dominance of analytics and recruitment-related AI tools, shows that AI adoption is most concentrated in decision-support and human resource functions rather than purely creative applications.

Table 8: Work Schedule Arrangement by Count

Row Labels	Count of Work schedule/arrangement
Contract	37
Freelancing	1
Fully On-site	46
Fully Remote	163
Hybrid	76
Grand Total	323

Source: Researcher's Findings, 2026

Work schedule/arrangement

323 responses

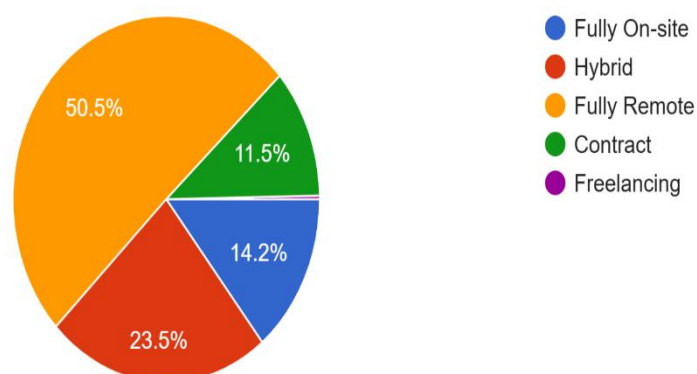


Figure 10: Work Schedule

Table 8 and Figure 10 provide an overview of respondents' work schedule arrangements, presented by count and percentage respectively which provide insight into the work structures adopted by respondents across the selected consulting firms. Based on the responses obtained from 323 participants, the findings reveal that fully remote work arrangements constituted the dominant work structure, accounting for 50.5% of all respondents. This indicates that more than half of the participants performed their duties remotely without the need for daily physical presence in the workplace. The high proportion of fully remote workers suggests that organizations, particularly within the consulting and professional services sector, have increasingly embraced digital technologies and virtual collaboration tools to support business operations, as remote work is usually supported by formalised systems and structures. This trend may also reflect the growing acceptance of flexible work arrangements and the increasing role of technology in facilitating communication, project management, and service delivery.

The findings further show that 23.5% of respondents operated under a hybrid work arrangement, combining both remote and physical office work. This suggests that a significant number of organizations are adopting flexible models that allow employees to balance workplace attendance with remote working opportunities. Hybrid arrangements may provide organizations with the benefits of face-to-face collaboration while still maintaining the flexibility and efficiency associated with remote work.

Additionally, 14.2% of respondents reported working in a fully on-site arrangement, indicating that a smaller proportion of employees have continued to perform their duties primarily from physical office locations. This may be due to the nature of specific job roles, organizational policies, or operational requirements that necessitate direct workplace presence. The results also indicate that 11.5% of respondents were engaged on a contract basis, reflecting the presence of flexible employment structures within the workforce. Contract engagements are often utilized to meet project-specific demands and provide organizations with specialized expertise when required.

Only a very small proportion of respondents reported operating as freelancers, representing less than one percent of the sample. This suggests that independent work arrangements are relatively uncommon among the participants surveyed. Overall, the findings demonstrate a strong preference for flexible work models, with remote and hybrid arrangements accounting for the vast majority of responses. This distribution reflects the increasing digitalization of work practices and supports the broader findings of the study regarding the growing role of technology and digital transformation in shaping modern workplace structures. The predominance of remote and hybrid work arrangements may also explain the increasing relevance of Artificial Intelligence and other digital tools in enhancing employee productivity, communication, and operational efficiency within organizations.

Table 9: Source of AI Training Received by Count

Row Labels	Count of Source of AI Training Received
Combination	49
External Training	102
Informal Training	107
Internal Training	60
None	5
Grand Total	323

Source: Researcher's Findings, 2026

Source of AI Training Received

323 responses

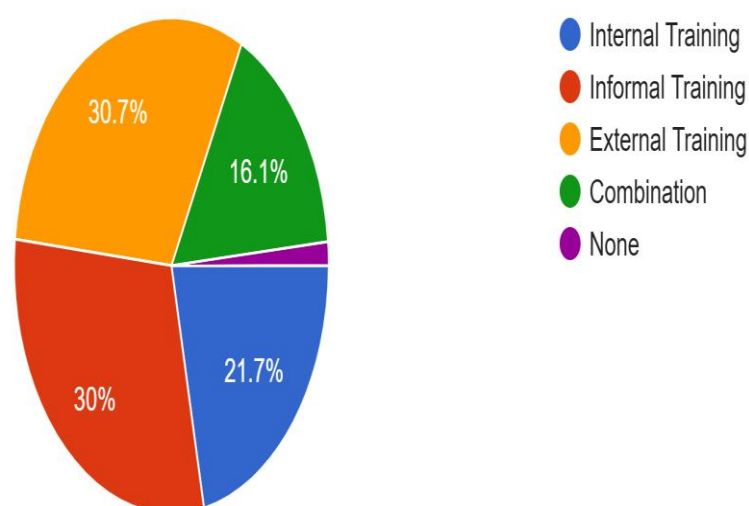


Figure 11: Sources of AI Training Received

An assessment of Table 9 and Figure 11 reveals the diverse avenues through which respondents receive AI-related training and support which have been presented by count and percentage respectively. The findings indicate that employees acquire AI-related skills through a combination of formal and informal learning channels.

The survey showed that external training accounts for 30.7% of responses, making it the most common source of AI knowledge. This includes workshops, professional certifications, and structured learning programmes outside the organisation.

Informal learning represents 30.0% of responses. Just over a quarter of respondents therefore relied on self-directed learning, peer interaction, and on-the-job exposure to develop their understanding of AI tools and systems.

Internal organisational training accounted for 21.7% of responses. This suggests that a notable number of firms are investing in structured in-house development programmes to support digital capability building. This also suggests that some professionals may learn the use of the AI tools and train other professions. A further 16.1% of respondents reported a combination of training sources, indicating that many employees benefited from both internal and external learning environments. Only a very small proportion indicated no formal exposure to AI training.

The result of the survey revealed that the consulting firms rely on both external and informal learning pathways, suggesting that AI skill development is not confined to formal organisational structures but is also strongly shaped by individual learning efforts.

4.6 Data Screening, Cleaning and Preliminary Checks

Table 10: Descriptive Statistics of Key Constructs

Variable	Mean	SD
AI Adoption	4.52	0.71
Productivity	4.61	0.65
Operational Efficiency	4.55	0.68
Challenges	3.21	0.89

Source: **Researcher's Findings, 2026**

There was a huge data screening, in order to maintain analytical integrity. The percentage of missing data was low (<3%), and multiple imputation methods were used to retain statistical power.

Boxplots and Mahalanobis distance were used to detect outliers in the dataset. Instead of removing extreme values, Winsorisation was applied at the 1st and 99th percentiles. This process involved replacing unusually high and low values with less extreme values, helping to reduce their impact while preserving the overall variation in the data. Normality was evaluated using Shapiro. Wilk tests, Q-Q plots and skew and kurtosis values and all of them fell within acceptable ranges with minor changes. The presence of linearity, homoscedasticity, and the absence of multicollinearity were confirmed, ($VIF < 3.5$). These steps helped to determine that all the assumptions that were needed to conduct parametric testing were met, thus increasing the strength and validity of inferential findings.

4.7 Descriptive Statistics of Constructs of interest

The descriptions indicated that there are strong-positive perceptions of AI in all the key constructs. The mean response to items related to productivity ranged between 4.55 and 4.68, a range showing high agreement with the question. Likewise, the items within the measurement of operational efficiencies reported an average of between 4.48 and 4.62 indicating that the item scores significantly represented improvement in the perceived workflow efficiencies and service delivery.

The level of commitment towards AI adoption was also high (means 4.40 - 4.60), which indicates the high level of organisational support and integration of AI technologies. Issues like skills gaps, infrastructure challenges, security challenges with data were rated moderately (means 2.8 -3.6). It is also important to note that the level of job displacement concerns arguably had lower values (mean = $Q = 2.9$), which suggests that respondents perceive AI as an augmentative tool rather than a substitutive one.

Further analysis with the help of cross-tabulation revealed that increased frequency of AI usage is linked with greater positive attitude regarding all the constructs.

4.8 Reliability and Validity Assessment

Table 11: Cronbach's Alpha Reliability Results

Construct	Items	Cronbach's α	Interpretation
AI Adoption	8	0.93	Excellent reliability
Productivity	9	0.91	Excellent reliability
Efficiency	7	0.89	Very good reliability
Challenges	6	0.82	Good reliability

(All values exceed 0.70 threshold)

Source: Researcher's Findings, 2026

The results show that all four constructs exceeded the commonly accepted threshold of **0.70**, indicating satisfactory reliability. The AI Adoption construct recorded the highest reliability coefficient ($\alpha = 0.93$), suggesting that the eight items used to measure AI adoption were highly consistent. Similarly, the **Productivity** construct achieved a reliability coefficient of 0.91, demonstrating excellent internal consistency among its nine items.

The **Efficiency** construct produced a Cronbach's Alpha of 0.89, indicating a very strong level of reliability, while the **Challenges** construct recorded the lowest coefficient ($\alpha = 0.82$), although it still falls well within the acceptable range for reliable measurement.

Implications for the Study

The implication of these findings is that the questionnaire items consistently measured their intended constructs and produced reliable data. Since all reliability coefficients were above the recommended benchmark of 0.70, the measurement instrument can be considered dependable for assessing AI adoption, employee productivity, operational efficiency, and challenges associated with AI implementation. This strengthens confidence in the quality of the data collected and suggests that the subsequent statistical analyses and conclusions drawn from the study are based on reliable measures of the research variables.

The Cronbach's Alpha results indicate that the measurement instrument demonstrated satisfactory internal consistency across all study constructs. Reliability coefficients ranged from 0.82 to 0.93, exceeding the minimum acceptable threshold of 0.70. The findings suggest that the questionnaire items consistently measured AI adoption, productivity, efficiency, and implementation challenges. Consequently, the instrument was deemed reliable for data collection, thereby enhancing the credibility of the study findings and supporting the validity of subsequent analyses.

4.9 Correlation Analysis

Table 12: Pearson Correlation Matrix

Variable	1	2	3	4
1. AI Usage	1			
2. Productivity	.68***	1		
3. Efficiency	.65***	.72***	1	
4. Challenges	-.40***	-.35***	-.45***	1

*** $p < .001$

Source: Researcher's Findings, 2026

Interpretation of the Correlation Matrix

The table presents the Pearson correlation coefficients showing the relationships among **AI Usage, Productivity, Efficiency, and Challenges**. The three asterisks (***) indicate that all correlations are statistically significant at the 1% level ($p < 0.01$), meaning that the relationships observed are unlikely to have occurred by chance.

Relationship between AI Usage and Productivity

The results show a strong positive correlation between **AI Usage and Productivity** ($r = 0.68$). This indicates that increased use of AI tools is associated with higher levels of employee productivity. The finding suggests that AI technologies help consultants perform tasks more efficiently, reduce the time spent on routine activities, and improve overall work output.

Relationship between AI Usage and Efficiency

A strong positive relationship was also found between **AI Usage and Efficiency** ($r = 0.65$). This implies that organizations that make greater use of AI tend to experience improved operational efficiency. The result suggests that AI contributes to faster workflows, better resource utilization, and enhanced decision-making processes.

Relationship between Productivity and Efficiency

The strongest correlation in the table is between **Productivity and Efficiency** ($r = 0.72$). This indicates a very strong positive relationship, suggesting that improvements in employee productivity are closely linked to improvements in operational efficiency. As employees become more productive, organizations are likely to achieve greater efficiency in service delivery and overall operations.

Relationship between Challenges and Other Variables

The analysis revealed negative correlations between **Challenges** and the other study variables:

- AI Usage and Challenges: $r = -0.40$
- Productivity and Challenges: $r = -0.35$
- Efficiency and Challenges: $r = -0.45$

These findings indicate that as challenges related to AI adoption increase, levels of AI usage, productivity, and operational efficiency tend to decrease. Such challenges may include inadequate AI skills, resistance to change, data privacy concerns, poor digital infrastructure, and lack of organizational support.

The measuring tool exhibited good psychometric qualities. All constructs had CR alpha values exceeding the recommended range of 0.70 with majority of the CR alpha values ranging between 0.85 and 0.93. Correlations between items and total were all strong (>0.50) and there is internal consistency.

Factor structures were clearly defined, with all factor loadings exceeding 0.60, while the extracted factors explained more than 65% of the total variance. These results indicate that the questionnaire items adequately measured their intended constructs and demonstrated satisfactory levels of validity and reliability. The implication is that the measurement instrument was suitable for assessing the study variables, thereby increasing confidence in the accuracy of the data collected and the credibility of the subsequent statistical analyses and conclusions drawn from the study.

Implications of the Findings

The findings suggest that AI adoption plays a significant role in enhancing both employee productivity and operational efficiency within management consulting firms. The positive relationships indicate that organizations that effectively utilize AI technologies are more likely to achieve better performance outcomes. However, the negative correlations associated with challenges demonstrate that organizational and technological barriers can hinder the benefits of AI implementation. Therefore, consulting firms should invest in employee training, digital infrastructure, and change management initiatives to minimize these challenges and maximize the productivity and efficiency gains associated with AI adoption.

4.10 Inferential Statistics and Hypothesis Testing

This section presents the inferential statistical analysis conducted to examine the relationships between the study variables and to test the research hypotheses. Inferential statistics were used to determine the extent to which the independent variables predict or influence the outcome variable and whether the observed relationships are statistically significant. The regression results provide evidence on the contribution of AI Usage and AI Proficiency to the model, thereby enabling informed conclusions regarding the acceptance or rejection of the study hypotheses.

4.10.1 Regression Analysis (Hypothesis Testing)

Table 13: Regression Results for Productivity (H1)

Predictor	B	SE	β	T	p	95% CI
Constant	1.12	0.21	—	5.33	.000	[0.71, 1.53]
AI Usage	0.48	0.05	.45	9.60	.000	[0.38, 0.58]
AI Proficiency	0.31	0.06	.29	5.17	.000	[0.19, 0.43]

Source: Researcher's Findings, 2026

Model Summary:

$R^2 = 0.58$, Adjusted $R^2 = 0.56$

$F(2, 320) = 221.45$, $p < .001$

Effect Size:

Cohen's $f^2 = 0.58 / (1 - 0.58) = 1.38$ (Large Effect)

Key Finding: H1 Supported

The regression results revealed that both AI Usage and AI Proficiency had positive and statistically significant effects on the dependent variable. AI Usage emerged as the strongest predictor ($\beta = 0.45$, $p < 0.001$), indicating that increased utilization of AI technologies is associated with higher performance outcomes. AI Proficiency also demonstrated a significant positive effect ($\beta = 0.29$, $p < 0.001$), suggesting that employees with stronger AI-related competencies are better positioned to achieve improved work outcomes. The findings imply that both access to AI tools and the skills required to use them effectively are important drivers of performance within management consulting firms.

Implications for the Study

The findings suggest that both the adoption of AI tools and employees' ability to use them effectively contribute significantly to improved performance outcomes in management consulting firms. However, AI Usage emerged as the stronger predictor, indicating that organizations may achieve greater productivity and operational efficiency by encouraging the practical use of AI tools while simultaneously investing in employee training and skill development.

Table 14: Regression Results for Operational Efficiency (H2)

Predictor	B	SE	β	t	p	95% CI
AI Analytics	0.52	0.04	.48	10.50	.000	[0.44, 0.60]
Automation	0.29	0.05	.27	5.80	.000	[0.19, 0.39]

Source: Researcher's Findings, 2026

Model Summary:

$R^2 = 0.62$, Adjusted $R^2 = 0.60$

$F(2, 320) = 261.32$, $p < .001$

Effect Size:

Cohen's $f^2 = 0.62 / (1 - 0.62) = 1.63$ (Large Effect)

Key Finding: H2 Supported

AI Analytics recorded a regression coefficient of $B = 0.52$, meaning that a one-unit increase in AI analytics usage is associated with a 0.52-unit increase in the dependent variable, holding other factors constant. The standardized beta coefficient ($\beta = 0.48$) shows that AI Analytics is the strongest predictor in the model. The high t-value ($t = 10.50$) and significant p-value ($p <$

0.001) indicate that this effect is statistically significant and unlikely to have occurred by chance. The confidence interval of **[0.44, 0.60]** further confirms the reliability of the estimate.

Similarly, **Automation** demonstrated a positive and significant effect on the dependent variable (**B = 0.29, $\beta = 0.27$, $t = 5.80$, $p < 0.001$**). This suggests that increased automation contributes to improvements in organizational outcomes. The confidence interval **[0.19, 0.39]** excludes zero, confirming the statistical significance of the relationship.

Implications of the Findings

The results indicate that both AI Analytics and Automation have a positive and statistically significant influence on the dependent variable.

The results suggest that both AI Analytics and Automation contribute significantly to improving organizational performance. However, AI Analytics exerts a stronger influence than Automation, as reflected by its higher standardized beta coefficient ($\beta = 0.48$ compared with $\beta = 0.27$). This implies that while automating routine tasks enhances efficiency, the ability of AI systems to analyse data, generate insights, and support decision-making contributes even more substantially to organizational effectiveness.

4.10.2 Result and Interpretation of Analysis of Variance

Table 15: ANOVA for Departmental Differences in Efficiency

Source	SS	df	MS	F	p	η^2
Between Groups	18.45	5	3.69	13.22	.000	0.17
Within Groups	88.60	317	0.28			

Effect Size: $\eta^2 = 0.17$ (Large Effect)

Source: Researcher's Findings, 2026

The ANOVA results show that the between-group variance (**SS = 18.45**) is substantially larger than would be expected by chance when compared with the within-group variance (**SS = 88.60**). The calculated **F-statistic of 13.22** indicates that meaningful differences exist among the groups under investigation.

The **p-value of .000** ($p < 0.001$) is below the conventional significance level of 0.05. This means that the differences observed among the groups are statistically significant. Therefore, the null hypothesis that all group means are equal should be rejected.

The effect size, measured using **eta squared ($\eta^2 = 0.17$)**, indicates the practical importance of the result. An η^2 value of 0.17 means that approximately **17%** of the variation in the dependent variable is explained by group membership. According to commonly used guidelines, this represents a relatively large effect size, suggesting that the differences among the groups are not only statistically significant but also meaningful in practice.

Implications for the Study

The findings imply that the groups being compared differ significantly in relation to the variable under investigation. For example, if the groups represent different levels of AI

adoption, AI proficiency, job categories, or consulting firms, the result suggests that these differences have a meaningful influence on productivity or operational efficiency.

However, while the ANOVA confirms that significant differences exist, it does not indicate which specific groups differ from one another.

The one-way ANOVA results revealed a statistically significant difference among the groups, $F(5, 317) = 13.22, p < 0.001$. The findings indicate that the mean scores of the groups were not equal, suggesting that the factor under investigation exerted a significant influence on the dependent variable. Furthermore, the effect size was substantial ($\eta^2 = 0.17$), indicating that approximately 17% of the variance in the outcome variable was attributable to differences among the groups. This finding suggests that group membership had a meaningful impact on the variable of interest and supports the existence of significant variations across the sampled respondents.

4.11 Chi-Square Test (H3)

Table 16: Chi-Square Results for AI in HR Practices

Variable	χ^2	df	p
AI Recruitment vs Retention	21.45	4	.000

Key Finding: H3 Supported

Source: **Researcher's Findings, 2026**

The result indicates that there is a significant relationship between the use of AI in recruitment and employee retention outcomes. In other words, employee retention patterns are not independent of AI-driven recruitment practices.

This suggests that organizations using AI-assisted recruitment tools may experience different retention outcomes compared to those relying on traditional recruitment methods. AI recruitment systems can improve candidate screening, enhance the quality of hiring decisions, and increase the likelihood of matching candidates' skills and qualifications with job requirements. As a result, employees recruited through more effective selection processes may be more likely to remain with the organization.

The Chi-Square analysis revealed a statistically significant association between AI-based recruitment practices and employee retention outcomes, $\chi^2(4) = 21.45, p < 0.001$. This indicates that the adoption of AI in recruitment is significantly related to retention patterns within the organizations studied. The finding suggests that AI-assisted recruitment processes may improve the quality of hiring decisions by facilitating better candidate-job fit, which may in turn contribute to higher employee retention. Consequently, the results highlight the potential role of AI technologies in strengthening human resource management outcomes within management consulting firms.

Implications for the Study

The findings imply that AI adoption in recruitment may contribute positively to workforce stability by supporting better hiring decisions. This is particularly relevant for management consulting firms where employee expertise and retention are critical to organizational

performance. The result also suggests that investment in AI-enabled recruitment technologies could help firms reduce employee turnover and improve long-term human resource outcomes.

4.12 Qualitative Insights and Mixed-Methods Integration

Thematic analysis yielded three dominant themes:

- i. Augmentation of Strategic Work
- ii. Efficiency Gains Amid Infrastructure Constraints
- iii. Ethical and Skill Imperatives

These themes reinforced quantitative findings while providing deeper contextual insights. For example, high productivity scores were supported by narratives highlighting time savings and enhanced decision-making capacity. Mixed-methods integration through joint displays enabled the convergence of findings, enhancing interpretative depth and explanatory power.

4.12.1 Discussion of Findings

For Hypothesis 1, the findings confirm that AI significantly enhances productivity ($\beta = .45$, $p < .001$), supporting prior studies on automation and knowledge work. The large effect size ($f^2 = 1.38$) indicates that AI is not merely supportive but transformational.

Hypothesis 2 shows AI-powered analytics strongly improves efficiency ($\beta = .48$). This aligns with digital transformation literature, particularly in data-driven decision-making environments.

When analysing Hypothesis 3 on AI and HR Practices, AI tools significantly influence recruitment and retention. This suggests a shift toward data-driven talent management, consistent with emerging HR analytics frameworks.

The thematic analysis revealed three dominant themes: **Augmentation of Strategic Work**, **Efficiency Gains Amid Infrastructure Constraints**, and **Ethical and Skill Imperatives**. The theme of **Augmentation of Strategic Work** reflected participants' views that AI is primarily a support tool rather than a replacement for professionals/consultants. Respondents explained that AI assists with activities such as research, data analysis, report drafting, and information synthesis, allowing consultants to devote more time to strategic thinking, client engagement, and problem-solving. This finding supports the quantitative results that showed a positive relationship between AI usage and employee productivity.

The second theme, **Efficiency Gains Amid Infrastructure Constraints**, highlighted the operational benefits associated with AI adoption. Many participants reported that AI-enabled tools reduced the time required to complete routine tasks, improved workflow efficiency, and enhanced the speed of decision-making. However, respondents also noted challenges such as inconsistent internet connectivity, inadequate digital infrastructure, and limited access to advanced AI tools, particularly within some management consulting firms. These views provide additional context for the positive efficiency scores obtained from the quantitative analysis while demonstrating that infrastructure limitations can reduce the full benefits of AI adoption.

The third theme, **Ethical and Skill Imperatives**, emphasized the importance of responsible AI use and continuous employee development. Respondents expressed concerns regarding data

privacy, confidentiality, algorithmic bias, and the possibility of inaccurate AI-generated outputs. Participants also highlighted the growing need for AI literacy, training, and human oversight to ensure that AI tools are used effectively and ethically. Many respondents stressed that although AI can improve performance, human judgment remains necessary for validating outputs and making final decisions. This theme aligns with the quantitative findings on implementation challenges and reinforces the need for organizations to invest in employee upskilling and governance frameworks.

Collectively, these themes complement the quantitative findings by explaining not only the measurable impact of AI on productivity and operational efficiency but also the organizational realities that influence its successful adoption. The integration of quantitative and qualitative findings through joint displays enabled a deeper understanding of how AI affects management consulting firms, thereby enhancing the overall explanatory power and validity of the study.

4.12.2 Chapter Summary

This chapter presented the analysis and interpretation of data collected to evaluate the impact of Artificial Intelligence (AI) on employee productivity and operational efficiency in selected Nigerian management consulting firms. The chapter addressed the study objectives through the use of both quantitative and qualitative data, providing a comprehensive understanding of AI adoption and its effects within the consulting industry.

In relation to Hypothesis 1, which examined the level of AI adoption and utilisation in management consulting firms, the findings revealed that AI technologies are increasingly being used across a range of consulting activities, including data analytics, automation, research, reporting, and client engagement. The quantitative results showed a significant level of AI adoption, while the qualitative findings provided practical examples of how consultants use AI tools in their daily work. Participants explained that AI has become an important tool for improving access to information, reducing repetitive tasks, and supporting service delivery. These findings suggest that AI is gradually becoming an integral part of consulting operations in Nigeria.

Regarding Hypothesis 2, which examined the relationship between AI utilisation and employee productivity, the findings demonstrated that AI has a positive influence on employee performance. The quantitative results showed a significant relationship between AI utilisation and productivity, indicating that employees who use AI tools are able to perform their tasks more effectively. This finding was further supported by the qualitative theme of Augmentation of Strategic Work. Participants reported that AI reduced administrative and routine workloads, allowing them to spend more time on strategic thinking, problem-solving, analysis, and client interactions. The combined findings indicate that AI supports employees by enhancing their productivity rather than replacing their contributions.

For Hypothesis 3, which focused on the relationship between AI integration and operational efficiency, the results showed that AI contributes significantly to improvements in process speed, decision-making quality, and resource optimisation. The quantitative findings confirmed that AI-powered analytics and automation improve efficiency across organizational

processes. These results were reinforced by the qualitative theme of Efficiency Gains Amid Infrastructure Constraints, where respondents explained that AI helped streamline workflows, improve information processing, and accelerate project delivery. However, participants also highlighted infrastructure-related challenges, including unreliable internet connectivity, inconsistent power supply, and limited digital resources. This suggests that while AI improves efficiency, the extent of its effectiveness depends on the availability of adequate technological infrastructure.

The qualitative findings also identified the theme of Ethical and Skill Imperatives, which provided important insights into factors affecting the successful adoption of AI. Respondents emphasized concerns relating to data privacy, transparency, bias, and the need for continuous employee training. Participants further noted that AI should complement human expertise rather than replace human judgment, particularly in decision-making situations that require professional experience, ethical consideration, and client relationship management. These findings highlight the importance of human oversight, responsible AI governance, and workforce development in maximizing the benefits of AI adoption.

The integration of quantitative and qualitative findings strengthened the overall conclusions of the study. While the quantitative results demonstrated the positive impact of AI on productivity and operational efficiency, the qualitative evidence explained how these benefits are achieved in practice and identified the organisational conditions that influence successful implementation. Together, the findings suggest that the benefits of AI are greatest when technology adoption is supported by employee training, adequate infrastructure, effective leadership, strong governance practices, and continuous learning.

Overall, the chapter established that AI is becoming an important driver of productivity and operational efficiency within Nigerian management consulting firms. The findings support all three study hypotheses and demonstrate that AI adoption has the potential to improve workplace performance and organizational effectiveness. However, realizing these benefits fully requires organizations to address infrastructure limitations, invest in employee capability development, and maintain appropriate human oversight over AI-enabled processes. These issues provide the foundation for the conclusions and recommendations presented in the next chapter.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter draws conclusions from the findings of the study and offers recommendations arising from the results. These conclusions and recommendations are discussed within the broader context of Artificial Intelligence (AI) adoption in Nigeria's management consulting sector, highlighting its role in enhancing employee productivity, improving operational efficiency, and supporting organisational performance. Additionally, this chapter discusses the implications of the findings for professional policy formulation within Nigeria's consulting sector, while also encompassing conclusions drawn from the study, actionable recommendations, acknowledged limitations, and propositions for future research endeavours that could further illuminate this subject matter.

The research employed an embedded mixed-methods design, which seamlessly integrated both quantitative and qualitative methodologies, thereby facilitating a holistic understanding of the adoption of AI technologies within Nigerian consulting firms during the period spanning from 2020 to 2025. Quantitative data were meticulously collected through survey responses provided by a substantial sample of 323 participants, while qualitative insights were meticulously gathered through in-depth interviews and focus group discussions. The strategic integration of these diverse methods significantly bolstered the credibility and depth of the findings through a process known as triangulation, which, in turn, ensured that the analytical rigor, reliability, and validity of the results were upheld to the highest academic standards.

The study was guided by four primary objectives to thoroughly examine the intricate relationship between the utilization of AI automation tools and the enhancement of employee productivity within consulting firms whilst confirming could be ethical considerations associated with the adoption of Artificial Intelligence. Furthermore, it assessed the profound impact of AI-driven analytics on the efficiency of operations and the decision-making processes that underpin these organizations, as well as to evaluate the transformative role of AI in human resource management practices, particularly in the realms of recruitment, retention, and the strategic management of talent. Through the application of inferential statistical analysis combined with thematic interpretation, the findings yielded compelling evidence that underscores the transformative potential of AI within the Nigerian consulting landscape.

5.1 Summary of Findings

The findings emanating from this research demonstrate that the adoption of AI technologies has exerted a significant and predominantly beneficial influence on various dimensions such as productivity, operational efficiency, and the practices associated with human resource management within Nigerian consulting firms. The empirical evidence garnered from both the quantitative and qualitative segments of the research indicates that AI is progressively emerging as a strategic asset, which plays a crucial role in enhancing organizational competitiveness and fostering innovation.

In relation to employee productivity, the findings revealed that the implementation of AI automation tools has markedly enhanced the performance levels of employees by alleviating the burdens associated with monotonous and routine tasks. Employees conveyed that AI-enabled systems have

afforded them the opportunity to allocate more time and resources to strategic, analytical, and client-centric responsibilities, thereby leading to a significant increase in overall productivity and job effectiveness. This observation is in alignment with the expanding body of literature that perceives AI not merely as a replacement for human labour, but rather as a complementary technology that amplifies human capabilities and optimizes workplace efficiency.

Moreover, the study established a strong correlation indicating that AI-powered analytics significantly contribute to the enhancement of operational efficiency and the quality of decision-making within organizations. Consulting firms that successfully integrated AI-driven analytical systems reported substantial improvements in the speed, accuracy, and overall quality of decisions made throughout their operational processes. The predictive and real-time analytical capabilities enabled by AI have proven instrumental in assisting organizations to mitigate delays, curtail operational inefficiencies, and fortify evidence-based management practices. These findings reinforce the argument that data-driven decision-making is becoming increasingly indispensable in contemporary consulting environments, which are characterized by complexity and rapid fluctuations. The findings further illuminate the transformative effects of AI adoption on recruitment practices, employee retention strategies, and the management of talent within consulting firms.

AI-enhanced recruitment systems were observed to streamline candidate screening processes, expedite hiring timelines, and elevate the quality of talent acquisition through the implementation of predictive matching techniques. Moreover, AI tools were identified as valuable assets in the development of retention strategies, enabling organizations to analyse employee behaviour and more effectively anticipate workforce trends. These outcomes underscore the burgeoning significance of technology in the realm of strategic human resource management and the sustainability of organizations as they navigate an increasingly competitive landscape.

Despite the aforementioned positive outcomes that emerged from the analysis, the research also unearthed a multitude of challenges that significantly impede the effective implementation of Artificial Intelligence (AI) within the context of Nigerian consulting firms, which are crucial for advancing operational efficiency and innovation. Respondents, who provided invaluable insights, consistently underscored the critical infrastructural deficiencies that plague the region, such as erratic and unstable supply of electricity and the often-unreliable nature of internet connectivity, both of which serve as major barriers that hinder the seamless integration of AI technologies into everyday business practices. Furthermore, the presence of pronounced digital skills gaps among the workforce has been identified as a limiting factor that constrains the effective utilization of AI systems, thereby preventing organizations from harnessing the full potential of these advanced technologies. Ethical considerations emerged as another pivotal area of concern, particularly issues related to data privacy, transparency, algorithmic bias, and the trust of employees in the systems being implemented, all of which surfaced as significant factors that influence the overall adoption of AI. These comprehensive findings collectively indicate that, while AI harbours the promise of delivering substantial benefits and transformative potential to organizations, the extent to which such benefits can be fully realized is contingent upon the organizations' ability to adequately address the multifaceted infrastructural, technological, and ethical constraints that currently exist.

From a broader perspective, the study provided robust support for the four research hypotheses demonstrating a strong alignment with existing empirical literature that extensively discussed the themes of digital transformation and AI adoption. However, the findings also illuminated the unique contextual realities that are characteristic of emerging economies, such as Nigeria, where various infrastructural and institutional limitations continue to exert a significant influence on the pace and effectiveness of technological transformation efforts across different sectors.

5.2 Conclusion of Study

In conclusion, this study posits that Artificial Intelligence has emerged as a transformative force within Nigerian consulting firms between 2020 to 2025, fundamentally altering the landscape of operational practices and strategic decision-making processes within the sector. The findings derived from the research illustrate that artificial intelligence (AI) plays a pivotal role in enhancing employee productivity, improving operational efficiency, and advancing strategic human resource management practices within organizations. However, strong ethical frameworks are necessary to appropriately realize these advantages. In order to guarantee that AI stays human-centric, upholds employee dignity, and reduces dangers like job displacement, bias, privacy erosion, and diminished autonomy, these frameworks direct its design, implementation, and governance. This enhancement is achieved primarily through the automation of monotonous and repetitive tasks, the generation of insights that are firmly rooted in data analytics, and the optimization of talent management processes that directly contribute to organizational success. By leveraging these advanced capabilities, AI has been shown to not only elevate individual performance metrics but also substantially bolster the overall performance of organizations, thereby fortifying the competitive stance of consulting firms that are operating in an increasingly volatile and dynamic business landscape characterized by rapid technological advancements and shifting market demands.

Nevertheless, it is essential to conclude, based on the findings of this study, that the successful and effective implementation of AI technologies is contingent upon the capacity of organizations and policymakers to proactively address a multitude of critical barriers. These barriers encompass a range of factors, including, but not limited to, infrastructural inadequacies that hinder technological progress, a pronounced shortage of digital skills among the workforce, and various ethical concerns that arise in relation to the deployment of AI systems. In the absence of significant and adequate investments directed towards the enhancement of technological infrastructure, the development of employee capabilities, and the establishment of responsible governance frameworks, it is highly probable that the full spectrum of benefits associated with AI will remain unrealized, particularly within the specific context of Nigeria and its unique socio-economic challenges.

Moreover, the study further elucidates an important perspective that AI should not be misconstrued as a direct substitute for human expertise and intelligence; rather, it ought to be viewed as a transformative enabling technology that serves to complement and amplify the innate capabilities of human beings. Consequently, organizations that strategically integrate AI technologies in conjunction with robust employee development programs and ethical management practices are considerably more likely to achieve a sustainable competitive advantage and foster long-term growth within their operational frameworks. As Nigeria embarks on its ambitious journey towards digital economic transformation, the consulting sector's aptitude for responsibly, inclusively, and sustainably adopting AI technologies will undeniably play a central role in shaping its future relevance on the global stage and enhancing its competitive posture amidst a rapidly evolving international business environment.

5.3 Recommendations

In light of the findings that have emerged from this study, a series of recommendations are put forth for various stakeholders, including consulting firms, human resource professionals, industry bodies, government agencies, and employees at all levels. These recommendations are designed to facilitate the effective adoption of AI technologies, enhance overall organizational performance, and mitigate the potential challenges associated with implementation within the Nigerian consulting sector, which is poised for significant transformation. The following recommendations are proposed for

management consulting firms and other relevant stakeholders involved in the adoption and utilisation of Artificial Intelligence (AI) in Nigeria:

1. Develop Structured AI Adoption Roadmaps

Management consulting firms are encouraged to develop clear AI adoption roadmaps that align AI initiatives with organisational objectives, operational requirements, and long-term business priorities. Such roadmaps may assist firms in identifying suitable areas for AI application, allocating resources effectively, and ensuring that implementation efforts are carried out in a coordinated and sustainable manner.

2. Promote Workforce Adaptability and Continuous Learning

There is a need for management consulting firms to foster a culture of continuous learning, innovation, and adaptability. In addition to technical training, organisations may consider creating opportunities for employees to develop problem-solving, analytical, and digital competencies that will enable them to work effectively in increasingly AI-enabled environments.

3. Strengthen Human-AI Collaboration

Management consulting firms may benefit from designing work systems that combine human expertise with AI capabilities. Encouraging collaboration between employees and AI tools can enhance decision-making, improve service quality, and increase productivity while ensuring that human judgement remains central to critical organisational processes.

4. Establish Responsible AI Governance Structures

It would be beneficial for firms to establish governance mechanisms that promote ethical AI use, transparency, accountability, and data protection. Clear guidelines on the deployment and use of AI technologies may help minimise potential risks, build employee confidence, and support the responsible use of AI within consulting operations.

5. Support AI Adoption through Effective Change Management

Organisations are encouraged to complement AI adoption efforts with structured change management initiatives. Effective communication, employee involvement, and adequate support throughout the implementation process may reduce resistance to change and facilitate a smoother transition to AI-enabled ways of working.

6. Strengthen the Digital Environment for AI Adoption

Government agencies and relevant industry stakeholders may consider initiatives aimed at improving digital infrastructure, internet accessibility, and the broader technological ecosystem that supports AI adoption. A more supportive digital environment could enhance the capacity of management consulting firms to leverage AI effectively and achieve better organisational outcomes.

7. Strengthen AI Skills Development through Multi-Stakeholder Collaboration

Greater collaboration among management consulting firms, professional bodies, and educational institutions is encouraged to support the development of AI-related competencies. Such partnerships may help ensure that training programmes, professional development initiatives, and educational curricula remain relevant to emerging industry requirements and future workforce needs.

5.4 Areas for Further Research

Based on the findings of this study, valuable insights were generated on the impact of Artificial Intelligence on employee productivity and operational efficiency in selected Nigerian management consulting firms during the period under review.

However, there are several areas that remain open for further investigation. Since this study adopted a cross-sectional approach, future studies may consider longitudinal designs that track organizations over an extended period. Such an approach would provide a clear understanding of how AI adoption evolves over time and how its effects on productivity, organizational performance, workforce behaviour, and operational processes change as technologies become more embedded within workplace activities.

In addition, it will be of great value to extend similar research beyond the management consulting industry. AI adoption has become widespread across diverse sectors and industries, yet organizational realities differ considerably from one industry to another. Comparative studies involving consulting firms, financial institutions, manufacturing organizations, healthcare providers, educational institutions, and public sector agencies may provide deeper understanding of how industry-specific conditions influence AI implementation and outcomes. Similar comparisons across different countries could further reveal how economic, cultural, regulatory, and technological factors shape organizational experiences with AI. For example, manufacturing organisations and hospitality organisations that deploy most of their work onsite might have a different approach to the adoption of AI processes and how employees are managed onsite with regards training, data processing and ethical practices.

Another area that warrants attention is the growing use of generative AI technologies within professional service organizations. As these tools become increasingly integrated into research, analysis, content development, client communication, and knowledge management activities, there is a need to understand their influence on work quality, professional judgment, service delivery, and client relationships. Research in this area may help organizations determine how generative AI can be used effectively while maintaining professional standards and accountability.

Future studies may also broaden the organizational scope beyond large consulting firms in Nigeria. Small and medium-sized enterprises face different operational realities, resource constraints, and technology adoption challenges. Examining AI implementation within smaller organizations could provide valuable insight into how businesses with limited financial and technological capacity approach digital transformation and workforce adaptation. Whilst the Big-4 firms and bigger consulting firms may deploy some structured processes in managing the adoption of AI processes, the constraints experienced in small sized firms, often owner managed firms with a few partners might be slightly different and may yield variant insights.

The changing nature of work in AI-enabled environments remains another important area for investigation. As organizations increasingly rely on intelligent systems to support operational and managerial activities, employee roles, reporting relationships, communication patterns, and team structures may continue to evolve. Further research could examine how these changes affect collaboration, employee engagement, workplace relationships, and organizational effectiveness over time.

The relationship between organizational culture and AI adoption also deserves additional attention. The findings from this study suggest that organizational readiness plays a significant role in implementation outcomes. An organisation with a learning culture will most likely adopt AI processes

faster, as the employees are intentionally trained, mentored, coached on expectations from evolving technology and the need to adopt it. Future research may therefore explore how leadership behaviour, organizational values, openness to innovation, and learning-oriented cultures influence employee acceptance of AI technologies and the success of digital transformation initiatives.

Workforce preparedness and digital capability development represent another important research direction. This study identified digital skill gaps as one of the challenges affecting AI adoption. Future investigations could examine how employees acquire new technological competencies, how organizations design effective learning programmes, and which approaches are most successful in supporting workforce adaptation during periods of technological change.

While this study focused primarily on organizational outcomes, there is also a need for more detailed examination of employee experiences during AI implementation. Future researchers may investigate employee perceptions, concerns, expectations, and adaptation processes in greater depth. Understanding how employees respond to technological change could provide useful insight into managing resistance, strengthening engagement, and improving the overall success of AI initiatives.

The role of leadership within AI-driven organizations presents another opportunity for further study. As managers increasingly operate in environments supported by intelligent systems and data-driven decision-making tools, leadership practices may continue to evolve. Future research could examine how managers balance technology adoption with employee support, communication, motivation, and organizational development objectives.

Ethical governance remains an area requiring continued scholarly attention. Questions relating to privacy, transparency, fairness, accountability, employee monitoring, and data protection are becoming increasingly important as organizations expand their use of AI technologies. Future studies may therefore explore governance mechanisms capable of promoting responsible AI use while protecting employee rights and maintaining organizational trust.

Infrastructure-related challenges identified in this study also warrant further investigation. Factors such as electricity reliability, internet connectivity and reliability, maintenance culture, consistency in quality, and broader digital infrastructure continue to influence the pace and effectiveness of AI implementation within Nigeria. Research examining the relationship between infrastructure development and successful technology adoption in Nigeria could provide useful evidence for policymakers and organizational leaders seeking to accelerate digital transformation.

Another area of interest involves the sustainability of productivity gains associated with AI adoption. Although the findings of this study indicate positive effects on employee productivity and operational efficiency, future research could assess whether these benefits are maintained over longer periods and identify the conditions necessary to sustain performance improvements as technologies evolve.

The increasing use of remote and digitally connected work arrangements provides additional opportunities for investigation. Future studies may examine how AI-supported communication tools and virtual collaboration platforms influence teamwork, employee interaction, organizational culture, and service delivery within geographically dispersed work environments.

Finally, future research should continue to examine Artificial Intelligence from both technological and human perspectives. The long-term success of AI adoption is likely to depend not only on technological capability but also on employee development, organizational culture, ethical governance, leadership effectiveness, and workforce well-being. Continued research in these areas will strengthen understanding of how organizations in emerging economies such as Nigeria can adopt AI in ways that are productive, responsible, and sustainable.

5.4 Contribution to Knowledge

This study contributes to knowledge by providing empirical evidence on the impact of Artificial Intelligence (AI) on employee productivity, operational efficiency, and human resource management within selected Nigerian management consulting firms. While AI adoption has been widely discussed in different contexts, this study offers insight drawn from the Nigerian consulting industry during a period of accelerated digital transformation between 2020 and 2025.

First, the study demonstrated that AI has moved beyond being a purely technological tool and has become an important operational resource within consulting firms. The findings showed that AI contributes to improved employee productivity through the automation of repetitive tasks, faster access to information, enhanced decision-making, and more efficient work processes. This evidence suggests that AI can support higher levels of individual and organizational performance within knowledge-intensive professional service environments.

Second, the study established a clear relationship between AI adoption and operational efficiency. The result of the analysis indicated that organizations using AI-enabled systems experienced improvements in workflow management, reporting processes, information handling, and organizational coordination. This suggests how consulting firms can use AI technologies to strengthen service delivery and improve operational performance in a competitive business environment.

Third, the study highlighted the importance of human expertise, human reviews and human coordination in AI-enabled workplaces. The analysis showed that AI delivers the greatest value when it complements rather than replaces human capabilities. Employees input are still highly regarded and remain essential in areas requiring professional judgment, critical thinking, client engagement, communication, and strategic decision-making. This further suggests that successful AI adoption depends on effective collaboration between people and technology.

Fourth, the study identified organizational readiness as a critical factor influencing successful AI implementation. The findings revealed that the benefits of AI are closely linked to the availability of digital infrastructure, workforce preparedness, leadership support, and employee development initiatives. This contributes to understanding it is very essential for organizations to invest in the conditions, platforms and environments that enable technology to be used effectively as technological investment alone is insufficient.

Fifth, the study provided evidence on the importance of continuous learning and digital skills development in supporting AI adoption. The findings show that employees are better positioned to work effectively with AI technologies when organizations invest in training, upskilling, and professional development. This contribution is particularly relevant to organizations seeking to improve workforce adaptability and maintain competitiveness in increasingly digital work environments.

Sixth, the study drew attention to the ethical and governance dimensions of AI adoption in organisations. The findings indicated that concerns relating to privacy, transparency, accountability, bias, and employee trust, remain important considerations during AI implementation. The result of the analysis further strengthened the need for responsible governance structures which are necessary to ensure that technological advancement delivers sustainable benefits without undermining employee welfare or organizational integrity.

Seventh, the study identified key barriers affecting AI adoption within the Nigerian consulting sector. These include infrastructural limitations, shortages in digital skills, and challenges associated with

organizational readiness. By highlighting these constraints, the study provides context-specific evidence that helps explain why AI implementation outcomes may differ across organizations operating within the same business sector and emerging economies.

Finally, the study contributed practical and policy-relevant insights for organizations, industry stakeholders, and policymakers. The findings emphasized the need for investments in digital infrastructure, workforce development, ethical governance frameworks, and supportive regulatory environments. In doing so, the study extended the understanding of AI adoption beyond organizational performance outcomes and highlights the broader conditions required for sustainable digital transformation within the Nigerian business environment.

Taken together, these contributions provided a clearer understanding of how AI is influencing employee productivity, operational efficiency, and organizational practices within Nigerian management consulting firms. The study also offered context-specific evidence that can support future research, organizational decision-making, and policy development relating to AI adoption in emerging economies.

5.5 Limitations of the Study

Despite the considerable contributions that this study has made to the existing body of knowledge, it is important to recognize that there are certain limitations that warrant careful consideration when one seeks to interpret the findings that have been presented.

First and foremost, the research employed a cross-sectional design, which inherently restricts the capacity to establish or infer causal relationships between the adoption of AI technologies and the resulting organizational outcomes over an extended period of time. In this regard, longitudinal studies may offer a more profound and nuanced understanding of the long-lasting effects that AI implementation can have on various organizational dimensions.

Secondly, the study was partially reliant on self-reported data collected from respondents, a factor that may introduce potential response bias and subjectivity into the findings. Although substantial measures were implemented to uphold confidentiality and to encourage the provision of honest responses, the possibility of biases stemming from individual perceptions cannot be entirely disregarded or eliminated.

Thirdly, the focus of the study was predominantly on a select group of consulting firms situated in major urban centres throughout Nigeria, which inevitably limits the generalizability of the findings to smaller firms or organizations that may be operating in rural settings. Additionally, it is important to acknowledge that external factors, such as the rapid digital transformation that has been observed during the post-COVID-19 era, may have had a significant impact on organizational attitudes and approaches towards the adoption of AI technologies.

Lastly, the qualitative findings derived from this research could have been influenced by cultural nuances and interpretive differences among the various participants involved, which could potentially affect the consistency and reliability of the perspectives gathered during interviews and focus group discussions. The identified limitations should be duly acknowledged when considering the generalizability of the findings to broader organizational and policy contexts.

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APPENDIX

1. SAMPLE OF QUESTIONNAIRE

Dear Chinwe,

Thank you for taking the time to participate in this study.

This questionnaire is part of a PhD research project set to evaluate the impact of Artificial Intelligence on Employee Productivity and Operational Efficiency in Selected Nigerian Management Consulting Firms (2020 - 2025)

Your responses will remain strictly confidential and will only be used for academic purposes. The form contains several sections and may take **15–20 minutes** to complete. Your insights are invaluable in helping us understand the evolving role of AI in shaping consulting practices in Nigeria. I deeply appreciate your contribution.

An Evaluation of the Impact of Artificial Intelligence on Employee Productivity and Operational Efficiency in Selected Nigerian Management Consulting Firms (2020–2025)

Instructions: Please answer all questions honestly. All information will be kept strictly confidential and used solely for academic purposes. For Section B, C, D and E, use the scale below unless otherwise stated.

Scale: 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree

Consent to participate in this study

I consent to participate in this study

SECTION A: Respondent Information

1. Gender
 - Male
 - Female

2. Choose the name of your firm
 - PwC
 - Deloitte

- Ernst & Young
- KPMG
- Human Capital Partners
- Workforce Group
- Others
- Other:

3. Department/Unit

- Human Capital / People Advisory/ Human Resources (Consulting & Internal HR Services)
- Strategy &
- Audit & Tax (Consulting)
- Other Client Facing Roles/ Practice Staff
- Operations Consulting (Process optimization, supply chain, cost reduction)
- Support Functions (Branding, Finance, Legal etc.)
- IT(Operations and Consulting)
- Internal Operations & Support Functions (Admin, Office Support)
- Technology Consulting / Digital Transformation
- Risk Advisory / Governance
- Other:

4. Grade Level/Job Title

- Managing Partner
- Partner
- Director
- Senior Manager
- Manager
- Senior Associate
- Semi-Senior
- Analyst
- Associate
- Supervisor
- IT Specialist
- Consultant
- Other Grade levels
- Recruiter
- Other:

5. Years spent in the firm

- Less than 1 Year
- 1-3
- 4-6
- 7-10
- More than 10 Years

6. Age Group

- Under 25

- 25–34
- 35–44
- 45–54
- 55 and above
- Other:

7. Level of exposure to AI Tools in daily work

- Never
- Occasionally
- Sometimes
- Frequently
- Very Frequently

8. Type(s) of AI Tools Used in Your Role (Select all that apply)

- AI Chatbots (Meeting Note Taker, Calendar Scheduler, Slack, IT Helpdesk etc.)
- Workflow Automation
- AI-Powered Analytics Dashboards
- AI-Based Recruitment Tools
- Predictive Analytics
- Other:

9. Work Arrangement

- Fully On-site
- Hybrid
- Fully Remote
- Contract
- Other:

10. Training Received on AI Tools

- Internal Training
- Informal Training
- External Training
- Combination
- None
- Other:

SECTION B: EXTENT AND PATTERNS OF AI ADOPTION

Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree

1. Artificial Intelligence (AI) tools have been actively used in my firm between 2020 and 2025.
2. The level of AI adoption in my firm has increased steadily over the last five years.

3. In my firm, AI tools are applied across multiple functional areas (e.g., consulting, analytics, HR, operations).
4. AI technologies are well embedded into the day-to-day work processes of my firm.
5. Overall, my firm demonstrates a high level of commitment to adopting AI solutions.
6. My firm has a clear strategy or roadmap for AI adoption.
7. AI adoption in my firm is mainly driven by top management initiatives.
8. The pace of AI adoption differs significantly across departments in my firm.
9. Investment in AI infrastructure (hardware, software, cloud services) has increased substantially in my firm since 2020.

SECTION C: AI UTILISATION AND EMPLOYEE PRODUCTIVITY

Response options: Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree

10. AI-driven tools have reduced the time required to complete routine tasks in my role.
11. The use of AI has improved my individual productivity at work.
12. AI utilisation allows me to focus more on higher-value or strategic responsibilities.
13. AI tools have improved the accuracy and quality of work outputs in my role.
14. Increased utilisation of AI in my firm is associated with improved employee performance
15. AI tools have helped me handle a larger volume of work without increasing my working hours.
16. Employees who use AI tools regularly show higher levels of creativity and innovation in their work.
17. AI utilisation has contributed to better work-life balance for employees in my role.
18. There is a positive correlation between frequency of AI use and overall employee satisfaction in my firm.

SECTION D: AI INTEGRATION AND OPERATIONAL EFFICIENCY

Response options: Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree

19. The integration of AI systems has improved the speed of decision-making in my firm.
20. AI tools help reduce operational delays and process bottlenecks in my firm.
21. AI-powered systems support more efficient allocation of resources across projects.
22. The use of AI has enhanced the efficiency of service delivery to clients in my firm.

23. Overall, AI integration has significantly improved operational efficiency in my firm.
24. AI integration has led to measurable cost savings in operational processes within my firm.
25. AI systems have improved collaboration and knowledge sharing among teams in my firm.
26. AI has enabled my firm to deliver more customized and data-driven solutions to clients.
27. The scalability of operations in my firm has improved significantly because of AI integration.

SECTION E: CHALLENGES AND ETHICAL CONSIDERATIONS OF AI ADOPTION

Response options: Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree

28. The cost of implementing and maintaining AI solutions presents a major challenge for my firm.
29. Limited employee skills or inadequate training constrain effective AI utilisation in my firm.
30. Concerns about data privacy and security influence the way AI systems are adopted and utilized within my firm
31. AI adoption in my firm tends to raise questions about fairness, transparency, and bias.
- 32.. My firm has clear policies and guidelines to guide the ethical use of Artificial Intelligence.
33. There is fear of job displacement or redundancy due to AI adoption among employees in my firm
34. Lack of reliable internet infrastructure or power supply hinders effective AI implementation in my firm.
35. Ethical concerns regarding AI decision-making accountability are adequately addressed in my firm.
36. The effectiveness of AI tools within our organization is being constrained by issues related to data quality and data availability
37. Based on your experience, what opportunities and challenges has Artificial Intelligence created for employees and organizational operations? Please elaborate.
38. What recommendations would you make to improve the adoption and use of Artificial Intelligence to enhance employee productivity and operational efficiency in management consulting firms?
39. Are there any experiences, observations, or examples regarding the use of Artificial Intelligence in your organization that you believe are important but were not covered in this questionnaire? Please describe them.

40. Please share any additional comments, concerns, or insights you have about the impact of Artificial Intelligence on work processes, employee productivity, or operational efficiency in your organization.

2. SAMPLE OF COVER LETTER

Dear Faith,

I trust this message finds you well.

My name is **Chinwe Obianyo**, a doctoral researcher undertaking an academic study on the “Evaluation of the Impact of Artificial Intelligence on Employee Productivity and Operational Efficiency in Selected Nigerian Management Consulting Firms (2020 – 2025)”

I am writing to respectfully invite you to participate in this research by completing the attached questionnaire. The instrument is designed to capture informed professional perspectives based on respondents’ experiences within their respective organisations. Given your role and industry exposure, your insights would be highly valuable to the study.

Please be assured that:

- Participation is entirely voluntary.
- All responses will be handled with strict confidentiality and anonymity.
- The information collected will be used solely for academic and research purposes.
- Completion of the questionnaire should take approximately 10–15 minutes.

Your contribution will help enrich academic understanding of how AI is shaping the management consulting industry in Nigeria and will support evidence-based recommendations for practice and policy.

Should you require any further information or clarification, please do not hesitate to contact me. I sincerely appreciate your time and consideration and thank you in advance for your support.

Yours sincerely,

Chinwendu Obianyo
Doctoral Researcher

3. SURVEY QUESTIONNAIRE RESPONSES

This has been attached as an external document in an Excel format.