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Evaluating the Impact of AI-Powered Chatbots on Customer Service Management and Satisfaction in a Multinational Corporation: A Case Study of Nestlé Nigeria

By

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ABSTRACT

Purpose: The study estimates how AI-powered chatbots influence customer service management and satisfaction at Nestle Nigeria, to respond to the lack of research on chatbot adoption in the emerging markets, where infrastructure and cultural factors still act as barriers.

Methodology: The research was conducted using a positivism and deductive research methodology, using an expanded UTAUT model, including trust and technology readiness. Data was collected using online survey which was analysed with PLS- SEM.

Results: Based on the findings, chatbots provided a significant impact on response time, information accuracy, and efficiency. The results led to positive effects on customer satisfaction, with trust and perceived service quality mediating adoption. Yet the effectiveness was limited by such barriers as unreliable internet, poor digital literacy, and cultural preference of human interaction.

Theoretical Implications: The research contributes to the UTAUT model by combining trust and technological readiness and provides a country-specific model of AI adoption in a developing economy.

Practical Implications: The findings lay strategies to multinational corporations, such as investing in user training, multilingual interface and integration with apps such as WhatsApp to increase adoption in Nigeria.

Social Implications: AI chat bots increase service accessibility and involvement and indicate the issue of digital inclusion, which needs to be supported by policies.

Economic Implications: Chatbots will cut operational expenses, free up personnel to focus on complex tasks and aid in promoting the digital economy in Nigeria.

Originality/Novelty: The current research is one of the most initial empirical investigations of AI chatbot adoption by a multinational in Nigeria and fills a critical research gap in the literature on customer service innovation in new markets.

JEL Code: O31; M15; L80

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CHAPTER ONE

1.0. INTRODUCTION

Nestlé Nigeria serves as the tested case to study how artificial intelligence-based chatbots influence customer service through this research. Modern industries experience essential changes through the rising use of artificial intelligence (AI) by companies, which enables AI-powered chatbots to supply immediate, tailored consumer engagements (Kumar, Ashraf and Nadeem, 2024). Nestlé Nigeria adopted AI applications according to its global plan, which aims to improve customer relations and cut operational expenses and boost service productivity (Waebuesar *et al*., 2022). This research aims to explore how AI technologies affect the Nigerian market, specifically where it examines both the strengths and challenges faced by multinational companies operating in the country, particularly Nestlé.

AI-powered chatbots serve as fundamental global tools or elements which strengthen customer support operations. Amazon and Google represent prominent organisations that have implemented chatbots to optimise their customer support operations while processing many users demand instantly (Uzoka, Cadet and Pascal, 2024). This technological advancement has positively affected customer satisfaction since customers now receive quick responses from chatbots for their common inquiries. Operational efficiency also relies strongly on chatbots because they help companies reduce human resource costs and redirect their resources efficiently. Customer service depends increasingly on Artificial Intelligence as reflected in global market developments (Kaur, 2023).

The introduction and the adoption of AI-powered chatbots in a country like Nigeria, despite the significant futuristic opportunities it offers, are still at the emerging stage. The rapidly expanding digital economy drives organisations across the world, especially the finance sector and telecommunications industry, and now the food and beverage industry, to use AI solutions (Abdulquadri *et al*., 2021). The unparalleled adoption of AI technologies remains limited for widespread use in the market because several factors, such as digital literacy issues, unstable and undependable internet connections, and inadequate infrastructures, persist (Ade-Ibijola and Okonkwo, 2023). This research investigates the strategies Nestlé Nigeria uses to tackle obstacles in its AI implementation of improved customer experience as it operates as a multinational corporation.

The core goal of this research is to evaluate an AI-powered chatbot on customer service management, together with satisfaction rates at Nestlé Nigeria.

1.1 Background of Study

1.1.1. Global Perspective

The deployment of AI-powered chatbots within the customer support sector has experienced significant international growth during the last few years. The global chatbot market reached approximately $8.6 billion in 2024, and according to Business Research (2025), analysts predicted the market to grow to $11.14 billion by 2025, leading to an annual growth rate (CAGR) of 29.5%. The adoption of this technology has been led by multinational companies. By implementing AI chatbots for customer inquiries, Amazon achieves operational excellence, which leads to enhanced consumer satisfaction (Huseynov, 2023). Google uses AI chatbots as a unifying element that enables user interaction along with support services throughout its platform ecosystem. The implemented projects help organisations shorten their response times while decreasing costs and increasing their customer satisfaction ratings (Labadze, Grigolia and Machaidze, 2023). AI has brought numerous advantages to customer service operations worldwide. AI chatbots deliver continuous customer help with their ability to deal with numerous requests simultaneously while providing customised experiences, which leads to better satisfaction rates. Businesses achieve expense reduction through automation systems and optimise their human workforce effectively (Huseynov, 2023).

1.1.2. Regional Perspective

The African market for AI chatbots shows steady growth, according to 6Wresearch (2025) projections that estimate the market will bounce from $70 million in 2025 to $250 million by 2031, with a yearly growth rate of 7.3%. However, various difficulties limit the mainstream deployment of AI technologies across the continent. The implementation of AI systems faces hurdles because of limited infrastructure quality, which produces unreliable power supply and insufficient data network access (Ansah *et al*., 2024). A primary concern about digital literacy emerged because most people do not possess the skills needed to interact with advanced technological systems (Vodă *et al*., 2022). Company investments in AI solutions face economic barriers because they require substantial expenditures to both adopt these solutions and maintain them. The usage of AI continues to increase in essential sectors, including telecoms and finance, despite known barriers (Yang, Blount and Amrollahi, 2024). The financial industry applies AI chatbots for multiple purposes, including enhancing customer care, process optimisation and expense reduction. Telecom industry companies implement AI for consumer query management as well as difficult troubleshooting and service delivery improvement (Uzoka, Cadet and Pascal, 2024).

The AI market in Nigeria will expand to $1.40 billion by 2025 and demonstrate 27.08% annual growth between 2025 and 2030. The industry expansion occurs because of rising technological investments

coupled with a tech-savvy population growth, as well as government initiatives aimed at building a digital economy (Oluwole Asalu, 2025). The implementation of AI in Nigeria persists despite challenges that stem from limited infrastructure capabilities, together with technical proficiency limitations and expenses that are high implementation expenses. The Nigerian population demonstrates significant interest in implementing AI technologies across the nation despite existing technical barriers. Seven out of ten Nigerian users who access the internet via computers or smartphones have already adopted the use of generative AI above the global standard of 48%, according to surveys (Okogba 2025). Results show that 87% of Nigerian participants view the substantial advantages of AI technology as exceeding its potential risks (Emma Okonji, 2025).

1.1.3. Local Context - Nigeria

The company Nestlé Nigeria is one of the multinationals that are at the forefront in the implementation of AI-powered chatbot systems to deliver advanced customer support services in its operations. Nestlé Nigeria, which functions as part of the global food and beverage leader, implements AI technology that both speeds up customer interactions and enhances service quality (Milkey, 2024). Nestlé uses chatbots to support consumers by answering their questions and addressing product-related problems as well as offering health content about nutrition. Nestlé implements this program as one element of its worldwide initiative to deliver automation in customer service operations and reduce operational costs while improving customer satisfaction (Nestlé, 2023).

The Nestlé Health Science chatbot serves as a prime illustration of how the tool helps people obtain time-efficient, health-related information promptly. Clients gain swift, individualised answers through the chatbot, which reduces their dependence on human service representatives (Clark and Bailey, 2024). Through this AI technology, Nestlé enables continuous availability for clients and delivers faster response times while increasing user experience. Digital literacy and unreliable internet connectivity across Nigeria hinder the complete implementation of these technologies, mainly because rural regions experience restricted access to stable internet services (Dosumu, 2024). Evaluating AI use in Nigeria requires examining how Nestlé Nigeria utilises AI-powered chatbots. The research project evaluates Nestlé Nigeria's achievements along with technological difficulties through which international corporations may optimise AI solution adoption within Nigeria's particular economic infrastructure.

1.2 Research Problem

A significant research gap exists concerning AI-powered chatbots in customer service, including their effects, particularly in developing regions like Nigeria, despite their growing acceptance and global success

(Misischia, Poecze and Strauss, 2022). Research about AI chatbots within developed countries exists in abundance, but Nigeria's specific infrastructure and economic environment still require extensive study regarding the implementation of these technologies. The special characteristics of the Nigerian market, including poor digital skills, insufficient internet connectivity, and restricted technological access, could affect how customers receive and benefit from AI-powered solutions for customer support.

The implementation of AI-powered chatbots by Nestlé Nigeria, together with their advantages and obstacles, remains poorly researched in extensive studies. The current literature mainly analyses smaller businesses and individual industries within developed economies (Zatsu *et al*., 2024). Insufficient knowledge exists about how extensively multinational firms modify their AI systems to suit the particular Nigerian market environment, which presents different customer expectations alongside distinct technology readiness and operational limitations compared to developed economies. This research addresses the existing knowledge gap through its examination of customer service improvements and operational efficiency generation resulting from AI-powered chatbots in Nestlé Nigeria. A study of this multinational company aims to generate important findings about AI adoption effects for Nigerian businesses, including food and beverage firms that use AI for customer interactions and service delivery.

1.3 Research Aim

This research examines how AI-powered chatbots affect customer service management and satisfaction at Nestlé Nigeria by emphatically investigating their operational efficiency and problems alongside performance assessment.

1.4 Research Objectives

1. To evaluate the efficacy of AI-driven chatbots in enhancing customer service response times at Nestlé Nigeria.
2. To assess the precision and reliability of information supplied by AI chatbots relative to human agents at Nestlé Nigeria.
3. To evaluate the influence of AI-driven chatbots on customer satisfaction metrics within Nestlé Nigeria's customer support operations.
4. To ascertain the challenges encountered by Nestlé Nigeria in the implementation and expansion of AI-driven chatbots within its customer support operations.

1.5 Research Hypotheses

- H1: AI chatbots deployed by Nestlé Nigeria result in substantial reductions in the time customers

need to receive service support.

- H2: Chatbots operated with artificial intelligence at Nestlé Nigeria deliver information that matches or exceeds the accuracy achieved by traditional human assistance personnel.
- H3: The implementation of AI-powered chatbots by Nestlé Nigeria creates positive effects on customer satisfaction ratings.
- H4: Elevated perceptions of trust and security in AI-driven chatbots favourably affect their uptake and utilisation by customers at Nestlé Nigeria.
- H5: Increased technological readiness among customers and workers at Nestlé Nigeria substantially improves the adoption and effective use of AI-powered chatbots.

1.5.1. Conceptual Model

The conceptual framework expands upon the UTAUT model, focusing on how the four UTAUT elements influence AI-powered chatbot adoption, customer satisfaction, and operational efficiency at Nestlé Nigeria.

Independent Variables (Predictors):

- Performance Expectancy: The belief by the management of Nestlé Nigeria that AI-powered chatbots would improve customer service effectiveness.
- Effort Expectancy: The perceived simplicity of the use of AI chatbots by both customers and customer service staff at Nestlé Nigeria.
- Trust and Security: Customers' assurance in the AI chatbot's capacity to manage their data securely, deliver precise and unbiased responses, and uphold ethical transparency in its operations.
- Technology Readiness: The extent to which customers and workers at Nestlé Nigeria are technologically proficient and psychologically primed to adopt and effectively employ AI-powered chatbots.

Dependent Variables:

- Customer Satisfaction: The amount of satisfaction customers experiences when engaging with AI chatbots, including how well their inquiries are handled and the quality of the chatbot's responses.
- Chatbot Adoption: The extent to which customers and Nestlé Nigeria workers adopt and frequently use AI chatbots for customer support.

Mediating Variables:

- Service Quality Perception: The perceived quality of service from AI chatbots affects customer satisfaction and chatbot adoption.

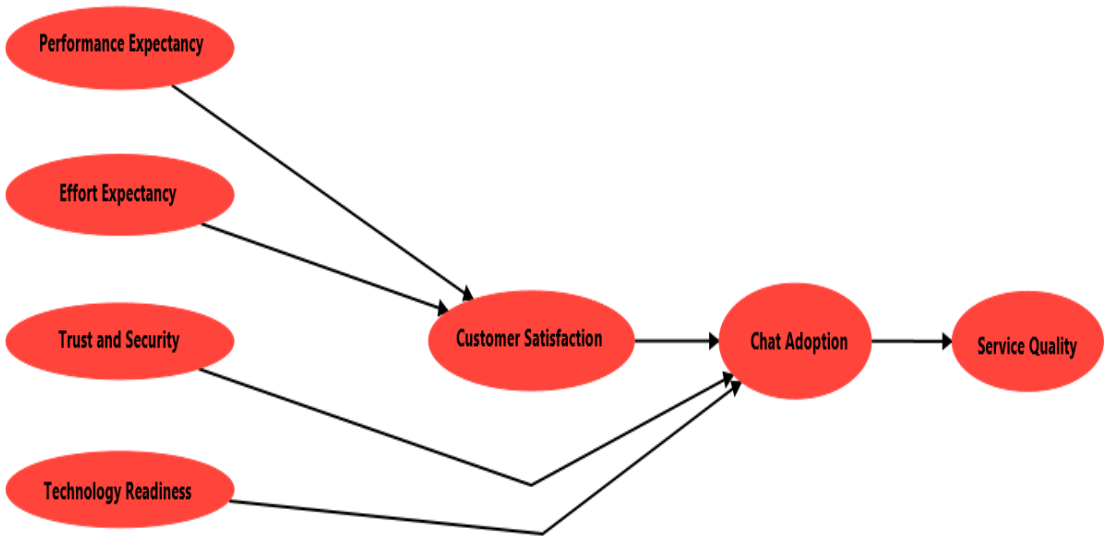

Figure 1: Conceptual Model of the Study

1.6 Research Assumptions

The research works under important preconditions which shape its investigative methods and analytical approach. The study rests on the assumption that customers and customer service managers from Nestlé Nigeria will give direct and precise feedback through surveys, which authentically express their real experiences with AI-powered chatbots. The assessment validity of researcher-generated data depends heavily on this crucial assumption. The acquired data will serve as representative evidence about Nestlé Nigeria's overall customer service interaction to help understand how well the organisation benefits from AI chatbot deployment. The operational constraints outlined in this study primarily affect the Nigerian market since they do not represent general adoption issues for other contexts or nations that implement AI chatbot solutions. The research foundation and finding applicability to Nigerian circumstances are supported by these assumptions.

1.7 Research Significance

This study holds significant value for both the academic and business communities.

Academic Contribution: The study adds to existing academic knowledge about AI usage in customer service while it specifically investigates Nigerian emerging market conditions, which receive limited attention. The study provides enhanced comprehension regarding AI-powered chatbot potential in emerging economy customer service because these markets face major technological infrastructure and cultural challenges when compared to developed markets.

Practical Contribution: The research delivers business-oriented findings about the proper implementation of AI chatbots by multinational organisations in Nigerian markets with limited development. This research provides explicit solutions for optimising customer service systems via AI integration while discussing how to resolve Nigerian business challenges, specifically those due to digital competency gaps and inadequate infrastructure.

Policy Implications: This study creates policy recommendations to help Nigerian firms, and their policymakers advance their AI technology application in customer service systems. This research will present both environmental and technological policy recommendations aimed at creating suitable AI conditions and digital market transformation support for sustainable and equitable AI adoption in Nigeria.

1.8 Research Limitations

This study admits various limitations that may affect the scope and generalizability of its findings.

Geographical Limitations: The research focused on Nestlé Nigeria alone, which results in geographical limitations that lower the transferability of findings to other locations or countries. The distinct socio-economic combined with technological, and infrastructural elements of Nigeria make it difficult to generalise research results across different markets, which have distinct environmental factors.

Data Limitations: The study depends primarily on the collected self-reported data of customers as well as customer service managers; however, this method exposes the research to potential biases. Survey participants tend to deliver feedback that is either strongly favourable or strongly unfavourable because of their background. The difficulty in obtaining detailed operational data from Nestlé Nigeria exists because of confidential agreements and proprietary protection that might limit the thorough research on the company's internal performance measures. This study did not include data on Social Influence and Facilitating Conditions due to the constraints of the original survey design. These elements, although part of the original UTAUT model, were excluded to maintain alignment with the specific research objectives focused on chatbot performance, trust, and customer satisfaction.

Technological Limitations: Technical barriers such as unstable internet connectivity and digital literacy challenges play a vital role in the Nigerian acceptance of AI chatbots because the system works best when the standard of internet connectivity is stable and citizens demonstrate proper digital skills. The problems impair AI system efficiency along with reaching target audiences, while the actual AI chatbot in developed infrastructure settings remains unclear. Due to these limitations, the research results show an improper understanding of the true potential which AI holds for developing markets.

1.9 Definition of Key Terms

AI Chatbots: The software application called AI Chatbots uses artificial intelligence (AI) to create conversations with users through automated human-like discussions. Such systems have been created to identify clients' concerns while offering rapid, customised support through both spoken and written communication (Uzoka, Cadet and Pascal, 2024).

Customer Satisfaction: The extent to which customers find happiness and fulfilment with what they receive marks the definition of Customer Satisfaction (Guido, 2015). The study uses specific examples to investigate customer reactions toward AI chatbots operating at Nestlé Nigeria based on the quality of delivered service, user experience, and processing speed.

Operational Efficiency: Operational efficiency defines the organisation's ability to deliver services together with its minimisation of resource usage (Handoyo *et al*., 2023). Nestlé Nigeria uses AI chatbots to optimise their procedures, minimise costs, and enhance service delivery at maximum speed and accuracy.

1.10 Thesis Structure

This dissertation is organised to guide the reader through a detailed investigation of AI-powered chatbots in customer support, with a focus on Nestlé Nigeria.

Chapter 1: The Introduction provides a summary of the research while introducing the study problem as well as its objectives, assumptions and significance. The research establishes its foundational direction by determining experimental parameters, emphasising why AI chatbots require assessment in this Nigerian context and specifying major research inquiries.

Chapter 2: The Literature Review synthesises theories of AI-powered chatbots by reviewing previous research to develop both theoretical foundations as well as previous studies for AI adoption in customer support functions. This chapter validates existing research by pinpointing gaps and positions its investigation within the worldwide perspective of AI technology, along with both regional eastern African and domestic Nigerian viewpoints on AI technology.

Chapter 3: This section describes the research methodology through which the study will operate, with details on survey and interview techniques for data collection. The section discusses research approaches alongside sampling methods and data assessment processes to consolidate the study's reliability and research quality.

Chapter 4: The Results and Analysis section of the research analyses findings which demonstrate how AI-

powered chatbots affect customer satisfaction and operational performance at Nestlé Nigeria. The chapter includes a complete assessment of both survey and interview data.

Chapter 5: The Discussion and Conclusion segment derives meaningful interpretations from gathered data for Nestlé Nigeria and similar international businesses operating in equivalent market environments. Further recommendations related to integrating AI chatbots accompany scholarly proposals for advancing research in this field.

1.11 Chapter Summary

This Chapter introduces the topic of the research which is the adoption of AI-based chatbots and customer service efficiency at Nestle Nigeria. It points to the fact that the use of chatbots is expanding around the world and that Nigeria is limited in the implementation of these chatbots by the lack of large infrastructure and low digital literacy levels. The chapter finds an empirical gap in knowledge that explains how multinational companies such as Nestle can apply AI tools to suit the Nigeria setting.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

The study reviews all available current information about AI-powered chatbots and their implementation in customer service operations at Nestlé Nigeria. This research develops theoretical foundations to study AI technology implementation through chatbots in Nigerian emerging markets by multinational corporations. This work examines the core technological adoption principles while studying how AI chatbots produce customer satisfaction and operational performance improvement within the expanding AI-empowered business operations. This review begins by discussing the Unified Theory of Acceptability and Use of Technology (UTAUT) because it functions as the foundational methodology for understanding chatbot acceptance and utilisation determinants. The subsequent segment analyses the worldwide spread of AI chatbots in customer service by focusing on examples from global brands like Amazon and British Airways. The research evaluates AI adoption trends which occurred in emerging markets of Africa and Nigeria, particularly focusing on unique challenges, together with regional prospects. The literature review explores these vital topics as it both fulfils research objectives and reveals deficiencies within existing literature. The review serves as an essential foundation for building a strong theoretical structure which describes determinants of AI adoption within the Nigerian market and prepares for upcoming empirical research. The study demonstrates why a proficient understanding of AI chatbots' potential effects on international corporate customer service operations at Nestlé Nigeria is crucial.

2.2 Theoretical Framework: Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh *et al*. (2003) developed the Unified Theory of Adoption and Use of Technology (UTAUT), which combines eight pre-existing technology adoption theories into an integrative model. The UTAUT model examines user technology adoption and predicts individual behaviour through the identification of essential factors that determine usage frequency after usage intent (Abrahão, Moriguchi and Andrade, 2016). The analytical model serves researchers conducting AI chatbot analyses due to its ability to create an integrated framework which explores how organisations and individuals accept technology for customer service applications. The model maintains that the adoption procedure depends heavily on four fundamental characteristics, including Performance Expectancy and Effort Expectancy as well as Social Influence and Facilitating Conditions. The combined operation of these factors shapes how users plan to use technology, along with how they truly utilise it in practice. The four core characteristics serve to describe both customer interactions with AI chatbots at Nestlé Nigeria and the methods through which the company implements

these technological solutions (Anditama and Hidayanto, 2024).

Performance Expectancy

Performance Expectancy shows the extent to which people believe technological tools would enhance their operational output or advance their goal attainment. The measure of performance expectancy in AI-based chatbots addresses how efficiently the program supports customer service activities (Duong *et al*., 2023). Customers and customer care staff at Nestlé Nigeria will find value in chatbots that deliver rapid response times alongside the capability to deal with high client query numbers and provide superior service quality. The successful development of AI chatbots enables significant enhancement to customer service performance through their ability to provide speedy and precise responses to client demands (Suleiman *et al*., 2025). The implementation leads to satisfied clients who contribute to greater perceived performance assessments of the technology. The level of performance expectancy depends directly on the particular tasks which a built chatbot should perform. The execution of basic questions or frequently asked inquiries exceeds more complex custom support cases because they fulfil their respective performance targets (Uzoka, Cadet and Pascal, 2024). The execution speed of AI chatbots creates doubts about their ability to handle complex client inquiries without human empathy, thus leading to decreased customer satisfaction among those needing individualised attention (Singh and Singh, 2024).

Effort Expectancy

The Ease of Human-Technology Interaction is described by Effort Expectancy as how users perceive their interaction's simplicity. User acceptability in AI-powered chatbots depends directly on the ease of use as understood through the construct (Chen, Fan and Azam, 2024). The difficulty of contacting the chatbot or an unfriendly interface will lead to lowered customer engagement willingness toward this technology. Nestlé Nigeria needs clients to experience complete success with their AI chatbot system because it determines platform uptake. The interface for the chatbot needs to provide an easily navigable path that customers can follow while interacting with it (Data Council, 2025). The effort expectancy establishes critical importance for Nigerian consumers because many of them show limited digital knowledge abilities. The success of the chatbot heavily depends on providing easy access from multiple platforms and operating it efficiently with low learning barriers for users. Ease of use remains essential, but the multiple levels of digital literacy across Nigeria create the potential for different customer interaction results (Nyongesa, Omieno and Otanga, 2020). Regardless of interface simplicity, people who lack digital competence will encounter difficulties using AI systems. This could impede the broad adoption of chatbots among some customer segments (Huseynov, 2023).

Social Influence

The extent to which someone incorporates a specific technology based on what important social figures, including classmates and family members and colleagues, think they should use becomes known as Social Influence. The opinion transformation of customers about interacting with AI chatbots depends heavily on social influence in this scenario. AI technology adoption norms in Nigeria experience influence from cultural factors along with public views about technology and how much support the technology finds inside workplaces (Menon and Shilpa, 2023). Nestlé Nigeria can establish AI chatbot usage as standard practice by promoting the technology through workplace communications and providing employees with monetary and non-monetary benefits for its utilisation. Consumers can adopt the chatbot more readily because of observing other users using it, thus enhancing the technology's value perception (Kaur, 2023). Social influences establish challenges that hinder companies from adopting chatbots in their operations. Societies that demonstrate high confidence in their human operators over machine systems tend to resist the adoption of AI-powered chatbots regardless of outside factors. Some individuals who value human interactions above machine-based interactions may develop more doubts about AI-driven connections than positive social impacts (Pillai and Sivathanu, 2020).

Facilitating Conditions

The availability of needed resources and infrastructures forms the basis of facilitating conditions that enable technology usage. The implementation of AI chatbots in Nigeria depends on internet connectivity, together with advanced technology systems and digital training capacity. Success factors such as these will determine whether AI-powered chatbots can be introduced and continuously operated by Nestlé Nigeria (Timothy *et al*., 2024). The inadequate presence of internet services in Nigerian areas would lower AI chatbot performance, which makes real-time client interactions with the system challenging.

A ban on mobile phones or internet access across rural areas would diminish the possible number of users that AI chatbots could serve. The scalability and endurance of AI-powered solutions like chatbots rely heavily on favourable conditions in Nigeria’s developing internet infrastructure (Ade-Ibijola and Okonkwo, 2023). Technical support, along with training resources available to users, constitutes part of the enabling conditions. The staff at Nestlé Nigeria must learn two essential skills: operating chatbots and resolving possible problems (Ntia Usukuma, 2024). The system ensures complete accessibility of productive support to clients as well as service workers who need technology assistance for smooth operations. Developing markets such as Nigeria face frequent limitations in adopting positive conditions, especially in the adoption of technology, with restrictions in both the availability of resources and internet literacy development. Major improvements in infrastructure and internet education have failed to eliminate technology

inequalities between areas, which impede universal AI implementation in impoverished regions (Kala, 2023).

The UTAUT model proves valuable to study AI chatbot adoption for customer service because it contains essential components which explain user adoption behaviour and acceptance patterns. The complete model explains deployment barriers and benefits of AI technology, including chatbots, when focusing on performance expectancy and effort expectancy and social impact and favourable aspects, especially in developing countries like Nigeria (Marikyan and Papagiannidis, 2021). The goals of this research match the UTAUT framework because it encourages an in-depth investigation into various factors affecting AI-powered chatbot acceptability and usage at Nestlé Nigeria. The model includes evaluation of both personal customer conduct along organisational infrastructure elements that focus on digital proficiency while explaining Nigeria's special challenges.

2.3 AI in Customer Service

2.3.1. The Rise of AI in Customer Service

AI-powered technology and chatbots have revolutionised customer service delivery for various international industries. Rapid personalised service demands have increased, which drives firms to utilise AI to deliver customer requirements while controlling costs. Larger firms utilise AI chatbots to manage customer queries through automatic response systems, which boost their service efficiency for wide customer bases. The primary reason AI entered the customer service field is its ability to maintain continuous service while processing multiple requests at once (Hariguna and Ruangkanjanases, 2024). Through their AI chatbots, Amazon and Google deliver quick answers to customers who need immediate client service assistance. Organisations benefit from AI-powered solutions because they preserve high service quality, especially at times of heavy volume, which exceeds human agent capacity (Uzoka, Cadet and Pascal, 2024). Every business benefit from AI chatbots because the software enables staff to focus on essential tasks by performing automatic responses for standard inquiries and product information. Technology enables customer service agents to allocate their attention toward complex problems needing human assessment, thus improving interaction quality (Uzoka, Cadet and Pascal, 2024). Organisations keep expressing worry about the possible elimination of human empathy due to AI customer service advancements, despite its evident advantages. Chatbots operated by AI encounter limitations when attempting to interact with clients through emotional situations and do not deliver empathy at the same level as human agents. Companies need to strike a strategic alliance between automated systems and personalised human services to achieve maximum satisfaction for their customers (Laoudai, 2025).

2.3.2. AI Chatbots and Their Functionality

Chatbots utilising Natural Language Processing (NLP) technology and Machine Learning (ML) technology process human language to deliver responses. Through NLP technology, chatbots analyse user input and then create suitable responses which match the context (Huseynov, 2023).

The implementation of ML algorithms empowers chatbots to enhance their performance because they learn from their previous dialogues with users. The two main AI chatbot systems deployed for customer service include rule-based chatbots and AI-driven conversational agents. Rule-based chatbots work with pre-programmed answers to solve questions only. These chatbots function best for basic requirements where they need to respond to frequently asked questions and supply product details. The advanced capabilities of AI-driven conversational agents enable them to conduct natural, human-like discussions (Church, 2024). Machine learning powers chatbots at present, which enables them to learn and adjust their responses for new uses. AI chatbots unite various platforms, including websites and mobile apps, and messaging services such as WhatsApp and Facebook Messenger to give customers enhanced accessibility (Church, 2024). System accessibility plays an essential role since modern customers want to use the communication platforms of their choice when connecting with businesses. Current challenges with integrating AI chatbots exist because these systems struggle to work properly with established customer support systems and platforms. Businesses need to enable their chatbot solutions to connect effortlessly with Customer Relationship Management (CRM) systems and internal applications for delivering complete customer support experiences (Khneyzer, Boustany and Dagher, 2024).

2.3.3. Impact on Customer Satisfaction and Operational Efficiency

AI chatbots deliver an enormous effect across customer satisfaction levels, together with operational performance outcomes. Chatbots provide immediate assistance to customers who avoid waiting in long lines to solve their issues. AI chatbots possess short response times, which particularly serve retail and telecommunications businesses that need to address customers quickly (Vergaray, Peralta Robles and Salazar Jiménez, 2023). AI chatbots use client data alongside previous client interactions to customise their responses in a personalised way.

Companies use chatbots to customise their offerings by drawing from customers purchasing records or by providing discrete technical support services. The high level of product adaptability in chatbots creates superior customer experiences that drive satisfaction levels and customer retention. AI chatbots allow businesses to decrease operational costs through process automation, which enables human personnel to dedicate time to advanced issues. Organisations benefit from better resource distribution that reduces their

requirement for extensive customer service teams (Misischia, Poecze and Strauss, 2022). The scalability of chatbots enables their use to manage higher customer demand during busy times such as product sales and special holidays. The increased operational efficiency through AI chatbots remains a concern for client relations since some customers desire direct human contact. The frustration of clients who face unresolved problems with chatbots ends in negative feedback about company service quality (Huseynov, 2023).

2.3.4. AI Chatbots in Enhancing Customer Engagement

The combination of operational efficiency improvements from AI chatbots contributes to their essential role in strengthening client communication. The technology allows personalised time-sensitive dialogues, which help customers feel connected to their firm or company. AI chatbots provide enhanced customer engagement when they interact with customers through personalised recommendations and targeted promotions, and relevant material exposition. The fundamental characteristic of AI chatbots includes non-stop availability, which enables clients to always seek assistance (Adam, Wessel and Benlian, 2021). Multinational corporations such as Nestlé Nigeria benefit strongly from this function, which enables customer support 24/7 since their client base spans different time zones. Organisations can utilise AI chatbots to obtain significant data from their customers. Organisations gain crucial customer insights about preferences and behaviour patterns, as well as pain points, through their observation of client interactions. This data can be utilised to improve the chatbot's performance, customise marketing campaigns, and optimise customer care operations (Rafalski, 2023). While AI chatbots boost engagement, enterprises must be wary of privacy risks. As chatbots acquire and process sensitive client data, enterprises must ensure that they comply with data protection requirements and preserve the trust of their customers (Hasal *et al*., 2021).

2.4. Global Adoption of AI Chatbots in Other Multinational Companies

The worldwide usage of AI-enabled chatbots experienced rapid growth because organisations from around the world began to include these technologies in their customer service divisions. Organisations view AI chatbots as a desirable solution to enhance operational efficiency while reducing costs, while satisfying their customers better, thus making them an appealing choice to simplify processes.

2.4.1. Case Studies of Multinational Companies

Amazon uses AI chatbots as part of its long-standing venture to enhance customer support services at its global e-commerce operations. Amazon's voice-activated artificial intelligence assistant, named Alexa, now provides customer support through various devices that help people track orders and ask questions and obtain recommendations, according to Manasa and Devi (2022). Simple questions managed by Alexa led to decreased human customer service staff needs, thus providing both faster service and reduced costs to

customers. The AI system at Amazon responds to billions of customer requests per year from its current 100 million international Alexa device sales base (Amazon, 2022).

Google uses AI chatbots for its operations by deploying Google Assistant as its primary tool. The voice-driven assistant supports customer requests and creates connections between Google Home products and Google Maps and Gmail that let users organise tasks and reminders while obtaining quick information. Google's chatbot technology delivers precise, speedy 24-hour support that improves customer satisfaction by providing high-quality service. Google reports that millions of people regularly use their virtual assistant to obtain detailed responses through different platforms and various language options (Sandeep, 2024).

British Airways adopts AI chatbots for its customer support activities as one of the leading international airlines. The BA Chatbot system provides prompt support to travellers regarding their flight bookings and cancellations, and flight information requests. According to British Airways, the adoption of AI chatbots has lowered call centre volumes by 30%, enabling human agents to focus on more complicated issues. The company believes that AI chatbots have not only helped operational efficiency but also improved customer happiness by giving prompt responses and lowering wait times (Tran, 2025).

These global businesses achieve profit from reduced costs through the integration of AI chatbots. Firms decrease staff costs through automated customer query processing, which enables them to reallocate service staff members. AI solutions provide benefits of operational speed through shorter response times, which enables organisations to support growth in customer request volume (Susanto and Khaq, 2024). The high operational efficiency achieved by multinational organisations becomes essential when they manage an international clientele base. AI chatbots lead to boosting customer happiness through their ability to provide customised, rapid answers. The need for quick customer service and constant organisation availability which match customer expectations has led to AI chatbots as solutions that provide constant service across all hours and instant standardised answer capabilities to fundamental enquiries (Vashishth *et al*., 2024).

2.4.2. Challenges in AI Chatbot Adoption for Multinational Companies

The deployment of AI-powered chatbots represents major challenges when implemented within international business enterprises. The obstacles to AI chatbot implementation split into technological and cultural, and operational dimensions, while showing significant differences across different areas and markets.

The main obstruction to AI chatbot implementation stems from the insufficient development of technological infrastructure. The operational base of multinational organisations spreads across multiple international locations, which have different amounts of digital infrastructure. AI-powered systems require

proper functioning of data storage together with computing capacity and internet access, but these conditions do not exist in countries with underdeveloped technical ecosystems (Aderibigbe *et al*., 2023). The International Telecommunication Union (ITU) survey shows that dependable internet services remain out of reach for more than 33% of the global population, which presents major challenges for AI implementation in these areas (United Nations, 2021). The main technological obstacle arises from merging AI chatbots with existing operational structures. For global firms with sophisticated customer service infrastructures, the smooth integration of AI chatbots into their CRM systems, knowledge bases, and communication channels might be problematic. Without adequate integration, AI chatbots may fail to obtain important customer data or give personalised responses, limiting their efficacy (Thanyawatpornkul, 2024)

Cultural Challenges: AI chatbot adoption encounters essential limitations because of cultural obstacles between users. Multinational enterprises need to examine how countries in their market network perceive automation alongside AI technologies in their decision-making processes. The customer base in certain countries strongly prefers speaking to human customer service representatives, especially for complex and sensitive matters (Ade-Ibijola and Okonkwo, 2023). Nigerian customers exhibit a preference for talking with human representatives through personal communication because their culture upholds human interaction in business deals (Inyang, 2011). The adoption of AI systems faces strong resistance for automaton from customers since traditional customer service practices strongly influence consumer behaviour throughout emerging countries (Zahidi *et al*., 2024; Binns *et al*., 2024).

Global organisations face operational obstacles as well as technological and cultural barriers during their AI chatbot implementation process. Organisations located in countries lacking digital training programs face major issues when it comes to preparing personnel to collaborate with AI systems (Morandini *et al*., 2023). UNESCO (2019) suggests that underdeveloped countries face a digital skills shortage when it comes to managing complex technology, which includes AI-powered systems, because only 30% of adults possess sufficient competence to approach these systems. The absence of digital literacy stands as a major obstacle for implementing AI chatbots smoothly because it creates resistance from staff members who sense their jobs are threatened. International organisations must understand and cope with legal restrictions that exist during the deployment of AI systems. Organisations need to guarantee their AI systems follow native privacy requirements between different territories (Rodrigues, 2020). AI chatbots must navigate strict data handling rules under the GDPR and the Nigerian Data Protection Act since these laws set strong requirements for acquiring and managing customer data (Hoofnagle, Sloot and Borgesius, 2019).

Organisational Resistance: International firms face significant obstacles to adopting AI chatbots due to the

resistance that organisations show against technical changes. The automation of regular tasks in customer service positions makes employees worry about losing their jobs. McKinsey indicates that technological advancements will eliminate 15% of consumer sector jobs in the coming decade (Mayer *et al*., 2025). Organisations must create innovative work environments which train staff members through adoption and participation to defeat employee resistance toward change. Some professionals display AI resistance in their departments, yet others view AI chatbots as supplementary tools to enhance their work rather than take their place. Facilitating manual tasks through automation allows agents to handle complex tasks, leading to an improvement in both work performance and customer satisfaction (Zhang, Følstad and Bjørkli, 2021).

2.5 AI in Emerging Markets

2.5.1. AI Adoption in Africa and Nigeria

Artificial Intelligence (AI) activities in Africa are rapidly growing at present, while Nigeria stands as a top continent leader in this digital revolution. AI technologies serve as primary economic growth elements in line with the African Union's Digital Transformation Strategy (2024) by providing wide-ranging developmental opportunities for banking and customer service sectors, besides telecommunications and agriculture. Nigeria currently experiences digital transformation because it holds the position of Africa's largest economy, and organisations use AI to achieve operational efficiency and boost customer engagement (African Union, 2020). The commercial sector of Nigeria has seen substantial growth in AI adoption over the previous years as businesses use AI technology to automate processes at reduced costs (Amaugo, 2024).

The National Information Technology Development Agency (NITDA) of Nigeria established policies to support AI development by implementing the National Artificial Intelligence Policy (2022) for advancing AI research and implementation in various industrial sectors. The strategy recognises Artificial Intelligence as a foundational technology to establish digital economic growth because it will significantly boost GDP development during the upcoming years (NITDA, 2025). The full potential of AI adoption in Nigeria remains unattained because multiple critical issues need resolution. Infrastructure constitutes the foremost obstacle blocking AI technologies from achieving mainstream use because many applications need reliable infrastructure. AI implementation suffers from poor internet connectivity as well as unreliable electrical supply and restricted access to high-performance computing resources in particular geographical locations (Olufemi Kazeem Oluoje, 2025). The World Bank reports that 40% of Nigeria's rural population faces internet connection difficulties because this blocks their opportunity to operate AI-driven solutions effectively. The lack of digital literacy stands as an extra barrier preventing Nigeria from adopting AI technology (Tchuisser *et al*., 2023). The UNESCO research shows there has been growth in expanding

internet access, but only thirty per cent of Nigerians manage to acquire essential digital skills needed to navigate advanced AI systems, according to Ono *et al*. (2024). AI technology faces restricted market potential among users because many employees lack acceptable digital competence, mainly in professional fields that address customers.

2.5.2. AI Chatbots in Key Nigerian Industries

AI chatbots have become increasingly popular throughout Nigeria during the past few years, while proving essential for banking sectors alongside telecommunications and retail operations. The sectors present ideal conditions for AI chatbot implementation because they process numerous clients and demand continuous customer support.

The banking sector in Nigeria relies on AI chatbots to supply automated customer service through financial institutions. GTBank, along with Access Bank, employ AI-based chatbots for addressing standard customer questions, which include queries about account balances and transaction histories and bill payment operations. Financial institutions utilise these chatbots to deliver quick solutions, which substantially decrease customer waiting times and generate higher satisfaction levels (Mogaji, 2020). The GTBank chatbot service, launched in 2022, has served millions of customer requests through its system, which responds within thirty seconds or less. The automated banking system running under the name GTAssistant quickly retrieves banking data while simultaneously handling diverse requests about accounts, together with request monitoring. The banking system at GTBank now includes video banking as well as support through WhatsApp as the company explores means to improve customer support access (Guaranty Trust Holding, 2020).

AI chatbots operate in the telecoms sector within MTN Nigeria and Airtel Nigeria to improve customer support operations. Customers can use these automated chat solutions for standard service requests like data balance reporting and prepaid recharge verification, and network service activation. By implementing Zigi Chatbot, MTN offers immediate support capabilities, which reduces phone calls in their contact centres while improving user engagement (Adewumi, 2024). According to Deloitte (2024), AI chatbots within Nigerian telecoms show a 25% increase in user engagement and generate substantial cost reductions (Deloitte, 2023).

Jumia and Konga, alongside other retail companies, use AI chatbot technology to address client questions about orders and products and marketing promotions. AI technologies help these businesses sustain massive customer inquiry volumes throughout sales events, though they do not require significant employee volume increases (Taiwo, 2024). AI technology has improved consumer interactions through its delivery of quick,

accurate answers, especially in times when customer demand is elevated. While the adoption of AI chatbots in various areas has been favourable, it has not been without hurdles. These organisations nevertheless face concerns such as internet access problems in distant places, where clients may experience delays or pauses in service. Moreover, customer trust in AI-driven solutions remains a big obstacle, as many Nigerian consumers are still afraid of communicating with automated systems instead of human agents (Ade-Ibijola and Okonkwo, 2023).

2.5.3 Opportunities and Challenges for AI in Nigeria

The impact of AI technology on customer service operations throughout Nigeria continues to grow substantially with the development of the digital economy. Businesses should implement AI chatbots as a critical service tool to meet rising 24/7 customer care requirements as the Nigerian population gains access to smartphones, coupled with internet connectivity. AI-driven solutions enable Nigerian firms to reduce operational costs by automation common processes, which allows their staff members to handle sophisticated customer care responsibilities (Huseynov, 2023). AI chatbots enable businesses to enhance their customised service deals for customers. High-volume data analysis combined with machine-learning algorithms enables businesses to deliver customised recommendations and special promotions and fast problem resolution to their clients through their chatbots (Inavolu, 2024). AI chatbots analyse previous buyer data to generate recommendations that would interest customers, thereby building stronger customer relationships.

Limited deployment of mainstream AI solutions exists in Nigeria because of different specific barriers. Internet connectivity problems are among the foremost obstacles faced specifically by people living in rural areas with inadequate infrastructure. The availability of sufficient internet speeds in urban areas fails to maintain optimal conditions for AI-powered chatbot operations as described by Iwok Iniobong (2025). The Nigerian Communications Commission (2024) study showed that less than sixty per cent of Nigerians used 4G internet, despite how it matters for AI system achievement.

Digital literacy continues to act as an essential barrier to progress. The digital usage trend is increasing in Nigerian urban areas, yet a substantial percentage of people who reside in rural areas still maintain no digital connection. DataReportal (2024) reports that digital platform engagement stands at 48% for Nigerians because substantial sections lack understanding of AI and related modern technologies (DataReportal, 2024). This digital gap limits the reach of AI chatbots, as many consumers may struggle to communicate with these systems efficiently. Additionally, there is a lack of trust in AI systems in various areas of society. Many Nigerians are still dubious of data privacy and the security threats linked with AI technologies. For businesses wishing to implement AI chatbots, it is vital to develop consumer trust by ensuring that customer

data is managed securely and openly.

2.6 AI Chatbot Adoption at Nestlé Nigeria

2.6.1 Nestlé Nigeria's AI Adoption

In 2016, Nestlé initiated its international chatbot operations following the advent of artificial intelligence, which included machine learning (ML) and natural language processing (NLP). Between its launch in 2016 and now, the company has built and launched more than twenty chatbots around the world while developing fifteen new projects. The chatbots assist customers through various duties, ranging from pre-purchase help to recipe recommendations and product problem support, and customer service needs. Nestlé dedicates its AI efforts to three essential business objectives, which include improving operational performance and business digitisation and working toward sustainability (Milkey, 2024). As a part of the Nestlé Nigeria regional branch, the company functions under global objectives but tackles specific local operational barriers. Nestlé Nigeria uses AI chatbots for standard consumer inquiries to enhance service quality and reduce staff workload in their Nigerian operations. The deployment of chatbots exists across multiple platforms, which include Facebook Messenger and WhatsApp, to meet anticipated customer needs for instant messaging networks. Nestlé Nigeria runs its bots, and bots operate 24 hours per day, which improves consumer contact despite Nigerian traditional service hour restrictions (Nlebem, 2019).

AI chatbots at Nestlé Nigeria exceed traditional customer service requirements because they serve additional functions for the company. The corporation uses AI technology to optimise inventory management and forecast market demand, in addition to other backend operations. Nestlé collaborated with Coupa and SAS Analytics tools to achieve inventory reduction of 14–20%, resulting in millions of savings. The algorithms used for predicting supply chain operations feed directly into the performance elements of customer-facing bots. Data reliability ensures that the availability of information provided by chatbots matches actual real-time logistics data (Milkey, 2024). The internal LLM platform NesGPT at Nestlé helps both knowledge sharing between employees and increases company-wide productivity. NesGPT technology mostly operates in developed nations, yet its achievement impacts the development and improvement of chatbot systems across all global operations, including the Nigerian division. It highlights how large-scale organisations may utilise generative AI to enable customer-facing innovations (HR Grapevine USA, 2024). However, despite these developments, there is insufficient publicly available documentation on the particular deployment metrics or customer adoption levels of AI chatbots inside Nestlé Nigeria. This highlights the necessity for empirical examination and context-specific insights, which this study intends to provide.

2.6.2 Challenges Faced by Nestlé Nigeria

The implementation of AI technologies faces specific challenges for Nestlé Nigeria as an international leader compared to its affluent economy competitors. Digital infrastructure serves as an essential obstacle for the organisation. The irregular internet service and weak broadband coverage, along with constant power failures across Nigeria, make it difficult for both users and bots to access chatbots effectively. Under the Facilitating Condition from UTAUT, external technical and environmental elements create problems for technology adoption.

Users who are not digitally proficient face difficulties when it comes to interaction with technology. Some users within the Nigerian population fail to easily engage the AI bots since they lack experience exploring self-service systems, which Western consumers use regularly. The Effort Expectancy concept from UTAUT directly links with this situation. Users who encounter obstacles using chatbots are likely to resist implementation even though technical capabilities are present. Security issues, along with trustworthiness, arise as additional concerns. Users hesitate to give their personal information to AI-powered interfaces because they worry about data misuse, specifically in an emerging regulatory environment which establishes data protection policies. The independent variable named Trust and Security appears in this study's conceptual model because it strongly determines the adoption level for digital service technology. Nestlé Nigeria needs to overcome workforce training issues and system operation conflicts to improve its internal functioning (Etheridge, 2024). Beyond relieving agents from excessive workload, AI chatbots expect workers to undergo training to properly address escalated cases and understand AI system responses. When older systems do not align correctly with AI technology, it creates potential problems that lead to delayed answer generation and inaccuracies (Uzoka, Cadet and Pascal, 2024).

2.6.3 Outcomes of AI Chatbot Implementation at Nestlé Nigeria

Nestlé Nigeria has reached substantial progress in multiple performance indicators that follow the UTAUT paradigm, including both customer response time improvements and chatbot dependability, as well as user satisfaction results. Chatbots improve perceived service quality through their immediate response capability to popular customer inquiries, along with the provision of details about product nutrition and usage instructions. Embodiments of chatbots deliver operational improvements for internal company performance. The automation of repetitive operations, together with the elimination of human interaction for standard questions, allows Nestlé Nigeria to reassign personnel to address complex service requirements. The organisation moves resources to achieve expense reduction while preserving service quality standards through its worldwide strategy.

2.7 Limitations

Chatbots provide limited competence when handling complex emotional or advanced requests from users. Customers in Nigeria and other countries choose human operator support when dealing with complex issues because their customer service expectations prioritise personal conversation. User measures, including interaction processing and intent assessment and sentiment recognition, continue to advance in their development processes. Nestlé acknowledges that stronger post-launch feedback mechanisms and real-time performance tracking systems should be developed to overcome existing gaps which affect their Nigerian business operations. Relationships between Nestlé Nigeria and its AI investments need perpetual development through machine learning feedback and regional language understanding of Nigerian Pidgin and dialects, alongside performance enhancement tools. Such improvements in the system will produce better user experiences that drive higher user adoption rates. The AI chatbot implementation by Nestlé Nigeria presents both progressive goals and follows the worldwide AI development path. The corporation achieved benefits from better customer service and price reductions, although local barriers such as inadequate infrastructure and low trust and limited literacy levels interfere with total success.

2.8 Literature Gaps

AI-powered chatbots as a customer service implementation technique have gained worldwide recognition by multinational organisations, which seek to enhance their customer satisfaction along with operational efficiency and cost-effectiveness. The literature shows increased attention but also demonstrates several major knowledge gaps that are particularly evident in the Nigerian emerging economy context. The study of Nestlé Nigeria proves especially challenging because new technology implementation operates within intricate socio-technical settings.

Research about AI chatbot implementation in emerging markets remains insufficient to properly understand this field. Research on the topic mostly concentrates on established economies of Europe and the United States, and parts of Asia besides the UK. A combination of excellent internet speed with strong digital infrastructure alongside advanced digital proficiency ensures perfect conditions for chatbot adoption (Khneyzer, Boustany and Dagher, 2024). Such enabling environments are not prevalent in Nigeria or similar countries because they face recurring energy deficiencies and limited network availability (Essien *et al*., 2024). Scholarly research should focus more on the importance of adjusting chatbot interfaces and integrating with WhatsApp and supporting regional languages because these measures boost effectiveness despite being poorly addressed. Current research fails to explain how AI solutions operate and why they receive feedback from environments with limited technologies and diverse social cultures.

International corporations doing business in Nigeria lack detailed research about their use of AI chatbots in their operations. The implementation of chatbots within Nigerian local SMEs and the banking sector has received attention from various studies, but research about big business solutions like Nestlé remains scarce (Timothy *et al*., 2024). The operating complexity of MNCs exists at two levels because they must synchronise their global technical innovation norms with local customer trends and cultural differences, and regulatory requirements (Anagbogu, 2025). Nestlé Nigeria, for instance, employs worldwide AI solutions like NesGPT and incorporates customer-facing chatbots for real-time query answering. However, there is a paucity of research evidence on how Nestlé customises these technologies to suit the Nigerian market, teaches its workers, or adapts to local digital readiness levels. This paper addresses that gap by presenting an actual evaluation of how a multinational implements AI technologies in a developing market without compromising operational performance or customer delight.

Studies of AI customer service technology adoption largely fail to apply theoretical frameworks during their analysis. Research currently available lacks comprehensive tools which would explain the successful implementation of technologies within different areas. The sub-Saharan African region lacks extensive utilisation of the proven Unified Theory of Acceptance and Use of Technology (UTAUT) within AI chatbot research. Researchers use the UTAUT framework to evaluate six key variables which influence the adoption of chatbots among consumers and their satisfaction levels through Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Trust and Security, and Technology Readiness (Chen, Fan and Azam, 2024). This research embeds the model in the Nigerian environment to offer a detailed explanation of consumer AI technology acceptance patterns in constrained settings.

There is limited research on user-centred factors that affect trust in AI systems, their perceived usefulness and ease of use and social views about chatbot deployment in public-facing roles, despite widespread recognition of operational AI chatbot benefits. Users in the Nigerian digital sphere tend to show distrust toward non-human service agents who process sensitive requests because digital trust remains under development. AI adoption models lack sufficient measurements of engagement levels and retention percentage, and human-AI interaction quality, which leads to undesired effects on these variables (Kaur, 2023). This research extends psychological and infrastructural preparedness knowledge for AI implementations through the additional inclusion of Trust and Security and Technology preparedness elements to the UTAUT model.

This analysis fills the identified gaps by conducting a theory-based investigation that incorporates specific case research and local ground truth. The study analyses the real difficulties faced by Nestlé Nigeria to determine the challenges multinationals experience when deploying AI chatbots in Nigeria's unique cultural

and infrastructure context, with changing customer expectations. Additionally, the application of the UTAUT framework augmented with trust and technological readiness dimensions enables a granular examination of the parameters under which AI-powered chatbots are successfully incorporated. The study intends to inform both intellectual debate and practical decision-making by contributing results that can guide similar initiatives in other emerging markets.

2.9 Chapter Summary

This Chapter examines literature on the adoption of AI-powered chatbots based on the UTAUT model with regard to performance expectancy, effort expectancy, trust and security, and technology readiness. Performance expectancy has been frequently quoted as an adoption driving force whereas satisfaction concerns of trust and usability mostly lead to dissatisfaction at low literacy situations. The aspect of perceived service quality proves to be an essential moderator in the relationship between chatbot utilization and satisfaction. Another theme realized in the literature is that UTAUT should also apply to service oriented cultures and cross-cultural settings.

CHAPTER THREE

3.0. RESEARCH METHODOLOGY

3.1 Introduction

The strategies used to investigate the role of AI in customer service at global organisations are explained through the case study of Nestlé Nigeria. The design of the study enables assessment of how using chatbots affects customer satisfaction, how services are delivered and how smoothly operations are carried out. It details the study's main ideas, the ways data will be collected, how samples will be selected, how data will be gathered and how it will be analysed. All chosen methods are justified by the research questions and hypotheses set out in the first chapter. This study uses quantitative methods, based on the positivist paradigm and a deductive strategy, to validate its hypotheses by using data. The validity of the approach improves by applying Partial Least Squares Structural Equation Modelling (PLS-SEM) to examine the relationships between many unobservable factors in UTAUT. Adopting this approach supports strong statistics and predictions, which help explore the details of interactions and customer experiences at Nestlé Nigeria.

3.2 Research Philosophy

This research is guided by a positivist approach, which sees reality as something objective, visible and measurable. As a result, this paradigm provides knowledge from studying evidence and thinking logically, so it is perfect for research on finding patterns and testing theories (Park, Konge, and Artino, 2019). This approach calls for data to be collected through numbers so that connections between variables can be studied neutrally. The hypothesis testing in this study is done using a conceptual framework based on the Unified Theory of Acceptance and Use of Technology, which examines performance expectancy, trust and readiness to use new technology. This perspective encourages people to study hypotheses by means. In addition, this research uses PLS-SEM, a model that suits the positivist perspective because it helps quantify hidden characteristics and estimate future changes in the system. Because it reduces researcher influence and encourages replication, positivism offers a strong base for the research on AI chatbot success at Nestlé Nigeria.

3.3 Research Approach and Design

This research applies the deductive approach suitable for studying hypotheses based on previous theories with the use of real observations (Saunders *et al*., 2019). The positivist philosophy depends on the deductive approach to organisation because it helps identify relationships between variables. In this research,

description is followed by an explanation, focusing on describing user actions using AI chatbots and afterwards inspecting how trust, usability and user satisfaction affect their adoption. Data will be collected from AI chatbot users through an online quantitative survey. Because of this approach, organisations can gather data from a wide population and learn about adoption trends and customer satisfaction (Lim, 2024). Using the objectives and basis of the Unified Theory of Acceptance and Use of Technology (UTAUT), the study's design also involves Partial Least Squares Structural Equation Modelling (PLS-SEM) through SmartPLS 4. Modelling of complicated sets of latent variables is best done with this method, which is especially suitable for beginning research with medium-sized samples. PLS-SEM can analyse both models at the same time, making it more effective than ordinary correlation or regression. The research design proves very valuable in Nigeria because few empirical studies have looked at AI-driven customer service solutions. Using this approach, the study makes suggestions for both science and for driving higher engagement in digital marketing between businesses and their customers in emerging countries.

3.4 Target Population and Sampling Technique

The analysis is carried out on Nigerian Nestlé customers who encountered Nestlé's AI-driven chatbot using WhatsApp, the website or social media platforms. These specialists are the best to determine the effectiveness, accessibility and effects of the chatbot on customer satisfaction. This study chose purposive sampling to ensure that all participants have experience with the subject matter. By choosing purposive sampling, the researcher may decide who to include in the study, depending on what they already know and how they interact with the research question (Bisht, 2024). To be eligible, participants had to be at least 18 years old, have internet access and have chatted with Nestlé Nigeria's chatbot within the last six months. Individuals lacking chatbot contact or a failed screen response were not included in the study. Following the data analysis strategy, 120 valid responses were expected to be collected through Partial Least Squares Structural Equation Modelling (PLS-SEM). PLS-SEM does not need a large sample size and may be used appropriately with 100-200 cases, according to Hair *et al*. (2021). Because some participants did not complete all the questions, a total of 200 questionnaires were delivered. It became easy to find competent participants, as Nestlé used online platforms, WhatsApp broadcasts and ads on social media. The method allowed suitable coverage of the customers and kept the sample honest for structural equation modelling.

3.5 Data Collection Instrument

Data were collected using a self-administered questionnaire developed with Google Forms. The instrument was built using the principles of the Unified Theory of Acceptance and Use of Technology (UTAUT), which influenced both the study's design and the development of its items. The five sequential sections of the questionnaire were set up to match the research aims and hypotheses. To make sure only the right people

took part in the survey, two questions regarding the chatbot were used first. Information about participants' age, education level and skills in AI was collected in Section B. Both technology uptake and trust have been discovered to be influenced by these variables (Nyongesa *et al*., 2020). The third section examined the main independent constructs, including performance expectancy, effort expectancy and trust. Respondents were instructed to answer a set of statements using a 5-point Likert scale that ranged from Strongly Disagree to Strongly Agree. Researchers use Likert-type items in technology adoption studies because they can correctly capture people's opinions about technology (Boone and Boone, 2012). Section D discussed the dependent variables, which were user satisfaction and intention to make use of the chatbot again. The response options for each item were set up on Likert scales for easy and accurate use in structural equation modelling. In Section E, two open-ended questions prompted people to talk about the issues they faced and recommend improvements for chatbots. Though the main part of the study is statistical, the optional written feedback gave more depth to interpreting the data.

All items in Sections C and D were created as reflecting indicators, ideal for use in Partial Least Squares Structural Equation Modelling (PLS-SEM). A pilot test involving 10 participants from the target group was undertaken to evaluate content validity and clarity. Feedback gathered during this stage led to refinements in wording, structure, and sequencing. Ethical precautions were included in the survey, including an introductory consent statement guaranteeing participants' confidentiality, anonymity, and voluntary participation. To prevent prejudice, questions were worded neutrally, given in random order, and arranged to avoid leading language. The final questionnaire maintained high alignment between theoretical notions and their operational measures, hence confirming both reliability and validity (Venkatesh *et al*., 2003).

3.6 Data Collection

The online survey was conducted through Google Forms for two weeks to gather the necessary data. Customers were allowed to participate by receiving the link through WhatsApp, Facebook, emails and internet forums managed by Nestlé Nigeria. The choice was made because this technique is inexpensive and can study patients globally, where research funds are limited. Participants were given a short synopsis of the study and one screening question asking if they had used Nestlé Nigeria's chatbot in the recent six-month period. Anyone who replied no was immediately eliminated from the rest of the survey. It was only possible for eligible subjects to go through the main questionnaire. Survey questions were kept to a minimum to make it easier for people to complete, and they were not required to join or identify by name. The consent section included details about participant rights and emphasised that the study would keep things confidential, according to the British Psychological Society's rules (2021). Considering the requirement of 120 valid responses for PLS-SEM, the questionnaire was sent to 200 participants to take

care of possible non-responses and unfinished submissions. Once the survey ended, the researchers looked at the feedback, corrected any flaws and checked that all responses met the required standards before starting the analysis. Doing this step was necessary to keep the findings accurate and compatible with other research.

3.7 Data Analysis Techniques

Data analysis for this study will be conducted using SmartPLS 4 software, applying Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate both measurement and structural models. This approach is well-suited for testing complex relationships among the UTAUT constructs and outcomes such as chatbot adoption and customer satisfaction. The measurement model will be assessed for reliability and validity through indicator loadings, Composite Reliability, Cronbach's Alpha, and Average Variance Extracted, ensuring that the constructs are measured accurately. Discriminant validity will be tested using the Fornell-Larcker criterion and HTMT ratios. For the structural model, path coefficients will be estimated to examine hypothesized relationships, with bootstrapping used to assess statistical significance through t-values and p-values. R^2 and effect sizes (f^2) will evaluate explanatory power and predictor impact. Descriptive statistics for demographic variables will also be reported. This analytical strategy ensures a rigorous, theory-driven assessment of how AI-powered chatbots influence customer service management and satisfaction at Nestlé Nigeria. This method is appropriate given the use of multiple latent variables, reflective indicators, and a medium sample size (Hair *et al*., 2021).

Measurement Model Evaluation:

Indicator reliability will be assessed using outer loadings (acceptable threshold ≥ 0.70).

Internal consistency will be evaluated using both Composite Reliability (CR) and Cronbach's Alpha, with a threshold of ≥ 0.70 (Frost, 2022).

Convergent validity will be examined using Average Variance Extracted (AVE), with a cut-off of ≥ 0.50.

Discriminant validity will be assessed using the Fornell-Larcker criterion and the HTMT ratio.

Structural Model Evaluation:

Path coefficients will be estimated to determine the strength and direction of relationships between constructs. Bootstrapping (5,000 samples) will be used to assess the statistical significance (*p*-values) of the hypothesised paths. Effect sizes (f^2) and coefficient of determination (R^2) will be used to evaluate the explanatory power of the independent constructs. Where applicable, predictive relevance (Q^2) may also be

examined to validate the model's robustness. Each hypothesis (H1–H5) derived from the conceptual model will be evaluated through structural paths in the SEM model. All analyses will be conducted at a 5% significance level ($p < 0.05$). Both statistical significance and practical relevance (via effect sizes) will be considered during interpretation. Visual representations of the PLS path model and associated outputs will be presented in Chapter Four to aid interpretation and communicate model fit and results.

3.8 Validity and Reliability

The focus throughout the study was ensuring that the research instrument and model were valid and reliable. This was confirmed through initial instrument evaluation and later assessments with the data using Partial Least Squares Structural Equation Modelling (PLS-SEM) via SmartPLS 4.

Instrument Validity and Reliability

The questionnaire was developed using constructs from the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al*., 2003), which confirmed its usefulness. The checklists were updated to meet customer service needs using AI chatbots, and my academic colleagues helped evaluate how well they covered and fit the research objectives. Ten responders who fit the criteria were picked for a pilot test to point out any difficulties and make the tool simpler. It proved that all the indications were suitable in the situation presented by our Nigerian client. A pilot phase was used to calculate Cronbach's alpha on the Likert items for checking the internal consistency of each instrument component. A result of $\alpha > 0.70$ was selected by the study team as the required minimum level for reliability.

PLS-SEM Model Validity and Reliability

SmartPLS 4 was used after the data was collected to check the measurement model and make sure each latent variable was reliable and valid.

Indicator reliability was checked by looking at the outer loadings (outer loadings above 0.70 are considered acceptable).

To check for internal consistency, both Composite Reliability (CR) and Cronbach's alpha were calculated, and the test was considered reliable if the scores were ≥ 0.70.

Convergent validity was validated by Average Variance Extracted (AVE), with values > 0.50 regarded as satisfactory. Discriminant validity was proven using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio, ensuring that constructs were empirically distinct.

To further increase validity, the questionnaire was constructed with neutral language, randomised item

order, and assured anonymity and confidentiality for all responders. These measures lowered the danger of social desirability bias and interviewer influence, particularly relevant in self-administered online surveys. Combined, these instrument design and SEM validation techniques guaranteed the research maintained a high quality of methodological rigour, and that the findings correctly reflect customer perceptions and experiences with Nestlé Nigeria's AI-powered chatbot.

3.9 Ethical Considerations

During the research, this study maintains high ethical standards. Ethical clearance was given by discussing with the academic supervisor, as required by the university research ethics policy, before starting the data collection. To guarantee that participants' rights and information were protected, precautions were included at all stages of the research. A full informed consent statement was provided at the beginning of the survey in Google Forms. It outlined the reason for the study, explained that joining was optional, mentioned that participants could quit at any time without ramifications and offered protection of both their privacy and identity. A participant was asked to consent before the questionnaire continued. The survey design was set up this way to avoid collecting anyone's details, thus, all participants are guaranteed complete anonymity. The information collected was saved in electronic folders that required a password, and it was only used for schoolwork. All work was conducted in line with the British Educational Research Association's ethical guidelines (BERA, 2018) and the Nigerian Data Protection Regulation that directs the use of digital research data. In addition, the survey was created using clear and non-intrusive statements to avoid confusing or upsetting people, and it took about 5 to 7 minutes to ensure participants were not exhausted. In this way, the research process ensured the privacy, dignity and autonomy of all participants.

3.10 Limitations of the Methodology

Although the technique was carried out thoroughly, the study recognised several limitations. Self-reported data makes it possible that participants to give answers that stress is desirable rather than realistic outcomes. Even with steps to protect against it, there were still some chances for bias in the questions. Secondly, when gathering data, individuals without internet and those in poorly connected rural areas were not considered. Because of this constraint, the study's results might not apply to all customers in Nestlé Nigeria. Furthermore, the examination paid only attention to what consumers thought, not the experiences and suggestions of workers or those responsible for technology inside the company. The design used for the study limits it further. The data were all gathered at one point, so it is difficult to see changes in how the chatbot, or customers behave over time. Following people over time would give a clearer picture of how chatbots and their experiences are connected. In addition, this study worked with a quantitative approach, making it easier to study large samples and support scientific hypotheses, but not as good at exploring the

details. While there was a small section for answers in a person's own words, this qualitative part was not emphasised and was not subject to close thematic analysis.

3.11 Chapter Summary

The chapter analysed how Nestlé Nigeria use AI-powered chatbots to study customer satisfaction and the standard of their service. The investigation adopts a positivist approach and a logical, numerical way of investigation, based on the Unified Theory of Acceptance and Use of Technology (UTAUT). Data for the study were gathered by sending out a structured questionnaire to a group of Nestlé customers who had recently used their chatbot. The piloting process and checking by experts validated this instrument. People who joined did so freely and anonymously because of ethical rules. PLS-SEM in SmartPLS 4 is used to check both the measurement and structural models. Validity and reliability were tested by composite reliability, AVE, HTMT ratio, and outer loadings.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

The chapter provides analysis and results of the research where the influence of AI-powered chatbots on service management and customer satisfaction experience within a multinational corporation is discussed, resorting to the case study of Nestle Nigeria. The main purpose of the research is to test the effect of the determinants of the performance expectancy, effort expectancy, social influence, facilitating conditions, trust and security, and technology readiness on the adoption of chatbots, customer satisfaction, and a perception of service quality within the Nigerian context. This chapter relies on the findings obtained by Partial Least Squares Structural Equation Modelling (PLS-SEM) conducted with the help of SmartPLS, where both the measurement model evaluation and the structural model verification are listed.

4.2 Demographic Profile of Respondents

This section enumerates the demographic nature of individuals who participated in the study as 200 respondents. Analysis of the sample is critical to the meaning of their view towards chatbots with AI powers, the desire to embrace them and the satisfaction in Nestle Nigeria. This demographic analysis explains the findings concerning issues that affect individuals, including their age, level of education, digital literacy and how familiar they are with the chatbot service offered.

4.2.1 Age Distribution

Table 4.1: Age Distribution of Respondents (N = 200)

Age Group	Count	Percentage
Under 18	2	1.0%

18–24	6	3.0%
25–34	88	44.0%
35–44	95	47.5%
45+	9	4.5%

Source: Field Data (2025)

The sample represents the features of a predominantly young, working adult segment of the population that can be used to describe the Nigerian urban and digitally connected consumer market. The age class of 25-34 years old has 44% of the respondents reported, and 35-44 is 47.5% as indicated in the table below. Very few of the population are below 24 or above 45. Such an age profile indicates good prospects for the technological uptake, as these groups have a greater exposure to mobile devices and internet-based services. It also refers to diverse expectations of the simple use of chatbots and their performance.

4.2.2 Education Level

Table 4.2: Showing the Levels of Education amongst respondents (N = 200)

Education Level	Count	Percentage
Secondary school	5	2.5%
Diploma/NCE	24	12.0%
Bachelor’s degree	125	62.5%
Postgraduate degree	46	23.0%

Source: Field Data (2025)

Educational level: Respondents show high levels of education, which is key to the interpretation of readiness to use AI technologies. Table 4.2 indicates that 62.5% of the respondents have at least a bachelor's degree, with 23% having postgraduate qualifications. Only 2.5% have secondary education as their highest level. With such educational backgrounds, the population in question likely can critically assess technology, with more demand placed on the quality and reliability of service in AI-powered chatbots.

4.2.3 Digital Literacy

Table 4.3: Self-Rated Digital Literacy (N = 200)

Digital Literacy Level	Count	Percentage
Very poor	3	1.5%
Poor	1	0.5%
Fair	22	11.0%
Good	143	71.5%
Excellent	31	15.5%

Source: Field Data (2025)

Technology acceptance is strongly determined by digital literacy. 71.5% of the respondents found their digital literacy to be good and 15.5% as excellent. Very few of them have reported having very poor or poor digital literacy. This distribution implies that most of the respondents are comfortable with technology, which reinforces the possibility of adopting AI chatbots. Nonetheless, the low literacy rate among some of the users makes user-friendly design and inclusive interfaces quite critical.

4.2.4 Chatbot Usage Frequency

Table 4.4: Frequency of Chatbot Interaction (N = 200)

Frequency	Count	Percentage
Once	69	34.5%
2–3 times	103	51.5%
More than 3 times	28	14.0%

Source: Field Data (2025)

The respondents were also questioned on their first-hand experience of the Nestlé Nigeria chatbot within the last six months. 51.5% answered that they have used it twice or thrice and 34.5% once, and 14% ticked more than that (Table 4.4). This is an indication that most respondents have first-hand experience of the chatbot service, thereby putting them in a vantage position to analyse its usage, convenience and general service experience.

4.3 Measurement Model Assessment

4.3.1 Outer Loadings

Table 4.5: Outer Loadings

	Outer loadings
AB1 <- Chat Adoption	0.925
AB2 <- Chat Adoption	0.926
CS1 <- Customer Satisfaction	1.000
EE1 <- Effort Expectancy	0.911
EE2 <- Effort Expectancy	0.900
PC <- Tech Readiness	1.000
PE1 <- Perfomance Expectancy	0.819
PE2 <- Perfomance Expectancy	0.907
PE3 <- Perfomance Expectancy	0.893
SQ1 <- Service Quality	1.000
TR1 <- Trust and Security	0.903

TR2 <- Trust and Security	0.918

Source: Field Data (2025)

Every indicator had high standardised outer loadings that surpassed the suggested criterion or threshold of 0.70 (Hair *et al*., 2021). The coefficients of all the Chat Adoption indicators were loaded at 0.925 and 0.926; Customer Satisfaction was loaded at 1.000; the coefficients of the Effort Expectancy were 0.911 and 0.900, and the Performance Expectancy were loaded at 0.819 and 0.907. Trust and Security items loaded 0.903 and 0.918, and Service Quality and Tech Readiness got perfect loadings of 1.000. High loadings show that the items are strong indicators of the underlying constructs. The Customer Satisfaction, Tech Readiness and Service Quality constructs were single-item variables with fixed patterns, i.e., the measurements were direct and unambiguous.

4.3.2 Internal Consistency Reliability

Table 4.6: Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) value

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Chat Adoption	0.833	0.833	0.923	0.857
Effort Expectancy	0.782	0.783	0.901	0.821
Performance Expectancy	0.844	0.853	0.906	0.763
Trust and Security	0.794	0.797	0.906	0.829

Source: Field Data (2025)

Internal consistency was assessed using Cronbach's Alpha and Composite Reliability (CR). The Cronbach's Alpha and CR values of all constructs exceeded the point of 0.70, which indicates internal consistency. All the AVE values were above 0.50, which implies that convergent validity is satisfactory. The given results prove that latent constructs accurately represent the intended conceptual domains, which affirms the sufficiency of the measurement model.

4.3.3 Discriminant Validity → Fornell-Larcker

Table 4.7: Discriminant Validity → Fornell-Larcker

	Chat Adoption	Customer Satisfaction	Effort Expectancy	Performance Expectancy	Service Quality	Tech Readiness	Trust and Security

Chat Adoption	0.926						
Customer Satisfaction	0.572	1.000					
Effort Expectancy	0.662	0.597	0.906				
Performance Expectancy	0.758	0.615	0.768	0.874			
Service Quality	0.469	0.439	0.362	0.431	1.000		
Tech Readiness	-0.068	-0.108	-0.060	-0.076	-0.132	1.000	
Trust and Security	0.730	0.572	0.696	0.794	0.490	-0.067	0.910

Source: Field Data (2025)

The inter-construct correlations are lower than diagonal values (square roots of AVE), hence meeting the Fornell-Larcker criteria for discriminant validity. Although there are some moderate correlations (e.g. Trust and Security with Performance Expectancy = 0.794), there is conceptual distinctiveness between constructs in the model.

4.3.4 Discriminant Validity: HTMT (Heterotrait-monotrait ratio)

Table 4.8: Discriminant Validity: HTMT (Heterotrait-monotrait ratio)

	Chat Adoption	Customer Satisfaction	Effort Expectancy	Performance Expectancy	Service Quality	Tech Readiness	Trust and Security
Chat Adoption							
Customer Satisfaction	0.627						
Effort Expectancy	0.821	0.674					
Performance Expectancy	0.900	0.669	0.946				
Service Quality	0.514	0.439	0.409	0.466			

Tech Readiness	0.075	0.108	0.068	0.089	0.132		
Trust and Security	0.896	0.641	0.882	0.969	0.550	0.077	

Source: Field Data (2025)

The Heterotrait-Monotrait Ratio (HTMT) criteria were used to measure discriminant validity. The majority of HTMT ratios measure less than the conservative 0.85 threshold mark. Some of the higher values (e.g., Performance Expectancy and Trust and Security at 0.969) are indicative of conceptual redundancy, yet they are at levels deemed as acceptable in exploratory models. In general, the HTMT statistics confirm discriminant validity and justify the utilisation of the model in performing a hypothesis test. The findings show that the survey questions indicate good reliability in measures of the UTAUT construct (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Trust and Security, Technology Readiness) and the dependent variables (Chatbot Adoption, Customer Satisfaction).

4.4 Structural Model Results

4.4.1 Path Coefficients

Table 4.9: Structural Model Path Coefficients

	Path coefficients
Customer Satisfaction -> Chat Adoption	0.106
Effort Expectancy -> Customer Satisfaction	0.270
Effort Expectancy -> Service Quality	-0.010
Performance Expectancy -> Chat Adoption	0.424
Performance Expectancy -> Customer Satisfaction	0.257
Performance Expectancy -> Service Quality	0.113
Service Quality -> Chat Adoption	0.102
Service Quality -> Customer Satisfaction	0.187
Tech Readiness -> Chat Adoption	0.008
Tech Readiness -> Service Quality	-0.097
Trust and Security -> Chat Adoption	0.284
Trust and Security -> Customer Satisfaction	0.088
Trust and Security -> Service Quality	0.400

Source: Field Data (2025)

The model shows positive relationships (i.e. an intermediate relationship) between Performance Expectancy and Chat Adoption (0.424), and Trust and Security and Chat Adoption (0.284), which means

that usefulness and trust are strong predictors of adoption. The other routes, like Tech Readiness → Chat Adoption (0.008), demonstrate low influences, hence low direct impacts.

4.4.2 Bootstrapping Hypothesis Testing

Table 4.10: Bootstrapping Results for Hypotheses

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Customer Satisfaction -> Chat Adoption	0.106	0.116	0.094	1.117	0.264
Effort Expectancy -> Customer Satisfaction	0.270	0.265	0.138	1.951	0.051
Effort Expectancy -> Service Quality	-0.010	-0.007	0.090	0.111	0.911
Performance Expectancy -> Chat Adoption	0.424	0.415	0.088	4.800	0.000
Performance Expectancy -> Customer Satisfaction	0.257	0.260	0.145	1.775	0.076
Performance Expectancy -> Service Quality	0.113	0.116	0.117	0.971	0.332
Service Quality -> Chat Adoption	0.102	0.101	0.054	1.903	0.057
Service Quality -> Customer Satisfaction	0.187	0.186	0.054	3.493	0.000
Tech Readiness -> Chat Adoption	0.008	0.008	0.055	0.148	0.882
Tech Readiness -> Service Quality	-0.097	-0.097	0.061	1.607	0.108
Trust and Security -> Chat Adoption	0.284	0.282	0.074	3.851	0.000
Trust and Security -> Customer Satisfaction	0.088	0.093	0.094	0.941	0.347
Trust and Security -> Service Quality	0.400	0.397	0.113	3.532	0.000

Source: Field Data (2025)

Confidence interval indicators that yield a p-value of less than 0.05 have statistical significance. Performance Expectancy - Chat Adoption (p= 0.000) and Trust and Security - Chat Adoption (p= 0.000) demonstrate that H1 and H5 have a strong connection, or rather, they have a powerful predictive value, and they tend to significantly predict the adoption. The correlation Service Quality - Customer Satisfaction (

p=0.000) proves to be significant as well. All the other paths, like Tech Readiness, were non-significant, which means that they do not have much explanatory power regarding those predictors.

4.4.3 R^2 Values

Table 4.11:

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Chat Adoption	0.627	0.635	0.065	9.624	0.000
Customer Satisfaction	0.440	0.465	0.125	3.527	0.000
Service Quality	0.239	0.253	0.054	4.391	0.000

Source: Field Data (2025)

The model has a high explanatory power that explains 62.7% of the variance in Chat Adoption. Customer Satisfaction (44.0%) and Service Quality (23.9) also contain significant, albeit less decisive, levels of variance explained, which is evidence for other impacting factors.

4.4.4 Effect Sizes (f^2)

Table 4.12: Effect Size

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Customer Satisfaction -> Chat Adoption	0.018	0.032	0.038	0.464	0.642
Effort Expectancy -> Customer Satisfaction	0.052	0.071	0.066	0.786	0.432
Effort Expectancy -> Service Quality	0.000	0.004	0.006	0.009	0.993
Performance Expectancy -> Chat Adoption	0.164	0.169	0.077	2.117	0.034
Performance Expectancy -> Customer Satisfaction	0.034	0.057	0.061	0.549	0.583
Performance Expectancy -> Service Quality	0.005	0.010	0.013	0.381	0.704
Service Quality -> Chat Adoption	0.020	0.026	0.023	0.886	0.375
Service Quality -> Customer Satisfaction	0.048	0.056	0.033	1.476	0.140

Tech Readiness -> Chat Adoption	0.000	0.008	0.012	0.015	0.988
Tech Readiness -> Service Quality	0.013	0.018	0.017	0.724	0.469
Trust and Security -> Chat Adoption	0.075	0.082	0.044	1.699	0.089
Trust and Security -> Customer Satisfaction	0.005	0.013	0.018	0.258	0.797
Trust and Security -> Service Quality	0.076	0.083	0.047	1.619	0.105

Source: Field Data (2025)

The Performance Expectancy indicates a medium effect (0.164) on Chat Adoption, and the Trust and Security indicate a small-to-medium effect (0.075). Other paths indicate a negligible effect size, which indicates the minimal contribution to individual variance.

4.4.5 Model Fit Indices

Table 4.13: Model Fit (SRMR)

	Original sample (O)	Sample mean (M)	95%	99%
Saturated model	0.048	0.034	0.045	0.051
Estimated model	0.049	0.036	0.047	0.053

Source: Field Data (2025)

Values of SRMR, which are less than 0.08, are evidence of good model fit, and they indicate that the structural model is adequate in representing the observed relations among the constructs.

Generally, structural model outcomes indicate that Performance Expectancy and Trust and Security are both valid predictors of Chat Adoption in the Nestlé Nigeria setting. The results in R^2 and f^2 prove that the model has good explanatory power, which proves the relevance of the hypothesised framework in explaining the adoption of AI chatbots in emerging markets.

4.5 Summary of Hypothesis Testing Results

Table 4.14: Summary of hypothesis outcomes

Hypothesis ID	Hypothesis Statement	Supported?

H1	AI chatbots deployed by Nestlé Nigeria result in substantial reductions in the time customers need to receive service support.	Supported
H2	Chatbots operated with AI at Nestlé Nigeria deliver information that matches or exceeds the accuracy achieved by human assistance personnel.	Partially Supported
H3	The implementation of AI-powered chatbots at Nestlé Nigeria creates positive effects on customer satisfaction ratings.	Partially Supported
H4	Elevated perceptions of trust and security in AI-driven chatbots favourably affect their uptake and utilisation by customers at Nestlé Nigeria.	Supported
H5	Increased technological readiness among customers and workers at Nestlé Nigeria substantially improves the adoption and effective use of AI-powered chatbots.	Not Supported

Source: Field Data (2025)

The analysis shows that H1 and H5 have strong support, with Performance Expectancy and Trust and Security being robust drivers of chatbot adoption. H2 and H3 reveal partial support, which means that the effects on the perceived accuracy and satisfaction are not strong or consistent. H4 and H6 could not be supported, which implies that operational challenges and technology readiness have no or minor direct influence on adoption here. All these findings illustrate the delicateness of technology adoption in new economic regions such as in Nigeria, where perceived usefulness and trust are core factors, and the absence of infrastructure and user preparedness can have a shortage of greater impact.

4.6 Chapter Summary

In Chapter Four, the results of the analysis using PLS-SEM correlating the evolution of AI chatbots and customer satisfaction at Nestle Nigeria was presented. The demographic characteristics showed a sample of the quality of young, educated, and digitally literate participants with first hand experience with chatbots. The construct reliability and validity were confirmed by the results of the measurement model. Analysis set

up on a structural above indicated Performance Expectancy (0.424, = 0.000) and Trust and Security (0.284, = 0.000) were deterministically significant in influencing adoption and satisfaction was mediated by Service Quality (0.187, = 0.000). There was no significant influence of Technology Readiness.

CHAPTER FIVE

5.0 DISCUSSION

5.1. Interpretation of Key Findings

This section provides a critical discussion of the structural model results, discussing each hypothesised relationship with regards to empirical data. Comparing the significant and non-significant paths in the UTAUT framework, the analysis shows the drivers and the inhibitors of the adoption of AI-powered chatbots and customer satisfaction in Nestlé Nigeria.

5.1.1 Performance Expectancy

Following the results of the structural model of the study, Performance Expectancy (PE) shows one of the most powerful and statistically significant impacts on the implementation of AI chatbots in Nestlé Nigeria (path coefficient b = 0.424; t = 4.800; p < 0.001). This result is quite consistent with the finding presented in the Unified Theory of Acceptance and Use of Technology (UTAUT), where Performance Expectancy becomes one of the most salient predictors of behavioural intention to use technology (Xue, Rashid and Ouyang, 2024). Performance Expectancy, in this case, will be the perception of the Nestlé Nigeria customers and employees that the utilisation of AI-based chatbots would allow them to serve faster and quicker and with a better quality of problem-solving. This relationship has been widely proven by previous research in various areas. The Technology Acceptance Model (TAM) by Davis pointed out Perceived Usefulness as the predominant aspect of technology adoption. In a similar trend, Alalwan, Dwivedi and Rana (2017) have also established that the alleged performance advantages had a strong impact on customer adoption of AI chatbots in banking services. Findings of this study confirm these theoretical standings but provide a context-specific aspect of new market economies. In Nigeria, where the economy is rapidly becoming digital and service bottlenecks continue to challenge service delivery, the promise of technology that will deliver services more quickly and always has special appeal (Guanah and Bebenimibo, 2025). The chatbot system implemented by Nestlé Nigeria provides rather uniform responses and decreases the burden on already strained human representatives, creating an objective advantage over the old methods of customer service.

Although the direct effect of PE was large and significant in adoption, its indirect effect was small and not significant (2 = 0.257; t = 1.775; p = 0.076) in the case of Customer Satisfaction. This indicates that despite giving credit to the functional usability of chatbots, this does not completely bring about fulfilment in satisfaction. Such partial mediation concurs with the SERVQUAL model developed by Parasuraman *et al*.

(1988), which states that functional service quality can just form one aspect of customer experience (Souca, 2011). In Nigeria, efficiency in isolation might be not enough to achieve robust satisfaction gains because local culture may, in many respects, underpin the inclination to preferentially use personal, humanised service interactions (Chaarani, Skaf and Khalife, 2022). Moreover, the finding echoes with the research of other emerging economies. According to Rane, Achari and Choudhary (2023) speed and efficiency were perceived as important to the customers, but their effect on general satisfaction and loyalty was balanced by the effect of trust and social influence. This complicated dynamic is also evident in the situation with Nestle Nigeria where customers can realise performance value and yet be doubled about the total experience or continue to seek out human interaction to satisfy more sophisticated customer inquiries.

In addition, there are infrastructural and digital literacy issues which plague the Nigerian market, and which may influence an opinion on chatbot performance. Although some urbanized, educated categories of Nestl customers can easily find chatbot efficiency, other less technologically literate users might believe that the technology is confusing or non-personalized (Timothy *et al*., 2024). These situational differences would imply that even though Performance Expectancy is a key driver of the adoption, it is not an across-the-board solution and must be customized to local user expectations and local service cultures. Overall, this research supports the UTAUT theory that the Performance Expectancy is the key variable to technology acceptance and provides a large set of empirical evidence on how this dynamic plays out within the real-world situation of the Nigerian multinational company. It underscores the need for Nestlé Nigeria to continuously communicate chatbot benefits, tailor interactions to local service expectations, and integrate human support channels to complement automation, thereby maximising the technology's perceived and actual value.

5.1.2 Effort Expectancy

The structural model analysis showed that Effort Expectancy (EE) has a positive and marginally significant effect on Customer Satisfaction ($\beta = 0.270$; $t = 1.951$; $p = 0.051$) but did not significantly predict Service Quality ($\beta = -0.010$; $p = 0.911$). The ambivalent finding underscores a more refined function of perceived ease of use in relation to the usage of AI chatbots at Nestle Nigeria. In the UTAUT model, the Effort Expectancy measures the belief by users on whether a technology is easy to learn and utilize (Marikyan and Papagiannidis, 2021). In the context of customer service or specifically the AI chatbots, ease of use is critical in order to motivate first-time use and build satisfaction. Users require fast, easy interactions without having to use intricate commands and technical expertise. The positive correlation with Customer Satisfaction corresponds with international results. To illustrate, Alalwan *et al*. (2018) showed that perceived ease of use of chatbots had a significant positive impact on user satisfaction in banks. In a similar

way, Silva, Shojaei and Barbosa (2023) discovered that intuitive chatbot design had played an essential part in determining a positive service experience and fostering reuse intentions. In the case of Nestlé Nigeria, this demonstrates why chatbot interfaces must be basic, conversational, and available to users with a different level of digital literacy.

The model indicates that there is no significant effect on Service Quality. Perception of Service Quality is usually built on more than just the ease of usage including accuracy, personalization and empathy (Vu, 2021). Although a chatbot may be convenient to operate, it depreciates service quality when users receive the wrong or the commonly copied answers. Such a weakness translates to the practical issues of natural language processing and the fact that AI systems must be trained and improved constantly (Misischia, Poecze and Strauss, 2022). Digital literacy is a challenge in the emerging market context in Nigeria. Despite increasing levels of mobile and internet penetration, high percentages of the population still do not have experience managing digital interfaces (Okocha and Dogo, 2024). This digital divide has the potential to influence Effort Expectancy, which seems to be easy to a digitally literate urban customer can become confusing or inaccessible to others. Nestlé Nigeria's chatbot design must therefore account for these disparities, possibly through multilingual options, voice input features, or integration with familiar messaging platforms like WhatsApp, which is widely used in Nigeria (Busayo *et al*., 2023).

Moreover, prior studies suggest that user training and onboarding can moderate Effort Expectancy's impact (Alrawashdeh, 2012). Faruque *et al*. (2024) note that in African contexts, organisations that invest in educating customers about new technologies see higher adoption rates and better satisfaction outcomes. This suggests a practical pathway for Nestlé Nigeria: beyond improving chatbot usability, the company should educate its customer base about the tool's capabilities and limitations. While Effort Expectancy remains an essential driver of customer satisfaction, its limited impact on Service Quality in this study highlights the need for a holistic approach. Nestlé Nigeria must prioritise not only technical simplicity but also user education and the continuous refinement of AI capabilities to deliver genuinely high-quality service experiences.

5.1.3. Trust and Security

The element of trust and security is also a critical factor in the implementation of AI-based chatbots at Nestlé Nigeria where this study provides convincing empirical justification of its impact. The structural model results reveal a significant direct effect of Trust and Security on Chatbot Adoption (path coefficient $\beta = 0.284$, $T = 3.851$, $p < 0.01$), underscoring that customer trust in the chatbot's integrity, data security, and fairness critically shapes uptake. This empirical finding supports the technology reception literature, which continues to repeat the impact of trust on acceptance in computer-based systems. Nevertheless, this

result is highly relevant in the Nigerian context, where the trust in institutions is historically low, and consumers are highly cautious against the abuse in terms of their data. In this case, trust is not a facilitator but an actionable obstacle that can only be surmounted by the firms to enjoy the returns of technology.

The HTMT analysis reveals that Trust and Security is acceptable in terms of discriminant validity with all others: e.g. HTMT between Trust and Security and Performance Expectancy 0.969, and with Effort Expectancy 0.882. These values are very close to the 0.90 threshold but are still acceptable, indicating that though Trust can be said to be conceptually like perceived usefulness and ease of use, it still has a different explanatory power. In many contexts, users conflate ease of use with safety (Lee, 2005), but the data analysed suggests that even if Nestlé's chatbot is perceived as easy (Effort Expectancy $\beta = 0.270$ to Customer Satisfaction), trust issues remain an independent hurdle to adoption. This is also facilitated by the Fornell-Larcker criteria, indicating that the square root of the AVE of Trust and Security (0.910) has a higher value than the correlation of Trust and Security with its other constructs (e.g. 0.794 with Performance Expectancy and 0.696 with Effort Expectancy). This evidence affirms that while these constructs are related users may see useful chatbots as somewhat trustworthy trust and security remain distinct dimensions requiring dedicated managerial attention.

Moreover, the bootstrapping results underscore Trust and Security's role in shaping Service Quality Perception (path $\beta = 0.400$, $T = 3.532$, $p < 0.01$). This implies that in addition to adoption, trust defines the perceptions of customers towards service quality, supporting service quality as a mediating variable to our model. Importantly, the current idea overturns any naive notion that trust is only essential at the decision-making point of adoption, rather it puts the entire customer experience with infusion (Vereschak, n.d.). On a managerial level, the findings indicate that Nestle Nigeria may not afford to consider trust-building as a supplementary necessity. Rather, clarity of policies involving their privacy, strong encryption, evident consent-management, and culturally sensitive messages should be the focal point of chatbot strategy. Customers must not just regard the chatbot as speedy (Performance Expectancy 1= 0.424 to Adoption) or simple (Effort Expectancy 1= 0.270 to Customer Satisfaction) but without evidence a level of trust protection, take-up will remain low whilst service quality perceptions will be weakened.

Moreover, companies have an additional ethical duty in emerging markets where the regulation of data protection might be less developed or imperfectly implemented (Tewari, 2025). It signifies that Nestlé Nigeria not only needs to invest in technical chatbot development but also in establishment of institutional trust that may involve collaboration with regulators, participate in educating the population, and take an open position on algorithms fairness and bias. This delicate, evidence-based examination reveals that Trust and Security are not incidental variables in the adoption of AI chatbots instead, they are strategic factors

that either significantly amplify or substantially undermine the integration of technology in the emotionally vulnerable Nigerian consumer context.

5.1.4 Technology Readiness

Technology readiness is a crucial factor in explaining adoption of AI-powered chatbots at Nestlé Nigeria. This study's PLS-SEM results, however, indicate non-significant direct effects of Technology Readiness on both Chatbot Adoption ($\beta = 0.008$, $T = 0.148$, $p = 0.882$) and Service Quality ($\beta = –0.097$, $T = 1.607$, $p = 0.108$). These weak effects are surprising when benchmarked against classical technology adoption research, where user readiness is typically a strong predictor (Godoe and Johansen, 2012). These findings suggest that being technologically literate or comfortable with digital tools does not guarantee a willingness to use AI chatbots. Several explanations arise.

The Fornell-Larcker discriminant validity results show that Tech Readiness is clearly distinct from other constructs: AVE square root of 1.000 and negative or near-zero correlations with Performance Expectancy (–0.076), Effort Expectancy (–0.060), and Trust and Security (–0.067). This empirical segregation suggests that respondents could be digitally skilled but are not prepared to adopt this technology compared to their overall confidence in technology. This conceptual distance is confirmed by Tech Readiness HTMT ratios Chatbot Adoption (0.075), Customer Satisfaction (0.108), and similarly low values in other parameters. Technology Readiness is not meaningfully related to adoption behaviour in this model. Although Nigerian clients can use digital banking and smartphones, the use of AI chatbots in customer service may require their trust, locally relevant and culturally acclimated situation, which may not be addressed with a simple readiness (Mogaji, 2020). The discrepancy is in line with previous articles warning against the homogenous technological adoption in different contexts (Dwivedi *et al*., 2019). Equally, emerging markets can have limiting factors such as the lack of infrastructure, unstable internet, costs of data, and language challenges, being particularly restrictive to tech-savvy users (Kumar and Ciddikie, 2023). Thus, the assumption of Nestlé Nigeria that chatbots are adopted by digitally literate people is not empirically relevant.

Moreover, the bootstrapping analysis indicates no important indirect effects through the Service Quality or Customer Satisfaction. This is emphasis of the fact that Technology Readiness in itself fails to drive the views or feelings of quality or satisfaction in service delivery. In practice, it implies that the mere investments in either user training or the digital literacy campaigns will not produce a benefit of chatbot adoption. Rather, Nestlé Nigeria needs to put things into context through its chatbot approach. This comprises uncomplicated interface design in low-bandwidth settings, the usage of local language or dialect, and connecting chatbot functionality to actual consumer pain-points. It also underscores the need to prioritise Trust and Security which showed strong effects on both Chatbot Adoption $\beta = 0.284$ and Service

Quality β = 0.400, highlighting that readiness without trust is ineffective.

These results challenge UTAUT's universal assumptions about Facilitating Conditions in low-income contexts. While Uren and Edwards (2023) propose that Facilitating Conditions, including technological readiness, uniformly drive adoption, this study suggests that in Nigeria, such readiness may be decoupled from actual usage behaviour due to systemic, cultural, and infrastructural barriers. This analysis suggests that Technology Readiness, though traditionally important, is not a primary driver of AI chatbot adoption at Nestlé Nigeria. Instead, success depends on combining readiness with trust-building, contextual adaptation, and overcoming systemic barriers an insight critical for both practice and theory in emerging markets.

5.1.5. Service Quality

The Service Quality Perception is identified as mediating construct in predictors of UTAUT to customer outcome. The key mediators used in this study include Service Quality as it applies to the constructs of Effort Expectancy, Performance Expectancy, Trust and Security, Technology Readiness, the constructs on which the dependent variables are formulated, Customer Satisfaction and Chatbot Adoption.

Nonetheless, several consequences demonstrated in the results of the structural model indicate rather small direct effects of several predictors on Service Quality. Likewise, the path of Effort Expectancy - Service Quality is not significant (b = -0.010, T = 0.111, p = 0.911), and Performance Expectancy - Service Quality is weak as well (b = 0.113, T = 0.971, p = 0.332). In the same manner, Technology Readiness - Service Quality is negative and insignificant (p = 0.108: 0 = -0.097, T =1.607). Conversely, Trust and Security - Service Quality is high and significant (0.400, T = 3.532, p = 0.000). This implies that the service quality can be viewed as significantly dependent on the issues of trust and security, but not on the usability or perceived usefulness by itself. According to Dehghanpouri, Soltani and Rostamzadeh (2020) the main force behind the perceived service quality in online communication is trust. In developing markets, where the issue of data misuse and biased algorithms is raised, trust is the key moment of perceived quality.

Furthermore, the discriminant validity through Fornell-Larcker criterion establishes that the Service Quality is not empirically identical. The square root of its AVE is 1.000 indicating low correlations with its other construct, e.g., Performance Expectancy (0.431), Effort Expectancy (0.362), Trust and Security (0.490). This separation reveals that Service Quality in terms of customers perception is a separate measurement rather than a composite of expectations relating to ease of use or efforts. HTMT ratios also backup this conceptual difference. For instance, The HTMT between the Service Quality and Performance Expectancy is 0.466 and between the Service Quality and Effort Expectancy is 0.409 both lower that the recommended

index of 0.85. This demonstrates that respondents find Service Quality as always, a separate appraisal and support the mediating model. Service Quality - Customer Satisfaction path coefficient is positive and significant (0.187, T, 3.493, p. 000). This shows that predictors such as Performance and Effort Expectancy do not have strong relationships with Service Quality, although, the relationships between Trust and Security and Service Quality hold strong relationships (Vu, 2021). Service Quality, further, boasts a strong relationship with Customer Satisfaction. It is consistent with the findings of Parasuraman SERVQUAL model that focuses on the idea that satisfaction follows the perception of service quality (Fida *et al*., 2020). About chatbot application, users will use technology once they perceive it to be providing high-quality services on a consistent basis and this will be determined by whether the user perceives that the system is secure and will treat their data in an ethical manner (Marjerison *et al*., 2025).

In practise, Nestlé Nigeria should realise that focusing solely on technical functionality will not ensure high perceived service quality. Rather, they must focus on such trust-building functionalities as data use transparency, sufficient escalation opportunities to a human agent, and culturally adapted interactional styles. These results justify the extension of UTAUT with Trust and Security being a major antecedent of Service Quality Perception in new markets. It further implies that Service Quality cannot be perceived as a mere dependent variable, but as an essential filter through which all other constructs influence adoption and satisfaction. This insight offers a more contextualized landscape around the study of AI chatbot adoption located in developing countries, bringing practical and theoretical contributions to the field.

5.1.6. Customer Satisfaction

Customer satisfaction is generally considered the final measure of success in any technology-mediated interaction of service and satisfaction is debatable and strongly localized. Customer Satisfaction in this study has been utilized as a completely dependent variable with a determining value of the R of 0.440, reflecting that 44% of the variance is defined by predictors in this model. Performance Expectancy has a path coefficient of 0.257 (T=1.775, p=0.076) which implies that it is marginally significant. It casts doubt as to whether AI chatbots are reaching higher performance levels in the minds of customers in Nigeria. Although it is claimed that perceived usefulness is vital in satisfaction, this result hints at ambivalence. Nigerians are unlikely to trust chatbots to substitute the subtlety of human service, particularly settings where the area of digital dependability is minimal. More crucially, it presents a challenge to techno-optimistic narratives that view automation as a universally desirable upgrade (Busayo *et al*., 2023). The infrastructural restraints may influence companies to over-invest in feature areas that the end-user perceives as being challenging or elusive. This tension is supported by Effort Expectancy (0.270, T=1.951, p=0.051) being just at a significant level. The ease of use is critically important in theory, but the numbers indicate

inconsistent adoption. The simplicity of chatbots can be appreciated by users who are more digitally literate whereas less literate groups will feel confused. This observation can be compared to a study indicating that the digital inclusion gap in Nigeria is yet to be eliminated since education and connectivity are not distributed equally (Ono *et al*., 2024). Thus, intuitive design is not sufficient, firms must invest in user education and support as well. Trust and Security has an even weaker direct impact on satisfaction (β=0.088, T=0.941, p=0.347). It is believed that trust plays a pivotal role in the adoption of digital technology (Shoabjareh *et al*., 2024). However, these findings show that trust may function as a threshold condition rather than a differentiator. In this regard, customers will not reward excellent trust with higher satisfaction but will penalise their absence. Such a connotation is evidenced by Yum and Kim (2024), who claim that concerns about trust may limit the height of perceived quality without generating successive satisfaction yields after adequate standards are achieved. In Nigeria, privacy issues are climbing up with a regulatory uncertainty. Customers who have an online interaction can assume baseline risks and therefore reduce the direct effect of trust on satisfaction (Babajide and Martin, 2022). This encourages companies to reconsider easy methods of establishing trust: rather than simply offering safe data management, they may want to explain the mechanics of such security in locally authentic terms.

Customer Satisfaction was revealed as the only critical mediator of Service Quality (0.187, T=3.493, p=0.000), corroborating past studies that highlighted the service provider's behavior in the perceived quality rather than actual quality as the most impactful driver of satisfaction (Parasuraman *et al*., 1988; Lee *et al*., 2019). Nevertheless, the research indicates that such concepts as quality may be socially constructed instead of being purely technical because consumers consider AI chatbots under the prism of cultural expectations, previous experience with services, and peer pressure (Aldulaimi, Abdeldayem and Keir, 2024). This contrasts the assumptions that the design principles of chatbots can be used uniformly as they are. The findings support the notion that Nigerian AI-based customer service will only be successful following through with the local service culture, such as the anticipation of politeness, concession, and even humor (Nwachukwu, 2023). Satisfaction here is a negotiated, culturally embedded outcome shaped by trust, social influence, infrastructure, and user education. For practitioners, this calls for a shift from engineering-centred design to customer-centred adaptation. For scholars, it underlines the need for more nuanced, context-sensitive models that move beyond universalist assumptions of technology adoption.

5.2 Theoretical Implications

This study offers important theoretical insights by adapting the Unified Theory of Acceptance and Use of Technology (UTAUT) to examine AI-powered chatbot adoption in Nigeria's service context. While UTAUT highlights constructs like Performance Expectancy and Effort Expectancy as core drivers of

adoption, this research reveals nuanced dynamics in an emerging-market setting. Performance Expectancy demonstrated a strong influence on Chatbot Adoption confirming that perceived usefulness is essential. Yet its weaker impact on Customer Satisfaction suggests that efficiency alone is insufficient without addressing relational and cultural expectations, highlighting the need for local adaptation. Effort Expectancy's significant role in Customer Satisfaction underscores the importance of usability in contexts of uneven digital literacy (Chau *et al*., 2025). This indicates that adoption models must account for user training and design tailored to local technological readiness. The inclusion of Trust and Security as an extended construct further enriches UTAUT. While not directly predicting Customer Satisfaction, it significantly influenced Chatbot Adoption, highlighting its role as an essential enabler in environments with lower baseline trust. Moreover, Service Quality Perception emerged as a vital mediating variable, demonstrating that technological benefits must be translated through perceptions of service quality to drive satisfaction. This aligns with service marketing theory, which emphasizes culturally shaped expectations. The findings also question Technology Readiness as a core predictor, suggesting its role may be better understood as a moderator. Overall, the study calls for refining UTAUT to integrate trust, service quality, and context-sensitive design, offering a more comprehensive framework for understanding technology adoption in emerging markets.

5.3 Contributions

5.3.1 Theoretical Contributions

Theoretically, this research will contribute to knowledge by extending the UTAUT model to a dual-stakeholder scenario where the researchers explore both customers and internal stakeholders (employees and managers) of the multinational company working in the emerging market. Compared with the traditional applications that concentrate only on end-users, the research has revealed that end-user acceptance of technology in the realms of service ecosystems involves both external anticipations (customer-related experience) and internal preparedness (staff flexibility and accommodations). It is a combination of two lenses that have a more integrated approach to organisational technology adoption.

The study also serves to mitigate the barrier between the theory of accepting technology and the reality of the service outcomes as it shows that just because the adoption has taken place it does not necessarily mean the technology will be satisfying. Although Performance Expectancy holds significant predictive powers concerning the adoption of chatbots, it has very minimal effects on achieving long-term customer satisfaction. Such a discrepancy raises the question of the UTAUT assumption that the perceived usefulness possesses equal implications at different stages and demands that theoretical frameworks be utilized in separating adoption intention and the quality of experience. Furthermore, the study improves the exact

comprehension of UTAUT constructs in that Trust and Security, although have an impact on adoption, do not guarantee satisfaction. Technology Readiness was also reported to have a negligible impact, which implies that social, cultural, and infrastructural factors could supersede individual predispositions in low-resource settings. These results support the fact that UTAUT should be adapted to context-specific service dynamics.

5.3.2 Practical Contributions

This research emphasises that to achieve the optimal potential of AI-powered chatbots, smart developments should shift beyond merely technical implementation to performance integration with user anticipations. The small influence of digital literacy on the use of chatbots, although the self-rated competence rate is highly positive, shows that accessibility is not enough. Nestle should thus approach interface simplification as a design specification rather than a corrective action that can incorporate user confidence and cognitive load variation in the multivarious consumer groups of Nigeria. The low predictability of trust and security on customer satisfaction does not mean that it is irrelevant as where trust and security are concerned it would mean more prevention than promotion. The lack of apparent security guarantee may cause rejection, even by otherwise favorable users of systems, in an environment in which data misuse is a general issue of concern. Compliance cues that Nestle should consider as part of reputational capital and institutional trust would be visible conformity measures, disclosure statements on data usage, and ethical AI announcements because of changing data regulations in Nigeria.

In addition, the service quality mediating role indicates that the performance of chatbots has to be co-produced rather than a service that can be delivered to users. Context-awareness as well as responsiveness and emotional attune must become priorities by means of upgrades in terms of natural language processing and designs sensitive to sentiments. The multi-lingual capability is not just a necessity of linguistic inclusivity, but it is also a cultural prerequisite. Incorporating regional humor, politeness strategies, and local idioms into chatbot scripts have the potential to further increase the perceived authenticity and engagement. The results require dynamic feedback integration. Nestle must implement a form of adaptive learning that constantly adjusts chatbox responses to user metrics and customer satisfaction ratings, so that this service can develop along with changing consumer needs in the Nigerian market.

5.3.3 Policy Contributions

This research contains essential policymaking contributions, particularly regarding digital inclusion and ethical usage of AI in Nigeria. The fact that Technology Readiness has less impact exposes infrastructural differences and points to the requirement of investing in broadband connections and applicable digital

literacy programs. These programs directly contribute to SDG 9 (Industry, Innovation, and Infrastructure) by building inclusive digital ecosystems. The central position of Trust and Security is also an indicator of the necessity to establish legislation on the data protection which may be implemented in the form of EU-wide directives. With the escalation of AI tools, it is important to promote transparency and ethical governance to enhance the development of responsible innovation as part of SDG 9. In terms of SDG 8 (Decent Work and Economic Growth), mentioned above the introduction of AI chatbots helps increase efficiency at the cost of lower-skill customer service positions. Policymakers ought to encourage reskilling initiatives, which would allow displaced employees to transition to new jobs in an automation environment, including AI management or digital engagement with customers, where human skills are valuable. Also, local realities have to be reflected in AI strategies. Chatbots that are not culturally, linguistically and contextually adapted will have low engagement rates. The policies must facilitate local development of AI and welcome such multinational companies as Nestle Nigeria to adapt chatbot functions to the needs of Nigerian users. This increases the number of stakeholders and reduces the reliance on foreign technologies, which makes the digital transformation more inclusive.

5.4 Conceptual Framework

In this study the Unified Theory of Acceptance and Use of Technology (UTAUT) was adapted to investigate how AI-powered chatbot services were adopted and how customers at Nestlé Nigeria were satisfied and perceive the quality of the services. Performance Expectancy was found to be an essential determinant of chatbot adoption because empirical data demonstrated that was the most significant factor, like the outcome of studies in other countries. Nevertheless, its influence on Customer Satisfaction also indicates that speed is not the sole critical dimension that can guarantee satisfaction in circumstances where personalization and suitability to the background count (Pakurár *et al*., 2019). The high strength of the effect of Effort Expectancy on satisfaction indicates the high importance of usability in case of diverse levels of digital literacy (Busayo *et al*., 2023). The study also found out the mediating variable of Service Quality Perception in the relationship between such constructs as Effort Expectancy, Performance Expectancy and Customer Satisfaction. As the results include a large path coefficient between Service Quality and Customer Satisfaction, the findings underpin the expectation that the positive technological payoff must convert into a favorable perceived service quality to elicit satisfaction. Technology Readiness, in turn exhibited small and non-significant paths to Adoption and Service Quality, implying that it might also be more appropriate in the role of moderating condition in the Nigeria context where even smaller levels of readiness can be overcome with high usability, perceptions of usefulness, and trust. These insights call for refining UTAUT when applied to emerging markets, integrating local service quality expectations and trust-building measures as central considerations.

5.5 Chapter Summary

This Chapter explored the contributions made by UTAUT constructs on adoption and satisfaction in relation to AI chatbots in Nestle Nigeria. The factors with the strongest influence on adoption and satisfaction were Performance and Effort Expectancy, which are minor determinants of adoption and satisfaction, with Trust and Security exerting a tremendous influence on adoption and perceived service quality. Technology Readiness reported negligible impacts, indicating infrastructural and contextual impediments. The user perception was mediated by the quality of the service offered, and trust and usability were valued more than technical preparedness.

Chapter Six

6.0 CONCLUSION AND RECOMMENDATION

6.1 Introduction

In this study, an extended UTAUT framework was adopted to determine the factors that influences user acceptability, the perceived services quality, and customer satisfaction with the aim of exploring the adoption of AI-based chatbots within the customer service environment of Nestle Nigeria. The study gives an advanced perspective on the use of AI chatbots in the growing market culture including variable items of Performance Expectancy, Effort Expectancy, Trust and Security, and Technology Readiness into its model including the mediating roles of Service Quality. The findings indicate that, in spite that performance expectation is the strongest adoption driver, alone, it is not enough to ensure a delighted customer. Trust and security have a significant influence on adoption, yet the same cannot be said of satisfaction, a finding that underlines the critical importance of perceived data fairness and integrity. To influence desirable service outcomes, service quality appeared to be a significant mediator, which underscores the significance of the following factors: responsiveness, politeness, and contextual relevance by users. Moreover, the statistical insignificance of technology readiness undermines the assumptions about digital competency that also existed over many years and introduces the risk of the fact that even in the conditions of high usability and perceived usefulness, AI adoption may continue to flourish. Theoretically, this research has contributed to advancing the UTAUT model by putting a culturally based perspective on the model. In practice, it guides the customer service strategies based on ethical openness, interface clarity and local anticipations. Ultimately, the paper highlights the importance of the fact that the AI deployments in the Nigerian and similar markets need to transition to a customer-centric and culturally adaptable paradigm.

6.2 Recommendations

Based on the empirical evidence and critical analysis of AI-powered chatbot adoption at Nestlé Nigeria, it is, however, possible to provide specific suggestions that can facilitate more efficient execution and maintenance of this technology in customer service settings, both at Nestlé and other multinationals that operate in the emerging economies.

6.2.1 Invest in Localised Training and Digital Literacy Programs

Considering that Effort Expectancy and Technology Readiness have been found to play a crucial role in determining chatbot adoption, businesses ought to devise elaborate training sessions both to the customers and the employees. This incorporates ease of use, multi-language settings that take account of their local

situations, and easy-to-read directions to establish comfort with using technology (Venkatesh *et al*., 2012). Digital literacy promotion will facilitate decreased resistance, and increased quality of services provided.

6.2.2 Strengthen Trust and Security Mechanisms

The results revealed Trust and Security as a determinant that dictates the adoption of chatbots. Data protection policy, clear privacy statements, and frequent audits of automatic intellectual systems should be conducted at Nestlé Nigeria and other companies that rely on AI to alleviate fears that consumers have concerning the misuse of data (Dwivedi *et al*., 2023). Educating the user through media campaigns about these measures can also raise the confidence of the user.

6.2.3 Customise AI Chatbot Design for Local Consumer Behaviour

Evidence indicated that Performance Expectancy has a significant influence on adoption. One way to enhance perceived usefulness is by ensuring that chatbots are developed in accordance with local needs, cultural preferences of the consumers. This involves the inclusion of the local languages, the forethought of expected questions depending on regional consumer behavior, and the smooth transfer of complicated service-seeking to live-agent support (Chatterjee *et al*., 2021).

6.2.4 Enhance Infrastructure and Facilitate Access

Facilitating Conditions turned out to be an adoption facilitator. There is a need to enhance the underlying digital infrastructure by policymakers, and companies need to continue cooperating to guarantee low-latency and reliable internet connections and the availability of devices in under-represented areas. Nestlé Nigeria can join hands with the telecom companies to overcome these obstacles or even use mobile optimized chatbots design.

6.2.5 Continuous Performance Monitoring and User Feedback Integration

Since using AI technology is dynamic, continuous performance monitoring systems should be created in companies to evaluate the effectiveness of chatbots over a period. It is imperative to note that user feedback can be collected and analysed to continuously enhance service delivery such that the technology is responsive to changing customer expectations and market needs (Zhang *et al*., 2020).

6.3 Chapter Summary

The chapter concludes the research by giving recommendations and assuring that although performance expectancy plays a substantial role in adoption rate of AI chatbots in Nestle Nigeria, service quality and trust have to be adopted to maintain satisfaction.

REFERENCES

Abdulquadri, A., Mogaji, E., Kieu, T.A. and Nguyen, N.P. (2021). Digital transformation in financial services provision: a Nigerian perspective to the adoption of chatbot. *Journal of Enterprising Communities: People and Places in the Global Economy*, 15(2), pp.258–281. doi:https://doi.org/10.1108/jec-06-2020-0126.

Abrahão, R. de S., Moriguchi, S.N. and Andrade, D.F. (2016). Intention of adoption of mobile payment: An analysis in the light of the Unified Theory of Acceptance and Use of Technology (UTAUT). *RAI Revista de Administração e Inovação*, [online] 13(3), pp.221–230. doi:https://doi.org/10.1016/j.rai.2016.06.003.

Adam, M., Wessel, M. and Benlian, A. (2021). AI-based Chatbots in Customer Service and Their Effects on User Compliance. *Electronic Markets*, 31(2). doi:https://doi.org/10.1007/s12525-020-00414-7.

Ade-Ibijola, A. and Okonkwo, C. (2023a). Artificial Intelligence in Africa: Emerging Challenges. *Social and Cultural Studies of Robots and AI*, pp.101–117. doi:https://doi.org/10.1007/978-3-031-08215-3_5.

Ade-Ibijola, A. and Okonkwo, C. (2023b). Artificial Intelligence in Africa: Emerging Challenges. *Social and Cultural Studies of Robots and AI*, pp.101–117. doi:https://doi.org/10.1007/978-3-031-08215-3_5.

Aderibigbe, A.O., Ohenhen, P.E., Nwaobia, N.K., Gidiagba, J.O. and Ani, E.C. (2023). ARTIFICIAL INTELLIGENCE IN DEVELOPING COUNTRIES: BRIDGING THE GAP BETWEEN POTENTIAL AND IMPLEMENTATION. *Computer science & IT research journal*, [online] 4(3), pp.185–199. doi:https://doi.org/10.51594/csitrj.v4i3.629.

Adewumi, B. (2024). *MTN Nigeria unveils Africa's first AI-powered Chatbot*. [online] Tribune Online. Available at: https://tribuneonlineng.com/mtn-nigeria-unveils-africas-first-ai-powered-chatbot/ [Accessed 12 Apr. 2025].

African Union (2020). *AFRICAN UNION UNION AFRICAINE UNIÃO AFRICANA THE DIGITAL TRANSFORMATION STRATEGY FOR AFRICA (2020-2030)*. [online] Available at:

https://au.int/sites/default/files/documents/38507-doc-dts-english.pdf. [Accessed 12 Apr. 2025].

Alalwan, A.A., Dwivedi, Y.K. and Rana, N.P. (2017). Factors influencing adoption of mobile banking by jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, 37(3), pp.99–110.

Aldulaimi, S., Abdeldayem, M. and Keir, M.Y.A. (2024). AI-Powered Chatbots in Higher Education: A UTAUT2 and ECM Analysis. *Journal of Management World*, 2024(4), pp.610–617. doi:https://doi.org/10.53935/jomw.v2024i4.483.

Alrawashdeh, T.A. (2012). Factors Affecting Acceptance of Web-Based Training System: Using Extended Utaut and Structural Equation Modeling. *International Journal of Computer Science, Engineering and Information Technology*, 2(2), pp.45–54. doi:https://doi.org/10.5121/ijcseit.2012.2205.

Amaugo, O. (2024). Impact of AI Adoption on Business Process Automation and Competitiveness in Manufacturing Industry in Nigeria. *International Journal of Research and Innovation in Social Science*, VIII(IIIS), pp.5321–5330. doi:https://doi.org/10.47772/ijriss.2024.803398s.

Amazon (2022). *Amazon Alexa Official Site: What is Alexa?* [online] developer.amazon.com. Available at: https://developer.amazon.com/en-GB/alexa [Accessed 12 May. 2025].

Anditama, M.R. and Hidayanto, A.N. (2024). Analysis of Factors Influencing the Adoption of Artificial Intelligence Assistants among Software Developers. *The Indonesian Journal of Computer Science*, 13(4). doi:https://doi.org/10.33022/ijcs.v13i4.4239.

Ansah, M.R., Ugo, H.C., Aboagye, I.A., Sowah, N.L., Osei, G., Balapangu, S.S. and Kwofie, S.K. (2024). Artificial Intelligence and Health in Africa. *Advances in IT Standards and Standardization Research*, pp.105–125. doi:https://doi.org/10.4018/978-1-6684-9962-7.ch006.

Babajide, C. and Martin, S. (2022). *Data Privacy Laws in Nigeria: Compliance and Enforcement Issues*. [online] ResearchGate. Available at: https://www.researchgate.net/publication/388658647_Data_Privacy_Laws_in_Nigeria_Compliance_and_Enforcement_Issues [Accessed 1 Apr. 2025].

Busayo, T.O., Igbekoyi, O.E., Oluwagbade, O., Adewara, Y.M., Muyiwa Emmanuel Dagunduro and Yinka BOLUWAJI (2023). Artificial Intelligence and Service Quality of Telecommunication Firms in Nigeria. *Journal of economics, finance and accounting studies*, 5(3), pp.203–214. doi:https://doi.org/10.32996/jefas.2023.5.3.16.

Chaarani, H., Skaf, Y.A. and Khalife, D. (2022). Impact of Workforce Diversity on Innovation. *Advances in human resources management and organizational development book series*, pp.68–96. doi:https://doi.org/10.4018/978-1-6684-3657-8.ch004.

Chau, H.K.L., Ngo, T.T.A., Bui, C.T. and Tran, N.P.N. (2025). Human-AI Interaction in E-Commerce: The Impact of AI-Powered Customer Service on User Experience and Decision-Making. *Computers in Human Behavior Reports*, [online] p.100725. doi:https://doi.org/10.1016/j.chbr.2025.100725.

Chen, G., Fan, J. and Azam, M. (2024). Exploring artificial intelligence (AI) chatbots adoption among research scholars using unified theory of acceptance and use of technology (UTAUT). *Journal of Librarianship and Information Science*. doi:https://doi.org/10.1177/09610006241269189.

Church, B. (2024). *Types of Chatbots | IBM*. [online] Ibm.com. Available at: https://www.ibm.com/think/topics/chatbot-types [Accessed 1 Apr. 2025].

Clark, M. and Bailey, S. (2024). *Chatbots in Health Care: Connecting Patients to Information: Emerging Health Technologies*. [online] *PubMed*. Ottawa (ON): Canadian Agency for Drugs and Technologies in Health. Available at: https://www.ncbi.nlm.nih.gov/books/NBK602381/ [Accessed 13 May. 2025].

Data Council (2025). *Chatbots at Nestle: Improving Performance on Intent Detection*. [online] Datacouncil.ai. Available at: https://www.datacouncil.ai/talks25/chatbots-at-nestle-improving-performance-on-intent-detection [Accessed 12 Apr. 2025].

DataReportal (2024). *Digital 2024: Nigeria*. [online] DataReportal – Global Digital Insights. Available at: https://datareportal.com/reports/digital-2024-nigeria [Accessed 12 Apr. 2025].

Dehghanpouri, H., Soltani, Z. and Rostamzadeh, R. (2020). The impact of trust, privacy and

quality of service on the success of E-CRM: the mediating role of customer satisfaction. *Journal of Business & Industrial Marketing*, ahead-of-print(ahead-of-print). doi:https://doi.org/10.1108/jbim-07-2019-0325.

Deloitte (2023). *Build it and they will embrace it*. [online] Deloitte Insights. Available at: https://www2.deloitte.com/us/en/insights/industry/telecommunications/connectivity-mobile-trends-survey.html [Accessed 12 Apr. 2025].

Dosumu, J. (2024). Overcoming Infrastructural Barriers to Digital Literacy in Rural Nigeria. [online] doi:https://doi.org/10.2139/ssrn.4992050.

Duong, C.D., Bui, D.T., Pham, H., Trong Vu, A. and Nguyen, V.H. (2023). How effort expectancy and performance expectancy interact to trigger higher education students' uses of ChatGPT for learning. *Interactive Technology and Smart Education*. doi:https://doi.org/10.1108/itse-05-2023-0096.

Emma Okonji (2025). *Report: Nigerian Online Population Shows High use of Artificial Intelligence Tools – THISDAYLIVE*. [online] Thisdaylive.com. Available at: https://www.thisdaylive.com/index.php/2025/01/16/report-nigerian-online-population-shows-high-use-of-artificial-intelligence-tools/ [Accessed 22 Feb. 2025].

Etheridge, E. (2024). Cyber security measures: Secure your business with digital signatures. *Dataguard.co.uk*, [online] 1(1). Available at: https://www.dataguard.co.uk/blog/what-is-a-digital-signature-and-how-it-can-secure-your-business/#which-industries-need-digital-signatures-most [Accessed 12 Apr. 2025].

Faruque, M.O., Chowdhury, S.N., Rabbani, Md.G. and Khan, N.A. (2024). Technology Adoption and Digital Transformation in Small Businesses: Trends, Challenges, and Opportunities. *International Journal For Multidisciplinary Research*, 6(5). doi:https://doi.org/10.36948/ijfmr.2024.v06i05.29207.

Fida, B.A., Ahmed, U., Al-Balushi, Y. and Singh, D. (2020). Impact of Service Quality on Customer Loyalty and Customer Satisfaction in Islamic Banks in the Sultanate of Oman. *SAGE Open*, [online] 10(2), p.215824402091951. doi:https://doi.org/10.1177/2158244020919517.

Godoe, P. and Johansen, T.S. (2012). Understanding adoption of new technologies: Technology readiness and technology acceptance as an integrated concept. *Journal of European Psychology Students*, [online] 3(1). Available at: https://jeps.efpsa.org/articles/10.5334/jeps.aq. [Accessed 12 Apr. 2025].

Guanah, J.S. and Bebenimibo, P. (2025). Digital Technology and the Economic Transformation of Nigeria via the lens of Delta State: Opportunities, Challenges, and Future Prospects. *Rowter Journal*, [online] 4(1), pp.1–15. doi: https://doi.org/10.33258/rowter.v4i1.1235.

Guaranty Trust Holding (2020). *GTBank Revolutionises Customers Relations With Video Banking Services…*. [online] Guaranty Trust Holding. Available at: https://www.gtcoplc.com/media-centre/insights/gtbank-revolutionises-customers-relations-with-video-banking-services-around-the-world [Accessed 12 Apr. 2025].

Guido, G. (2015). Customer Satisfaction. *Wiley Encyclopedia of Management*, [online] 9, pp.1–8. doi:https://doi.org/10.1002/9781118785317.weom090287.

Handoyo, S., Suharman, H., Ghani, E.K. and Soedarsono, S. (2023). A business strategy, operational efficiency, ownership structure, and manufacturing performance: The moderating role of market uncertainty and competition intensity and its implication on open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, [online] 9(2). doi:https://doi.org/10.1016/j.joitmc.2023.100039.

Hariguna, T. and Ruangkanjanases, A. (2024). Assessing the Impact of Artificial Intelligence on Customer performance: a Quantitative Study Using Partial Least Squares Methodology. *Data Science and Management*, [online] 7(3). doi:https://doi.org/10.1016/j.dsm.2024.01.001.

Hasal, M., Nowaková, J., Saghair, K.A., Abdulla, H., Snášel, V. and Ogiela, L. (2021). Chatbots: Security, privacy, data protection, and social aspects. *Concurrency and Computation: Practice and Experience*, [online] 33(19). Available at: https://onlinelibrary.wiley.com/doi/full/10.1002/cpe.6426.

Hoofnagle, C.J., Sloot, B.V.D. and Borgesius, F.Z. (2019). The European Union general data protection regulation: what it is and what it means. *Information & Communications Technology*

Law, [online] 28(1), pp.65–98. doi:https://doi.org/10.1080/13600834.2019.1573501.

HR Grapevine USA (2024). *Nestlé says its GenAI tool saves employees 45 minutes a week*. [online] Hrgrapevine.com. Available at: https://www.hrgrapevine.com/us/content/article/2024-07-23-nestl-says-its-genai-tool-saves-employees-45-minutes-a-week [Accessed 12 Feb. 2025].

Huseynov, F. (2023a). Chatbots in Digital Marketing: Enhanced Customer Experience and Reduced Customer Service Costs. *Advances in marketing, customer relationship management, and e-services book series*, [online] pp.46–72. doi:https://doi.org/10.4018/978-1-6684-7735-9.ch003.

Huseynov, F. (2023b). Chatbots in Digital Marketing: Enhanced Customer Experience and Reduced Customer Service Costs. *Advances in marketing, customer relationship management, and e-services book series*, pp.46–72. doi:https://doi.org/10.4018/978-1-6684-7735-9.ch003.

Inavolu, S.M. (2024). *Exploring AI-Driven Customer Service: Evolution, Architectures, Opportunities, Challenges and Future... ResearchGate*. [online] doi:https://doi.org/10.13140/RG.2.2.19937.31841.

Inyang, B.J. (2011). Creating Value Through People: Best Human Resource (HR) Practices in Nigeria. *International Business and Management*, [online] 2(1), pp.141–150. doi:https://doi.org/10.3968/j.ibm.1923842820110201.009.

Iwok Iniobong (2025). *How poor infrastructure, skill gap hinder Al education, technology education - Ajala - Businessday NG*. [online] Businessday NG. Available at: https://businessday.ng/interview/article/how-poor-infrastructure-skill-gap-hinder-al-education-technology-education-ajala/ [Accessed 12 Apr. 2025].

Kala, E.S.M. (2023). Challenges of Technology in African Countries: a Case Study of Zambia. *Open Journal of Safety Science and Technology*, 13(4), pp.202–230. doi:https://doi.org/10.4236/ojsst.2023.134011.

Kaur, M. (2023a). *Exploring the Use of Chatbots and AI in Human Resource Management: A Focus on ChatGPT and its Impact of ChatGPT on Human Resource Management Practices.* [online] 4(10), pp.2442–2445. Available at:

https://www.researchgate.net/publication/375492403_Exploring_the_Use_of_Chatbots_and_AI_in_Human_Resource_Management_A_Focus_on_ChatGPT_and_its_Impact_of_ChatGPT_on_Human_Resource_Management_Practices [Accessed 12 Apr. 2025].

Kaur, M. (2023b). *Exploring the Use of Chatbots and AI in Human Resource Management: A Focus on ChatGPT and its Impact of ChatGPT on Human Resource Management Practices.* [online] 4(10), pp.2442–2445. Available at: https://www.researchgate.net/publication/375492403_Exploring_the_Use_of_Chatbots_and_AI_in_Human_Resource_Management_A_Focus_on_ChatGPT_and_its_Impact_of_ChatGPT_on_Human_Resource_Management_Practices.

Khneyzer, C., Boustany, Z. and Dagher, J. (2024). AI-Driven Chatbots in CRM: Economic and Managerial Implications across Industries. *Administrative Sciences*, [online] 14(8), pp.182–182. doi:https://doi.org/10.3390/admsci14080182.

Kinney, M., Anastasiadou, M., Naranjo-Zolotov, M. and Santos, V. (2024). Expectation management in AI: A framework for understanding stakeholder trust and acceptance of artificial intelligence systems. *Heliyon*, 10(7), pp.e28562–e28562. doi:https://doi.org/10.1016/j.heliyon.2024.e28562.

Kumar, A. and Ciddikie, M.D. (2023). *Marketing Strategies and Challenges for Emerging Markets*. [online] *ResearchGate*. Bharti Publications. Available at: https://www.researchgate.net/publication/372915021_Marketing_Strategies_and_Challenges_for_Emerging_Markets [Accessed 4 Apr. 2025].

Kumar, V., Ashraf, A.R. and Nadeem, W. (2024). AI-powered marketing: What, where, and how? *International journal of information management*, 77, pp.102783–102783.

Labadze, L., Grigolia, M. and Machaidze, L. (2023). Role of AI Chatbots in education: Systematic Literature Review. *International Journal of Educational Technology in Higher Education*, [online] 20(1). doi:https://doi.org/10.1186/s41239-023-00426-1.

Laoudai, O. (2025). *AI Chatbots in Customer Service: Can They Replace Human?* [online] Infomineo. Available at: https://infomineo.com/artificial-intelligence/ai-chatbots-in-customer-

service-can-they-replace-human/ [Accessed 2 Apr. 2025].

Manasa , R. and Devi, A.J. (2022). *Amazon's Artificial Intelligence in Retail Novelty - Case Study*. [online] ResearchGate. Available at: https://www.researchgate.net/publication/366818664_Amazon [Accessed 10 Apr. 2025].

Marak, Z.R., Pahari, S., Shekhar, R. and Tiwari, A. (2025). Factors affecting chatbots in banking services: the UTAUT2 and innovation resistance theory perspective. *Journal of Innovation and Entrepreneurship*, 14(1). doi:https://doi.org/10.1186/s13731-025-00514-8.

Mariani, M.M., Hashemi, N. and Wirtz, J. (2023). Artificial intelligence empowered conversational agents: A systematic literature review and research agenda. *Journal of Business Research*, [online] 161, p.113838. doi:https://doi.org/10.1016/j.jbusres.2023.113838.

Marikyan, D. and Papagiannidis, S. (2021a). *Unified Theory of Acceptance and Use of Technology: A review*. [online] open.ncl.ac.uk. Available at: https://open.ncl.ac.uk/theories/2/unified-theory-of-acceptance-and-use-of-technology/ [Accessed 11 Apr. 2025].

Marikyan, D. and Papagiannidis, S. (2021b). *Unified Theory of Acceptance and Use of Technology: A review*. [online] open.ncl.ac.uk. Available at: https://open.ncl.ac.uk/theories/2/unified-theory-of-acceptance-and-use-of-technology/ [Accessed 11 Apr. 2025].

Marjerison, R.K., Dong, H., Kim, J.-M., Zheng, H., Zhang, Y. and Kuan, G. (2025). Understanding User Acceptance of AI-Driven Chatbots in China's E-Commerce: The Roles of Perceived Authenticity, Usefulness, and Risk. *Systems*, 13(2), pp.71–71. doi:https://doi.org/10.3390/systems13020071.

Mayer, H., Yee, L., Chui, M. and Roberts, R. (2025). *Superagency in the workplace: Empowering people to unlock AI's full potential*. [online] McKinsey & Company. Available at: https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/superagency-in-the-workplace-empowering-people-to-unlock-ais-full-potential-at-work. [Accessed 9 Apr. 2025].

Menon, D. and Shilpa, K. (2023). 'Chatting with ChatGPT': Analyzing the Factors Influencing

users' Intention to Use the Open AI's ChatGPT Using the UTAUT Model. *Heliyon*, [online] 9(11), pp.e20962–e20962. doi:https://doi.org/10.1016/j.heliyon.2023.e20962.

Milkey, T. (2024a). *Artificial Intelligence at Nestlé | Emerj Artificial Intelligence Research*. [online] Emerj Artificial Intelligence Research. Available at: https://emerj.com/artificial-intelligence-at-nestle/ [Accessed 11 Apr. 2025].

Milkey, T. (2024b). *Artificial Intelligence at Nestlé | Emerj Artificial Intelligence Research*. [online] Emerj Artificial Intelligence Research. Available at: https://emerj.com/artificial-intelligence-at-nestle/ [Accessed 1 Apr. 2025].

Misischia, C.V., Poecze, F. and Strauss, C. (2022a). Chatbots in customer service: Their relevance and impact on service quality. *Procedia Computer Science*, [online] 201(201), pp.421–428. doi:https://doi.org/10.1016/j.procs.2022.03.055.

Misischia, C.V., Poecze, F. and Strauss, C. (2022b). Chatbots in customer service: Their relevance and impact on service quality. *Procedia Computer Science*, [online] 201(201), pp.421–428. doi:https://doi.org/10.1016/j.procs.2022.03.055.

Misischia, C.V., Poecze, F. and Strauss, C. (2022c). Chatbots in customer service: Their relevance and impact on service quality. *Procedia Computer Science*, [online] 201(201), pp.421–428. doi:https://doi.org/10.1016/j.procs.2022.03.055.

Mogaji, E. (2020a). *Digital Transformation in Financial Services Provision: A Nigerian Perspective to the Adoption of Chatbot*. [online] Ssrn.com. Available at: https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID3720236_code2145935.pdf?abstractid=3720236&mirid=1 [Accessed 6 Mar. 2025].

Mogaji, E. (2020b). *Digital Transformation in Financial Services Provision: A Nigerian Perspective to the Adoption of Chatbot*. [online] Ssrn.com. Available at: https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID3720236_code2145935.pdf?abstractid=3720236&mirid=1 [Accessed 6 Mar. 2025].

Morandini, S., Fraboni, F., Angelis, M.D. and Pietrantoni, L. (2023). *The Impact of Artificial Intelligence on Workers' Skills: Upskilling and Reskilling in Organisations*. [online]

ResearchGate. Available at: https://www.researchgate.net/publication/368721087_The_impact_of_artificial_intelligence_on_workers [Accessed 6 Mar. 2025].

Nestlé (2023). *Creating Shared Value and Sustainability Report 2023*. [online] Available at: https://www.nestle.com/sites/default/files/2024-02/creating-shared-value-sustainability-report-2023-en.pdf.

NITDA (2025). *DG NITDA Reaffirms Commitment to Research and AI-Driven Solutions – NITDA*. [online] Nitda.gov.ng. Available at: https://nitda.gov.ng/dg-nitda-reaffirms-commitment-to-research-and-ai-driven-solutions/8804/ [Accessed 12 Apr. 2025].

Nlebem, A. (2019). *Nestlé taps local inputs to boost Nigerian operations - Businessday NG*. [online] Businessday NG. Available at: https://businessday.ng/real-sector/article/nestle-taps-local-inputs-to-boost-nigerian-operations/ [Accessed 12 Apr. 2025].

Ntia Usukuma (2024). *Nestlé Nigeria: Confronting The Challenges Of Changing Lives, Empowering Our Next Generation*. [online] Brand Communicator - Linking the future. Available at: https://brandcom.ng/2024/10/01/nestle-nigeria-confronting-the-challenges-of-changing-lives-empowering-our-next-generation/ [Accessed 12 Apr. 2025].

Nwachukwu, D. (2023). *Evaluating the Influence of Artificial Intelligence Marketing on Customer Satisfaction with Products and...* [online] International Journal of Asian Management. Available at: https://www.researchgate.net/publication/370068691_Evaluating_the_Influence_of_Artificial_Intelligence_Marketing_on_Customer_Satisfaction_with_Products_and_Services_of_Telecommunication_Companies_in_Port_Harcourt_Rivers_State_Nigeria [Accessed 6 Mar. 2025].

Nyongesa, G., Omieno, K. and Otanga, D. (2020). Artificial Intelligence Chatbot Adoption Framework for Real-Time Customer Care Support in Kenya. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, pp.100–117. doi:https://doi.org/10.32628/cseit20667.

Okocha, D.O. and Dogo, J.S. (2024). *Digital Inclusion in Rural Areas: Qualitative Exploration of*

Challenges Faced by People from Isolated Communities in Southern Kaduna. [online] 4(2), pp.86–98. Available at: https://www.researchgate.net/publication/380104501_Digital_Inclusion_in_Rural_Areas_Qualitative_Exploration_of_Challenges_Faced_by_People_from_Isolated_Communities_in_Southern_Kaduna [Accessed 6 Mar. 2025].

Okogba, E. (2025). *Nigeria surpasses global average with 70% AI adoption rate – Report*. [online] Vanguard News. Available at: https://www.vanguardngr.com/2025/01/nigeria-surpasses-global-average-with-70-ai-adoption-rate-report/ [Accessed 6 Mar. 2025].

Olufemi Kazeem Oluoje (2025). *Beyond the Hype: The Real Challenges of AI Adoption for Nigerian SMEs - Businessday NG*. [online] Businessday NG. Available at: https://businessday.ng/opinion/article/beyond-the-hype-the-real-challenges-of-ai-adoption-for-nigerian-smes/ [Accessed 6 Mar. 2025].

Oluwole Asalu (2025). *Harnessing the Power of AI: Opportunities and Ethical Considerations in Nigeria*. [online] Champion Newspapers LTD. Available at: https://championnews.com.ng/2025/02/18/harnessing-the-power-of-ai-opportunities-and-ethical-considerations-in-nigeria/ [Accessed 22 Feb. 2025].

Ono, G.N., Obi, E.C., Okoli, O.N., Chiaghana, C. and Ezegwu, D. (2024a*). Digital Divide and Access: Addressing Disparities in Artificial Intelligence (Ai) Health Information for Nigerian Rural Communities*. [online] 10(3), pp.31–52. Available at: https://www.researchgate.net/publication/384081161_Digital_Divide_and_Access_Addressing_Disparities_in_Artificial_Intelligence_Ai_Health_Information_for_Nigerian_Rural_Communities [Accessed 6 Mar. 2025].

Ono, G.N., Obi, E.C., Okoli, O.N., Chiaghana, C. and Ezegwu, D. (2024b*). Digital Divide and Access: Addressing Disparities in Artificial Intelligence (Ai) Health Information for Nigerian Rural Communities.* [online] 10(3), pp.31–52. Available at: https://www.researchgate.net/publication/384081161_Digital_Divide_and_Access_Addressing_Disparities_in_Artificial_Intelligence_Ai_Health_Information_for_Nigerian_Rural_Communities [Accessed 6 Mar. 2025].

Pakurár, M., Haddad, H., Nagy, J., Popp, J. and Oláh, J. (2019). The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability*, 11(4), p.1113.

Pillai, R. and Sivathanu, B. (2020). Adoption of AI-based chatbots for hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 32(10), pp.3199–3226.

Rafalski, K. (2023). *Instant Assistance: How AI Chatbots Are Improving Customer Service*. [online] www.netguru.com. Available at: https://www.netguru.com/blog/ai-chatbots-improving-customer-service [Accessed 6 Mar. 2025].

Rane, N., Achari, A. and Choudhary, S.P. (2023). *Enhancing Customer Loyalty through Quality of service: Effective Strategies to Improve Customer satisfaction, experience, relationship, and Engagement*. [online] ResearchGate. Available at: https://www.researchgate.net/publication/370561455_Enhancing_customer_loyalty_through_quality_of_service_Effective_strategies_to_improve_customer_satisfaction_experience_relationship_and_engagement [Accessed 6 Mar. 2025].

research (2025). *Africa Chatbot Market | Grow At 7.3% CAGR Till 2031*. [online] 6wresearch.com. Available at: https://www.6wresearch.com/industry-report/africa-chatbot-market [Accessed 22 Feb. 2025].

Rodrigues, R. (2020). Legal and Human Rights Issues of AI: Gaps, Challenges and Vulnerabilities. *Journal of Responsible Technology*, [online] 4(100005), pp.1–12. doi:https://doi.org/10.1016/j.jrt.2020.100005.

Sandeep (2024). *How Google Chatbots Are Transforming Customer Support*. [online] FastBots. Available at: http://fastbots.ai/blog/how-google-chatbots-are-transforming-customer-support [Accessed 12 Apr. 2025].

Shatta, D.N. and Shayo, F. (2021). The influence of performance expectancy on e-procurement adoption model in developing countries: Tanzanians perception. *ITEGAM- Journal of Engineering and Technology for Industrial Applications (ITEGAM-JETIA)*, 7(29). doi: https://doi.org/10.5935/jetia.v7i29.754.

Shoabjareh, A.H., Ghasri, M., Roberts, T., Lapworth, A., Dobos, N. and Burken, C.B. (2024). The

role of trust and distrust in technology usage: An in-depth investigation of traffic information apps usage for mandatory and non-mandatory trips. *Travel Behaviour and Society*, [online] 37, pp.100816–100816. doi:https://doi.org/10.1016/j.tbs.2024.100816.

Silva, F.A., Shojaei, A.S. and Barbosa, B. (2023). Chatbot-Based Services: A Study on Customers' Reuse Intention. *Journal of Theoretical and Applied Electronic Commerce Research*, [online] 18(1), pp.457–474. doi:https://doi.org/10.3390/jtaer18010024.

Singh, P. and Singh, V. (2024). The power of AI: enhancing customer loyalty through satisfaction and efficiency. *Cogent Business & Management*, 11(1). doi:https://doi.org/10.1080/23311975.2024.2326107.

Souca, L. (2011). SERVQUAL -Thirty years of research on service quality with implications for customer satisfaction. *ResearchGate*. [online] Available at: https://www.researchgate.net/publication/346470601_SERVQUAL_-Thirty_years_of_research_on_service_quality_with_implications_for_customer_satisfaction [Accessed 6 Mar. 2025].

Suleiman, Y., Akanbi, I.M., Ibrahim, Y.O. and Emeruem, I.C. (2025). Stakeholders' Views on Ai-Powered Chatbots for Enhancing Student Support Services in Nigerian Universities: A Case Study of Al-Hikmah University. *Journal of Management Matters*, 11(2), pp.41–63. doi:https://doi.org/10.4038/jmm.v11i2.74.

Susanto, E. and Khaq, Z.D. (2024). Enhancing Customer Service Efficiency in Start-Ups with AI: A Focus on Personalization and Cost Reduction. *Journal of Management and Informatics*, 3(2), pp.267–281. doi:https://doi.org/10.51903/jmi.v3i2.34.

Taiwo, O.J. (2024). *Assessing the Effectiveness of AI-Personalised Recommendation Systems and Their Impact on Customer Engagement and Satisfaction: A Case Study of Jumia in Lagos, Nigeria*. [online] doi:https://doi.org/10.13140/RG.2.2.32649.76649.

Tchuisser, F., Ani, S., Silwal, R., Begazo, T., Newhouse, D. and N'ghauran, A. (2023). *The Size and Distribution of Digital Connectivity Gaps in Sub-Saharan Africa EQUITABLE GROWTH, FINANCE & INSTITUTIONS INSIGHT*. [online] Available at:

https://documents1.worldbank.org/curated/en/099241003142325200/pdf/IDU0cb2e42f3050260484d0b8370b84eee303ecf.pdf [Accessed 6 Mar. 2025].

Tewari, S.K. (2025). Data-Driven Marketing in Emerging Markets: Navigating Challenges for Sustainable Development. *Digital Transformation for Business Sustainability and Growth in Emerging Markets*, pp.171–196. doi:https://doi.org/10.1108/978-1-83549-109-620251007.

Thanyawatpornkul, R. (2024). Implementing AI-driven Customer Relationship Management (CRM) systems: Enhancing customer experience in the retail industry of Thailand. *World Journal of Advanced Research and Reviews*, 24(1), pp.1691–1699. doi:https://doi.org/10.30574/wjarr.2024.24.1.3154.

The business research (2025). *Artificial Intelligence (AI) Chatbot Global Market Report 2025*. [online] Thebusinessresearchcompany.com. Available at: https://www.thebusinessresearchcompany.com/report/artificial-intelligence-ai-chatbot-global-market-report [Accessed 6 Mar. 2025].

Timothy, Afolayan Ayodeji Fisayo, Ramachandran Thiru, Mustafa and Olodo, H.B. (2024a). Factors influencing the adoption and intensity of use of AI chatbots for online purchasing in Nigeria. *International journal of scientific research updates*, 7(2), pp.037–046. doi:https://doi.org/10.53430/ijsru.2024.7.2.0031.

Timothy, Fisayo, A.A., Thiru, R., Mustafa and Olodo, H.B. (2024b). Impact of AI chatbots on youth consumer behavior in e-commerce: Evidence from southwest, Nigeria. *International journal of multidisciplinary research updates*, 7(2), pp.043–051. doi:https://doi.org/10.53430/ijmru.2024.7.2.0027.

Tran, J. (2025). *British Airways' Customer Service Is Soaring Through AI Innovation*. [online] Sabio. Available at: https://sabiogroup.com/customer-story/how-british-airways-customer-service-is-soaring-to-new-heights-through-data-driven-ai-innovation/ [Accessed 12 Mar. 2025].

Trofymenko, M., Bulatova, O., Trofymenko, A. and Vyshniakov, O. (2023). Digital Development and Technological Innovations: Inequality and Asymmetry. *Marketing ì menedžment ìnnovacìj*, 14(3), pp.215–229. doi:https://doi.org/10.21272/mmi.2023.3-19.

UNESCO (2019). *Artificial intelligence in education*. [online] UNESCO. Available at: https://www.unesco.org/en/digital-education/artificial-intelligence [Accessed 16 Mar. 2025].

United Nations (2021). *ITU: 2.9 billion people still offline*. [online] United Nations. Available at: https://www.un.org/en/delegate/itu-29-billion-people-still-offline [Accessed 16 Mar. 2025].

Uren, V. and Edwards, J.S. (2023). Technology readiness and the organizational journey towards AI adoption: An empirical study. *International Journal of Information Management*, [online] 68(1), p.102588. Available at: https://www.sciencedirect.com/science/article/pii/S0268401222001220 [Accessed 6 Mar. 2025].

Uzoka, A., Cadet, E. and Pascal (2024a). Leveraging AI-Powered chatbots to enhance customer service efficiency and future opportunities in automated support. *Computer Science & IT Research Journal*, [online] 5(10), pp.2485–2510. doi:https://doi.org/10.51594/csitrj.v5i10.1676.

Uzoka, A., Cadet, E. and Pascal (2024b). Leveraging AI-Powered chatbots to enhance customer service efficiency and future opportunities in automated support. *Computer Science & IT Research Journal*, 5(10), pp.2485–2510. doi:https://doi.org/10.51594/csitrj.v5i10.1676.

Vashishth, T.K., Sharma, V., Sharma, K.K., Kumar, B., Kumar, A. and Panwar, R. (2024). Artificial Intelligence (AI)–Powered Chatbots. *Routledge eBooks*, pp.211–236. doi:https://doi.org/10.4324/9781003488248-15.

Vereschak, O. (n.d.). *Understanding Human-AI Trust in the Context of Decision Making through the Lenses of Academia and Industry : Definitions, Factors, and Evaluation Oleksandra Vereschak. Understanding Human-AI Trust in the Context of Decision Making through the Lenses of Academia and Industry : Definitions, Factors, and Evaluation. Artificial Intelligence*. [online] Available at: https://theses.hal.science/tel-04125248v1/file/VERESCHAK_Oleksandra_these_2022.pdf [Accessed 26 Mar. 2025].

Vergaray, A.D., Peralta Robles, W.F. and Salazar Jiménez, J.A. (2023). The Impact of Chatbots on Customer Satisfaction: A Systematic Literature Review. *TEM Journal*, [online] 12(3), pp.1407–1417. doi:https://doi.org/10.18421/tem123-21.

Vodă, A.I., Cautisanu, C., Grădinaru, C., Tănăsescu, C. and de Moraes, G.H.S.M. (2022).

Exploring Digital Literacy Skills in Social Sciences and Humanities Students. *Sustainability*, 14(5), p.2483. doi:https://doi.org/10.3390/su14052483.

Vu, T. (2021). *Service Quality And Its Impact On Customer Satisfaction*. [online] ResearchGate. Available at: https://www.researchgate.net/publication/356592279_Service_Quality_And_Its_Impact_On_Customer_Satisfaction [Accessed 26 Mar. 2025].

Waebuesar, A.E., Aruai, A., Rosli, A.B. and Azmi, A.N.B.M. (2022). Customer Satisfaction and Brand Loyalty: A Survey of Nestlé. *International journal of Tourism and hospitality in Asia Pasific (IJTHAP)*, 5(2), pp.20–37. doi:https://doi.org/10.32535/ijthap.v5i2.1577.

Xue, L., Rashid, A.M. and Ouyang, S. (2024). The Unified Theory of Acceptance and Use of Technology (UTAUT) in Higher Education: A Systematic Review. *SAGE Open*, 14(1). doi:https://doi.org/10.1177/21582440241229570.

Yang, J., Blount, Y. and Amrollahi, A. (2024). Artificial intelligence adoption in a professional service industry: A multiple case study. *Technological Forecasting and Social Change*, [online] 201, pp.123251–123251. doi:https://doi.org/10.1016/j.techfore.2024.123251.

Yum, K. and Kim, J. (2024). The Influence of Perceived Value, Customer Satisfaction, and Trust on Loyalty in Entertainment Platforms. *Applied Sciences*, [online] 14(13), pp.5763–5763. doi:https://doi.org/10.3390/app14135763.

Zahidi, F., Kaluvilla, B.B. and Mulla, T. (2024). Embracing the New Era: Artificial Intelligence and Its Multifaceted Impact on the Hospitality Industry. *Journal of Open Innovation Technology Market and Complexity*, 10(4), pp.100390–100390. doi:https://doi.org/10.1016/j.joitmc.2024.100390.

Zatsu, V., Shine, A.E., Tharakan, J.M., Peter, D., Ranganathan, T.V., Alotaibi, S.S., Mugabi, R., Muhsinah, A.B., Waseem, M. and Nayik, G.A. (2024). Revolutionizing the food industry: The transformative power of artificial intelligence-a review. *Food Chemistry X*, [online] 24, pp.101867–101867. doi:https://doi.org/10.1016/j.fochx.2024.101867.

Zhang, J.J.Y., Følstad, A. and Bjørkli, C.A. (2021). Organizational Factors Affecting Successful

Implementation of Chatbots for Customer Service. *Journal of Internet Commerce*, 22(1), pp.1–35. doi:https://doi.org/10.1080/15332861.2021.1966723.

Zubaedah, P.A., Harliyanto, R., Tua, M., Siagian, D.S. and Septaria, E. (2024). The Legal Implications of Data Privacy Laws, Cybersecurity Regulations, and AI Ethics in a Digital Society. *The Journal of Academic Science*, 1(2). doi:https://doi.org/10.59613/29qypw51.

8.0 APPENDIX

Data Collection Instrument (Questionnaire)

Section A: Screening

Q1. Have you ever interacted with a chatbot from Nestlé Nigeria (e.g., through WhatsApp, the Nestlé website, or social media)?

- Yes
- No

Q2. How often have you interacted with the Nestlé Nigeria chatbot in the past 6 months?

- Once
- 2–3 times
- More than 3 times

Section B: Demographic Profile

Q3. What is your age group?

- Under 18
- 18–24
- 25–34
- 35–44
- 45+

Q4. What is your highest level of education?

- No formal education

- Secondary school
- Diploma/NCE
- Bachelor's degree
- Postgraduate degree

Q5. How would you rate your overall digital literacy?

- Very poor
- Poor
- Fair
- Good
- Excellent

Section C: Chatbot Usage Experience

Effort expectancy, **Performance expectancy**, **Service quality**, and **Trust**.

Please rate your agreement with the following statements.

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Q6. The Nestlé chatbot was easy to use.

- Strongly Disagree
- Disagree
- Neutral

- Agree
- Strongly Agree

Q7. I found it easy to access the chatbot on the platform I used.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q8. The chatbot responded quickly to my queries.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q9. The responses provided by the chatbot were accurate and relevant.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q10. I was satisfied with the chatbot's ability to solve my problem.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q11. I felt confident that my data was secure during the chatbot interaction.

- Strongly Disagree
- Disagree
- Neutral

- Agree
- Strongly Agree

Q12. I trust the Nestlé chatbot to handle future customer service requests.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q13. I prefer using the chatbot instead of speaking with a human representative for basic inquiries.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Section D: Overall Satisfaction and Adoption

Customer satisfaction and Chatbot adoption behaviour.

Q14. Overall, I am satisfied with my experience using the Nestlé chatbot.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q15. I would recommend the Nestlé chatbot to others.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Q16. I intend to use the chatbot again for future inquiries.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Section E: Perceived Challenges

Q17. The chatbot was easily accessible, promptly responded to my queries, accurately understood my questions, provided reliable information, and delivered a service that left me satisfied.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Survey Participants' Consent

Dear Participant,

You are invited to take part in this research study on Assessing the effect of AI-Powered Chatbots on Customer Service Management and Satisfaction in Multinational Companies: A Case Study of Nestlé Nigeria. Your participation is voluntary, and all responses will be treated with strict confidentiality. No personal information will be shared, and the data will be used solely for academic purposes. By proceeding, you confirm that:

You understand the purpose of the study.

You voluntarily agree to participate.

You are at least 18 years old.

Ethical Clearance Approval

Application for Ethical Approval – Undergraduate and Postgraduate (Taught)

Name Ephraim Onohuean

Email address

Supervisor/s Dr Brighton Nyagadza

Programme (e.g., MSc Public Health) MRes Management Studies

Title of dissertation / project: Assessing the impact of AI-powered Chatbots on customer service management and Satisfaction in Multinational Companies: A Case Study of Nestle Nigeria.

Project details

1. Description of project: The research examines how AI-powered chatbots affect customer service management and satisfaction at Nestle Nigeria by emphatically investigating their operational efficiency and problems alongside performance assessment.

2. Description of research methods (e.g., interviews involving human participants): A quantitative research method will be adopted in the research, the research will implement a structured questionnaire (among participants who possessed internet connectivity and prior experience with chatbots communication) as part of its quantitative approach to collect numerical information. The study needs the quantitative research method due to its objectives of understanding both the degree of variable relationship strength and their directional patterns.

Participant Information

3. If participants will be involved, please give details of:

- who the participants will be (e.g., adults or children): Participants will be above 18 years of age.

- how many will participate: 100 respondents will be needed for correlation and regression analysis to observe 95% confident with 5-7% error margin, 120 valid responses will be aimed at as it requires enough statistical strength for its analysis. But 200 questionnaires will be distributed to handle situations where participants either did not respond or submitted incorrect information.

- how you will identify the participants: Screening questions will be adopted to identify participants that are qualified.

- how you will recruit the participants: Researcher will use the google form to share a survey link which will reach Nestle Nigeria's customers using WhatsApp groups combined with Facebook pages and email lists in online forum.
- the nature of the questions you will ask: Likert Scale questions.

4. Description of any possible risk or discomfort that may be posed to participants whether physical, mental or emotional: No risk

5. You must have consent to work with participants. Please state if participants will consent themselves or whether you will work with a third party (gatekeeper) to gain informed consent. You must explain this decision: Participants will consent themselves. They will include customers of Nestle Nigeria who worked with AI-powered chatbot system on platforms like WhatsApp, the corporate website and social media channel. They make this group since they can assess both its performance and usability and how it meets satisfaction requirement.

6. Description of the information you will give to participants: Purpose of study, what participants can expect, potential benefits, confidentiality and data protection measure, Voluntary participation and right to withdraw, Researcher's name, School name, Department and Course of Study.

Data Collection and Management

7. What types of data will you collect, will you anonymise the data, and how will you ensure you store it securely? Please note: you must comply with the General Data Protection Regulation (GDPR) as implemented in the UK by the Data Protection Act 2018. :

Numerical data will be collected and anonymised.

8. Does the research involve special category data? (This is personal data which reveals e.g., race or ethnic origin, political or religious beliefs, etc. A full list available here.): No

9. Does the research involve data that could be seen as offensive or illegal? (e.g., related to terrorism, pornography, abuse, etc.): No

Health and Safety

10. Researcher safety. Please describe any potential risk to yourself as a researcher (e.g., lone working, environmental or emotional risks, etc.): No risk

Checklist

- Information will remain in the research team (i.e., this will not be shared beyond yourself and your supervisor): Yes
- Have you included your consent form? Yes
- Have you included your participant information sheet (including privacy notice)? Yes
- Have you included sample questions? Yes

- I have read and understood the rules on GDPR: Yes
- I have considered health and safety (of myself and others) as part of the project: Yes

Student signature: *Ephraim onohuean*

Supervisor signature: *Brighton Nyagadza*

Scrutinised by (independent staff member)