

ARTIFICIAL INTELLIGENCE AND ENTERPRISE PERFORMANCE: INVESTIGATING THE EFFECT OF CHATBOTS AND VIRTUAL ASSISTANTS ON SMES' CUSTOMER RETENTION IN FCT ABUJA

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ABSTRACT

The adoption of chatbots and virtual assistants in business is transforming customer service operations, particularly among Small and Medium-Scale Enterprises (SMEs) seeking cost-effective ways to enhance customer retention. This study examined the effect of chatbots and virtual assistants on customer retention among SMEs in FCT Abuja, with a focus on response time, resolution rate, and user engagement as key determinants. A quantitative research design was employed, using a structured questionnaire distributed to 300 respondents. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4.0, assessing the relationships between chatbot efficiency and customer retention. Findings revealed that resolution rate ($\beta = 0.462$, $p < 0.001$) had the strongest effect on customer retention, followed by response time ($\beta = 0.312$, $p < 0.001$) and user engagement ($\beta = 0.279$, $p = 0.001$). The model exhibited strong predictive accuracy ($R^2 = 0.684$, $Q^2 = 0.539$), indicating that 68.4% of customer retention variance was attributable to chatbot efficiency metrics. The study concluded that chatbots and virtual assistants significantly improve customer retention, particularly when optimized for quick response times, efficient query resolution, and high user engagement. SMEs were thus recommended to enhance chatbot functionalities, integrate human support where necessary, and personalize AI-driven interactions to maximize retention. Providing empirical evidence for business owners, policymakers, and AI developers, the study highlights the strategic importance of AI-driven customer service in SME growth and sustainability.

Keywords: AI, Chatbots, Virtual Assistants, Response Time, Resolution Rate, User Engagement, Customer Retention, SMEs

INTRODUCTION

The increasing adoption of Artificial Intelligence (AI) technologies in business operations has revolutionized customer service,

with chatbots and virtual assistants emerging as key tools for enhancing customer engagement and retention (Adamopoulou & Moussiades, 2020). These AI-driven tools aid automated responses, providing real-time assistance while

also handling customer queries, thereby reducing response time, improving issue resolution rates, and increasing user engagement (Huang & Rust, 2021).

For small and medium-scale enterprises (SMEs), particularly in FCT Abuja, leveraging chatbots and virtual assistants has become a critical strategy for ensuring efficient customer service delivery amidst rising competition (Adegbuyi et al., 2021). Given that SMEs often struggle with limited resources, workforce constraints, and the pressing need for round-the-clock customer support, AI-driven solutions provide a cost-effective means of enhancing customer interactions (Chung et al., 2020).

Despite these benefits, concerns persist regarding the effectiveness of chatbots and virtual assistants in maintaining long-term customer relationships. Issues such as delayed resolution rates, impersonalized responses, and technical errors may negatively impact customer experience, leading to dissatisfaction and potential customer churn (Wirtz et al., 2018). This study, therefore, sought to investigate the effect of chatbots and virtual assistants on customer retention among SMEs in FCT Abuja, using response time, resolution rate, and user engagement as key proxies.

Customer retention is critical for SMEs' sustainability, as acquiring new customers is more expensive than retaining existing ones (Grewal et al., 2020). Many SMEs in FCT Abuja have embraced chatbots and virtual assistants to enhance customer experience and improve retention rates. However, the effectiveness of these AI-driven tools remains uncertain, as some customers prefer human interaction, and technological limitations may hinder seamless service delivery (Luo et al., 2019).

Moreover, while existing studies have explored AI adoption in customer service, few have examined its specific impact on customer retention among SMEs in FCT Abuja (Adegbuyi et al., 2021). Studies suggest that slow response times, unresolved issues, and impersonal interactions can negatively affect customer experience, leading to lower retention rates (Luo et al., 2019). Additionally, few empirical studies have specifically examined how response time, resolution rate, and user

engagement influence customer retention in SMEs using SmartPLS for structural analysis.

This study sought to fill this gap by analyzing how chatbots and virtual assistants influence SMEs' ability to retain customers in Abuja, providing data-driven insights for business owners and policymakers. The primary objective of this study is to examine the effect of chatbots and virtual assistants on SMEs' customer retention in FCT Abuja. Specifically, the study aims to:

- i. Investigate the effect of bots' response time on customer retention among SMEs.
- ii. Assess the effect of bots' resolution rate on SMEs' customer retention.
- iii. Examine how user engagement with chatbots influences customer retention.

LITERATURE REVIEW

Conceptual Review

Chatbots and Virtual Assistants

Chatbots and virtual assistants are AI-driven conversational agents designed to facilitate automated interactions between businesses and customers (Adamopoulou & Moussiades, 2020). These technologies use natural language processing (NLP), machine learning (ML), and rule-based algorithms to respond to inquiries, provide recommendations, and execute customer service tasks, often without human coordination (Huang & Rust, 2021).

Chatbots function primarily through text-based or voice-enabled interfaces, enabling businesses to offer real-time, 24/7 support without human intervention. Virtual assistants, such as Google Assistant, Siri, and Alexa, provide advanced functionalities, including contextual understanding, multi-turn conversations, and integration with third-party applications (Luo et al., 2019).

Chatbots primarily handle structured queries, such as FAQs and transactional services, while virtual assistants offer more advanced functionalities, including context-based learning, sentiment analysis, and personalized interactions (Chung et al., 2020). These technologies help businesses reduce

operational costs, improve customer experience, and drive engagement, leading to higher retention rates (Luo et al., 2019).

However, challenges such as limited contextual understanding, lack of emotional intelligence, and customer resistance to AI-driven interactions may impact their effectiveness.

Response Time

Response time refers to the speed at which a chatbot or virtual assistant replies to customer inquiries. It is a critical determinant of customer satisfaction and retention, as customers expect instantaneous responses in digital interactions (Luo et al., 2019). Faster response times reduce frustration, improve engagement, and enhance overall user experience (Wirtz et al., 2018).

In this study, response time is a proxy variable representing chatbot efficiency in SMEs. A well-optimized chatbot should provide real-time responses while ensuring the accuracy of information. Delayed responses may lead to customer dissatisfaction and increased churn rates (Huang & Rust, 2021).

Resolution Rate

Resolution rate refers to the effectiveness of chatbots and virtual assistants in resolving customer issues or inquiries without requiring human intervention. A high resolution rate indicates that the AI system can accurately understand, process, and solve customer queries, leading to higher satisfaction and retention (Adegbuyi et al., 2021).

In this study, resolution rate serves as a proxy variable for chatbot efficiency in SMEs. Effective issue resolution enhances customer trust and loyalty, while unresolved or poorly handled queries can lead to customer frustration and churn (Luo et al., 2019). SMEs must optimize chatbot algorithms to improve resolution rates.

User Engagement

User engagement refers to the level of interaction and involvement customers have with chatbots and virtual assistants. It is a key determinant of customer experience, satisfaction, and long-term loyalty (Huang & Rust, 2021). Higher engagement levels indicate that customers find the AI-driven service useful, responsive, and interactive, which

enhances their likelihood of continued patronage (Wirtz et al., 2018).

In this study, user engagement serves as a proxy variable for chatbot effectiveness in SMEs. Businesses with high chatbot engagement rates tend to experience better customer retention, while low engagement suggests inefficiency or customer dissatisfaction (Luo et al., 2019).

Customer Retention

Customer retention refers to a business's ability to maintain long-term relationships with existing customers, ensuring continued patronage and loyalty (Grewal et al., 2020). It is a critical performance metric, as retaining customers is more cost-effective than acquiring new ones and contributes to sustained revenue growth (Huang & Rust, 2021).

Key drivers of customer retention include service quality, personalized interactions, customer satisfaction, and engagement (Luo et al., 2019). Businesses that provide fast response times, effective issue resolution, and seamless customer experiences tend to retain customers more successfully (Wirtz et al., 2018).

In the digital age, technologies like chatbots and virtual assistants enhance customer retention by offering instant support, round-the-clock availability, and personalized responses (Adamopoulou & Moussiades, 2020). However, ineffective automation or lack of human touch in AI-driven interactions may negatively impact loyalty.

Theoretical Framework

This study is theoretically anchored on the Technology Acceptance Model (TAM) developed by Davis (1989). The theory explains how individuals adopt and use technology based on two key factors: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU).

PU refers to the degree to which a user believes that a technology enhances task performance, while PEOU relates to how effortless the technology is to use. When users find a system useful and easy to navigate, their likelihood of adoption increases, leading to greater technology acceptance.

This study applies TAM to examine the adoption of chatbots and virtual assistants by SMEs in FCT Abuja. If businesses and customers perceive these AI-driven tools as efficient (fast response time, high resolution rate, and engaging interaction) and easy to use, they are more likely to integrate them into customer service, improving retention.

Empirical Review

Several studies have examined the impact of chatbots and virtual assistants on customer retention and business performance, providing valuable insights into their effectiveness in improving customer service.

Luo et al. (2019) investigated how response time influences customer satisfaction and retention in AI-driven customer service. Using a survey-based approach with 500 respondents, their findings revealed that faster response times significantly increased customer retention rates, as customers preferred instant solutions to their queries. Similarly, Wirtz et al. (2018) conducted a mixed-methods study on chatbot efficiency and found that while chatbots improve operational efficiency, their inability to provide personalized interactions can adversely impact customer loyalty.

Adegbuyi et al. (2021) explored the effect of AI-driven customer engagement in SMEs and found that businesses using chatbots experienced a 25% improvement in customer retention, particularly in the e-commerce sector. However, Huang & Rust (2021) argued that businesses must integrate human-agent hybrid models to address chatbot limitations and maintain customer trust.

While these studies highlight the benefits and challenges of chatbots, they do not specifically examine their effect on SMEs in FCT Abuja using SmartPLS for structural analysis. This study bridges this gap by analyzing how response time, resolution rate, and user

engagement influence customer retention among SMEs, providing data-driven recommendations for business owners.

METHODOLOGY

This study adopted a quantitative research approach to examine the effect of chatbots and virtual assistants on customer retention among SMEs in FCT Abuja. A cross-sectional survey instrument was employed to collect primary data from SME owners and customers who interact with AI-driven customer service tools. A structured questionnaire was administered to SME owners and customers using Likert-scale questions to measure key variables, including response time, resolution rate, user engagement, and customer retention.

Sampling Technique and Population

The population of the study covers all SMEs in the Federal Capital Territory (totalling six hundred and fifty-six thousand, two hundred and twenty-four, 656,224 SMEs) as documented by the National Bureau of Statistics and Small and Medium Enterprises' Development Agency of Nigeria (NBS-SMEDAN) National SMEs Survey Data of 2021. While the survey was last conducted in 2021, an estimated statistic was provided by the NBS Data Office.

Given the size of the population, Cochran's formula was adopted. This formula was considered most suitable given its characteristic handling of large populations and effective sample size determination. The sample was determined to be 384 SMEs.

A stratified random sampling method was used, with the sample (determined at 384 SMEs) allocated proportionally based on the distribution of SMEs across the Area Councils. The study adopted the Abuja Enterprise Agency estimated SMEs' distribution across the six Area Councils as follows:

Table 3.1: Distribution of SMEs' in FCT

Area Council	Distribution (%)
Abuja Municipal Area Council (AMAC)	40
Bwari Area Council	20
Gwagwalada Area Council	15
Kuje Area Council	10
Kwali Area Council	8
Abaji Area Council	7
Total	100

Source: Abuja Enterprise Agency (AEA), 2022

Based on the AEA's estimation, the study's sample was stratified thus:

Table 3.4 Stratified Sample Distribution

Area Council	Stratum	Sample size
Abuja Municipal Area Council (AMAC)	0.4 (384)	154
Bwari Area Council	0.2 (384)	77
Gwagwalada Area Council	0.15 (384)	58
Kuje Area Council	0.10 (384)	38
Kwali Area Council	0.08 (384)	31
Abaji Area Council	0.07 (384)	27
Total		384

Source: Researcher's Computation from Abuja Enterprise Agency (AEA) Data, 2022

This approach ensured a representative sample covering all area councils while accounting for the variations in SME density.

Method of Data Analysis

The study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4.0 for data analysis. SmartPLS was chosen because it is effective for modeling complex relationships and handling latent variables (Hair et al., 2019).

SmartPLS was used to estimate path coefficients, t-statistics, and R^2 values, allowing for a comprehensive assessment of the direct and indirect effects of chatbots and virtual assistants on customer retention.

The study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4.0 to analyze the relationship between chatbots and virtual assistants (proxied by response time, resolution rate, and user engagement) and customer retention among SMEs in FCT Abuja. The results are presented in three key outputs: outer model assessment, structural model evaluation, and hypothesis testing.

Outer Model Assessment (Measurement Model)

The measurement model was evaluated based on construct reliability, convergent validity, and discriminant validity using Cronbach's alpha, Composite Reliability, and Average Variance Extracted (AVE).

RESULTS AND DISCUSSION

Table 4.1: Construct Reliability and Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
Response Time (RT)	0.812	0.891	0.673
Resolution Rate (RR)	0.867	0.912	0.721
User Engagement (UE)	0.841	0.897	0.706
Customer Retention (CR)	0.879	0.923	0.759

Source: Field Survey/SmartPLS Output, 2025

The findings from the measurement model assessment confirm that the constructs used in this study are statistically reliable and valid, making them suitable for testing the structural relationships in the SmartPLS model. The Cronbach's alpha and Composite Reliability (CR) values for all constructs exceed the recommended threshold of **0.7**, indicating strong reliability. Specifically, Resolution Rate

(CR = 0.912), Response Time (CR = 0.891), and Customer Retention (CR = 0.923) all demonstrate high reliability, suggesting that the survey items effectively measure their respective constructs. Also, all AVE values surpass 0.5, with Customer Retention recording the highest AVE of 0.759, confirming that the observed indicators contribute significantly to their constructs.

Structural Model Assessment (Path Coefficients and Hypothesis Testing)

The structural model was assessed using path coefficients (β), t-statistics, and p-values to test the hypotheses.

Table 4.2: Structural Model Path Coefficients

Hypothesis	Path	Coefficient (β)	t-Statistic	p-Value	Decision
H₁: Response Time → Customer Retention	RT → CR	0.312	4.15	0.000***	Supported
H₂: Resolution Rate → Customer Retention	RR → CR	0.462	6.21	0.000***	Supported
H₃: User Engagement → Customer Retention	UE → CR	0.279	3.78	0.001**	Supported

Source: Field Survey/SmartPLS Output, 2025

The results provide empirical evidence that chatbots and virtual assistants significantly influence customer retention among SMEs in FCT Abuja, **with** resolution rate being the strongest determinant.

The path coefficients (β values) represent the strength and direction of the relationships between the independent variables (Response Time, Resolution Rate, and User Engagement) and the dependent variable (Customer Retention). Resolution Rate ($\beta = 0.462$, $p <$

0.001) has the strongest effect on customer retention, suggesting that efficient issue resolution significantly improves customer loyalty. Response Time ($\beta = 0.312$, $p < 0.001$) positively influences retention, confirming that quick responses to customer inquiries enhance satisfaction and reduce churn. User Engagement ($\beta = 0.279$, $p = 0.001$) has a significant positive effect, indicating that customers who interact more frequently with chatbots and virtual assistants tend to remain loyal to SMEs.

Hypothesis Testing

The statistical significance of the relationships is assessed using t-statistics and p-values:

- A **p-value less than 0.05** indicates a statistically significant effect.
- A **t-statistic above 1.96** (for a 95% confidence level) confirms the reliability of the estimates.

As evident from Table 4.2 above, all three hypotheses (H₁, H₂, and H₃) are supported as their p-values are statistically significant at $p < 0.05$.

Implications of the Structural Model Results

- Resolution Rate is the most influential predictor of customer retention.** This suggests that SMEs must prioritize efficient complaint resolution and ensure chatbots are programmed to address customer issues effectively.
- Response Time plays a crucial role in retaining customers.** SMEs should aim to optimize chatbot response speeds, ensuring near-instant replies to inquiries.

- iii. **User Engagement positively affects customer retention.** SMEs should design interactive and personalized chatbot experiences to sustain customer relationships.

The results provide empirical evidence that chatbots and virtual assistants significantly influence customer retention among SMEs in FCT Abuja, with resolution rate being the strongest determinant. These findings align with previous research (Luo et al., 2019; Wirtz et al., 2018) and validate the application of Technology Acceptance Model (TAM) in AI-driven customer service adoption.

Table 4.3: Model Fit and Predictive Power

Metric	Value	Threshold	Decision
R² (Customer Retention)	0.684	> 0.5	Strong Predictive Power
Q² (Predictive Relevance)	0.539	> 0	Model is Predictive

Source: Field Survey/SmartPLS Output, 2025

Assessment of Model Fit (R² - Coefficient of Determination)

The R² value indicates the proportion of variance in the dependent variable (Customer Retention) that can be explained by the independent variables.

In this study, the R² value for Customer Retention is 0.684, meaning that 68.4% of the variations in customer retention among SMEs in FCT Abuja are explained by Response Time, Resolution Rate, and User Engagement. According to Hair et al. (2019), an R² value above 0.5 is considered strong, indicating that the model has good explanatory power.

Assessment of Predictive Relevance (Q² - Stone-Geisser Criterion)

The Q² value is used to assess the model's predictive relevance, showing how well it can predict new or unseen data.

The Q² value for Customer Retention is 0.539, which is significantly higher than 0, confirming that the model has strong predictive relevance. A Q² value above zero indicates that the independent variables provide meaningful predictive accuracy (Chin, 1998).

Model Fit and Predictive Power

After evaluating the structural model, it is essential to assess its overall fit and predictive accuracy. In SmartPLS, model fit and predictive power are evaluated using key indicators such as R² (coefficient of determination) and Q² (predictive relevance). These metrics help determine how well the independent variables (Response Time, Resolution Rate, and User Engagement) explain variations (affect) in the dependent variable (Customer Retention).

Interpretation and Implications

- i. Strong explanatory power (R² = 0.684) means that the model is statistically robust, and the selected variables effectively explain customer retention.
- ii. High predictive relevance (Q² = 0.539) confirms that the model is useful for making real-world predictions, allowing SMEs to use chatbot performance metrics (Response Time, Resolution Rate, and User Engagement) to forecast customer retention trends.
- iii. These results reinforce the importance of AI-driven customer engagement strategies, highlighting that SMEs in FCT Abuja can improve customer loyalty by optimizing chatbot and virtual assistant performance.

Overall, the model demonstrates high reliability, strong explanatory power, and excellent predictive accuracy, making it a valuable tool for SMEs aiming to enhance customer retention.

Discussion of Findings

The results of this study provide empirical evidence on how chatbots and virtual assistants

influence customer retention among SMEs in FCT Abuja. The findings highlight the importance of response time, resolution rate, and user engagement in shaping customer loyalty, reinforcing the growing role of AI-driven customer service in today's business environment.

i. Resolution Rate Has the Strongest Influence on Customer Retention

The study found that Resolution Rate ($\beta = 0.462$, $p < 0.001$) had the strongest positive effect on customer retention, indicating that the ability of chatbots and virtual assistants to effectively resolve customer inquiries and complaints plays a crucial role in retaining customers. This aligns with Adegbuyi et al. (2021), who found that SMEs with high-resolution rates in AI-assisted customer service reported a 25% increase in customer retention. The implication is that SMEs must ensure that chatbots are designed to provide accurate, contextually relevant, and comprehensive solutions to customer issues.

ii. Faster Response Time Enhances Customer Retention

The study revealed that Response Time ($\beta = 0.312$, $p < 0.001$) has a significant positive impact on customer retention. This suggests that quick response to customer inquiries enhances satisfaction, builds trust, and reduces churn rates. This finding is consistent with Luo et al. (2019), who observed that companies with faster AI-assisted response times retained more customers compared to those with delays in response. SMEs in FCT Abuja should prioritize reducing chatbot latency and ensuring immediate feedback mechanisms to improve customer experience.

iii. User Engagement Positively Affects Customer Retention

The study also found that User Engagement ($\beta = 0.279$, $p = 0.001$) has a significant and positive effect on customer retention. This suggests that customers who frequently interact with chatbots and virtual assistants tend to develop stronger relationships with businesses, increasing their likelihood of remaining loyal. This finding aligns with Wirtz et al. (2018), who argued that higher engagement levels in AI-driven customer service lead to increased

trust and long-term retention. SMEs should, therefore, enhance chatbot personalization, interactive features, and conversational depth to encourage repeated engagement.

iv. Model Fit and Predictive Power Indicate Strong Explanatory Capacity

The R^2 value (0.684) suggests that 68.4% of the variation in customer retention can be explained by response time, resolution rate, and user engagement, indicating a strong explanatory model. Additionally, the Q^2 value (0.539) confirms that the model has strong predictive relevance, meaning it can reliably forecast customer retention trends based on chatbot performance metrics. These findings validate the Technology Acceptance Model (TAM), confirming that perceived chatbot efficiency significantly influences customer retention among SMEs in Abuja.

Implications of the Findings

- i. AI-powered customer service tools are a key driver of customer retention for SMEs in FCT Abuja.
- ii. Resolution efficiency is more important than response speed—indicating that chatbots should prioritize issue resolution over simply providing instant responses.
- iii. User engagement strategies such as personalization, interactive dialogues, and human-AI hybrid models can enhance customer loyalty.

CONCLUSION AND RECOMMENDATIONS

This study examined the effect of chatbots and virtual assistants on customer retention among SMEs in FCT Abuja, using response time, resolution rate, and user engagement as proxies. Among the key findings, resolution rate had the strongest impact on customer retention, indicating that the ability of chatbots and virtual assistants to effectively resolve customer queries and complaints is the most crucial factor in fostering loyalty. Response time also played a significant role, as faster AI-driven responses improved customer satisfaction and reduced churn. Furthermore, user engagement was found to positively influence retention,

suggesting that SMEs that encourage regular chatbot interaction tend to retain more customers.

The study affirms that chatbots and virtual assistants are valuable tools for SMEs, as they help businesses optimize customer service, improve engagement, and enhance overall customer experience. However, for maximum effectiveness, AI-driven systems must be optimized for both speed and problem resolution.

As digital transformation continues to shape business operations, AI-driven customer service tools will remain critical for SMEs striving to enhance customer experience and retention. Businesses that optimize chatbot response efficiency, resolution accuracy, and user engagement strategies will be better positioned to maintain customer loyalty and long-term growth in the competitive market.

Recommendations

Based on the findings, the following recommendations are proposed to SMEs using or considering chatbots and virtual assistants for customer service:

i. Enhance Resolution Rate for Improved Customer Retention

SMEs should focus on improving the accuracy and efficiency of chatbot-generated solutions. Also, AI-powered customer service tools should be trained using customer feedback and real-world problem scenarios to enhance their resolution capabilities. SMEs should integrate human intervention mechanisms, allowing seamless escalation of complex issues from AI to human agents when necessary.

ii. Optimize Response Time for Real-Time Customer Satisfaction

SMEs should invest in fast-response AI models to reduce waiting times for customers. Also, chatbots should be equipped with predictive analytics to anticipate customer queries and generate preemptive responses, ensuring faster issue resolution. SMEs should regularly test and refine AI system performance to minimize response delays and optimize server processing speeds.

iii. Improve User Engagement Through Personalization and Interactive Features

AI-driven virtual assistants should be programmed to learn from previous customer interactions, enabling them to provide personalized responses. SMEs should incorporate interactive and conversational elements in chatbot interfaces to create a more engaging experience for customers. SMEs can integrate chatbots with loyalty programs, promotional offers, and feedback mechanisms to encourage continued engagement.

iv. Leverage AI Analytics to Continuously Improve Customer Experience

SMEs should utilize AI-generated customer insights to identify common customer concerns, satisfaction trends, and areas for service improvement.

v. Adopt a Hybrid Customer Service Model

While chatbots and virtual assistants enhance efficiency, SMEs should maintain a hybrid model where customers have access to both AI-driven and human-assisted customer service. Businesses should provide options for seamless transitions from automated interactions to live agents, particularly for complex issues requiring human judgment.

Policy and Managerial Implications

SME owners and managers should consider AI-powered chatbots as a strategic investment to improve customer engagement and loyalty.

Accordingly, tech developers and AI service providers should refine chatbot algorithms to improve context-awareness, problem-solving accuracy, and user adaptability.

Regulatory bodies in Nigeria should create guidelines that ensure AI-driven customer service solutions maintain ethical and data privacy standards while supporting SMEs in their digital transformation.

Future Research Directions

This study focused on SMEs in FCT Abuja; future research could explore the impact of chatbots and virtual assistants on customer

retention in other geographic locations. Additionally, longitudinal studies can assess

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