International Journal of Management and Commerce Innovations ISSN 2348-7585 (Online)
Vol. 13, Issue 1, pp: (476-486), Month: April 2025 - September 2025, Available at: www.researchpublish.com

The Influence of Technological Innovations on Customer Satisfaction in Commercial Banks: A Case Study of Selected Commercial Bank in Morogoro Municipality

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DOI: https://doi.org/10.5281/zenodo.22815530

Published Date: 01-September-2025, Amendment Date: 17-September-2026

Abstract: **The banking sector has evolved with tremendous changes due to technological innovations that have increased its convenience as well as efficiency and ease of accessing services. In this study, researchers explore how technological innovations affect customer satisfaction in commercial banks with Selected Commercial Bank in Morogoro Municipality, Tanzania used as the subject of analysis. On the basis of the Expectancy-Disconfirmation Theory, my study adopted the cross-sectional study design coupled with the mixed-methods strategy wherein both quantitative data were gathered in a structured questionnaire among 375 customers and qualitative data were obtained through key informants, namely branch managers, agents, and IT users. The results reveal that ATMs, mobile banking and good institutional framework have positive effects on customer satisfaction in order to offer convenience, accessibility and good support. Conversely, computer technology and frequent enhancements to the system results in low satisfaction because of usability, and learning adoptions of a new system. The influence of the networks of guides on the customer satisfaction did not significantly differ among networks of guides. The results of the logistic regression analysis showed that, despite the contribution of technological innovations to the development of satisfaction, other variables are also significant (usability, guidance, human assistance). The study concludes that banks should maximize ATM machines and mobile banking facilities to be user friendly, have rigid institutional frameworks and standardize the operations of the agent networks. In addition, human interaction should be used alongside technological adoption, especially on complex transactions and service recovery, to build trust, satisfaction and loyalty. These insights offer practical guidance to commercial banks in developing countries that are striving to reconcile efficiency driven by technology with customer facing delivery.**

Keywords: **Technological Innovations, Customer Satisfaction, Commercial Banks, and Morogoro Municipality.**

1. INTRODUCTION

In Europe and Asia, technological innovations have transformed commercial banking by improving convenience, security, and efficiency. Li, Lu, Hou, Cui, and Darbandi (2021) found that cloud services and e-learning enhanced service reliability, while Sharma (2022) emphasised that innovations directly build customer loyalty by aligning with evolving digital preferences. In China, Yu and Nuangjamnong (2022) showed that mobile banking strongly influenced satisfaction through accessibility and ease of use, while Chen, You, and Chang (2021) argued that fintech technologies boosted competitiveness and responsiveness. These findings suggest that in developed contexts, customer satisfaction is closely tied to digital service quality and technological advancement.

Technological innovation has significantly enhanced customer satisfaction in Africa's banking sector, despite ongoing infrastructural and regulatory obstacles. In Ethiopia, Ayinaddis, Taye, and Yirsaw (2023) found that electronic banking's responsiveness and reliability drive satisfaction and loyalty. Similarly, Bakry, Shafik, and Mogeth (2023) reported increased

satisfaction in Egypt due to electronic services, while Pooya, Khorasani, and Ghouzhdi (2020) highlighted the impact of self-service banking. In Kenya, studies by Odhiambo and Mang'ana (2022) and Mugambi (2022) showed mobile and agency banking improved competitiveness. In Ghana, Ali (2024) noted innovations boosted satisfaction in urban banks. Uganda's research by Osinde, Mayanja, and Tibaingana (2020) emphasized that service quality builds trust, although Kyambade et al. (2024) stressed the importance of effective risk management for sustaining innovation benefits. Overall, these studies reflect the potential and challenges of innovation in Africa's banking industry.

In Tanzania, innovations like internet banking, ATMs, and mobile finance have significantly improved service delivery and customer satisfaction. Mwita (2022) highlighted that ICT enhanced marketing and customer outreach, while Msamba et al. (2022) noted the convenience brought by ATMs in Mwanza. Kessy (2021) showed that internet banking adoption relies on customer trust and ease of use, influencing satisfaction. At CRDB Bank, Mapunda (2022) found that digitalization improved performance and service outcomes. However, challenges like poor internet penetration and rural-urban disparities persist. In Morogoro, Henry (2020) reported that CRDB Bank customers appreciated mobile banking and ATMs for efficiency but faced issues like unreliable internet and limited awareness. Overall, while technological innovations can boost customer satisfaction, their effectiveness is contingent on proper infrastructure and implementation.

2. STATEMENT OF THE PROBLEM

The banking industry has long emphasized service quality as a core driver of customer satisfaction, with numerous studies showing that innovations and improvements in service delivery strongly shape customer experiences. For instance, Sharma (2022) and Pooya, Khorasani, and Ghouzhdi (2020) note that customer satisfaction is closely tied to the perceived reliability, responsiveness, and convenience of banking services. Similarly, Ayinaddis, Taye, and Yirsaw (2023) found that electronic service quality dimensions significantly influence loyalty in Ethiopia, while Bakry, Shafik, and Mogeth (2023) highlighted the same in Egypt. However, much of the available research has focused on larger cities or broader geographic contexts such as Albania (Mjaku, 2020), Pakistan (Muhammad Awan et al., 2011), and Sri Lanka (Hussain et al., 2020), leaving a gap in localized studies of smaller municipalities like Morogoro, Tanzania. This gap is crucial, as customer expectations in smaller urban centers may differ due to infrastructural, technological, and socio-economic factors.

In the case of Selected Commercial Bank in Morogoro, despite investments in service quality improvements, preliminary evidence suggests that satisfaction levels may not yet be optimal. Studies in Tanzania confirm similar challenges: Kessy (2021) observed that internet banking adoption is strongly influenced by trust and ease of use, while Msamba et al. (2022) found that ATMs improved convenience but did not fully close service quality gaps. Likewise, Henry (2020), focusing on CRDB Bank in Morogoro, demonstrated that customer satisfaction remains highly dependent on service quality dimensions such as reliability and responsiveness. This indicates that understanding which specific dimensions identified by Parasuraman et al. (1988) as reliability, responsiveness, assurance, empathy, and tangibles most influence satisfaction in Morogoro is essential. Therefore, this study sought to fill that gap by examining the impact of technological innovations on customer satisfaction in commercial banks; the case of Selected Commercial Bank in Morogoro Municipal, with the aim of providing actionable insights for targeted service improvement.

Research Question

i. How do technological innovations influence customer satisfaction in commercial banks?

Theoretical Framework

Expectancy-Disconfirmation Theory (1980)

The Expectancy-Disconfirmation Theory (EDT), developed by Oliver (1980), explains customer satisfaction as the result of comparing expectations with actual service performance. When a service exceeds customer expectations, positive disconfirmation occurs, resulting in higher satisfaction, whereas failure to meet expectations causes negative disconfirmation and dissatisfaction (Anderson & Sullivan, 1993; Spreng et al., 1996). In banking, this theory is particularly relevant because customers expect high reliability, security, and efficiency in financial services (McDougall & Levesque, 2000). Satisfaction is therefore determined not just by service delivery, but by how well it aligns with or surpasses these expectations (Yi, 1990). Proper management of customer expectations becomes essential, as exceeding expectations fosters loyalty, while unmet expectations can quickly lead to dissatisfaction.

In the context of technological innovations, EDT helps explain how tools like mobile banking, ATMs, and digital platforms influence satisfaction. Studies show that when these innovations improve convenience, speed, and security beyond what

customers anticipate, satisfaction increases (Li et al., 2021; Yu & Nuangjamnong, 2022; Sharma, 2022). In African and Tanzanian settings, research indicates that trust, ease of use, and service reliability are critical factors (Ayinaddis, Taye, & Yirsaw, 2023; Kessy, 2021; Msamba et al., 2022). Locally, in Morogoro, Henry (2020) found that customers valued technological improvements, though service interruptions could cause dissatisfaction. Applied to Selected Comercial Bank in ., EDT suggests that the bank's success in satisfying customers depends on how well its technological innovations meet or exceed customer expectations, highlighting the importance of aligning digital services with evolving customer needs to enhance satisfaction, loyalty, and competitiveness.

Review of Empirical Studies

Technological Innovations on Customer Satisfaction in Commercial Banks

Mwerei et al. (2022) addressed how the concept of business performance is a mediator between customer satisfaction and innovation. The questionnaire was the research tool of their study, and 387 answers were collected and processed using the AMOS software. The paper concluded that innovation had a favorable influence on both the performance of the business and customer satisfaction, whereby the latter was also dependent on the former. Moreover, there was a mediating effect of innovation and customer satisfaction through performance within business. The research suggested that the decision-makers in the banking industry should make innovation a priority in order to improve both performance and satisfaction rates in their businesses. Although the research sheds light on the mediation role of business performance in relationship between innovation and customer satisfaction, this research does not take into account how certain technological innovations directly affect customer satisfaction and this leaves us blind on how a particular technology innovation affects customer satisfaction since it cannot be measured on its own without the presence of an intervening variable in many commercial banks such as NMB. The existing study would follow cross-sectional research design to fill this gap. Participants would be selected using convenience sampling and information collected comprised of structured questionnaires. This practice would make it clear about the impact of technological innovations on customer satisfaction. Nevertheless, possible drawbacks including self-reported data, and the given particulars of NMB in the Municipality of Morogoro can influence the possible generalization of the results.

Ayinaddis et al. (2023) studied the role of the quality of e-Banking (electronic banking) services on the satisfaction of customers in the expanding Ethiopian banking industry. The information gathered about the 385 respondents was based on a closed ended structured questionnaire adopted by conveniences sampling. This was done using the frequencies, percentage distributions, group modes, Standard deviations, Chi-square correlations, and multinomial logistic regression, and the results revealed that responsiveness, reliability, security and privacy, speed, and convenience were notable influencers with regard to the customer satisfaction. Also the satisfaction of customers towards the quality of e-banking services was a relevant contributing factor towards customer loyalty. But the availability of systems, its ease of use and charges of services did not make the customer satisfaction to be statistically significant. The study points out important dimensions of the level of e-banking service quality as influencing the satisfaction of customers not to extend it to the understanding of the way in which more general technological advances, beyond the e-banking sphere, influence the satisfaction with the commercial banking sector, especially in various settings, such as in Tanzania. In a bid to fill this gap, the present research would employ a cross-sectional research design. The participants would be selected with the method of convenience sampling, and the main data collection would be structured questionnaires. This would prompt a narrow search through technological inventions other than e-banking and their direct correlation on customer satisfaction in the NMB scenario. The study might also face certain drawbacks such as the concentration on a particular geographical area and the absence of any qualitative data, as it can reduce the insights into the experience of the customers.

Wachira (2013) considered the issue of the technological innovation affect on commercial banks performance in Kenya. The study covered all commercial banks in Kenya and the study design was that of the descriptive cross-sectional studies. It used secondary data, which was presented in annual financial reports that were availed by the central bank of Kenya and primary data which was availed using pre-designed questionnaires via customer care personnel. The analysis of the data by use of IBM SPSS Statistics 21.0 showed a response rate of 79 percent. The research study discovered that the technological innovations influence the performance of banks positively especially the profitability. Respondents valued such innovations as accessibility and friendliness, and the study found that there is a strong positive correlation between profitability and the adoption of various technological innovations of the banks and that the correlation coefficient is 0.7 and the proportion of the variation in profitability attributed to the correlation is 50.8 percent. Though the study proves that there is a positive association between technological innovations and the performance of banks, it has a limited focus on the profitability factor

and it overlooks the subtle influence of particular innovations on customer satisfaction which is relevant to investigating the case of selected commercial Bank in Morogoro Municipality. Taking this into consideration, the present study would adopt cross-sectional research design where convenience sampling would be applied to select the research participants and structured questionnaires as a source of data. This approach would also make sure that the question of customer satisfaction is investigated thoroughly in terms of technological inventions and the loopholes of the previous research would not exist. Nevertheless, the convenience sampling strategy, as well as the consideration of only one bank, can also restrict the generalizability of the research results.

3. METHODOLOGY

The study adopted a pragmatism research philosophy, which allows the integration of both quantitative and qualitative methods to generate practical and comprehensive insights into customer satisfaction in Selected Commercial Bank in Morogoro Municipal (Saunders, Lewis, & Thornhill, 2019). A cross-sectional research design was employed to assess the current situation without requiring extended follow-up, making it time- and cost-efficient (Creswell, 2014; Bryman, 2016). The research utilized a mixed-method approach, combining structured questionnaires to collect quantitative data from 375 selected commercial Bank customers and interviews with key informants such as branch managers, agents, and IT users to capture qualitative perspectives. This approach allowed the study to quantify relationships between technological innovations, management practices, and customer satisfaction while providing detailed contextual insights into customer experiences.

The study population comprised 50,000 selected commercial Bank clients in Morogoro Municipality, representing a diverse mix of urban and semi-urban customers. Using Cochran's formula, a sample size of 375 respondents was determined, with convenience and purposive sampling methods applied to select participants who met specific criteria, including active bank accounts and residency in the area. Data collection instruments included structured questionnaires with closed-ended questions to measure service quality dimensions, and pilot testing was conducted to ensure clarity, relevance, and reliability of the instruments (Thabane et al., 2010). Additionally, qualitative data from four key informants helped capture detailed insights into the bank's operations and customer experiences, enhancing the validity and comprehensiveness of the study findings.

4. FINDINGS AND DISCUSSION

Sample Distribution

In the Morogoro Region where there were 50,000 people, 375 from selected commercial Bank customers have been selected to be part of the study wherein they have been identified through a purposive sampling method. A random sample of 75 customers would be selected in all of the five branches of selected commercial Bank within the municipality of Morogoro. The customers able to meet the following criteria would be selected they should be a resident in the Morogoro area and have a card and a current bank account. In order to provide comprehensive qualitative findings on the bank and its operations, as well as how its clients experience its services, four informants, namely, one branch manager, one selected commercial Bank agent, one IT user, and one BANK consultant, in particular, would be selected in addition to the customer sample. A variety of opinions on the BANK services would be obtained through opinions of key informants which would allow detailed study of customer satisfaction, business of the bank and the areas that need to be improved. The random sampling in selecting customers would entail the process becoming random in each branch. This sampling approach enhances the relevance and reliability of the study by providing wide and an all-inclusive gathering of data.

FINDINGS

Data was analysed using Logistic regression analysis

$$\text{Log}\left(\frac{P}{1-P}\right) = \alpha 0 + \alpha 1\text{ATM} + \alpha 2\text{IC} + \alpha 3\text{MB} + \alpha 4\text{IF} + \alpha 5\text{AN} + \alpha 6\text{IFO} + \epsilon$$

Where:

$$\text{Log}\left(\frac{P}{1-P}\right) = \text{Likehood estimation of Technological Innovations on customer Satwasfaction}$$

Table 3.1 Variables to be used on like wood estimation of technology on customs satisfaction

Variable	Details	Indicators/ measurements	Expected sign
α0			
ATM	Use of ATM	Deposit, withdraw, transfer, and payment.	+
IC	Improvement of computer	Speed, accuracy, and effectiveness	+
MB	Mobile Banking	Deposit, withdraw, transfer, and payment.	+
IF	Institutional Framework	Organizational structure, rules, and norms.	+
AN	Agent Network	Communication and security	+
IFO	Industrial Focus	Revenue and Return on Asset	+
ϵ	**Error term**		

Model Summary

The summary from table 1 below is presenting the results regarding the Impact of technological innovations on customer satisfaction in commercial banks, the model identifies that the model has explanatory power, although it is uncertain. The Cox & Snell R Square of 0.038 and Nagelkerke R Square is 0.050 indicating that the results shows that between 3.8% and 5.0% are the variations of the costumer satisfaction. Hence the technology has the influence on the costumer satisfaction although its influences by other factors that are not included in the model. The -2 log likelihood with the value of 478.107[a] is reflecting the fit of the logistic regression model, the minor value shows that indicating better fit, but the analysis must be relative to other alternative models.

Table 1

-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
478.107[a]	0.038	0.050

Hosmer and Lemeshow test

The Hosmer and Lemeshow Test from table 4.3 below has a Chi-square of 19.120, with a significance of 0.014, that are suggesting that the model might not suit the findings perfectly because the P-value is below 0.05, which indicates the weak fit to the model.

Table 2

Chi-square	Df	Sig.
19.120	7	.014

Omnibus Tests of Model Coefficients

The Omnibus Tests of Model Coefficients is from table 2 below showing that a Chi-square of 14.517 of 0.043 which verifies that the model is statistically significant hence it means that the technological innovations variables that are in the model is significantly forecast the customer satisfaction, even though the effects is small or low.

Table 3.

	Chi-square	df	Sig.
Step	14.517	7	0.043
Block	14.517	7	0.043
Model	14.517	7	0.043

Logistic regression model results on variables in technological innovations on customer satisfaction in commercial banks

Technological innovations are the current improved technologies that simplifies and makes services faster and more reliable. This includes machines software or system that helps the organizations and people to solve peoples need and meet the organization goals (Ayinaddis, Taye, & Yirsaw, 2023). From this research question the researcher wanted to evaluate how technological innovations like ATM`s, mobile banks and computer systems influence costumer in the commercial banks and the responses were as follows a presented on the table 3 below

Table 3 Variables used in the like wood estimation of technology on customs satisfaction

Variables	B	S.E.	Wald		Sig.
Constant	-1.518	0.764	3.947815		0.04700
Use Of ATMS	0.365	0.159	5.269768		0.02200
Computer Technology	-0.393	0.117	11.28271		0.00086
Improvement Of the Computer	-0.407	0.15	7.362178		0.00697
Mobile Banking	0.211	0.092	5.260043		0.02237
Banking Technology	-0.145	0.11	1.737603	1	0.18800
Institutional Framework	0.386	0.169	5.216764	1	0.02293
Agent Network	0.041	0.129	0.101016	1	0.75000

Source: Field Research Data 2025

Use Of ATMS

From table 3 ATMs this are Automated teller machines that simplify banking activities like withdrawing money, checking account balance and some advanced ATMs for depositing and transfer fund, on the other hand Mobile banks are special apps that bring the banks services to the hand, they helps the costumers to check balance, transfer fund, pay bills or manage their accounts. The models shows that the use of ATMs has a significant positive impact on costumer satisfaction. The B coefficient was 0.365 which means that when customers use ATMs, the satisfaction increases. The significance level is 0.022 that is less that 0.05 hence the results are statistically significant and the results are real and not by chance. The standard error is 0.159, and the Wald statistics 5.27 helps to confirm that the results are stable and reliable and finally the ATMs are important tools that helps costumers feel satisfied with the bank services.

The findings are highly collarette with Katanga (2024) his findings agree with this finding in her study on the impacts of self-service banking such as ATMs to customer satisfaction activities at Bank. The paper has revealed that most customers are fond of using ATMs due to saving a lot of time and minimizing long queues. Their machines will assist them in making simple tasks such as money taking, balance check or transfer funds at any time. This will make the customers feel that the bank cares about them. Moreover, Ninga and Machimu (2021) examined that individuals find it pleasant to use electronic banking services like ATM even in rural regions since they can carry it out easily and enhance money accessibility. All these studies confirm that ATMs have a large share in ensuring that customers are pleased with the services of the bank.

Mobile banking

Mobile banking is the services that are easily accessed by the customers by using smartphones or or USSD by using normal phones to check their bank balances, transfer money, pay bills or manage their accounts from anywhere at any time by using their phones. The findings from table 3 find that mobile banks have a positive impact on customer satisfaction. The B coefficient is 0.211, which means that using mobile banking is directly linked with higher customer satisfaction. The significance level is 0.022, which is below 0.05; hence, the results are statistically significant, and finally, that means that the effects is real and meaningful and not random. The model identifies that the error is 0.092 and the Wald statistic is 5.26, proving the results are stable and trustworthy. Therefore, mobile banks help customers feel more satisfied because it give them quick and easy access to banking services from their phones.

Ayinaddis et al. (2023) tested the quality of electronic banking services and their findings proved that there was a significant positive correlation between digital channels (to include mobile and ATM services) and customer satisfaction. Their results make a point with confirming that the clients are in need of convenient, accessible and quick banking solutions.

Nevertheless, they also indicated that usability issues or fast changes of online platforms without proper customer-focus would result in dissatisfaction which can be compared to the negative results of computer technology (B = -0.393) and computer system improvement (B = -0.407) in this model. The negative coefficients are found to be large and significant and documentary results indicated that customers find it challenging when dealing with technical changes without support systems and user-friendly interfaces.

Computer Technology

Computer technology involves the hardware, software, and network infrastructures that enable the storing, processing and sharing of information using computers and related devices. The findings from table 3 above indicated that computer technology has a negative effect on customer satisfaction. The model shows that the B coefficient is -0.393, which means that when computer technology is employed, customer satisfaction goes down. the significance level is 0.00086, which indicates that the findings are statistically significant m because its smaller than 0.05 hence, the results are reliable. The standard error is 0.117, the Wald statistic is 11.28, which shows the more emphasis that the results are reliable. The negative impact implies that costumers are likely finds that using computers is very hard or confusing, and frustrating and therefore the computer system is not user-friendly to customers.

The findings of the study are consistent with the findings of Kilindo and Mramba (2024) in research on Mobile Bank/ Mkononi Bank services. They discovered that not all customers were satisfied with mobile and computer-based services since the systems were very difficult to comprehend and operate. Other individuals remarked that they required assistance in doing simple tasks, such as balance checks or money transfers. This contributed to making them less satisfied with the service. Also, Mosimanegape et al. (2020) demonstrated that lack of a user-friendly technology or its proper explanation may diminish customer satisfaction. These investigations sustain the concept that computer-based systems at banks have to be accessible and understandable to clients, as otherwise the satisfaction will decrease.

Improvement of computers

Improvement of computers can refer to both increasing the performance of a computer system or computerized devices and enhancing one's skills or knowledge related to computers. The findings indicates that the improvement of computer system have a negative effects on the costumer satisfaction. The B coefficient is -0.407, which means that the computer system when updated or changed customer satisfaction goes down. The significance level is 0.00697 which is less than 0.05 hence the results are statistically significant, which means that the results are real and not just by chance. The standard coefficient is 0.150 and the Wald statistic is 7.36 that supports the reliability and validity of these results. The negative impact are happens because some costumers might find hard to adjust themselves to new introduced systems or the might be disrupted and confused when updating to new system. Hence the findings suggest that improvements must be well-planned and friendly to ovoid boredom and dispointments.

According to the above, the results also show that increase in computer systems can lower customer satisfaction (B = -0.407, p = 0.00697). on the other hand, the findings of the study by Kilindo and Mramba (2024) stated a similar result in that customers who consume Mobile Bank/ Mkononi Bank services sometimes failed to be happy when changes in the system occurred, in particular, when the service became difficult to find or utilize due to an update. Katanga (2024) also discovered that the processing of self-service technology ought to be undertaken gradually and through training so that customers will not end up being lost or stressed out. Such studies argue that enhancements on computers should be palatable and not only complex but also clearly and properly explained so that they will not lower customer satisfaction.

An institutional framework

An institutional framework is a legal and formal organisational rules and laws that governs how things are done and implemented on a specific area, The structure governs all the activities that are caried out. The findings shows that the institutional framework have a positive effect on the level of customer satisfaction, the B coefficient is 0.386 which means that the respondents are strongly support system like Banks' rules, policies, staff training and management that are increasing customer satisfaction. The significance level is 0.02293 which is below 0.05 hence it suggests that the findings are statistically significant and not just random. The standard error is 0.169 and wild statistics is 5.22 which emphasizes that the results are valid and reliable, which means that when banks have good internal systems and proper support behind their technology it makes the costumers more satisfied.

Besides, the impact of a good institutional framework (B = 0.386, p < 0.05) is also supported by the research by Akanbi and Adebayo who note that internal policies, talent of staff, and a well-organised management positively affect the delivery of services and customer confidence. Good governance structures and training framework have been found to positively relate to the perceived quality of service provision thus lending credence to the argument that the structure of the organization directly determines the level of satisfaction.

An agent network

An agent network is the system whereby an institution engages a series of individuals as their intermediaries who provide goods and services on behalf of the organisation. In the context of Banks, agents are the individuals who offer financial services around streets to facilitate the withdrawal and depositing of money. From the model, the findings suggest that agent networks do not have a significant effect on customer satisfaction. The B coefficient is 0.041 which is a very positive number that means that the effect is very weak. The significance level is 0.750, which is much bigger than 0.05, so the results are not statistically significant, which means the results might be due to chance and hence we cannot say for sure that the presence of agent networks improves consumers satisfaction. From the model, the standard error is 0.129 while the Wald statistic is very low 0.10, further showing that this result is not strong or meaningful in this study.

On the other hand, as concerns agent networks, the null effect observed (B = 0.041, p = 0.750) can be congruent with the findings of the Ayinaddis et al. (2023) that suggesting that agent banking service providers tend to be affected by irregularity in service dispensation, short operating windows, and unprofessionalism, which compromise the potentialities of facilitating customer satisfaction. This inconsistency is another movement toward the poor relationship and the low statistic of Wald (0.10), which shows that the agent networks are not a significant factor of satisfaction when not standardized and tightly controlled.

Summary of the Findings

The researchers found that that technological innovations to enhance operational efficiency in the banking industry though critical and very important are in terms of customer satisfaction are negative though showing statistically significant results. In particular, the regression estimates indicated that the B coefficient was -0.072, -0.104 as the respective β value and 0.032 as the p-value, which indicate that when the level of technological efficiency becomes a priority, customer satisfaction rates can be adversely affected unintentionally. Such a negative relationship can be explained by the fact that people lose personal touch or service delivery is becoming complex, or, there is a disconnect between the technologies and customer expectations. Although the current technological development has provided speed and convenience, customers attach a great worth to human interface particularly when it comes to the addressing of service-related requests and personalized assistance. Hence, the banks have to find a middle ground between automated and personal customer service so that technology could be used to increase customer satisfaction but not vice versa.

5. CONCLUSION

Even though technological innovation is largely perceived as a contemporary operational influencing factor in the banking industry, the research established that, it can adversely influence customer satisfaction when not enacted with intellectual considerations. The information showed that excessive focus on the use of automated systems can depersonalize service delivery and make it an unpleasant experience. This implies that technology should be combined to supplement, but not substitute, human interaction. A customer focused digital strategy is thus an approach that should be embraced by commercial banks and it should not lose contact with human assistance, particularly in the area of service recovery and advisory.

Good determination of customer problems was also determined as a crucial pillar of customer satisfaction. That study has emphasized that customer experiences are greatly boosted by proactive data analysis and feedback mechanism. What people appreciate is when their issues are listened to and dealt with reasonably quickly and with kindness. Banks that somehow integrate structured problem-resolving approaches into their working and management environment have higher tendencies of having loyal customers. This confirms the implication that responsive service recovery is a critical input in satisfaction but even in trust and longevity of interactions.

Management is the major factor influencing customer experience by contributing to variability in satisfaction of the customers to the tune of almost 50%. Analysis of customer data, feedback gathering, and application of loyalty programs

have significant andsubstantial effects according to the study and they are pending with statistical significance. The use of customer analytics appeared among the most influential ones, which means that data-driven decision-making is the key to knowing and addressing customer needs. Conversely, although employee engagement appeared to have a positive effect, it was statistically non-significant, which means that it cannot be used alone, and it has to be sustained by wider systems within the organization and rewards that are experienced by the customer.

6. RECOMMENDATION OF THE STUDY

Improve ATM Services: Increase number of ATMs and maintain them to make sure that they are reliable, safe and user-friendly. Offer understandable step-by-step procedures on the use of higher functions like placing deposits and transferring funds, and maintain appropriate upkeep so as to limit occurrence of downtimes. This will save time on the part of the customer, cut on the number of queues, and enhance customer satisfaction in general (Katanga, 2024; Ninga & Machimu, 2021).

Optimize Mobile Banking: Invest in mobile application that are easier to use, secure, fast in performance and that can be used on a variety of devices. Roll out changes slowly and provide instructions or guides to help reduce confusion. Consistently gather customer feedback in order to develop features and be in a position to ensure services satisfy their customers (Ayinaddis et al., 2023).

Streamline Computers and Upgrades: Disenfranchise computer bases- their mechanisms to be grossly easy and user friendly. Do not add upgrades without an instructional or training element that can lead to confusion and frustration of customers as they may abandon the new feature (Kilindo & Mramba, 2024; Mosimanegape et al., 2020).

Enforce Institutional Framework: Enforce a strong internal policy, administration and constant staff training to preserve technological and service delivery. Staff with the appropriate training may help the customer find a way through digital and traditional banking services, improving confidence loyalty and satisfaction (Akanbi & Adebayo, 2023).

Strengthen Agent Networks: Develop uniformity in the way agent banking operations work such that the quality, professionalism and access are relatively the same and particularly in regions where people have limited access to digital infrastructure. Agents can become a stable part of the services offered by the bank with proper supervision and education (Ayinaddis et al., 2023).

A Mix of Technology with Human Interaction: As you automate services and procedures, be sure of the personal support when the transaction is complicated and when problems need to be solved. A hybrid strategy is therefore required to make technology and screen supplementary to each other and to make it feel that customers are in control of not losing their trust and satisfaction.

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