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## A Study of the Effect Automatic Teller Machine Banking on Customer Satisfaction: The Case of Zambia National Commercial Bank

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### Abstract

This research investigates the impact of ATM banking services on customer satisfaction, utilizing an exploratory approach to evaluate the satisfaction levels of ZANACO ATM services in the Lusaka District. The specific objectives include assessing the availability, performance, security, and challenges faced by customers when using ZANACO ATM systems. The study focused on customers of ZANACO Bank in the Lusaka District, with a sample size of 150 customers representing various customer profiles. The study findings indicate that while ZANACO ATM services are generally available, there is some disagreement among respondents regarding the accessibility of these ATMs. Despite favorable ratings for performance, participants expressed concerns about long queues, transaction errors, and occasional cash shortages at ZANACO ATMs. Regarding security, respondents generally agreed that ZANACO ATMs are secure; however, challenges such as failed transactions, delays in resolving issues, and instances of ATMs running out of cash were identified. Furthermore, the study revealed no significant variations in results based on individual characteristics such as gender, age, education level, or customer tenure with the bank. Recommendations for ZANACO Bank include enhancing customer mapping strategies to improve ATM service accessibility, promptly addressing failed transactions (especially VISA transactions), and ensuring consistent availability of cash in all ATMs to minimize customer inconvenience.

**Keywords:** ATM Banking Services, Availability, Customer Satisfaction, Performance, Security, Zanaco

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### 1. Introduction

The financial sector in Zambia has undergone substantial structural transformations over the years, with significant

growth reported by the Bank of Zambia in recent years, attributed to financial sector reforms initiated in the 1990s. Notably, the banking sector in Zambia comprises 18 commercial banks, with entities such as Zambia National

Commercial Bank, Barclays Bank, and Finance Bank Zambia boasting the largest branch networks. Additionally, various financial services are available in Zambia, including microfinance institutions, leasing companies, building societies, and credit reference bureaus, catering to diverse financial needs (Bank of Zambia, 2012).

Driven by the pursuit of enhanced customer service and operational efficiency, the financial sector has witnessed substantial investments in technology, leading to increased utilization of information and communication technology (ICT). This technological advancement has revolutionized the banking sector, aligning payment systems with the evolving demands of the electronic marketplace (Handler et al., 2001). Zambia National Commercial Bank (ZANACO) has actively embraced technological advancements as a strategic imperative, integrating e-banking solutions to optimize service delivery and cater to client needs effectively. One way in which Banks in Zambia have leveraged technology to enhance service delivery is through the adoption of Automated Teller Machines (ATMs).

An Automated Teller Machine (ATM) is an electronic device that enables customers of financial institutions to conduct various transactions such as cash deposits, withdrawals and balance inquiries without the need for direct interaction with a bank teller. Customers are authenticated by inserting a magnetic stripe ATM card or a smartcard containing a unique identification number, with security ensured through the entry of a personal identification number (PIN) matching the stored information on the card's chip. Subsequently, customers can access their bank accounts to perform transactions like cash withdrawals, balance checks, deposits and statement printing.

The Zambia National Commercial Bank (ZANACO) has equally not overlooked the use of technology. The Bank has ensured that the adoption of technology is integrated into its strategic management policies and introduced e-banking facilities. This was done to enhance the organization's ability to deliver optimal services to its clients.

While there have been several empirical studies on ATM customer satisfaction in various countries, there was a lack of research on ATM service quality and its impact on customer satisfaction in Zambia. To address this gap, the study aimed to examine the influence of ATM service quality on customer satisfaction at ZANACO, building on previous research efforts (Keno & Meku, 2018; Anwar & Afework, 2017; Habte & Mesfin, 2019; Amene & Buta, 2019; Embiale, 2016). Previous studies had mainly focused on customer satisfaction with computerized banking services, especially those related to web banking (Yitbarek, 2015). Therefore, the study sought to offer insights into the specific context of ATM services at ZANACO.

## 1.2 Problem Statement

The problem statement discusses the transition from traditional banking methods to Automated Teller Machines (ATMs) as a convenient way for customers to access banking services. While ATMs offer advantages such as cost-effectiveness and efficiency, there are concerns about customer satisfaction and service quality. Despite ZANACO's efforts to expand its ATM network, customers still experience dissatisfaction and long queues, leading some to switch to competitor banks. The study aims to understand the impact of ATMs on customer satisfaction, focusing on ZANACO, and identify key performance indicators to improve ATM services and retain customers.

### 1.3 Aim and Significance of the Study

The aim of the study was to establish the effect of ATM banking services on customer satisfaction.

The study aimed to investigate how the utilization of ATMs by banks influenced customers' selection of a bank and their satisfaction with the bank's service delivery. Therefore, the study was significant because it provided insights into customers' perspectives on the advantages of technology in service provision. Furthermore, it contributed to a pool of knowledge to assist and direct researchers in selecting suitable theoretical frameworks for conducting research.

## 2. Literature review

The literature review highlights the increasing adoption of technology-based self-service, particularly in the banking sector. Dabholkar et al. (2003) emphasize the evolution of technology and its impact on customer satisfaction. Customer satisfaction, as defined by Oliver (1980), reflects the pleasant level of consumption-related fulfillment experienced by customers. Yi (1990) notes that customer satisfaction encompasses perceptions, evaluations, and psychological reactions to product or service experiences, influencing post-purchase attitudes. Satisfied customers play a crucial role in business profitability by recommending services to others (Johnson, 1993).

Ala`Eddin and Khalaf (2011) found that the adoption of e-banking positively influenced customer satisfaction, loyalty, and positive word-of-mouth among Jordanian Commercial Bank customers. Nupul (2010) explored e-banking and customer satisfaction in Bangladesh, identifying a relationship between customer satisfaction and reliability, responsiveness, assurance, empathy, and tangibles in e-banking services. Abdul et al. (2020) discovered that reliability, convenience, and functionality significantly impact customer satisfaction with ATM usage, with technological optimism moderating the relationship between reliability and satisfaction.

Moraru and Duhnea (2018) highlighted strong correlations between overall customer satisfaction with banking services and e-banking services in Romania.

Mwatsika (2014) identified key factors influencing customer satisfaction with ATMs in Malawi, including fee charges, service availability, cleanliness, transaction accuracy, and privacy. The literature review suggests a positive influence of ATMs on customer satisfaction, emphasizing the importance of accessibility, security, privacy, and convenience in service delivery.

Critically evaluating existing literature, Kumbha (2011) notes that customer satisfaction is a complex concept with multiple dimensions that may vary across studies. Methodologies varied among studies, with some utilizing descriptive statistics, chi-square tests, or regression analysis. The review also identifies limitations, such as studies being predominantly conducted in rural settings with educated populations, limiting generalizability.

Lessons learned from the literature review underscore the importance of considering various dimensions of customer satisfaction, particularly in the context of ATM usage. The Kano model of customer satisfaction provides insights into meeting customers' basic needs and exceeding expectations. While existing studies suggest a positive relationship between ATMs and customer satisfaction, there is a need for further research in the Zambian context to explore this relationship comprehensively.

### 3. Methodology

#### 3.1. Research Approach, Philosophy and Design

This study employed both qualitative and quantitative research approaches. Quantitative research involves the use of statistics and numerical data, while qualitative research relies on descriptive narratives. As suggested by Ilukena et al, (2023) and Yin (1994), the choice of research approach should align with the research questions and objectives, considering the strengths and limitations of each approach in data collection and analysis. In this study, the quantitative approach was suitable as it aimed to measure customer satisfaction levels on a scale of 1 to 5, indicating a preference for numerical data to evaluate satisfaction with Zanaco ATM banking services.

The research was grounded in positivism philosophy, utilizing existing theories to examine relationships between variables and establish causal links between dependent and independent variables.

A descriptive research design was adopted to provide a comprehensive numerical overview of customer satisfaction levels among Zanaco bank clients. Descriptive research focuses on presenting evidence using descriptive statistics like measures of central tendency and dispersion, as well as visual aids such as pie charts and tables.

#### 3.2. Population, Sample Size and Sampling Technique

The study population comprised 210,000 clients with accounts in Zanaco branches located within the Lusaka

district.

A sample size of 157 respondents was determined using the Taro Yamene formula, considering a population size of 210,134 and an 8% margin of error.

Probability sampling was employed to select participants from the Zanaco customer database, ensuring that each customer had an equal chance of being included in the sample.

#### 3.3. Population, Sample Size and Sampling Technique

Primary data was collected through paper-aided and web-assisted personal interviews, with structured questionnaires administered to active retail customers via email or hard copy delivery.

Data collected from the questionnaires was recorded, coded, and analyzed using Statistical Package for Social Science (SPSS) software version 26.0. Frequencies, means, and reliability measures were calculated to explore relationships between ATM services and customer satisfaction.

To maintain data quality, all collected information was thoroughly checked for completion and accuracy, with any discrepancies addressed through re-interviewing participants.

Ethical guidelines outlined by Polit and Hungler (1999) were followed, emphasizing confidentiality, informed consent, and the voluntary nature of participation in the study. Participants were assured that their responses were solely for academic purposes and would not represent Zanaco as a financial institution.

### 4. Findings and Discussion

#### 4.1. Availability of ATM Services

Using the mean ranking score scale, 3.0 is the scale midpoint, with values above it approximating respondents agreeing with the availability of ZANACO ATMs and values below it approximating respondents disagreeing with the availability of ZANACO ATMs.

Table 1: Assessment of Availability of ATM Services

Availability	N	Mean	Std. Deviation
ZANACO ATMs are always functioning 24/7	150	3.0333	1.2607
ZANACO ATMs are located in accessible areas	150	2.9600	1.2895
The ATMs are available in all the key areas	150	3.0400	1.3305
There is availability of electricity at all times	150	3.1200	1.3256
ZANACO ATMs rarely breakdown	150	2.9600	1.2947
ZANACO customers know which branches offsite ATMs report to in case of dispute	150	3.0200	1.3485
Total	150	3.2107	0.7802

Overall, the score on the availability of ZANACO ATMs is 3.2107 implying that the respondents are agreeing with the availability of ZANACO ATMs. However, on the score on whether the ZANACO ATMs are located in accessible areas, the mean score is slightly below 3.0 (2.9600) implies that the respondents are approximately disagreeing with ZANACO ATMs being in accessible areas.

**4.2. Performance Of ATM Services**

Using the mean ranking score scale, 3.0 is the scale midpoint, with values above it approximating respondents agreeing with the performance of ZANACO ATMs and values below it approximating respondents disagreeing with the performance of ZANACO ATMs.

Table 2: Assessment of Performance of ATM Services

Performance	N	Mean	Std. Deviation
ZANACO machines always have cash for dispensing	150	2.9400	1.2544
ZANACO customers don't wait in queues to access the ATM service	150	2.8667	1.3692
There are no errors with regard to dispensing cash	150	2.9733	1.3948
ATM complaints are resolved within agreed time lines	150	3.0333	1.3180
The daily cash limit at the ATM is very good	150	3.2867	1.2971
The ATM receipts are always produced after each transaction	150	3.1667	1.2284
The ATM machines are able to carry out any transaction required	150	3.0000	1.3411
The ATMs are very easy to use	150	3.1533	1.4224
Total	150	3.0525	0.5329

Overall, the score on the performance of ZANACO ATMs is 3.0525 implying that the respondents are agreeing with the performance of ZANACO ATMs. However, on the score on whether the ZANACO ATMs have cash for dispensing, queues to access ATM services and errors on dispensing cash, the mean score is below 3.0 (2.9400, 2.8667 and 2.9733, respectively) implying that the respondents are approximately disagreeing with ZANACO ATMs of being in good performance.

**4.3. Security Of ATM Services**

Using the mean ranking score scale, 3.0 is the scale midpoint, with values above it approximating respondents agreeing with the security of ZANACO ATMs and values below it approximating respondents disagreeing with the security of ZANACO ATMs.

Table 3: Assessment of Security of ATM Services

Security	N	Mean	Std. Deviation
There is always availability of security personnel	150	3.2133	1.4818
All the ATMs are located in secure areas	150	3.1467	1.3530
There is no risk of cloning devices at the ATMs	150	3.2000	1.3511
The security personnel are always helpful	150	3.2867	1.3277
There are security cameras available at all ATMs	150	3.2067	1.4204
Total	150	3.2000	1.3058

Overall, the score on the security of ZANACO ATMs is 3.2000 implying that the respondents are agreeing with the security of ZANACO ATMs. This is observed for all security assessment questions.

**4.4. Satisfaction Of ATM Services**

Using the mean ranking score scale, 3.0 is the scale midpoint, with values above it approximating respondents being unsatisfied with the ZANACO ATMs and values below it approximating respondents being satisfied with the ZANACO ATMs.

Table 4: Assessment of Satisfaction of ATM Services

Satisfaction	N	Mean	Std. Deviation
To what extent are you satisfied with the bank's ATM services?	150	2.8733	1.3020
To what extent are you satisfied with the banks international money transfer services?	150	2.7267	1.2844
To what extent are you satisfied with the banks internet banking services?	150	2.8800	1.2420
To what extent are you satisfied with the banks customer feedback mechanism services?	150	2.9467	1.3300
To what extent are you satisfied with the banks employees' attitude towards customers?	150	2.9333	1.2727
Total	150	2.8700	0.5526

Overall, the score on the service satisfaction of ZANACO ATMs is 2.8700 implying that the respondents are satisfied with the ZANACO ATMs services. However, on the score on the banks customer feedback mechanism services and employees' attitude towards customers, the customers are not highly satisfied.

**4.5. Individual Characteristics by Customer Satisfaction**

The findings show that there is no difference in the assessment of ZANACO ATMs availability, performance, security and customer satisfaction as shown in the Table 5 below.

Table 5: Assessment of Satisfaction of ATM Services by Gender

	Male	Female
	Mean	Mean
Available	3.24	3.19
Performance	3.12	3.00
Security	2.83	2.88
Satisfied	2.78	2.94

#### 4.6. Challenges Of ATM Services

This section presents information on some challenges associated with the use of ZANACO ATM services. On whether the ZANACO ATMs are located in accessible areas, the mean score is 2.9600, which implies that the respondents disagree with ZANACO ATMs being in accessible areas. ATM services and errors on dispensing cash, the mean score was 2.9400, 2.8667 and 2.9733, respectively. This entails that the respondents are disagreeing with ZANACO ATMs of being in good performance. Another challenge stated by the respondents of using ATM services is that there are delays in the process of reversing failed ATM transactions when customers are wrongfully debited. It is common to complete a withdrawal transaction, with account debited but no physical cash out. Customers also agreed that machine out of cash was also a challenge. There are moments that the ATM is working but out of cash. The score on the bank's customer feedback mechanism services and employees' attitude towards customers is 2.8700, this implies that customers are not

highly satisfied with the ZANACO ATM systems.

#### 5. Conclusion

The primary aim of the study was to evaluate the influence of ATM Banking Services on Customer Satisfaction regarding ZANACO ATMs in the Lusaka District. The research utilized exploratory study designs to assess ZANACO ATMs by inquiring about their availability, performance, security, and service satisfaction from customers. A sample of 150 respondents was methodically chosen, and face-to-face interviews were conducted with the selected participants. In conclusion, the evaluation of ZANACO ATMs in the Lusaka district regarding availability, performance, and security revealed the following key points. While ZANACO ATM services were generally available, there were discrepancies among respondents regarding the accessibility of ZANACO ATMs. Despite receiving high performance ratings, participants expressed concerns about long queues, cash withdrawal errors, and occasional cash unavailability at the ATMs. Regarding the security of ZANACO ATMs, respondents acknowledged the overall security measures in place. However, challenges such as failed transactions, delays in resolving failed transactions, and instances of ATMs running out of cash were identified. Furthermore, the study found no significant variations in results based on individual characteristics such as gender, age, education level, and tenure with the bank.

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