RURAL CUSTOMER ELECTRONIC BANKING SERVICES ADOPTION: EXPERIENCES FROM NMB BANK PLC CUSTOMERS IN ROMBO DISTRICT, TANZANIA

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ABSTRACT
Customer preference for e-banking is a contextual concept, and how it manifests itself varies from a person to person, product to product and service to service. A variety of psychological, economic, socio-demographic, physical and firm-related factors influence service selection and utilisation. Because of the differences that exist in societies, the determinants of customers' choice of e-banking services have been a source of contention. The issues of whether or not rural populations use available e-banking services, as well as the extent and who uses them require context-specific responses. This study specifically determined the proportion of customers' adoption on electronic banking services; established factors that determine adoption of electronic banking services among NMB Bank Plc customers in Rombo District as well as the reasons for usage. A cross-sectional research design was employed and 282 respondents were reached through a survey questionnaire using convenience sampling technique. The qualitative data were analysed through content analysis while binary logistic regression was employed to establish the determinants of customers' e-banking adoption. The study revealed that, among other things, that automatic teller machine cards were the most commonly used e-banking platform (91.8%) and credit cards were the least commonly used (1.2%) e-banking service. In general, e-banking was used moderately (49.7%) in the study area. The regression results confirmed that age, education level, ethnicity, occupation and level of income were the strongest predictors of e-banking adoption. Moreover, the multiple response results indicated that convenience (26.4%), time savings (26.1%), and cost effectiveness (20.7%) were all likely factors in customers' decision to use e-banking services. Given the findings, it is suggested that banks, in partnership with the Government, take the lead role in promoting e-banking, safeguarding consumers' personal data, and charging appropriate costs to clients.

Key Words: Electronic Banking, Adoption and Customer

1.0 INTRODUCTION
The e-banking business model emerged in the 1980s and evolved through three major phases, which can be categorised as follows: Sophisticated e-banking initially appeared in New York in the early 1980s, where it was offered by major banks in the city, such as Citibank and Chase Manhattan (Shannak, 2013). In 1983, banks in the United Kingdom began to adopt the notion, with the Bank of Scotland being the first to do so. It is used to take a computer terminal, a monitor and a phone line. It was also available via a telephone's numeric keypad, allowing users to send messages to the bank (Kasim *et al*. 2015; Asafe and Kolawole, 2013). The first services offered were simple ones like reading bank statements and paying bills online. Although it was not a complete transaction banking service, it laid the ground for more extensive and sophisticated e-banking services to follow (Shannak, 2013). Many African banks, including those in Tanzania, Ghana, and Nigeria, have adopted e-banking services to make banking more convenient for their consumers (Salim, 2020; Reis *et. al*, 2011). Almost all African banks have implemented information and communication technology (ICT) to improve bank service quality.

Banks offer their customers ICT-based e-services such as e-banking, internet banking, or online banking, among others. It fosters collaboration, customer centricity, improves service quality and cost effectiveness in banking services, and boosts customer satisfaction in banking services (Anouze and Alamro, 2020; Rawashdeh, 2015).

Despite the fact that customer happiness is a nebulous and abstract notion, how it manifests varies from person to person, product to product and service to service. The level of satisfaction is determined by a combination of psychological, economic, socio-demographic and physical elements. Customer preference to adopt e-banking services has been a source of contention in both the developing and developed worlds. The questions of whether rural population use available e-banking services; and if so; to what extent and for what reasons, remains context-specific. The questions necessitated further investigation into the subject to undertake this study.

In the e-service era, customer review is a key in banks. Customers in East Africa have been slow to adopt electronic banking; banks in Kenya for example, are developing and implementing a variety of methods to attract new consumers and promote the use of electronic banking services by existing clients. Banks are rewarding customers who use online services and penalising customers who use offline services, according to Fulasia and Otinga (2021), in order to boost the usage of electronic banking. As a result, Kenyan retail banks, like banks worldwide, impose higher fees to consumers who do banking transactions at the counter rather than online. The existing studies conducted in developing countries concentrated on measuring impacts of e-banking (Ameme, 2016; Tandrayen-ragoobur and Ayrga, 2011; Al-Smadi and Al-Wabel, 2011). It is more imperative to understand customers' acceptance level and preferences regarding electronic banking services. It is anticipated that identification of such determinants may improve the likelihood of increasing the adoption rate of the e-banking services.

When compared to other countries such as Ghana, Nigeria, and developed countries, consumer response to e-banking in Tanzania was found to be low (Kasim, *et al.*, 2015). Transactions are still carried out in cash at institutional and large office locations, and cheques have continued to dominate payments (Suraweera*et al.*, 2011). Electronic transfers have remained unreliable in developing countries (Al-shbiel& Ahmad, 2016). Knowledge on electronic banking and transaction costs have a negative impact on e-banking adoption because the majority of the country's population do not afford the costs of technology and lacks fundamental links to the use of e-banking and how the risk of phishing and spoofing can be avoided. Banks have been significantly affected by the evolution of technology; competition between banks has forced them to find new market to expand, and the numbers of financial institutions that offer electronic banking products have increased (Natarajan *et al.,* 2010). Electronic banking has become an instrumental way which offers opportunities to create services processes that demand few internal resources and therefore lower cost (Tandrayen-ragoobur and Ayrga, 2011) to banks and customers. It also allows for greater accessibility and the capacity to reach out to more clients in rural places, such as villages. E-banking, on the other hand, appears to be considerably more beneficial to banks than it is to customers (Safeena*et al.*, 2014; Yoon and Steege, 2013). Understanding the determinants and extent of e-banking usage adopted by consumers especially in rural areas is critical.

In the banking industry adoption can be defined in a range of ways depending on the context. According to Sathye (2015) adoption is defined as the acceptance and continued use of a product, service, or concept. This paper define adoption as the acceptance and continued use of electronic channels to access banking services such as fund transfers, bill payments, account information, and so on. The context of this paper was based on Davis's Technological Acceptance Model (TAM) which lays groundwork for researchers to determine why users accept or reject information technology, as well as how to improve acceptance. The model likely provides predictors that explain how people use technology and how they feel about it (Silva, 2015, Davis *et al.* 1989).Economic and social-demographic factors influencing customers' adoption of e-banking, as well as bank-related factors were tested as independent variables in this study.

Taking the TAM concept into consideration, this study tested NMB Bank customers' willingness and readiness to use e-banking services. TAM was chosen as a guiding theory because it has been used in similar studies on behavioural intention analysis (Silva, 2015; Yousafzai *et al.*, 2007) and evaluation of user adoption in various settings like electronic commerce (Gefen*et al.*, 2003); electronic learning (Giakoumis *et al.* 2014); internet banking (Sulieman *et al.* 2011; Chong *et al.*, 2010), security, trust and risk in electronic commerce settings (Salisbury *et al.*, 2001; Jahangir and Begum, 2008; Kumar, 2014). These studies, however, differ in terms of context, coverage and focus. Unlike previous studies, this one focuses on rural-based customers in the banking industry, which, to the best of the authors' knowledge, has received little attention and documentation. The scope of this study is limited to the Rombo District and only assessed NBM Bank customers in terms of their e-banking usage and willingness.

It is hypothesised that efficiency of e-banking will be realised through improved bank operations harnessed that are used to leverage the bank competitive advantage (Chong *et al.*, 2010; Al-Smadi and Al-Wabel, 2011). It has been established that despite the efforts of banks to ensure that customers get the benefits from using the e-banking services, acceptance and adoption of this technology has not been of the expected rate (Montazemi and Hamed, 2013). Most of the banks in Tanzania receive customer complaints, particularly about Automated Teller Machines (ATMs) malfunctions, network downtime, online theft and fraud, non-availability of financial

services, payment of hidden costs of electronic banking such as Short Message Services (SMS), for sending alerts, mandatory acquisition of ATM cards, and non-acceptance of some ATM cards for international transactions, among other things (Malhotra and Singh, 2010). In addition, there complaints related to shortage of money to the ATMs, fault with the computers in the bank, long queues and bank's operations delays (Nasri, 2011). Given the potential limitations, it is unclear whether NMB Bank customers use e-banking services, if so, to what extent, and why. To the best of the authors' knowledge, there have been isolated and location-specific studies (Kasim *et al.* 2015; Suraweera *et al.*, 2011; Tandrayen-ragoobur and Ayrga, 2011; Al-Smadi and Al-Wabel, 2011; Nasri, 2011) to evaluate such claims. Therefore, this study was attempting to cover the knowledge gap and specifically sought to: (i) determine the level of customers' adoption on electronic banking services; and (ii) establish factors that determine adoption of electronic banking services among NMB Bank Plc customers in Rombo District and reasons for their service usage.

2.0 MATERIAL AND METHODS

2.1 Description of the Study Area and Sample Population

Rombo District is one of seven administrative districts in Kilimanjaro Region, Tanzania. It is approximately 1,471 square kilometres in size. It was bordered on the north and east by Kenya, on the west by the Siha and Hai Districts, and on the south by the Moshi Rural District. The Rombo District encompasses a significant portion of Kilimanjaro National Park. According to the URT (2012) – Population and Housing Census report, the population of Rombo District was 260,963 in 2012 and 284,834 in 2017. The district had a diverse range of economic activities, including farming and small and medium-sized commercial enterprises, which attracted financial institutions such as NMB Bank Plc. The study's unit of analysis was NMB Bank Plc Rombo branch customers. NMB Bank Plc was chosen as a case study because it is one of the Tanzanian banks that has fully embraced the e-banking system and has a larger customer base than any other financial institution in the region (NMB Bank Plc, 2018).

2.2 Research Design, Sample Size and Sampling Techniques

The study used a cross-sectional research design, which allowed data for two or more variables to be collected and analysed at the same time in order to establish patterns of association (Bryman and Bell, 2011). The design was chosen because of the objectivity's firmness, which aims to reveal relationships between variables, and because it allows interferences on the effects of explanatory variables on the dependent variable (Olsen and St George, 2004). The study sample size was calculated using Yamane formula (1967) as indicated below. Where; n = the sample size, N = population size (19,394 who are NMB Bank Plc customers) and e = the level of precision (5%).

$$n = \frac{N}{1 + N\left(e^2\right)} \qquad = \frac{19,394}{1 + 19,394\left(0.05\right)^2} = 392 \text{ (Yamane, 1967 cited by Israel, 2013)}$$

The key informants were chosen based on their roles in daily bank operations. A convenience sampling technique was used to collect information from customers seeking various services at the NMB Bank Rombo Branch in 2019. The time and dates were chosen based on the experience of bank officers interviewed prior to the actual data collection for this study. Only 70% of the 392 respondents (276) were interviewed due to constraints in obtaining additional potential respondents. In addition, six key informants (two operational managers, one relationship officer, and three customer service officers) were chosen based on their positions to supplement customer information.

2.3 Data Sources and Collection Techniques

The study used both primary and secondary data sources. Primary data were gathered through interviews with NMB customers and staff. Secondary data were obtained from internet sources and organisation documents, a documentary review guide was used to guide data collection on the extent to which customers used e-banking and associated determinants of e-banking adoption. A survey questionnaire with open-ended and closed-ended questions was used to collect data from NMB bank customers. Respondents were asked to give their permission to participate in the study before being interviewed at NMB Bank Rombo branch. In addition, key informants' responses were gathered using a checklist of questions. The key informant interview was required because it allowed for data triangulation and likely provided detailed information about key arising issues in e-banking systems and services. On the other hand, secondary data was obtained from annual and quarterly performance reports on bank e-banking performance and setbacks. The data allowed us to learn more about the effectiveness of e-banking as well as general bank performance as a result of e-banking use. This technique filled in the gaps left by other methods. Direct observations were used to collect first-hand information in the field, which aided in

understanding the actual practice of the bank branch as well as customers' concerns about e-banking. Observations were made in a field book or on a mobile phone, whichever was more convenient.

2.4 Data Analysis
To analyse key informant findings, content analysis was used, and the information was summarised in themes and sub-themes with reflection on the study's specific objectives. In the first objective, the proportion of customers who use e-banking services was investigated descriptively. This summarised the phenomenon's outcomes across its descriptive themes and sub-themes and was used to calculate the frequency and percentage of the studied variables. The second and third objectives used binary logistic regression model to assess economic determinants of e-banking adoption and socio-demographic determinants of e-banking adoption, respectively. Since the dependent variable was categorical, with customers' chances of adopting or not adopting e-banking, the model was chosen (Field, 2009). Multicollinearity was tested using the Variance inflation factor (VIF) to ensure that the model's assumptions were met. The decision range under the regression model is that the predictor variables are not highly correlated with each other, taking into account that multicollinearity in the data occurs when the independent variables are extremely correlated with each other. It is also specified that when VIFs = 1, there is no or little multicollinearity; when VIFs > 1, there is moderate multicollinearity; when VIFs 5–10, there is high correlation; and when VIFs > 10, there is poor estimation of the coefficients and multicollinearity in the regression model is a problem that should be addressed appropriately (Sheskin, 2011, Field, 2009). The VIFs for all predictor variables were found to be equivalent to 1 (VIFs = 1) in this study, indicating that multicollinearity was not a problem among the predictor variables. Furthermore, the multiple response analysis technique was used to examine the study's final objective on the banking factors influencing customer adoption of electronic banking services. Respondents had the option of providing more than one response.

2.5 Data Validity and Reliability
A pilot study involving 28 respondents was conducted to test the accuracy of data collection tools and responses in relation to the specific objectives in order to ensure data validity and reliability. The 28 respondents were not counted as part of the main data collection. The findings confirmed that the tools used were effective and produced consistent results. Minor adjustments were made to the tools. It is argued that argued that a reliability co-efficient (alpha scale) of $\alpha \geq 0.7$ is considered adequate and below 0.5 was considered to be poor fora study (George and Mallery, 2003). Kurtosis and skewness tests were used to verify whether the sample selected from the population was normally distributed in order to determine data normality. The data for all variables in this study had an approximate normal distribution, according to descriptive analytic statistics.

3.0 FINDINGS AND DISCUSSION
3.1 Proportion of Customers' Adoption on Electronic Banking Services
The study aimed to measure level of Automatic Teller Machine (ATM) usage, the results indicate that 95.8% respondents were using ATM and 4.2% were not using ATM. This means that the majority of account holders withdraw funds from their accounts using a debit card. This implies that ATMs are more commonly used than any other type of e-banking, with cash withdrawal and balance inquiry being the most frequently requested services by customers in the study area. The findings are consistent with the findings of Kaur *et al.* (2015), who indicated that respondents preferred ATM services over other e-banking services. ATM service, on the other hand, is a primitive form of electronic banking technology with limited functions such as deposit, withdrawal, and balance inquiry.

The study also looked at whether the respondents were familiar with internet banking and how much they used it. The findings show that 80.1% of respondents knew about internet banking, while 19.9% did not. Despite living in remote locations, the majority of the respondents were aware of the internet banking service. When questioned if they knew how to use internet banking, the majority of the respondents were seen using smart phones and tablets. When asked, 98.2 percent stated they did not know how to use internet banking, while only 1.8 percent agreed. The NMB staff identified lack of trust in online transactions and online purchasing tradition as the main barriers to internet banking adoption. All of the interviewees who used internet banking (1.8%) did so for balance inquiries and bulk message payments. Although awareness of internet banking has been achieved, usage should be promoted by a campaign from bank personnel to explain the benefits of using the service. It is the fact that online banking was introduced to Jordan 15 years ago and that millions of dollars have been spent on updating and maintaining the internet technological infrastructure required, Shi and Lao (2015) assert in their study that Jordanians' adoption of internet banking remains low. To promote the usage of online banking in rural areas, financial institutions and other important stakeholders must make consistent investments. This will open up greater opportunities for financial inclusion in rural areas.

The study also assessed whether the respondents were aware and using mobile banking. The findings indicate that only 12.1% of the respondents were unaware of mobile banking, whereas the majority (87.9%) were aware.

Furthermore, the results show that the majority of respondents (57.6%) do not use mobile banking, whereas 42.4% do. This suggests that, despite the stiff competition from mobile phone telecommunication firms' money transfer services such as M-pesa, Tigo-pesa, Airtel money and Hallopesa, more than half of the respondents' trusted mobile banking.

According to the findings, about 54.5% of the respondents were unaware of credit e-banking facilities, while 45.5% were aware of this type of e-banking platform. This means that more than half of those interviewed were unaware of the availability of credit card e-banking. This could be true because existing country systems do not allow banks to trace customers' information, so there is a risk that one customer can obtain credit from multiple banks and then fail to settle the amount. Likely, the survey established that 98.8% of respondents did not use credit cards, while only 1.2% did. This could be partly related to a scarcity of businesses that accept credit or debit card payments. When compared to other urban areas in Tanzania, the technology of using debit card was found to be relatively new among Rombo District NMB Plc bank customers.

The survey also intended to know generally how often consumers used e-banking, therefore respondents were asked to rate how much e-banking they use on a scale of one to three. E-banking usage was classified into three categories: highly used (3), moderately used (2), and occasionally used (1). The majority of respondents (49.7%) used e-banking at a moderate level, 41.8% highly used e-banking, and 7.9% used only occasionally. This means that nearly half of the respondents used e-banking moderately, with a preference for debit cards over any other type of e-banking.

3.2 Economic Determinants of Electronic Banking Adoption

Using binary logistic regression, the survey assessed the economic determinants of electronic banking adoption. In the model, two independent variables, respondents' occupation and income, were tested, while e-banking adoption was a dependent variable. The omnibus tests of model coefficients indicated that the predictor model of goodness of fit is better than the block 0 model fit where p = 0.010 (p<0.05), the chi-square is 78.56 and the degree of freedom (df) was 1. The test further shows that the whole explained between 54.9% (Cox & Snell R Square) and 71.4% (Nagelkerke R Square) of the variance are in satisfaction level and all independent variables had a unique statistical significant contribution to the model. Furthermore, Hosmer and Lemeshow results also supported the model by being worthwhile. It is stated that for Poor Hosmer and Lemeshow Goodness of Fit Test is supposed to be p<0.05 (Field, 2009) but for this model, the results show that p= 0.718 which is greater than 0.05.

The test results revealed that level of income was the strongest predictor of e-banking adoption. The findings were statistically significant at p <0.05 [p = 0.003, Wald statistic = 18.418 and Exp (β) = 10.067]. The findings further suggested that the increase in level of income by 5.102 more likely will increase e-banking adoption by 10.067 (odd ratio) times. This suggests that clients' adoption of e-banking services such as ATMs, internet banking, mobile banking, and credit/debit cards was substantially influenced by their income level. This can be explained by the fact that increased income likely attracted more transactions in their everyday activities, whether it was for business or to purchase various things via mobile banking or ATM cards. This was confirmed by NMB officer during an interview who stated that:

> *"...In my three years working in rural NMB branches, I saw that customers with higher incomes were more likely to use e-banking than customers with lower incomes. Physical visits to our branches, especially for customers from remote areas, are, in my opinion, excessively expensive for them. It is healthier they opt for e-banking...."* (Interview, NMB Rombo).

Likewise, occupation was observed to be another stronger predictor of e-banking adoption. The findings were statistically significant at p <0.05 [p = 0.040, Wald statistic = 10.464 and Exp (β) = 7.151] (Table 1). Wald test of 10.464 indicates that customers' occupation had statistical significant contribution in predicting e-banking adoption. This means that employed people were more likely than unemployed people to use e-banking. Employees were more likely to transact electronically, so any changes that could affect their employment had a greater chance of negatively impacting their e-banking usage.

Table 1: Income level and Occupation of the respondents

	B	S.E.	Wald	Sig.	Exp(β)
Level of income	5.102	1.476	18.418	0.003	10.067
Occupation	-3.150	0.973	10.464	0.040	7.151

Omnibus Test of Model Coefficients (Chi-square =78.56; sig. =0.000); Cox &Snell R Square = 0.549, Hosmer & Lemeshow Test (Chi- square = 24.79; sig. =0.011); Nagelkerke R Square = 0.714.

3.3 Socio-Demographic Determinants of Electronic Banking Adoption

The study also intended to determine the socio-demographic factors that influence customers' decision to use electronic banking services. The influence of age, sex, marital status, level of education, and ethnicity was determined using the Binary Logistic Regression analysis. The Omnibus Tests of Model Coefficients revealed that the predictor model of goodness of fit is better than the block 0 model fit where the p = 0.000 (p<0.05), chi-square=79.23 and the degree of freedom (df) was 5. A whole explained between 62.6% (Cox & Snell R Square) and 74.9% (Nagelkerke R Square) of the variance which was at an acceptable level. On the other hand, the Hosmer and Lemeshow test results was acceptable where p = 0.800, greater than 0.05. Poor Hosmer and Lemeshow Goodness of Fit Test is when p<0.05.

The findings in Table 2 show that level of education of respondent is the strong predictor of e-banking adoption. The findings were statistically significant at p <0.05 [p = 0.001, Wald statistic = 14.721 and Exp (β) = 9.426]. Wald test of 14.721 indicates that level of education statistically significant contributed in predicting e-banking adoption. The findings further revealed that the increase in education by 1.74 added the chance of e-banking adoption by 9.426 times. This can be explained by the fact that customers with higher levels of education were more likely to choose cost-cutting technologies.

The findings indicate that age was a strong predictor of e-banking adoption. The findings were statistically significant at p <0.05 [p = 0.000, Wald statistic = 11.517 and Exp (β) = 6.965]. Wald test of 11.517 indicates that the increase in age of respondents negatively contributed in predicting e-banking adoption. The findings further signify that the decrease in age of respondents by -3.982 will increase the chance of e-banking adoption by 6.965 times. This can be explained by the fact procession of electronic devices observed to be higher (95%) among youth when compared to older people (60%) in the study area. In addition, ethnicity was found to be among demographic factors influencing electronic banking adoption. The findings were statistically significant at p <0.05 [p = 0.002, Wald statistic = 1.705 and Exp (β) = 0.862]. Wald test of 1.705 indicates that changing of ethnicity of the respondents from Chagga (58.2%) to other tribes (41.8%) contributed in predicting e-banking adoption. The findings further suggest that the change in tribe by 0.662 with an odd ratio of 0.862 increased the chance of e-banking adoption by 0.862 times. The proximity of Rombo District to the Kenya-Tanzania border, attracted more people from different tribes to engage or do business in the district. Therefore, mobile and online banking usage rates were impacted due to the mixing. In contrast, marital status had no statistically significant impact on electronic banking use, with a p>0.05 [p=0.200] significance level.

Table 2: Social demographic factors affecting adoption of electronic banking

Social Demographic factors	B	S.E.	Wald	Sig.	Exp(β)
Age	-3.982	2.176	11.517	0.000	6.965
Education level	1.741	2.338	14.721	0.001	9.426
Marital status	-1.500	0.839	01.518	0.200	1.484
Ethnicity	0.662	0.373	01.705	0.002	0.862

Omnibus Test of Model Coefficients (Chi-square =79.23; sig. =0.010); Cox &Snell R Square = 0.626, Hosmer & Lemeshow Test (Chi- square = 55.34; sig. =0.800); Nagelkerke R Square = 0.749.

3.4 Reasons for Usage of Electronic Banking Services

The study aimed to ascertain banking factors which determine usage of e-banking in the study area. The findings revealed that all respondents equivalent to 20.7% of the responses argued that they use e-banking because it is cost effective. This means that, using e-banking was relatively cheaper when compared to manual banking. This can be explained by the reality that manual banking requires physical visit to the bank offices which attract transport cost and time waiting service in a queue. According to Schneider (2011) and Rahmanseresht (2016), electronic banking is cost effective both to the banks and customers because avoid the cost of walk-in customers, reliance on new branches, hiring new qualified personnel and paperwork. It has a high chance of increasing number of internet users because convenience and efficiency. During an interview with NMB officer, it was said that:

> "…....the bank is working hard to minimise e-banking expenses and increase awareness in order to encourage more of our clients to utilise e-banking instead of manual banking. In most cases, we have discovered that some of our customers are hesitant to use e-banking because they believe it will be more expensive than manual banking…." (Interview, NMB Rombo).

Likely, the survey revealed that 26.1% of the responses indicated that e-banking save time. This means that electronic banking could provide time for bank customers to do other economic activities instead of travelling for services in nearest bank branches. It has been realised by other scholars that e-banking has a significant time savings because it allows quick for and continuous access to information as well as better cash management when compared to manual banking mode (Salehi and Alipou, 2010; Angelakopoulos and Mihiotis, 2011). Moreover, the findings revealed that 26.4% of the responses revealed that using e-banking was convenient to

customers since it can be accessed anywhere and at any time, as opposed to manual banking. It is likely asserted by Weingarten *et al*., (2015) that e-banking has the potential to improve customer satisfaction by providing faster, easier, and more convenient service. There are compelling reasons to believe that the widespread availability and use of internet and cell phone technology applications will fundamentally alter the way financial services are delivered in the future.

The findings also show that 8.6% of respondents said they chose e-banking for privacy reasons. This means that e-banking enabled customers to conduct transactions without the involvement of a third party. Phones and ATM cards were used for the transactions. Despite the fact that electronic services can be hacked, Kvasnicova *et al*. (2016) contend that when security and privacy are clearly disclosed, consumers increase their trust in online operations and, as a result, are more willing to conduct online transactions. Furthermore, Masocha *et al*. (2010) argued that privacy and security refer to the proper authorization and confidentiality of a bank's customer information and transactions. As a result, customer preference and confidence in e-banking are dependent on how a specific bank handles any erroneous transactional and risk that may occur during online banking.

Nonetheless, the findings revealed that 11.4% of respondents believed that using e-banking posed little risk to bank customers because it did not involve the use of cash. As a result, the risk of theft and robbery appeared to be low. Though computer system hackers may steal personal bank information and pose risks to bank account holders, this occurs infrequently when compared to physical robbery. However, Angelakopoulos and Mihiotis (2011) urges that, the main disadvantages for customers is safety of their personal data, which may cause a lack of trust to e-banking services among customers if not well protected. Banks are being urged to protect their customers' data and to constantly monitor electronic operations. The findings, on the other hand, indicate that 6.8% of the responses indicate that, among other things, customers preferred e-banking because it has fewer technical faults than manual banking. Customers can detect minor technical faults because each account holder has a name and serial number, so if the operator makes a mistake, the system immediately alerts them to the error. This reduces the possibility of material errors, which could result in customers losing money.

4.0 CONCLUSION AND RECOMMENDATIONS

The study aimed to assess determinants of e-banking adoption among NMB Bank customers in Rombo District. The study concludes that; among the four electronic banking platforms such as ATM, mobile banking, Internet banking and credit cards usage that the most commonly used e-banking platform was ATM through debit cards, followed by mobile banking, with internet banking and credit cards being used to a much lesser extent. The respondents' level of income and occupation were discovered to be significant economic factors influencing electronic banking adoption. In addition, social-demographic factors such as level of education, age and ethnicity were statistically significant influencing adoption of electronic banking whereas marital status was not. In the category of banking factors, however, low operating costs of e-banking, time savings and convenience were among the factors that determined e-banking usage.

Given the study's findings and conclusions, banks must take the lead in promoting e-banking, securing customers' personal data and charging customers reasonable fees. Therefore, the following are specific recommendations for bank officials and regulator(s) to cogitate: (i) Effective presentations using all forms of media advertising such as leaflets, brochures, web pages and so on, will help to introduce the services to a wider audience and educate potential customers about benefits of electronic banking; (ii) Front-office bank officers at all branches should provide more information about e-banking. In addition, in order to attract more web visitors, banks' websites should provide information other than banking services, such as their community engagement services; (iii) it is critical for banks to provide a well-designed and user-friendly website in order to attract the attention of potential adopters. Customers should not be required to spend a significant amount of effort or time, or to change their behaviour, in order to use e-banking services. To make the adopter feel at ease, information and instructions on the web should be available in both English and Kiswahili; (iv) Extensive publicity emphasising the benefits and ease of use of e-banking services should be provided. This could be accomplished by installing personal computers in all bank branches, along with adequate documentation and bank assistance. To ensure continuous improvement, customers' responses and opinions on services should be assessed on a regular basis; (v) Banks should embrace pull techniques to establish internet dissemination strategies. The number of e-banking adopters will increase as the internet population increases. As part of the effort to enhance online banking, banks should actively participate in upgrading internet services; (vi) Banks and Internet Service Providers (ISPs) should also work together to improve the quality of services and the accessibility of adopters. An excellent internet infrastructure should also be created in partnership with the government, since it's one of the most important prerequisites for e-banking use.

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