



# **Adaptation of Technology on Products and Services Related in the Banking Industry: Challenges and Solutions**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

This was a qualitative business case which used decision-making case design to explore the scenario of CRDB Bank Plc in Mbeya, Tanzania city on challenges and solutions in the adaptation of technology on products and services related in the banking industry toward customer experience. The secondary data collected through a review of various documents from CRDB related to customer's welfare and usage of technology-related banking products and services. We used specific criteria to make sure the chosen articles fit our study's focus. Moreover, the research utilized the Mixed Methods Appraisal Tools (MMAT) to appraise the quality of the selected studies in the narrative literature review. The business case employed inclusion and exclusion criteria to select relevant studies for the review. The data from these selected studies extracted and analyzed using a narrative synthesis approach. Considering the challenges on customer retention; in order to overcome this challenge, CRDB Bank may need to invest in customer education, improve on the reliability of digital infrastructure enhance customer support for digital services, and maintain a strong focus on data security. Also, aiding digital offerings to the specific needs and choices of

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customers in Mbeya City can help improve customer retention in the face of technological changes. It was found that, customer satisfaction in digital banking services is enhanced and led by a combination of factors related to usability, security, convenience, customer support, and transparency. To succeed in this competitive area, banks have to prioritize these factors and continuously ensure to improve the general customer experience.

*Keywords: Adaptation of technology; customer experience.*

## 1. INTRODUCTION

Recent developments in digital technology have brought significant changes to the bank's operations, particularly affecting the role of retail banks within the financial industry. This shift has been driven by innovations in digital tools, resulting in increased competition from new and inventive firms [1]. Alongside these changes have also led to shifts in consumer preferences and demands, ultimately altering the way consumers interact with retail banks. However, this transition to technology-based banking also presents challenges [2]. While it offers enhanced customer convenience and cost reduction for banks, it introduces certain issues during its implementation [3]. The ICT-based banking system faced some challenges that require to be addressed that included changing perception and preferences of customers, this involve addressing security issues and countering cybercrime challenges. Prevalence of incidents that involving the theft of personal information that misused by other people, leading to consumers to concerns about their safety and financial services offered by the financial institutions [3]. Therefore, this business case study focused on CRDB Bank Mbeya Branches and its effort of adopting technology in changing landscape of banking industry to add value to customer experiences in digital eras.

The banking industry experienced rapid increases of digital transformation that led to automation of most banking services. As one of the leading banking institutions in Tanzania, CRDB Bank recognizes the need to embrace digital tools and platforms to stay competitive. According to the Zonal Manager who is among decision makers in CRDB Bank Mbeya region, they take a leading role in embracing technology and integrate it into their business operation. The decision involved making a comprehensive approach to bringing innovative banking and insurance services to customers, making them accessible through a variety of channels such as traditional branches, ATMs, Point of Sales terminals, internet banking, mobile banking, and

more. As a key decision maker in the respective zonal, Zonal Manager of CRDB Mbeya city branch is responsible for orchestrating the implementation of technology-based solutions to enhance customer convenience and improve operational efficiency in the operation zonal. This includes overseeing the rollout of services like internet banking, mobile banking, SimBanking, and agent banking, allowing customers to engage with the bank on their preferred platforms.

However, despite CRDB Bank's efforts, the Zonal Manager faced various challenges that hinder the adoption of ICT-based banking system and the delivery of digitalized banking services. One the significant challenge that CRDB Bank Mbeya branch faced is customer retention. The bank is struggling with retaining the existing customers that shifting to other financial institutions with better services that meet their preferences. Thus, the Zonal manager of CRDB bank Mbeya branches was forced to utilize various strategies that allow customer engagement which led to retaining them. This includes making sure digitalized banking services align with the long-standing customer's preferences and attract more tech-savvy new customers to use CRDB bank's digitalized banking services. Further, CRDB Bank Mbeya branches faced another challenge related to technology related banking services. This involve low recruitment of new customers, the Mbeya branches struggle to attract new customers despite of innovation that are made to cope with growth of digital and ICT-based services in Tanzania. This led to Zonal manager to reconsider the effectiveness of ICT-Based banking technological solutions, outlining their benefits that provide to customers. Also, the zonal manager wa faced with issues of low usage of digitalized banking services offered by CRDB in Mbeya branches. The Zonal manager take his time to explore the driven factors behind low acceptance of technological banking services, also, what limiting customers to adopt and utilize digital banking services in Mbeya region. The zonal manager should develop

relevant strategies to address the issues related to adaptation of technology in banking services, this could involve education related solution, or any other that encourage customers to adapt ICT-based banking services.

To address these challenges, the Zonal Manager seeks external expertise and insights from academic personnel. These experts can provide valuable perceptions on the challenges related to adapting technology in the banking industry and offer potential solutions. Collaborating with academic professionals allows the Zonal Manager to gain a broader understanding of consumer behaviour, technological trends, and effective strategies for technology integration.

Thus, this business case implemented to review and discuss the challenges and solutions in the adaptation of technology on products and services related to the banking industry toward customer experience in CRDB BANK PLC's Mbeya city branches. The study included key decision makers from CRDB Bank in Mbeya region as the protagonists of the business case, this was included Zonal manager, Branch manager, and Head of ICT. The business case prepared for the 90 days from July to October, the timelines included various activities such as the preparation of the business case proposal and related activities like amendment and correction as advised by a supervisor, data collection and related activities, and preparation of final reports.

## 2. BACKGROUND INFORMATION

### 2.1 Background Information of the Business Case

Following technological evolution, bank investment has been growing rapidly; customer expectations have been changing almost daily over the last two decades. Technological innovations introduce new and more advancing features of bank's related products and services. Building strong customer relationships is the prudent way of tracking changes in their expectation and appropriately influencing them because they are less willing to compromise product or service quality [4]. The banking and overall financial industry in Tanzania have witnessed significant technological advancements in recent years. As customer demands evolve, banks are increasingly embracing digital transformation to enhance the products and services they offer.

There is no doubt that in the free-market trade companies and financial institutions strive to retain customers meanwhile attracting new ones to join. Conventionally, the retention of customers depends on the level of satisfaction of the customers on the delivery of the services [5]. Satisfying a customer in the service industry depends on the quality of the service and the perceptions of the customer towards the provided service. The satisfaction of customers can be measured in terms of technical quality and functional quality, however, more often the customers are less informed about the technical aspect of a service. It follows that the functional aspect is much more vivid and comprehensive for customers to express their satisfaction with the service quality. According to [6] to understand customer satisfaction with service quality one has to study the customer perception, expectations and attitudes about the service; the factor assured by good customer relations. In other words, the entire experience of customers regarding the quality of service portrays the extent to which customers are satisfied

Cooperative and Rural Development Bank (CRDB) Bank Plc is a public company limited by shares, incorporated in the United Republic of Tanzania (URT) in the year 1996 under URT Companies Act number 12, CAP 212 of 2002. It was listed on the Dar es Salaam Stock Exchange (DSE) in 2009. It is one of the 62 banks and financial institutions that operate in Tanzania and is licensed by the Bank of Tanzania (BOT). The bank serves over 3.3 million customers, Like other bank firms, CRDB uses several modern and innovative products and services provision modes which in turn helps the bank in promoting the accessibility of their products and services in both urban, semi-urban and rural areas.

CRDB Bank PLC, one of Tanzania's leading financial institutions, has recognized the importance of adopting technology to improve customer experience. The bank aims to provide seamless and convenient banking services to its customers, catering to their diverse needs and preferences. The bank has a modern IT platform and it is recognized as the leading banking institution in technology and innovative service delivery means.

Bank offers a comprehensive range of corporate, business, treasury, insurance, retail and wholesale banking. It also plays an important role in the socioeconomic development of the country through supporting the country's development

projects and activities. The bank has a network of 254 branches including 21 mobile bank branches, 558 ATMs, 19,000 Fahari Huduma agents and 2,525 merchants that are operated on behalf of the bank in different places in the country [7]. In recent years, CRDB BANK PLC has recognized the potential of technology adoption to enhance efficiency, offer personalized services, and compete effectively. Consequently, the bank has implemented various interventions, such as deploying mobile banking apps, introducing digital onboarding processes, and automating customer support services.

Banking customer experience is how customers feel and act when they deal with a bank. A good experience means the bank gives great service, easy-to-use products, and smooth interactions across all ways of communication, while meeting customer needs and wants. However, most banking customers 75% feel that their banks are not helping them achieve their financial goals. For instance, in the UK, there were over 2 million complaints about banking services in 2019 despite most banking products and services being digitalized [8]. This shows that despite of positive influences of technology in the banking industry, the bank has encountered challenges in effectively integrating technology into its operations. Issues like resistance to change among staff, cybersecurity concerns, and ensuring seamless integration of technology with existing systems have posed significant obstacles.

### 3. BUSINESS CASE PROBLEM

According to the Zonal Manager of CRDB in the Highland zone, among the goals of the CRDB is to expand the customer base in rural areas like the Mbeya region. A CRDB Bank is undergoing a significant transformation driven by the rapid advancement of technology. As banks strive to enhance productivity and improve customer experiences, the adoption of new technologies has become crucial. The bank has implemented various interventions like deploying mobile banking apps, introducing digital onboarding processes and automating customer support services.

However, with the integration of technology and digitalization of most banking products and services. However, CRDB Bank has encountered issues related to customer retention, a low increase in new customers, and low usage of

digital products and services in Mbeya city branches. For instance, for the past four years since the introduction of technology in the bank's operation, CRDB Bank PLC's Mbeya branches have experienced a higher number of customers leaving the bank's services compared to the previous year. In the past year, the CRDB Bank Mbeya branch has witnessed a rise in the number of customers discontinuing the use of the bank's services, with customer turnover increasing from 12% to 18% [9]. This suggests a shift towards alternative banking institutions, negatively impacting CRDB Bank's operations in the Mbeya region [10]. Additionally, the CRDB Bank Mbeya branches have experienced stagnant growth in their customer base in the region. Over the past three years, the bank has only achieved an average annual customer growth of 2%, indicating challenges in attracting new customers. Furthermore, the Mbeya branches are grappling with the low adoption of digital transformation, with less than 30% of customers utilizing digital banking channels such as mobile banking and Internet banking, while the majority still prefer traditional in-branch transactions.

To address the issue of low adoption of technology-related banking products and services, CRDB Bank in the Mbeya region has implemented various interventions. These initiatives aim to enhance the positive customer experience with the products and services offered by CRDB Bank. The bank has upgraded its ICT facilities and infrastructure to improve digital security and enhance customer trust in digital banking services. Moreover, CRDB Bank has introduced digital banking channels, including mobile banking apps and internet banking platforms, to facilitate convenient banking for customers. Awareness campaigns have also been initiated to educate customers about digital transformation and highlight the benefits of using ICT-based banking services.

Despite these efforts by CRDB Bank, the problem of low usage of digitalized banking products and services persists. The Mbeya branches continue to experience a low increase in new customers, and customer retention remains a challenging issue that requires urgent solutions. According to a CRDB Mbeya branch manager, only a few customers in the region have adopted and are using digital banking services, while the majority exhibit hesitation in shifting from the traditional banking system to embrace digital banking. Despite an

improvement in the customer churn rate, the growth of the customer base in the Mbeya region for CRDB Bank remains below average. A survey indicates that 45% of customers express dissatisfaction with the user experience of the bank's mobile banking app, citing issues related to navigation and functionality [11]. Security concerns are also identified as factors hindering the adoption of digitalized banking-related products and services

### 3.1 Business Case Dilemma

The main challenge faced by CRDB Bank PLC's Mbeya branches is their struggle to improve customer experience through the adoption of technology. Despite their efforts to offer digital products and services, they are dealing with issues such as low customer retention, slow growth in new customers, and low digital usage. This presents a significant organizational challenge for the bank as it aims to provide better service, attract more customers, and keep up with the changing trends in digital banking. The key question is how CRDB Bank can effectively address these challenges and successfully integrate technology to create a seamless and customer-centric banking experience in Mbeya.

Therefore, this business case study was focus on reviewing Challenges in the Adaptation of Technology on Products and Services Related To the Banking Industry toward Customer Experience in CRDB BANK PLC's Mbeya City Branches and propose relevant solutions to address the business case phenomenon.

## 4. LITERATURE REVIEW

The business case in searching for the relevant solutions to address the case phenomenon, several works of literature and theoretical elements reviewed to link the study to the existing scientific body of knowledge.

### 4.1 Theoretical Underpinning

To understand the relationship between the adaptation of technology and customer experience measured through usage and satisfaction with the products and services offered, this study adopted the Service Quality Theory and Expectation Confirmation Theory (ECT).

### 4.2 The Service Quality Theory

The Service Quality Theory (SERVQUAL) model, was developed in 1985 by researchers A. Parasuraman, Valarie Zeithaml, and Leonard L. Berry aim to assess and enhance service quality in the service and retail industries [12]. This model measures customer satisfaction based on five dimensions: reliability, responsiveness, assurance, tangibles, and empathy [13]. It helps organizations understand and improve the quality of their services to meet customer expectations. The SERVQUAL model helps bridge the gap between a company's perception of its service delivery and what customers expect, want, or need in customer service [13]. It remains relevant even in the digital age, where customer perceptions are easily shared on the internet [14]. The model considers five dimensions of service quality that customers use to evaluate a business:

1. Reliability: Consistency in delivering products or services on time and as promised, showing respect for commitments and promises made to customers [15].
2. Responsiveness: How quickly the organization can address customer needs and respond to their service requests, without ignoring or evading them [14].
3. Assurance: Inspiring trust and confidence in customers through professional service, effective communication, technical knowledge, and the right attitude [14].
4. Tangibles: The visual aspects of a company, including its logo, physical store, website appearance, and the equipment used. It also includes the physical appearance of customer service staff.
5. Empathy: The ability of employees to genuinely care and show concern during customer service, be friendly, and approachable, actively listen to customer needs, and be sensitive to their requirements [15].

In the context of the business case for CRDB Bank PLC - Mbeya branches, the SERVQUAL model is highly relevant for evaluating the bank's digital banking services and identifying areas for improvement.

The five dimensions of SERVQUAL hold significant implications for the digital banking experience. To enhance reliability, the bank must ensure consistent and efficient service delivery

through digital channels, maintaining a high level of security and minimal downtime. Responsiveness becomes critical in digital interactions, requiring the bank to provide quick and effective customer support for inquiries and issues related to digital banking. Assurance is vital to inspire trust, as the bank needs to communicate its commitment to data protection and showcase expertise in digital services.

Tangibles in the digital context refer to the visual appearance and functionality of the bank's digital platforms. To excel in this dimension, CRDB Bank should invest in user-friendly interfaces and seamless navigation to improve the overall customer experience. Empathy plays a significant role, even in digital interactions. The bank can foster empathy through personalized responses, acknowledging customer needs, and tailoring digital offerings to suit individual preferences.

By utilizing the SERVQUAL model, CRDB Bank can identify the gap between its perception of service quality and customer expectations regarding digital banking services. This analysis was guided the bank in making data-driven improvements, allocating resources effectively, and prioritizing initiatives that align with the dimensions of service quality.

### 4.3 Expectation Confirmation Theory

Expectation Confirmation Theory (ECT) is a well-accepted framework that explains how people's prior expectations shape their views and judgments about a specific thing. This theory suggests that what individuals anticipate beforehand influences their thoughts, feelings, and actions related to a product or service [16]. The central idea of ECT is that individuals have certain expectations about something, and their

opinions and emotions about it depend on whether those expectations are met or not. These expectations are built on past experiences, information, and beliefs, guiding how people see, evaluate, and engage with the world around them [17].

Fig. 1 illustrates the complete process through which customers develop an intention to repurchase within the framework of ECT. According to ECT, the main factor influencing customers' intention to repurchase is their satisfaction with their previous use of a product or service. When customers are satisfied, they intend to buy again, but if they are dissatisfied, they stop making purchases [18]. Customer satisfaction is influenced by two main factors: their expectations before using the product or service, and their assessment after using it. This assessment is known as "confirmation." Confirmation is how users perceive the match between what they expected before using the product or service and how they perceive its performance after using it [16].

In the situation of CRDB Bank's challenges in adopting technology for its banking services in Mbeya city branches, the Expectation Confirmation Theory (ECT) is highly relevant. This theory states that customer's initial expectations heavily influence their perceptions and actions towards a product or service. In CRDB's case, the theory illuminates why some customers might not fully embrace digital products and services and why others might be dissatisfied, impacting customer retention and overall experience.

When customer expectations are met or exceeded, ECT predicts positive confirmation, leading to increased satisfaction and loyalty. Conversely, if there's a disconnect between

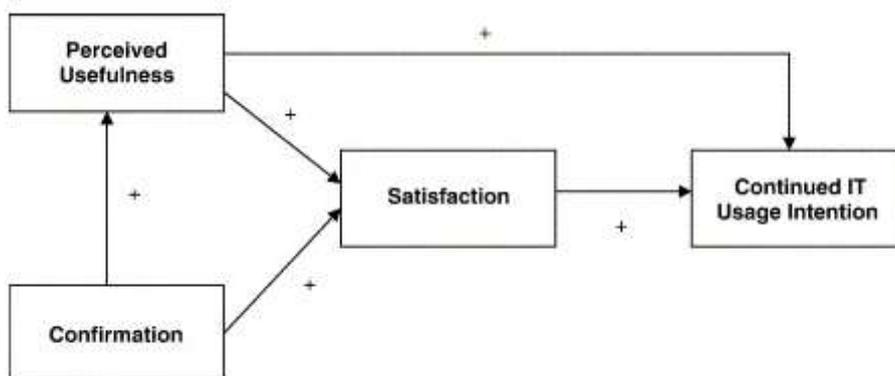


Fig. 1. Expectation Confirmation Theory (ECT) Source: [18]

customers' expectations and the experience with digital offerings, dissatisfaction and attrition can occur. Zonal Managers can apply ECT to evaluate whether customers' expectations are being addressed, enabling them to bridge this gap and enhance customer retention. The low adoption of digital services may stem from customers' uncertainties or misconceptions. ECT highlights the importance of clear communication and education. By effectively conveying the benefits of digital offerings and ensuring alignment with customers' expectations, the bank can promote higher adoption rates. Furthermore, ECT underscores the influence of customer experience on perceptions. By prioritizing user-friendly, seamless technology-driven interactions that meet customer needs, Zonal Managers can foster positive perceptions, leading to heightened satisfaction and stronger customer relationships.

Therefore, the business case was leveraged ECT's principles to better navigate these challenges, and also, guide strategies for addressing customer expectations and enhancing technology adoption. Moreover, ECT offers a strategic framework for CRDB Bank to align digital offerings with customer expectations, improve adoption rates, and elevate overall customer experience in the dynamic landscape of Mbeya city branches which is a major theme of the business case.

#### 4.4 Empirical Literature Review

According to the study of [19] it explores the impacts and challenges of Information and Communication Technology adoption in Tanzanian banks. The study involved forty-eight respondents, including four managers from each of the twelve banks selected. Out of the 48 questionnaires distributed, 42 were collected, resulting in an 87.5% response rate. They found that banks should educate the public about online banking, invest more in technology, and the government should reduce taxes on tech gadgets. The study also recommends more research on specific technologies and their impact on profits and performance to help make better business decisions.

The study conducted by [9] aimed to assess the impact of mobile banking on customer satisfaction. The research design involved a sample of 120 respondents, chosen through random sampling from the target population, which included customers and agents. Data was collected using interviews and questionnaires.

The findings indicated several key factors that influence customer satisfaction in the context of mobile banking services. Factors such as service cost, customer care quality, and the overall quality of mobile banking services were identified as crucial. The study suggested that for better customer satisfaction, mobile banking providers should focus on implementing effective strategies related to these factors.

According to a study by [20] that aims to determine the influence of self-service technology (SST) strategy on the performance of commercial banks listed in the Nairobi Securities Exchange. The study adopted a descriptive cross-sectional research design and included all eleven commercial banks listed in the Nairobi Securities Exchange. Both primary and secondary data were used for the analysis, and regression analysis was used to assess the relationship between self-service technology strategy and the performance of the listed commercial banks. The findings indicated that SST adoption resulted in improved service delivery, reduced operating costs, convenience to customers, and increased market share and revenue for the banks. The study concluded that embracing SSTs can enhance the financial performance of commercial banks.

According to [2], the study focused on exploring and identifying the issues and challenges related to the adoption of technology in the banking sector in India. The researcher relied on secondary data from various sources, including information technology-related websites, journals, and articles, to gather relevant data for the study. The study found that the common challenges faced by banks in India regarding the adoption of technology were related to data integration, security risks, cybercrime, legal issues, and delivery challenges. These challenges posed significant obstacles to the smooth implementation and utilization of technology in the banking sector. Also, [21] found that mobile banking usage in Bangladesh is influenced by factors such as risk, comparative advantage, cost, the convenience, and ease of access. However, risk associated with digital banking is the most influencing factors on the presence of digitalized banking services in Bangladesh. Thus, indicate that financial institutions and regulatory bodies should emphasize toward those factors to achieve digital transformation in banking sector. [22] explained that digital transformation in banking sector have significant impact on the flexibility of products

and services that digitalized. Those banking products bring many advantages to customers by allowing high level of interactions, which leads to high revenue generation to bank.

## **5. BUSINESS CASE METHODOLOGY**

### **5.1 Business Case Methodology**

This is the qualitative business case which used decision-making case design to explore the scenario of CRDB Bank Plc in Mbeya city on challenges and solutions in the adaptation of technology on products and services related in the banking industry toward customer experience. This type of case study enables the use of a decision-making case design which aims to explore and conceptualize literature about the case study problem and enable the study to develop the connection between case problem and solutions. The collected qualitative data processed and analyzed using critical literature review and presented using the narrative method.

### **5.2 Data Collection Methods**

For a deeper understanding of the business case problem, the study used secondary data. The secondary data collected through a review of various documents from CRDB related to customer's welfare and usage of technology-related banking products and services. We used specific criteria to make sure the chosen articles fit our study's focus. Moreover, the research utilized the Mixed Methods Appraisal Tools (MMAT) to appraise the quality of the selected studies in the narrative literature review. Each study evaluated based on the MMAT's criteria, which assess different aspects of the business case design, data collection, analysis, and overall consistency. The MMAT score represented the number of criteria met by each study, with a possible range from 1 to 8. A score of 1 would indicate that the study met only one of the MMAT criteria, while a score of 8 would indicate that the study fulfilled all the criteria. We followed the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) to ensure transparency and thoroughness in our article selection process. We then assessed the full texts of these selected articles to make sure they were appropriate and provided quality information relevant to our business case objectives.

### **5.3 Data Analysis**

The business case employed inclusion and exclusion criteria to select relevant studies for the review. The data from these selected studies extracted and analyzed using a narrative synthesis approach. The narrative synthesis approach allows for a comprehensive and qualitative exploration of the literature, enabling the researcher to address specific objectives of the study effectively [14]. The initial description of the key findings of selected studies firstly conducted following with organizing, mapping and synthesizing findings to answer patterns in the data based on study objectives. A narrative analysis is a qualitative method that involves interpreting and analyzing narrative data, such as literature review to gain insights into the underlying meanings, themes, and patterns to conclude.

### **5.4 Proposed Business Case Solution**

The business case study focused on exploring challenges facing CRDB Bank Mbeya branch, and propose relevant solutions in adaptation of technology on products and services related to banking industry. For the study to propose solutions, first the study aimed to determine underlying challenges limiting customers to adopt the technology related products and services offered by the CRDB bank in Mbeya city. And then recommended the possible solution that can be utilized by the bank.

### **5.5 Issues Affecting Customer Satisfaction in the Digital Banking Services**

In past few years, advancement of technology lead to significant shift of business operation. Banking sectors has become one of the industries that embrace the changes and shifting toward digital transformation. However, the outcome of integrating technology into banking operation has led to mixed experience for the customers. the scenario in more pressing in rural areas where there are less usages of the technology related products and services offered by the bank. The following are some of the factors that recognized that CRDB Bank has with adapting technology; As much as the technology adoption offers various benefits to CRDB Banks in Mbeya Branches, it as well faces various challenges. These challenges vary from regulatory compliance and data security to

operational risks, customer adoption, and the need for the present investments. Overcoming these challenges needs careful planning, substantial resources, and a commitment to innovation and customer services.

**Security Concerns;** The business case found during the interview with protagonists that, a significant number of customers for CRDB Bank in Mbeya City expressed hesitation in using digitalized products and services related in the banking industry due to security concerns. This contributed by the extensive media coverage of online frauds and hoax calls has contributed to their lack of confidence in the security of digital transactions due to fear of potential financial loss and identity theft. Technology and adoption have transformed the way CRDB Banks in Mbeya City branches operate and interact with customers. Even though the in-person banking services are still operating, much emphasis has been transferred to digital channels, self-service options, and personalized experiences. Customers' behavior and expectations have shifted according to this thus pushing the banks to keep on innovating and enhancing their services to remain competitive in the digital era.

**Credibility and Trust;** The business case recognized that trust is a major obstacle for customers to utilize digitalized products and services related in the banking industry that offered by the CRDB Bank in Mbeya City branch. Customers expressed reservations about the credibility of technology related products and services such as online transaction due to fraud risks, the customers have questioned the reliability of transactions further contributed to their reluctance to engage with products and services that offered by the bank in the Mbeya.

**Availability of Personalized Services;** The business case findings noted that the availability of personalized services is a crucial factor in influencing customer preferences for traditional banking over digitalized alternatives. The absence of face-to-face interactions and personalized assistance in digital banking can leave customers feeling disconnected with the products and services offered by the CRDB Bank and opt for another banks that offers those services.

**Awareness Level among Customers in Rural Areas;** The business case found that Customers in rural areas of Mbeya city, due to limited exposure and access to digital services, might

find online banking concepts unfamiliar and confusing which can lead to hesitation in adopting these services. Customers who are not aware of the full range of digital services might perceive the bank as lacking in terms of modernization and convenience. This can lead to reduced satisfaction with the bank's offerings.

**Availability and Accessibility to Internet Services;** The availability of reliable Internet access emerges as a key problem, potentially hindering customer's ability to fully embrace and benefit from digital banking services. Even in situations where internet provision exists, geographical limitations often place customers at a disadvantage, as many reside distantly from the available services. Thus, most of the efforts of digitalizing products and services related in banking industry cannot impress the customers.

## **5.6 Proposed Solutions for Business Case**

The banking industry has been evolving over the past few decades, with the emergence of technologies transforming the way banks operate. but, as customers demand more convenient banking experiences, there are various issues that limit the customers satisfaction. Thus, this business case proposed various strategies that can promote the positive customer experiences with the technology related products and services that offered by the CRDB bank

## **5.7 Removing Internal Silos**

Removing internal silos within CRDB BANK PLC's Mbeya City Branches can significantly enhance the challenges associated with adapting technology for improved customer experience in the banking industry. This intervention was enabling the CRDB BANK PLC's Mbeya City Branches to have a comprehensive understanding of each customer's financial behaviour, preferences, and needs. This holistic view is essential for offering personalized services and tailoring technological solutions to individual customers, this can enhance the overall customer experience and increase the likelihood of customer satisfaction and loyalty. Also, removing data silos shifts the focus from product-centric to customer-centric strategies. This alignment ensures that technology adaptation efforts are directed at meeting customer needs and enhancing their overall journey with the bank.

### **5.8 Focusing on Security and Privacy Issues**

Prioritizing the security of customers and privacy is pivotal in enhancing the customer experience within CRDB BANK PLC's technology-driven services. By ensuring transparent data handling, implementing rigorous security measures such as encryption and multi-factor authentication, and offering user-centric features like permission controls, the bank fosters trust and confidence among customers. Proactive fraud detection, compliance with data protection regulations, and prompt support further contribute to customers' peace of mind. This approach not only safeguards customer data and financial transactions but also cultivates an environment where customers can engage with the bank's digital services with assurance, ultimately leading to heightened customer satisfaction and loyalty.

With the digital product usage, understanding and using this is an ongoing process. Whereby the product teams usually use both qualitative and quantitative data to make the appropriate decisions about product development and enhancements. By always adapting and refining the specific product based on the behavior and feedback, CRDB Bank Mbeya branch can create more successful and user-centric digital offerings.

### **5.9 Mobile Banking App with Offline Functionality**

the business case proposes the development of a mobile banking application tailored to customers residing in rural areas, enabling them to conduct essential transactions even in scenarios of restricted or absent internet connectivity. The incorporation of offline functionality within the app could empower users to carry out tasks such as checking their account balances, initiating fund transfers, and making bill payments. This system would synchronize the transaction data once internet connectivity is reestablished. By implementing a mobile banking app with offline capabilities, CRDB Bank could effectively address the challenges arising from limited internet accessibility in rural regions. This solution serves to enhance customer experience by granting them continuous access to fundamental banking services, regardless of the prevailing connectivity constraints

In order to effectively improve customer experience and satisfaction in digital banking,

CRDB Bank does usually take a specific approach, which involves the combination and joining up of feedback from sources and various and continuously iterating on their digital services provided based on the customer views. Customer-centric design and a commitment to addressing the main points are the major elements in ensuring that there is a high level of satisfaction in the digital banking space.

### **5.10 Technology awareness campaign**

The technology awareness campaign can be a highly effective strategy to bridge the gap between rural customers and technology-related products and services in CRDB BANK PLC's Mbeya branch. CRDB can Develop a compelling campaign theme that emphasizes the benefits of technology in banking. The campaign should craft clear and relatable messaging that focuses on how technology can make banking easier, more convenient, and more secure. This can be employed by tailoring the campaign to the local context by using language, visuals, and examples that resonate with rural customers.

Considering the challenges on customer retention; in order to overcome this challenge, CRDB Bank may need to invest in customer education, improve on the reliability of digital infrastructure enhance customer support for digital services, and maintain a strong focus on data security. Also, aiding digital offerings to the specific needs and choices of customers in Mbeya City can help improve customer retention in the face of technological changes.

Generally, customer satisfaction in digital banking services is enhanced and led by a combination of factors related to usability, security, convenience, customer support, and transparency. To succeed in this competitive area, banks have to prioritize these factors and continuously ensure to improve the general customer experience. The above proposed results supported various literature that focused in related subject, the study of [2] showed that when security is stronger, people trust more. As customers have smooth and secure transactions through different channels, their confidence in the banking system grows even more. Also, according to study by [20] it shows that digitalization and embracing technology have positive impact on the quality of services delivered. Also, adopting technology reduce company's operational cost, customer access to services offered, and provide competitive

advantages to banking institution that led to improving market share and revenue generation opportunities to the banks that embrace ICT-based banking services. Moreover, [19] revealed that public awareness plays a significant role to driving customers toward accepting online banking. Also, investing on technology and related infrastructure increase adaptation of technology related products and services in banking industry, while government support by reducing taxes on technology gadgets found also to increase acceptance of technology related products and services introduced.

## 6. CONCLUSION AND RECOMMENDATION

The study focused on exploring challenges and solution in adaptation of technology on products and services related to banking industry. The study highlighted various challenges that limiting customers to adopt digitalized banking services and products, those challenges include security concerns, credibility and trust, lack of personalized services, low ICT awareness level among customers in rural areas, and issues with availability and accessibility to internet services. The business case concluded by suggesting various solution that could enable CRDB Bank to boost the customer's decision on utilizing technological related banking products and services. The proposed solutions include removing internal silos for a customer-centric approach, prioritizing security and privacy, developing a mobile banking app with offline functionality, and launching a technology awareness campaign. By implementing these recommendations that provided by the business case, CRDB Bank can overcome the recognized challenges, they can enhance customer satisfaction, and gain competitive advantages in the digital banking landscape.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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