

**ELECTRONIC QUEUEING MANAGEMENT SYSTEM AND CUSTOMER  
SERVICE IN COMMERCIAL BANKS IN KENYA: A CASE STUDY OF  
KENYA COMMERCIAL BANK**

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**DECLARATION**

I declare that this research project report is my original work and has not been presented in any other university for any award.

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Finally, I thank the respondents who agreed to participate in the study for their useful views on the subject of the study.

## **DEDICATION**

I dedicate this research project report to the entire Genga family for their unwavering support, encouragement and constant push, which propels me to attain my full potential.

To my comrade Barasa Oliver, your encouragement and support made the difference. Lastly to Mshere and Jabali, for your unending patience and support.

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## ABSTRACT

Service quality service a competitive advantage in this era where Bank services and products are increasingly less differentiated. Many service industry players and like banking institutions have struggled with queue management for a long time. The introduction of Queue Technology in hospitality sectors –airlines, hotels, hospitals etc. has realised some level of success. Kenyan banking institutions have in the past few years leveraged queue technology to try to resolve the unending congestion problem and poor customer service in the hope that this results in increased productivity. Owing to the newness of this technology in Kenya, little has been documented on the impact of the Electronic Queue Management System (EQMS) on customer service within the Banking industry. This particular study sought to determine the operational determinants for using the EQMS in Kenya Commercial Bank (KCB), the challenges that the KCB customers face or might have faced in the implementation of the EQMS and ultimately whether the technology has resulted in improved service levels. The researcher looked at independent variables namely ease of using the technology, the speed of obtaining service and the associated convenience of the EQMS and their impact on customer acceptance of the technology and the resulting satisfaction levels. A case study of KCB's two bank branch outlets –Kipande and Rongai targeted the walk-in-customers visiting the branch outlets to transact. A sample of 52 respondents were chosen and questionnaires administered in addition to the researcher observing through a mystery shopping exercise. The resulting data was analysed using SPSS and Excel through descriptive and inferential analysis. The study findings opined that key operational determinants as ranked by the customers included the number of tellers availed, ease of use of the EQMS machine, floor management and support availed, availability of sitting space and alternative transacting channels. In regards to the challenges faced, the customers lamented on the level of support in using the new machine, unattended service points and inconsistent service speeds. The major findings as far as resulting impact on service level is concerned, the customers felt that the waiting time was still unacceptable which was corroborated by obtained data which indicates that the two branch outlets were still not achieving the service level agreements set by the bank in regards to wait time and service time. Ultimately, the study concludes that the customers have not optimally used the available complementing alternative channels of transactions that would remarkably reduce the number of customers within the banking hall at any one time. The study thus recommends that the bank educate its clientele on the new complementing technology in their quest to improve the customers' experience. The study thus corroborates Jhala & Bhathawala (2016) finding that improvement in service is synonymous to reduced waiting time.

## **LIST OF ABBREVIATIONS**

ATM	Automated Teller Machine
CBK	Central Bank of Kenya
EQMS	Electronic Queue Management System
FCFS	First Come First Served
KCB	Kenya Commercial Bank
PEOU	Perceived Ease of Use
SLA	Service Level Agreement
SMS	Short Messaging Services
TAM	Technical Acceptance Model

## CHAPTER ONE: INTRODUCTION

### 1.1 Background

The business environment is increasingly becoming global and competitive. Porter (1979) points out that in the battle for a share of the market; industry competition is rooted in competitive forces that go beyond the established actors in the industry. The considerations comprise of suppliers, customers, potential entrants, and substitute products or services depending on the industry. Kraja & Osmani (2015) notes that organizations are recognizing the need to respond to global competition. This leads to the focus on creation of a competitive advantage, which ultimately determines the firm's success. Competitive advantage results through four dimensions namely: Cost, Time, Quality, and Flexibility. Organizations are encouraged to understand the competitive environment in which they operate in and develop appropriate strategies in order to achieve a sustained competitive advantage. Gregory, Lumpkin & Taylor (2005) opine that an advantage is competitive only when a firm has a product or service perceived by its market customers as superior to that of its competitors.

Porter (1998) points out that achieving lasting competitive advantage in a universal economy lies progressively in local things- knowledge, relationships and motivation, which competitors may not match. Moore (1993) opined that only businesses that evolve rapidly and effectively succeed. He called on companies to cultivate leadership that successfully acclimatizes to persistent waves of innovation and change. Firms can be productive in any industry if they leverage technology and offer unique products and services. According to Ryall (2013), the value of the firm is a factor of its products and services, productive assets, innovation skills, and customer service quality.

Competition in the global and local banking industry has resulted in increased adoption of technology in product development and service delivery (Central Bank of Kenya, 2015). Increased innovations, new entrants such as Fintech Company's e.g. Branch founded in 2015 in Kenya and closely related products has necessitated differentiation in this sector. This has resulted in investments targeting improvement of the service quality (Bain & Company, 2012). Interventions in the past included expanding branch networks, reducing process difficulties in account opening, embracing of electronic, mobile and agency banking (Kiruthu, 2012). The Electronic Queuing Management Systems (EQMS) represented a new technology to aid banks in realizing competitive

advantage. EQMS sought to help commercial banks build competitive advantage in cost, service quality and time with a view to resolving customer service and productivity issues. Owing to the recent focus and massive investments by banks on the EQMS, the study sought to determine its impact on customer satisfaction among commercial banks in Kenya

### **1.1.1 Electronic Queuing Management Systems (EQMS)**

Queue management has been and remains a problem for many sectors including the Retail, Health Care, Public (Post office and Airport) and Financial (Banks) Sectors. The lengthy queue challenges worsen during peak hours leading to tension and stress among customers and employees (Gosha, 2007). Organisations that fail to effectively deal with queue challenges have lost customers to rival companies. In the technology age, it is important to both organise queues and gather useful statistics and data about the queues in order to identify trends and effectively manage the queues (Gosha, 2007).

The application of queuing systems dates back to the ‘Theory of Probabilities and Telephone Conversations’ by A.K Erlang and his work with the Copenhagen Telephone Company which sought to build better telephone systems. Overtime, the range of applications has grown to include not only telecommunications and computer science but also other service systems whose demands are random such as manufacturing, air traffic control, the design of theme parks, military logistics, call centres, supermarkets, dams, inventories, and hospitals (Sztrik, 2010).

The electronic queue management systems (EQMS) refer to a virtual queuing management system designed to increase the bank’s performance and operational efficiency. The EQMS leverage innovations such as dual printer kiosks, central reporting software and the digital signage solution to provide an end to end solution which allows the bank manage queues and monitor key performance indicators such as service time, wait time, and employee efficiency (Letsididi, 2010). At the banking hall, the EQMS allow the customer to enter a virtual queue the moment s/he takes a ticket from a self-service kiosk. The customer waits until their ticket number is communicated via the digital signage solutions before approaching the specific counter for services. The EQMS also allows the management to produce reports useful in service design and optimal utilization of resources (Situma, 2014).

The EQMS is an improvement of the traditional queuing management methods. Previously, queuing people were assigned numbers according to their order of arrival. However, introduction of technological queue systems has provided for automation of queues. The innovation has seen the introduction of display panels and automatic voice calling which inform customers when they are up for service. However, the queuing systems still require customers to assemble in the immediate service area to monitor the progress of queues. The EQMS is faulted for failing to provide a more productive way for time utilization (Ngorsed & Suesaowaluk, 2016).

In Kenya, commercial banks such as Equity Bank, Kenya Commercial Bank (KCB) and corporates such as Emirates Airline and Kenya Power Customer service Centre have installed the system. (Retrieved June 29, 2017, from <http://www.wavetec.com/>).

### **1.1.2 Customer Service**

According to Bain & Company (2011), service related issues will most likely result in a customer defecting to a competitor as opposed to a product or price related issue. A customer herein refers to an individual who purchases goods and/or services for his or her own use or for on selling purposes. Lesley & Faure (1992) opines that the customer is key for any business in the world. A dissatisfied customer has a greater potential to damage the reputation of a business and keep potential customers away (Caryforth, Rawlison & Weld, 1993).

There is an appreciation that marketing financial services is complex due to banking regulations and requires interactions within the service providing institution and between the service made, sold and consumed. Customer perceptions about service quality is down to the person's personality and behaviour. Quality customer service is therefore associated with the attitude, way of thinking and the philosophy of doing business with emphasis on commitment and dedication to customer satisfaction. It summarily promotes the company prioritising satisfaction (Lovelock 1984).

The service provider must understand his/her customers well in order to afford them great service experiences. Customers' demographics such as age, sex, occupation, and education levels and their personal characteristics like attitudes, beliefs, preferences, expectations and social habits come in handy. Martin (1989) opines that dispute resolution mechanisms within service organisations is

key because organisations learn from complaints and customer feedback. The way organisations address reported complaints has crucial long-term ramifications on customer loyalty and the overall success of the organization.

Raheem & Krishnamoorthy (2011) delve into the advent of new banking technology and its role in the service quality within Indian public sector Banks. The journal focused on the need to satisfactorily create and deliver customer needed services. They opined that proper technology, product diversification and continuous innovation is likely to give an organisation the edge over its industry peers. They concluded by advocating for leveraging new technology to reengineer processes resulting in operational efficiency.

### **1.1.3 Commercial Banks in Kenya**

Commercial banks refer to financial organizations that readily accept deposits, offer loans and other financial and non-financial services (Brooks, 2008). According to the Central Bank of Kenya (2015), Kenya's banking system comprised of 42 commercial banks (Appendix III) and one mortgage financing company. Among the 43 banking institutions, 40 are privately owned while three namely Consolidated Bank of Kenya Ltd, Development Bank of Kenya Ltd and National Bank of Kenya Ltd are public financial institutions (with more than 50% shareholding by Government and State Corporation). The Central bank's Annual supervision report (2015) reports the Kenyan commercial banks total net asset at Kshs. 3.5 trillion for the financial year ended 31<sup>st</sup> December 2015.

Central Bank of Kenya (2015) annual supervision report indicated a slowdown in physical bank branch outlets expansion in the year with a total branch network of 1,523 bank branch outlets at end of 2015. This follows the adoption of technologically backed alternative delivery channels namely mobile banking, internet banking and agency banking with a view to deliver individualized and faster services. Mbuvi (2013) cites the need to continue addressing the challenge of unending queues in the banks to which most alternative delivery channels seek to address.

The Kenyan financial market also witnessed notable developments in 2015. These included the Central Bank of Kenya's (CBK) moratorium on licensing of commercial banks on 18<sup>th</sup> November 2015, lifted in 2017 with the issuance of a license to Dubai Islamic Bank (Weitere, 2017). Other developments included increasing Agent transaction volumes by 37.8% between December 2014 and December 2015, the growth of commercial bank agents network across the country to 40,592, placement of Imperial Bank Limited and Chase Bank Limited in receivership and liquidation of Dubai Bank, and interest rates capping across all Commercial banks to 14.5% (CBK, 2015).

#### **1.1.4 Kenya Commercial Bank (KCB)**

Kenya Commercial Bank (KCB) is the largest bank in Kenya and within the East Africa Region by Assets and Liabilities. KCB Group boasts a large network of 265 branch outlets in Kenya, 962 ATM points across the region and 13,562 KCB Mtaani Agents. KCB Limited (2017) comprises KCB Bank Kenya and other subsidiaries in Tanzania, Uganda, Rwanda, Burundi, South Sudan and Ethiopia. The company also controls KCB Insurance Agency, KCB Capital and the KCB Foundation. The Bank strives to be the preferred financial institution in Africa with a global reach through optimising efficiency whilst growing its market share. Central Bank of Kenya (2016) reports that KCB Bank Kenya had the largest assets worth US\$5.891 billion (KES595 billion) and liabilities of US\$4.435 billion (KES448 billion).

KCB's operations date back to July 1896 in Zanzibar as a branch of the National Bank of India. In 1904, the bank extended its operations to Nairobi. The 1957 merger between Grindlays Bank and the National Bank of India resulted in the formation of the National and Grindlays Bank. After independence, the Kenya Government acquired a 60% shareholding in National & Grindlays Bank with the aim of promoting banking among the majority of Kenyans (Arbaugh, Camp & Cox, 2006). In 1970, the Government (majority shareholder) took control of the Bank renaming it, Kenya Commercial Bank Group.

KCB Group (2016) financial results posted a 5% rise in profit after tax of Kshs. 19.7 billion compared to Kshs. 19.6 billion in 2015. This was attributed to the operating environment, which saw inflation and foreign exchange remaining largely stable. The Banks' total operating expenses increased by 9% to Ksh.33.1 billion (CBK, 2016). KCB's performance highlight for year 2016



was customers' adoption of digital transacting options where 77% of total transactions were conducted through alternative channels.

KCB bank has over the years established partnerships such as KCB-MPESA with Safaricom, Customer relationship management with Microsoft and the Electronic Queue management system with Wavetec in 2013. These technologically hinged partnerships aim at building competitive advantage through cost-effective provision of quality service. Langat (2014) reported that KCB Group adopted EQMS as part of its strategy to drive innovation and beat queues. EQMS set out to evaluate customer touch-points with the goal of improving customers' experience in the banking hall and contributing towards improved staff productivity and turnaround time and ease tracking of all transactions in real time manner.

## **1.2 Research Problem**

According to the FinAccess survey (2016), 75.3% of adult Kenyans obtain financial services from formal institutions i.e. regulated institutions compared to 26.7% in 2006. Of these, 38.4% patronize the banks. While lauding the potential of increased financial inclusion, the increased customer numbers has had an impact on service levels. The increased number of customers at bank branch outlets has led to longer queues, affected customer flow, and resulted increased number of complaints (Situma, 2014). Coming in a period, which saw increased adoption of technology within the Kenyan banking industry, most commercial banks have sought to address the dissatisfaction through leveraging technological solutions. The EQMS Solution is one of the solutions selected by commercial banks to address the dissatisfaction. EQMS aims to help banks manage and reduce queue lengths while increasing staff productivity and operational efficiency (Situma, 2014).

Kenya Commercial Bank has the largest branch network in Kenya comprising 265 branch outlets, 962 ATM points across the region and 13,562 KCB Mtaani Agents. According to CBK Annual Supervision Report (2016), KCB boasts more than 4.5 million deposit accounts who receive services from the vast network. Delivering quality service to such high customer numbers calls for the intervention of queuing technological solutions such as the EQMS in order to build competitive advantage. However, the extent to which the EQMS has influenced competitive advantage in this

commercial bank remains unknown since its adoption in 2013. There have been studies undertaken both locally and across the globe around automated queuing systems. Jones & Peppiatt (1996) investigated the variance in customers' perception of waiting time versus the actual waiting time in a food retail store. The study concluded that there existed a significant gap, which require management.

Nosek & Wilson (2001) evaluated the application of queuing theory to pharmacy businesses with high-volume outpatient workloads and/or those providing multiple service points. They evaluated the benefits accrued by the relevant groups under consideration such as employees, customers, and management if the service managers took the right calls. The study concluded that physical, psychological, and emotional factors influence the perception and the waiting experience of the customer. The researchers recommended the utilization of computer simulation, modelling, and automated queuing technology to improve the waiting process.

AL-Jumaily & AL-Jobori (2011) evaluated the banks queue systems, the different queuing algorithms used to serve the customers in banks, and the average waiting time. The objective of the study was to build automated bank queuing system with capabilities of analysing the queue situation and deciding on the customer to serve. The study concluded that more factors beyond serving all customers fairly and the system performance are required in deciding on the optimum scheduling algorithms. The additional factors include throughput, response time, and utilization. Locally, Kithaka (2012) evaluated queue management in banks and noted that banks operating in Kenya were facing challenges of unending queues. The findings opined that banks which had enhanced queue management offered competitive customer service. The study opined that innovations such as enhanced branch networking, telephone banking, short message service (SMS) banking, Automated Teller Machines, training of employees and decentralization of decision-making were making a difference. The study recommended that banks consider training employees on improved service delivery taking into consideration the theory of queuing.

Cracknell (2005) in his study at Post Bank Kenya looked at optimizing branch based banking. He notes that queues have a direct impact on levels of service. He urges banks to consider their branch locations if they harbour intentions of introducing queue management systems in the future. He

further urges branch managers to step in and support queue management efforts whenever it builds up. He recommends actively picking out customers with queries to avoid queue build up.

Kamau (2012) pointed out that customers of many commercial banks in Kenya were not content with queue management efforts. Perceived waiting time, lack of sufficient information in the banking hall/waiting lounge and the waiting environment were causing the dissatisfaction. The study concluded that the use of physical barriers, automated queue measurement systems, internet banking, seamless banking mobile banking and agency banking was not sufficient. The researcher recommended leveraging signage and signalling systems, advertisement on the television screens, and interactive communication, which allows customers' move freely while being kept informed of the expected waiting time and/or offering them an assured reception time.

The reviewed studies point to the insufficient documentation concerning this new technology adopted by commercial banks in Kenya. While scholars have addressed issues around queue management, their studies are limited in addressing the EQMS technology, which sought to enhance customer service while influencing staff productivity and profitability. This study sought to bridge this gap. This research evaluated the deployment of the EQMS and the resulting impact on customer service in commercial banks in Kenya. Through a case study of Kenya Commercial Bank, it sought to answer two important questions: What are the operational determinants in employing EQMS in a branch? What are the gains if any derived from the use of EQMS?

### **1.3 Research Objectives**

To overall research goal was to determine the impact of the EQMS on customer service levels in Kenyan commercial Banks.

The specific Research Objectives were:

1. To evaluate the operational determinants of EQMS at Kenya Commercial Bank.
2. To determine the impact of EQMS on customer service at Kenya Commercial Bank.
3. To evaluate the challenges faced by Kenya Commercial Bank customers by having the EQMS.

#### **1.4 Value of the Study**

The commercial banks would benefit from the analysis of the effectiveness of EQMS on customer service. The study sought to help them formulate appropriate customer service policies and refine their service level agreements, which is useful in improving customer experience. The measure of effectiveness further informs banks whether investments in the EQMS provides value for money.

The scholars in the field of operations management are in the lookout for documentation of best practice across adoption of the EQMS technology across the banking industry in Kenya. Scholars have for a long time advocated for this intervention. It will be useful to build the pool of knowledge on electronic queue management systems and its contribution to customer service and experience within commercial banks.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

The chapter reviewed theories, which provided a basis for the study. In addition, the chapter reviewed the concept of electronic queue management system and relationship to customer service, presented the empirical literature and conceptual framework based on the study objectives.

### **2.2 Theoretical Foundations of the Study**

The section reviewed the queuing theory and the technology acceptance theory. While queuing theory is the overarching theoretical foundation for the study, technological acceptance theory was used to support the hypothesis of the study.

#### **2.2.1 Queueing Theory**

The Queueing theory dates more than 100 years and was motivated by the desire to resolve the problem of congestion. Takagi (1991) opined that queue formation follows the arrival of service requests at a service facility at a faster rate forcing customers to wait while the service provider was busy attending on other requests.

Cooper (1981) defined queueing theory as the mathematical theory of waiting lines. He opined that a system's queueing model was an abstract representation whose sole purpose was isolating factors relating to the system's ability to meet service demands whose occurrences and durations are random. He went ahead to specify queueing models in terms of the arrival process, the service mechanism and the queue discipline. The arrival process denoted the probability that demand for service occurred in a particular period randomly. The service mechanism denoted the number of service providers and the duration of time required to serve a customer, and the queue discipline specified the order in which queuing customers were selected for service. Sztrik (2010) noted that the critical objective of analysing queueing systems was to understand the behaviour of their underlying processes to inform intelligent decisions by management.

Sztrik (2010) further opined that the mathematical analysis of the queueing models was expected to yield models that related the physical and stochastic parameters to certain performance measures, such as average response/ waiting time, server utilization, throughput, probability of buffer overflow, distribution function of response/waiting time, and busy period of service provider.

The applications of the queueing model has grown to include manufacturing, air traffic control, military logistics, design of theme parks, call centres, supermarkets, inventories, dams, hospitals, and other areas that involve service systems whose demands are random such as banking in addition to telecommunications and computer science. As a result, queueing theory is considered a standard methodology of operations research and management science (Sztrik, 2010). This was the foundation upon which new technology such as EQMS build their system and involved algorithms.

The queueing theory enabled the study to look at independent variables such as speed of service, waiting time, length of queues, availability of seating space, ease and convenience of use of EQMS machine and the dependent variable i.e. service level performance. The independent variables were perceived to influence level of service and how the EQMS system, which largely digitized queue management, had influenced the banking industry given the related costs.

### **2.2.2 Technology Acceptance Theory**

The technology acceptance model (TAM) refers to a theory that models the process through which users come to accept, adopt and use new technology. The theory focusses on the perceived ease-of-use (PEOU). Davis (1989) explained this as the degree to which a person believed that using a specific system would be free from effort.

The PEOU theory emanated from studies, which sought to evaluate the market readiness to adopt technology such as computer use. The theory focussed on establishing reasons leading to users accepting or rejecting a specific technology and steps to improve the acceptance levels. The technology acceptance theory was based on two paradigms: the perceived utility and the perceived

facility. The theory measured the effects of external variables, such as features systems, development process, and training in the use intention (Davis, 1989).

EQMS was an innovation that was relatively new in Kenyan commercial banks and specifically at KCB Kipande and Rongai branch where it was rolled out after the year 2013 (Situma, 2014). It was therefore important and relevant to understand the EQMS acceptance at KCB bank. The theory was key in the study as it sought to answer objectives relating to the operational determinants of EQMS such as floor space within banking hall, availability of seating space, ease and convenience of use of the ticketing machine while also evaluating the challenges faced by the bank as they rolled out the EQMS within the branch outlets.

### **2.3 Electronic Queue Management System and Customer Service**

Letsididi (2010) opined that EQMS sought to improve banking experience for customers while optimising both branch and individual teller productivity. The EQMS afforded managers the flexibility to observe banking hall performance from their offices while deploying available resources accordingly. Among the benefits of smart queue management, included increased service efficiency; decreased waiting time; decreased perceived waiting time; and increased impulse purchases, which resulted in increased institutional profitability.

Kuklin (2013) reported that queue management technology could have delivered increased service efficiency by up to 35 percent. Among the enablers for increased efficiency was that the EQMS used in banks made it possible for service staff and cashiers to call upon the customer due for service quickly and easily. The system also directed customers to the correct service station basis the desired service e.g. new account openings vs. regular transactions, business vs. consumer services, cheque deposits vs. cash deposits etc.

Youseef & Liu (2013) study findings opined that leveraging new models of queuing technology with the capability of serving customers based on priority groups led to reduced waiting time and increased satisfaction. Kuklin (2013) study reported an average decrease in customers' wait times in banking halls by ranges of between 10 to 30 percent when they leverage queuing technology. The study cited a managers' enhanced ability to monitor lines and reallocate resources upon notification of any changes in queue performance. The queue management technology's use of

predictive metrics enhanced the ability to prevent service breakdowns with real-time queue management resulting in increased efficiency in providing service resulting in decreased average waiting time.

In the event of queuing, the duration a customer “thought” they were waiting was equally as important as the actually waiting in line duration. Queuing technology decreased perceived waiting time by as much as 40 percent by incorporating technology such as digital signage, which kept customers busy and distracted through promotional messages or commercials (Kuklin, 2013). The digital signage gave information on customer counts, service times and queue progress. Other interventions useful in addressing waiting time included the printed ticket and in some instances text messages, which displayed the expected, wait times.

Finally, organisations globally were leveraging technology to influence the bottom line or profitability. The queue management technology combined with digital signage were expected to result in up to 400 percent increase in impulse purchases (Kuklin, 2013). The flexibility with which digital messages could be adapted to accommodate particular types of message allowed the banks to market their products and services through the medium.

## **2.4 Empirical Literature Review**

Jhala & Bhathawala (2016) in their study of smart queue management systems for banks embarked on addressing the problem of long queues of customers faced by banks at peak hours followed by slack periods where there were no customer entries. The study sought to utilize the Short Messaging Service (SMS) intervention to optimize capacity utilization while saving the customers from having to queue by notifying them when they were up for service. The intervention eased long queues, reduced waiting times, enhanced productivity and motivation of the bank staff and enhanced the bank’s image due to improved discipline at the premises. Weaknesses observed included the assumption that these customers would be in close proximity to the branch in order to quickly receive service.

Jhala & Bhathawala (2016) in another study on application of the queuing theory in the banking sector sought to address the question as to how banks could attain the economic balance between the service cost and the cost associated with the waiting for that service. The findings were: the



average queue length, wait time and total costs could be reduced when bank tellers handled both deposits and withdrawals transactions; service costs increased as the firm raised the level of service; and improvement in service resulted in decreased cost of waiting time.

Farayibi (2016) sought to examine the application of queue theory in the banking system in Nigeria. The study focussed on GTBank and Ecobank and employed the multi-server queuing model to analyse queue characteristics in the banks and the performance measures (waiting and operation costs) to determine optimal service levels. In its conclusion, the study emphasized the relevance of queuing theory to optimize service delivery. Additionally, the study recommended server models to the banks' management in order to reduce total expected costs while raising customer satisfaction. The study also urged the bank to view queue characteristics from the standpoint of the customers and vary number of service points according to queue characteristics, train staff on queue models and motivate employees to improve productivity.

Sheikh, Singh & Kashyap (2013) study on improvement of bank service through the application of queuing theory looked at improving service efficiency by addressing waiting time and service process. The study findings arrived at measures namely queuing number, number of customers served at the branch and instituting optimum service rates to address efficiency.

AL-Jumaily & AL-Jobori (2011) study on automated queuing model for banking applications sought to build automatic queuing system capable of organizing the banks queuing system allowing analysis of the queue situation and taking decision on the customer to serve. The findings pointed out a need to balance customer treatment and system performance with allowance given for system performance to precede customer treatment when required. Ultimately, the automatic system resulted in reduced average waiting time.

Ndungu (2013) studied queue management in banks in Mombasa County where he sought to evaluate the service rates and waiting time within the banks. His findings showed that all but one of the 20 banks visited exercised multiple channel queue system. The banks' average service rate was 1.3 minutes per customer and the waiting time was 27 minutes, which was an improvement

in comparison to earlier studies. The study also pointed out that the banks had lots of idle resource due to underutilisation and that the expected wait time was dependent on the queue length.

Mohamud (2016) study on automated queuing and the experience of retail customers of Kenyan commercial bank sought to establish its influence on customer service. The study findings showed increased speed of service provision, increased footfall at the branch, and improved queue discipline. A review of the technology revealed that customers found it easy to use.

## **2.5 Summary of Literature Review**

The below table summarised the reviewed literature review relating to the study. It summarised by the author responsible for the study, the study title, the approach used, the key findings and the knowledge gap, which the study sought to bridge.

**Table 2.1: Summary of Literature Review**

<b>Author &amp; Year</b>	<b>Topic of study</b>	<b>Methodology</b>	<b>Findings</b>	<b>Knowledge Gap</b>
Nityangini Jhala & Pravin Bhathawala (2016).	Smart Queue Management System for Banking Sector – use SMS notifications	<ul style="list-style-type: none"> <li>• Observation</li> </ul>	<ul style="list-style-type: none"> <li>• Eased out long queues in banking hall.</li> <li>• Reduced queue length and waiting time</li> <li>• Enhanced productivity and motivation of staff</li> <li>• Enhanced image of the bank</li> <li>• Increased discipline at the premises</li> <li>• Improved service quality</li> </ul>	<ul style="list-style-type: none"> <li>• Challenges in implementing EQMS.</li> <li>• Experience of KCB after EQMS implementation.</li> <li>• Had EQMS improved client discipline at the banking hall?</li> </ul>
Nityangini Jhala & Pravin Bhathawala (2016).	Application of Queuing Theory in Banking Sector	<ul style="list-style-type: none"> <li>• Observation, personal interviews and questionnaire administering over (4) weeks</li> </ul>	<ul style="list-style-type: none"> <li>• The average queue length, waiting time, and total cost could be reduced if tellers handled both deposits and withdrawals transactions.</li> <li>• Service cost increased as an institution attempted to raise its service levels.</li> <li>• There was a relationship between service levels and the cost of time spent waiting on the line.</li> </ul>	<ul style="list-style-type: none"> <li>• Did EQMS introduction impact service levels at Kipande and Rongai branch? How?</li> <li>• Did perceived waiting time reduced?</li> </ul>

<b>Author &amp; Year</b>	<b>Topic of study</b>	<b>Methodology</b>	<b>Findings</b>	<b>Knowledge Gap</b>
Farayibi, Adesoji Oladapo (2016)	Application of Queue Theory in the Nigerian Banking System	<ul style="list-style-type: none"> <li>• Direct observation of customers (Between 8am – 4pm).</li> </ul>	<ul style="list-style-type: none"> <li>• Validated theory as applicable to the Nigerian banking industry operations.</li> <li>• Application relevant to customers queuing in a congested banking hall before accessing banking services.</li> </ul>	<ul style="list-style-type: none"> <li>• Operational determinants of the EQMS?</li> <li>• Did footfall at the study branch outlets justify EQMS investment?</li> </ul>
Toshiba Sheikh, Sanjay Kumar Singh, Anil Kumar Kashyap (2013)	Applying queuing theory for the improvement of bank service	<ul style="list-style-type: none"> <li>• Observation</li> </ul>	<ul style="list-style-type: none"> <li>• The number of queues, the number of service stations and service rates determine efficiency of commercial banks.</li> </ul>	<ul style="list-style-type: none"> <li>• Were these factors applicable in EQMS situation?</li> <li>• Were there any additional operational determinants?</li> </ul>
Dr. Ahmed, AL-Jumaily & AL-Jobori (2011)	Automatic queuing model for banking applications	<ul style="list-style-type: none"> <li>• Observation</li> </ul>	<ul style="list-style-type: none"> <li>• The balance between treating customers fairly and the system performance was important in a queue system.</li> <li>• System performance was critical compared to fair treatment of customers.</li> <li>• Automatic queuing system improved average waiting time.</li> <li>• Adding scheduling algorithms to the system database improves performance.</li> </ul>	<ul style="list-style-type: none"> <li>• Which scheduling Algorithms did Kipande and Rongai branch use? (FCFS or Diffuse Queue)</li> <li>• Were there additional factors in prioritising customers?</li> </ul>

<b>Author &amp; Year</b>	<b>Topic of study</b>	<b>Methodology</b>	<b>Findings</b>	<b>Knowledge Gap</b>
Njuguna Henry Ndungu (2013)	Queue management in banks: The case of Mombasa county	<ul style="list-style-type: none"> <li>• Cross sectional survey in 20 banks –noting arrival rate, queue lengths and service rates</li> <li>• Survey done between 9am and 11 am</li> </ul>	<ul style="list-style-type: none"> <li>• 19 banks had multichannel queue system</li> <li>• Average service rate of 1.3 minutes per customer</li> <li>• Mean waiting time was 27 minutes, an improvement from earlier studies</li> <li>• Idle teller resource existed in less busy banks</li> <li>• 5 banks had no queues denoting good queue management and/or capacity underutilisation</li> <li>• Expected wait time is dependent on queue length( ranged from 2.6 and 97.2 minutes)</li> <li>• Ticketing is not a guarantee for faster service</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended segregation of services to reduce teller distraction and improve service delivery</li> <li>• Improved provision of information to customers using proper signage’s – customers required more direction</li> </ul>
Abass Abdi Mohamud (2016)	Automated queuing and the experience of retail customers of Kenya commercial banks in Nairobi, Kenya.	<ul style="list-style-type: none"> <li>• Descriptive Survey through administration of open and closed ended questionnaire</li> </ul>	<ul style="list-style-type: none"> <li>• The introduction of the automated queuing system resulted in increased speed of services delivery, improved queue discipline and increased footfall at the branch</li> </ul>	<ul style="list-style-type: none"> <li>• Validated the findings and conducted more focused review of KCB bank’s implementation including impact of EQMS and challenges faced in implementation.</li> </ul>

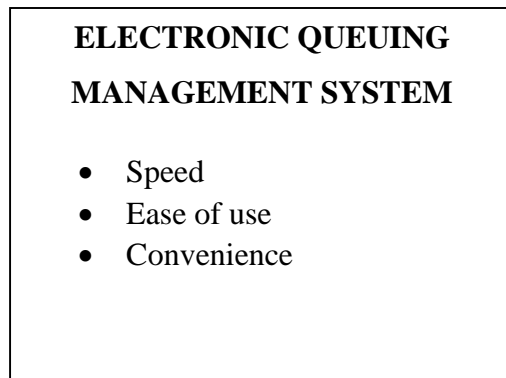
Author & Year	Topic of study	Methodology	Findings	Knowledge Gap
			<ul style="list-style-type: none"> <li>• The automated service-booking machine is convenient, easy to use, accurate and reliable.</li> <li>• There is a strong association between automated queuing machine and customer experience</li> </ul>	

Source: Researcher (2018)

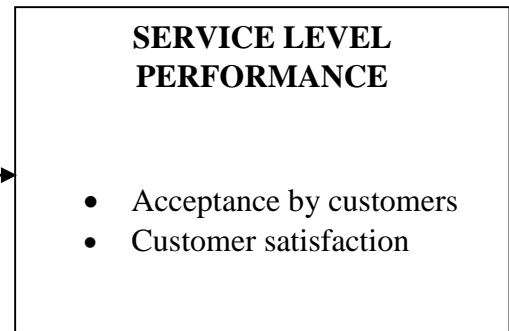
## 2.6 Conceptual Framework

Figure 2.1: Conceptual Framework

### Independent Variable



### Dependent Variable



**Source: Researcher (2018)**

The study objectives were to be addressed through evaluating relationships among the above variables.

The operational determinants for the implementation of EQMS at KCB would be determined by looking at interactions between the customers and the ticketing machine and convenience due to ease of use of ticketing machine, the availability of seating space, lack of long queues, and presence of sufficient staff offering service.

The impact of EQMS on customer service would be determined through evaluating the speed of service in addition to how the operational determinants are affecting the perceived service levels. Finally, the challenges facing the customers by KCB implementing the EQMS system would additionally add to the overall study objective on service satisfaction levels at the bank.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

The chapter presented information on the research design, population under study, the sampling procedures and the sample size to be considered. It further discussed the data collection approach and subsequent analysis procedures in relation to the research purposes.

### **3.2 Research Design**

A case study approach was used. The researcher focussed on the factors, which influenced service levels at a KCB bank branch while evaluating whether the EQMs had any influence on the service levels. The researcher sought to establish the operational determinants and challenges (if any) faced by customers during the implementation phase.

### **3.3 Population of the Study**

The study population comprised an estimated 600 customers who visited KCB bank's Kipande and Rongai branch outlets to transact on a day-to-day basis. The choice of the two branch outlets allowed the researcher to engage a varying type of clientele. Rongai branch is located at the large and highly populated peri-urban Rongai area while Kipande branch was located within Nairobi city's central business district.

### **3.4 Sampling Procedure and Sample size**

This was a case study of KCB bank's Rongai and Kipande Branch. The researcher used purposive sampling to select Rongai and Kipande Branch since they were among the first branch outlets to adopt the EQMS post its introduction to KCB in 2013. Other reasons for selecting the two branch outlets include the human traffic experienced on a day-to-day basis, the branch location within two different locations by human population, the average income of potential customers expected to visit the branch and proximity that would enable the researcher to conduct the study effectively. According to Mugenda & Mugenda (2013), since the study population was less than 10, 000, the researcher selected a sample size of between 10% of the target population, which resulted in an adequate proportion for analysis. Therefore, 60 walk-in customers ( $600 \times 0.1$ ) comprised the study respondents. The 60 respondents were to be obtained from the two branch outlets in equal



proportions of 30 at Rongai and 30 at Kipande branch on basis the two branch outlets are equally busy.

Additionally, the researcher planned to use systematic sampling to determine the customers to include in the survey where every 5<sup>th</sup> customer who walked out of the branch after service delivery was to be selected. The systematic random sampling was deemed appropriate for selecting respondents from the customer population because it introduced randomization in the selection of the respondents of the study in a situation where obtaining access to a sample frame was difficult due to the bank's policy of non-disclosure of client's details. The total sample size of 60 respondents was statistically sufficient for the analysis.

### **3.5 Data Collection**

The researcher collected the relevant primary data from KCB Gikomba and Village Market branch outlets using interviews, questionnaires and observation (mystery shopping) techniques. The researcher and research assistant administered the semi-structured questionnaires to every 5<sup>th</sup> customer leaving KCB Rongai and Kipande branch outlets over a 5-day period (6-8 questionnaires per day). In administering the customer questionnaires, literate customers were expected to fill in the responses by themselves whereas the researcher was to assist the semi-literate customers to file in their responses.

Additionally, the researcher used an observation schedule/checklist to observe customer interactions with the EQMS systems and operational determinants at both branch outlets. This was to be conducted over a 10-minute period in each instance. The 10-minute period ensured that the researcher remained largely anonymous in conducting his assessment. The researcher also obtained 10 EQMS service tickets (5 from each branch) across the day and analysed for waiting times.

### 3.6 Data Analysis

The data obtained data was analysed through descriptive statistics. The research objectives were analysed as below tabulated:

**Table 3.1: Data Analysis methodology**

OBJECTIVE	DATA COLLECTION	DATA ANALYSIS
1. To evaluate the operational determinants of EQMS at KCB.	Questionnaires Records/data Observation	Data obtained from questionnaires was coded and keyed in to the computer. The researcher computed descriptive statistics. Statistical Package for Social Sciences (SPSS) was used to perform the descriptive analysis and produce frequency tables, percentages, variability and measures of central tendency.  Qualitative data from observation was similarly be keyed in for further analysis as above.  The determinants were ranked on basis of means and discussed.
2. To determine the impact of EQMS on customer service at KCB.	Questionnaires Observation	The mean scores and standard deviation of the responses were obtained and later ranked to indicate influence or relationship to service levels. Analysis for “before” and “after” situations was be done.
3. To evaluate the challenges faced by KCB customers by having the EQMS	Questionnaires Records/data	Descriptive data analysis was used. Qualitative data was obtained, summarized and grouped according to arising common themes and thereafter presented in frequency distribution tables.

Source: Researcher (2017)

## **CHAPTER FOUR: RESULTS AND DISCUSSION OF FINDINGS**

### **4.1 Introduction**

This chapter presents the findings of the study, data analysis and the interpretation as described in the research methodology. The purpose of the study was to evaluate the impact of the EQMS on customer service levels in Kenyan commercial Banks through a case study of Kenya Commercial Bank. Specifically, the study set out to:

1. To evaluate the operational determinants of EQMS at Kenya Commercial Bank.
2. To determine the impact of EQMS on customer service at Kenya Commercial Bank.
3. To evaluate the challenges faced by Kenya Commercial Bank customers by having the EQMS.

### **4.2 General and Demographic Information**

This section describes the respondents interviewed during the survey. The section describes the sampled respondents, and attempts to relate their varied profile to the study.

#### **4.2.1 General Information and Return Rate**

The target population comprised 60 walk-in-customers seeking financial services at Kenya Commercial Bank's two branch outlets –Kipande House and Rongai. Out of the 60 questionnaires administered, 52 responded resulting in a response rate of 86.67%. This was deemed adequate for the analysis. According to Mugenda and Mugenda (2003), a statistically significant response rate for analysis should be at least 50%.The collected data was mainly of a qualitative nature. However, quantification of these data was made possible using descriptive statistics.

#### **4.2.2 Demographic Data**

This section provides a description of the sample respondents of the study. The respondent's profiles provides a background against which to contextualise the respondent's current interaction with the EQMS, the challenges faced if any and influence of the EQMS on customer service levels. The study findings attempt to predict customer service levels in Kenyan banks. The next sub-sections explore such key variables as age, marital status, level of education, and occupation. It looks at how these factors related to the respondent's interaction with the EQMS and perception on customer service levels.

#### 4.2.2.1 Gender of the Respondents

Gender was considered an important factor in determining ease of adoption and use of technology. There exists gender sensitivities around consumer choice, use of, and adoption of technology between the genders. The sample was proportionally split between men (48%) and women (52%) as shown in the table 4.1 below and thereby giving the researcher the opportunity to assess whether there was a marked difference between the gender in the use of the EQMS technology.

**Table 4.1: Gender of Respondents**

	Frequency	Percent
Male	25	48%
Female	27	52%
Total	52	100%

**Source: Researcher (2018)**

#### 4.2.2.2 Marital Status of the Respondents

The table 4.2 below indicated that a majority of the respondents were married while the rest were single. Marital status was an important factor since it is perceived to introduce additional responsibilities hence influence people's decisions to invest and save. It is widely perceived that married individuals are more likely to save and invest thus consistent with visiting financial institutions to transact.

**Table 4.2: Marital Status of the Respondents**

	Frequency	Percent	Cumulative Percent
single	16	30.8	30.8
Married	35	67.3	98.1
Widowed	1	1.9	100.0
Total	52	100.0	

**Source: Researcher (2018)**

#### 4.2.2.3 Age of the Respondents

Ease of Technology adoption has been linked to one's age. The analysis of the age of the respondents in the survey in Table 4.3 below indicated that a majority (73%) were aged 40 years and below. The oldest respondent in the survey was above 60 years old. Therefore, the study expected to have little difficulty as far as the respondent's interaction with the EQMS is concerned.

**Table 4.3: Age of Respondents**

	Frequency	Percent
20-29 years	11	21.2
30-39 years	27	51.9
40-49 years	12	23.1
50-59 years	1	1.9
Above 60 years	1	1.9
Total	52	100.0

**Source: Researcher (2018)**

#### 4.2.2.4 Level of Education

All the respondents had at least attended Secondary School as per the data represented in Table 4.4 below. A majority (90%) have at least a basic degree, which is an important factor as to their ability to interact with the new technologies introduced within the banking sector. The high literacy level observed was expected to influence perception as far as service levels are concerned. The respondents were further expected to be in a better position to make service level comparisons across banking institutions.

**Table 4.4: Respondents Level of Education**

	Frequency	Percent
Secondary	5	9.6
Bachelor's Degree	23	44.2
Postgraduate	24	46.2
Total	52	100.0

**Source: Researcher (2018)**

#### 4.2.2.5 Main Source of Income

A majority of the respondents were employed as indicated in the Table 4.5 below. This was consistent with the high numbers of respondents who had Degree qualifications. The high number of employed persons visiting the banking hall could also influence how they perceived service levels given the time pressures of being employed. These respondents were expected to be impatient and likely to perceive waiting times as longer than it is in reality.

**Table 4.5: Respondent’s Source of Income**

	Frequency	Percent
Employment	37	71.2
Self-Employment	15	28.8
Total	52	100.0

**Source: Researcher (2018)**

#### 4.2.2.6 Respondent’s Industry of Employment

The Table 4.6 below summarises the respondent’s industry of employment. A majority of the respondents were from the Finance sector followed by others and the SME sector. This is consistent with expectation since these roles are synonymous with high volumes of transactions i.e. payments received or made. The ‘Others’ category mainly comprised persons from the Legal and Energy sector while other respondents did not specify. The high volumes of transactions made by this group of respondents gives them the opportunity to interact with the technology under review and thus are able to give informed views on the same.

**Table 4.6: Respondent’s Industry of Employment**

	Frequency	Percent
Agriculture	3	5.8
Information, Communication and Technology	3	5.8
Finance	20	38.5
Hospitality	1	1.9
SMEs	8	15.4
Others	17	32.7
Total	52	100.0

**Source: Researcher (2018)**

#### 4.2.2.7 Length of Time with a KCB Account

The Table 4.7 below illustrates the duration the respondents have had KCB accounts. A majority (84%) have been KCB account holders for more than 5 years. Only 4% of the respondents did not hold an account with the institution at the time of the survey. More than 61% of the respondents had been with the bank for more than 5 years an indication of loyalty to the institution. This was important since this segment could provide service level comparisons pre and post the EQMS system.

**Table 4.7: Respondent’s patronage of a KCB bank account**

	Frequency	Percent
Less than 2 years	4	7.7
2-5 years	12	23.1
More than 5 years	32	61.5
Not Applicable	4	7.7
Total	52	100.0

**Source: Researcher (2018)****4.2.2.8 Respondents Type of Account**

The Table 4.8 below illustrates the account types held by the respondents. The respondents held either a current or a Savings bank account at the Bank with 23% having both accounts. The below data is not consistent with the proportion having bank accounts in KCB bank. However, this could be assumed to imply that the respondents were either coming to transact on their own behalf or on behalf of other parties.

The account type held by the respondent was an important factor for this survey since it determines the channels of account operation. Channels here refer to whether one has to walk into a branch to transact, the ATM machine, Mobile Banking services, and internet banking. Of greater importance is to note that current account holders could be limited to ‘over the counter’ transactions depending on the number of signatories to the account and the account operation mandates at the point of account opening. This research is thus useful for this segment since they are restricted to transacting within the banking hall.

**Table 4.8: Respondent’s Account Type**

	Frequency	Percent
Current account	13	25.0
Savings account	27	51.9
Both saving and current account	12	23.1
Total	52	100.0

**Source: Researcher (2018)****4.2.2.9 Respondents Domicile Branch**

The Table 4.9 below illustrates the respondents domicile branch information. Only 15% of the respondents belonged to the two focus branch outlets –Rongai and Kipande. The majority of the respondents had opened their accounts in other KCB bank branch outlets. This was expected

though not to the magnitude observed owing to the ‘one bank’ unwritten policy allowing customers to perform majority of transactions at any branch belonging to their bank. This allows customers convenience while safeguards banks from losing customers to rival banks given the competition already alluded to in the earlier chapters of the report. The only restricted transactions include Account modifications e.g. changing/adding of signatories, which can be initiated from any branch but will only be concluded at the domicile branch in liaison with the central processing unit at the head office. This was useful in this study since the bank aims for standardised service levels in line with their SLAs. The study could therefore help determine whether the bank is achieving this or not and the variance levels.

**Table 4.9: Respondent’s Domicile Branch**

	Frequency	Percent
Rongai	3	5.8
Kipande	5	9.6
Other	44	84.6
Total	52	100.0

**Source: Researcher (2018)**

### **4.3 Operational Determinants of EQMS at Kenya Commercial Bank**

The overall objective of this survey was to determine the impact of the EQMS on customer service levels in Kenyan commercial Banks. This survey sought to answer questions relating to the leveraging the new EQMS technology to resolve customer service issues within the Banking halls. In the research problem earlier presented, Cracknel (2005) made recommendations aimed at optimising branch based banking hall. Specifically he alludes to the need to choose branch locations that would allow one to deliver quality customer service levels. He mentions the need to support customers at the machines akin to the support at the EQMS for those who need support. Other researchers talk about the detriments of a lack of information, the importance of improving the waiting environment and optimal use of other channels of operations such as Agency Banking. Evaluating the operational determinants of EQMS at KCB’s –Kipande and Rongai Branch looked at a number of related descriptive variables using a Likert scale of Strongly agree (1), Agree (2), Neutral (3), Disagree (4), and Strongly disagree (5). The feedback was quantified and the Mean



response attained in order to rank these in order of importance. The findings are summarised in the Table 4.10 below.

**Table 4.10: Operational determinants of EQMS**

<b>Descriptive Statements</b>	<b>Mean</b>	<b>Std. Deviation</b>
Respondent feels there are enough tellers	3.40	1.125
Respondent learns from the TV at the banking hall	2.79	1.273
Nobody jumps the queue nowadays after introduction of the ticketing machine	2.46	1.379
There are enough seats for the waiting customers	2.15	1.161
The Bank staff are ready to help the respondent at the ticketing machine	2.10	1.015
Ticketing machine is easy to use	1.90	1.089
The ticket machine announces the respondent ticket number loudly	1.67	.901

**Source: Researcher (2018)**

The findings above illustrate that a majority of the customers were very comfortable in acquiring the service ticket measured through the time taken to select the service sought and receive a ticket from the machine. The Mean of 1.90 indicates that a majority of the respondents found the machine easy to use. This is consistent with the finding on ease of use of the EQMS where 78% indicated they were comfortable. The finding is equally consistent to earlier perceptions that a person who has attained graduate level of education ought to comfortably interact with the EQMS. However, the researcher observed that some customers sought the help of the bank staff or guard stationed next to the EQMS machine to obtain the ticket. The researcher further noted that some customers were picking more than one ticket despite not requiring extra service. This could be because the customers were not comfortable with the EQMS machine and how the services are described among the availed options.

The EQMS machine as currently configured only interacts with customers in the 'Banking English' language. Whereas a majority did not seek any guidance or support at the machine, the finding indicated that the Bank staff and the guard were instrumental in providing assistance at the banking hall intimating the usefulness of a floor manager.

The EQMS does not work in isolation. Instead, it is synchronised with advertisement screens and sound system, which announces the ticket numbers to be served. Over 90% of the respondents were agreeable as to the audibility of the announcement of the next ticket to be served as represented by the Mean of 1.67. The minority who presented alternative views could be as a result of not understanding the language used in communicating upcoming tickets or not being able to follow the monotonous announcement especially when one has stayed in the banking hall for a long time.

The Research problem in this study had indicated jumping queues as one of the challenges faced by the banks in their efforts to improve service levels through perceived fairness in service delivery. The study findings indicate that slightly above 57% of respondents feel that queue jumping has been addressed by the EQMS as represented by the Mean of 2.46. However, this leaves approximately 43% who are either indifferent or feel the EQMS has not addressed this problem. Chaos and noise within banking halls is partly attributed to a lack of order in queuing and some customers receiving preferential treatment over and above the rest. The respondent's perception that queue jumping is still prevalent was explained by the fact that EQMS allows service delivery prioritisation i.e. the EQMS is configured basis types of services offered, time to offer the service and the expected customer numbers as explained the Queuing theory described in the literature review.

The study findings further indicated that a majority of the respondents are happy with the level of support available whenever required as far as using the EQMS machine is concerned as evidenced by the Mean of 2.10. This is an important feedback bearing in mind the impact of supporting individuals whenever there is new technology. The practical support reduces the time taken to accept and use the new technology as advanced in the ease of technology acceptance theory earlier discussed in the literature review.

The majority of the respondents were agreeable that the bank has provided sufficient seats for customers waiting for service. Slightly above a quarter of the respondents felt that the bank needs to add more sitting space to allow the waiting customers to do so in a good environment. This finding is consistent with other researcher's views that the introduction of technology must be in conformance with the Branch design. Accommodating seats within the banking hall will largely depend on the availability of sufficient space and the structural design of the waiting area/floor

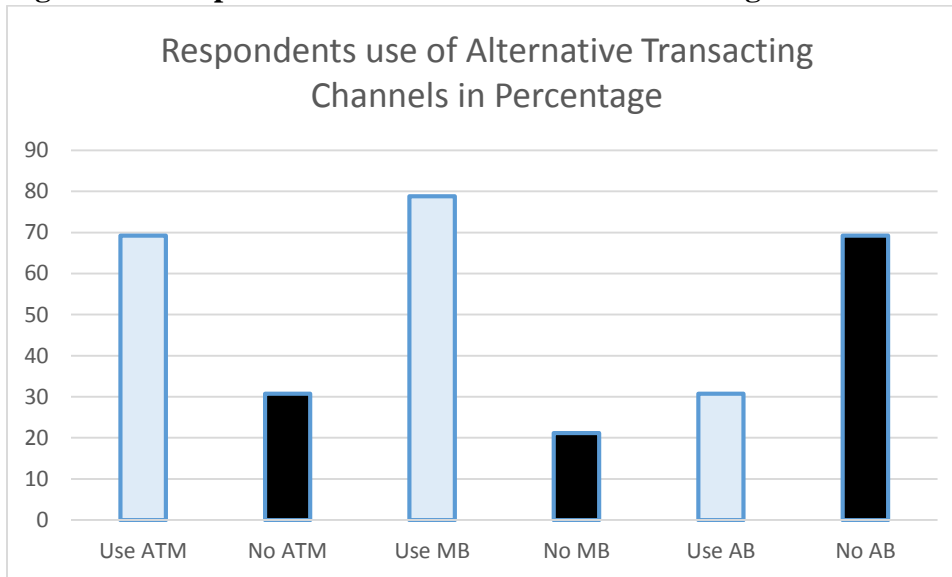
area. As such, Banks may need to find premises that are in conformance with their future technology strategy.

The majority of the respondents felt the bank needed to provide additional teller line staff in view of the time they were taking within the banking halls. The finding which had a Mean of 3.40 indicated that the number of teller line staff available to serve the customers is consistent with the finding that customers are lacking seats within the banking hall as they wait for services. However, provision of additional teller line staff presents a dilemma to the bank since it directly affects the operational costs. The more numbers of teller staff at a branch, the higher the staff related costs.

### 4.3.1 Respondents use of Alternative Transacting Channels

The figure 4.1 below indicates the proportions of use of alternative transacting channels –ATM, Mobile Banking services and Agency Banking services by the respondents surveyed.

**Figure 4.1: Respondents use of Alternative Transacting Channels**



**Source: Researcher (2018)**

From the above figure 4.1, Mobile banking was the most popular channel of transacting among the three followed by ATM. Agency banking services was the least popular with only 30% reportedly using it. During the survey, the researcher observed that the two branch outlets had ATM lobbies with three ATM machines each. The ATMs at these locations can be termed as ‘semi-intelligent’ i.e. had the capability of accepting cash deposits but without real time updates to the account. This could have contributed to the customers’ reluctance to use it and instead make

deposit transaction within the banking hall. Concerning Mobile Money, the additional hustle of having to deposit the cash to Mpesa wallets followed by the transfer to the account in case of deposits at a fee could have been the deterrent. In the case of a withdrawal, the customer would have to incur double charges: Bank to Mpesa Wallet and Mpesa Wallet to Cash, which is costly. As far as Agency Banking is concerned, the bank reportedly has struggled to create the desired pull i.e. to drive customers to agents for transactions. Despite there being Agency outlets across the Rongai branch, customers still chose to walk-into the bank for transactions. Customers' failure to use the additional channels could partly have contributed to the congested banking halls.

In summary, the above findings illustrate that the number of available service attendants, queue discipline, available sitting space, support from bank staff, ease of using the EQMS machine, loud announcement of next ticket for services and availability of alternative transacting channels are the key operational determinants in deploying EQMS in the order of listing.

#### **4.4 The impact of EQMS on customer service at Kenya Commercial Bank**

This survey ultimately sought to establish whether the service levels at KCB were any different following the introduction of the EQMS back in 2013. To address this objective the survey looked at variables such as waiting time, service speeds, and overall convenience of accessing services at KCB following the introduction of this technology. Using a Likert scale of Strongly agree (1), Agree (2), Neutral (3), Disagree (4), and Strongly disagree (5).

**Table 4.11: Customer Experience at the Branch outlets**

<b>Descriptive Statements</b>	<b>Mean</b>	<b>Std. Deviation</b>
Respondent feels there are enough tellers	3.40	1.125
Respondents feel entertained by the TV in the banking hall	3.31	1.213
Current waiting time is agreeable	2.94	1.085
Respondent learns new things about the Bank from the TV	2.79	1.273
Service provision is faster	2.71	1.016
Respondent feels the service is better compared to other banks	2.50	.980
The respondent obtains the services much faster nowadays post EQMS	2.29	1.126
If the services provision is friendly to the respondent	2.15	.937
If there are enough seats for the customers	2.15	1.161
If the ticketing machine is helpful to customers	1.98	1.000

**Source: Researcher (2018)**

The feedback was quantified and the various Means attained in order to assess the impact (if any) of the EQMS on service levels at the bank as illustrated in Table 4.11 above. The findings included:

The majority of the respondents are largely indifferent on the entertainment provided by the TV in the banking hall. Similarly, few reported learning new things about the bank from the TV in the banking hall as evidenced by the Mean of 3.31 for the former and 2.79 for the latter respectively. The TV in the banking hall is meant to serve both an operational role i.e. display the next ticket number up for service and info-marketing role i.e. informing customers within banking hall of other bank products and services was thus depicted as not being effective. This is contrary to Kuklin (2013) who estimated that it resulted in a reduction in perceived waiting time by up to 40%. This finding is however consistent with the finding that most customers feel they are taking longer within the banking hall i.e. the Mean for service provision is 2.71. This largely leans towards an indifferent feeling. The edutainment via the TV is supposed to alter this perception resulting in improved perception around service levels but this is not happening.

The waiting time is also perceived as neutral going by the Mean of 2.94 achieved i.e. customers have not witnessed remarkable improvements worth changing their perceptions. A majority (approximately 60%) still find the waiting time either indifferent or not acceptable and thus an indicator that the service levels at KCB still need to improve. Earlier studies by Ndungu (2013) indicated 27 minutes as the waiting time. In comparison to that finding, there has been

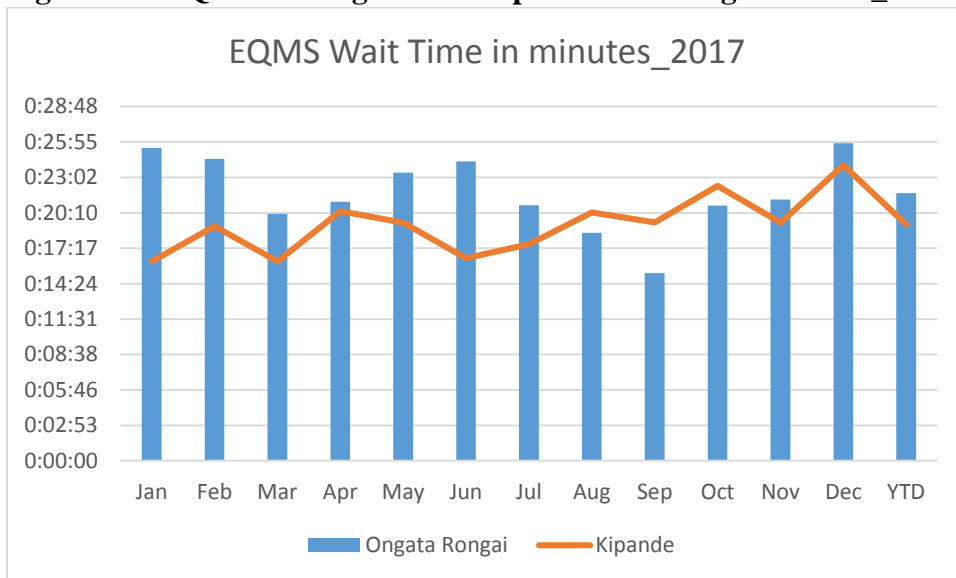
improvements. However, the waiting time could be improved further if fewer customers accessed services from the branch or if the branch provided extra staff at the service points as already alluded to in the discussions on the operational determinants above. A further analysis on the sought transactional services indicated that a majority of the respondents (57%) sought cash deposit services of considerably low value (value less than Kes.30, 000) at the branch. This was a clear indication of failure to leverage existing alternative channels –ATM deposit, Agency Banking deposit or the mobile money facilitated deposit, which in turn would decongest the banking hall and consequently lead to improved service levels.

However, the findings indicate that most customers find KCB service levels better compared to other banks. This is consistent with the finding that service attendants are generally friendly at the KCB branch outlets. Providing good customer service entails empathising with your customers and a good starting point is the perception of being friendly.

#### 4.4.1 The comparison of service levels in Kipande and Rongai Branch

A comparison of the two branch outlets from the below figures indicate some difference as far as monthly average waiting time is concerned. This is illustrated in Figures 4.2 and 4.3 below.

**Figure 4.2: EQMS waiting time in Kipande and Rongai Branch\_2017**

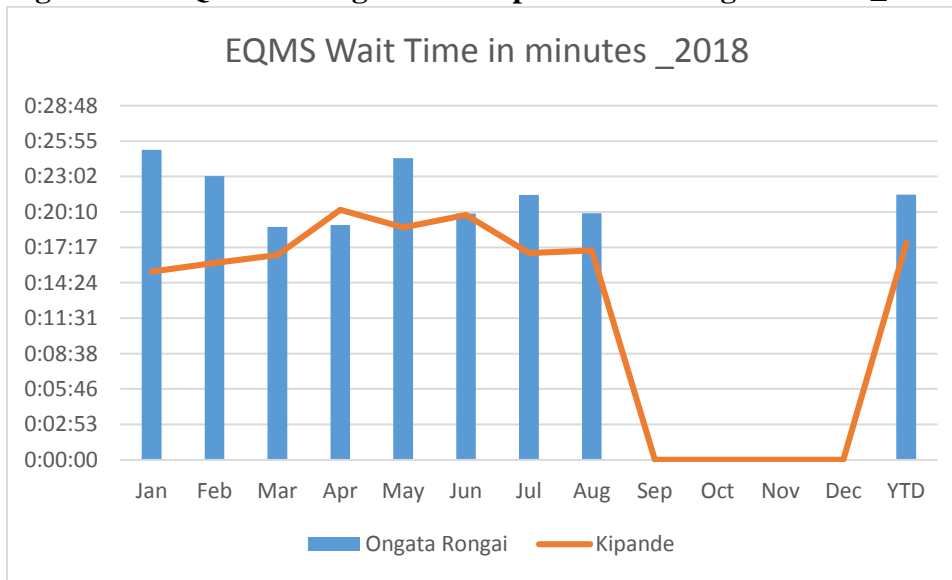


**Source: Researcher (2018)**

In 2017, Kipande branch EQMS wait time is slightly shorter than Rongai branch as above illustrated. However, both branch outlets fall short of the expected average of 15 minutes wait time according to the KCB service level agreements.

In 2018, a similar trend is witnessed with Kipande branch presenting a shorter waiting times as compared to Rongai branch. However, as was the case in 2017, none of the branch outlets has attained the required average of 15 minutes as per the service level agreement. This is attributable to the factors previously mentioned in the preceding discussions above.

**Figure 4.3: EQMS waiting time in Kipande and Rongai Branch\_2018**



**Source: Researcher (2018)**

A further analysis of the monthly average service time across the two branch outlets over the same period is illustrated in the Table 4.12 below.

**Table 4.12: Monthly average service time in Ongata Rongai and Kipande Branch**

		EQMS SERVICE TIME 2017											
Branch	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Ongata Rongai	0:03:11	0:03:06	0:02:50	0:03:14	0:03:24	0:03:47	0:03:38	0:02:01	00:02:21	0:02:16	00:02:38	0:02:32	00:02:55
Kipande	0:02:48	0:02:57	0:02:17	0:03:21	0:02:44	0:03:02	0:02:28	0:02:10	00:02:23	0:02:51	00:02:27	0:02:58	00:02:42
		EQMS SERVICE TIME 2018											
Branch	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Ongata Rongai	0:02:35	0:03:01	0:03:09	0:03:26	0:03:34	0:03:18	0:03:26	0:03:28	00:00:00	0:00:00	00:00:00	0:00:00	00:03:15
Kipande	0:02:11	0:02:06	0:03:32	0:03:20	0:02:21	0:03:24	0:02:37	0:02:15	00:00:00	0:00:00	00:00:00	0:00:00	00:02:43

**Source: Researcher (2018)**

In 2017, the two branch outlets were able to attain the desired service time of less than 3 minutes according to the prescribed service level agreements by the bank. In 2018, Rongai branch is faring worse than they previously did. This implies that the service levels have gone down. On the other hand, Kipande branch has performed consistently with little variations if any.

The varying service levels witnessed across the two branch outlets is not ideal despite the locational differences. The bank strives to ensure all its branch outlets are operating at competitive and satisfactory standards i.e. achieving the various existing SLAs.

#### **4.5 Challenges faced by Kenya Commercial Bank customers by having the EQMS**

The introduction of new technologies aim at improving the customer experience. This could be in terms of reduced hassles in transacting –speed of service, access of service or cost wise i.e. accessing similar services at reduced costs. While the EQMS sought to resolve among others congestion in the bank, transparency in accessing services, addressing the long queues and improving the waiting environment, its implementation has not been without challenges.

Among the challenges observed, reported or inferred from the survey include:

1. Lack of sufficient information on the complementing technologies which if leveraged could result in improved service experience. Most customers are not using Agency Banking service, which supposedly ought to aid in decongesting the banks and minimise the cost of accessing services from the bank.
2. Lack of adequate support in the use of the EQMS system. Failure of the bank to have designated floor managers means that customers are depending on the guards or fellow customers to acquire service tickets or directed to the correct desks. This results in customers seeking services at wrong service points or waiting on the wrong queue for longer than they would have had they been assisted at the point of joining the queue.
3. The unattended service points delaying service provision. During the survey, the researcher observed incidences where customers were directed to service points within the branch, which were unattended. The respondents were equally unanimous in their displeasure at the number of tellers available to provide services to them within the banking halls.
4. The respondents reported insufficient sitting spaces while awaiting service. Equally, the researcher observed in one of the survey branch outlets, a number of customers having to stand and queue for services due to unavailability of seats.



5. Inconsistent service speeds leading to unexplained delays. The respondents reported that the service delivery had not improved as indicated in the section discussing service time and waiting time. The respondents and customers at large feel they are taking longer at the banking halls.

## **CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter presents the discussion, conclusions and recommendations as far as the study on the impact of the EQMS to customer service levels at Kenya Commercial Bank is concerned. The chapter summarises the key findings before drawing conclusions and proposing recommendations.

### **5.2 Summary**

The overriding objective of this study was to determine the impact of the EQMS system on customer service levels at Kenya Commercial Bank. The approach used by the researcher involved administering questionnaires, making observations and gathering useful secondary data that could enable him draw useful findings.

The key findings on the operational determinants for the EQMS system at KCB included an observation that the survey branch outlets provided adequate floor space to set up the EQMS machine and seats. The respondents find the EQMS easy to use, and are satisfied with the audible announcement of the upcoming ticket numbers. The EQMS had reportedly resolved the problem of people jumping queues despite a few reported incidences. However, the researcher observed inconsistent floor management led by staff and in some instances the guards at the two study branch outlets. The respondent's utilisation of the availed alternative channels of operation – intelligent ATM, Mobile Banking service, and Agency Banking varied with Agency being the least utilised despite its ability to aid in decongesting the branch. Finally, the respondents indicated that the manned service points were not sufficient thus leading to delays in accessing services.

The challenges faced by the customers' as the bank implemented the EQMS included lack of sufficient information on how to use the EQMS system. The EQMS system is configured in the 'Banking English' language and this reportedly posed a problem in some instances while there were unexplained delays in service provision. Some respondents reported lacking seats whenever the customer numbers were higher than the availed capacity, and increasingly the unmanned service points.

In regards to answering the question whether there has been an impact on service levels at the bank through the introduction of the EQMS system, the study branch outlets presented varying levels of service as illustrated in the comparison data shared in the previous section. The reported variance is not significant. However, of greater significance is that the two branch outlets failed to attain the bank's own SLAs as far as EQMS waiting time and service time is concerned. The study however obtained findings in which the respondents commend the bank staff for provision of services in a friendly manner.

### **5.3 Conclusion**

It is clear from the study that the EQMS has contributed to improved service provision since its introduction. It is also clear that the bank is not optimally utilising the EQMS system to improve the service levels through leveraging the data points available and making informed decisions on resource allocation especially at the service points.

A branch service design is affected to some extent by the branch location and available space. Larger branch outlets are likely to present a more organised settings and a better environment allowing a better use of the EQMS system. The EQMS system should be implemented only if the available floor space is adequate for the set up –EQMS machine and the sitting spaces.

Finally, as the banks continue investing in costly technology, it is important to educate the customers in order to optimise customer service levels. Through educating its customers on utilisation of the alternative transacting channels, the banks will be able to address most of the pain points as presented in the study findings. The quality of service promised from these alternative channels must match the actual service the customers attain when using the proposed alternatives. Ultimately, improvement in service levels is synonymous with reduced waiting time (Jhala & Bhathawala, 2016).

### **5.4 Recommendations**

KCB Bank as currently set up has invested in technology adequate to resolve most of the customer service issues faced. The bank needs to:

### **5.4.1 Operational Recommendations**

1. Focus on educating its clientele to use of the availed infrastructure and technology.
2. The bank needs to adapt the availed technologies to suit its clientele. This involves configuring the EQMS systems in Swahili language akin to the ATMs.
3. The bank should demand that the various branch outlets implement a floor management plan to continuously support and engage customers.
4. The operations managers in the various branch outlets should use the EQMS reports to design the branch services and adequately allocate resources.
5. KCB should introduce incentives and or punitive measures for branch outlets that achieve or fail to achieve the set SLAs in order to improve service levels.

### **5.4.2 Recommendations for Further Research**

This study focussed on the impact of the EQMS on customer service from the customers' point of view. However, there is need for other researchers to study the same topic but from the view of service providers' side. Of great interest is to understand how the banks are utilising the data and information obtained from the EQMS system in designing service and improving service levels.

### **5.5 Study Limitations**

The researcher was required to obtain consent from the bank authorities to interview its customers. The process proved long drawn leading to the researcher collecting data over extended periods within these branch outlets anonymously from willing respondents. This implies that the described random sampling methodology where the researcher was to pick every 5<sup>th</sup> customer did not apply.

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**APPENDICES:**  
**Appendix I: Questionnaire Customers**

**SECTION A: GENERAL INFORMATION**

1. Gender:

- (a) Male ( ) (b) Female ( )

2. Age

- (a) Under 20 ( )  
(b) 20-29 ( )  
(c) 30 -39 ( )  
(d) 40-49 ( )  
(e) 50-59 ( )  
(f) 60 and above ( )

3. Education level

- (a) Primary ( )  
(b) Secondary ( )  
(c) Bachelor Degree ( )  
(d) Postgraduate ( )

4. Marital status

- (a) Single ( ) (b) Married ( )

5. What is your main source of income?

- (a) Employment ( )  
(a) Self Employment ( )

6. Which industry?

- (a) Agriculture ( )  
(b) Information, Communication and Technology ( )  
(c) Finance ( )  
(d) Hospitality ( )  
(e) SMEs ( )

(f) Other ( ) .....

7. How long have you had a bank account with KCB Bank?

- a) Less than 2 years ( )
- (b) 2-5 years ( )
- (c) More than 5 years ( )
- (d) N/A ( )

8. Do you have a chequebook?

- a) Yes ( )
- (b) No ( )

9. Where did you open your KCB bank account?

.....

### **CUSTOMER SERVICE DELIVERY FEEDBACK**

1. How long did it take you to receive service?

- a) Less than 15 minutes ( )
- b) 30 minutes -1 hour ( )
- c) More than 1 hour ( )
- d) Other: Specify .....

2. On average, how much time did you use to spend to obtain banking services at the banking hall before the introduction of the ticketing machine?

- a) Less than 15 minutes ( )
- b) 30 minutes -1 hour ( )
- c) More than 1 hour ( )

3. How much time on average do you spend on the ticketing machine to obtain your ticket?

- a) Less than 1 minute ( )
- b) More than a1 minutes ( )
- c) If it is more than a minute what are the reasons?

.....  
.....  
.....

4. Did you need assistance to use the ticketing machine at the banking hall?

- a) Yes ( ) b) No ( )

4a. If Yes, who assisted you?

- a) Bank Staff ( )
- b) Security Guard ( )

c) Fellow Customer ( )

## THE ELECTRONIC QUEUE MANAGEMENT SYSTEM (THE TICKETING MACHINE)

Kindly specify the level to which you agree with the following statements:

<b>Descriptive statements</b>	<b>Strongly agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly disagree</b>
The ticketing machine is easy to use					
I need help with the ticketing machine					
The ticketing machine announces my ticket number loudly when my turn comes					
Services are obtained much faster nowadays					
Nobody jumps the queue nowadays after introduction of the ticketing machine					
There is a bank staff ready to help with the ticketing machine					

## CUSTOMER EXPERIENCE

Kindly specify the extent to which you agree to the following statements.

<b>Descriptive statements</b>	<b>Strongly agree</b>	<b>Agree</b>	<b>Neutral</b>	<b>Disagree</b>	<b>Strongly disagree</b>
The waiting time is acceptable					
The ticketing machine is helpful to the customers					
Service provision is faster					
Service provision is friendly					
There are enough seats at the banking hall for customers					
I feel entertained by the TV screen at the banking hall					
I learn new things about the bank from the TV at the banking hall					
There are enough tellers to serve the customers					
The service process is better compared to other banks					

1. What type of service did you receive today?
  - a) Deposit ( )
  - b) Withdrawal ( )
  - c) Enquiries
  - d) Other (Please specify).....

If Deposit, was it: a) Cash ( ) b) Cheque ( )

If Withdrawal, was it: a) Cash ( ) b) Cheque ( )

2. How much did you transact?
  - a) Kes.1 –Kes.10,000 ( )
  - b) Kes.10,001 –Kes.30,000 ( )
  - c) Kes.30,001 –Kes.50,000 ( )
  - d) Above Kes.50,001 ( )

3. How many times do you visit any KCB branch to transact?
  - (a) Daily ( ) (b) Weekly ( ) (c) Monthly ( ) (d) Rarely ( )

4. List the transacting options you know at KCB?
  - a) .....
  - b) .....
  - c) .....
  - d) .....
  - e) .....

5. Which other transacting options do you use at KCB?
  - a) ATM card ( )
  - b) Mobile Banking ( )
  - c) Agent Banking ( )

6. List any challenges faced when using the ticketing machine?
  - a) .....
  - b) .....
  - c) .....
  - d) .....

## Appendix II: Mystery Shopping Guide/Observation Schedule

**Institution:**.....

**Branch:**.....

**Date:**.....

**Time: Start:**.....

**Stop:**.....

Instructions: The schedule requires you to observe certain aspects of service delivery in relation to the “**Electronic Queuing Management System and Customer Service in Commercial Banks in Kenya**” Research Study in fulfilment of Master of Business Administration Degree Study at the University of Nairobi.

Parameter	Comment/Feedback
Number of service counters (Teller points)	
Number of manned service counters (Teller points) –Watch out for movements in/out of service counters	
Additional customer touch points (Customer service desk, Business banking, Micro Banking, Personal Banking etc.)	
Presence of visible ATM point outside branch (Yes/No)	
Type of ATM machine a) Intelligent (Accepts cash deposits and updates account balance in real-time manner) b) Non-intelligent	
Presence of visible Agency Banking outlet from the Branch? (Yes/No)	
Position of EQMS within banking hall	
EQMS manned. Yes/No (By Bank staff or Security Guard)	
Number of customers assisted at the EQMS machine	
Any queues at EQMS machine.	
Floor manager in sight? Yes/No	
Flow of customers into the branch (Description of the flow –estimated numbers within the 10 minutes)	
Other observations e.g. challenges etc.	

### Appendix III: List of Commercial Banks in Kenya

1	ABC Bank (Kenya)	24	Habib Bank
2	Bank of Africa	25	Habib Bank AG Zurich
3	Bank of Baroda	26	Housing Finance Company of Kenya
4	Bank of India	27	I&M Bank
5	Barclays Bank of Kenya	28	Imperial Bank Kenya (In receivership)
6	Chase Bank Kenya (In Receivership)	29	Jamii Bora Bank
7	Citibank	30	Kenya Commercial Bank
8	Commercial Bank of Africa	31	Middle East Bank Kenya
9	Consolidated Bank of Kenya	32	National Bank of Kenya
10	Cooperative Bank of Kenya	33	NIC Bank
11	Credit Bank	34	Oriental Commercial Bank
12	Development Bank of Kenya	35	Paramount Universal Bank
13	Diamond Trust Bank	36	Prime Bank (Kenya)
14	Dubai Islamic Bank	37	Sidian Bank
15	Ecobank Kenya	38	Spire Bank
16	Equity Bank	39	Stanbic Bank Kenya
17	Family Bank	40	Standard Chartered Kenya
18	Fidelity Commercial Bank Limited	41	Trans National Bank Kenya
19	First Community Bank	42	United Bank for Africa
20	Giro Commercial Bank	43	Victoria Commercial Bank
21	Guaranty Trust Bank Kenya		
22	Guardian Bank		
23	Gulf African Bank		

Source: Central Bank of Kenya (2015)