

# Electronic Queue Management System Capability and Customer Satisfaction in Selected Commercial Banks in Nairobi City County, Kenya

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## ABSTRACT

Queue management within the commercial banks has been a challenge for a long time due to limited space of banking halls and the limited capacity of the front office staff to serve the customers. Banks in Kenya are increasingly rolling out the Electronic Queue Management System (EQMS) to assist with an orderly queuing process. This paper explores the effect of capacity management, waiting time experience and automation of queuing process on customer satisfaction in commercial banks in Kenya. The theoretical review for the study was anchored on three theories; the Expectancy Disconfirmation Theory, Cognitive Dissonance Theory and Technology Acceptance Model based on the Theory of Reasoned Action. A descriptive research design was used for this study with a target population of 180 bank staff of six major commercial banks in Nairobi Central Business District (CBD). Structured questionnaires were used to collect data from respondents. The descriptive statistics and inferential statistics were used for data analysis. The study found that 78.1percent of the changes in the level of customer satisfaction in Kenyan commercial banks were explained by changes in capacity management, waiting time experience and automating queuing process cumulatively. The study is of significance to the management of commercial banks as they are able to determine the effectiveness of the electronic queue management systems that they have employed in their banks.

**Keywords:** Customer satisfaction, capacity management, waiting time experience, automated queuing process

## 1. INTRODUCTION

The concept of waiting time and queue management is a critical component of customer satisfaction within commercial banks and there has been concern to reduce the long queues in the banking halls. Commercial banks have introduced innovative products in order to deal with the queue management challenges. These include the introduction of Short Message Service(SMS) based queuing system in which the customers make requests for queue numbers via SMS prior to branch visits and adoption of modern queue management system in which a ticket is used indicating ticket number, how many customers are ahead of you and the expected waiting time(DBS Bank., 2016). These methods ensure flexibility in time usage that would have been used in queuing in the bank and service time reduction. The potential benefits of the EQMS include organization of the customer flow within the branch, promotion of fairness in queuing process, reduction of waiting time, engagement of customers with targeted messages, gathering customer satisfaction metrics, and capacity management of the customer service staff(Wavetec, 2014).

Queues are often inevitable in commercial banks due to the mismatch on the service demand and the capacity for service provision. Agyei, Asare-darko, & Odilon (2015) noted that queues present a challenge to the service providers. Khawle, Taware, & Kulkarni (2017) notes that while it is difficult to eliminate all the queues within the commercial banks, it is possible to manage them resulting into increased customer satisfaction. Commercial banks in Kenya have embraced Electronic Queue Management Systems.

Waiting time experience of customers may influence their level of satisfaction. Queues within commercial banks often have a negative effect on the customer satisfaction levels. This is because customers need to wait when the service demand exceeds the service provision capacity. Jones &

Hwang (2015) indicates that waiting in the queue interferes with time saving and convenience that customers need when they seek services. This may act to neutralize the potential benefits of the service, and negatively influence attitudinal aspects in relations to quality of service. These aspects cumulatively lead to lack of customer satisfaction.

In regard to capacity management, availing of a huge service provision capacity lead to some service facilities being idle which is expensive to the service provider (Garcia, Archer, Moradi, & Ghiabi, 2012). A study by Austria (2015) noted that electronic queue management system enables the service provider to avoid bottlenecks in service provision at the counter through management of arrival times, and promotion of fairness through allowing new customers to join an existing queue. On the other hand, Tan & Kauffman (2013) noted that electronic queue management system enhances customer satisfaction through adjusting of the cashiers and other staff based on the number of customers waiting, offering of promotions that are time based in order to manage service demands, and arriving customers being made aware of the estimated waiting time length before they get service.

The specific research objectives of the study were to;

- (i) Examine the effect of capacity management on customer satisfaction in commercial banks in Nairobi City County, Kenya
- (ii) Establish the effect of waiting time experience on customer satisfaction in commercial banks in Nairobi City County, Kenya
- (iii) Evaluate the effect of automation of the queuing process on customer satisfaction in commercial banks in Nairobi City County, Kenya

## **2. RESEARCH METHODOLOGY**

The study used a descriptive research design. The target population for the study was staff of six major commercial banks that operated in Nairobi City County, Kenya. The banks included Kenya Commercial bank, Equity bank, Barclays Bank of Kenya, Cooperative bank, Commercial Bank of Africa, and Standard Chartered bank. The study sought to collect information from customer service staff and operations staff in the bank branches within the Nairobi Central Business District (CBD). The study utilized 25 customer service staff and 5 operations staff from each bank therefore the target population comprised of 180 members.

Stratified sampling method was used to select the number of respondents from each stratum. The study used simple random sampling to get individual participants from each stratum. This was aimed at ensuring there is fairness in the selection process of participants and avoid bias thus improving credibility of the data (Mugenda & Mugenda, 2013).

The questionnaire was the research instrument for this study. A structured questionnaire with closed format was used for this study making the structured questionnaire easy to administer and gives a higher response rate due to ease of answering the questions (Kothari, 2004). Additionally, it eases the data analysis using the Statistical Package for social Sciences (SPSS) software since it provides a systematic way of coding (Chawla & Sodhi, 2011).

For this study, reliability of the instrument was tested using the internal consistency test. According to Shao (2003), this test evaluates the degree to which different items in a group measure the same attribute (scale reliability). In this context, the Cronbach alpha was used to establish internal consistency (Dowdy, Wearden, & Chilko, 2011). The Cronbach alpha coefficient is usually a value between 0 and 1 with a higher coefficient showing the test is more reliable. However, a threshold of 0.7 coefficient was considered adequate and a sufficient indicator of reliability of the test items (Jankowicz, 2005).

The data was entered into SPSS software for the purposes of data analysis. Both the descriptive and inferential statistics were applied. Descriptive statistics included the means, standard deviations and frequency distributions while the inferential statistics was examined using multiple linear regression.

The Likert Scale was used. Scores from the Likert scale of each respondent was summed up and then divided by maximum possible score per variable. The single figure resulting from this computation was the composite score index for each variable. This computation was done using SPSS for accuracy and speed purposes.

### **3. RESEARCH FINDINGS AND DISCUSSION**

#### **3.1 Sample Characteristics**

##### **3.1.1 Response Rate**

The returned questionnaires for the study were 119 questionnaires from the 124 questionnaires that had been issued to potential respondents.

##### **3.1.2 Gender of Respondents**

The study found that above half of the customer service staff and operations staff of the commercial banks in Nairobi Central Business District were female (56.9%) with the male staff being 43.1%. This could be attributed to preference by women to apply for positions in customer service and operations in the banks. In addition, women are perceived to appear friendlier and have an easier time multi-tasking which could inform the employers when hiring for these positions.

##### **3.1.3 Age of Respondents**

The study found that a majority of the respondents at a cumulative total of 76.6% were below 35 years of age. This is attributed to the fact that customer service in a commercial bank is often an entry level job.

##### **3.1.4 Years of Experience of Respondents in Bank**

The study found that in respect to the years of experience worked in the bank, a majority of the respondents (84%) had worked for less than ten years considering that customer service often employs fresh graduates as an entry level task.

#### **3.2 Descriptive Statistics**

##### **3.2.1 Role of Capacity Management on Customer Satisfaction**

The study examined the effect of capacity management on customer satisfaction in commercial banks in Kenya using five measures. These measures were varying the number of service providers based on customers waiting, pace of service delivery, service demand levels across diverse periods of the day/month, isolation of slow service providers for training, and service delivery channels changes within the branch.

Almost three quarters of the respondents in the study tended to agree (72.4%) that EQMS in their bank is used to vary the number of service providers based on customers waiting. EQMS measurement of pace of service delivery was perceived to influence customer satisfaction in the bank by a majority of respondents (75%). EQMS is used to measure service demand levels across diverse periods of the day/month according to 81.9% who tended to agree with the statement. According to 69.0% of the respondents, the EQMS data is used to isolate slow service providers for training in order to enhance the service delivery capacity of the bank. A majority of respondents were in agreement (60.3%) that EQMS data is used to make changes in the service delivery channels within the branch.

The findings in this study concur with those by Onyango (2016) who found out that 97% of the respondents indicated that there was capacity forecasting in order to serve its clients better. The study found out that capacity forecasting, demand forecasting and service scheduling influences customer satisfaction largely as illustrated through means of 4.26, 3.88 and 4.27 respectively. The findings in this study further concurs with those by Mwangangi (2015) who found that diverse capacity management strategies impact on customer satisfaction differently including offering overtime facilities to work on prevailing workload demands in certain ways (mean of 4.300), altering number of hours worked in order to cope with service demands (mean of 4.233), altering number of service providers to meet service demands (mean of 4.133), holding on staff from leave breaks in anticipation of changing demand (mean of 3.367), and service scheduling to match service demands with service needs (mean of 4.633).

### **3.2.2 Influence of Waiting Time Experience on Customer Satisfaction**

The study sought to establish the effect of waiting time experience on customer satisfaction in commercial banks in Kenya. In this regard, five measures were used including enablement of customers to follow progress of service delivery, use of promotional messages on EQMS, indication of approximate waiting time through ticket number, display of ticket numbers on board, and distraction by calling out of tickets numbers.

According to a majority of the respondents (71.6%), EQMS enables customer to follow progress of service delivery hence improving customer satisfaction. A majority of respondents were in agreement (65.5%) that the use of promotional messages on EQMS board is an important aspect in making waits tolerable for bank customers. The ticket number indicating approximate waiting time was perceived to make the customers more tolerable to longer waiting time by almost three quarters of the respondents (73.3%). According to 72.4% of the respondents, the display of ticket numbers on board across the banking hall reduces the anxiety of waiting. The calling out of tickets numbers was perceived to distract the customers increasing customer satisfaction by a cumulative majority of the respondents (75.9%).

These findings are consistent with those by Chepkoech (2017) who found that unoccupied time feels longer than occupied time (mean of 4.10), preprocess waits influence customer satisfaction (mean of 4.05), uncertain wait influences customer satisfaction (mean of 4.15), unexplained wait influences customer satisfaction (mean of 4.01), and waiting for valuable services influences customer satisfaction (mean of 3.63). The results in this study were in line to those by Whiting (2016) who found that customers were engaged in different strategies in order to reduce the perceived waiting time

before they receive the services. These strategies included conversation amongst the customers, watching the provided television and playing with their mobile phones. The findings established in the current study are also consistent with those by Kamau (2012) that there is high satisfaction levels with queue discipline (mean of 4.07) and information provided while queuing (mean of 3.48).

### **3.2.3 Role of Automation of the Queuing Process on Customer Satisfaction**

The role of automation of the queuing process on customer satisfaction in commercial banks in Kenya was examined using five indicators. These included promotion of fairness amongst customers, queue discipline, ease of understanding for customers on where to queue based on service required, indication of the service provider to serve the customer, and automated queuing machine leading to counter where specific needs are handled.

The use of EQMS promotes perception of fairness amongst customers as perceived by a cumulative majority of the respondents (81.0%). A majority of the respondents in the study tended to agree (66.4%) that use EQMS enhances queue discipline in their bank thus customer satisfaction. According to 62.1% of the respondents, the use of EQMS is easy for customers to understand where to queue based on service required. The use of EQMS to indicate the service provider to serve the customer has increased the customers' sense of satisfaction as perceived by a cumulative majority of the respondents (74.1%). Almost three quarters of respondents were in agreement (72.4%) that automated queuing machine leads to the counter where specific needs are handled hence improving customer satisfaction.

The findings found in this study were consistent with those by Mwangi (2016) who found that dependability of automated systems, data accuracy, ease of technology use, timely delivery were aspects considered important in customer satisfaction with means of 3.91, 4.12, 4.12, and 3.92 respectively. Others were system accessibility (mean of 3.59), and customization of services to customer needs (mean of 3.64). The current study findings are in agreement with those by Ombati (2010) who noted that the ability of the queuing system to be provided with customer friendly environment and to be served with entertainment was key in leading to customer satisfaction.

### **3.2.4 Customer Satisfaction in Commercial Banks in Kenya**

The study sought to examine how various measures of customer satisfaction have been affected by the electronic queue management systems in commercial banks in Kenya. These measures were customer expectations, quality of service, waiting time, service reliability, and feedback.

A majority of respondents agreed (68.1%) that electronic queue management system in their bank had led to customer expectations being met. According to 62.9% of the respondents, the use of EQMS had improved quality of service in their bank. According to a majority of respondents (69.0%), use of EQMS in their bank had reduced customer's waiting time. The use of EQMS was perceived to ensure service reliability by a cumulative majority of the respondents (76.7%). Waiting time experience of customers may influence their level of satisfaction. Queues within commercial banks often have a negative effect on the customer satisfaction levels. This is because customers need to wait when the service demand exceeds to the service provision capacity. Jones & Hwang (2015) indicates that waiting in the queue interferes with time saving and convenience that customers need when they seek

services. This may act to neutralize the potential benefits of the service, and negatively influence attitudinal aspects in relations to quality of service. These aspects cumulatively lead to lack of customer satisfaction.

EQMS provides instant feedback according to 81.9% of respondents who tended to agree with the statement. Concerning the automation of queuing process and according to Khawle et al., (2017), Barclays Bank has introduced an Electronic Queue Management System that enables the bank to manage its queues within the branch. The EQMS disburses tickets that enable the customers to sit and wait for their ticket numbers to be called in order to access services. Kenya Commercial Banks introduced the EQMS in 2013 to enable the bank to automate the queue management aspects within the branches and enable orderly waiting amongst the customers (Kenya Commercial Bank., 2014).

Therefore, on average, respondents tended to agree and there was moderate consensus that use of EQMS in commercial banks in Nairobi CBD ensures that customer expectations are met, improves quality of service, reduces waiting time, ensures there is service reliability, and provides instant feedback to customers.

#### **4. SUMMARY, CONCLUSION AND RECOMMENDATIONS**

##### **4.1 Summary of Research Findings**

The study established that on average, respondents tended to agree that EQMS is used to vary the number of service providers based on customers waiting and measure service demand levels across diverse periods of the day/month. Further, the study established that respondents on average tended to agree that the EQMS data is used to isolate slow service providers for training in order to enhance their service delivery capacity and EQMS data is used to make changes in the service delivery channels within the branch. Similarly, respondents on average tended to agree that EQMS measurement of pace of service delivery influences customer satisfaction in commercial banks in Nairobi CBD. It therefore implies that there is statistically significant relationship between capacity management and customer satisfaction in commercial banks in Kenya.

The study established that most respondents tended to agree that EQMS enables customer to follow progress of service delivery, promotional messages on EQMS board make waits tolerable for bank customers, and ticket number indicating approximate waiting time makes the customers tolerable to longer waiting time. Moreover, respondents tended to agree that the display of ticket numbers on board across the banking hall reduces the anxiety of waiting and calling out of tickets numbers distracts the customers' hence increasing customer satisfaction. Therefore, the study concludes that there was statistically significant relationship between waiting time experience and customer satisfaction in commercial banks.

The study found that on average, respondents tended to agree that the use of EQMS promotes perception of fairness amongst customers, enhances queue discipline thus customer satisfaction, and makes it easy for customers to understand where to queue based on service required. In addition, the use of EQMS to indicate the service provider to serve the customer and automated queuing machine leads to the counter where specific needs are handled improves customer satisfaction. Therefore, respondents on average tended to agree on all metrics on automation of queuing process. The study

shows that there was statistically significant relationship between automation of the queuing process and customer satisfaction in commercial banks in Kenya.

For the aspects of customer satisfaction, the study established that automation of the queuing process led to customer expectations being met, improved quality of service, reduced waiting time, service reliability, and instant feedback. The study further established 78.1% ( $R^2=0.781$ ) of the changes in the level of customer satisfaction in Kenyan commercial banks is explained by changes in capacity management, waiting time experience, automating queuing process cumulatively.

#### 4.2 Conclusions

Focusing on capacity management, the study concluded that capacity management influences the level of customer satisfaction in commercial banks in Kenya. Concerning waiting time experience, the study concluded that waiting time experience influences the level of customer satisfaction in commercial banks. In respect to automation of the queuing process, the study concluded that automation of the queuing process influences the level of customer satisfaction in commercial banks in Kenya. In the context of customers' satisfaction, the study concluded that level of customer satisfaction in Kenyan commercial banks is determined by the changes in capacity management, waiting time experience, automating queuing process cumulatively.

The study is of significance to the management of commercial banks as they are able to determine the effectiveness of the electronic queue management systems that they have employed in their banks. This should guide management during their strategy formulation for acquiring new customers and customer retention by including the aspects that improve customer satisfaction. Scholars and other stakeholders in similar service provision can embrace best practices in EQMS and adopt the recommendations of this study for better service provision to their customers.

#### 4.3 Recommendations

The study recommends the commercial banks in Kenya to use EQMS to measure the pace of service delivery in the banks and to be accurate in estimating the expected waiting time in order for customers to be tolerable to longer waiting time. The study further recommends commercial banks to have clear details on where the customer will be served using EQMS. Lastly, the study concludes that in policy formulation, policies on automation of queuing process should be given the first priority, then those on capacity management and lastly on waiting time experience. This recommendation is based on the finding that automation of queuing process had the greatest impact on customer satisfaction, followed by capacity management and lastly the waiting time experience.

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