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Automating Customer Relationship Management System As Value Indicator In Service Delivery In Water And Sanitation Companies In Western Kenya

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Abstract
Heightened competition in the business environment with competitors seeking for market share and the ever changing customer behaviour and market dynamics coupled with rapid innovations in technology calls for strategies to help businesses guard their existing clientele from losing them to the competition. Automation of customer relationship management system in businesses is a key strategy of dealing with this challenge. There still exist service gaps in the water service industry such as mechanical billing process that mainly dependent on the meter reading officers who manually establish the actual reading of number of units consumed by the customer. Human errors arising from mechanical processes take long to be rectified if noticed and leads to customer dissatisfaction and finally loss of revenue by the company due to disconnections and inactive accounts. The purpose of this study was to investigate automating of Customer Relationship Management System as a value indicator in customer service delivery in water and sanitation industry in Western Kenya. The study was guided by Innovation Diffusion Theory and Organizational Theory. Data was analyzed using Statistical Package for Social Sciences (SPSS) Software version 24. The study adopted descriptive survey research design with a target population of 32,392 (thirty two thousand three hundred and ninety two) broken into: 265 (two hundred and sixty five) employees and 32,127 (thirty two thousand one hundred and twenty seven) external customers from which a sample size of 246 respondents was achieved. Study results were presented in the form of frequency distribution tables, graphs and pie charts that facilitated description and explanation of the study findings. Results of the study showed that automating of Customer Relationship Management System β= 0.755, t = 15.639, p=0.000 <0.05), had a strong positive and significant association with customer service delivery. It was therefore concluded that when automation of customer relationship management system services like SMS short code for giving alerts and acknowledgement of receipt of payment to customers, real time information sharing, prompt customer complaint handling procedure and digital self-service menus are incorporated well and implemented in NZOWASCO then the service delivery would drastically improve. The study recommends full automation of CRMS at NZOWASCO systems in order to improve customer satisfaction and profitability.

Keywords: *Automation of Customer Relationship Management System, Customer Service Delivery Water and Sanitation Companies (NZOWASCO), Western Kenya*

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I. Background Of The Study

Competition in the business environment with new entrants into the market place seeking for market share has led businesses to seek strategies to guard their existing clientele to avoid losing them to the competition (Porter, 2017). Furthermore, the ever changing market environment and varying customer needs pose a challenge in the way companies and businesses interact with customers in service delivery. Customers' needs and purchase patterns keep changing each passing day with competition coming up with ways of staying afloat on the market. Automation of Customer Relationship Management Systems in businesses is a key strategy of dealing with this challenge. Customer service delivery is the act of taking care of the customers` needs by providing and delivering professional, helpful, high quality service and assistance before, during, and after the customer`s requirements are met (Loverick & Patterson, 2015).

In this study, customer service was measured by customer satisfaction and service quality. Customer satisfaction is the perceived service offered and forms a link between quality and post-purchase evaluations and decisions of the customer (Loverick & Patterson, 2015). It is the measurement that determines how happy

customers are with a company`s products, services, and capabilities through surveys and ratings. It is the perceived quality of service delivered. Customer satisfaction in a business sense is a measuring tool of how products and services provided by the firm meet or go beyond surpassing the customer expectation (Toyese, 2014). Service quality is an assessment of how well a delivered service conforms to the client`s expectations. The value delivered to a customer is actually a perceived service quality (Loverick & Patterson, 2015).

Customer relationship management system is a management approach where firms take full advantage of technology innovations with their ability to collect and analyze data on customer patterns, interpret customer behavior, develop predictive models, respond with timely and effective customized communications, and deliver product and service value to individual customers (Laudon & Laudon, 2012). In this study, customer relationship management system was measured by customer support and business processes. Customer support is a range of customer services offered by an organization to assist customers in making cost effective and correct use of a product, ranging from planning, installation, training, troubleshooting, maintenance, upgrading, and disposal of a product (Githaiga, 2013). The support functions that were of great interest in this study included customer care platforms technical support and market awareness strategies. Business processes refer to the set of logically related tasks and behaviors that organizations develop over time to produce specific business results and the unique manner in which these activities are organized and coordinated (Laudon & Laudon, 2012). Developing a new product, generating and fulfilling an order, creating a marketing plan, and hiring an employee are examples of business processes, and the ways organizations accomplish their business processes can be a source of competitive strength (Laudon & Laudon, 2012). In this study, the researcher focused on process effectiveness, process reliability and process cycle time as a measure of the business processes.

The CRM systems are powerful software systems that serve several essential functions for marketing, sales, and account management (Dua, Sahni & Goyal, 2011). CRM systems are part of the enterprise information systems for sales and marketing, and management of company`s customers effectively to raise sales (Gupta, 2014). The other types of enterprise information systems include supply chain management systems and enterprise resource planning systems. Integrating applications into seamless processes across the organization is the goal of enterprise software applications. Information systems serve three levels of management in an organization. The three levels are top level management, middle level management and operational/lower level management (Gupta, 2014).

Customer relationship management systems help organizations in managing their relationships with customers. CRM systems provide information to coordinate all of the business processes that deal with customers in sales, marketing, and service to optimize revenue, customer satisfaction and customer retention (Gupta, 2011). Supply chain management systems are one type of inter-organizational system because they automate the flow of information across organizational boundaries. This information helps organizations identify, attract, and retain the most profitable customers; provide better service to existing customers and increase sales. CRM systems consolidate and integrate customer information from multiple communication channels such as telephone, e-mail, wireless devices, retail outlets, or the web (Gupta, 2011). Knowledge management systems enable organizations to better manage processes for capturing and applying knowledge and expertise. These systems collect all relevant knowledge and experience in the firm and make it available wherever and whenever it is needed to improve business processes and management decisions (Gupta, 2011).

A number of studies have been conducted globally concerning CRM systems. Bull & Adam (2010) studied Customer Relationship Management Information Systems (CRM-IS) and realization of moral agency. Their study offers a relatively rare insight into the significance of the ethical issues arising from the organizational use of CRM-IS and strategies thus unable to address the link between automation of customer relationship management systems and customer service delivery. This study sought to fill this gap by examining the influence which automation of CRM system has on customer service delivery.

Locally, a number of studies have also been conducted on customer relationship management systems. Bitutu (2011) studied customer relationship management system among commercial banks in Kenya. The purpose of her study was to establish the use of CRM systems and further determine the challenges facing the use of CRM systems among the commercial banks in Kenya. Her study doesn't show how to alleviate the challenges faced by the banks in using CRM systems. This study sought to examine value creation by automating CRM systems. Lodiong (2015) studied effect of customer relationship management systems on the performance of financial institutions: a case study of Chase Bank Kenya Ltd. The researcher used descriptive research design of which according to Mitchell & Jolley (2013) it is not sufficient to determine the causal link between the study variables under a case study since it doesn't allow the researcher to infer causality. This research adopted the case study research design which enabled the researcher to get an in-depth understanding of the causal relationship between the variables under the study.

Kiplimo (2018) studied customer relationship management system and customer satisfaction among commercial banks in Kenya. The study relied on primary data collected by use of questionnaires. Use of questionnaires only suffers the blow of dishonest answers, unanswered questions, differences in understanding

and interpretation of questions, limit participants in conveying their feelings and emotions and some respondents may have a hidden agenda (Gordon & Todorova, 2019). This research adopted the use of convergent design of the mixed method approach in a bit to address this gap. A core assumption of this approach is that when an investigator combines statistical trends (quantitative data) with stories and personal experiences (qualitative data), this collective strength provides a better understanding of the research problem than either form of data alone (Creswell, 2015).

Today, more innovative channels of interacting with customers are emerging as a result of new technology, such as mobile phone applications that provide self service menus, global telephone based call centers and the Internet. Companies are now focusing to offer solutions that leverage on the Internet in building comprehensive CRM information systems allowing them to handle customer interactions in all forms (Buttle & Maklan, 2015). Equally important, CRM supports mass e-mail communications and automates the sales process workflow to improve employee productivity. (CRM) system can be designed so that the team is given access not only to highly selected knowledge about a customer, but to a complete profile of the customer (including who else has worked with the customer, the various products the customer has been exposed to in the past, and the current results the customer has experienced from past products provided by the organization) (Grover & Markus, 2015). Information technology has revolutionized the business environment by shifting the business firm`s orientation from production efficiency back to the customers' needs (Horak, 2012). IT could draw the customer closer to the company, build a relationship, and reduce the probability of customer defection (Srivastava & Verma, 2012). This strategy requires focus, training, and investment in new technology and software to aid in the development of value adding CRM systems.

In Kenya, several reforms have been carried out to improve service delivery in the water sector. The government's drive to improve water services in Kenya started in 1967, two years after independence, when basic facilities amongst the water and sewerage were nationalized to allow government to provide and expand services so as to spur development for improved welfare of its citizens (Chepyegon & Kamiya, 2018). The government has, however, encountered hurdles in expanding water infrastructure as well as facing sustainability issues from existing systems. This situation prompted the commencement of reforms in the sector which led to the automation of a new water policy in 1999. The policy was founded on principles of separation of regulatory functions from actual service provision in order to improve service delivery (Chepyegon & Kamiya, 2018).

In line with the new policy, new water laws were enacted in 2002 in which the management of water resources and water services was separated, and the role of the central government was decentralized to semi-autonomous government agencies. In 2007 the government of Kenya rolled out The Kenya Vision 2030 which is an ambitious development plan that aims to transform the country into a middle income country by 2030 by improving economic, social and political sectors (Chepyegon & Kamiya, 2018). The plan acknowledges the pivotal role of water in the growth of economic and social sectors as the country gets industrialized and more urbanized. In that regard the plan anticipates a universal access to water by 2030, which is apparently congruent with UN's 2030 Sustainable Development Goals on water and sanitation. In addition to the water needs contained in the plan, the Kenya constitution promulgated in 2010 further treats the enjoyment of clean and safe water in adequate quantities by every Kenyan citizen as a basic right. The increased water requirement therefore demands great efforts from the Kenya water sector management in water resources conservation and water services development (Chepyegon & Kamiya, 2018).

Customer relationship management systems allow utilities to better know their customers. Integrating customer information with service history and billing preference lets a utility provide a higher level of service to the customer (Wangui, 2012). The companies incur high costs in producing water and lose much water in its processes as evidenced by low volumes of billed water. Such cases as illegal connections, leakages on transmission and /or distribution pipes plus leakages and overflows at utility storage tanks including leakage on service connections up to the point of customer use, collusion of company staff and customers to avert actual payment could be among reasons for high percentage of non revenue water (WASREB Impact report, 2019). According to WASREB impact report issue 11, levels of Non-Revenue Water (NRW) have remained relatively stagnant between 41% and 47% for the last 10 years despite efforts by utilities to contain losses. Reducing NRW to 25%, in line with WASREB's recommendation, can help close the supply and demand gap without the need to build costly infrastructure or exploit new water sources which are dwindling. Additionally, reducing water losses increases revenue for utilities while also reducing operating costs linked to producing and pumping water, thus unlocking savings that can be used to expand access and improve service delivery (WASREB impact report, 2019). According to WASREB impact report (2019), a high level of dormant connections could be due to integrity issues in the utility where disconnected customers collude with Utility staff to get new account numbers with a view to evading the payment of outstanding bills.

Nzoia Water Services Company Limited (NZOWASCO) was formed under the companies Act (CAP 486) on 4th February 2004 and became operational a year later on 9th February 2005. The company is mandated to provide water and sewerage services within the County Governments of Bungoma (Bungoma, Webuye &

Kimilili) and Trans Nzoia (Kitale). The company is located in Western Kenya under Lake Victoria North Water Service Board (LVNWSB) and is classified under very large utilities (WASREB, 2019). Its head office is based in Webuye town located on latitude 0.598800 and longitude 34.779689. It is at an altitude of 1,506 meters above sea level (Google Earth).

Of interest in this study was to assess the value delivered by the company to its customers through its automated systems that are in existence and make recommendations for improvement of the company`s system. According to Sathish & Balamurugan (2013), the present requirement for success in the business is attributed firstly, to building the deep relationship with the customer and secondly, by winning the buyers` confidence on the company rather than concentrating only on the sales margin. Studies show that service quality has a positive effect on consumer satisfaction and also has significant relationship with customer satisfaction and loyalty, and profitability of firms (Faed, 2013). It is with this understanding that this study sought to investigate the automation of CRM system as a value indicator in customer service delivery in Water and Sanitation Companies in Western Kenya.

STATEMENT OF THE PROBLEM

Customers' needs and purchase patterns keep changing each passing day with competition coming up with ways of staying afloat on the market. In the current age of technological innovations, there is need to move away from the old ways of handling customers for efficiency and customer delight. According to Aboka (2013), customers only get satisfied when the company exceeds their expectations by delivering superior quality to its customers. There still exist service gaps in the water service industry. The billing process is mechanical and mainly dependent on the meter reading officers who manually establish the actual reading of number of units consumed by the customer. In some cases, this doesn't happen and as such an estimate is done which doesn't reflect the actual units consumed, hence leading to exaggerated bills which if not paid leads to disconnection and finally inactive accounts and loss of revenue by the company. Although many studies have been conducted on customer relationship management systems, there still exist gaps to be filled.

Globally, Bull & Adam (2010) studied Customer Relationship Management Information Systems (CRM-IS) and realization of moral agency. Their study fails to address the link between customer relationship management systems and customer service delivery. Menzel & Reiners (2014) studied Customer Relationship Management System: a case study on small and medium – sized companies in North Germany. In their survey, they failed to show how the CRM systems developed by organizations impact on customer service delivery. Khodakarami & Chan (2013) carried out a study on exploring the role of customer relationship management (CRM) systems in customer knowledge creation. Their study does not show how CRM systems can harness the knowledge created from these interactions to enable organizations deliver superior services to customers.

Locally, Bitutu (2011) studied customer relationship management system among commercial banks in Kenya. The study doesn't show how automation of CRM system can alleviate the challenges faced by the banks in using CRM systems which this study sought to address. Lodiong (2015) studied effect of customer relationship management systems on the performance of financial institutions: a case study of Chase Bank Kenya Ltd. The researcher used descriptive research design of which according to Mitchell & Jolley (2013) it is not sufficient to determine the causal link between the study variables under a case study since it doesn't allow the researcher to infer causality. Kiplimo (2018) studied customer relationship management system and customer satisfaction among commercial banks in Kenya. The study relied on primary data collected by use of questionnaires only, which is its limitation. The researcher sought to fill these gaps in the current study.

PURPOSE OF THE STUDY

The purpose of this study was to investigate the value of automating customer relationship management systems on customer service delivery in water and sanitation companies in Western Kenya.

THEORETICAL FRAMEWORK

The study was guided by the Innovation Diffusion Theory and Organizational Theory as discussed in the subsections that follow.

Innovation Diffusion theory

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2010). An Innovation is an idea, practice, or object perceived as new by an individual or other unit of automation (Rogers, 2010). Innovation theory, also called diffusion of innovation theory, explains how advancements gain traction and over time spread, or diffuse, throughout a specific population. These advancements can be new ideas, technology, behaviors or products. This theory looks at how innovations are taken up in society and there are five categories of adopters from innovators who are quick to develop and use technology to laggards who resist and sometimes never take up technology. Developed

in 1962 by Everett M. Rogers, diffusion of innovation is concerned with how something new moves from creation to use. Central to the theory is the idea that different types of people adopt new ideas or products on different timelines. The theory specifies five categories of adopters based on their automation rate. Innovators adapt first to something new; they are venturesome and risk-takers. Next to adopt a new product or technologies are early adopters. These people are often opinion leaders who believe that change is necessary.

The early majority follow early adopters. They utilize something new before the average person. The next group is called the late majority who, because they are skeptical of change, wait until the new thing has at least been tried by a majority of their peers. The last group is laggards. Their name defines their behavior as they are traditional and conservative. Each group follows basically the same behavior when adopting something new. First, an individual gains knowledge of the new product; then he is persuaded to try it by forming a positive opinion of it. The individual then makes a decision or commitment to adopt the product and implement that decision by actually using it. In the final stage, the user receives confirmation or reinforcement based on a positive outcome from the product's usage. The diffusion of innovations theory seeks to explain how and why new ideas and practices are adopted, with timelines potentially spread out over long periods. Different societies are likely to have different automation rates (the rate at which members of a society accept a new innovation) for different types of innovation. For example, a society may have adopted the internet faster than it adopted the automobile due to cost, accessibility and familiarity with technological change. Automation of CRM system by a company can be attributed to this theory based to prevailing circumstances and management decisions.

This theory was relevant to this study in the sense that it shows how different organizations become innovative by taking advantage of technology in automating their processes for service delivery at different times. The theory also explains why some organizations take up innovation quickly while others wait until they see what their competitors are doing before they also act. Automation of CRM systems by organizations can be explained by this theory for different levels of automation and system uptake because automation is an innovation. The existence of CRM systems in organizations varies greatly because innovation is a new phenomenon which brings in a new way of doing things and thus how an organization embraces change will determine the automation rate. Innovators take up the risk and set the pace of bringing change from being product-centric to customer-centric and taking the competitive advantage on the market. The early adopters, being quick in believing in change adopts the innovation early enough to take the advantage of innovation to beef up competition. The early majority bracket defines the majority who utilize innovation before average persons. This category explains the wave of change in uptake of technological innovations in organizations by developing strategies to cope with competition on the market. Most organizations embrace the evolving technologies and emerging digital platforms to automate their CRM systems in the quest of improving customer service delivery.

This theory, however, fails to explain other factors that could contribute to different automation rates among organizations. According to Aboka (2013), there is need to consider the size of the organization when adopting CRM systems as big organizations have resources necessary to purchase and implement them while small organizations find the costs can be prohibitive and thus discourage the firms from automation. The ability to manage the knowledge gathered is also important since if the IT team is not capable of managing the system and document it accordingly, it will be a wasted effort to the company (Aboka, 2013). According to Githaiga (2013), the uptake of customer relationship management in Kenya is very slow with only a few top tier companies employing the use of the programs to manage customer expectations. A number of reasons are cited for this including the high cost that is associated with setting up and running the programs.

Organizational Theory

This theory looks at how organizations function, and how they affect and are affected by the environment in which they operate (Jones, 2010). It is concerned with the organization`s structure, culture, design and change management to improve its competitiveness, confirming that CRM system implementation needs to take into consideration environment in which it operates. Culture is a set of shared values and norms that control organization members' interactions with each other, suppliers, customers and others outside the firm. Organization`s design is the process by which managers select and manage aspects of structure and culture, so that the organization can control the activities necessary to achieve its set goals (Jones, 2010). OT is a micro examination of organizations because it analyses the whole organization as a unit. It is concerned with people aggregated into departments, and with the differences in structures and behavior at the organization`s level of analysis (Burns, Bradley & Weiner, 2011). Jones (2010) alludes that in any formal strategy implementation like CRM system, a formal system of task and authority relationships that control how people coordinate their actions and use resources to achieve organization`s goals is important.

This theory was relevant in this study because it explains how implementation of automating CRM system may be affected by the management`s decisions based on structure and culture of an organization especially when it comes to change management. While both technology and business processes are critical to

successful CRM system initiatives, it is the individual employees who are the building blocks of customer relationships. The manner in which the company designs its way of interacting with the customers, technologies employed and the kind of people in charge of the systems critically informs its strategy and CRM system (Balgrosky, 2014). Implementation of automating CRM systems follows the decision to adopt an innovation, and can be conceptualized as the phase where a positive decision is made operational by an organization. The decision on the part of an organization to use an ICT application is translated into a number of activities aimed at establishing the actual use of the application in the organization (Bouwman, Hoof, Wijngaert & Dijk, 2005). Such decisions may be affected by the structure of the organization and the design of leadership present in an organization at any given time. The applicability of ICT in an organization is almost exclusively evaluated on the basis of the organization's current processes and structures and what people do with these technologies. Only those technologies are implemented that match the existing processes and structures as well as people's behavior (Bouwman *et al.* 2005).

In her study on challenges of implementation of customer relationship management strategy in Nairobi City and Sewerage Company, Wangui (2012) found out that there are other factors that affected implementation of strategies in the company. Such challenges included employee`s resistance to embrace new technology (resistance to change) at work places, thus sticking to the old way of running operations, inadequate skills of implementation team and lack of proper knowledge on the importance of using CRM strategy. This theory fails to outline such factors that are also a determinant in the implementation of an innovation in an organization.

EMPIRICAL LITERATURE REVIEW

Menzel & Reiners (2014) studied Customer Relationship Management System: a case study on small and medium – sized companies in North Germany. In their survey, they did not show how the CRM systems developed by organizations impact on customer service delivery. This study exactly sought to understand how automation of CRM system affects customer service delivery. Khodakarami & Chan (2013) carried out a study on exploring the role of customer relationship management (CRM) systems in customer knowledge creation. Their study provides good knowledge on how customers can interact with organizations but fails to show how CRM systems can harness the knowledge created from these interactions to enable organizations deliver superior services to customers. This study sought to examine how automation of CRM systems can enhance knowledge creation capabilities to inform on a strategic approach by an organization to add value in service delivery to its customers.

In their study on effect of customer relationship management on performance of small-medium sized enterprises (SMEs) using structural equations model (SEM), Amir, Sayyed, & Mohammad, (2015) found out that companies and industries have low attention to markets such that they should improve their performance with market analysis. During their interviews and questionnaire review, they discovered that companies and industries were not aware of their customers` needs, taste and preferences which consequently led to customer dissatisfaction.

A number of studies have been conducted globally concerning CRM systems. Bull & Adam (2010) studied Customer Relationship Management Information Systems (CRM-IS) and realization of moral agency. The purpose of their study was to examine how the design of characteristics and use of practices incorporated in customer relationship management information systems (CRM-IS) impact on the expression and realization of moral agency within organizations. The study found out that some characteristics and practices within CRM-IS can restrict the expression and realization of moral agency in organizational life, resulting in a number of problems. Their study offers a relatively rare insight into the significance of the ethical issues arising from the organizational use of CRM-IS and strategies thus fails to address the link between customer relationship management systems and customer service delivery, a gap which this study sought to fill.

Khodakarami & Chan (2013) carried out a study on exploring the role of customer relationship management (CRM) systems in customer knowledge creation. Their study explored how customer relationship management (CRM) systems support customer knowledge creation processes, including socialization, externalization, combination and internalization. An analysis of CRM applications in three organizations revealed that analytical systems strongly support the combination process, collaborative systems provide the greatest support for externalization, and operational systems facilitate socialization with customers. Their study provides good knowledge on how customers can interact with organizations but fails to show how CRM systems can harness the knowledge created from these interactions to enable organizations deliver superior services to customers. This study sought to examine how automation of CRM systems can enhance knowledge creation capabilities to inform on a strategic approach by an organization to add value in service delivery to its customers. Menzel & Reiners (2014) studied Customer Relationship Management System: a case study on small and medium – sized companies in North Germany. In their study, they conducted a survey to analyze the state-of-the-art customer relationship management systems and the degree of pervasion in SME. They found out that there are benefits of integrating CRM systems in SMEs. In their survey, however, they failed to show how the

CRM systems developed by organizations impact on customer service delivery. This study exactly sought to understand how automation of CRM systems affects customer service delivery.

Locally, a number of studies have also been conducted on customer relationship management systems. Bitutu (2011) studied customer relationship management system among commercial banks in Kenya. The purpose of her study was to establish the use of CRM systems and further determine the challenges facing the use of CRM systems among the commercial banks in Kenya. The study found out that IT ensured personalized attention to the customers and also facilitated variety of products offered by the bank. It enabled the bank to understand and serve customers better than their competitors, developed and improved new products for the customers. It also improved processes and relationships with its customers and business partners and further built a long lasting relationship with the customers, increased revenues and profits. However, the study doesn't show how CRM system can alleviate the challenges faced by the banks by using CRM systems. This study sought to examine value creation by automating CRM systems.

Lodiong (2015) studied effect of customer relationship management systems on the performance of financial institutions: a case study of Chase Bank Kenya Ltd. The general objective of the study was to determine the needs and reasons why financial institutions need to adopt CRM and the strategies available for them to adopt CRM in Kenya with a bias focus on Chase Bank Kenya. The study concluded that today's playing field for financial institutions is both complex and competitive and the financial laws and regulations vary globally and change continuously. The study also concluded that CRM systems in the organization are normally used to count customers rather than create customers and it normally measures the activities of prospects after they have "self-selected" in some way by calling the office or filling-in forms somewhere. However, the researcher used descriptive research design which according to Mitchell & Jolley (2013) is not sufficient to determine the causal link between the study variables under a case study since it doesn't allow the researcher to infer causality. In this study, the researcher adopted the case study research design which enabled the researcher to get an in-depth understanding of the causal relationship between the variables under the study.

Kiplimo (2018) studied customer relationship management system and customer satisfaction among commercial banks in Kenya. The study sought to assess the relationship of CRM system and customer satisfaction among commercial banks in Kenya and found out that the use of CRM had a positive influence on customer satisfaction. The study relied on primary data collected by use of questionnaires. Use of questionnaires only suffers the blow of dishonest answers, unanswered questions, differences in understanding and interpretation of questions, limit participants in conveying their feelings and emotions and some respondents may have a hidden agenda (Gordon & Todorova, 2019). Some questions may also be difficult to analyze. According to Sharma (2008), individuals tend to over-rate themselves on desirable traits and under-rate themselves on undesirable traits. This research sought to fill this gap by adopting the use of convergent design of the mixed method approach. A core assumption of this approach is that when an investigator combines statistical trends (quantitative data) with stories and personal experiences (qualitative data), this collective strength provides a better understanding of the research problem than either form of data alone (Creswell, 2015).

II. Research Methodology

The study adopted descriptive survey design. The researcher collected quantitative data by administering questionnaires to a sample of the population which included customers in the five regions served by NZOWASCO and company employees. The researcher used interview schedule to collect qualitative data from the company management. This method was preferred by the researcher because this design takes into account all the necessary steps involved in a survey concerning a phenomenon to be studied to describe the behavior of a subject without influencing it in any way. Given the huge population under study, the researcher used a sample population to describe the behavior of the research population. The total target population for this study was thirty two thousand three hundred and ninety two (32,392); being seven (7) top management, two hundred and fifty eight (258) employees, and thirty two thousand one hundred and twenty seven (32,127) external customers (WASREB, 2019).

Table 1: Target Population and Sample Size

S/No.	Population	Target	Sampling Procedure	Sample size
1	Managing Director	1	100%*1	1
2	ICT Manager	1	100%*1	1
3	HR Manager	1	100%*1	1
4	Billing supervisor	1	100%*1	1
5	Commercial Manager	1	100%*1	1
6	Regional managers	2	100%*2	2
7	Employees	258	Kothari`s formula	94
8	External Customers	32,127	Kothari`s formula	145
	Total	**32,392**		**246**

Source: Researcher`s tabulation 2022

The total sample size was two hundred and forty six (246) apportioned as: one (1) managing director, one (1) human resource manager, one (1) ICT manager, one (1) commercial manager, one (1) billing supervisor, two (2) regional managers, ninety four (94) company employees and one hundred and forty five (145) external customers. The researcher`s choice of the population was because they were in a better position to give in-depth information concerning the study objectives.

The researcher used the following formula proposed by Kothari (2004) in determining the sample size for employees and external customers:

$$n = \frac{z^2 p(1 - p).\mathrm{N}}{e^2 (\mathrm{N} - 1) + z^2 p(1 - p)}$$

Where:

n = sample size

z = the value of the standard variant at a given confidence level (confidence level of 95% the value is 1.96);

p = sample proportion (researcher`s determination is 5% = 0.05)

N = total universe population (32,127 for customers and 258 for employees = 32,385).

e = acceptable margin error (precision rate) determined by the researcher (= 5% = 0.05).

Applying the above formula for sample size, the calculation is summarized as shown in Table 1.

The researcher administered questionnaires to the employees of NZOWASCO and external customers by the help of a research assistant whereas interview schedules were used to collect qualitative data from the company management comprising the managing director, ICT manager, human resources manager, commercial manager, billing supervisor and two regional managers (for Kitale and Webuye regions). The researcher used descriptive statistics to analyze and presented analysed data in frequencies. Multiple linear regressions were applied in this research to analyze the relationship between automated customer relationship management system and customer service delivery. Quantitative data generated by use of questionnaires from the field was analyzed using both mean and standard deviation from responses obtained in the closed ended questionnaire items that had the likert scale. The researcher used the Statistical Package for Social Science computer software version 22.0 to analyze collected data and presented in form of tables and charts.

III. Research Findings

Descriptive Analysis of Automation levels of CRMS

This study explored automation of customer relationship management system as a value indicator in customer service delivery in NZOWASCO. The findings sought to evaluate the level of automation of customer relationship management system in NZOWASCO. The results were categorized as follows as indicated in Table 2. Results of Table 2 illustrate that 62% of the respondents agreed that they normally receive their water bills on phone. This had the mean of 3.75 and Std. dev. = 1.441. It was also realized that 66.8% of respondents get alerts of services offered by NZOWASCO on phone with a mean of 3.83 and Std. dev. = 1.392. Fifty nine point four percent (59.4%) of respondents agreed that they normally pay their water bills using their phones, with the mean of 3.75 and Std. dev. = 1.477. On whether the company has other alternative avenues to pay water bills, sixty four point seven percent (64.7%) of the respondents agreed while thirty five point three percent (35.3%) disagreed with the mean of 3.79 and Std. dev. = 1.460. Sixty one point six percent (61.6%) of respondents agreed that they normally receive acknowledgement of receipt from the company immediately they pay their water bills

Table 2: Descriptive Statistics of Automation Levels of CRMS

Statement	SD	D	U	A	SA	Mean	Std. dev.
I normally receive my water bill on my phone	18 7.9%	48 21%	21 9.8%	29 12.7%	113 49.3%	3.75	1.441
I normally get alerts of services offered by NZOWASCO on my phone	13 5.7%	51 22.3%	12 5.2%	38 16.6%	115 50.2%	3.83	1.392
I normally pay my water bill using my phone	18 7.9%	51 22.3%	24 10.5%	14 6.1%	122 53.3%	3.75	1.477
The company has other alternative avenues for me to pay my water bill	19 8.3%	48 21%	14 6.1%	29 12.7%	119 52%	3.79	1.460
I normally receive an acknowledgement of receipt from the company immediately I pay my water bill	19 8.3%	48 21%	21 9.2%	16 7%	125 54.6%	3.79	1.479
I normally get technical assistance from the company via my phone	9 3.9%	58 25.3%	15 6.6%	24 10.5%	123 53.7%	3.85	1.398
I usually access company information via NZOWASCO	6	41	18	17	147	4.13	1.290

website	2.6%	17.9%	7.9%	7.4%	64.2%		
I usually get company updates on my phone and/or my email	3 1.3%	69 30.1%	8 3.5%	29 12.7%	120 52.4%	3.85	1.366
I get real time information from NZOWASCO whenever I raise complains	10 4.4%	45 19.7%	24 10.5%	20 8.7%	130 56.8%	3.94	1.362
The company has a digital self-service platform where I can login, check my bill, pay my bill and make queries.	8 3.5%	42 18.3%	14 6.1%	19 8.3%	146 63.8%	4.10	1.320
Use of technology at NZOWASCO saves me time in accessing company`s services	10 4.4%	42 18.3%	9 3.9%	18 7.9%	150 65.5%	4.12	1.347
Use of technology by NZOWASCO makes me confident in interacting with the company staff	52 22.7%	18 7.9%	21 9.2%	22 9.6%	116 50.6%	3.57	1.671

Average level of Automation Levels	**Mean(%Mean)**	**Std. Dev.**	**Minimum**	**Maximum**
	3.87(77.4%)	1.42	1.0	5.0

5= Strongly Agree (SA), 4= Agree (A), 3= Undecided (U), 2=Disagree (D), 1=Strongly Disagree (SD).

while 38.4% disagreed with a mean of 3.79 and Std.dev. = 1.479. Sixty four point two percent (64.2%) of the respondents agreed that they normally get technical assistance from the company via their phones while thirty five point eight percent (35.8%) disagreed with a mean of 3.85 and Std. dev. = 1.398. Seventy one point six percent (71.6%) of the respondents alluded that they usually access company information via NZOWASCO website with a mean of 4.13 and Std. dev. = 1.290). Sixty five point one percent (65.1%) of the respondents revealed that they usually get company updates on their phones with a mean of 3.85 and Std.dev. =1.366. To answer the question as to whether NZOWASCO gives real time information whenever customers raise complaints, sixty five point five percent (65.5%) of the respondents agreed while thirty four point five percent (34.5%) disagreed with a mean of 3.94 and Std. dev. = 1.362. Similarly, the respondents expressed their views that the company has a digital self-service platform where they can login, check their water bill, pay their bills and make queries (72.1%) while 27.9% disagreed having a mean of 4.10 and Std.dev. =1.320. Seventy three point four percent (73.4%) of respondents were of the views that use of technology at NZOWASCO saves them time in accessing company`s services with a mean of 4.12 and Std.dev. =1.347. Sixty point two (60.2%) of respondents were of the views that use of technology by NZOWASCO makes them confident in interacting with the company staff with a mean of 3.57 and Std.dev. =1.671.

On average, the overall level of automation of CRMS in NZOWASCO in Western Kenya stood at 77.4% with a mean of 3.87 and Std. dev. = 1.42. This meant that the majority of the customers of NZOWASCO in Western Kenya were aware and received services accrued from automation levels of CRMS from NZOWASCO in Western Kenya. The findings from an interview with the ICT manager revealed that there was a CRM system at NZOWASCO which partially manages customer complaints and generation of reports. The ICT manager also clarified that the only automated service in the company was the short code query platform that sends reminders to customers via SMS after every fourteen days. The ICT manager further confirmed that there existed other digital platforms which the company used to interact with customers including Facebook, twitter and WhatsApp platforms.

Descriptive Statistics of Customer Service Delivery

Table 3: Descriptive Statistics of Customer Service Delivery

Indicators	**SD**	**D**	**U**	**A**	**SA**	**Mean**	**Std. dev.**
Services are well managed resulting in higher customer satisfaction	14 6.1%	49 21.4%	7 3.1%	1 0.4%	158 69%	4.04	1.482
Discharge of services by NZOWASCO staff is satisfactory	54 23.6%	28 12.2%	4 1.7%	2 0.9%	141 61.5%	3.64	1.772
Services are delivered in a timely manner to the customers	20 8.7%	17 7.4%	7 3.1%	2 0.9%	183 79.9%	4.36	1.339
Services are direct and accessible with no undue barriers of cost, language, culture, or geography	1 0.4%	44 19.2%	46 20.1%	45 19.7%	93 40.6%	3.94	1.101
Quality of services received is good	2 0.9%	33 14.4%	26 11.4%	77 33.6%	91 39.7%	4.01	1.020
Services offered are affordable	3	16	48	64	98	4.08	.930

	1.3%	7%	21%	27.9%	42.8%
	Mean(%Mean)	**Std. Dev.**	**Minimum**		**Maximum**
Average level of Service Delivery	4.011 (80.2%)	1.274	1		1

5= Strongly Agree (SA), 4= Agree (A), 3= Undecided (U), 2=Disagree (D), 1=Strongly Disagree (SD), Std dev. =Standard deviation

The findings of Table 3 shows that an average of 80.2% of service delivery with a mean of 4.011 (Std. dev. = 1.274) was realized from the analysed data from NZOWASCO in Western Kenya. Moreover, 69% of respondents felt that the services were well managed resulting in higher customer satisfaction as also indicated by mean of 4.04 (Std. dev. = 1.482). Majority of the respondents, 61.5% of respondents were of the opinion that discharge of services by NZOWASCO staff was satisfactory with an average mean of 3.64 (Std. dev. = 1.772). Results from the question asked on whether services were delivered in a timely manner to the customers in Western Kenya had a mean score of 4.36 (Std. dev. = 1.339) where most of the respondents agreed (79.9%). The quality of services received was rated good with a mean score of 4.01 (Std. dev. = 1.020) where majority of the respondents were in agreement (73.3%). Lastly on whether the services offered were affordable, 70.7% of respondents agreed with a mean score of 4.08 (Std. dev. = 0.930). From these results, the quality of services offered by NZOWASCO in Western Kenya was good.

Regression Results of Automation of CRMS at NZOWASCO

Simple linear regression analysis was used in this study to test the null hypothesis and determine the effect of automation levels of CRMS on the Service delivery of NZOWASCO in Western Kenya. The findings of the test of null hypothesis were as shown Table 4.

Table 4: Linear Regression Results of Level of Automation of CRMS on the Service Delivery of the NZOWASCO

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.720[a]	.519	.517	.64641	.519	244.563	1	227	.000

a. Predictors: (Constant), Level of Automation of CRMS
Dependent Variable Service delivery

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102.190	1	102.190	244.563	.000[b]
	Residual	94.852	227	.418		
	Total	197.042	228			

Coefficients'

Model	Unstandardized Coefficients		Standardized Coefficients		
	β	Std. Error	Beta	t	Sig.
(Constant)	1.091	.192		5.692	.000
Strategy Formulation	.755	.048	.720	15.639	.000

a. Dependent Variable: Service delivery

In Table 4, ANOVA test findings showed that F-Statistic is significant, F(1, 227) = 244.563, p-value = 0.000< 0.05; the results showed an indication that the model was found to be a good fit to modeling the linear relationship between automation levels of Customer Relationship Management System and the Service delivery of NZOWASCO in Western Kenya. The model (Customer Relationship Management System) explained 51.9% (R-squared =0.519) of variation in the service delivery of the NZOWASCO in Western Kenya as indicated by the adjusted r-square = 0.306 (See Table 4). The findings of the regression Coefficient showed that the unstandardized beta coefficient for the automation levels of Customer Relationship Management System variable was significant: β= 0.755, t = 15.639, p=0.000 <0.05; therefore, the study rejected the null hypothesis and concluded that automation levels of Customer Relationship Management System had a statistically

significant influence on the service delivery of the NZOWASCO in Western Kenya. Automation levels of Customer Relationship Management System had a positive standardized beta coefficient value of 0.720 as shown in the coefficients results of Table 4; these findings indicate that a unit improvement in the automation levels of Customer Relationship Management System is likely to improve service delivery of the NZOWASCO in Western Kenya by 72%. The model was found to be statistically significant; β=.755, t = 15.639, p=0.000 <0.05 (see Table 4); This finding suggests that, in addition to the automation levels of Customer Relationship Management System in the model, there are other factors not captured in the model that had a significant impact on the Service delivery of NZOWASCO in Western Kenya. The following model would be used to predict the service delivery of NZOWASCO in Western Kenya when the automation level of Customer Relationship Management System is high;

Performance= 1.091+0.755 automation levels of Customer Relationship Management System

These study findings are in congruent with the findings by Santura, Muema and Nkaabu (2017) sought to establish the relationship between strategy formulation and performance of public organization in Isiolo County Government; Uzel (2015) who sought to examine the effect of Customer Relationship Management System drivers on the performance of hotels in Kenyan coast and David (2018) sought to determine the influence of strategy formulation on the performance of public transport Sacco's in Nairobi County, Kenya. These studies found a strong correlation between strategy formulation and performance of the firms.

IV. Conclusions

There was a positive and significant association between automating of Customer Relationship Management System and service delivery of NZOWASCO in Western Kenya. This meant that when automating of CRMS services like getting of alerts of services, use of technology, real time information, digital self-service platform and acknowledgement of receipt of payment are incorporated well and implemented in NZOWASCO then the service delivery would drastically improve, hence, a unit improvement in the automation of Customer Relationship Management System was likely to improve service delivery in NZOWASCO in Western Kenya by 72%.

V. Recommendations

First, there was a significant statistical effect of automation of Customer Relationship Management System on service delivery in Western Kenya; the study therefore recommends that the management of NZOWASCO in Western Kenya should encourage use of technology, real time information, and digital self-service platform. By integrating information technology into NZOWASCO processes, the company is capable of capturing and deploying customer knowledge. Therefore integration of automation of CRMS with delivery processes, the company is able to provide intimate, high-value service to the customers, thus enhancing customer satisfaction.

AUTHOR CONTRIBUTIONS

Marine Benard Mutali sought for the study authorization from the relevant government institutions like Graduate School of Kibabii University and National Commission for Science, Technology and Innovation. He developed the study methodology that comprised of research instruments that were used in data collection. He further analyzed, interpreted and discussed the data. He undertook a literature review that included the background information on the study concepts and the theoretical context. He trained and supervised the research assistant as well as coordinated primary data collection. He also coded the collected questionnaires and thereafter undertook data entry and analysis using SPSS software. Dr. Laura Mamuli and Dr. Anselemo Peters Ikoha ensured that the published article conformed with the journal's formatting guidelines.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this Manuscript. In addition, the ethical issues; including plagiarism, informed consent, misconduct, data fabrication and/ or falsification, double publication and/or submission, redundancy has been completely observed by the authors.

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