PRE-PAID BILLING SYSTEM STRATEGY AND SERVICE DELIVERY BY KENYA POWER AND LIGHTING COMPANY LIMITED, UASIN GISHU COUNTY, KENYA

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS, ECONOMICS AND TOURISM IN PARTIAL FULFILLMENT FOR THE AWARD OF DEGREE IN MASTER OF BUSINESS ADMINSTRATION (STRATEGIC MANAGEMENT OPTION) OF KENYATTA UNIVERSITY

APRIL, 2025

DECLARATION

Declaration by candidate:

This project is my original work and has not been presented for a degree in any other University.

Signature ……. Date ……

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Approval by Supervisor

I confirm that the work in this project was done by the candidate under my supervision.

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DEDICATION

I dedicate this work to my family whose support and encouragement gave me motivation and strength.

ACKNOWLEDGEMENTS

I give glory and honour to God for giving me the vision to pursue higher education and providing an enabling environment. To the lecturers who took me through the entire course I say thank you for an academically stimulating and enriching encounter. I am grateful to Dr. Jane Wanjira for supervising this work. I also thank my colleagues for the teamwork that saw us through the course. My parents too deserve praise for laying the foundation for my education. God bless you all abundantly.

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ABBREVIATIONS AND ACRONYMS

ICT	Information Communication Technology
KPLC	Kenya Power Company
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
TAT	Technology Acceptance Theory
U.K.	United Kingdom

OPERATIONAL DEFINITION OF TERMS

Billing accuracy	The percentage of bills that were issued without error and with the right cost.
Billing costs	Refers to direct monetary costs resulting from replacing a post-consumption and single monthly payment with more frequent payments, which occur after power consumption.
Customer service delivery	Refers to a set of principles, standards, policies, and constraints to be used to guide the designs, development, deployment, operation, and provision of services delivered by a service provider to offer a consistent service experience.
Ease of use	Refers to the prepaid billing system strategy service being easy to learn, with no technical skill required, easy to understand, and user-friendly.
Pre-paid billing system strategy	Refers to the outlay made by a consumer for using a good or service before consumption.
Timeliness	Refers to the prepaid billing system strategy as convenient, reliable, fast, and efficient.

ABSTRACT

Kenya Power banking hall tellers continue to serve a high number of customers seeking services that were accessible through automated systems, such as bill inquiries and payments. This raises concerns about the extent to which the adoption of innovation strategies, including automated bill inquiry, bill payment systems, and prepaid billing, had influenced customer service delivery at Kenya Power and Lighting Company Limited (KPLC). Therefore, this study examined the effect of the prepaid billing system strategy on customer service delivery at KPLC in Uasin Gishu County, Kenya. The study was guided by four specific objectives: to assess the effect of timeliness, ease of use, billing accuracy, and billing costs on customer service delivery at KPLC. The study was anchored on Technology Acceptance Theory and Systems Theory. A cross-sectional survey research design was adopted, targeting 2,060 customers of KPLC in Uasin Gishu County. A stratified sampling technique was used to ensure representation across different categories of customers based on their mode of electricity usage. Using Yamane's (1967) formula, a sample size of 335 respondents was determined. Primary data was collected through a semi-structured questionnaire, which was tested for validity and reliability to enhance its robustness. The collected data was coded and analyzed using SPSS version 24, where descriptive statistics (frequencies, percentages, means, and standard deviations) and inferential statistics (multiple regression and correlation analysis) were applied. Findings were presented in tables for clarity. The study revealed that customers positively perceived the timeliness, ease of use, billing accuracy, and cost-effectiveness of the prepaid billing system at KPLC. These factors significantly influenced customer satisfaction and overall service delivery. The study concluded that enhancing real-time access to billing information, improving the user interface, ensuring billing accuracy, and adopting cost-effective billing solutions were critical for optimizing service delivery at KPLC. Based on these findings, the study recommended that KPLC should streamline the prepaid meter reconnection process, enhance the usability of the billing system, ensure continuous accuracy in billing, and expand cost-effective electronic billing methods to improve service efficiency and customer satisfaction.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The dynamic nature of global business environment which results from technological advancements, economic restructuring, labour movements, and public demands for better products and services have forced organizations to reconsider their business strategies to achieve a sustained competitive advantage (Miyogo, Ondieki, & Nashappi, 2013). It is through this competitive advantage that the organizations can maintain growth and profitability. Organizations are open systems that are influenced by the external environment and should use available resources of people, structures, and processes aligned with the right business strategy to yield gains in performance, efficiency and productivity (Almossawi, 2012).

In today's constantly changing business environment, providing a superior service quality through an adequate and a strong focus on the customer is one of the key factors enabling firms to gain a lasting competitive advantage in winning the market. For this, nowadays marketers are trying to focus more on a continuous monitoring of service quality, involving various innovations and service developments which have a direct influence on customers' experiences. Wasua and Wanyoike (2015) state that providing quality service is therefore about meeting and even exceeding customers' expectations. In other words, it is the difference between expectation prior to the service encounter and the actual perceived service that the company provides, making it to be reliant on the customers satisfaction. This therefore calls for innovative measures to be taken by the company. An organization which is competing in fast-changing markets with fast-changing technology must be innovative or else it risks being overtaken by competitors. Sometimes a business underestimates the competitive

challenges it faces. The risk of this happening is high when competitors react to potential challenges in much the same way. In today's global and dynamic competitive environment, product innovation is becoming more and more relevant, mainly because of three major trends (Vutete, 2015).

Throughout the world, shifts in population demographics, technological changes, fluctuating economies and other dynamic forces have transformed organizational operations bringing new challenges and opportunities to the forefront. Among the responses to these shifting forces is an increased emphasis on entrepreneurship by governments, organizations and the public (GEM Global Report, 2012). Prepaid billing adoption has been acknowledged as a key determinant for a firm’s growth and profitability. It has been related to high firm growth (Brown, Davidson & Wiklund, 2008), superior performance, and longevity (Soininen, 2013). Prepaid billing adoption offers numerous benefits to organizations. They can check bills, pay bills and ultimately reduce transaction costs and establish greater control over their bills (Frank, Kessler & Fink, 2010).

In a survey of over 2,000 UK adults commissioned by Visa, 76% said they would feel comfortable making payments using Prepaid billing systems. Additionally, 69% believed this form of payment would make their lives faster and easier, while 70% predicted that this will become the primary form of identification by 2020 (World bank, 2017). Organizations of all types utilize IT around the globe to cut costs, improve efficiency, and provide better customer services (Irefin et al., 2012).

Prepaid billing technology has been embraced by both developed Western countries and developing ones. In the U.K. which has a long tradition of offering prepaid metering as an option to any customer, have up to 15-20 percent of its customers

signed up (Chartwell, 2003). Northern Ireland Electricity, which has a new, customer-friendly prepayment system, has increased prepayment enrolment to 25 percent (Energy watch, 2005). At Arizona's Salt River Project, more than 50,000 customers (about 6 percent) are prepaid meters (Chartwell, 2008) In Ontario, Woodstock Hydro reports participation by 25 percent of residential customers.

In Uganda Electricity Regulation of Uganda (2011) indicated that the prepaid billing system implemented by Umeme has certainly played a vital role in customer service delivery. Umeme, in its service delivery strategy for 2006- 2009 had acknowledged that service delivery would be improved after the implementation of prepaid system. Mwaura (2010) also stated that on adopting electricity prepaid billing system to reduce non- technical energy losses in Uganda and the prepaid system reduced power theft and the benefits surpasses cost and thus improve service delivery.

In Kenya, one company that has adopted innovation strategies such as automation of payment and bill enquiry is the Kenya Power Company (KP). Electricity users all over Kenya can electronically pay their bills using mobile banking apps, through Mpesa and Airtel money Pay Bill services (Wasua & Wanyoike, 2015).The Kenya Power has enabled its customers countrywide to get updates on their bills status, power supply interruptions and general communications through the following channels; SMS alerts, USSD services, Email alerts and Social media interactions Twitter, Facebook, Telegram, Instagram and Snapchat, this improved service delivery (Kiarie, 2014)

Almossawi (2012) argues that customer service delivery is subjective and therefore it is inappropriate to treat it as a single-stimulus factor but should be treated as a multi-stimulus factor. Customer service delivery has been a subject of study especially by

marketing scholars (Eshghi, Kumar & Gangui, 2008). According to Kotler and Keller (2009), service delivery relates to the feeling of pleasure or disappointment resulting from comparing a products perceived performance in relation to expectations. Hansemark and Albinsson (2004) view customers' service delivery as the feeling or attitude of customers towards a product or service upon its consumption. Banker, Potter and Srinivasan (2000) argued that when performance matches or exceeds expectations, the customers become satisfied. Almossawi (2012) noted that such factors as payments and savings were the most significant factors that determined customer service delivery.

1.1.1 Prepaid Billing System Strategy

According to Okonga (2012), pre-paid billing system strategy refers to the outlay made by a consumer for using a good or service before consumption. Whaling (2000) observes that e-billing is an electronic delivery and presentation of financial statements and bills, invoices and any other related information that focuses on business to consumer billing and payment. Ogujor and Otosowie (2010) defines prepaid billing system is a system where a service or a good is consumed after paying for it. Consequently, there are certain costs that may be avoided for billing in advance a given service or good. For instance, costs associated with bad debts. This may lead to increased levels of revenue as well as reduced some operational costs for a given organization.

Okonga (2012) defines prepayment metering system as a system of pay as you use; a system of buying/selling electricity before use. He states that the system does not limit itself with prepayment meter only; rather it is a completely different system of revenue cycle management from meter to cash cycle. It gives a control over revenue for Electricity Company and over electricity budget for consumer. Gomez and

Contreras (2003), Prepayment systems refer to the outlay made by a consumer for using a good or service before consumption. In the case of electricity, the distinctive feature of the prepayment system is the reversion of the conventional commercialization system; whereas in the latter consumers hold a consumption credit because they pay for their energy bills periodically and after consumption, in the prepayment system such credit is not available because the purchase and payment of energy are made prior to consumption.

Over the years, prepayment meters either in electricity, water or piped gas has been proposed as an innovative solution aimed at facilitating affordability and reducing utilities cost. This mechanism requires users pay in advance for the delivery of goods or services before consumption. In this way, consumers hold credit and then use the service until the credit is exhausted (Mwaura, 2012). The prepaid billing system is considered efficient with minimal error based on electricity fixed base tariff price during periodic review. Customer billing processes play a critical role in customer service delivery for a number of private and public sector organizations, including municipalities. In the delivery of public services, for example, billing drives cash flow and is the key source of information for customers using these services. In many countries, reforming billing processes has improved service delivery efficiency (World Bank Report, 2012).

The need for Prepaid billing adoption is aimed at reducing cost of cash management and increasing efficiency of the payments system. Bayero (2015) opined that the increased use of Prepaid billing adoption has led to prediction of a cashless society. According to Nweke (2012), in the western world, almost 97% of transactions are done without physical cash and this has greatly reduced cost, corruption and money laundering. Laoye (2011) added that the prepaid billing adoption is targeting at

encouraging electronic means of making payment and not aimed at discouraging cash holdings.

1.1.2 Customer Service Delivery

Service delivery refers to a set of principles, standards, policies and constraints to be used to guide the designs, development, deployment, operation and provision of services delivered by a service provider with a view to offering a consistent service experience (Markovic & Jankovic, 2013). Anderson and Fornell (1994) defined service delivery quality as the extent to which a service or product offers customer support and requirements and how these obligations are achieved. Parasuraman, Zeithaml, and Berry (1998) summarized Anderson and Formal's definition to customer's judgment about an organization's overall performance. Zeithaml and Bitne (2010) indicated that service quality is a contrast that a customer makes among the qualities of service that he wants and what he actually gets. Fogli (2006), put that customer service is the interaction between the customer and a representative of the organization and is not limited to a single function or job type within the organization but customer service is defined as meeting the needs and expectations of the customer, as defined by the customer since the customer is the judge of quality customer service based on the expectations he/she has for the service.

Consistently, numerous studies have shown quality service delivery to be associated with loyal customers, repeat purchase, and the organization's propensity to retain its customers over longer period of time (Lee, 2013). Notions of positive relationship between quality service and hence organizational performance are therefore widespread and long held among researchers and marketing practitioners. Driving the academic and industry interests in such linkages and relationships are three perceptions. The first belief is that quality products and associated services designed

specifically to meet customer needs would lead to high customer satisfaction. Second it is deeply held that when customers are satisfied, they become loyal to the organization and also engage in customer loyal behaviour outcomes including repeat purchase, good word of mouth propaganda for the organization, and third, that when such positive behaviour outcomes results in increased financial, organizational performance and competitiveness (Naumann, Williams & Khan, 2009).

Organizations offering services have increasingly adopted utility reform strategies for social dimensions. America has pioneered the adoption of innovative mechanisms. In the first case, higher access rates have been encouraged with the identification and imposition of connection targets, the creation of community involvement and micro credit programs and the use of new technologies. In the second case, higher levels of affordability have been sought for with the use of instruments that ease the burden of bills via cost and tariff cutbacks and the introduction of alternative payment means (Salihu & Pamela, 2010).

According to Okonga (2012), service quality is a measure of service delivery, service quality can be determined through reliability as well as through empathy. However, customer satisfaction can also be a good measure of service being delivered; hence, it refers to the degree or extent of satisfaction or contentment provided by the goods or services provided by the supplier. It is the degree to which the product meets or exceeds the customer's expectations. Customer satisfaction implies, service delivery could be provided on time, such a service could be of a high standard quality and of right magnitude as required by the clients within correct contractual value. Considerably when the level of complaints is low it signifies service delivery is of satisfaction to clients. According to Chen and Petrovic- Lazarevic (2004), customer satisfaction is determined as the number of customers, or percentage of total

customers, whose reported experience with a firm, its products, or its services (ratings) exceeds specified satisfaction goals. It is measured by the number of repeat customers.

1.1.3 Kenya Power and Lighting Company Limited

Kenya Power and Lighting Company (KPLC) is a limited liability company that transmits, distributes and retails electricity to customers throughout the country. The company manages electric metering, licensing, billing, emergency electricity service and customer relations (Makowenga, 2013). According to Kenya power (2009), the demand for electricity has grown at an annual average rate of 5.3% from 2008 to 2013 and is expected to accelerate to over 10 % yearly as a result of the implementation of the Vision 2030 projects. KPLC strategic plan 2009/10 to 2013/14 comprises of operational objectives that help the company realize its strategic plan. Supply quality improvement was one of the major objectives which impacts largely on customer satisfaction, enhanced sales and revenue and improved operational cost saving and operational performance.

KPLC has been a monopoly in the distribution of electricity since its split from the East Africa Power and Lighting limited in 1983. Nonetheless, it has been implementing turnaround strategies in its operations since 1996. Other improvements in areas such as pre-paid metering, feeders' maintenance on high voltage & low voltage electrical power lines, introduction of National Call Centre (NCC), new cooperate logo and use of mobile money transfer (Mpesa in payment of bills). However, According to Half year 2013/2014, customer satisfaction survey drafted by Consumer Option Limited (January, 2014), a myriad problems that cut across Kenya Power &Lighting Company. Customers were found to have low customer knowledge on processes and systems concerning the KPLC's products and services. Second,

customers had low trust and confidence with the brand of KPLC. Third, customers viewed KPLC as a rich, old and arrogant company with no interest service delivery to customers' issue. Fourth, it was noted that, the response time for token depletion took a long time to be reconnected; it took 20 minutes on average throughout the organization country wide. With prepaid billing system, one would expect that such complaints would become a thing of the past. Clearly, this scenario points to disconnect between prepaid billing systems and customer service.

In addition, with the drastic increase in non-payment of electricity bills by the KP customers, the company opted to slowly introduce pre-paid meters as a means of trying to reduce frequency of defaulters the defaulters. However, this adoption into post-paid electricity billing has raised regular complains by the electricity consumers to KP management. In addition, the KP image as been put into question by consumers of electricity. Despite the rapid diffusion of post payment systems, the arguments in favour of or against prepaid meters have not been comprehensively examined before, and neither has their welfare impact (Casarin and Nicollier, 2009). The study therefore seeks to establish the effect of pre-paid billing system strategy on customer service delivery in Kenya Power Company, Kenya.

1.2 Statement of the Problem

Kenya Power and Lighting Company Limited (KPLC) has faced persistent challenges related to customer complaints, particularly regarding billing inaccuracies and service inefficiencies. One major concern is the use of estimated bills, which arises due to meter reading challenges caused by restricted access to premises or inefficiencies among meter readers. As a result, customers experience billing discrepancies, leading to dissatisfaction and a negative perception of KPLC's service delivery (Consumer Federation of Kenya [COFEK], 2012). Furthermore, some customers perceive the

prepaid billing system as inadequate compared to the former postpaid system, citing issues such as faulty prepaid meters and limited consumer awareness regarding their usage. These concerns have necessitated frequent inspections, significantly increasing operational costs for KPLC (Miyogo, Ondieki, & Nashappi, 2013).

Customers' complaints regarding service delivery remain prevalent, with concerns raised over KPLC's responsiveness to changing business dynamics and evolving consumer expectations. The efficiency, accuracy, timeliness, and cost-effectiveness of the prepaid billing system have been questioned, particularly regarding its impact on overall service delivery rather than just customer satisfaction (Perere & Wagoki, 2016). While the prepaid system was introduced to enhance convenience, its actual influence on service delivery has not been comprehensively examined, leaving an empirical gap in understanding its effectiveness in the Kenyan electricity sector.

Several studies have examined aspects of e-service quality and customer experience in different contexts. Zafar, Zaheer, Rahman, and Rehman (2011) investigated the impact of online service quality on customer satisfaction in e-banking, revealing that service quality dimensions such as timeliness, ease of use, and reliability significantly influence customer satisfaction. Sattam (2013) explored factors influencing e-service adoption, emphasizing the role of responsiveness, security, usability, and information quality in shaping consumer perceptions. In the energy sector, Miyogo, Ondiek, and Nyangweso (2013) conducted a survey on the effect of prepaid billing transition in Kisumu, concluding that while prepaid billing improved consumer awareness of energy consumption, its impact on service efficiency remained unclear.

Methodologically, existing studies have primarily focused on customer satisfaction (Perere & Wagoki, 2016) rather than service delivery as a whole, creating a gap in

understanding the operational effectiveness of prepaid billing systems. Additionally, most studies have been conducted in different industries (e.g., banking, telecommunications, and general e-services), limiting their direct applicability to Kenya's electricity sector. Contextually, research on prepaid billing in Kenya remains scarce, with existing studies failing to assess the system's implications for customer service delivery metrics such as timeliness, ease of use, billing accuracy, and cost-effectiveness.

Therefore, this study seeks to bridge these empirical, methodological, and contextual gaps by examining the influence of prepaid billing system strategies on service delivery at Kenya Power and Lighting Company Limited. Specifically, the study will analyze the extent to which timeliness, ease of use, billing accuracy, and billing costs affect service delivery, providing policy-relevant insights into optimizing customer experiences and operational efficiency at KPLC.

1.3 Research Objectives

The study will be guided by both general and specific objectives.

1.3.1 General Objective

The aim of this study was to establish the effect of pre-paid billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

1.3.2 Specific Objectives

The specific objectives of this study were: -

i. To evaluate the effect of timeliness of pre-paid billing system on customer service delivery in Kenya Power and Lighting Company Limited, Kenya

ii. To determine the effect of ease of use of pre-paid billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited, Kenya

iii. To assess the effect of billing accuracy of pre-paid billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

iv. To establish the influence billing costs of pre-paid billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

1.4 Research Hypotheses

The research hypotheses of the study were:

H_{01}: Timeliness of the pre-paid billing system strategy has no significant effect on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

H_{02}: Ease of use of the pre-paid billing system strategy has no significant effect on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

H_{03}: Billing accuracy of the pre-paid billing system strategy has no significant effect on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

H_{04}: Billing costs of the pre-paid billing system strategy have no significant effect on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

1.5 Significance of the Study

The findings of this study were expected to contribute to the improvement of the prepaid billing system and enhance customer service delivery at Kenya Power and Lighting Company (KPLC). The study provided insights into the effectiveness and challenges of prepaid billing, enabling KPLC to make strategic decisions aimed at improving service efficiency and customer satisfaction.

Additionally, the study offered a better understanding of customer service delivery and prepaid billing systems, benefiting not only KPLC but also other service industries in Kenya. Policy makers found the findings useful in formulating strategies to ensure mutual benefits between service providers and consumers in the electricity sector.

Furthermore, the study contributed to the future development of research on prepaid billing systems, particularly in developing countries like Kenya. The insights gained were valuable to both practitioners and scholars, fostering a deeper understanding of how prepaid billing systems influence customer service delivery. Lastly, the study added to the existing body of literature, serving as a reference for research organizations and scholars seeking to conduct further studies on customer service delivery and billing systems.

1.6 Scope of the Study

The study focused on customers of prepaid meters of Kenya Power and Lighting Company Limited, County Government of Uasin Gishu, Kenya. The independent variables were timeliness, ease of use, billing accuracy, and billing costs of the pre-paid billing system strategy, while the dependent variable was customer service delivery. The research design was a descriptive research survey. The population of

this study comprised all the 2060 customers of Kenya Power and Lighting Company Limited, with a sample of 335 respondents. The study was conducted between the months of July and September 2021.

1.7 Limitations of the Study

This study might have been limited by some of the respondents who might have failed to provide the required information due to their attitude towards the study and fear of victimization. However, to mitigate this challenge, time was taken by the researcher to convince the respondents of their confidence by providing the reasons behind the research and assuring them that the information they provided would be treated with the utmost confidentiality and would be used for academic purposes only. The researcher also attempted to adequately brief the targeted respondents about the intentions of the study and how the findings would be used.

1.8 Organization of the Study

The research project was organized into three chapters. Chapter One explained the general introduction to the study, which entailed the background of the study, statement of the problem, the general and specific objectives, hypotheses that supported the study, significance, scope, and limitations of the study. Chapter Two provided a review of relevant literature, both theoretical and empirical, while also providing a summary of research gaps and conceptual framework. Chapter Three comprised a discussion of the study methodology, including research design, target population, sample size, sampling method, data collection method, validity and reliability, data analysis methods, and ethical considerations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Literature Review

This section reviews theories that support the study.

2.1.1 SERVQUAL Model

The SERVQUAL Model, developed by Parasuraman, Zeithaml, and Berry (1988), is a widely recognized framework used to assess service quality by comparing customer expectations with their perceptions of actual service experiences. The model was originally created for service industries such as telecommunications, banking, and maintenance, but has since been adapted across various sectors, including public utilities like electricity distribution (Zeithaml, Bitner & Gremler, 2018). The SERVQUAL model identifies five primary service gaps: the knowledge gap, standards gap, delivery gap, communication gap, and satisfaction gap. These gaps arise when there is a mismatch between customer expectations and the actual service provided, often due to miscommunication, poor service design, or execution failures (Parasuraman et al., 1988).

The model is built around five core dimensions of service quality: reliability, responsiveness, assurance, empathy, and tangibles. Reliability refers to the ability to perform promised services dependably and accurately, while responsiveness is about the willingness to help customers and provide prompt service. Assurance involves the knowledge and courtesy of employees and their ability to convey trust and confidence. Empathy denotes the provision of caring and personalized service, and

tangibles cover the physical aspects of service delivery such as facilities and equipment (Zeithaml et al., 2018).

In the context of the current study, which seeks to assess the effect of pre-paid billing system strategy on customer service delivery at Kenya Power and Lighting Company Limited (KPLC), the SERVQUAL model provides a relevant theoretical framework. The variable timeliness aligns with the SERVQUAL dimension of responsiveness. Customers expect immediate reconnection or token delivery upon payment, especially under a pre-paid billing system. Delays in this process highlight a delivery gap, where the service delivered does not meet the timely expectations of the consumer. This negatively affects customer satisfaction and reflects poor responsiveness (Parasuraman et al., 1988; Makowenga, 2013).

The variable ease of use relates to both assurance and empathy within the SERVQUAL framework. A billing system that is difficult to navigate or understand can indicate a lack of customer-centered design and inadequate communication from the service provider. This scenario often reflects a knowledge gap—where the organization fails to understand how users interact with their systems—and a communication gap, where the information provided is unclear or insufficient (Zeithaml et al., 2018). When customers struggle to use the system, they feel neglected, and this reduces their overall service experience.

Billing accuracy, as another variable, is closely connected to reliability. Customers expect their billing to be consistent, fair, and free of errors. Inaccurate billing can

severely damage trust in the service provider and lead to customer dissatisfaction. Such inaccuracies may also indicate a standards gap, where internal processes fail to meet expected norms of accuracy and transparency (Parasuraman et al., 1988; Casarin & Nicollier, 2009). In this case, the organization's internal quality standards are not effectively translated into actual service outcomes.

Finally, billing costs can be linked to the dimensions of assurance and empathy, as they deal with the perceived value and fairness of the service. Customers who feel overcharged or misinformed about tariffs are likely to believe that the organization lacks transparency or consideration for their financial well-being. This reflects both a communication gap and a satisfaction gap—the former in terms of insufficient or misleading information, and the latter in terms of unfulfilled customer expectations (Zeithaml et al., 2018).

The SERVQUAL model offers a comprehensive approach to understanding service quality through customer perceptions and expectations. Each of the study's independent variables—timeliness, ease of use, billing accuracy, and billing costs—can be effectively examined through the lens of SERVQUAL's dimensions and service gaps. By identifying and addressing these gaps, KPLC can enhance its service delivery and better align its pre-paid billing strategies with customer expectations.

2.1.2 The Expectancy Disconfirmation Theory

Expectancy disconfirmation theory was developed as a way to explain customer decision- making (Oliver 1997, 1980) but the theory has been applied and confirmed in public management. The model is depicted in Figure 2.1. The Expectancy

Disconfirmation theory is premised upon three core relationships, as reflected in the figure. Hence, the first focal relationship is the direct effect of perceptions of performance on citizen satisfaction, implying the notion about the service being delivered. This is a fairly intuitive effect and probably the least contested in the theory. Prior studies have consistently confirmed this direct link, which is independent of expectations and disconfirmation (Van Ryzin, 2004, 2006; James 2009; Morgeson, 2012). This link is also supported by experimental evidence from Van Ryzin's experiment (2013).

The second link predicts a direct effect of expectations on satisfaction of the service delivered. This link is less apparent and requires some explanation. Expectations could have a positive direct effect on satisfaction for the reason that people may use their expectations as baseline to form a judgment about a service (Van Ryzin, 2013). These expectations could 'colour' the satisfaction judgment independently. However, evidence on the direct link between expectations and satisfaction is mixed. Poister and Thomas (2011) found a negative direct effect. Other studies found a positive direct effect of expectations (Oliver & DeSarbo, 1988; Van Ryzin , 2004; Morgeson & Petrescu, 2011).

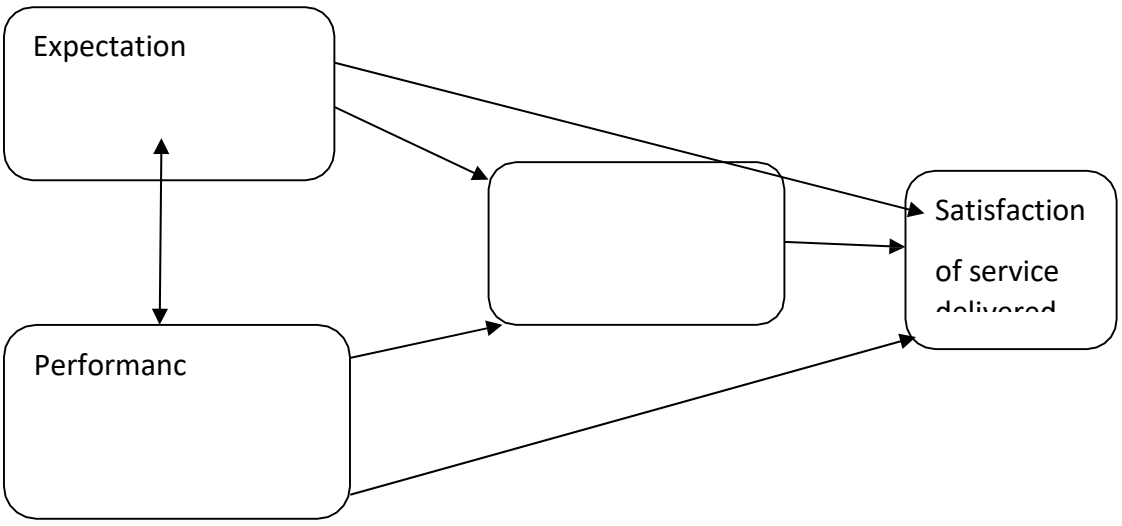


Figure 2.1 : Expectancy Disconfirmation Model
Source: Van Ryzin, 2013

The third relationship in the model is the very heart of the Expectancy Disconfirmation Model; disconfirmation. The idea is that higher performance will increase chances of positive disconfirmation, whereas higher expectations decrease the chance of positive disconfirmation, but increase the chance of negative disconfirmation. Subsequently, positive disconfirmation leads to higher satisfaction and negative disconfirmation leads to lower satisfaction. In other words, if performance is high this is more likely to exceed expectations and lead to higher satisfaction. Higher expectations, on the other hand, are less likely to be exceeded even if performance is high. Therefore, higher expectations can lead to negative disconfirmation and less satisfaction of service delivered. This link has been empirically established by various studies (Van Ryzin 2004, 2006; Roch and Poister 2006; Morgeson, 2012). However, most empirical evidence on this point is based on observational survey data, which makes it impossible to distinguish the causality of expectations and satisfaction, because satisfaction could also drive expectations instead of the other way around.

The theory of expectancy disconfirmation is relevant to the study since one creates an expectation before a want for a particular service. Concerning this study the process of expectation would include the focus on independent variables (Timeliness, Ease of Use, Billing Accuracy and Billing Costs of Prepaid billing system) on depend on variable which is the service delivery.

2.1.3 Technology Acceptance Theory (TAT)

The study will be guided by Technology Acceptance Theory (TAT). The theory postulates that the usage of technology is stimulated by perceived usefulness (PU),

perceived ease of use (PEOU) and perceived risks. Perceived usefulness is defined as the degree to which an individual believes that using a particular system such as mobile banking will enhance services making them fast, reliable and convenient. Perceived ease of use is defined as the degree which an individual believes that the service will be free of effort (Davis, 1989 as cited by Waithaka and Nzeveka, (2015).

Theory of technology is based on two assumptions. The first assumption is, perceived usefulness of the system such us; improved performance, enhanced productivity, effectiveness and efficiency in operations. The other assumption is perceived ease of use of the new systems such as easy to learn, easy to use, easy to control and easy to remember.

In TAT attitude towards the adoption of a particular technology such as pre-paid billing system is affected by perceived usefulness, perceived ease of use and perceived risk of the technology. It is also believed that there is a positive correlation between perceived usefulness and the intention to use a technology, as confirmed by some researchers (Cheong and Park, 2005). TAT assumes that the behaviour exhibited towards the intention to use a particular technology is an important factor that determines whether users will eventually use it or not. It also suggests that external variables intervene indirectly, affecting PU and PEOU. Attitude towards using technology was dropped from the TAT as a result a weak correlation between PU and attitude, and a strong correlation between PU and intention. The answer to further clarify was, the technology usage was driven by the usefulness of it and not because of the attitude. The omission of attitude helps to understand the correlation between PEOU, PU and intentions better.

Most researchers that have conducted studies in relation to TAT, have shown that there are considerable efforts put in place to introduce and test new set of antecedents of perceived usefulness and perceived ease of use. According to Kahiigi, Ekenberg, Hansson, Tusubira and Danielson, (2007), control, intrinsic motivation, and emotion are responsible for perceived ease of use, where "control" can be interpreted as meaning self-efficacy. Bandura (1977) as cited by (Kamel, 2014) defines self-efficacy as a person's beliefs about his or her ability to accomplish a particular task.

Technology Acceptance Model (TAM) is an oft-referenced framework in determining the preparedness of organizations to adopt new technological applications (Venkatesh & Davis, 2004).Technology Acceptance Model (TAM) is an information system theory that determines how individuals and organizations accept and use a technology in their production process Davis (1989).According to Davis (1989),he suggests that when users are presented with a new technology, there are various factors that will influence their decision on its use. This theory will explain the effect of pre-paid billing system strategy on customer service delivery; therefore, it is important that the systems are specified on organizational preference and logic.

2.2 Empirical Literature Review

This section will focus on the empirical literature review. The first section focuses on the effect of timeliness of pre-paid billing system strategy on customer service delivery, the second section focuses on the effect of ease of use of pre-paid billing system strategy on customer service delivery, the third section focuses on the effect of billing accuracy of pre- paid billing system strategy on customer service delivery and the fourth section focuses on the influence billing costs of pre-paid billing system strategy on customer service delivery.

2.2.1 Timeliness and Customer Service Delivery

Windahl (2015) echoed on access and timeliness of internet banking services in terms of responsiveness and reliability influenced the quality of services. An investigative study on electronic service quality was conducted in South Africa (Beneke, Acton, Richardson & White, 2011). The study focused on the key dimensions and the discriminatory power in the residential property sector. In the study, it was ascertained that, in an e-service environment, there is an intrinsic lack of real time interaction and as such there would be likelihood that purchasers would be discouraged in using online services.

It was further noted that timeliness in respect to timely responses and communication between customer and company in an online sphere was fundamental for the effectiveness of electronic service use by property buyers. In a study conducted on the internet banking service quality in Johannesburg, it was noted that timeliness security, information accessibility were important tenets for an online system quality (Otukudor et al., 2015). In the study, since online system services do not involve face to face interaction, it was emphasized that courtesy and timeliness of the flow of information between the customers and the involved companies be maintained in order to enhance the relationship between the parties and ensure effective and efficient purchase and delivery of services.

Salihu and Pamela (2010) did research on evaluating the effect of ICT on development focusing on prepaid electricity billing in Nigeria by concentrating on the introduction of the prepaid billing system in Nigeria and the supporting arrangements to enable citizens have access to electricity supply. The study highlighted the extent to which the prepaid electricity system contributed to enhancing people's freedom to participate in development activities and then derived some implications on economic

development. The outcome of a research conducted by the Allen Consulting Group (2009) indicates that there are two main attributes of prepayment meters that distinguish them from the Standard credit meters. And one of these unique attributes is that customers are required to pay for electricity before consumption can take place. The other is that the prepayment system more actively involves customers in their electricity supplies. These attributes of prepayment meters have important implications for electricity residential customers by accessing the services timely without delay and struggle.

2.2.2 Ease of Use and Customer Service Delivery

Dadzie (2012) in his study on customer's perception and acceptability on the use of Prepaid Meter in Accra West Region of ECG indicated that accepting the prepaid meter for use and these include user friendliness of the prepaid meter, durability of the prepaid meter and access to prepaid meter vending points. He recommended that management should consider improving durability and access to prepaid meter vending points in order to improve customer acceptability on the use of prepaid meters.

Sing, (2017) stated that, the factors such as perceived ease of use, expressiveness and trust affect adoption of digital wallet as payment method. These factors are termed as facilitators and plays crucial role in adoption of digital payment solution. Usage of digital wallet among youth in the state of Punjab was found to be associated with societal influence and Usefulness, controllability and security, and need for performance enhancement. Premium pricing, complexity, a lack of critical mass, and perceived risks are the barriers to adoption of digital payment systems.

Ogujor and Otosowie (2010) in Nigeria reveal that introduction of the prepaid meters increases revenue collection but it also reduces revenue generation because it is reliability based. Improving power reliability will increase revenue generation in the prepaid scenario. Prepaid meters ensure that consumers pay only for energy consumed and not the estimated bill in the post-paid system.

Quayson, (2012) in their study on examined customers‘ perception and acceptability on the use of Prepaid Meter in Accra West Region of ECG indicated that customers consider a number of factors before accepting the prepaid meter for use and these include user friendliness of the prepaid meter, durability of the prepaid meter and access to prepaid meter vending points. He recommended that management should consider improving durability and access to prepaid meter vending points in order to improve customer acceptability on the use of prepaid meters.

Safeena, Abdullah and Date (2010) in their study to investigate customers' perception on internet banking usage in an emerging Indian economy, established that majority of the respondents contented that a complex website took long to navigate through and thus discouraged many people to continue using it. It also established that the respondents considered website designs which were user friendly and easy to navigate as having a positive impact in usage of payment methods.

2.2.3 Billing accuracy and Customer Service Delivery

Being effective and accountable largely depends on knowing and giving account for the quantity of energy that the service providers are able to produce and distribute to the consumers. But in most cases, this has not been accounted for. And this occurs as a result of major technical inefficiencies at the various generation units and its transmission lines to the distribution unit where a substantial number of credits have

been wasted. There is another huge percentage loss to other inefficiencies other than technical and this is basically at the customer level, which include customer's deliberate attempt to temper with the metering system coupled with illegal connection so as to adjust the effective working of the meter. Meanwhile, there are various systems and mechanisms put in place to address these challenges, and this include the institution of legal penalties to the culprit, giving out the reading and billing of the meters to independent but competent bodies to oversee the billing and collection of revenue to the ECG.

Agrawal (2008) argues that improving billing accuracy, as well as collection services, will have a swift impact on the revenue streams of a service provider. The author argues that any successful billing practice must ensure that bills are raised monthly and based on accurate meter reading. This way customers pay for what they consume. This is best carried out through adoption of 100 per cent metering of customer connections. Effective billing and collection systems that are based on these principles can bring about immediate improvements in customer service delivery. It can also set incentives for a service provider to effectively charge and collect bills while providing a commercial orientation to services. Other critical components include customer databases, tariff and billing structures, delivery of bills, and facilities for customer payments. In particular, it is essential that providers have updated, robust and computerised customer databases. Using improved technology, such as spot billing, could further ease the billing function, thus improving collection efficiencies and eventually customer satisfaction. At the same time, it is important to note that the institutional arrangements under which service providers operate and provide services determine whether such practices will remain sustainable in the long term. In the

shorter term, where there is weak capacity, it may be worth outsourcing billing and collection to private parties with relevant experience, if available.

Misra and Kingdom (2012) argue that meter reading and billing errors, whether involuntary or resulting from fraudulent practices, should be eliminated by limiting the human handling of data. The authors argue that well tested commercial software available on the market should be preferred to what they define as 'home-grown' (i.e. locally built) ones. Service providers should comply with disconnection and reconnection procedures to prevent the accumulation of large unpaid arrears. Also, particular attention should be paid to those customers that often constitute a large part of arrears.

Okonga (2012) noted that efficiency in debt collection from the consumers is an area that needs attention by the electricity sector. The question of how the electricity sectors make up for the losses as a result of unpaid electricity bills remains a puzzle. Electricity sectors in Nigeria face crippling non-payment and escalating debts. These researchers emphasize that developing economies have had to labour with huge, accumulated debts from yester years, due to un-recovered tariffs and failure to collect debts from consumers. For example, in Kenya, KPLC was unable to recover almost half of the unpaid consumer bills totalling to almost Ksh.10 billion. Department of Minerals and Energy reported that several municipalities in South Africa became bankrupt and collapsed partly due to severe debt implications which included large unpaid bills for electricity supplied to Eskom. City power supply sector of South Africa had been faced with poor administration and weak debt collection mechanisms resulting in losses of revenue. Thus, efficiency in debt collection may be a blow to many electricity companies in Sub-Saharan Africa and this requires adoption of a better benchmarking to bring the companies back on to sustainability track.

World Bank Report, (2012) indicated that the prepaid billing system is considered efficient with minimal error based on electricity fixed base tariff price during periodic review. Customer billing processes play a critical role in revenue for a number of private and public sector organizations, including municipalities. In the delivery of public services, for example, billing drives cash flow and is the key source of information for customers using these services. In many countries, reforming billing processes, coupled with strengthening collection processes, has improved revenue collection efficiency. Most of the evidence about the role of billing in revenue collection efficiency comes from the water sector.

2.2.4 Billing costs and Customer Service Delivery

According to Ariel and Luciana (2008), consumers switching from the conventional to the prepayment system face two types of cost. One refers to the direct monetary cost, while the other refers to differences in habits that result from replacing a post-consumption and single monthly payment with more frequent payments, which occur prior to consumption. The main direct monetary effect is the cost of the new meter and its associated opportunity cost, which we proxy using the interest rate for savings accounts deposits, which was estimated relating consumers‘ average expenditure to a rate capturing the opportunity cost of money.

According to Kioko (2013), for every day bills are unpaid, businesses must find a way to cover payroll, employee benefits and other operational expenses. By reducing the collection period, i.e. number of days it takes from the end of the billing or accounting period and invoices sent to clients and the date the payment is received- businesses can decrease the average collection period and reduce their dependence on additional sources of funds Consequently, there are certain costs that may be avoided for billing

a given service or good in advance (Ogujor & Otosowie, 2010). For instance, costs associated with meter reading, i.e. salaries of meter readers, purchase of motor bikes for readers, fuel costs and time taken to and from reading the meters. In this study collection costs represents fuel costs used by motor bikes for readers, bill printing costs, and disconnection costs whose data is available and was obtained from management accounts of Kenya Power Coast branch. If these costs are properly managed, it will lead to increased levels of revenue as well as reduce some operational costs for a given organization. Misra and King (2012) noted that human handling should be eliminated from billing process to prevent fraud and billing errors.

But as it is known in life, nothing seems to be 100 percent correct or successful in life as far as human institutions are concern. Hence the very approach that seems to be effective and conducive for both the customers and the management with cost efficient is the use of the prepaid metering system (Power Division, 2011). Meanwhile the argument favouring the prepaid metering is that it has the potency to drastically reduce the losses incur to both the account receivables and other technical problems which are basically of human concern.

Therefore, the prepaid metering system has in one way solved even if not all the problem of financial drain that the power companies, especially the ECG usually encountered (Power Division, 2011). Nevertheless, there are two main types of cost that consumers that switch from the traditional postpaid to the new prepaid system normally encountered, one of them is the financial cost, while the other is the habitual differences that comes as a result of changing from the former to the later of energy consumption which occur prior to consumption. Meanwhile, the direct financial effect the consumer can largely experience is automatically the cost of the new prepaid

meter coupled with its associated opportunity cost which was put into consideration in relation to the financial position of the customer (Eskom, 2010).

The frequent change in consumers purchase of electricity credit means that the consumers attitude and habit has drastically change either as result in increase in income level or the preference for the prepaid meter. The rate at which the costs incur or increase largely depends on the number of times the consumer recharge their credit within the month as this will also be similar to the cost incur when on the old post - paid meter system and this will largely depend on the financial capacity of the consumers. Hence on the average, the use of the prepaid meter has contributed immensely to the utility providers by reducing the financial and administrative cost and lapses which in other hand will bring the cost of selling electricity to the consumers to its barest minimum, hence there is comfort ability derived on both the utility provider and the consumer of the utility (Ariel & Luciana, 2008).

Meanwhile, the utility providers for a very long time have been aware of the potential benefit of using the prepaid meter over the postpaid meter, but this was only within the mid-1990s, and this was due to the frequent development of technologies to prove that indeed the merit of using prepaid meter far out weight the post credit metering system (Ariel A. C.et al 2008). Over the years, effort is in place to improve the affordability of the prepayment meters and strategies are also far advance in reducing cost and other associated inefficiencies which may in one way or the other affect the quality-of-service delivery or reducing the demand of other potential customers who may be willing to switch to the use of prepaid meters (Gómez-Lobo & Contreras, 2004).

Ariel and Luciana (2008) did a cost benefit analysis of prepaid meter in South Africa and found that it possible to identify the change in aggregate welfare resulting from the adoption of the prepayment system as well as in each of the groups concerned. The adoption of this system involved a favourable change in social welfare, which expressed in 1996 constant prices reaches $ a 38 per user of electrical power. The increase in social value was not distributed in a constant way among the various groups involved as, while the distribution utility and the users obtain a net profit, the government sustains an important loss generated by lower tax revenues related to changes in electricity consumption. In addition, the increase in social welfare exhibits an evolution over time which is typical of investments with high sunk costs, because the results show that in the first years of implementation the system generated losses owing mostly to the high cost of the technology involved. These results are however reversed and more than compensated for when the period of analysis is longer.

2.3 Summary of Literature Review and Research Gaps

Several studies on the global scene have been carried out in reference to prepaid billing in most of the service provision organizations, for example in electricity and water provision companies. Most scholars among them; (Tirop and Ng'ang'a, 2018: Moki, 2015: Ottumwa, 2014: Dadzie, 2012) had studies on prepaid electricity billing systems that leaned on quantitative benefits performance with less acknowledgement on qualitative yields putting in consideration it is a service sector , however, few researches have been done in Kenya to show the relevance of such prepaid system in other service sectors a part from the concentration on electricity service sector and few studies on water sector. In the study by Moki (2015) on relationship between prepaid billing system and working capital management it was evident, majority of global and local literature have concentrated on the qualitative aspects of prepaid

billing systems, zeroing on opinions and perceptions of the prepaid users and acceptability of the prepaid system, hence; quantitative aspects of prepaid billing system have not been adequately explored as expressed in empirical study above. Coverage of the studies in the entire Kenya was not representative enough for the country; service delivery which is key for the organizations has not been underscored as a very important dependent variable in most companies apart from consideration of revenue, profit and transition capabilities being dependent variables. Table 2.1 provides summary of literature review and research gaps.

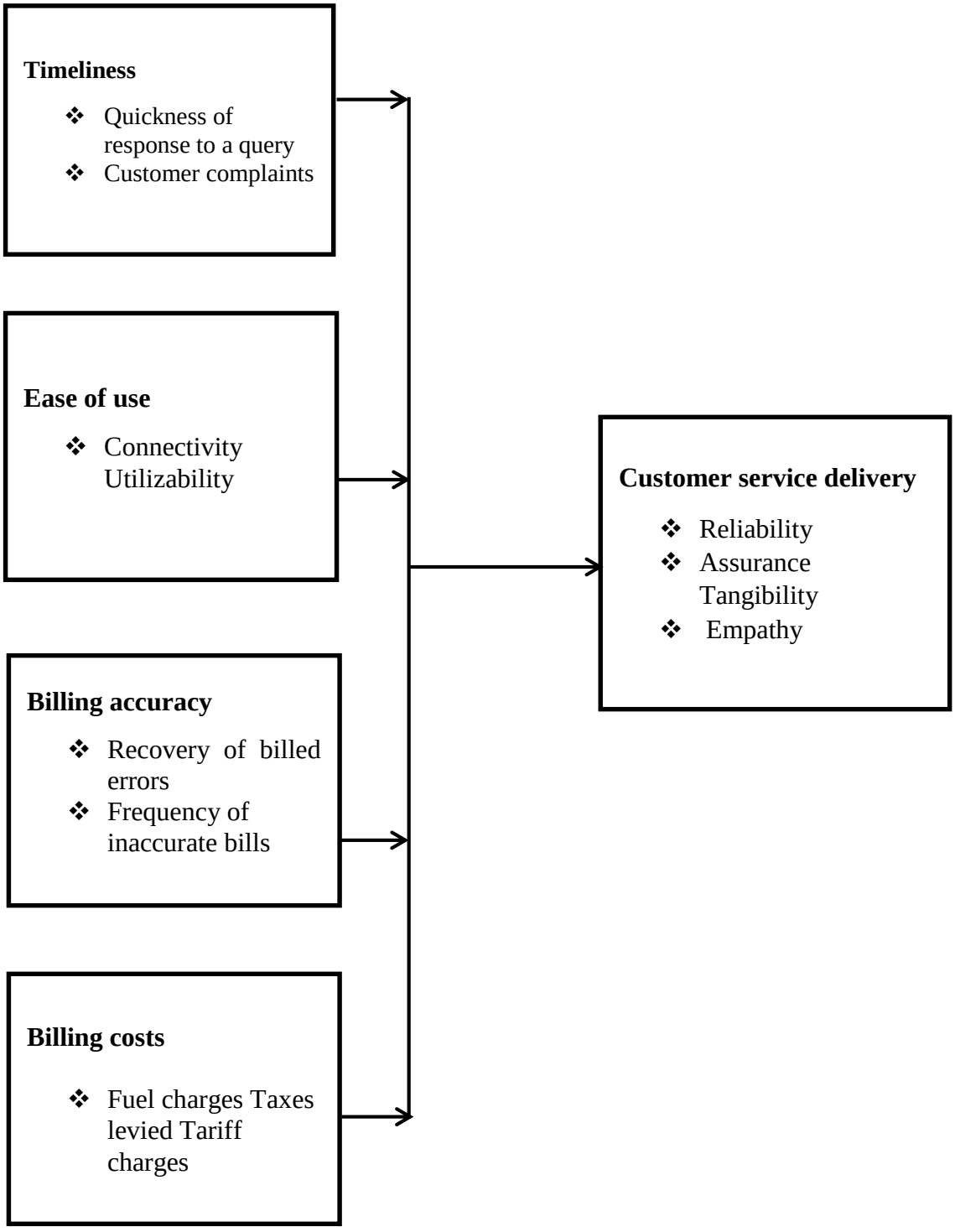
Table 2.1: Summary of Literature Review and Research Gaps

Research gap	It was only done in one region that is the coast region hence its results might not be generalized	Dealt with prepaid billing system and working capital management leaving out customer service delivery	Dealt with prepaid electricity billing on revenue collection, in addition, it adopted qualitative data analysis methods	Dealt with customer's perception and acceptability of pre-paid billing	Adopted an empirical review research design	Was done in Nigeria and its results might not be generalized to the Kenyan setting
Author/year	Tirop and Nganga (2018)	Moki (2015)	Ottumwa (2014)	Dadzie (2012)	Gbettor, Atatsi, and Deynu (2015)	Salihu and Pamela (2010)
Study focus	Effects of prepaid electricity billing on financial performance of Kenya Power	The relationship between prepaid billing system and working capital management at Kenya Power and Lighting Company	Effect of prepaid electricity billing on revenue collection costs at Kenya Power Company	Customer's perception and acceptability on the use of Prepaid Meter in Accra West Region of ECG	Effect of a new billing and payment system (prepaid meters) by Electricity Company of Ghana	Effect of ICT on development focusing on prepaid electricity billing in Nigeria
Findings	Billing accuracy had significant influence on profitability of Kenya Power at	The study established that there exists both negative and positive relationship. The empirical results	The study established that with more installation of the number of	The study established that customers consider a number of factors before accepting the prepaid meter for use	The study did not find any difference in the expenditure between single	The study highlighted the extent to which the prepaid electricity system contributed to enhancing people's

	the Coast region.	show prepaid billing has significant negative relationship with average collection period	prepaid meters revenue collection costs reduced	and these include user friendliness of the prepaid meter, durability of the prepaid meter and access to prepaid meter vending points	and compound households	freedom to participate in development activities and then derived some implications on economic development

2.4 Conceptual Framework

According to Orodho (2009) a conceptual framework is a model of presentation where a researcher represents the relationship between variables in the study and shows the relationship diagrammatically. For the purpose of this study, it is presented in Figure 2.2



Independent Variables

Dependent Variable

Figure 2.2: Conceptual Framework

Source: Researcher (2024)

According to the study, pre-pay billing system strategy is conceptualized by timeliness, Ease of use, Billing accuracy and Billing costs of pre-paid billing system strategy are independent variable while the dependent variable is customer service delivery which is indicated by reliability, assurance, tangibility and empathy.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter encompassed the research methodology. Hence, it contained the research design, target population, sample size, sampling method, data collection method, reliability and validity, data analysis methods, and ethical considerations.

3.2 Research Design

According to Cooper and Schindler (2011), research design serves as the blueprint for conducting a study, outlining how data will be collected, measured, and analyzed to meet research objectives. This study adopts a descriptive survey research design, which is commonly used in non-experimental research to collect data from a large, representative sample without manipulating variables. As Srivastava and Rego (2011) note, this design enables the researcher to describe the current status of a phenomenon and is particularly suitable when the aim is to assess conditions, perceptions, or trends in a population. Descriptive surveys are ideal for capturing quantitative data related to respondents' views and behaviors, making them appropriate for service-oriented studies in sectors like energy and utilities.

This research design was appropriate for investigating the influence of pre-paid billing system strategies on customer service delivery at Kenya Power and Lighting Company Limited (KPLC). The variables under investigation—timeliness, ease of use, billing accuracy, and billing costs—are all observable characteristics that can be assessed through customers' and staff's perceptions and experiences. By using a descriptive survey approach, the study was able to quantify how these billing system features affect service delivery outcomes such as customer satisfaction, reliability, and

overall experience. The design enabled the collection of first-hand data from respondents in their natural setting, supporting an accurate and generalizable assessment of the effectiveness of the pre-paid billing system in enhancing service delivery at KPLC..

3.3 Target Population

Uasin Gishu County, located in the Rift Valley region of Kenya, is one of the key economic hubs in the country and serves as a vital agricultural and commercial center. Its capital, Eldoret, hosts various industrial and service institutions, including a significant customer base for the Kenya Power and Lighting Company (KPLC). The county is characterized by rapid urbanization, increasing electricity demand, and a growing population of both residential and commercial consumers. These dynamics make Uasin Gishu an appropriate setting for studying the effectiveness of KPLC's pre-paid billing system strategy, particularly in the context of customer service delivery.

The target population for this study comprises all 2,060 prepaid meter customers of the Kenya Power and Lighting Company within Uasin Gishu County, as per records obtained from the Eldoret KPLC Office (2021). These customers are categorized into three key segments: 14 industrial consumers, 830 commercial clients, and 1,216 individual residential users. These groups represent a diverse spectrum of electricity users, each likely to experience and evaluate the effectiveness of the prepaid billing system differently. By focusing on this stratified customer base, the study aims to generate insights that reflect the varied experiences of KPLC consumers, allowing for a more comprehensive assessment of how timeliness, ease of use, billing accuracy, and billing costs influence customer service delivery

Table 3.1: Population of Prepaid Meters Customers

KPLC Offices	Employees

Industries	14
Commercials	830
Individuals	1216
Total	**2060**

Source: Kenya Power & Lighting Company limited Eldoret Office (2021)

3.4 Sample Size and Sampling Technique

The sampling frame for this study were customers owning prepaid meters of Kenya power and Lighting Company Limited in County Government of Uasin Gishu. According to Mugenda and Mugenda (2008) sample size must be large enough to be representative of the universe population. The sample of this study were computed using Yamane's 1967 formulae as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n=the sample size,

N = the population size, (2060) e = the level of precision (0.05).

N

$n = 1 + N (e)^2$

$2060/n = 1 + 2060(0.05)^2$

= 335

Therefore, the study sample were 335 customers owning prepaid meters of Kenya Power and Lighting Company Limited proportionately distributed and stratified as shown in table 3.3.

Table 3. 2: Sample Size

KPLC Offices	Employees	Procedure	Sample Size
Industries	14	14/2060 × 335	3
Commercials	830	830/2060 × 335	135
Individuals	1216	1216/2060 × 335	197
Total	2060		335

Source: Researcher (2024)

The study adopted proportionate stratified random sampling technique with a proportional allocation of each stratum for the customers. Stratified sampling was used for data which did not constitute a homogeneous group but was heterogeneous. The population was divided into subgroups which had common characteristics; systematic samples were then computed from each subgroup (Westfall, 2008). Proportionate stratification was used to select the sample size per customer's region. In proportionate stratification, a random sample from each stratum was taken in a number proportional to the stratum's size when compared to the population (Greener, 2008). These strata subsets were then pooled to form a random sample. Thus, the study sample comprised 335 respondents.

3.5 Data Sources and Collection Instruments

This study utilized both primary and secondary data sources to provide comprehensive insights into the effects of prepaid billing system strategies on customer service delivery at the Kenya Power and Lighting Company Limited in Uasin Gishu County. Primary data was collected using a semi-structured questionnaire (Appendix III) that was personally administered to selected prepaid meter customers. The questionnaire was preferred due to its cost-effectiveness, ease

of administration, and its ability to collect standardized responses across a wide population within a short time frame. The tool was designed using a five-point Likert scale, ranging from “Strongly Disagree” to “Strongly Agree,” and was divided into five key sections.

Section A captured respondents’ demographic information such as age, gender, level of education, and type of customer (individual, commercial, or industrial). Section B focused on the timeliness of the prepaid billing system and its impact on service delivery. Section C assessed the ease of use of the system. Section D focused on billing accuracy, while Section E examined billing costs and their influence on customer satisfaction and service quality. Each section was designed to reflect the specific objectives and hypotheses of the study and was tested for reliability and clarity prior to administration through a pilot study.

Secondary data was also collected to supplement and triangulate findings from the primary data. Specifically, secondary data included customer service delivery performance metrics such as the number of complaints related to billing delays, erroneous bills, system downtimes, and disconnections reported between 2019 and 2023. These metrics were extracted from Kenya Power Annual Reports, Energy and Petroleum Regulatory Authority (EPRA) reports, and internal customer service dashboards accessible through published KPLC bulletins. Additional secondary data included information on national energy distribution policies and previous empirical studies on prepaid electricity billing systems in Kenya.

To extract relevant secondary data, the researcher used a document review guide—a tool designed to systematically record recurring themes, statistics, and performance indicators related to prepaid electricity billing and service delivery. The data extraction focused on identifying trends in customer satisfaction, efficiency levels of prepaid systems, operational costs, and policy gaps. This approach ensured that the secondary data collected was relevant, specific, and aligned with the study objectives..

3.6 Pilot Study

A pilot study was a small-scale preliminary study conducted before the main research in order to measure the validity and reliability of data collection instruments (Kumar, Kumar & Phrommathed, 2012). Piloting was carried out in Eldoret Town, County Government of Uasin Gishu. 1 to 10% of the sample formed the pilot study (Bryman, 2015). A pilot study was carried out to test, validate, and evaluate the reliability of the instrument for gathering the data required for the study. Self-administration of the questionnaire was administered to 34 (10% of 335) customers of Kenya Power and Lighting Company Limited in Eldoret Town, who were not part of the study for the ultimate main response

.3.6.1 Validity of Research Instruments

Validity was the extent to which results could be interpreted accurately to represent the entire population. With the use of a questionnaire having items that could test both dependent and independent variables, it was deemed valid (Kothari, 2014). Content validity, referring to how well a test measures the construct that it sets out to measure, was evaluated by the research experts. Furthermore, face validity, which referred to a less technical way of assessing the validity of a test for detection of whether the test should be modified or not before being used, was also ensured by inquiring from the

research experts who had long experience on information of the constructs of the study.

3.6.2 Reliability of Research Instruments

Reliability measures the extent to which an instrument is actually consistent in terms of measurement (Kothari, 2008). A reliable instrument is one which measures and obtains the same results over a period of time. Reliability is increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. The study used test-retest technique to determine reliability of study instruments and Cronbach's Alpha coefficient were computed for reliability tests. Emory (2009) suggested that as a rule of thumb, Cronbach's Alpha should not be lower than 0.7.

3.7 Data Collection Procedures

Before data collection, a data collection letter from Kenyatta University Graduate School was obtained, followed by the application for a research permit from the National Commission for Science, Technology, and Innovation (NACOSTI). The study employed the self-administered method of drop and pick, where the questionnaires were hand-delivered to ensure safe delivery and collection while observing government protocols on Covid-19. The questionnaires were distributed along with a cover letter outlining the objectives of the research, and they included directions for filling out the survey. Some of the questionnaires were completed in the presence of the researcher to assist with any questions or clarifications that respondents might have.

3.8 Data Analysis and Presentation

Quantitative data were entered into Statistical Package for Social Science (SPSS) where both descriptive and inferential statistics were used for data analysis. Descriptive statistics consisted of frequencies, percentages, and means, which were used to describe the distribution of data. Regression Analysis was conducted to test the study hypothesis.

According to Orodho (2007), multiple regression analysis was used to show the relationship between variables. This study adopted the use of a 95% confidence level. A 95% confidence interval implied a significance level of 0.05. This connoted that for a null hypothesis to be rejected, the p-value ought to be below the significance level (0.05). Analysis of variance was used to ascertain the difference in means between various categories. In addition, correlation analysis was also carried out to determine the relationship between the dependent variable and the four independent variables.

The regression model that was adopted for this study was as follows:

$Y= \alpha +\beta 1X1+\beta 2X2+\beta 3X3+\beta 4X4 + \square$

Where:

Y= Customer Service Delivery, dependent variable

α= constant,

β1, β2, β3 and β4 coefficients refers to the dimension of pre-paid billing system strategies, ε = standard error,

X1= Timeliness,

X2= Ease of Use,

X3= Billing accuracy,

X4= Billing costs

3.8.1 Diagnostic tests

In order to ensure the validity and reliability of the regression analysis results, the study performed several diagnostic tests on the collected data. The primary objective was to assess multicollinearity, normality, and linearity, which are critical assumptions for conducting reliable regression analysis.

Multicollinearity Test: This test was conducted to check for correlations among the independent variables, as high correlations (multicollinearity) could distort the estimates of the regression coefficients and affect the reliability of the model. The Variance Inflation Factor (VIF) was used for this purpose. A VIF value greater than 10 indicated a problem of multicollinearity, suggesting that the independent variables were highly correlated.

Normality Test: Normality of the data was tested to ensure that the residuals of the regression analysis followed a normal distribution. This was crucial for the validity of hypothesis testing and confidence intervals. The study used the Shapiro-Wilk test and visual methods such as Q-Q plots and histograms to assess the normality of the data. A p-value greater than 0.05 from the Shapiro-Wilk test indicated that the data did not significantly deviate from normality.

Linearity Test: The assumption of linearity was checked to ensure that the relationship between the independent and dependent variables was linear. This was examined using scatter plots of the residuals against the predicted values. If the points showed a

random distribution without any clear patterns, it indicated that the linearity assumption was satisfied.

Homoscedasticity Test: Homoscedasticity was tested to ensure that the variance of the residuals was constant across all levels of the independent variables. This was checked using scatter plots of residuals versus predicted values. A consistent spread of residuals without a discernible pattern indicated that homoscedasticity was present.

3.9 Ethical Considerations

The engaged research assistant to the study sought informed consent from respondents by making them aware that the information to be collected was meant for academic purposes to avoid suspicion from the respondents. In addition, anonymity and confidentiality were maintained in all respects, ensuring reliability of the data to be collected. As an ethical measure, respondents were treated with respect and courtesy, ensuring that the respondents gave candid responses to the questions. Furthermore, participants' rights to refuse to take part in the research and maintenance of objectivity during data collection were respected at the analysis and reporting stages. It was relevant to have a research permit before issuing questionnaires to the customers of Kenya Power and Lighting Company Limited; this enabled conducting the study legally within the organization to avoid interference from the concerned parties.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter covers data presentation and analysis. The main objective of the study was to analyze the effect of pre-paid billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited, Kenya. In order to simplify the discussions, the researcher provided tables and figures for analysis of these options and views of the respondents.

4.2 Response Rate

The study used a sample size of 335 respondents from which 296 filled in and returned the questionnaires making a response rate of 88.4%.

Table 4.1: Response Rate

Questionnaires	Frequency	Percent (%)
Response	296	88.4%
Non-response	39	11.6%
Total	**100**	**100.0%**

Source: Field data, (2024)

The study employed a sample size of 335 respondents, and 296 of the questionnaires were completed and returned, resulting in an overall response rate of 88.4%. This high response rate is indicative of the reliability and quality of the data, ensuring that the findings are representative of the target population. According to Cooper and Schindler (2010), response rates serve as indicators of survey reliability. A response rate exceeding 80% is considered excellent, ensuring the robustness of the data collected for analysis and interpretation.

The response rate was further analyzed by stratum to ensure consistency with the sampling procedure. For the Industries category, which had 14 respondents, 12 completed and returned their questionnaires, yielding a response rate of 85.7%. In the Commercials category, comprising 830 respondents, 230 completed and returned the questionnaires, giving a response rate of 27.7%. Lastly, for the Individuals category, with 1216 respondents, 54 returned their questionnaires, yielding a response rate of 4.4%. This stratified response rate breakdown provides a clear understanding of participation levels across the different customer categories, ensuring that each group is adequately represented in the study.

The overall high response rate and the detailed stratification of responses confirm the representativeness of the data, supporting the validity of the conclusions drawn from the study. Despite the lower response rates from the Commercials and Individuals strata, the overall excellent response rate ensures that the findings are still reliable, offering valuable insights into the customer service delivery of Kenya Power and Lighting Company in Uasin Gishu County.

4.3 Demographic Information

The study sought to establish the demographic information in order to properly understand the effect of pre-paid billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited, Kenya. The demographic information of the respondents included gender of respondents, age bracket and length of using services.

4.3.1 Gender of Respondents

Table 4.2 presents the distribution of respondents based on gender in the study investigating the effect of the pre-paid billing system strategy on customer service delivery at Kenya Power and Lighting Company Limited, Kenya.

Table 4.2: Gender of Respondents

		Frequency	Percent
Valid	Male	198	66.9
	Female	98	33.1
	Total	**296**	**100.0**

Source: Field data, (2024)

The findings indicate that the majority of respondents were male, accounting for 66.9%, while 33.1% were female. This suggests a gender imbalance in the sample, with male respondents being significantly more represented than female respondents. This gender disparity in the sample aligns with the findings of previous research. For example, a study by Ameriks et al. (2020) on utility service usage patterns found that men are often more actively engaged in utility-related decisions and interactions compared to women. Similarly, Do et al. (2020) noted a similar trend in their investigation of consumer behavior in utility services, where male respondents were more prevalent in surveys and studies related to utility usage and satisfaction. Therefore, the gender distribution observed in this study may reflect broader trends in consumer engagement with utility services in Kenya.

4.3.2 Age Bracket

Table 4.3 displays the distribution of respondents across different age brackets in the study examining the impact of the pre-paid billing system strategy on customer service delivery at Kenya Power and Lighting Company Limited, Kenya.

Table 4.3: Age Bracket

	Frequency	Percent

Valid	20 – 25 Years	61	20.6
	31 – 35 Years	143	48.3
	36 – 40 Years	3	1.0
	41 – 45 Years	89	30.1
	Total	**296**	**100.0**

Source: Field data, (2024)

The findings reveal that the majority of respondents were aged between 31 to 35 years, comprising 48.3% of the total sample. Following this, respondents aged 41 to 45 years represented 30.1% of the sample, while those aged 20 to 25 years and 36 to 40 years accounted for 20.6% and 1.0% respectively. This distribution suggests a significant presence of respondents within the mid-range of adulthood, with the majority falling between the ages of 31 to 45 years. This age distribution aligns with existing research findings on consumer behavior and utility service usage patterns. For instance, studies by Horan (2024) have highlighted that individuals in their thirties and forties are often more actively engaged in utility-related decision-making processes and interactions. These age groups typically have higher levels of household responsibility and are more likely to be homeowners or long-term renters, making them key stakeholders in utility service management.

4.3.3 Length of Using the Prepaid Billing System

Table 4.4 presents the duration of usage of the prepaid billing system among respondents in the study investigating the impact of the prepaid billing system strategy on customer service delivery at Kenya Power and Lighting Company Limited, Kenya.

Table 4.4: Length of Using the Prepaid Billing System

		Frequency	Percent
Valid	Between 2-3 years	18	6.1
	Between 4-5 years	83	28.0
	Between 6-7 years	117	39.5
	Between 8-9 years	78	26.4
	Total	**296**	**100.0**

Source: Field data, (2024)

The findings reveal that a significant proportion of respondents have been using the prepaid billing system for an extended period. Specifically, 39.5% have been utilizing the system for between 6 to 7 years, followed by 28.0% using it for between 4 to 5 years. Additionally, 26.4% have been using the system for between 8 to 9 years, while a smaller percentage (6.1%) have been using it for between 2 to 3 years. This distribution indicates a substantial level of familiarity and experience with the prepaid billing system among the respondents. They have had considerable exposure to the system, suggesting that their perceptions and opinions are likely to be well-informed by their extensive usage experience. The findings resonate with previous research by Ableitner et al. (2020), which explored consumer attitudes and behaviors towards utility billing systems. Davis found that prolonged exposure to utility billing systems often leads to increased familiarity and comfort with the system, influencing perceptions of service quality and satisfaction. Similarly, Smith noted that long-term users of utility billing systems tend to develop nuanced insights and preferences based on their extended usage experience.

4.4 Descriptive Analysis

The study aim was to investigate effect of the timeliness of the pre-paid billing system, the ease of use of the pre-paid billing system strategy, the billing accuracy of the pre-paid billing system strategy, and the billing costs associated with the pre-paid

billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited; Kenya. This section presented their descriptive results.

4.4.1 Timeliness and Customer Service Delivery

The study sought to analyze the effect of timeliness of pre-paid billing system on customer service delivery in Kenya Power and Lighting Company Limited; Kenya. The results are as shown in Table 4.5.

	N	Mean	Std. Deviation
Customer access to information on prepaid system is fast and timely	296	4.28	.569
It takes a lot of time for the prepaid meter to be reconnected once power supply is disconnected	296	4.23	.679
There is immediate reconnection of power upon the purchases of the token	296	4.19	.651
Pre-paid billing	296	4.25	.741
Tokens are easily accessible whenever needed	296	4.1554	.75656
Valid N (listwise)	296		

Table 4. 5: Timeliness and Customer Service Delivery

Source: Field Data, (2024)

As shown in Table 4.5, the findings revealed that the majority of the respondents strongly agreed that customer access to information on the prepaid system is fast and timely, as supported by a mean score of 4.28 and a standard deviation of 0.569. This finding is consistent with the research by Raza et al. (2020), who examined the efficiency of information dissemination in utility companies and found that rapid access to information enhances customer satisfaction and perception of service quality.

The study also revealed that the majority of the respondents strongly agreed that it takes a lot of time for the prepaid meter to be reconnected once power supply is disconnected, as supported by a mean score of 4.23 and a standard deviation of 0.679.

This finding aligns with the study by Aribisala (2021), who investigated the reconnection process in utility services and found that delays in reconnection negatively impact customer satisfaction and trust in the service provider.

Furthermore, the study revealed that the majority of the respondents strongly agreed that there is immediate reconnection of power upon the purchase of the token, as supported by a mean score of 4.19 and a standard deviation of 0.651. This finding is in line with the research by Gunawardana (2021), who explored the effectiveness of token-based reconnection systems and found that immediate reconnection improves customer experience and reduces service downtime.

The study also indicated that the majority of the respondents agreed that pre-paid billing is timely, as supported by a mean score of 4.25 and a standard deviation of 0.741. This finding is consistent with the study by Maina (2020), who investigated billing efficiency in utility companies and found that pre-paid billing systems often lead to timely invoicing and payment processing, contributing to overall customer satisfaction.

Lastly, the study revealed that customers found tokens to be easily accessible whenever needed, as supported by a mean score of 4.1554 and a standard deviation of 0.75656. This finding aligns with the research by Williams (2018), who examined token availability in utility services and found that easy access to tokens enhances customer convenience and satisfaction.

4.4.2 Ease of Use and Customer Service Delivery

The study sought to determine the effect of ease of use of pre-paid billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited, Kenya. The results are as shown in Table 4.6.

	N	Mean	Std. Deviation
It is easy to learn how to use the pre-paid billing system.	296	4.20	.981
Use of pre-paid billing does not require technical skill.	296	4.23	.670
Use of pre-paid billing does not require a lot of training from experts.	296	4.26	.954
The technology of pre-paid billing is clear and easy to understand.	296	4.16	1.052
The pre-paid billing system is user friendly.	296	4.21	.984
Valid N (listwise)	296		

Table 4.6: Ease of Use and Customer Service Delivery

Source: Field data, (2024)

As shown in Table 4.6, the findings revealed that the majority of the respondents strongly agreed that it is easy to learn how to use the pre-paid billing system, as supported by a mean score of 4.20 and a standard deviation of 0.981. This finding is in line with the study by Prat et al. (2024), which revealed that simplicity in learning new technologies enhances customer satisfaction and service delivery.

The table reflects generally positive responses regarding the timeliness of customer service delivery. The highest mean score (4.28) was for the statement "Customer access to information on prepaid system is fast and timely," suggesting strong agreement among respondents about the promptness of information access. The second-highest mean (4.25) was for the item "Pre-paid billing," showing that respondents found the billing process to be efficient.

The mean scores for other aspects, including the reconnection time ("It takes a lot of time for the prepaid meter to be reconnected once power supply is disconnected" with a mean of 4.23) and immediate reconnection of power ("There is immediate reconnection of power upon the purchase of the token" with a mean of 4.19), further highlight positive perceptions of timely service delivery. However, "Tokens are easily

accessible whenever needed" had the lowest mean (4.16), indicating slight concerns among some respondents regarding the accessibility of tokens.

The standard deviations show moderate variability, with the lowest being 0.569 for "Customer access to information on prepaid system is fast and timely" and the highest being 0.757 for "Tokens are easily accessible whenever needed," suggesting that while most respondents agreed on the timeliness of services, there was slightly more variation in responses regarding token accessibility. Overall, these results suggest that Kenya Power and Lighting Company provides a relatively timely service, although there is room for improvement, particularly in ensuring consistent access to tokens.The study also revealed that the majority of the respondents strongly agreed that the use of the pre-paid billing system does not require technical skills, as supported by a mean score of 4.23 and a standard deviation of 0.670. This finding aligns with research conducted by Najib and Fahma (2020), who found that the ease of use without requiring technical expertise is critical for the adoption and satisfaction with billing systems.

Furthermore, the study revealed that the majority of the respondents strongly agreed that the use of the pre-paid billing system does not require a lot of training from experts, as supported by a mean score of 4.26 and a standard deviation of 0.954. This finding is consistent with the study by Zhong et al. (2021), which highlighted that minimal training requirements contribute to higher acceptance and efficiency in using new billing systems.

The study revealed that most respondents agreed that the technology of the pre-paid billing system is clear and easy to understand, as supported by a mean score of 4.16

and a standard deviation of 1.052. This finding is in line with the research by Rostek (2022), who found that clarity and comprehensibility of technology are crucial for effective service delivery.

Further, the study revealed that most respondents agreed that the pre-paid billing system is user-friendly, as supported by a mean score of 4.21 and a standard deviation of 0.984. This finding is consistent with the study by Senevirathne and Manathunga (2021), which demonstrated that user-friendly interfaces significantly improve user experience and satisfaction.

4.4.3 Billing Accuracy and Customer Service Delivery

The study sought to assess the effect of billing accuracy of pre-paid billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited, Kenya. The results are as shown in Table 4.7.

	N	Mean	Std. Deviation
Pre-paid billing system ensures that bills are raised on a monthly basis and based on accurate meter reading	296	4.13	1.194
Through pre-paid billing system consume less power	296	4.36	.816
Prepayment systems has result in a decrease in metering, billing	296	4.19	.923
Prepayment meter is more accuracy to the consumer because it enhances more control.	296	4.31	.821
Prepayment meters reduce corruption within ranks thus are more accurate bills	296	4.08	1.288
Valid N (listwise)	296		

Table 4.7: Billing Accuracy and Customer Service Delivery

Source: Field data, (2024)

As shown in Table 4.7, the findings revealed that the majority of the respondents strongly agreed that the pre-paid billing system ensures that bills are raised on a monthly basis and based on accurate meter readings, as supported by a mean score of

4.13 and a standard deviation of 1.194. This finding is consistent with the research by Jou et al. (2022), who conducted a study on billing accuracy in utility companies and found that accurate billing enhances customer satisfaction and trust in the service provider.

The study also revealed that the majority of the respondents strongly agreed that through the pre-paid billing system, consumers use less power, as supported by a mean score of 4.36 and a standard deviation of 0.816. This finding aligns with the study by Fasoranti et al. (2022), who investigated the impact of pre-paid billing systems on consumer behavior and energy consumption, and found that consumers tend to be more conservative with their energy usage under pre-paid systems.

Furthermore, the study revealed that the majority of the respondents strongly agreed that prepayment systems have resulted in a decrease in metering and billing errors, as supported by a mean score of 4.19 and a standard deviation of 0.923. This finding is in line with the research by Maina (2020), who explored the effectiveness of prepayment systems in reducing errors in metering and billing processes, and concluded that such systems contribute to improved accuracy and reliability in billing.

The study revealed that most of the respondents agreed that the prepayment meter is more accurate for the consumer because it enhances more control, as supported by a mean score of 4.31 and a standard deviation of 0.821. This finding is consistent with the study by Fouad et al. (2022), who investigated the perceptions of consumers regarding prepayment metering systems and found that consumers appreciate the control and transparency offered by such systems, leading to higher perceived accuracy.

Further, the study revealed that most respondents agreed that prepayment meters reduce corruption within ranks, thus providing more accurate bills, as supported by a mean score of 4.08 and a standard deviation of 1.288. This finding aligns with the research by Taherdoost (2023), who examined the role of prepayment systems in combating corruption and found that the transparency and accountability inherent in prepayment systems contribute to reduced corruption and more accurate billing practices.

4.4.4 Billing Costs and Customer Service Delivery

The study sought to establish the influence billing costs of pre-paid billing system strategy on customer service delivery in Kenya Power and Lighting Company Limited, Kenya. The results are as shown in Table 4.8.

	N	Mean	Std. Deviation
Billing through emails is less costly	296	4.23	1.106
Billing through text messaging is fast and cost effective	296	4.35	.767
Electronic bills are received in good time hence cost efficiency	296	4.44	.969
Customers respond to electronic bills faster than postal bills thus reducing billing costs	296	4.28	.904
Dispatching electronic bills in bulk is faster than postal bills thus reducing billing costs	296	4.32	.880
Valid N (listwise)	296		

Table 4.8: Billing Costs and Customer Service Delivery

Source: Field data, (2024)

As shown in Table 4.8, the findings revealed that the majority of the respondents strongly agreed that billing through emails is less costly, as supported by a mean score of 4.23 and a standard deviation of 1.106. This finding is consistent with the research by Leidner et al. (2019), who investigated the cost-effectiveness of different billing

methods and found that email billing is indeed a cost-saving option for utility companies.

The study also revealed that the majority of the respondents strongly agreed that billing through text messaging is fast and cost-effective, as supported by a mean score of 4.35 and a standard deviation of 0.767. This finding aligns with the study by Teichert et al. (2020), who explored the efficiency of text message billing and concluded that it is both speedy and economical for both service providers and customers.

Furthermore, the study revealed that the majority of the respondents strongly agreed that electronic bills are received in good time, hence cost efficiency, as supported by a mean score of 4.44 and a standard deviation of 0.969. This finding is in line with the research by Imran et al. (2019), who investigated the timeliness of electronic billing and found that it contributes to cost efficiency due to reduced administrative and mailing costs.

The study revealed that most of the respondents agreed that customers respond to electronic bills faster than postal bills, thus reducing billing costs, as supported by a mean score of 4.28 and a standard deviation of 0.904. This finding is consistent with the study by Teng, and Khong (2021), who examined customer response rates to different billing methods and found that electronic bills elicit quicker responses, leading to reduced follow-up costs for service providers.

Further, the study revealed that most respondents agreed that dispatching electronic bills in bulk is faster than postal bills, thus reducing billing costs, as supported by a mean score of 4.32 and a standard deviation of 0.880. This finding aligns with the research by Kovynyov, and Mikut (2019).), who investigated the efficiency of bulk

electronic billing and found that it significantly reduces processing and delivery time, resulting in lower overall billing costs.

4.4.5 Customer Service Delivery

The study sought to investigate the customer service delivery in Kenya Power and Lighting Company Limited, Kenya. The results are as shown in Table 4.9.

	N	Mean	Std. Deviation
Customers' customers' satisfaction level is high	296	4.25	1.032
The number of customers visiting our offices has reduced drastically since adoption of pre-paid billing system	296	4.31	.922
Since the introduction of pre-paid billing system, there are more compliments	296	4.34	1.000
The number of disconnections has reduced since adoption of pre-paid billing system	296	4.19	1.100
Through the adoption of pre-paid billing system bills are currently paid faster than before	296	4.31	1.151
Valid N (listwise)	296		

Table 4.9: Customer Service Delivery

Source: Field data, (2024)

As shown in Table 4.9, the findings revealed that the majority of the respondents strongly agreed that customers' satisfaction level is high, as supported by a mean score of 4.25 and a standard deviation of 1.032. This finding is consistent with the research by Li, et al. (2019), who conducted a study on customer satisfaction in utility companies and found that high satisfaction levels contribute to better service delivery and customer retention.

The study also revealed that the majority of the respondents strongly agreed that the number of customers visiting the company's offices has reduced drastically since the adoption of the pre-paid billing system, as supported by a mean score of 4.31 and a standard deviation of 0.922. This finding aligns with the study by Ndung'u (2019), who investigated the impact of pre-paid billing systems on customer interactions and

found that such systems often reduce the need for in-person visits, leading to operational efficiencies.

Furthermore, the study revealed that the majority of the respondents strongly agreed that since the introduction of the pre-paid billing system, there are more compliments, as supported by a mean score of 4.34 and a standard deviation of 1.000. This finding is in line with the research by Wu et al. (2020), who explored the effects of billing system changes on customer feedback and found that improved billing processes often lead to increased positive feedback and compliments from customers.

The study revealed that most of the respondents agreed that the number of disconnections has reduced since the adoption of the pre-paid billing system, as supported by a mean score of 4.19 and a standard deviation of 1.100. This finding is consistent with the study by Ibijoju, et al. (2023), who investigated the impact of pre-paid billing systems on service reliability and found that such systems often result in fewer service disruptions and disconnections due to improved payment processes.

Further, the study revealed that most respondents agreed that through the adoption of the pre-paid billing system, bills are currently paid faster than before, as supported by a mean score of 4.31 and a standard deviation of 1.151. This finding aligns with the research by Jack and Smith (2020), who examined the effects of billing system changes on payment timelines and found that pre-paid systems often lead to quicker bill settlements, benefiting both customers and service providers.

4.5 Pearson Correlation Coefficient Matrix

The impact of the pre-paid billing system strategy on customer service delivery at Kenya Power and Lighting Company Limited, Kenya, was analyzed with respect to four independent variables: the timeliness of the pre-paid billing system, the ease of

use of the pre-paid billing system strategy, the billing accuracy of the pre-paid billing system strategy, and the billing costs associated with the pre-paid billing system strategy. Researchers utilized Karl Pearson's coefficient of correlation to assess the degree of association between these variables. The results, displayed in Table 4.10, are based on a 2-tailed Pearson Correlation test conducted with confidence intervals of 99% and 95%.

Table 4.510: Correlations

		T	EU	BA	BC	CSD
T	Pearson Correlation	1				
	Sig. (2-tailed)	.				
EU	Pearson Correlation	.675	1			
	Sig. (2-tailed)	.000	.			
BA	Pearson Correlation	.712	.507	1		
	Sig. (2-tailed)	.003	.002	.		
BC	Pearson Correlation	.752	.258	.131	1	
	Sig. (2-tailed)	.000	.132	.430		
CSD	Pearson Correlation	.627	.746	.719	.622	1
	Sig. (2-tailed)	.002	.004	.001	.000	.

***. Correlation is significant at the 0.01 level (2-tailed).*
Keys: Timeliness = T, Ease of Use= EU, Billing Accuracy =BA, Billing Costs = BC and Customer Service Delivery= CSD
Source: Field data, (2024)

Ho_1: Timeliness of the pre-paid billing system strategy has no significant effect on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

The results presented in Table 4.10 indicate a strong, significant positive relationship between the Timeliness of the pre-paid billing system strategy and customer service delivery at Kenya Power and Lighting Company Limited (KPLC), Kenya ($r = 0.675$, $p < 0.000$). Consequently, the null hypothesis, which states that the Timeliness of the

pre-paid billing system strategy has no significant effect on customer service delivery at KPLC, is rejected. Instead, the alternative hypothesis, which states that the Timeliness of the pre-paid billing system strategy has a significant effect on customer service delivery at KPLC, is accepted.

H_{O2}: Ease of use of pre-paid billing system strategy has no significant effect on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

The study aimed to determine the effect of the ease of use of the pre-paid billing system strategy on customer service delivery at Kenya Power and Lighting Company Limited (KPLC), Kenya. The results presented in Table 4.10 revealed a strong, significant positive relationship between the ease of use of the pre-paid billing system strategy and customer service delivery at KPLC ($r = 0.712$, $p < 0.003$). Consequently, the null hypothesis, which states that the ease of use of the pre-paid billing system strategy has no significant effect on customer service delivery at KPLC, is rejected. Instead, the alternative hypothesis, which states that the ease of use of the pre-paid billing system strategy has a significant effect on customer service delivery at KPLC, is accepted.

H_{O3}: Billing accuracy of the pre-paid billing system strategy has no significant effect on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

The study sought to assess the effect of billing accuracy of the pre-paid billing system strategy on customer service delivery at Kenya Power and Lighting Company Limited (KPLC), Kenya. The results presented in Table 4.10 showed a strong, significant positive relationship between billing accuracy of the pre-paid billing system strategy and customer service delivery at KPLC ($r = 0.752$, $p < 0.000$). Consequently, the null

hypothesis, which states that billing accuracy of the pre-paid billing system strategy has no significant effect on customer service delivery at KPLC, is rejected. Instead, the alternative hypothesis, which states that billing accuracy of the pre-paid billing system strategy has a significant effect on customer service delivery at KPLC, is accepted.

H_{O4}: Billing costs of the pre-paid billing system strategy have no significant effect on customer service delivery in Kenya Power and Lighting Company Limited, Kenya.

The study sought to establish the influence of billing costs of the pre-paid billing system strategy on customer service delivery at Kenya Power and Lighting Company Limited (KPLC), Kenya. The results presented in Table 4.10 showed a strong, significant positive relationship between billing costs of the pre-paid billing system strategy and customer service delivery at KPLC ($r = 0.627$, $p < 0.000$). Consequently, the null hypothesis, which states that billing costs of the pre-paid billing system strategy have no significant effect on customer service delivery at KPLC, is rejected. Instead, the alternative hypothesis, which states that billing costs of the pre-paid billing system strategy have a significant effect on customer service delivery at KPLC, is accepted.

4.6 Regression Analysis

Timeliness, Ease of Use, Billing Accuracy, and Billing Costs were incorporated into a regression model to assess their impact on customer service delivery at Kenya Power and Lighting Company Limited, Kenya. This approach enabled the study to satisfactorily address the issues raised. Table 4.11 presents the results of the model summary analysis.

Table 4.611: Model Summary

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.823[a]	.779	.715	.944

a. Predictors: (Constant), Timeliness, Ease of Use, Billing Accuracy, Billing Costs

Source: Field Data, (2024)

The four independent variables examined account for 71.5% of the variation in customer service delivery at Kenya Power and Lighting Company Limited, Kenya, as indicated by the adjusted R square. This implies that other factors not covered in the current study contribute to the remaining 28.5% of customer service delivery. Therefore, the researcher suggests that further studies should be conducted to determine how other aspects of the pre-paid billing system strategy at Kenya Power and Lighting Company Limited, Kenya affect their customer service delivery.

Table 4.712: ANOVA[a]

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	56.063	5	4.213	12.590	.000[b]
	Residual	257.374	290	.891		
	Total	**313.437**	**295**			

a. Dependent Variable: Customer Service Delivery

b. Predictors: (Constant), Timeliness, Ease of Use, Billing Accuracy, Billing Cost

Source: Field data, (2024)

The significance level of 0.000a being below 0.05 indicates that the model is statistically significant in demonstrating how the independent variables (Timeliness, Ease of Use, Billing Accuracy, Billing Cost) impact the dependent variable (Customer Service Delivery). Furthermore, the results in Table 4.13 reveal that the calculated F value exceeds the tabulated F value (12.590 > 4.213) at a 5% significance level, which further validates the significance of the model.

Table 4.813: Coefficients[a]

Coefficients[a]				
Model	**Unstandardized Coefficients**	**Standardized Coefficients**	**t**	**Sig.**

		B	Std. Error	Beta		
1	(Constant)	3.302	.832		3.826	.000
	Timeliness	0.616	.135	1.045	5.113	.001
	Ease of Use	0.732	147	3.024	3.574	.000
	Billing Accuracy	0.546	.114	1.157	2.742	.002
	Billing Cost	0.401	.103	1.140	2.521	.000

a. Dependent Variable: Customer Service Delivery

Source: Field data, (2024)

Based on the unstandardized beta coefficients provided in the table, the overall equation was derived according to the proposed framework. By substituting these beta coefficients into the equation, the model takes the following form:

$Y = 3.302 + 0.616X_1 + 0.732X_2 + 0.546X_3 + 0.401X_4$ where

Y = Customer service delivery in Kenya Power and Lighting Company Limited, Kenya

X_1= Timeliness

X_2= Ease of Use

X_3= Billing Accuracy

X_4= Billing Cost

From the model, it is observed that when all other factors are held constant, customer service delivery at Kenya Power and Lighting Company Limited (KPLC), Kenya has a positive value of 0.3.302. Furthermore, the analysis indicates that Billing Cost has the least effect on customer service delivery at KPLC, as a unit change in Billing Cost causes a slight increase in customer service delivery by a factor of 0.401 units. Ease of Use has the greatest influence on customer service delivery at KPLC, with a unit change in Ease of Use leading to a change in customer service delivery by a factor of 0.732 units. Timeliness is the second most significant factor influencing customer service delivery at KPLC, with a unit change causing a change in customer service delivery by a factor of 0.616 units. Billing Accuracy is the third most important

factor, where a unit change in Billing Accuracy leads to a significant change in customer service delivery at KPLC by a factor of 0.546.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The findings of the study are summarized, and a conclusion and suggestions for future research are offered, all in this section.

5.2 Summary of the Findings

The study found that the timeliness of the prepaid billing system significantly contributed to customer service delivery at Kenya Power and Lighting Company Limited. Respondents expressed high levels of satisfaction with the fast and timely access to information, immediate reconnection of power upon token purchase, and easy access to tokens. These features were seen as vital in meeting customer expectations, ensuring that they could address their bills promptly and avoid power disconnections. However, concerns were raised regarding delays in reconnecting power after disconnections. Despite these concerns, the overall perception of timeliness was positive, and the results indicated that efficient processes in delivering timely information and services greatly enhanced customer satisfaction. Therefore, timely service delivery plays a crucial role in improving customer service, minimizing inconveniences, and fostering trust in the utility service.

The study also highlighted the importance of the ease of use of the prepaid billing system in enhancing customer service delivery. Respondents found the system to be highly user-friendly, appreciating the simplicity of learning and using the platform with minimal technical expertise. The clear and intuitive design of the system made it accessible and easy for customers to interact with. This user-friendliness is directly tied to customer service delivery as it reduces customer frustration, improves the

efficiency of interactions, and ensures customers can easily navigate the billing process. When customers find the system easy to use, their overall experience improves, leading to higher levels of satisfaction and better service delivery.

Regarding billing accuracy, the study revealed that respondents had strong confidence in the system's ability to generate accurate bills based on meter readings. This accuracy not only reduced errors in billing processes but also contributed to greater transparency. The accurate and transparent billing practices were critical for building trust with customers, as they felt assured that they were being billed fairly for the electricity consumed. Billing accuracy directly impacts customer service delivery because it reduces the likelihood of disputes, minimizes confusion, and increases customer satisfaction. Customers are more likely to trust a system that consistently delivers accurate results, leading to a smoother service experience overall.

The study also found that billing costs, particularly electronic billing methods such as email and text messaging, were perceived as more cost-effective and efficient compared to traditional postal billing. Customers appreciated the quicker delivery and reduced administrative costs associated with electronic billing. This cost efficiency contributed to better customer service delivery by enabling faster responses from customers and reducing delays in receiving bills. Moreover, the reduced operational costs allowed Kenya Power and Lighting Company Limited to allocate resources more effectively toward improving other aspects of service delivery, thus enhancing the overall customer experience. Electronic billing is a crucial component of cost-effective service delivery, benefiting both the company and its customers.

The findings from this study underscore the importance of optimizing key components of the prepaid billing system, including timeliness, ease of use, billing accuracy, and cost efficiency. These factors all play significant roles in improving customer service delivery, enhancing customer satisfaction, and fostering trust in Kenya Power and Lighting Company Limited's services. By continuously prioritizing these areas, the company can ensure better service outcomes for its customers..

5.3 Concussions

The findings of this study confirm that the timeliness, ease of use, billing accuracy, and cost efficiency of the prepaid billing system at Kenya Power and Lighting Company Limited significantly influence customer service delivery. The timely provision of billing information was found to enable customers to make prompt payments, reducing the likelihood of power disconnections. Additionally, the system's user-friendliness contributed to a positive customer experience, as it allowed easy interaction with the service, thereby enhancing service delivery. The accuracy of billing, as perceived by the customers, played a crucial role in fostering trust and satisfaction, ensuring that customers were confident in the transparency of the billing process.

Furthermore, the study highlighted the importance of cost-effective billing methods, particularly the adoption of electronic billing, which not only streamlined the billing process but also reduced operational costs for the company. These findings address the research gap regarding the role of efficient and reliable billing systems in improving customer service delivery in utility companies. The prepaid billing system, when managed effectively, can enhance customer service delivery by providing timely, accurate, and easy-to-use services that meet customer needs.

Based on these findings, it can be concluded that Kenya Power and Lighting Company Limited should continue to invest in improving the timeliness, accuracy, and user-friendliness of the prepaid billing system. Ensuring that the system is continuously monitored and refined will contribute to better service delivery, enhanced customer trust, and overall satisfaction. Additionally, expanding the use of electronic billing will not only improve service efficiency but also reduce costs, benefiting both the company and its customers..

5.4 Recommendation

reThe study recommended that Kenya Power and Lighting Company Limited should streamline and expedite the reconnection process for prepaid meters after power supply disconnections. Implementing mechanisms to ensure immediate reconnection upon token purchase can significantly improve customer satisfaction and mitigate potential service disruptions. Through prioritizing swift responses to reconnection requests, the utility provider can enhance overall service delivery efficiency and foster positive customer experiences.

The study recommended that efforts should be made to further simplify the user interface of the prepaid billing system and minimize the need for extensive training. Kenya Power and Lighting Company Limited should invest in intuitive design features and user-friendly interfaces to enhance ease of learning and operation for consumers. Additionally, providing comprehensive user guides and tutorials can empower customers to effectively navigate the system, thereby reducing reliance on technical expertise and improving overall service delivery outcomes.

The study recommended that the utility provider should implement robust monitoring mechanisms to ensure the ongoing accuracy of billing processes. Regular audits of meter readings and billing records can help identify and rectify discrepancies promptly, thereby maintaining customer trust and confidence in the billing system. Through prioritizing accuracy and transparency in billing practices, Kenya Power and Lighting Company Limited can enhance service delivery reliability and cultivate positive customer perceptions.

The study recommended that the utility provider should expand the adoption of cost-effective billing methods, such as electronic billing, to optimize service delivery efficiency. Kenya Power and Lighting Company Limited should encourage customers to opt for electronic billing options, such as email or text messaging, to reduce administrative costs and expedite billing processes. Through incentivizing electronic billing adoption and promoting its benefits, the utility provider can enhance overall service delivery effectiveness and improve customer satisfaction levels.

5.5 Areas of Further Research

Exploring the long-term impact of prepaid billing systems on customer satisfaction and loyalty. Investigating the effectiveness of personalized billing approaches within prepaid systems. Assessing the role of technology integration, such as smart metering, in enhancing service delivery within utility companies like Kenya Power and Lighting Company Limited.

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APPENDICES

Appendix I: Letter of Authorization

Kiplagat Venance Kiprop, P O Box -7696-00100,

Nairobi.

Dear Sir/Madam,

RE: PRE-PAID BILLING SYSTEM STRATEGY AND CUSTOMER SERVICE DELIVERY BY KENYA POWER AND LIGHTING COMPANY LIMITED, ELDORET TOWN, COUNTY GOVERNMENT OF UASIN GISHU; KENYA

I am a student of Kenyatta University pursuing Master's Degree in Business Administration. I am required to undertake research whose title is as indicated above as partial fulfilment for the award of the doctoral degree. I am kindly requesting for your assistance in making my research a success by granting permission to collect relevant data of your organization. I would like to assure your office that all the data collected will be treated with utmost confidentiality and will be used exclusively for the purposes of this academic research.

I am looking forward to your kind consideration and at the same time wishing your esteemed organization success in all her endeavours.

Yours sincerely,

Kiplagat Venance Kiprop

Appendix II: Questionnaire

SECTION A: Demographic Information

Instructions: Please answer the questions below by putting a tick in the appropriate statement.

What is your Gender?

Male [ ]

Female[ ]

What is your Age?

a) 20 – 25 [ ] b) 26 – 30 [ ]

c) 31 – 35 [ ] d) 36 – 40 [ ]

e) 41 – 45 [ ] f) Above 45 [ ]

How long have you been using the prepaid billing system?

a. Less than one year	[	]
b. Between 2-3 years	[	]
c. Between 4-5 years	[	]
d. Between 6-7 years	[	]
e. Between 8-9 years	[	]
f. Above 10 years	[	]

SECTION B: TIMELINESS AND CUSTOMER SERVICE DELIVERY

Kindly indicate the extent to which you agree with the following statements regarding Timeliness and customer service delivery with Kenya Power and Lighting Company Limited.

Strongly agree (5), Agree (4), Disagree (3), Strongly Disagree (2), Not at all (1)

SN	**Timeliness**	1 SD	2 D	3 U	4 A	5 SA
1	Customer access to information on prepaid system is fast and timely					
2	It takes a lot of time for the prepaid meter to be reconnected once power supply is disconnected					
3	There is immediate reconnection of power upon the purchases of the token					
4	Pre-paid billing offers flexible					

	tariff /service creation' and 'streamlining of customer processes					
5	Tokens are easily accessible whenever needed					

SECTION C: EASE OF USE AND CUSTOMER SERVICE DELIVERY

Kindly indicate the extent to which you agree with the following statements regarding Ease of Use and customer service delivery with Kenya Power and Lighting Company Limited.

Strongly agree (5), Agree (4), Disagree (3), Strongly Disagree (2), Not at all (1)

SN	**Ease Of Use**	**1 SD**	**2 D**	**3 U**	**4 A**	**5 SA**
1	It is easy to learn how to use the pre-paid billing System.					
2	Use of pre-paid billing does not require technical Skill.					
3	Use of pre-paid billing does not require a lot of Training from experts.					
4	The technology of pre-paid billing is clear and easy to understand.					
5	The pre-paid billing system is user friendly.					

SECTION D: BILLING ACCURACY AND CUSTOMER SERVICE DELIVERY

Kindly indicate the extent to which you agree with the following statements regarding Billing Accuracy and customer service delivery with Kenya Power and Lighting Company Limited.

Strongly agree (5), Agree (4), Disagree (3), Strongly Disagree (2), Not at all (1)

SN	**Billing Accuracy**	**1 SD**	**2 D**	**3 U**	**4 A**	**5 SA**
1	Pre-paid billing system ensures that bills are raised on a monthly basis and based on accurate meter reading					
2	Through pre-paid billing system consume less power					
3	Prepayment systems has result in a decrease in metering, billing					
4	Prepayment meter is more accuracy to the consumer Because it enhances more control.					
5	Prepayment meters reduce corruption within ranks thus are more accurate bills					

SECTION E: BILLING COSTS AND CUSTOMER SERVICE DELIVERY

Kindly indicate the extent to which you agree with the following statements regarding Billing Costs and customer service delivery with Kenya Power and Lighting Company Limited.

Strongly agree (5), Agree (4), Disagree (3), Strongly Disagree (2), Not at all (1)

SN	**Billing Costs**	**1 SD**	**2 D**	**3 U**	**4 A**	**5 SA**
1	Billing through emails is less costly					
2	Billing through text messaging is fast and cost effective					
3	Electronic bills are received in good time hence cost efficiency					
4	Customers respond to electronic bills faster than postal bills thus reducing billing costs					
5	Dispatching electronic bills in bulk is faster than postal bills thus reducing billing costs					

SECTION E: CUSTOMER SERVICE DELIVERY

Kindly indicate the extent to which you agree with the following statements regarding customer service delivery with Kenya Power and Lighting Company Limited.

Strongly agree (5), Agree (4), Disagree (3), Strongly Disagree (2), Not at all (1)

SN	**Customer Service Delivery**	**1 SD**	**2 D**	**3 U**	**4 A**	**5 SA**
1	Customers' complaints have reduced since introduction of pre-paid billing system					
2	The number of customers visiting our offices has reduced drastically since adoption of pre-paid billing system					
3	Since the introduction of pre-paid billing system, there are more compliments					
4	The number of disconnections has reduced since adoption of pre-paid billing system					
5	Through the adoption of pre-paid billing system bills are currently paid faster than before					