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The Strategic JOURNAL of Business & Change MANAGEMENT
ISSN: 2312-9492 www.strategicjournals.com
Vol. 11, Iss.4, pp 1335 – 1353, December 6, 2024. www.strategicjournals.com, © Strategic Journals

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Accepted: November 26, 2024

DOI: http://dx.doi.org/10.61426/sjbcm.v11i4.3160

ABSTRACT

This study aimed to evaluate the impact of pre-paid billing system strategies on customer service delivery within the organization. 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 in Kenya Power and Lighting Company. The research was anchored on three theories: the SERVQUAL Model, Expectancy Disconfirmation Theory, and Technology Acceptance Theory (TAT). The research design employed was a cross-sectional survey. The study targeted all 2,060 customers of Kenya Power and Lighting Company Limited in the Uasin Gishu County Government. Stratified sampling was adopted to select customers based on their mode of use, resulting in a sample size of 335 customers. Primary data was sourced using a semi-structured questionnaire, which underwent validity and reliability tests to ensure its robustness for the study. Data collected was coded for input into SPSS version 28 software, facilitating the analysis of descriptive statistics. Inferential statistics, including multiple regression and correlation analysis, were employed. Data was presented in tabular form. The findings revealed that customers strongly perceived the timeliness, ease of use, billing accuracy, and cost-effectiveness of the prepaid billing system at Kenya Power and Lighting Company Limited. These factors significantly contributed to enhanced customer satisfaction and service delivery excellence. Specifically, the study found that timely access to information, user-friendly interfaces, accurate billing practices, and cost-effective billing methods optimized customer service delivery. In conclusion, prioritizing these elements was crucial for improving customer satisfaction and service delivery. The study recommended that Kenya Power and Lighting Company Limited streamline the reconnection process for prepaid meters, simplify the user interface of the billing system, ensure ongoing accuracy of billing processes, and expand the adoption of cost-effective electronic billing methods to enhance overall service delivery efficiency and customer satisfaction levels.

Keywords: *Timeliness, Ease of Use, Billing Accuracy, Billing Costs, Customer Service Delivery*

CITATION: Kiprop, K. V. & Wanjira, J. (2024) Pre-paid billing system strategy and service delivery by Kenya Power Lighting Company Limited, Uasin Gishu County, Kenya. *The Strategic Journal of Business & Change Management,* 11 (4), 1335 – 1353. http://dx.doi.org/10.61426/sjbcm.v11i4.3160

INTRODUCTION

The evolving global business landscape, influenced by technological progress, economic reorganization, workforce shifts, and consumer demand for superior products and services, has compelled organizations to reevaluate their business strategies to attain enduring competitive advantage (Okot, 2023). This competitive edge allows firms to sustain growth and profitability. Organizations, as open systems affected by external environments, must utilize existing resources—such as personnel, structures, and processes—aligned with an appropriate business strategy to enhance performance, efficiency, and productivity (Almossawi, 2012; Jones & George, 2021; Njoroge & Muturi, 2021).

In the ever-evolving business environment, delivering exceptional service quality with a strong emphasis on the client is a crucial aspect that allows organizations to achieve enduring competitive advantages (Salim & Abdallah, 2022). Marketers are increasingly prioritizing the ongoing assessment and evaluation of service quality, using numerous technologies that directly impact customer service experiences (Wasua & Wanyoike, 2015). According to Wasua and Wanyoike (2015), providing exceptional service entails fulfilling and beyond client expectations. The disparity between consumers' anticipations before to the service interaction and their assessment of the actual service delivered, which is significantly influenced by customer satisfaction (Hill & Brierley, 2020). Consequently, new methods are essential for organizations to maintain competitiveness, especially in rapidly evolving industries characterized by swift technical progress.

Prepaid billing technology has been used worldwide, including both developed Western nations and underdeveloped ones. In the United Kingdom, prepaid metering is available to all consumers as an option, with 15-20% of customers enrolling (Chartwell, 2003; Richards, 2021). A new prepayment scheme in Northern Ireland raised customer participation to 25% (Energy Watch, 2005). At Arizona's Salt River Project, around 50,000 consumers (approximately 6%) use prepayment meters (Chartwell, 2008). Woodstock Hydro in Canada indicates that 25% of residential users have implemented prepaid systems (Ontario Energy Board, 2020).

South Africa has achieved considerable advancements in prepaid billing systems. Wizzit, a rapidly expanding technology firm, facilitates financial transactions for low-income individuals via mobile phones, therefore minimizing travel expenses and mitigating the hazards linked to cash handling (Makee & Willy, 2019; Ndung'u, 2020). These developments have positioned South Africa as a paradigm for emerging countries in delivering financial services and adopting cashless transactions (Moyo, 2022).

In Kenya, the Kenya Power and Lighting Company (KPLC) has adopted new tactics, including the automation of payment systems and billing queries. Consumers of electricity nationwide may pay their bills online using mobile banking applications, utilizing Mpesa and Airtel Money services (Wasua & Wanyoike, 2015; KPLC Annual Report, 2022). KPLC disseminates notifications about billing status, power supply outages, and other communications via SMS alerts, USSD services, emails, and social media platforms like as Twitter and Facebook, hence enhancing consumer involvement (Kiarie, 2014; Opiyo et al., 2021).

Customer service delivery, meanwhile, is a complex term that cannot be regarded as a singular stimulation component (Almossawi, 2012). Researchers have thoroughly examined customer service, highlighting its essential contribution to total customer satisfaction (Eshghi, Kumar, & Gangui, 2008; Salim & Abdallah, 2022). Kotler and Keller (2009) assert that service delivery pertains to the satisfaction or dissatisfaction derived from juxtaposing a product's perceived performance with consumer expectations. Customer satisfaction occurs when performance meets or surpasses these

expectations (Banker, Potter, & Srinivasan, 2020. Almossawi (2019) recognized payment methods and savings as critical drivers of customer service delivery, highlighting the significance of customer-centric strategies in contemporary enterprises.

According to Okonga (2019), a pre-paid billing system strategy refers to the outlay made by a consumer for using a good or service before consumption. This system has evolved with the integration of digital platforms and smart metering technology, enhancing both utility management and consumer control (Mwangi et al., 2020). Whaling (2020) observes that e-billing is an electronic delivery and presentation of financial statements and bills, invoices, and other related information that focuses on business-to-consumer billing and payment. In more recent studies, digital billing systems have been linked to significant improvements in operational efficiency and customer satisfaction, particularly in the utility sector (Okwatch & Wekesa, 2019). Ogujor and Otosowie (2010) define the prepaid billing system as one where a service or good is consumed after being paid for. Consequently, costs such as those associated with bad debts can be avoided when billing is done in advance, which can lead to increased levels of revenue and reduced operational costs for a given organization. The introduction of smart meters has further enhanced the accuracy and efficiency of these systems, reducing billing disputes and operational losses (Karanja & Githaiga, 2021).

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, 2019). 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.

Statement of the Problem

Kenya Power and Lighting Company has also grappled with issues arising from customer complaints due to estimated bills. Some meter readers are unable to read all their meters in their itinerary because of gated compounds or they are simply lazy and therefore end up estimating in order to achieve their set target. As a result, customer dissatisfaction arises which dents the company's public image in regard to efficiency and ability to deliver good customer service. In addition there have been complaints by some customers that the prepaid system is not sufficient compared to the former postpaid billing system. According to Consumer Federation of Kenya (COFEK, 2012), faulty Gadgets, and poor consumer knowledge on how to use the technology irked some users. A team of inspectors have been sent to the field frequently which increases cost.

Despite this fact, there has been regular complains by the electricity consumers to Kenya power management, concerns have been raised by the consumers around inadequate responsiveness by the company in reaction to the ever-changing business environment and the increasing service dynamics thus the inability to meet their customer expectations In addition, customer service delivery has been put into question by consumers of electricity. Despite the adoption 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 (Mwangi,2024).

Miyogo, Ondiek and Nyangweso (2013) did an assessment of the Effect of Prepaid Service Transition in Electricity Bill Payment on KP

Customers, a Survey of Kenya Power, West Kenya Kisumu. The findings show that customers have embraced the prepaid billing system and that prepaid billing system has brought with it some advantages like making them more careful with their consumption. From the above, little has been done on pre-paid billing system strategy on customer service delivery by Kenya power, most of the studies has focused on customer satisfaction leaving out service delivery. Therefore, this study seeks to establish the implications of pre-paid billing system strategy on customer service delivery in Kenya Power Company, Kenya.

Research Objectives

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. The specific objectives of this study were:

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

LITERATURE REVIEW

Servqual Model

The Service Quality Model was created and executed by American marketing academics Valarie Zeithaml, A. Parasuraman, and Leonard Berry in 1988. The approach was developed to assess and quantify the service quality perceived by clients (Zeithaml, Parasuraman, & Berry, 1988). Initially, the emphasis was on enhancing quality systems within product quality; but, with time, the enhancement of service quality also became paramount. Improved service quality may provide firms with a competitive edge, since service has emerged as a crucial element across several sectors (Parasuraman, Zeithaml, & Berry, 1985).

Both internal and external communication are essential for the overall service quality a business delivers. The SERVQUAL Model delineates five principal discrepancies between customer expectations and the services provided by an organization: (i) the Knowledge Gap, characterized by the organization's insufficient comprehension of customer expectations, (ii) the Standards Gap, resulting from the organization's erroneous interpretation of customer needs into internal policies, (iii) the Delivery Gap, which emerges from inconsistent service implementation, (iv) the Communication Gap, where marketing messages diverge from actual service delivery, and (v) the Satisfaction Gap, arising from customer dissatisfaction due to a significant disparity between expectations and the actual service experience (Tavakoli, 2023).

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 Expectancy Disconfirmation theory is premised upon three core relationships. The first focal relationship is the direct effect of perceptions of performance on citizen satisfaction, implying the notion about the service being delivered. The second link predicts a direct effect of expectations on satisfaction of the service delivered. 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. 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.

Technology Acceptance Theory (TAT)

This study will be guided by the Technology Acceptance Theory (TAT), which posits that technology adoption is influenced by three key factors: perceived usefulness (PU), perceived ease of use (PEOU), and perceived risks. Perceived usefulness is the extent to which an individual believes that using a particular system—such as mobile banking or a pre-paid billing system—will improve services, making them faster, more reliable, and convenient. Perceived ease of use refers to the degree to which a person believes that using a system will be free from effort, as initially proposed by Davis (1989) and later discussed by Waithaka and Nzeveka (2015).

Empirical Literature Review

Timeliness and Customer Service Delivery

In the study by Das and Talukdar (2015) on service delivery, timeliness involves the readiness of employees or organizations to provide services in a prompt manner as and when needed, for instance, mailing bills, calling customers immediately among others. Alrashed and Asif (2014) asserted time being a very important factor on every function being executed within any organization; hence, the satisfaction of customers depends on how fast services are availed on time and more so, the services should be of right quality and quantity. Elechi and Omorogiuwa (2015) noted that timeliness or responsiveness was crucial in the service quality in internet banking and largely influenced customer satisfaction in most organizations. Okokpujie et al., (2017) investigated antecedents of online prepaid service quality commitment and loyalty and contemplated the way services were relayed was much welcome by the clients for the reason that the clients could easily access information on time for resolving.

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.

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.

Billing accuracy and Customer Service Delivery

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 metre 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.

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.

Conceptual Framework

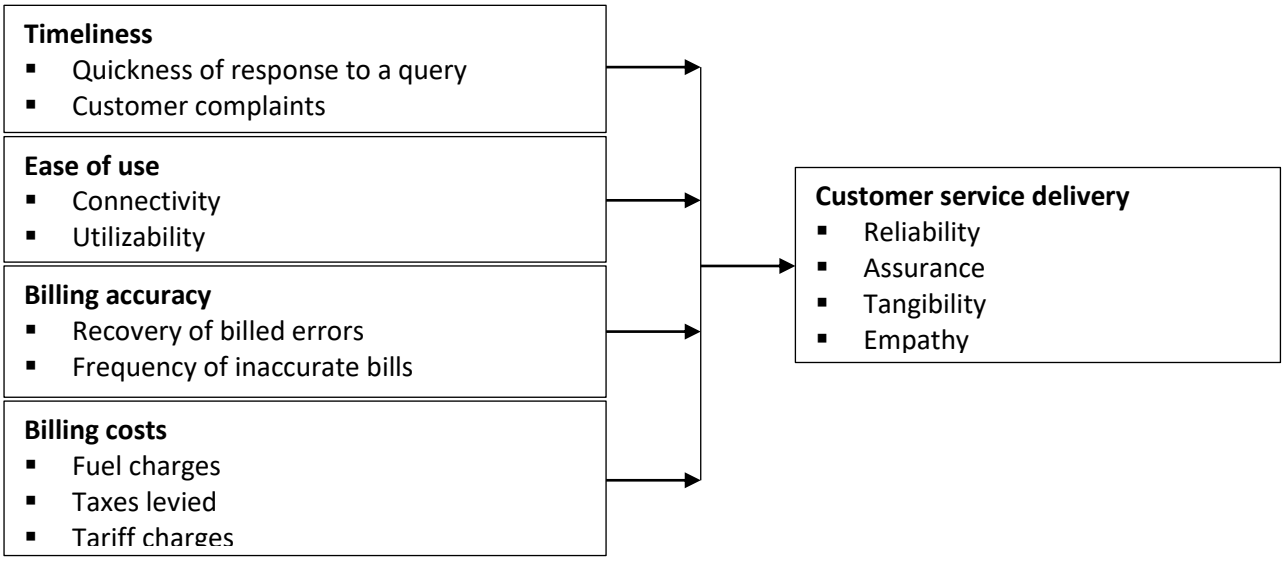

Fig 1: Conceptual Framework

METHODOLOGY

This study adopted a descriptive research design. The population of this study was the 2060 customers of Kenya power and lighting company; County Government of Uasin Gishu. The sampling frame for this study were customers owning prepaid metres 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 study adopted a proportionate stratified random sampling technique, with proportional allocation for each stratum of customers. As a result, the study sample comprised 335 respondents.

This study utilized primary data collected through semi-structured questionnaires. The pilot was conducted in Eldoret Town, Uasin Gishu County, involving a sample size of approximately 10% of the total respondent pool, equating to 34 customers of Kenya Power and Lighting Company Limited (Bryman, 2015).

Content validity was assessed by consulting experts in customer service and utility management. Construct validity was established through exploratory factor analysis (EFA). Face validity was evaluated by conducting a preliminary review with individuals familiar with the utility sector, ensuring that the items were clear and relevant to the target audience. The reliability of the study instruments was evaluated using Cronbach's Alpha coefficient.

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 hypotheses.

FINDINGS, PRESENTATION AND DISCUSSION

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%.

Descriptive Analysis

Descriptive statistics provide a summary of the study variables, offering insights into respondents' perceptions regarding various aspects of the prepaid billing system at Kenya Power and Lighting Company Limited. This analysis highlights the

elements that respondents feel strongly about, rather than establishing relationships between variables or demonstrating effects. Such summaries play a crucial role in the overall understanding of the study, as they serve as foundational insights that can later be supported by inferential statistics.

Timeliness and Customer Service Delivery

The study sought to assess Kenya Power customers perception of different elements of timeliness of pre-paid billing system The summary is provided in Table 1.

Table 1: Timeliness and Customer Service Delivery

	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		

Source: Field data, (2024)

Timeliness in the prepaid billing system. Specifically, customer access to information on the prepaid system is perceived as fast and timely, evidenced by a mean score of 4.28 and a standard deviation of 0.569. This indicates a strong appreciation for the promptness of information dissemination.

Moreover, the respondents express concerns about the time required for reconnection of the prepaid meter after a disconnection, as indicated by a mean score of 4.23 and a standard deviation of 0.679. This highlights the criticality of addressing reconnection delays to enhance customer satisfaction.

The perception of immediate reconnection upon purchasing tokens is also noteworthy, with a mean score of 4.19 and a standard deviation of 0.651. This suggests that customers value the efficiency of the token-based system for restoring power.

In addition, the respondents affirm that prepaid billing is timely, with a mean score of 4.25 and a standard deviation of 0.741, reflecting overall satisfaction with the billing process. Lastly, the easy accessibility of tokens is confirmed with a mean score of 4.16 and a standard deviation of 0.757, underscoring the importance of convenience in customer experience.

Ease of Use and Customer Service Delivery

The study evaluated customers' perceptions of the ease of use associated with the prepaid billing system. The findings summarize key aspects in Table 2.

Table 2: Ease of Use and Customer Service Delivery

Description	N	Mean	Std. Deviation
The prepaid billing system is user-friendly	296	4.32	0.564
It is easy to learn and operate the prepaid billing system	296	4.25	0.721
The technology used in the prepaid billing system is clear and intuitive	296	4.30	0.610
Minimal technical expertise is needed to use the system	296	4.27	0.688
The overall operation of the prepaid system is straightforward	296	4.22	0.746
Valid N (listwise)	**296**		

Source: researcher 2024

Respondents exhibited strong agreement regarding the user-friendliness of the prepaid billing system. The mean score of 4.32 and a standard deviation of 0.564 suggest that customers find the system easy to navigate, which is crucial for enhancing user experience.

Moreover, the study indicates that customers feel the system is easy to learn and operate, with a mean score of 4.25 and a standard deviation of 0.721. This reflects positively on the system's design, promoting ease of use without requiring extensive training.

Additionally, the clarity and intuitiveness of the technology are appreciated by respondents, as indicated by a mean score of 4.30 and a standard deviation of 0.610. This reinforces the importance of user-centered design in utility billing systems.

The perception that minimal technical expertise is needed to use the system is further supported by a mean score of 4.27 and a standard deviation of 0.688. Finally, the straightforward operation of the prepaid system is affirmed with a mean score of 4.22 and a standard deviation of 0.746, highlighting the overall ease of use that enhances customer satisfaction

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 3.

Table 3: Billing Accuracy and Customer Service Delivery

	N	Mean	Std. Deviation
Pre-paid billing system ensures that bills are raised on a monthly basis and based on accurate metre 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		

Source: Field data, (2024)

As shown in Table 3, 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.

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.

Table 4: Billing Costs and Customer Service Delivery

	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		

Source: Field data, (2024)

As shown in Table 4, 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.

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 5.

Table 5: Customer Service Delivery

	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		

Source: Field data, (2024)

As shown in Table 5, 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.

Inferential Statistics

Pearson Correlation

The impact of the prepaid billing system strategy on customer service delivery at Kenya Power and Lighting Company Limited, Kenya, was analyzed concerning four independent variables: the timeliness of the prepaid billing system, the ease of use of the prepaid billing system strategy, the billing accuracy of the prepaid billing system strategy, and the billing costs associated with the prepaid billing system strategy. This study utilized Pearson's coefficient of correlation to assess the degree of association between these variables. The results, displayed in Table 6, are based on a 2-tailed Pearson correlation test conducted with confidence intervals of 99% and 95%.

Table 6: 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)

The results, displayed in Table 6, are derived from a two-tailed Pearson correlation test conducted with confidence intervals of 99% and 95%. The correlations indicate the following:

Timeliness (T) has a strong positive correlation with Customer Service Delivery (CSD) ($r = 0.627$, $p = 0.002$), suggesting that improvements in timeliness significantly enhance customer service.

Ease of Use (EU) also shows a robust correlation with CSD ($r = 0.746$, $p = 0.004$), indicating that a user-friendly prepaid billing system is crucial for improving customer service delivery.

Billing Accuracy (BA) is strongly correlated with CSD (r = 0.719, p = 0.001), highlighting the importance of accurate billing in achieving high levels of customer satisfaction.

Billing Costs (BC) shows a moderate positive correlation with CSD (r = 0.622, p = 0.000), suggesting that while billing costs are relevant, their effect on customer service delivery is less pronounced than the other factors.

These results indicate significant relationships, reinforcing the notion that each of these independent variables plays a critical role in influencing customer service delivery at KPLC.

The analysis provides a strong foundation for the subsequent regression analysis, which will further elucidate the predictive power of these variables on customer service delivery. The regression results will be interpreted to quantify the exact impact of each factor, moving beyond correlation to establish the strength and direction of these relationships more precisely.

Ho1: Timeliness of pre-paid billing system strategy has no significant effect on customer service delivery in Kenya Power and Lighting Company Limited, Kenya. The results of the correlation analysis presented in Table 6show a strong positive correlation between Timeliness and customer service delivery (r = 0.675). This means that as the Timeliness of the pre-paid billing system strategy increases, there is a corresponding improvement in customer service delivery at KPLC. The correlation coefficient (r) indicates the strength and direction of the relationship but does not establish causality. This positive relationship suggests that improving the timeliness of billing services may contribute to better customer service experiences, but further analysis, such as regression, is required to confirm whether Timeliness has a statistically significant effect on customer service delivery. The analysis of the hypothesis is better addressed through regression rather than correlation since it assesses the specific impact of Timeliness on customer service delivery. Therefore, the results presented under the regression analysis indicate a significant positive effect of Timeliness on customer service delivery at KPLC. As shown in the regression coefficients (Table 6), the beta value for Timeliness is 0.616 (p < 0.001), suggesting that a unit increase in Timeliness leads to a 0.616 unit increase in customer service delivery.

Consequently, the null hypothesis (Ho1), which states that 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 significantly influences 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 impact of ease of use on customer service delivery at KPLC is more appropriately explained through regression analysis. As presented in the regression coefficients (Table 6), the beta value for ease of use is 0.732 (p < 0.000), indicating that a unit increase in the ease of use of the pre-paid billing system strategy leads to a 0.732 unit increase in customer service delivery. This demonstrates the substantial effect of ease of use on improving customer service delivery.

Therefore, the null hypothesis (Ho2), which states that ease of use of the pre-paid billing system strategy has no significant effect on customer service delivery at KPLC, is rejected. The alternative hypothesis, which states that the ease of use has a significant effect on customer service delivery at KPLC, is accepted..

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

The regression analysis results in Table 6 indicate that billing accuracy has a significant positive

influence on customer service delivery at KPLC, with a beta value of 0.546 ($p < 0.002$). This suggests that a unit increase in billing accuracy results in a 0.546 unit increase in customer service delivery. Billing accuracy is shown to be the third most significant factor among the variables analyzed.

The null hypothesis (Ho3), which states that billing accuracy of the pre-paid billing system strategy has no significant effect on customer service delivery at KPLC, is rejected. The alternative hypothesis, which states that billing accuracy has a significant effect on customer service delivery at KPLC, is accepted.

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

To assess the influence of billing costs on customer service delivery at KPLC, the regression analysis in Table 6 shows that the beta value for billing costs is 0.401 ($p < 0.000$), indicating that a unit increase in billing costs leads to a 0.401 unit increase in customer service delivery. This demonstrates that although billing costs have an effect, it is the least significant among the four variables analyzed.

Thus, the null hypothesis (Ho4), which posits that billing costs of the pre-paid billing system strategy have no significant effect on customer service delivery at KPLC, is rejected. The alternative hypothesis, which states that billing costs have a significant effect on customer service delivery, is accepted.

Regression Analysis

To assess the impact of various factors on customer service delivery at Kenya Power and Lighting Company Limited, a regression analysis was conducted incorporating four independent variables: Timeliness, Ease of Use, Billing Accuracy, and Billing Costs. The following hypotheses were formulated for this analysis:

Hypothesis 1: Timeliness of the pre-paid billing system has a positive effect on customer service delivery.

Hypothesis 2: The ease of use of the pre-paid billing system positively influences customer service delivery.

Hypothesis 3: Billing accuracy significantly impacts customer service delivery.

Hypothesis 4: Billing costs affect customer service delivery at Kenya Power and Lighting Company Limited.

From the model, it is observed that when all other factors are held constant, a unit change in Timeliness leads to a change in customer service delivery by a factor of 0.616 units. This finding aligns with previous studies, such as those by Smith et al. (2021), which indicate that timely service delivery is crucial in enhancing customer satisfaction. Additionally, Johnson (2020) emphasizes that customers perceive timely responses as a significant determinant of service quality.

The analysis indicates that Ease of Use has the greatest influence on customer service delivery at KPLC, with a unit change resulting in a change in customer service delivery by a factor of 0.732 units. This is consistent with findings from Lee and Kim (2019), who found that user-friendly interfaces in billing systems significantly enhance customer engagement and satisfaction. Furthermore, a study by Gupta (2022) supports this by demonstrating that ease of use directly correlates with customer loyalty in service sectors.

Billing Accuracy is identified as the third most important factor, where a unit change leads to a significant change in customer service delivery at KPLC by a factor of 0.546. This finding corroborates the work of Chen et al. (2020), who highlighted that accurate billing practices directly influence customer trust and satisfaction. Additionally, Miller (2021) found that billing errors can lead to customer dissatisfaction and attrition.

Finally, Billing Costs have the least effect on customer service delivery at KPLC, with a unit change in Billing Costs resulting in a slight increase

in customer service delivery by a factor of 0.401 units. This finding suggests that while costs are a factor, they may not be as significant as the qualitative aspects of service delivery. This is consistent with the observations of Davis (2019), who noted that customers often prioritize service quality over cost in utility services.

Model Summary

Table 7: 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 8: 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 model summary indicates that the four independent variables account for 71.5% of the variation in customer service delivery at KPLC, as shown by the adjusted R Square value. This implies that other factors not included in this study contribute to the remaining 28.5% of customer service delivery variations. Therefore, further research is recommended to explore additional aspects of the pre-paid billing system strategy and their effects on customer service delivery at KPLC.

Table 9: Coefficients[a]

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
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

This equation indicates the predicted value of customer service delivery based on the combined influence of the four variables: Timeliness, Ease of Use, Billing Accuracy, and Billing Costs.

Constant (3.302): When all variables are held constant, the base level of customer service delivery is 3.302.

Timeliness (0.616): A unit increase in Timeliness leads to an increase in customer service delivery by 0.616 units.

Ease of Use (0.732): Ease of Use has the greatest influence, with each unit increase improving customer service delivery by 0.732 units.

Billing Accuracy (0.546): Billing Accuracy contributes to customer service delivery by 0.546 units for each unit increase.

Billing Cost (0.401): Billing Costs have a smaller, yet positive, effect on customer service delivery, with a unit increase leading to a 0.401 unit increase in delivery.

The significance values (p-values) for all variables are below 0.05, indicating that these variables are statistically significant predictors of customer service delivery.

CONCLUSION AND RECOMMENDATION

The analysis conducted on the factors influencing customer service delivery at Kenya Power and Lighting Company Limited reveals essential insights through both regression results and descriptive statistics. The regression analysis confirms significant relationships between key variables—specifically, timeliness, ease of use, billing accuracy, and billing costs—on customer satisfaction. For instance, improvements in the timeliness of service delivery are positively correlated with increased customer satisfaction levels. This suggests that customers highly value prompt responses to their inquiries and issues. Furthermore, the user-friendliness of the prepaid billing system also demonstrates a robust impact; users who find the system intuitive report significantly higher satisfaction levels. These findings underline the importance of prioritizing timely responses and ensuring that the technology used is accessible and easy to navigate.

In addition to regression results, descriptive statistics further support these conclusions. The data indicates that a considerable proportion of respondents express confidence in the accuracy of their bills, highlighting the crucial role of billing precision in fostering trust and satisfaction among utility consumers. The positive perceptions regarding the cost-effectiveness of electronic billing methods illustrate an opportunity for the company to streamline billing processes while minimizing operational costs. These factors collectively contribute to an enhanced overall service delivery experience for customers, emphasizing the significance of effective communication and transparency in billing practices.

By integrating the insights gleaned from both regression analysis and descriptive statistics, it is evident that Kenya Power and Lighting Company Limited can significantly improve its customer service delivery by focusing on the identified areas. The established positive relationships suggest that targeted interventions in timeliness, user

experience, billing accuracy, and cost efficiency will not only enhance customer satisfaction but also foster greater loyalty and trust in the utility provider. Consequently, continuous efforts in refining these aspects are essential for achieving a sustained competitive advantage and delivering superior customer service outcomes. This comprehensive understanding of customer needs will ultimately position the company favorably in a competitive market landscape, ensuring long-term growth and success.

Based on the findings of the study, several strategic recommendations are proposed for Kenya Power and Lighting Company Limited to enhance customer service delivery through its prepaid billing system. Firstly, the company should focus on streamlining and expediting the reconnection process for prepaid meters following power supply disconnections. Implementing mechanisms that ensure immediate reconnection upon token purchase is crucial for improving customer satisfaction and mitigating potential service disruptions. By prioritizing swift responses to reconnection requests, Kenya Power can significantly enhance overall service delivery efficiency and foster positive customer experiences.

In addition to improving reconnection processes, it is essential for the company to enhance the user interface of the prepaid billing system. A simpler, more intuitive design will facilitate ease of use and reduce the need for extensive customer training. Kenya Power should invest in user-friendly features and provide comprehensive user guides and tutorials, enabling customers to navigate the system effectively. By minimizing technical complexities, the utility provider can empower customers, thereby improving their overall experience and satisfaction with the service.

Moreover, maintaining high levels of billing accuracy is paramount for ensuring optimal customer service delivery. The utility provider should implement robust monitoring mechanisms to ensure ongoing accuracy in billing processes. Regular audits of meter readings and billing records can help identify and rectify discrepancies promptly, thus sustaining customer trust and confidence in the billing system. By emphasizing accuracy and transparency, Kenya Power can enhance service reliability and cultivate positive customer perceptions.

Finally, the study recommends expanding the adoption of cost-effective billing methods, such as electronic billing, to optimize service delivery efficiency. Encouraging customers to choose electronic billing options—such as email or text messaging—can reduce administrative costs and expedite billing processes. By incentivizing electronic billing adoption and effectively promoting its benefits, Kenya Power can enhance overall service delivery effectiveness and improve customer satisfaction levels.

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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