2020

Assessing the relationship between service quality and satisfaction of customers: a case study of Kenya Power Limited

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ASSESSING THE RELATIONSHIP BETWEEN SERVICE QUALITY AND SATISFACTION OF CUSTOMERS: A CASE OF KENYA POWER LIMITED

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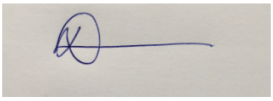
A DISSERTATION SUBMITTED FOR PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION AT STRATHMORE UNIVERSITY

April, 2020

DECLARATION

Declaration by candidate:

The research is my original work and has not been submitted for the assessment of a master's degree in any other university.



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Signature Date

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Declaration by supervisor:

I confirm that the work has been submitted for examination with my approval as the university supervisor.

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ABSTRACT

The global general trend in the provision of electrical services by distribution companies is one emphasizing customer centricity, efficiency and diversification of services. This move derives impetus from the observation that customers of utility services are appreciative of value-add services and that this appreciation translates into brand loyalty. The local context in Kenya however differs from most western countries in that Kenya Power and Lighting Company exercises a monopoly in the distribution of electricity services. It is thus the main aim of this study to assess whether customers of the rendered services, given the growing importance of customer-centricity in service rendering, are satisfied with the company's offerings. The specific objectives of the study are as follows; to establish the extent to which communication techniques influence customer satisfaction with service delivery by Kenya Power in Nairobi County; to establish how reliability of power supply influences customer satisfaction with service delivery by Kenya Power in Nairobi County; to determine how cost of electricity influences customer satisfaction with service delivery by Kenya Power in Nairobi County; to determine how innovation of new products influences customer satisfaction with service delivery by Kenya Power in Nairobi County. The primary data was collected through a structured questionnaire via an e-survey platform targeting Kenya Power residential customers residing in Nairobi County. The calculated sample size for this population came to 384 respondents and the research was able to obtain a 72.4% response rate. A subsequent ordinary least squares multiple regression was run to assess the relationship between the variables highlighted in the objectives. Findings from the simple linear regression models indicated that communication techniques were the most impactful on overall customer satisfaction with a beta coefficient of 0.58 with the model explaining 18.9% variability in customer satisfaction. Reliability, cost of electricity and innovation, respectively, were also considered significant predictors as assessed through simple regression models. Innovation was the least impactful contributor to overall customer satisfaction. Cost and innovation were however not considered significant predictors in the multiple regression model. The study concluded that it was therefore apparent that improving communication techniques would result in a market increase in customer satisfaction. Reliability of service had the second highest impact on customer satisfaction. A unit increase in reliability scores was associated with a 0.250 lowering of dissatisfaction among clients. This finding was significant at the 95% confidence level. It was therefore inferred that reliability was the second most important construct in affecting customer satisfaction. The study recommends that Kenya Power consider leveraging on core systems that will enable them to seek knowledge on the information requirements of their consumer base as communication techniques play a critical role in their satisfaction.

Key Words: Communication techniques, customer satisfaction, reliability, cost of electricity, innovation, service provision.

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LIST OF ABBREVIATIONS AND ACRONYMS

3D TV – Three-Dimensional Television

ACSI- American Customer Satisfaction Index

CEO – Chief Executive Officer

GW - Gigawatt

ISO - International Organization for Standardization

JKUAT – Jomo Kenyatta University of Agriculture and Technology

MD – Managing Director

MW – Megawatt

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DEFINITION OF KEY TERMS

Services - Deeds, processes and interactions that are intangible, heterogenous, inseparable and perishable (Zeithaml & Bitner, 2003)

Customer Satisfaction - A person's perception of pleasure or disappointment resulting from a comparison of the outcome and expectation of a rendered service (Kotler, 2012).

Quality - Summation of the affective evaluations by each customer of each attitude object that creates customer satisfaction (Wicks & Roethlein, 2009)

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Background information

Global extant literature on the effect of service delivery on customer satisfaction points to increasing focus on a customer-driven service provision approach. A notable example in support of this assertion is exemplified by Norway's allowance for customers to choose energy suppliers from the list provided by the Norwegian Ministry of Energy and Petroleum (2017). Another is depicted by Xiao, Yao, and Bu's (2019) smart system model that takes into account the consumer's appliances and prevailing electricity costs to optimize the pricing of consumption. This trend is similarly exhibited in the regulatory environment as depicted by Migue´, Camanho1, Bjørndal and Bjørndal's (2012) portrayal of innovation in the Norwegian context as being less a function of the regulatory environment – which advocates for liberalization – and more a result of the inherent innovative pressure of the local companies operating in different regions of the country.

The regional context however contrasts rather sternly with the global; Medjoudj, Aissani and Haim (2013) and Chodzaza and Gombachika (2013) in studies conducted in Algeria and Malawi, respectively, point to a prevalence of inconsistent and unreliable supply of electricity in the two countries. The situation in East Africa, as depicted by Kayega (2013) in a study of Tanzania Electric Supply Company's communication outreach effort point to a dimmer view with the study evidencing a dichotomy of views on the efficacy of communication as viewed by the parastatal and the public.

According to the Global Energy Architecture Performance Index Report (2017) Kenya ranks 109th with reasons for the ranking, among others, stemming from the overreliance on hydroelectric power and the comparatively ineffective service delivery process. Mathenge's (2015) study on customer satisfaction with KPLC services indicates a general dissatisfaction despite the rolling out of the token-based system that was aimed at

improving service delivery. Miyogo, Nyanamba and Nyangweso (2013) in a study conducted in the western region of the country (Kisumu) however provide different findings pointing to a general acceptance of the token system in the region. Mutua, Ngui, Osiolo, Aligula and Gachanja (2012) in an earlier more robust study featuring comparative satisfaction with service provision in the energy sector depict the electricity distribution sub-sector as having the highest level of dissatisfaction with a consumer satisfaction rate of a meagre 53%. The conflicting findings and divergent regional and local trends in customer service satisfaction as a function of delivery of service thus provide impetus to the current proposed study.

1.1.1 Customer Satisfaction

Kotler (2012) defines customer satisfaction as a person's perception of pleasure or disappointment resulting from a comparison of the outcome and expectation of a rendered service. This definition however emanates from early publications on the subject matter. According to Oliver (1977) in his enumeration of the entails of satisfaction in the expectation-disconfirmation theory, satisfaction, as perceived by the consumer of a product or service, is informed by the difference between what one expects and what one perceives and as abstracted by the service recipient. This definition of satisfaction thus centers on the consumer and his/her perception of Edwardson's (1998) service; noteworthy as well is that the eventual level of satisfaction is dependent on the prior expectations of the recipient. This thus suggests that a lack of alignment between the expectations of the service renderer and the recipient would lend itself to low levels of satisfaction despite the actual qualities of the service. Poiesz and Van Grumbkow (1988) in a supporting definition to that put forward by Oliver (1977) succinctly define the term 'customer satisfaction' as the discrepancy between the observed and the desired. It is thus apparent that satisfaction is a function of both the expected and the achieved in the service rendering process.

In the current study, customer satisfaction is thus viewed as entailing the ability of the Edwardson's (1998) service to meet the expectations of the consumer. Applying the definition to the rendering of services by KPLC, customer satisfaction involves both the ability of the distribution to meet the consumer's needs and preferences as well as the ability of the service renderer (KPLC) to meet consumers' additional electricity-provision related wants and preferences. Customer satisfaction is measured through considerations of the general gap between expectation of the customer and the general perceived ration of services offered by the provider; this approach is consistent with the expectation disconfirmation theory as put forward by Oliver (1977).

1.1.2 Service Delivery

The definition of services and service quality, as depicted in recent literature, stem from seminal publications put forward by such authors as Cuthbert (1996) and Lovelock (1991) Services, as described by Cuthbert (1996) are intangible, heterogenous, inseparable and perishable. Prior conceptualizations of the term depict services as deeds, processes and interactions (Solomon, Surprenant, Czepiel & Gutman, 1985; Lovelock, 1991; Zeithaml & Bitner, 2003). Hill (1977) additionally defines a service as a change occurring in the person or to something that the person possesses. Lovelock (1991) in a supporting definition views a service as entailing a process as opposed to a thing. This definition, in light of Hill's (1997) therefore would mean that the change occurring to the person or the item possessed by the person would be as a result of the Lovelock's (1991) process i.e. the service.

In the current study, service quality is assessed through four main explanatory variables – communication techniques, reliability of power supply, cost of electricity and innovation of new products (Sernhed., Pyrko and Abaravicius, 2003; Chodzaza and Gombachika, 2013; Medjoudj, Aissani & Haim, 2013; Liu, Xiao, Yao, and Bu (2019). The construct 'communication' is conceptualized as going beyond the traditional aspects of responsiveness to a more anticipatory approach involving partnership with the consumer Sernhed, Pyorko and Abaravicius, (2003). Reliability is assessed as entailing consistency

in service rendering whereas cost entails the charge levied to the consumer of the service. Finally, innovation spans the general creativity involved in offering value to the customers through modifications to the service rendering process as exemplified by Liu, Xiao, Yao and Bu (2019) in their prescribed smart system.

1.1.2.1 Communication techniques

Ball Coelho and Machás (2004) conceptualize communication techniques as the approaches and tools put in place to engage in two-sided information exchange between the company and the client. Communication techniques therefore present as a conduit through which customers' needs are understood and acted upon. In the service industry communication is particularly of importance due to the interaction between the service renderer and the recipient of the benefits of the service. In the current study, communication techniques are assessed on the basis of Responsiveness to queries, Efficacy of communication strategies and Prior knowledge of outages (Sernhed., Pyrko & Abaravicius, 2003; Kayega, 2013; Chowdhury et al., 2004).

1.1.2.2 Reliability of power supply

Reliability of power supply can be defined as the ability to meet the electricity needs of customers even when unexpected equipment fails or other conditions reduce the amount of available power supply (Payne, 2010). Reliability of power supply is a factor of particular importance to consumers that rely on power supply for their productivity and livelihood. Commercial consumers are more likely, than residential consumers, to be affected by fluctuations in power supply. In the current study the following constructs are used to operationalize the construct – Frequency of blackouts, Consistency in repair duration, Availability of support (Chodzaza & Gombachika; 2013; Medjoudj, Aissani & Haim, 2013)

1.1.2.3 Cost of power supply

The foregoing two factors – communication techniques and reliability – are contingent on the cost of the service. Employing excellent communication technique and reliable supply would be inconsequential in the targeted consumers are unable to purchase the rendered services. It is therefore necessary to ensure that the pricing of services is both appealing and sustainable. The current study takes a multifaceted approach in assessing the entails of cost; the following sub-variables are considered in operationalizing the construct - Perception of cost, Transparency in costing, Minimization of expenditure (Liu, Xiao, Yao, and Bu (2019). The costing of the service should be favorably perceived by consumers, the pricing mechanism should be easily understood and the cost levied onto the consumer should be as low as they can be to prevent exploitation of vast majority of the population that is generally low-income.

1.1.2.4 Innovation

Nemati, Khan and Iftikhar (2010) define innovation as the process of creating, improving and applying a new product, process or service with the goal of improving efficiency for competitive advantage. Essentially, innovation involves creating additional value by companies. The value created should be decipherable to the intended consumers and should yield additional benefit to the producer. As an example, implementing a customer loyalty program involving the issuance of points on purchase of items presents as an innovation that offers the value of cost savings to consumers and customer loyalty to the service providers. In the current study, innovation is assessed on the basis of the following sub-variables - Token system utility, Solution-oriented partnerships and up-to-date technology e.g. Mpesa (Mathenge's, 2015; Miyogo et al., 2013)

1.1.3 Kenya Power and Lighting Company

Distribution of electricity in Kenya is monopolized by Kenya Power and Lighting Company (KPLC) a parastatal responsible for offtake of power from generating entities and distribution of electricity services to the populace. The company, as of June 2018, sold electricity to 6,761,090 individuals in the country (KPLC, 2018). The company has an ownership structure of 50.1 government ownership and 49.9% private ownership. KPLC is listed in the Nairobi Stock Exchange.

Among the main functions of the company is to plan for sufficient electricity generation and transmission capacity to meet demand; building and maintaining the power distribution and transmission network and retailing of electricity to its customers (KPLC, 2018). The company is, as such, responsible for handling of client needs and preferences and performs the function directly through interacting with the millions of clients subscribed through regional offices distributed across the country.

Kamwana and Muturi (2014) in an assessment of financial management at KPLC posit that there is need for a rethinking of the approach through which resources are managed in the bid to deliver needed service to clients. Specifically, the researchers point to a need to carefully assess the policies and practices of the company so as to ensure optimal project performance. This observation points to the need to assess service quality of the company and its impact on customer satisfaction.

Nyoike (2014) further calls to question the autonomy of Kenya's electricity regulation board in that pursuing the interests of the public may be curtailed by partisanship within the operational framework. This lack of congruency between public and institution interests may have implications on customer satisfaction; this assertion is investigated in the current study.

1.2 Statement of the Problem

The global trend in service provision and customer satisfaction shows evidence of customer-centricity and innovation in service offering to meet diversity in consumer needs (Xiao, Yao, and Bu's, 2019; Migue´ et al., 2012). This trend is however not as apparent in the regional and local domains thus pointing to the possibility of consumer disgruntlement as a result of lacking innovation in the sector (Medjoudj Chodzaza & Gombachika, 2013; Kayega, 2013; Mutua, 2012). It is thus apparent that there is a need for assessment of the possible reasons for a lag in customer-centricity in service provision despite the documented merits of the approach to service provision. Additionally, in the Kenyan context, an apparent conflict of findings presents with regard to the uptake of such services as token-based electricity delivery (Mathenge, 2015; Miyogo, Nyanamba & Nyangweso, 2013). This conflict points to a need for additional empirical studies that would serve to contribute to the rhetoric on the approaches to improved customer satisfaction in the local context – this study addresses this gap.

Although Kenya Power still remains a monopoly in distribution of electricity, the environment under which it is operating is rapidly changing and its customer base has grown forcing the company to react and implement the latest techniques in communication, reliability, cost and innovation. According to project management principles, appreciating customer satisfaction is one of the most important strategies of best performing corporate organizations (Besterfield, et al., 2010). This is the only way to realize and maintain a loyal customer base. The goal of this work is to better understand the factors influencing customer satisfaction with service provision by Kenya Power through an in-depth study of the existing customer base. An exercise was carried out in the month of February 2017 by Kenya Power engineers to provide alternative power supply to the top 100 industries in the country. This required the engineers to get feedback from the customers on the current supply and their level of satisfaction or dissatisfaction. Overwhelmingly, majority of the customers were dissatisfied (Kenya Power Customer Care Desk, Nairobi North Division, 2017). They complained of constant blackouts, slow response to emergencies, voltage surges which damaged their equipment

and high electricity bills. Previous research by (Makowenga, 2013) and (Kimono, May 2013) confirms the same sentiment; Kenya Power Company's customers are not satisfied with the services provided. Empirical studies conducted by Kamwana and Muturi (2014) and Nyoke (2014) point to possible misalignment between service provision aspects and customer interests. This study thus serves to bridge the gap of a dearth of empirical studies on the service provision aspect of KPLC and customer satisfaction. This being the situation, it was necessary to determine the factors influencing customer satisfaction with service provision by Kenya Power Company and to come up with remedies for this.

1.3 Purpose of the Study

The purpose of this study was to establish how service delivery influences customer satisfaction by Kenya Power Company in Nairobi County.

1.4 Objectives of the Study

The general objective of the study is to determine the effect of Kenya Power' communicating techniques, reliability, cost and innovation on customer satisfaction in Nairobi County

This study will be guided by the following objectives:

i. To establish the extent to which communication techniques influence customer satisfaction with service delivery by Kenya Power Company in Nairobi County
ii. To establish how reliability of power supply influences customer satisfaction with service delivery by Kenya Power Company in Nairobi County.
iii. To determine how cost of electricity influences customer satisfaction with service delivery by Kenya Power Company in Nairobi County
iv. To determine how innovation of new products influences customer satisfaction with service delivery by Kenya Power Company in Nairobi County

1.5 Research Questions

i. To what extent do communication techniques affect customer satisfaction with service delivery by Kenya Power Company in Nairobi County?
ii. To what extent does reliability of power supply influence customer satisfaction with service delivery by Kenya Power Company in Nairobi County?
iii. To what extent does cost of electricity influence customer satisfaction with service delivery by Kenya Power Company in Nairobi County?
iv. To what extent does innovation of new products affect customer satisfaction with service delivery by Kenya Power Company in Nairobi County?

1.6 Significance of the Study

From a legislative perspective, findings from this study serve the purpose of providing insight into the role of service rendering in influencing customer satisfaction; this information may in turn be used to inform the creation of legislation aimed at improving the satisfaction rate of the populace to whom the services are rendered. Study findings can subsequently be of relevance to the government in that insights on the satisfaction rates as a function of the service rendering process may be useful in the construction of regulations aimed at improving service delivery in the sector.

From a practical vantage point the findings from the study allow for identification of gaps in KPLC's service rendering process. It is hoped that the result of this study could provide Kenya Power Company with an insight into the mind of the customer and in turn help the company anticipate the customers expectations (Cranage, 2004). This might help the company to tailor their services to meet the customers evolving needs. This study could also help Kenya Power Company to increase revenue by meeting customer needs, the company may establish a loyal base of customers in this dynamic and competitive environment and to provide quality supply to these customers (Besterfield, et al., 2010). This could also help to attract new customers in future. In addition, this study might also benefit the nation as a whole. A stable supply of electricity enhances development in that

it attracts foreign investors and in turn increases revenue for the government and provides job opportunities for the youth.

Finally, to academicians, the study provided value in that it sheds a light between the relationship between communication techniques, reliability, cost and innovation in the electricity service provision – a previously scarcely explored topic. Additionally, focusing on a monopoly, the study allows for elucidation of the relationship between the variables as viewed in a non-competitive context.

1.7 Scope of the study

The study focused on customer service personnel and consumers of KPLC services in Nairobi County. The total number of customers in Nairobi County is 2,211,939 (Kenya Power Human Resource and Customer Care Departments, 2017). Findings from the study are therefore applicable to consumers within the county.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains the literature reviewed during this study. The concept of customer satisfaction and customer satisfaction models is discussed in depth. The variables under the study are discussed; these include – communication techniques, cost of electricity, reliability of power supply and innovation of new products.

2.2 Theoretical framework

The purpose of this section is to highlight the lens used in inferring the relationship between the variables under assessment in this study. Two theories centering on the role of service provision in influencing customer satisfaction are thus put forward – the Expectation-disconfirmation theory and the KANO model. The entails of these theories, their proponents, and their pertinence to the current study are subsequently discussed.

2.2.1 Expectation Disconfirmation Theory

The theory of expectation disconfirmation, first put forward by Oliver (1980), brought to the rhetoric on satisfaction of consumers two constructs – performance-specific expectation and expectancy disconfirmation. The theory has been used recently, by Tabassum and Rahman (2017) in an exposition of the service quality in electricity supply in Bangladesh. As Oliver (1980) argues, consumers of products and services, prior to their interaction with the product/service hold specific expectations regarding the nature and quality. These expectations may be shaped by personal opinions, prior interactions with the products/services and communication with the selling entity, among other nominal factors (Helson & Harry, 1959). Expectations of the consumer serve to create the frame of reference utilized in measuring the outcome; performance below the expected

results in negative disconfirmation whereas performance deemed to supersede expectations results in positive disconfirmation (Oliver, 1980). Performance at per with expectation thus results in the matching of the consumers expectation hence minimal satisfaction. Oliver (1977) further adds to the model by including performance as an additional variable in the assessment of satisfaction. In the later model, the author posits that the actual perception of performance, as may be presented through performance ratings, plays a significant role in determining the overall outcome of the client's satisfaction. A noteworthy addition in the latter model involves the influence of expectation on performance in that a high expectation results in higher ratings of performance with the inverse being true (Oliver, 1997).

The expectation disconfirmation theory has been used by different authors focusing on different sectors. Huang (2015) using data on customer satisfaction with mobile phone use sought to confirm the validity of the model in predicting satisfaction as a function of expectations by assessing both variables – satisfaction and expectation – in a stochastic model. The outcome of the probability model served to confirm the relationship between the two variables with satisfaction scores presenting as a function of expectation. Lankton and McKnight (2012) in an assessment of customer satisfaction in the use of information technology systems show that Oliver's (1997) model provides a more robust model than the earlier simplified model (Oliver, 1980) in the assessment of customer satisfaction with information systems. Lankton, McKnight and Thatcher (2014) and Lankton *et al.*, (2016) further confirm the utility of the system in assessing continued use of strategic information systems and trust in IT systems respectively. It is therefore apparent that the theory forms a robust model by which to anticipate customer satisfaction as predicated on expectation, performance and disconfirmation.

In applying the model to the current study, the researcher underlines Helson and Harry's (1959) determinants of expectations as fundamental concepts in the crafting of expectation – qualities of the service Edwardson's (1997) service in this case, the communication/interaction with the service/product seller, and the subjective perceptions of the service. KPLC customers based on prior interactions with the product have a long

history of expected quality of the service rendering process which according to Oliver's (1997) model may serve to lower their performance expectations from the company. Secondly, general perception of the company with regard to service rendering may serve to both influence the expected performance and create higher disconfirmation than merited. Finally, the interaction between the company and the consumers, as effected through communication channels, may play a significant role in affecting the overall satisfaction with the rendered service. The entails of the theory, as applicable to KPLC and its clients, with thus be tested and quantified in the current study.

2.2.2 KANO Model

The Kano model was invented by Noriako Kano (1984) who was an educator, writer and consultant in the quality management field. The Kano model uses a simple ranking scheme that distinguishes the essential and differentiating factors affecting quality of a product. He challenged the belief that improving each factor can lead to improved customer satisfaction (Kano & Nobuhiku, 1984). The model thus relates to the expectancy disconfirmation theory as it depicts customers satisfaction as a function of the augmented effect of multiple determining factors i.e. innovation, spoken and expected requirements and unspoken but expected requirements. This model is of pertinence to the current study in that it allows for the concurrent evaluation of the impact of independent variables on a dependent variable. A multiple linear regression model is used to predict the impact, on customer satisfaction, of the factors – communication techniques, reliability, cost and innovation.

The easiest way to think of the model is on a two-dimensional grid. The horizontal axis represents the input of the organization. As input increases, the organization incurs more expenses in an aim to improve the quality. The vertical axis represents the satisfaction of the customer, moving from an extreme negative of disappointment to an extreme positive of elation (Kano & Nobuhiku, 1984). Kano believed that not all factors of product performance are the same or equal in the eyes of each customer and some factors create more satisfaction than others. These factors or attributes are classified into five

categories; attractive quality, one-dimensional quality, must-be quality, indifferent quality and the reverse quality (Kano & Nobuhiku, 1984).

The attractive quality is the attribute that provides satisfaction when achieved in full but it does not cause dissatisfaction when unfulfilled (Cianfrani, Sheps, & west, 2019). The customer does not expect them for example, when Kenya Power in the recent past, gave out energy saving bulbs for free to its customers. Such attributes are often unspoken. The one dimension quality results in satisfaction when fulfilled and dissatisfied when not fulfilled. Such attributes are spoken of for example a company advertising that it will sell two products for the price of one. Customers will thus be dissatisfied if they do not get this value on the shelves. The must-be quality is often over-looked often when it is fulfilled but if it is not present, the customer is disappointed. The customer views it as a basic quality. For example selling bread that is stale. The indifferent aspect is neither good nor bad and leads to neither satisfaction nor dissatisfaction. The reverse quality shows that not all customers are alike. For example some customers would like a 3D TV set while others do not see the benefit of complex technology and prefer a basic TV.

Edvardsson (1997) views services as being part of a wider concept of the product in that the product may consist of traditionally defined goods (as items) as well as services and more commonly as a combination of both the traditional good and Cuthbert's (1996) intangible, heterogenous, inseparable and perishable services. Elaborating on the entails of quality, Wicks and Roethlein, (2009) posit that it is the summation of the affective evaluations by each customer of each attitude object that creates customer satisfaction. With regard to service quality, Schembri and Sandberg (2011) define the term as a personal estimation of the appeal of a delivered service; an estimation that varies depending on the experience of the individual in question. This depiction thus highlights the lack of objectivity in estimation of overall quality of a service as this is not a concrete construct experienced similarly by those that experience the service.

This broader definition of a service, as posited by the author, best fits the context of service rendering in the provision of electricity to the public as is the case with KPLC

Kenya. This is because the services involved in the context depict both the electricity channeled to homes as well as the qualities of the electricity provision; as an example, the quality of provision would entail such aspects as reliability of supply and the accessibility of support services e.g. for installation and repair. Edvardsson's (1997) conceptualization of service provision is thus adopted for the current study as the operational definition of service delivery by KPLC. The specific aspects of service delivery considered in this study are thus – reliability of power supply, cost of electricity, communication techniques, and innovation of new products.

2.3 Empirical Review of Literature

The purpose of this section is to provide an exposition of extant literature put forward in assessing the impact of service delivery on customer satisfaction. The chapter provides the background upon which the current study is based and serves to provide insight into the interrelation between the variables under assessment in the current study. Four main sections, each assessing the relationship between as aspect of service provision and customer satisfaction, are expounded upon in subsequent subsections.

2.3.1 Communication techniques and customer satisfaction

Sernhed., Pyrko and Abaravicius (2003) in an evaluation of the requirements of consumers in the highly liberalized electricity sector in Sweden highlight that competition in the market has brought customer satisfaction to the forefront of company priorities. The move to satisfy customers goes beyond issues or responsiveness to complaints to innovative communication techniques that meet the users' emerging needs. Information on such issues as anticipated occurrences, such as outages (Chowdhury et al., 2004), though important may not suffice in the changing demand-driven customer-centric model. The increased sensitivity pertaining to energy management among has additionally prompted companies to seek knowledge on the information requirements of their consumer bases.

Among the questions of importance in communication with the consumer through billing include the kind of information to include, perceptions of current information, frequency of issuance of information and mode through which information is disseminated (Sernhed, Pyrko and Abaravicius, 2003). Findings from the study indicate that the three most requested topics of interest as construed by consumers were information regarding warnings on increased energy consumption, comparative graphs of consumption and tips on reduction of usage. This study sheds light on the empowerment of consumers of electricity as a result of competition in the electricity distribution market. The findings provide contrasting information on the single-distributor system employed in the Kenyan context.

Consumer electricity consumption trends in Russia show evidence of a disgruntled populace as evidenced by such occurrences as delayed payments, and the move away from last resort suppliers (Bokarev, Sandler and Kozhevnikov, 2015). A lack of clear strategy by the government regarding distribution and tariffs further serves to exacerbate the situation among consumers. The move from a single distribution entity, as is the case in the country, to a more liberalized model – as posited by Bokarev, Sandler and Kozhevnikov, (2015) – would see company's leverage social capital, key domain-specific competencies, focus on current and potential customer needs, reengineering of management systems to ensure efficacy in delivery of services. The views put forward by the author therefore reflect the situation in Sweden as put forward by Sernhed., Pyrko and Abaravicius (2003) thus emphasizing the apparent benefits of market liberalization over parastatal control of utility management.

The appreciation of the prominence of the consumer in service delivery, as viewed by (Gibbert, Leibold and Probst, 2002) necessitates the creation of customer knowledge management systems. The essence of such systems would be the pre-empting of customer trends by anticipated future changes based on current knowledge. Such an approach, as elaborated upon by the author, requires a close relationship between the service providers and recipients. The authors present the general approach as entailing five main styles – prosumerism, group learning, mutual innovation, communities of

creativity, and joint intellectual capital. In order to effect the strategies, the authors emphasize the constant need for information acquisition from the clients and the leveraging of such communications in the involvement of the clients in the bid to solve their needs.

A study on Tanzania Electric Supply Company's communication strategy as elaborated upon by Kayega (2013) provides regional anecdotal evidence of the difference in service delivery as a function of liberalization. The author conducted a study of the marketing communication model employed by the company by focusing on two population – service providers within the company and consumers from the public. Findings from the study indicated that employees of the parastatal held the marketing strategy in high regard associating recent increase in revenue to the success of the approach. This finding however contrasted sternly with public opinion as the latter population was of the view the company's effort why by and large unnoticed in the public domain. This lack of coherence in opinion, given that the strategies in place were aimed to serve the public, point to a fundamental misfit between the company's metrics and those of the public. It is therefore apparent, from this study, that the process of communication strategy development must start and end with the consumer of the product as the hub of the initiative.

Ball Coelho and Machás (2004) conduct a study to assess the impact of communication and trust in explaining customer loyalty. The researchers opine that customer loyalty presents as a prominent construct in the study of business projections owing to the contribution of the metric on the perpetuation of earnings. Essentially, satisfied customers are generally more loyal to the organization and are therefore more likely to engage in future interactions with the organization. Ball, Coelho and Machás (2004) however also point out that the relationship between communication and loyalty was unexpectedly high and that the construct also showed high relationship with customer satisfaction. Reliability, conversely, presented as being unexpectedly low in impact on customer satisfaction. The authors inferred that the general high reliability of the banking sector in Europe resulted in low variability in the construct among banks. Furthermore,

communication presents as prerequisite to both customer loyalty and reliability hence the high relationship between communication and customer loyalty may have mitigated the interpretive impact of reliability as an independent variable.

2.3.2 Reliability and customer satisfaction

Reliability of power supply can be defined as the ability to meet the electricity needs of customers even when unexpected equipment fails or other conditions reduce the amount of available power supply (Payne, 2010). It is a measure of the capability of electricity networks to withstand sudden disturbances or unanticipated losses in system components. This can be caused by natural or man-made events. Reliability also means maintaining adequate resources to provide customers with round-the-clock supply of electricity at the proper voltage and frequency. Reliability also involves quick response to power outages. Providing reliable electricity supply is however very difficult and requires continuous control of thousands of generators (Payne, 2010).

Chodzaza and Gombachika (2013) in a quantitative study involving 286 commercial consumers of electricity in Malawi posit that reliability presents as a significant determinant of both customer satisfaction and loyalty. The authors further posit that the relationship between loyalty and service quality is mediated by customer satisfaction. Reliability as operationalized in the study, borrows for the SERVQUAL definitions entailing the ability to perform a service dependably and accurately (Parasuraman, Zeithaml, and Berry (1988). In assessing the entails of reliability in service provision, the authors point to frequent blackouts in the public grid as a challenge for the commercial consumers indicating that incidences of outages had significant financial ramifications for the consumers.

Focusing on the implications of deregulation of the electricity industry in Nigeria, Eti, Ogaji and Probert, (2007) propose that independent service providers – such as the Afam thermal power station in Nigeria – focus on reliability, availability, maintainability and supportability of the service rendering process in order to maintain a competitive

advantage amidst anticipated competition stress. As with the study by Chodzaza and Gombachika (2013) unanticipated failures in supply form the main concern relating to reliability of the service. The authors posit that the improved plant performance would serve to improve predictability of the service offering and thus, by extension, shield the producing companies from unanticipated costs associated with outage. Reliable service, as posited by the authors, would thus serve to increase the likelihood of increased subscription to services. This study thus points to predictability of service as a sub-variable in operationalizing reliability as a dimension of service delivery.

Medjoudj, Aissani and Haim (2013) in a study conducted in Algeria posit that the most important determinants of customer satisfaction in the rendering of electricity distribution are cost, reliability, availability, maintainability, and power quality. The authors further posit that of these factors, reliability, availability, and maintainability were particularly of importance to business involved in the provision of electricity distribution services as these served to inform the justifiability of new projects. In operationalizing the reliability of service, Medjoudj, Aissani and Haim, (2013) point to the metrics – mean time to travel to sub-station, mean time to repair a substation, mean time to repair underground cable, average failure rate per sub-station, and average failure rate per underground cable. This study thus provides a more technical approach to assessing the reliability of electricity service delivery.

Sullivan., Suddeth, Vardell and Vojdani, (1996) highlight that cost and reliability of service in the distribution of electricity, are interdependent. The authors put forward a value-based reliability planning model that stipulates the need to balance utility investment costs and interruption costs. To achieve a favourable balance, the authors argue for preferential investment in reliability as a means to achieving low costs associated with customer interruption. In assessing the implications of service interruption as viewed by different consumer-bases, the authors posit that consumption levels have a direct bearing on tolerance; large scale consumers have a lower tolerance to outages as compared to retail consumers with the latter being more allowing of incidences of outages due to the lower financial implications associated with unreliable

service. This study therefore brings to light the aspect of reliability as a determinant of overall cost of service and further predicates tolerance to unreliable service offering on consumption levels.

Chowdhury *et al.*, (2004) in support of postulations by Sulivan et al., (1996) opine that there is a close association between the reliability of service offering and the cost associated with the same. In particular, incidences of unreliable power supply have cost implication for consumers of different types. As Chowdhury et al., (2004) argue, the implications to the consumer serve to determine the tolerance to unreliable service offering. The authors further posit that to curb issues of dissatisfaction with service rendering and to enhance customer satisfaction, distribution companies ought to provide ample notifications on possible outage periods with clarification on duration of such incidences. Such information would serve to allow for preparation on the part of the consumers of the service thus averting unanticipated costs of outage (Chowdhury *et al.*, 2004). The authors further posit that supplying companies should price their services in such a way as to both ensure low costs for large consumers and effective management of systems to prevent outages. These findings are of pertinence to the ongoing study as they shed light on the intricate relationship between price and reliability. The study also shows the give and take between the two dimensions in that focus on reduced pricing should not be at the expense of reliability of service.

An energy source is deemed reliable if it generates electrical output and meets demand even at peak time (Payne, 2010). However, all energy sources have weaknesses and strengths therefore electrical utility companies need to have different sources of energy to enhance electricity reliability. This is referred to as the energy mix. Energy mix is a combination of alternate energy sources such as wind, gas, solar, nuclear, coal and hydro. The greater the quantity of intermittent sources of generation, the greater the level of reliability and efficiency. Power reliability differs for different customers due to exposure to storms, environment e.g. dense vegetation and strong winds, location of the supplying substation, overall length of the distribution line, number of undergrounds versus overhead power lines and the age and condition of infrastructure. One of the major

challenges faced by Kenya Power is lack of reliability of electricity supply. Customers experience frequent power outages, power surges which damage electric equipment and even electrocution among its employees and the public due to exposed wires and lack of following safety processes (Kenneth & M, 2003). On top of this, the system operation teams are not quick enough to respond to emergencies. The reasons for the unreliability are old infrastructure, many overhead lines that are affected by strong winds, heavy rains and fallen trees, inadequate number of substations, inadequate supply of electricity from generating substations and slow response from emergency teams.

The electrical industry in Kenya relies mainly on renewable energy sources like hydro, oil and geothermal power (Kenya U.S. Energy Information Administration (EIA), 10th May 2016). In 2008, total generation comprised of 50% hydro-electric power, 33% oil and 16% geothermal power. As illustrated, hydropower is the main source of electricity and that is where reliability issues arise because of unavoidable natural occurrences such as drought. In 2008, the drought caused a decline of 9% in energy production. In such a case, over-dependency on oil as a secondary source causes an increase in cost of electricity due to high fuel prices. Geothermal power is slowly becoming a main focus because of its potential. About 4000MW of geothermal power is unexploited in Kenya (The East African, 21st September, 2013). President Uhuru Kenyatta has praised the Ministry of Energy and Petroleum for rolling out a comprehensive plan to increases the supply of reliable and affordable power in 40 months. The ministry intends to generate and inject additional 5538 megawatts into the national grid in a bid to lower the cost of power (Bloomberg L.P., 20 September 2010). The President said the roadmap provided by the ministry was realistic as it marks a major shift from the unreliable hydro and expensive thermal based power generation, to a reliable green and cheaper natural gas and large scale coal fired power plants.

One of the improvement exercises already in place is provision of alternative supply to large power customers. Such customers will be immediately connected to an alternative power line when the one they are normally supplied from is down. This will avoid loss of millions of shillings which such large industrial companies incur during a single hour of

power blackout. The devices that have been put in place do not require the operations team to work so this in turn eliminates the need of emergency response teams who usually take a long time to attend to such issues.

The company is also in the process of replacing overhead lines in the central business districts and environs with underground cables (Kenya Power Central Office, Engineering Department, 2016). Underground cables are less susceptible to faults caused by strong winds, heavy rains and fallen trees. Kenya Power is also in the process of building new substations to bring power closer to the customer (Eng. Masibo, Kenya Power 2014). Some substations that have already been commissioned are Ragati Substation in Upper Hill, Komarock Substation, Langata Substation, Eastleigh Substation and Kabete Substation just to name a few. The MD and CEO said the company has invested a total of Sh4.5 billion towards construction of substations in Githunguri, Gatundu, Kirigiti, Magumu, Rironi, Lower Kabete, Dagoretti, Uplands and the Jomo Kenyatta University of Agriculture and Technology (JKUAT) in Juja.

2.3.3 Cost of Electricity and Customer Satisfaction

The cost of electricity is a calculation of the cost of generation at the point of connection. It includes capital/waste disposal costs, cost of operation, government levies, fuel costs and maintenance costs. Some of these costs are beyond the company's control such as fuel costs and government levies. Studies by Sullivan, Suddeth, Vardell and Vojdani, (1996) and Medjoudj, Aissani and Haim (2013) as earlier put forward show and intricate relationship between pricing and reliability as viewed from both the supplier and the consumer viewpoints. Essentially, the posited relationship indicates that whereas the consumer advocates for low costs, addressing this need should not be at the expense of reliability of the service as such a situation would inadvertently result in high costs due to unreliable service rendering. It is thus apparent from this observation that considerations on costs, from the consumer perspective are to be made with commensurate considerations on reliability.

Pivotal in the consideration of cost from the supplier vantage point are curtailment charges associated with distribution of electricity during periods of low consumption (Rastegar, 2018). In order to ensure reliable service offering, electricity distribution companies must supply an optimal amount of energy to all consumers with the supply apparatus tuned to ensure that no outages occur as a result of low supply in the grid. This approach however often results in oversupply due to the changing patterns of consumption of residential homes. As a consequence, curtailment costs involving an unconsumed and wasted supply occur. This wastage results from the inability to re-channel electricity back to the supplier (Rastegar, 2018).

To address this waste and to create a model allowing for enhanced customer satisfaction through effective billing, Rastegar (2018) propose demand response model centred on residential energy management. The pricing approach generally involves informing consumers on the most effective way to schedule consumption so as to take advantage of low-cost distribution times; this approach subsequently results in a more predictable energy supply model that allows for supplier-side cost control in distribution of electricity. These findings therefore serve to show the pricing aspect as being a dyadic involvement between the distributor and the consumer with the proposed model proving beneficial for either party.

In an elaborate conceptualization of the price-saving approach effected through price-centred models, Liu, Xiao, Yao, and Bu (2019) construct a smart-system that takes into account the appliances within the consumers household and the level of satisfaction desired to optimize pricing that results in detailed transparent information on the price implications of consumption. Essentially, as is the case with Rastegar's (2018) model, the authors propose creating a model that anticipate consumption and optimizes usage based on the prevailing consumption costs Liu, Xiao, Yao, and Bu (2019). Eventually, the approach results in an optimized utilization pattern that meets the pre-specified needs of the consumer. Given that the system is user-defined, expectations upon usage are more likely to meet the client's needs thus contributing to lower risk of negative

disconfirmation. The eventual benefit of use for such a system would thus be reduced costs and increase customer satisfaction as a result of curtailed dissatisfaction.

Bhattacharya and Friedman (2001) observe that in an unregulated market, electricity costs may go up to USD 6 per kilowatt-hour during peak periods; this despite a cost of 2 cents to generate electricity at peak consumption. The resulting high costs, as depicted by Rastegar (2018) are put in place due to the high cost of curtailment. To address the challenge and to lower prices, the authors propose a smart pricing system that leverages market information to optimize power supply. As opposed to the models put forward by Rastegar (2018) and Liu, Xiao, Yao, and Bu (2019), Bhattacharya and Friedman (2001) place the onus of cost optimization on the supplier indicating that the lack of efficiency is largely due to an inability to leverage market knowledge to ensure efficiency. This finding therefore provides an alternative view to price optimization and customer satisfaction as it may be inferred that possible low satisfaction among consumers may be as a result of inefficiencies from the supplier's service provision approach.

The Energy Regulatory Commission in Kenya plays a major role in cost determination. Its roles are to provide such information and statistics to the Minister as he may from time to time require, collect and maintain energy data, prepare indicative national energy plan, perform any other function that is incidental or consequential to its functions under the energy act or any other written law, regulate the electrical energy, petroleum and related products, renewable energy and other forms of energy, protect the interests of consumer, investor and other stakeholder interests, maintain a list of accredited energy auditors as may be prescribed and to monitor and ensure implementation of, and the observance of the principles of fair competition in the energy sector, in coordination with other statutory authorities.

It is evident that some factors that affect the cost of electricity are beyond the company's control (Reuters, November 23, 2009). Therefore, it is difficult to regulate the cost of electricity internally. The cost of connecting new customers in Kenya has tripled since it was last reviewed in 2004. This has deterred potential customers and consequently

reduced the company's profits. The company actually loses money every time it connects a new customer although failing to connect new customers leaves tariff increment as the only source of income for the company.

2.3.4 Innovation and Customer Satisfaction

In a study conducted in Rawalpindi and Islamabad, Nemati, Khan and Iftikhar (2010) sought to assess the impact of innovation on customer loyalty as applicable in the region's mobile phone industry. The authors define innovation as the process of creating, improving and applying a new product, process or service with the goal of improving efficiency for competitive advantage. The aim of innovation therefore, as posited by the authors, is to increase value as viewed by the customer with the end goal of improved sales from the product or service provider. The study revealed that innovation had a higher impact on customer satisfaction than it did customer loyalty. The inference, therefore, in relating the findings to the current study, is that seeking out more efficacious approaches to conducting of work would result in improved satisfaction of electricity consumers. It is however noteworthy that KPLC operates as a monopoly in the Kenya market hence innovation efforts emanating from the company would require internal motivation as compared to reliance on such external motivators as competition.

Innovation is defined as the application of better methods to meet evolving needs in the existing market. With constant advances in technology, innovation in the electricity supply field is inevitable and required. Innovation must always be compatible with the existing network in order to be efficient, cost effective and reliable. An innovation increases the bundle of knowledge and skills an organization has and this in turn improves customer satisfaction (Rogers, 1995). According to Kibera and Waruingi (1988), in some cases new customer needs can only be satisfied by new products. Physiological and psychological human needs change with time because of influences from other countries or within the system. Therefore, companies should strive to come up with new products to meet this evolving need.

The foregoing exposition on the relationship between price, reliability, and communication (as explanatory variables) and customer satisfaction provide evidence of various points of innovation. Sernhed., Pyrko and Abaravicius (2003), for instance, point to the shift to customer-centric service rendering by customizing communications to consumers to meet their information needs. Liu, Xiao, Yao, and Bu (2019), Rastegar's (2018), and Bhattacharya and Friedman (2001) in independent studies, provide insights into the creation of smart systems that optimize the energy utilization of company and residential use of electricity. Medjoudj, Aissani and Haim (2013) point to reliability, availability, and maintainability as the most important points of focus for the creation of innovative management systems that improve efficiency of service rendering from the supplier's perspective.

A running theme in the aforementioned studies is the centricity of the customer in the service-rendering process and the role of liberalization in innovation – markets that are highly liberalized appear more innovative in service offering as they appreciate the centrality of the consumer in the service rendering process. Markets that are less liberalized and particularly those that are monopolized appear secondary in the creation of new products and services in service delivery as they lack the thrust of competitive pressure. Miguéis *et al.*, (2012) in an assessment of the production of efficacy of different energy distribution companies in Norway using the Malmquist index – a productivity comparison assessment tool – point to a general divergence in innovativeness among companies operating within the same regulatory framework but under different regions. The authors thus posit that although regulations have a significant bearing on the general prowess of energy generation within a political domain, the contribution of internal innovative of companies is not to be overlooked.

It is thus apparent, as posited by the author, that both regulator and competitors should look to companies performing better than others in the bid to ensure high innovation in the sector. This finding thus points to the internal motivations of a company to improve in its service offering ability. Applying these inferences to the Kenyan market, it is apparent that the reliance on one entity for service provision (KPLC) results in a curtailing of the

innovative potential of the industry. The reliance of external pressure from competitors to ensure issuance of nascent offerings is thus unlikely to result in the current market. Any advancements would thus be as a result of regulatory pressure or internal disruptiveness.

The innovation process involves a number of processes (Rogers, 1995). First is knowledge of innovation. This process involves acquisition of knowledge about the innovation and what new benefits it brings to the table i.e. cost of innovation to the company and potential savings. Then comes attitude formation towards the innovation. This involves forming an opinion about the innovation after assessing the features of the innovation. After assessment, the innovation is accepted or rejected depending on the benefits or lack thereof as determined by the assessor. Then implementation follows which is the actual use of the new product if adopted. Finally, the product is reaffirmed or confirmed.

Kenya power has come up with a number of innovative products in the recent past. One of them is prepaid meters (Kenya Power IT Department, 2016). Prepaid meters allow the customer to control their consumption of electricity. It allows you to pay as you go. A token, key or smart card is used to purchase the electricity tokens. Prepayment is a good way to control one's budget as you only use what you can afford to purchase. This is good for low or fluctuating income earners. The advantages of the prepaid meter are it can be used to control one's budget. It can sometimes be used to pay off debts/arrears if the meter is programmed to pay off debt when it is charged. There is also no need to make queues in the banking hall to pay the bill at the end of the month thus saves time and it saves the company the cost of printing bills on paper.

The disadvantage of the prepaid meter is if you cannot afford to buy tokens to recharge the meter, you will have no electricity. The meter can be set to recover arrears therefore you will have to pay for electricity and for settling the arrears the next time you purchase tokens. Another disadvantage is that the nearest charging point may not be near you. However, Kenya Power has addressed this with the introduction of mobile payment.

Another innovation by Kenya Power is mobile payment. Customers can now buy prepaid tokens and pay postpaid bills via MPESA. Therefore, one can pay bills via mobile phone without leaving the house. Customers can also send a message to a toll-free number to check their electricity bills. One can also call the same number for any queries. This has enabled the company to cut costs incurred when printing electricity bills, even though some customers have not yet signed up, so they still receive paper bills.

2.4 Research gaps

There is an apparent gap in empirical findings regarding client satisfaction with rendered services. Mathenge's (2015) study on customer satisfaction with KPLC services indicates a general dissatisfaction despite the rolling out of the token-based system that was aimed at improving service delivery. Miyogo, Nyanamba and Nyangweso (2013) on the other hand, in a study conducted in the western region of the country (Kisumu) however provide findings portraying a general acceptance of the token system in the region. Mutua, Ngui, Osiolo, Aligula and Gachanja (2012) in an earlier more robust study featuring comparative satisfaction with service provision in the energy sector depict the electricity distribution sub-sector as having the highest level of dissatisfaction with a consumer satisfaction rate of a meagre 53%. Empirical studies conducted by Kamwana and Muturi (2014) and Nyoke (2014) point to possible misalignment between service provision aspects and customer interests. The conflicting findings and divergent regional and local trends in customer service satisfaction as a function of delivery of service thus provide impetus to the current proposed study.

The second gap resents in the lack of concurrent assessment of factors to assess their relative impact on customer satisfaction. As an example, Mathenge (2015) centers on the role of the token system in affecting customer satisfaction and not as a sub-variable of innovation, a variable that in the current study is considered among such other determinants as cost and communication techniques. The lack of comparative evaluation contributes to fallacy findings on the impact of each aspect of company operation as the effect of some aspects may be amplified when assessed in isolation; the current study

addresses this gap by running a multiple regression incorporating multiple aspects of service provision.

Finally, the study employs the use of a validity-tested model in inferring the level of customer satisfaction. By basing satisfaction ratings on the Oliver's (1977) expectation disconfirmation theory, the researcher ensures that the observations were both valid and reliable as compared to prior studies in the Kenyan context which assess satisfaction on the basis of overall customer ratings.

2.5 Conceptual Framework

In this study, customer satisfaction is the dependent variable while communication techniques, reliability of power supply, cost of electricity and innovation of new products are the independent variables. This is illustrated below.

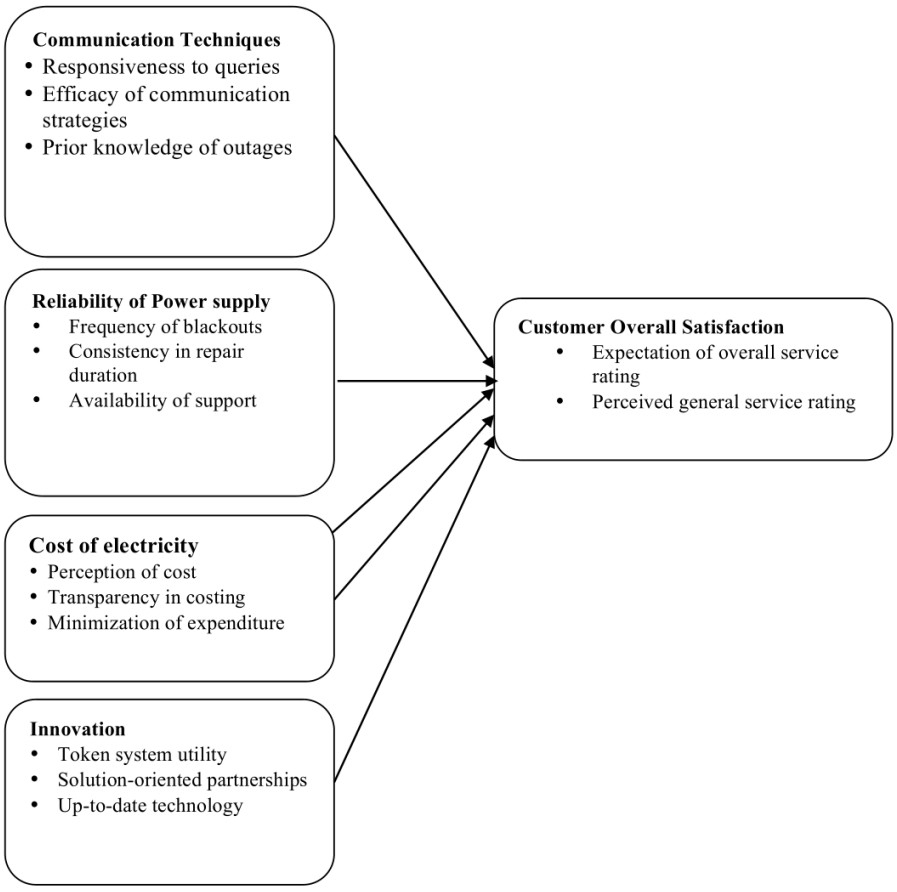

Figure 2.1 Conceptual Framework

Source: Researcher (2020)

2.6 Operationalization of variables

The assessment of the various variables through sub-variables was informed by the foregoing literature review. Table 2.1 provides details on the variables, sub-variables, measurement and their sourcing.

Table 2.1 Operationalization of variables

Objective	Variable	Indicators	Measurement Scale	Source
To establish level of customer satisfaction	Customer satisfaction	• Expectation of overall service rating • Perceived general service rating	Likert	(Oliver, 1977)
To establish the influence of communication on customer satisfaction	Communication techniques	• Responsiveness to queries • Efficacy of communication strategies • Prior knowledge of outages	Likert score	(Sernhed., Pyrko and Abaravicius, 2003; Kayega, 2013; Chowdhury et al., 2004)
To assess the influence of reliability on customer satisfaction	Reliability of power supply	• Frequency of blackouts • Consistency in repair duration • Availability of support	Likert score	Chodzaza and Gombachika; 2013; Medjoudj, Aissani and Haim, 2013)
To determine the influence of cost on customer satisfaction	Cost of electricity	• Perception of cost • Transparency in costing • Minimization of expenditure	Likert score	(Liu, Xiao, Yao, and Bu (2019)
To identify the effect of innovation	Innovation of new products	• Token system utility • Solution-oriented partnerships • Up-to-date technology e.g. Mpesa	Likert score	Mathenge's, 2015; Miyogo et al., 2013)

2.7 Chapter summary

The foregoing chapter has highlighted need for systematic augmented assessment of factors affecting customer satisfaction as advocated for in the KANO model and the Expectancy Disconfirmation Theory. The theories inform the empirical evaluation of findings on the impact of communication techniques, reliability, cost and innovation as discussed in respective sections of the chapter. The general thrust of findings suggests gaps articulated in the respective section – the gaps point to a lacking augmentative assessment of impact of variables and conflicts in findings. The current study thus addresses the impact of each of the four factors on customer satisfaction as depicted in the conceptual framework and operationalization of variables.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter includes the research philosophy, research design, target population, sampling procedure, methods of data collection used and validity and reliability of the research. It also contains the methods of data analysis, definition of variables and ethical issues.

3.2 Research philosophy

The researcher employed a positivism research philosophy in the study as the relationship between the constructs were assessed on account of quantifiable data (Crossan, 2003). The strength of the relationships in the study were depicted by beta values deriving from a linear regression model. The magnitude of the values informed on the strength of association hence allowing for the making of inferences on the impact of the various independent variables on the dependent variable.

3.3 Research design

This researcher used a descriptive survey design of data collection. The descriptive survey highlights an accurate depiction of the respondents behaviours, opinions, beliefs and abilities (Cooper and Schindler, 2011). This type of survey alleviates bias during data collection. A descriptive survey does not answer the how/when/why question but answers the questions of what/why/how of the phenomenon under study (Churchill, 2002). Hence smaller but focused samples are often used. The essence of the descriptive design adopted for the study, as informed by the positivism philosophy, is to determine the nature of relationship between the variables considered in the study.

3.4 Target Population

The target population for this study consisted of Kenya Power Company's customers in Nairobi County. The respondents will be sourced from the three demarcations identified by the company - Nairobi West, North and South divisions. The external customers are Kenya Power Company customers in the above-mentioned regions. Nairobi County was chosen because it is an urban area where most residents use electricity. Nairobi County is resident to people of different social and economic backgrounds hence the sample will be even travelled to developed countries and can compare the situation in first world countries versus Kenya. The total number of customers in Nairobi County is 2,211,939 (Kenya Power Human Resource and Customer Care Departments, 2017).

3.5 Sampling Procedure and Sampling Size

A sample is a subgroup of the population that the researcher is interested in (Mugenda & Mugenda, 2003). A large random sample almost always gives an estimate that is close to the parameter (David S Moore, 2003). The sample was selected using random stratified proportional sampling method. Proportional sampling means that every individual in the target population has an equal chance of being selected (Krejcie & Morgan, 1970). The basis of stratification was the location within the county. An advantage of this sample procedure is that it is free of classification error and it requires very little advance knowledge of the target population. (Touliatos & Compton, 1988) contend that in order to draw legitimate inferences about populations from samples that the sample has to be representative of the population and randomly selected. The following formula was used to calculate the number of respondents needed (Krejcie and Morgan, 1970).

$$\mathbf{S = X^2 – N\ P\ (1\text{-}P) \div d^2\ (N\text{-}1) + X^2\ P\ (1\text{-}P)}$$

Where

S = required sample size

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841) N = the population size

P = the population proportion (assumed to be .50) since this would provide the maximum sample size)
d = the degree of accuracy expressed as a proportion (.50)

Krejcie and Morgan table however came up with a table that can be used to determine the sample size therefore no calculation is necessary. Using this table, a sample size of 384 respondents was reached. For a sample of 100,000 and above, the sample size is always 384. The sample size of 384 respondents was then divided among the three regions. This is called proportional allocation as illustrated below.

- % Nairobi West = 632433 ÷ 2,211,939 = 28.6 % (110 respondents)
- % Nairobi North = 759,903 ÷ 2,211,939= 34.4 % (132 respondents)
- % Nairobi South = 819, 603 ÷ 2,211,939 = 37.0 % (142 respondents)

Table 3.1 Apportioning by location

Location	Number of respondents
Nairobi West	110
Nairobi North	132
Nairobi South	142

3.6 Research Instruments

This study used primary data collection methods. Questionnaires were used to collect information from the selected sample units, the administration of these questionnaires will be online via Google forms (e surveys). Questionnaires were used since the research contains variables that cannot be directly observed such as opinions, attitudes and feelings (Touliatos and Compton, 1988). The data collection instrument used comprised of structured multiple-choice questions and descriptive statements as illustrated in the Likert

chart discussed in chapter one. The statements were rated on a scale of zero to five with zero being a feeling of least agreement or satisfaction and five being strong agreement or satisfaction (Armstrong, 1987). The preliminary section of the questionnaire collects demographic information such as age, gender, education level and residential area.

The second section determined the knowledge of respondents on the services provided by Kenya Power and reviews the relationship between communication techniques, reliability of power supply, cost of electricity and innovation of new products on customer satisfaction. Each construct, of the five, was assessed by through respective Likert scales hence ordinal data was collected for each construct.

The questionnaire was administered online via Google. The advantages of using online questionnaires as a method of data collection is that it's cheap, uses little amount of time, it is convenient to the responder as they can fill it out via any multiple devices including a mobile phone uptake/response rate can be monitored remotely provided one has an internet connection has limited effect on validity and reliability and the results can be easily interpreted (Burns and Bush, 2010).

The disadvantages of questionnaires are that it only extracts a limited amount of information as determined by the researcher, there is no way to tell how truthful the respondent is the respondent may interpret the questions differently and there is a possibility of researcher imposition meaning the researcher might miss some important information thinking it is not important.

3.7 Data Collection Procedures

The questionnaire was created using suitable questions modified from related research and individual questions formed by the researcher. The survey comprised of ten questions, which are related to the respondent's perception regarding customer satisfaction with Kenya Power. A Likert scale is used to satisfaction or dissatisfaction with a statement. The questionnaires was distributed to the randomly chosen respondents by the researcher using via link sharing, the respondents will be assured of confidentiality and they will not be

required to fill in their names on the questionnaire. It is also understood that honesty and accuracy in answering the questionnaire is of utmost importance therefore the respondents will be urged to be as honest as possible because guarantee will be provided on their identities being concealed. The filled in surveys was collected after approximately 3 days. There were no incentives offered for participating in the research.

3.8 Analysis techniques

The data was analyzed through both descriptive and inferential techniques. With regard to descriptive techniques summaries on responses will be computed to give a cross-sectional indication of trends in the data set. This information included the mean and standard deviation for each of the five variables as well as summaries on the biodemographic information.

Inferential techniques by regression analysis was then performed to assess the relationship between the variables considered in the study. Simple linear and multiple linear regression models were conducted to assess the relationship between the variables firstly interpedently and subsequently in a joint model. The joint model equation for the study is as highlighted below:

$CS = a_i + b_1x_1 + b_2x_2 + b_3x_3 + Error$

CS – Customer satisfaction

a_1 = intercept of outcomes
b_1 = Communication techniques coefficient
x_1 = Communication techniques
b_2 = Reliability of power supply coefficient
x_2 = Reliability of power supply
b_3 = Cost of electricity coefficient
x_3 = Cost of electricity
b4 = Innovation coefficient
x4 = Innovation

3.9 Research Quality

Validity implies how well the measuring instruments used in the research fulfill the purpose of the study. The purpose of this study was to establish the influence of communication techniques, reliability of power supply, cost if electricity and innovation of new products on customer satisfaction. Creswell (2009) suggests that one should use different methods to evaluate validity. He advises the researcher to use at least two strategies. The two strategies adopted in this study are peer review debriefing respondent feedback on pilot study questions. Reliability of a study addresses the replicability of findings following observation of similar procedure. For the current study, reliability was assessed through Cronbach's alpha in that a value of 0.7 and higher will be desired for each of the scales used (Creswell, 2009). Table 3.2 presents the reliability scores for the constructs.

Table 3.2 Reliability scores

Construct	**Score**
Communication techniques	0.813
Reliability	0.835
Cost	0.774
Innovation	0.821
Customer Satisfaction	0.905

3.10 Ethical considerations

Primary data was collected for the study. As a result, was necessary to ensure that all study participants' information is kept private and that it is collected appropriately. To ensure privacy, the data was kept in locked compartments are made accessible only to those involved in the study. Secondly to ensure adherence ethical standards, a National Commission for Science, Technology and Innovation (NACOSTI) permit were sought by the researcher. Additionally, approval was sought from Strathmore's Ethics Board. Feedback further sought on appropriateness of questions vis-à-vis privacy concerns.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The purpose of this chapter is to show how the collected data was utilized in addressing the objectives of the study. The chapter is divided into three main sections – response rate, background information and analysis according to objectives. The first section reports on the response rate and its sufficiency, the second provides contextual information on the respondents and the final section details relationships the variables under study; each relationship relates to a study objective.

4.2 Response rate

The targeted population for the study was 384 respondents. Of the 384, 278 were reached with 277 of these providing full responses. The response rate was therefore 72.4% of the sample size. According to Baruch and Holton (2008), a general trend of apathy in responding to survey questions is observed in academic studies. The average response rate, as observed from 1607 academic studies published in reputable journals, is 52.7%. The 72.4% response rate achieved in the study was therefore deemed sufficient in making inference on the relationships between the variables considered in the study.

4.3 Background information of respondents

Respondents were quizzed on their gender, age, level of education and place of residence. Findings on each of the parameters are presented in table 4.1 with discussions on the findings and their implications presented in the subsequent section.

Table 4.1 Respondents demographics

Variable	Mode frequency	Categories	Frequency per category	Rel. frequency per category (%)
Gender	151	Female	151	54.91
		Male	124	45.09
Age (by age group)	122	21 - 30	122	44.20
		31 - 40	75	27.17
		41 -50	51	18.48
		Above 50	28	10.14
Level of education.	160	College/University	160	58.18
		Postgraduate	111	40.36
		Secondary	4	1.45
Place of residence	129	Nairobi North Region	129	47.60
		Nairobi South Region	43	15.87
		Nairobi West Region	99	36.53

4.3.1 Gender

Of the 277 queried respondents, 151, representing 54.91% of the respondents were female. Given that the questionnaires were issued without respect to gender, the findings point to a majority female proportion in the county. It is apparent that the findings will be more reflective of the female than the male population. No gender theories were however included in the study hence the difference in gender proportion was immaterial to the assessment of relationships between the variables; the finding served only to provide context of the respondents.

4.3.2 Age

As indicated in table 4.1, the modal response category with regard to the age of the respondents was 21 to 30 with 122 respondents. The category accounted for 44.20% of the respondents. As with gender, age was not considered a determinant of satisfaction. The question was however included to provide contextual information on the study participants. The findings on age therefore indicated that most of the individuals that participated in the

study were young hence inferences are more reflective of the younger than the older population of the city.

4.3.3 Level of education

Most of the respondents had achieved a college education (58.18%) with only 1.45% not having reached college/university level. Tellingly, 40.36% of the respondents have post graduate degrees therefore indicating that the respondents were generally highly learned. It is therefore evident that the findings arrived at in this study are more reflective of the learned minority of the county.

4.3.4 Occupation

A wide range of occupations were reported. The most commonly reported position of employment was managerial with 15 managers providing responses. Seven of the participants were bankers and four were accountants. The number of persons in managerial positions was in keeping with the observed high education level of the respondents involved in the study. It is therefore apparent that findings from the study are more indicative of an employed minority of the county.

4.3.5 Place of residence

Nairobi north region, comprising the areas – Kyuna Road, Greveilia Grove, Westlands, Parklands, Spring Valley, Ridgeways, Safari Park Hotel, Muthaiga North and environs was the most commonly cited place of residence. The area, as compared to Nairobi West and Nairobi South is generally considered home to the more affluent of the population. This majority 47.60% representation in responses is therefore in keeping with the view that most of the respondents were highly educated, employed and therefore likely wealthy. Findings of the study are therefore indicative of the views of the affluent residents of Nairobi county.

ANALYSIS ACCORDING TO OBJECTIVES

This section presents the relationships depicted in the objectives of the study. Five sub-sections are presented herein with the first depicting findings from the pre-requisite test of regression analysis and the subsequent four sections providing findings of the research objectives. Each objective details descriptive and inferential findings as pertains to the research objectives.

4.4 Extent to which communication techniques influence customer satisfaction

The researcher sought to assess the impact of communication techniques on customer satisfaction. A regression model was used to test for the relationship in light of the first objective of the study. This section details findings on this relationship. Descriptive statistics on the two variables are presented as a preamble to the test of relationship between the two variables.

4.4.1 Descriptive statistics – Communication techniques and Customer Satisfaction

This sub-section provides the mean and standard deviation of all questions included in assessment of the constructs included in the study. Descriptive statistics on communication techniques and overall satisfaction are therefore detailed.

Eight questions were included in testing for the respondents' perception of communication techniques employed by the company (table 4.2). Of the eight questions the highest mean was observed for the question assessing accuracy of notifications prior to blackouts; this presented a mean of 2.73. The mean was accompanied by a standard deviation of 1.33 which was the highest of the eight questions. It was therefore apparent that respondents were generally neutral or disagreed with the view that communication tools and techniques employed by the company were efficacious.

Table 4.2 Communication technique descriptive

	Mean	Standard Deviation
Queries are promptly addressed.	2.3	1.13
Reach and communicate with service provider	2.48	1.22
Answered calls	2.16	1.15
Immediate response to calls	2.01	1.06
Website has all the information I need.	2.46	1.15
Notification on scheduled outages	2.6	1.33
The notifications of scheduled outages are often accurate.	2.73	1.27
Complaints made on the Kenya Power Facebook page /Twitter handle are always addressed.	2.51	1.18
Communication Techniques	2.41	0.79

Customer satisfaction was assessed as an absolute value of the discrepancy between expectation and perception. The largest discrepancy was observed between expectation and perception of individualized attention. The mean value for the question was 2.61 with a standard deviation of 1.17, second lowest deviation. It was therefore apparent that most of the customers of the company were dissatisfied by the services rendered.

Table 4.3 Customer satisfaction descriptive

	Mean	Standard Deviation
Dependable and Accurate	2.14	1.28
Courteous and inspire trust	2.3	1.23
Individualised attention	2.61	1.17
Help and prompt service	2.36	1.2
Overall Satisfaction Gap	2.35	1.05

The descriptive statistics on the two variables revealed that service recipients generally tended towards dissatisfaction with the communication strategies employed by the organization. This was observed from the low ratings on the variable – lower than 3 for all sub-variables hence indicating that the service recipients did not agree with the statements put forward in assessing the construct. The ratings on overall customer satisfaction were

similarly below three hence point to an association between the two variables. This posited association is explored in the subsequent section.

4.4.2 Relationship between communication techniques and customer satisfaction

The relationship between the two variables was assessed through a simple regression model. The results are presented in table 4.4.

Table 4.4 Model Summary Communication techniques and Customer Satisfaction

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.438[a]	.192	.189	.95021
a. Predictors: (Constant), Communication Techniques (CT)				

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.767	.184		20.491	.000
	Communication Techniques	-.587	.073	-.438	-8.086	.000
a. Dependent Variable: Overall Satisfaction (OS) Gap						

The resulting equation is as depicted:

$$OS = 3.767 - 0.587CT + 0.184$$

The model summary depicting the general relative impact of the independent variables on the dependent variable presented an R square value 0.192 therefore indicating that 19.2% of the variability of the dependent variable was accounted for by the generated model. Given that the sample size was deemed sufficiently high (above 70%) the R square value was interpreted over the adjusted R square value. The significance values associated with the predictors were both lower than 0.05 hence indicating that the coefficients were valid at 95% confidence level. A unit increase in communication technique ratings was thus viewed to impart a -0.587 impact on Customer satisfaction ratings.

4.5 Extent to which reliability of power supply influences customer satisfaction

The competency of the company's staff in handing maintenance issues was the most highly rated quality of the reliability of service with a mean rating of 3.07 and a standard deviation of 1.12. the deviation was however the second highest therefore indicating that responses on the question were highly varied. The generally low mean ratings however pointed to a lack of reliability in the company's service provision.

4.5.1 Descriptive statistics for Extent to which reliability of power supply influences customer satisfaction

Table 4.5 Reliability descriptive statistics

	Mean	Standard Deviation
Frequency of power outages generally acceptable.	2.35	1.26
Power outages does not have a significant impact on daily activities.	2.06	1.27
Maintenance staff are generally able to handle issues of repair.	3.07	1.12
Repair issues are handled quickly and effectively.	2.24	1.09
Sufficient support personnel.	2.42	1.09
Provided support is sufficient in addressing my needs.	2.49	1.09
Reliability	2.44	0.85

Only one of the sub-variables assessed under the reliability construct presented a mean rating of higher than 3 (indicating that they were not sure) with the rating 4 indicating agreement with statements indicating effective service provision. Given that ratings on customer satisfaction (table 4.3) presented similar below 3 ratings, it was posited that there was an association between the two variables. This association subsequently assessed.

4.5.2 Relationship between Reliability and customer satisfaction

The relationship between the two variables was assessed through a simple regression model. Findings from the analysis are presented in table 4.6.

Table 4.6 Model Summary Reliability and Customer Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.450[a]	.202	.199	.94419
a. Predictors: (Constant), Reliability				

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.704	.171		21.615	.000
	Reliability	-.554	.066	-.450	-8.351	.000
a. Dependent Variable: Overall Satisfaction Gap						

The resulting equation is as depicted:

$$CS = 3.707 + 0.055R + 0.171$$

The model summary depicting the general relative impact of the independent variables on the dependent variable presented an R square value 0.199 therefore indicating that 19.9% of the variability of the dependent variable was accounted for by the generated model. Given that the sample size was deemed sufficiently high (above 70%) the R square value was interpreted over the adjusted R square value. The significance values associated with the predictors were both lower than 0.05 hence indicating that the coefficients were valid at 95% confidence level. A unit increase in reliability ratings was thus viewed to impart 0.066 increase on customer satisfaction ratings.

4.6 Extent to which cost of electricity of power supply influences customer satisfaction

This section provides the descriptive statistics pertaining to the relationship between cost of electricity and customer satisfaction. The section thus shows how the collected data was used to address the third objective of the study.

4.6.1 Cost of electricity descriptive statistics

Customers were generally dissatisfied with the costing of electricity; this was most notable indicated by the 1.83 mean rating on the transparency of the pricing mechanism – this was the lowest rating reported on the construct. The question further had the lowest standard deviation therefore indicating that the opinion of lack of transparency in pricing has held by most of the respondents.

Table 4.7 Cost descriptive statistics

	Mean	Standard Deviation
The cost of power supply is generally fair.	1.7	1.05
Comfortable payment for my electricity bill.	2.57	1.32
Understanding/interpretation of received bills.	2.43	1.29
Specific charges on the bill are transparently set and justifiable.	1.83	1.04
Unlikely that bills can further be lowered	2.66	1.49
Bills I received are the minimum they can be.	1.69	1.04
Cost	2.15	0.84

Of the independent variables included in the study, cost presented the lowest overall mean of 2.15 which three of the sub-variables presenting mean ratings lower than 2 hence indicating disagreement or strong disagreement with the presented statements. It was therefore opined that the variable would show least relationship between customer satisfaction. The subsequent section presents findings on relationship testing.

4.6.2 Relationship between Cost of electricity and customer satisfaction

This section addresses the relationship between cost and customer satisfaction in the bid to address the third objective of the study. The section provides a model summary with accompanying inferences on the output statistics.

Table 4.8 Model Summary Cost and Customer Satisfaction

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.311[a]	.097	.094	1.00463
a. Predictors: (Constant), Cost (C)				

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.195	.166		19.224	.000
	Cost	-.392	.072	-.311	-5.432	.000
a. Dependent Variable: Overall Satisfaction (OS) Gap						

The resulting equation is as depicted:

$$OS = 3.197 - 0.392C + 0.166$$

The model summary depicting the general relative impact of the independent variables on the dependent variable presented an R square value 0.097 therefore indicating that 9.7% of the variability of the dependent variable was accounted for by the generated model. Given that the sample size was deemed sufficiently high (above 70%) the R square value was interpreted over the adjusted R square value. The significance values associated with the predictors were both lower than 0.05 hence indicating that the coefficients were valid at 95% confidence level. A unit increase in cost ratings was thus viewed to impart 0.392 decrease on customer satisfaction ratings.

4.7 Extent to which Innovation of power supply influences customer satisfaction

4.7.1 Innovation descriptive statistics

Of the four independent variables, innovation scores were generally the highest with an overall mean of 3.0. The most notable innovation of the company was the partnering with such services as M-Pesa in the rendering of services. The mean rating for the question was 3.93 with a standard deviation of 0.96, the lowest of the seven questions assessing the construct of innovation.

Table 4.9 Innovation Descriptive Statistics

	Mean	**Standard Deviation**
Token system preferable to conventional post-paid meter.	3.49	1.36
Token system satisfactorily addressed inconvenience of paying for bills.	3.49	1.25
Engagement with companies such as Safaricom (Mpesa) in payment of bills is a show of innovation.	3.93	0.96
Sufficient partnerships in service provision.	2.87	1.13
Kenya Power's technology is up to date.	2.52	1.12
Kenya Power's technology compares well with other service providers in Kenya.	2.56	1.19
Technology compares well with service providers in other countries.	2.15	1.07
Innovation	3	0.81

Innovation presented the highest mean rating of the independent variables included in the study. Two of the means presented ratings higher than three therefore indicating that the

respondents agreed or strongly agreed with the view that the company was innovative. It was therefore anticipated that there would be a lower relationship between the construct and customer satisfaction. This is because as indicated in table 4.3, ratings on overall satisfaction generally reflected a trend of dissatisfaction. The relationship between the two variables in presented in the following section.

4.7.2 Relationship between Innovation and customer satisfaction

The relationship between innovation and customer satisfaction was assessed through a regression model. The resulting findings are presented in tables 4.10.

Table 4.10 Model Summary Innovation and Customer Satisfaction

Model		R	R Square		Adjusted R Square	Std. Error of the Estimate	
1		.245[a]	.060		.057	1.02244	
a. Predictors: (Constant), Innovation (I)							
Model		Unstandardized Coefficients			Standardized Coefficients	t	Sig.
		B	Std. Error		Beta		
1	(Constant)	3.316	.237			14.016	.000
	Innovation	-.318	.076		-.245	-4.185	.000
a. Dependent Variable: Overall Satisfaction (OS) Gap							

The resulting equation is as depicted:

$$OS = 3.707 - 0.318R + 0.237$$

The model summary depicting the general relative impact of the independent variables on the dependent variable presented an R square value 0.060 therefore indicating that 6.0% of the variability of the dependent variable was accounted for by the generated model. Given that the sample size was deemed sufficiently high (above 70%) the R square value was interpreted over the adjusted R square value. The significance values associated with the predictors were both lower than 0.05 hence indicating that the coefficients were valid at 95% confidence level. A unit increase in innovation ratings was thus viewed to impart 0.318 decrease on customer satisfaction ratings.

4.8 Multiple regression model assessing relationship between customer satisfaction and the independent variables Innovation, Communication Techniques, Cost, Reliability

The impact of each of the independent variables on the dependent variable was assessed through a multiple regression model. Table 4.11 presents the findings of the regression analysis.

Table 4.11 Model summary multiple regression

Model	R	R Square	Adjusted R Square
1	.519[a]	.269	.258
a. Predictors: (Constant), Innovation, Communication Techniques, Cost, Reliability			
b. Dependent Variable: Overall Satisfaction Gap			

ANOVA Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	82.028	4	20.507	24.953	.000[b]
	Residual	222.719	271	.822		
	Total	304.747	275			
a. Dependent Variable: Overall Satisfaction Gap						
b. Predictors: (Constant), Innovation, Communication Techniques, Cost, Reliability						

The model presented an R-square value of 0.269 therefore indicated that the independent variables included in the model accounted for 26.9% of the variability in the dependent variable. A test of the validity of the model over a null model with respect to inferring the relationship between the independent and dependent variables was conducted through ANOVA analysis (table 4.11).

Findings indicated an F value of 24.953 with a significance value lower than 0.05 hence indicating that the hypothesis of lack of difference between the null and generated model was to be rejected. The generated model was therefore deemed sufficient for interring relationships between the variables. The standardized beta coefficients emanating from the analysis were used to assess the relative impact of the independent variables on the dependent variables (table 4.12).

Table 4.12 coefficients multiple regression

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.358	.244		17.878	.000
	Communication Techniques	-.343	.085	-.257	-4.052	.000
	Reliability	-.307	.084	-.250	-3.666	.000
	Cost	-.124	.077	-.099	-1.620	.106
	Innovation	-.052	.076	-.040	-.686	.493
a. Dependent Variable: Overall Satisfaction Gap						

The standardized coefficients were preferentially chosen over the unstandardized as the former provide a relative assessment of impact of the variables hence allowing for direct comparison. The resulting equation for the analysis is presented below with the highlighted coefficient showing the relationship between satisfaction and communication techniques.

$$OS = 4.358 - 0.257CT - 0.250R - 0.099C - 0.040I + e$$

Where
OS = Overall Satisfaction
CT = Communication Techniques
R = Reliability
C = Cost
I = Innovation

Of the four independent variables, communication techniques had the highest impact on the overall satisfaction of clients. A unit increase in rating of communication techniques had a 0.257 impact on the lowering of customer dissatisfaction. This finding was significant at the 95% confidence level. It was therefore apparent that improving communication techniques would result in a market increase in customer satisfaction.

Reliability of service had the second highest impact on customer satisfaction. A unit increase in reliability scores was associated with a 0.250 lowering of dissatisfaction among clients. This finding was significant at the 95% confidence level. It was therefore inferred that reliability was the second most important construct in affecting customer satisfaction.

The impact of cost of electricity was the third most significant, by magnitude, in determining customer satisfaction; this presented a beta value of -0.099. A unit increase in mean cost mean rating was associated with a 0.099 reduction in the discrepancy between expectation and satisfaction. The relationship could however not be confirmed at the 95% confidence level. The cost of electricity was therefore not viewed as impactful, in determining customer satisfaction, as communication techniques and reliability. Innovation presented the lowest beta value with a value of -0.040. The value, as with cost, was not significant at the 95% confidence level as it presented a significance value of 0.493, a figure higher than $\alpha = 0.05$. Innovation by the company was thus the least important factor in determining the satisfaction of customers.

4.9 Chapter Summary

The purpose of this chapter was to assess the relationship between the dependent variable, customer satisfaction and the dependent variables, Communication Techniques, Reliability, Cost, and Innovation as outlined in the study objectives. Findings from the simple linear regression models indicated that communication techniques were the most impactful on overall customer satisfaction. The multiple regression model confirmed this observation. Innovation was the least impactful contributor to overall customer satisfaction.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, discussion of findings, conclusion and recommendations of the research study.

5.2 Summary of Findings

The research sought to examine the factors influencing customer satisfaction with service provision using Kenya Power as a case study. The research was grounded on customer satisfaction, expectation disconfirmation theory and the Kano model. The study relied on a descriptive research design with the target population sample population being 384 residential customers of Kenya Power residing in Nairobi County. The research was able to obtain a 72.4% response rate. Findings from the simple linear regression models indicated that communication techniques were the most impactful on overall customer satisfaction with a beta coefficient of 0.58 with the model explaining 18.9% variability in customer satisfaction. Reliability, cost of electricity and innovation, respectively were also considered significant predictors as assessed through simple regression models. Innovation was the least impactful contributor to overall customer satisfaction.

Cost and innovation were however not considered significant predictors in the multiple regression model. Reliability of service had the second highest impact on customer satisfaction. A unit increase in reliability scores was associated with a 0.250 lowering of dissatisfaction among clients. This finding was significant at the 95% confidence level. It was therefore inferred that reliability was the second most important construct in affecting customer satisfaction.

5.3 Discussion of findings

5.3.1 Communication Techniques and Customer Satisfaction

Customer satisfaction was assessed as an absolute value of the discrepancy between expectation and perception. The largest discrepancy was observed between expectation and perception of individualized attention. The mean value for the question was 2.61 with a standard deviation of 1.17, second lowest deviation. It was therefore apparent that most of the residential customers of the Kenya Power were dissatisfied by the services rendered.

The model summary depicting the general relative impact of the independent variables on the dependent variable presented an R square value 0.192 therefore indicating that 19.2% of the variability of the dependent variable was accounted for by the generated model. Given that the sample size was deemed sufficiently high (above 70%) the R square value was interpreted over the adjusted R square value. The significance values associated with the predictors were both lower than 0.05 hence indicating that the coefficients were valid at 95% confidence level. A unit increase in communication technique ratings was thus viewed to impart a -0.587 impact on Customer satisfaction ratings. There was an agreement among respondents, which is supported by (Sernhed, Pyrko and Abaravicius, 2003) who indicated that among the questions of importance in communication with the consumer through billing include the kind of information to include, perceptions of current information, frequency of issuance of information and mode through which information is disseminated. Regarding customer knowledge management systems, the findings support (Gibbert, Leibold and Probst 2012) whereby the authors emphasize the constant need for information acquisition from the clients and the leveraging of such communications in the involvement of the clients in the bid to solve their needs. The findings also agree with (Chowdhury et al., 2004), where they state that the increased sensitivity pertaining to energy management has prompted companies to seek knowledge on the information requirements of their consumer bases.

5.3.2 Reliability of Power Supply and Customer Satisfaction

The competency of the company's staff in handling maintenance issues was the most highly rated quality of the reliability of service with a mean rating of 3.07 and a standard deviation of 1.12. the deviation was however the second highest therefore indicating that responses on the question were highly varied. The generally low mean ratings however pointed to a lack of reliability in the company's service provision, this finding is supported by Chodzaza and Gombachika (2013) who acknowledged that unanticipated failures in supply form the main concern relating to reliability of the service. The authors posit that the improved plant performance would serve to improve predictability of the service offering and thus, by extension, shield the producing companies from unanticipated costs associated with outage.

The model summary depicting the general relative impact of the independent variables on the dependent variable presented an R square value 0.199 therefore indicating that 19.9% of the variability of the dependent variable was accounted for by the generated model. Given that the sample size was deemed sufficiently high (above 70%) the R square value was interpreted over the adjusted R square value. The significance values associated with the predictors were both lower than 0.05 hence indicating that the coefficients were valid at 95% confidence level. A unit increase in reliability ratings was thus viewed to impart 0.066 increase on customer satisfaction ratings. The study noted that reliability, availability and maintainability were particularly of importance in the provision of electricity distribution services, the findings are consistent with Medjoudj, Aissani and Haim, (2013).

5.3.3 Cost of Electricity and Customer Satisfaction

Customers were generally dissatisfied with the costing of electricity; this was most notable indicated by the 1.83 mean rating on the transparency of the pricing mechanism – this was the lowest rating reported on the construct. The question further had the lowest standard deviation therefore indicating that the opinion of lack of transparency in pricing has held by most of the respondents. With regard to lack of transparency, (Rastegar, 2018) posited that

curtailment charges associated with distribution of electricity during periods of low consumption. In order to ensure reliable service offering, electricity distribution companies must supply an optimal amount of energy to all consumers with the supply apparatus tuned to ensure that no outages occur as a result of low supply in the grid. This approach however often results in oversupply due to the changing patters of consumption of residential homes. As a consequence, curtailment costs involving an unconsumed and wasted supply occur and the findings in the study support this.

The model summary depicting the general relative impact of the independent variables on the dependent variable presented an R square value 0.097 therefore indicating that 9.7% of the variability of the dependent variable was accounted for by the generated model. Given that the sample size was deemed sufficiently high (above 70%) the R square value was interpreted over the adjusted R square value. The significance values associated with the predictors were both lower than 0.05 hence indicating that the coefficients were valid at 95% confidence level. A unit increase in cost ratings was thus viewed to impart 0.392 decrease on customer satisfaction ratings. The findings of the study are consistent with Aissaniand Haim (2013) who indicated that whereas the consumer advocates for low costs, addressing this need should not be at the expense of reliability of the service as such a situation would inadvertently result in high costs due to unreliable service rendering. It is thus apparent from this observation that considerations on costs, from the consumer perspective are to be made with commensurate considerations on reliability.

5.3.4 Innovation of Power Supply and Customer Satisfaction

Innovation presented the highest mean rating of the independent variables included in the study. Two of the means presented ratings higher than three therefore indicating that the respondents agreed or strongly agreed with the view that the company was innovative. It was therefore anticipated that there would be a lower relationship between the construct and customer satisfaction. The findings are supported by Miguéis *et al.*, (2012) who indicated that with constant advances in technology, innovation in the electricity supply field is inevitable and required. Innovation must always be compatible with the existing

network in order to be efficient, cost effective and reliable. An innovation increases the bundle of knowledge and skills an organization has and this in turn improves customer satisfaction.

The model summary depicting the general relative impact of the independent variables on the dependent variable presented an R square value 0.060 therefore indicating that 6.0% of the variability of the dependent variable was accounted for by the generated model. Given that the sample size was deemed sufficiently high (above 70%) the R square value was interpreted over the adjusted R square value. The significance values associated with the predictors were both lower than 0.05 hence indicating that the coefficients were valid at 95% confidence level. A unit increase in innovation ratings was thus viewed to impart 0.318 decrease on customer satisfaction ratings. The findings of the study agree with Sernhed, Pyrko and Abaravicius (2003), who point to the shift to customer-centric service rendering by customizing communications to consumers to meet their information needs. With regard to innovation, Medjoudj, Aissani and Haim (2013) point to reliability, availability, and maintainability as the most important points of focus for the creation of innovative management systems that improve efficiency of service rendering from the supplier's perspective.

5.4 Conclusions

Of the four independent variables, communication techniques had the highest impact on the overall satisfaction of clients. A unit increase in rating of communication techniques had a 0.257 impact on the lowering of customer dissatisfaction. This finding was significant at the 95% confidence level. It was therefore apparent that improving communication techniques would result in a market increase in customer satisfaction. Reliability of service had the second highest impact on customer satisfaction. A unit increase in reliability scores was associated with a 0.250 lowering of dissatisfaction among clients. This finding was significant at the 95% confidence level. It was therefore inferred that reliability was the second most important construct in affecting customer satisfaction.

The impact of cost of electricity was the third most significant, by magnitude, in determining customer satisfaction; this presented a beta value of -0.099. A unit increase in mean cost mean rating was associated with a 0.099 reduction in the discrepancy between expectation and satisfaction. The relationship could however not be confirmed at the 95% confidence level. The cost of electricity was therefore not viewed as impactful, in determining customer satisfaction, as communication techniques and reliability.

Innovation presented the lowest beta value with a value of -0.040. The value, as with cost, was not significant at the 95% confidence level as it presented a significance value of 0.493, a figure higher than $\alpha = 0.05$. Innovation by the company was thus the least important factor in determining the satisfaction of customers. Findings from the simple linear regression models indicated that communication techniques were the most impactful on overall customer satisfaction with a beta coefficient of 0.58 with the model explaining 18.9% variability in customer satisfaction. The multiple regression model confirmed this observation. Innovation was the least impactful contributor to overall customer satisfaction.

5.5 Recommendations

1. Kenya power can consider leveraging on core systems that will enable them to seek knowledge on the information requirements of their consumer base as communication techniques plays a critical part in their satisfaction.
2. Among the questions of importance in communication with the consumer include information around perceptions of current communication, frequency of the issuance of information and mode through which information is disseminated.
3. The research also recommends that Kenya Power should conduct detailed focused research as to why technological innovations in their product offering are it adding value, leading towards increased customer satisfaction. This will also help in expanding their product development.

5.6 Areas for Further Research

The study proposes the following areas for further study:

1. An investigation into the factors affecting prepaid electricity meter in Nairobi county Kenya.
2. The challenges facing power connectivity in Kenya.
3. The contribution of Global Partnership of Output Based Aid (GPOBA) on electricity connectivity in Kenya.

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APPENDICES

APPENDIX 1: LETTER TO RESPONDENTS

My name is John Luusa an MBA student at Strathmore Business School.

2.1: Why is this study being carried out?

This study is being carried out to assess the effect of service delivery on customer satisfaction. Specifically, the study takes on a case study approach in assessing service delivery for Kenya Power Company customers in Nairobi County residing in West, North and South Divisions.

2.2: Do I have to take part?

No. Taking part in this study is entirely optional and the decision rests only with you. If you decide to take part, you will be interviewed to get information on Kenya Power Company's Service delivery. You are free to decline to take part in the study from this study at any time without giving any reasons.

2.3: Who is eligible to take part in this study?

Residential Customers of Kenya Power Company residing in the following regions:

- North Region
- South Region
- West Region

2.4: Who is not eligible to take part in this study?

- Kenya Power Company Staff
- Residential Customers not residing in the above stated regions.

2.5: What will taking part in this study involve for me?

You will be approached and requested to take part in the study. If you are satisfied that you fully understand the goals behind this study, you will be able to access the link to the questionnaire that will be shared with you.

2.6: Are there any risks or dangers in taking part in this study?

There are no risks in taking part in this study. All the information you provide will be treated as confidential and will not be used in any way without your express permission.

2.7: Are there any benefits of taking part in this study?

The information will be used provide insight on the role of service rendering in influencing customer satisfaction. It is hoped that the results give insight on the mind of the customer in turn help the company to anticipate customer needs in order to meet customer's evolving needs.

2.8: What will happen to me if I refuse to take part in this study?

Participation in this study is entirely voluntary.

2.9: Who will have access to my information during this research?

The research will be transcribed into an online server and this will be sufficiently encrypted and password protected.

2.10: Who can I contact in case I have further questions?

You can contact me, John Luusa on 0722975230 or jluusa21@gmail.com .

APPENDIX 2: ETHICAL CLEARANCE CERTIFICATE

Strathmore UNIVERSITY

24th March 2020

Mr Luusa, John
john.luusa@strathmore.edu

Dear Mr Luusa,

RE: Factors Influencing Customer Satisfaction with Service Provision: (A Case of Kenya Power)

This is to inform you that SU-IERC has reviewed and **approved** your above research proposal. Your application approval number is **SU-IERC0628/20**. The approval period is **24th March, 2020 to 23rd March, 2021.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-IERC.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-IERC within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-IERC within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to SU-IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

for: Dr Virginia Gichuru,
Secretary; SU-IERC

STRATHMORE UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE (SU-IERC)
24 MAR 2020
TEL: +254 (0)703 034 000
P. O. Box 59857 - 00200
NAIROBI - KENYA

Cc: Prof Fred Were,
Chairperson; SU-IERC

APPENDIX 3: NACOSTI STUDY PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **196524**

Date of Issue: **24/January/2020**

RESEARCH LICENSE

This is to Certify that Mr.. John Luusa of Strathmore University, has been licensed to conduct research in Nairobi on the topic: Factors Influencing Customer Satisfaction with Service Provision: (A Case of Kenya Power) for the period ending : 24/January/2021.

License No: **NACOSTI/P/20/3579**

196524

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

APPENDIX 4: QUESTIONNAIRE

PART 1: DEMOGRAPHIC INFORMATION

1. Please state your gender:

a) Male □

b) Female □

2. Please indicate your Age (in years)? Between:

a) 21-30 □ b) 31-40 □ c) 41-50 □

d) Above 50 □

3. Please indicate your level of education

a) Primary □ b) Secondary □ c) College/ University □

d) Post graduate □

4. State your occupation .....

5. Place of Residence

Nairobi West □ Nairobi North □ Nairobi South □

PART 2: COMMUNICATION TECHNIQUES

Please mark the appropriate box to show your level of agreement or disagreement **Key**: Strongly Disagree (1) Disagree (2) Not Sure (3) Agree (4) Strongly Agree (5).

Note: Communication is the transfer of information between Kenya Power and its customers

Communication techniques	**1**	**2**	**3**	**4**	**5**
My queries are promptly addressed					
I am able to reach and communicate with Kenya Power when I need to.					
My calls to the customer care number/(s) are always answered.					
Kenya Power staff respond immediately to customer complaints and queries.					
The Kenya Power website has all the information I need.					
Kenya Power staff respond immediately to customer complaints and queries					
The Kenya Power website has all the information I need					
Kenya power notifies me of scheduled power outages.					
The notifications of scheduled outages is often accurate.					
The complaints made on the Kenya Power Facebook page /Twitter handle are always addressed.					

PART 3: RELIABILITY OF POWER SUPPLY

Mark appropriately based on your level of agreement with the following statements.
Key: Strongly Disagree (1) Disagree (2) Not Sure (3) Agree (4) Strongly Agree (5).

Note: Reliability of power supply refers to constant power supply with few interruptions

Reliability of power supply	**1**	**2**	**3**	**4**	**5**
The frequency of power outages is generally acceptable.					
The rate of power outages does not have a significant impact on my daily activities.					
Kenya Power maintenance staff are generally able to handle issues of repair.					
Repair issues are handled quickly and effectively.					
Kenya power provides sufficient support personnel.					
The support provided is sufficient in addressing my needs.					

PART 4: COST OF ELECTRICITY

The following statements show the influence of cost of electricity on customer satisfaction. Tick appropriately.
Key: Strongly Disagree (1) Disagree (2) Not Sure (3) Agree (4) Strongly Agree (5).

Note: Cost of electricity refers to the amount paid for everyday consumption of electricity

Cost of electricity	**1**	**2**	**3**	**4**	**5**
The cost of power supply is generally fair.					
I am able to comfortably pay for my electricity bill.					
I can easily understand/interpret the bills I receive.					
The specific charges on the bill are transparently set and justifiable.					
It is unlikely that Kenya Power can put in place measures to further lower my electricity bill.					
The bills I receive are the minimum they can be.					

PART 5: INNOVATION OF NEW PRODUCTS

The following statements show the influence of innovations on customer satisfaction. Tick appropriately.
Key: Strongly Disagree (1) Disagree (2) Not Sure (3) Agree (4) Strongly Agree (5).

Note: Innovations refer to new products in the market such as prepaid meters.

Innovation of new products	**1**	**2**	**3**	**4**	**5**
The token system is preferable to the conventional postpaid meter.					
The token system has satisfactorily addressed the inconvenience of paying for bills.					
Kenya Power's engagement with companies such as Safaricom (Mpesa) in payment of bills is a show of innovation.					
Kenya Power has sufficient partnerships in service provision.					
Kenya Power's technology is up to date.					
Kenya Power's technology compares well with other service providers in Kenya.					
Kenya Power's technology compares well with service providers in other countries.					
I check my electricity bills via text message					
I am satisfied the services provided by Kenya Power					
I would remain a Kenya Power customer if a competitor comes into the field					

PART 6: CUSTOMER SATISFACTION EXPECTATION

Please mark the appropriate box to show your level of agreement or disagreement.

Key: Strongly Disagree (1) Disagree (2) Not Sure (3) Agree (4) Strongly Agree (5).

Customer satisfaction expectation	**1**	**2**	**3**	**4**	**5**
Service provision companies should provide their services dependably and accurately.					
An electricity service provision company should have employees that are courteous and that inspire trust.					
An electricity company should offer caring and individualised attention to customers.					
An electricity company should be willing to help customers and provide prompt service.					
Kenya Power's technology is up to date.					

PART 7: CUSTOMER PERCEPTION OF SERVICES RENDERED BY KENYA POWER.

Please mark the appropriate box to show your level of agreement or disagreement.

Key: Strongly Disagree (1) Disagree (2) Not Sure (3) Agree (4) Strongly Agree (5).

Customer satisfaction expectation	**1**	**2**	**3**	**4**	**5**
Kenya Power's service provision is dependable and accurate.					
Kenya Power's employees are courteous and inspire trust.					
The appearance of Kenya Power's facilities and equipment is appealing.					
Kenya Power offers individualised attention to customers.					
Kenya Power's employees are always willing to help customers and provide prompt assistance.					