Original Article

Knowledge Processing Capability and Business Sustainability of Mobile Telecommunication Firms in Kenya

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ABSTRACT

Mobile telecommunication firms in Kenya operate in a dynamic and highly competitive business environment. This may be attributed to innovativeness, emerging technologies, and rapid changes in consumer consumption patterns. This has necessitated firms in this sector to develop strategies to remain competitive and sustainable. Therefore, this paper sought to assess Knowledge Processing Capability's influence on the sustainability of mobile telecommunication firms in Kenya. The study's variables were anchored on Knowledge-Based View (KBV) theory and adopted a descriptive, explanatory research design. The study targeted three mobile telecommunication firms with an accessible population of 1,177 employees. The study relied on stratified random sampling techniques to select 299 respondents. Primary data was obtained through a semi-structured questionnaire. Data were analysed by the use of descriptive and inferential statistics. The findings revealed a significant positive relationship between knowledge processing capability and sustainability of the mobile telecommunication companies in Kenya.

INTRODUCTION

Knowledge management is a key asset in any organization and its effective use enhances organizational performance and sustainability (Michailova & Nielsen, 2016). In a fast-changing business environment, knowledge has become the backbone of every organization in creating and sustaining competitive advantage (Cheruiyot, 2014). Yasuoka (2020) indicates that Knowledge management systems are IT-based system that enables a company to acquire knowledge, process, share, and store it in a database for internal use. When these systems are effectively implemented, they can allow the organization to access specific-domain knowledge to aid in decision making and enhancing efficiency in other business processes (Gao et al., 2018). Further, the ability of the organization to develop knowledge processing capabilities, information integrity, and application integration can enhance performance and sustainability of the organization.

According to Gao, et al. (2018), knowledge processing competence is an organization's ability to produce, use, acquire, convert, and apply knowledge. Because companies have distinct procedures that differ from one another, this procedure is critical. As a result, organizations should be capable of developing information that is unique to them. Alsalim and Mohamed (2018) established that knowledge processing capability positively influences sustainability of institutes of technical earning in Iraq. Bratianu (2015) equally established that the ability of the organization to efficiently manage knowledge, they must adopt emerging technologies that are able to process acquired data and save it in the appropriate system.

Desta et al. (2014) discovered that firms' business sustainability could be enhanced through the use of key tools such as data mining tools and knowledge processing and storage systems (protected databases) that could generate, process, and safeguard tailored knowledge to organizational needs. However, the study established that initial capital investment was huge and smaller telecommunication firms in the industry could not effectively use these technologies.

In addition, Bratianu (2015) established that technology, environment, and people play a critical role in ensuring a firm's sustainability of the organizations. Technological capability helps the organization acquire knowledge management tools that facilitate knowledge processing and storage. The environmental factor indicates how knowledge is adopted for firms' competitive advantages, and finally, the people factor describes the variables that creates a positive attitude for voluntarily sharing knowledge. A combination of these elements is important in assessing and improving corporate sustainability; however, many organizations have no clear policies for assessing their technological competencies.

Mobile telecommunication in Kenya consists of Safaricom Kenya Limited, Bharti Airtel Limited, and Telkom Kenya Limited. The major mobile provider in Kenya is Safaricom PLC, which officially launched into the Kenyan market in October 2000. Later, Vodafone Group PLC acquired 40% of the stake, and they were responsible for the administration of the company. In 2002, the company changed to a public entity whereby the government acquired 60% of the shares, and 25% of the shares were traded in Nairobi

Securities Exchange. The company dominates the telecommunication sector because of its unique products and services such as M-Pesa, data, voice, and M-Shwari. Currently, the company's sustainability is associated with the ever-increasing number of subscribers. As of March 2020, the corporation has 35,617,302 subscribers, up from 35,345,107 in last month of 2019, a 1.2 percent increase (CAK, 2020). Since its liberalization, the mobile telecommunication sector in Kenya has witnessed a lot of challenges that have compelled some firms to relocate, some close shop, while others have been forced to merge. The significant challenges facing these firms, as claimed by other players in the market, include an unfair competitive environment, unique customer needs, and dominance by the market leader, among others (Otieno, 2015). These issues have and are still being addressed by various governmental institutions that are mandated to handle such matters, such as the Communications Authority of Kenya.

Business sustainability is a critical concept among mobile telecommunication firms as well as business research scholars. Concerns over business sustainability are mostly motivated through perceived threats to competitiveness and durability of the business firms. These concerns are upheld due to the presence of a highly competitive and dynamic marker and resources (Svensson et al., 2016). According to Wales, (2013), sustainability is the capacity of an organization to satisfy its existing customer's demands through efficient coordination and management of social, environmental, and financial concerns to ensure ethical, responsible, and ongoing success. Thus, to be sustainable, a firm must develop the capability to positively influence economic development, support community activities, and protect the environment (Ghauri et al., 2013).

Arasa and Gathinji (2014) consider a firm as having sustainable growth if it can efficiently adopt unique business models that can create value consistent with the long-term enhancement and preservation of the social, environmental, and economic capital of an organization. Further, the firm should be able to manage change and realign its business models to the dynamic and highly competitive business environment.

Business Sustainability

The concept of business sustainability has attracted scholarly attention. Most studies have sought to identify a suitable sustainability index that can be used to measure sustainability, especially among mobile telecommunication firms. Among these studies, Svensson et al. (2016) found that firm sustainability could be measured using three dimensions namely, the social impact of the firm's business activities dimension, stakeholder consideration in terms of returns on investment, and the firm's influence on the economy in terms of balance between demand and supply. An assessment of firm sustainability and connectivity at Vodafone Group Limited identified three topical areas that address organizational sustainability in the telecommunications sector; this was the company's commitment to responsible operations, investment in people, and commitment to developing skills and building employee capacity (Vodafone report, 2019).

In addition, Ratnajeewa and Hewage (2015) developed an integrated index to assess the sustainability of the Sri Lankan telecommunications industry and the sustainability of individual telecommunication enterprises in the country. In this index, economic sustainability was measured by the firm's productivity, sales revenue, cost management, and stock value and was one of the four elements of the sustainability index. Environmental sustainability was measured by environmental management, emission management, and environmental report. Finally, social sustainability was measured by corporate social responsibility, partner relationship management, and laborn relations. From this dimension, the study established that most Sri Lankan mobile

telecommunication companies lacked environmental sustainability apart from the e-billing system that many organizations had adopted. Based on the several suitability measures adopted by different studies, this paper used the Ratnajeewa and Hewage (2015) index to measure business sustainability of mobile firms in Kenya.

Research Hypothesis

H_{01}: *Knowledge processing capability has-no-significant influence on the sustainability of mobile telecommunication firms in Kenya.*

LITERATURE REVIEW

The theoretical, empirical, and conceptual framework are presented in this section.

Theoretical Review

The study was anchored on The Theory of Knowledge-Based View (KBV). The theory was developed by Grant (1996) and later advanced by Barney (1991). The basis of the theory is that an organization should find a strategic resource within its confines that can be utilized to achieve a competitive advantage. The limitation of RBV theory was that it was not specific on which type of resource an organization could utilize to create a competitive advantage. Knowledge-based view theory recognizes that knowledge can be used as a strategic resource in organizations. According to the theory, knowledge is regarded as an individual's intellectual property, and it exists in two forms: tacit and explicit knowledge (Hörisch et al., 2015). Tacit knowledge is acquired through experience or action. It is considered implicit as it operates within an individual's subconscious mind, making it difficult to share it with others. On the other hand, explicit knowledge is that knowledge that can be documented, articulated, and formalized. Such type of knowledge, therefore, can be shared (Michailova & Nielsen, 2016).

Tacit knowledge is considered a primary strategic resource in the organization. This originates from within the organization; it is immobile and unique (Hörisch et al., 2015). From the views of Hayter (2016), an organization can create knowledge-based competence that can enhance the firm's competitiveness through aggregating, integrating, and coordinating any specialized knowledge that employees acquire over time. Knowledge can be obtained and utilized through group problem-solving decision making, routines, sequencing, and organizations' directives and policies.

The KBV has been found to have various limitations by scholars. For instance, Eisenhardt and Santos (2010) argue that an individual's learning process is influenced by personal abilities and the environment within the organization. The theory has also been questioned on applying knowledge within the organization, making it a strategic resource. However, notwithstanding the criticisms, the theory has stood out by identifying and recognizing knowledge as an important resource in any organization. It has elaborately explained the process of acquiring, sharing, and applying knowledge in the organization to enhance firm sustainability Zaim, *et al.,* (2019). Suppose knowledge is just acquired and retained by an individual without sharing or using it appropriately. In that case, it does not act as a strategic resource that can improve the firm's competitiveness and sustainability.

The relevant proposition of this theory is that it advocates for knowledge creation, knowledge acquisition, and knowledge sharing to achieve a firm's sustainability. This can be accomplished by the firm ensuring they have comprehensive and elaborate knowledge processes. The theory describes the importance of knowledge management in an organization. It emphasizes the need for storing knowledge either in the form of explicit or implicit (Imran *et al.,* 2017). Knowledge can be reserved by integrating it into an IT system that supports knowledge processes among

knowledgeable employees in an organization. When knowledge management systems are implemented efficiently, they can lead to an innovative culture, increased shareholder value, business growth in terms of profitability, employee engagement, and a self-reliant workforce. Hence this theory supported the knowledge processing variable of the study.

Empirical Review

Past studies on the relationship between knowledge processing and firm sustainability from scholarly research, journals, articles were reviewed.

Knowledge Processing and Firm Sustainability

Knowledge processing capability is the ability of the organization to create, acquire, share, and protect knowledge. This process is crucial because organizations have unique processes that are different from each other. Therefore, they should develop knowledge that is specific to them (Gao et al., 2018).

Kamasak et al. (2017) conducted a study to determine Knowledge process capability and Information Technology firms' performance in Turkey. The study relied on the descriptive design where 236 IT firms were sampled. To determine the relationship that existed between the variables under investigation, multiple linear regression analysis was used. The study findings indicated knowledge processes capability had a positive relationship with the performance of IT firms. The study concluded that IT firms in Turkey ought to adopt and ascertain knowledge process capabilities to increase performance and become sustainable. The study however relied on descriptive research design that could not assess effectively the relationship between the research variables and therefore it was necessary to carry out further study to assess the relationship between the knowledge processing capability and firm sustainability.

Zaim et al., (2019) carried out another Turkish study to determine how knowledge process capability and

corporate achievement relate to each other. The study focused on the link between information sharing, knowledge acquisition, knowledge storage, and corporate performance. Main data was obtained from 108 respondents through the administration of research questionnaires. For testing the structural model, a split sample was used. The findings showed that all the independent variables except knowledge sharing had a significant relationship with performance. The study recommended that management of the firms needs to encourage the employees to share information to increase the acquisition of knowledge.

Imran et al. (2017) carried a study to determine the influence of knowledge process capabilities on a firm's performance in India. The study adopted moderated multiple regressions on 271 responses, and the findings indicated a positive influence of knowledge process capabilities on a firm's performance. The study findings showed that knowledge application, sharing, and acquisition influenced processes that enhanced a firm's performance. While on the other hand, knowledge conversion had an insignificant effect on a firm's performance, the process aids other knowledge processes capabilities to perform much better. The study concluded that for a firm's sustainability, the managers need to develop knowledge processes capabilities in firms' operations.

A study was conducted by Tessema and Singh (2020) to determine the role of knowledge process capabilities and banks sustainability in Awassa, Ethiopia. The exploratory research design was utilized where both deductive and inductive approaches were adopted. Structured and semi-structured questionnaires were used to gather primary data from 266 respondents from 93 bank branches. Data was coded using AMOS version 23, and research hypotheses were tested by use of SEM. Results revealed that knowledge process capabilities had positive effects on banks' sustainability. The study recommended

organizations invest in knowledge management systems for better performance.

A study conducted by Atnafu and Balda (2018) examined the relationship between knowledge process and SME performance in Gaza. Descriptive research design and 288 respondents were the guidelines for the study. The study preferred the primary technique of collection of data, and the results were obtained using the questionnaires from selected respondents. Data was analysed using correlation and regression analysis, where the findings revealed that social capital was a mediator between knowledge process and SMEs performance. Knowledge process capabilities positively influenced social capital.

Kiseli (2016) sought to establish the impact of knowledge management systems capabilities on the hospitality industry in Kenya. The study relied on descriptive design, and the study involved 313 managers as its target population. To obtain a sample of 172 respondents, the study employed a simple random stratified technique. Semi-structured questionnaires were utilized to gather primary data from respondents. Data was later analysed using descriptive statistics while moderate multiple regressions were adopted to determine the impact of the knowledge management systems capabilities variables against hospitality firms' performance. The study findings indicated that knowledge process capability had a significant positive relationship with competitive hospitality advantage. The study concluded that hotels need to impress knowledge management system capabilities to increase their competitive advantage.

Kangogo and Gachunga (2015) sought to determine the elements influencing knowledge capabilities processes on improving banking sector service delivery in Kenya. A descriptive survey was used as a research design for this study. The study selected forty-three human resource managers from all the commercial banks in Kenya through the census sampling technique. This study included both primary and secondary data collection methodologies. Questionnaires were used to collect preliminary data, while secondary data was gathered through periodicals and public papers. With the help of SPSS version 21.0, quantitative and qualitative data analysis approaches were used. Knowledge acquisition and knowledge sharing were found to have a significant and favourable impact on banking sector service delivery. The study recommendation was for banks to effectively facilitate knowledge acquisition properly to acquire and retain knowledge to prevent an organization's valuable knowledge resource loss.

Firm Size and Firm Sustainability

Every firm depends on knowledge management to generate and maintain a competitive advantage in today's fast-changing business environment. Knowledge is a valuable asset in any company, and its proper use affects its success (Nega, 2017). Several research studies have assessed the moderating effect of firm size on the relationship between knowledge processing capability and firm sustainability; however, the findings from these studies were inconsistent.

Vij and Farooq (2016) sought to assess if firm size moderates the relationship between information technology orientation and business performance. The study used a purposive sectional sampling of managers from India's capital city's manufacturing and service industries. Data was collected using self-developed non-distinguished questionnaires that were distributed to 240 individuals working at the managerial level. Structural Equation Modelling (SEM) was employed in testing the research hypotheses. The findings established that company's size positively influenced the relationship between information technology orientation and business performance.

Nega (2017) sought to assess the relationship between financial performance and telecommunication corporate social responsibility

sustainability with firm size as moderating variable. A target population of 119 companies in the United States was randomly selected from the Russell 100 index. Data was collected via a Bloomberg terminal and submitted to multiple linear regression analysis. Financial performance and telecommunication CSR were found to have a beneficial association. However, the study found that some companies' financial performance and commitment to corporate social responsibility in the telecommunications sector were unrelated. According to the study, businesses with large total assets or investments have a significant positive link. In contrast, the one with the smallest total assets or investments has a significant negative relationship.

A study by Ali et al. (2016) on the moderating effect of firm size on the relationship between functional integration and firm performance established a significant positive relationship between the study variables. The study's unit of analysis was manufacturing companies in Nairobi County. The study used descriptive research. Semi-structured questionnaires were used to obtain primary data from 176 manufacturing enterprises in Nairobi. Data were analysed using Pearson's product-moment correlation coefficient.

Conceptual Framework

Figure 1: Conceptual Framework

Independent Variable   **Dependent Variable**

Moderating Variable
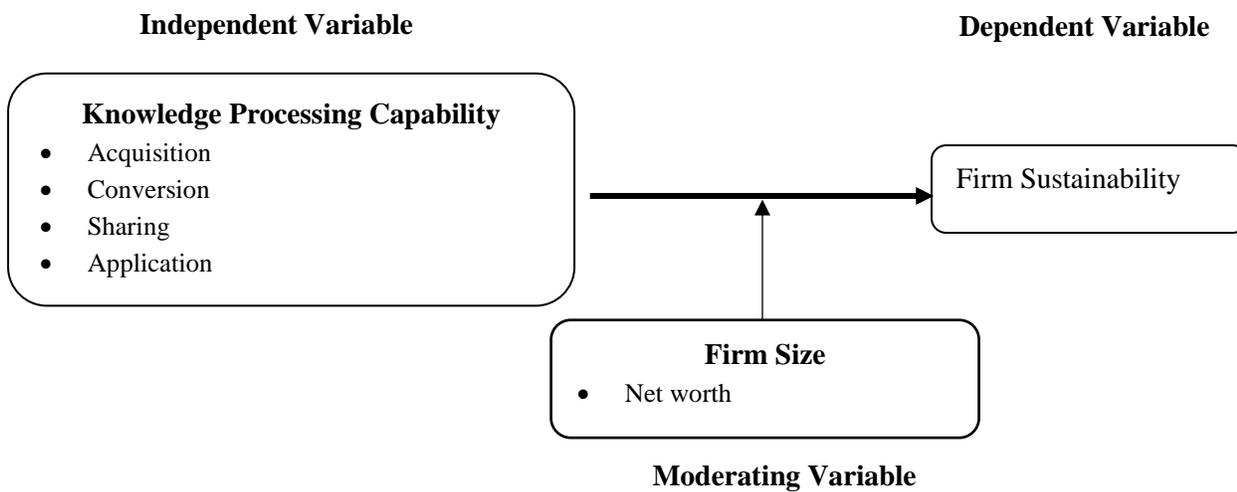
METHODOLOGY

The study adopted a positivism research philosophy in order to have an objective view to describe the relationship between Knowledge Processing Capability and Firm Sustainability. The study adopted an explanatory and descriptive research designs. Exploratory research design suits when interrogating a matter of which little is known. It is used to exposes a high level of uncertainty on the relationship between the research variables. On the other hand, descriptive research design suits when getting and giving some accurate and valid representations of phenomena under study

(Creswell & Creswell, 2017). A target population of 1,177 employees from 9 departments of three Mobile telecommunication companies was used. Yamane formula (1967) was utilized to obtain a sample size of 299 participants. Stratified random sampling technique was applied to identify nine stratus representing different information technology-based departments. This ensured proper representation of different categories to enhance the representation of variables. Respondents were picked randomly from the nine-stratus based on the proportional method. Data was collected using customized questionnaires regarding knowledge management system capabilities and sustainability

of the firm. Content, construct, and face validity of the instrument was assessed and enhanced through literature review and consultation with subject experts. Internal reliability of the instrument was assessed through piloting. A Chronbach alpha coefficient of 0.895 was obtained and considered ideal. Data was analysed using correlation and multiple regression analysis. All the ethical issues were considered during the study.

RESULTS AND DISCUSSION

The study sought to establish the influence of knowledge processing capability and firm performance.

Demographic Characteristics

The researcher issued questionnaires to 299 respondents, of which 252 were duly filled and returned. This translated to a response rate of 84%, which was good enough, according to Mugenda and Mugenda (2013). The study sought to establish the department that the respondents were drawn from. The findings revealed that 43 (17.1%) of the respondents belonged to the corporate affairs department, 98 (38.9%) of the respondents belonged to customer experience, and 34 (13.5%) of the respondents indicated that they belonged to the technical department. Lastly, 77 (30.5%) of the respondents indicated they belonged to the research

and development department. Furthermore, in assessing the level of management of the employees, it was revealed that 116 (46.0%) of the respondents involved in this study were in middle-level management. 108(42.9%) respondents were in lower-level management, while 28(11.1%) belonged to top-level management. On the length of working in the organization, the study established that most respondents, 135 (53.6%), indicated that they had worked in the firm for less than 5 years. This was followed by 77 (30.5%) respondents who had worked for 6 to 10 years. The respondents who had worked between 11 to 15 years were 22 (8.7%), and then 18 (7.1%) respondents indicated they had worked in the companies for more than 15 years.

Descriptive Statistics

The study assessed the relationship between Knowledge processing and Firm sustainability. The study used a 5-point capability Likert scale where the respondents were asked about their opinion on a set of provided statements concerning the variables under study. On the Likert scale, 1 = Strongly Agree, 2= Agree, 3=Moderately Agree, 4=Disagree, 5= Strongly Disagree. Frequencies, Standard deviation, and mean (measures) of central tendency were utilized to summarize the characteristics of the variables. These statistics are presented in table 1 and 2.

Table 1: Frequency table, Standard deviation and mean for Knowledge processing capability

Statement	N	Mean	Std Dev
Employees in our firm acquire new knowledge through training and educational activities	252	4.123	0.91727
Adoption of new technologies leads to the acquisition of new knowledge?	252	4.1468	0.89168
The firm acquires new knowledge through research and development activities	252	4.0754	0.87362
The firm undertakes regular surveys and customer feedback to acquire new knowledge	252	4.0278	0.81031
The firm has ICT infrastructure (internet and intranet) that has enhanced knowledge sharing	252	4.1627	0.85696
The firm applies the acquired knowledge to develop new products	252	4.0952	0.76193
Aggregate Mean	4.105		

The results in *Table 1* indicate that most respondents agreed that employees in their firm acquired new knowledge through training and educational activities, as indicated by the mean score of 4.123 and standard deviation of 0.917. On whether the adoption of new technologies led to the acquisition of new knowledge, most respondents agreed, as indicated by a mean of 4.146 and a standard deviation of 0.891. When the respondents were asked whether their firm acquires new knowledge through research and development activities, the highest number agreed with the mean of 4.075 and standard deviation of 0.873. It was also established that most respondents indicated that their firm undertakes regular surveys and customer feedback to acquire new knowledge, with an aggregate mean of 4.027 and a standard deviation of 0.810. The respondents further agreed that their firms have ICT infrastructure (internet and intranet) that has enhanced knowledge sharing, as indicated by the mean of 4.162 and standard deviation of 0.856.

Further, most respondents agreed that their firms apply the acquired knowledge to develop new products, which is clear according to the mean of 4.095 and standard deviation of 0.761. The aggregate mean for knowledge processing was 4.105. In relation to the reviewed literature, these findings concurred with the results of Kamasak et al. (2017); Imran et al. (2017); Tessema and Singh (2020); and Andrew and William (2018). They found out that knowledge processing positively influenced business sustainability. However, a study by Zaim et al. (2019) found that knowledge sharing had no significant relationship with firm sustainability. However, knowledge acquisition and storage had a significant relationship with firm sustainability.

Table 2: Frequency table, Standard deviation and mean for Firm Size

Statement	N	Mean	Std. Dev
Our firm net worthiness assists in the development of sustainable infrastructure.	252	3.825	0.998
The firm has a quality asset for leading to efficient operations.	252	4.154	0.858
There is sufficient signal coverage for high productivity.	252	3.642	1.103
The firm had a large customer base which led to high revenue.	252	4.035	1.175
Aggregate Mean		3.914	

The results from *Table 2* show that most respondents were neutral that firm net worthiness assisted in developing sustainable infrastructure where the mean was 3.825 and the standard deviation 0.998. Most respondents agree on whether their firm has a quality asset that leads to efficient operations, with a mean of 4.154 and a standard deviation of 0.858. Most respondents had a neutral opinion on their firm with sufficient signal coverage for high productivity with a mean of 3.642 and a standard deviation of 1.103. On the other hand, the respondents agreed that their firm has a large customer base, leading to high revenue with a mean of 4.035 and a standard deviation of 1.175. An aggregate mean was found to be 3.914. These study findings are consistent with the findings of Nega (2017), which indicated that businesses with large investments have a positive significance with firm sustainability while companies with small investments had a minimal significant relationship with firm sustainability.

The firm's sustainability was measured using economic, environmental, and social aspects.

Table 3: Frequency table, Standard deviation and mean for Firm Sustainability

Statement	N	Mean	Std. Dev
The firm had sufficient sales revenue.	252	4.127	0.751
There is high employee productivity in the firm.	252	4.027	0.705
Cost management has improved the profitability of the firm.	252	4.099	0.784
The firm has conducted sufficient community projects that have had an impact on the environment.	252	3.952	0.771
The firm has improved livelihoods in society through the provision of quality services.	252	3.833	0.938
The firm has enhanced business to business collaborations.	252	3.976	0.860
The firm has empowered their employees.	252	3.892	0.973
Aggregate Mean		3.986	

The findings presented in *Table 3* indicate that most respondents agreed with a mean of 4.127 and standard deviation of 0.751 that their firm had sufficient sales revenue. On whether there is high employee productivity in the firm, most respondents agreed with a mean of 4.027 and a standard deviation of 0.705. The respondents also agreed that cost management had improved the firm's profitability with a mean of 4.099 and a standard deviation of 0.784. The statement whether a firm had conducted sufficient community projects that could have impacted the environment. Most of the respondents had a neutral view, with a mean of 3.952 and a standard deviation of 0.771. Equally, most respondents had a neutral opinion that the firm had improved livelihoods in society through providing quality services, with a mean of 3.833 and a standard deviation of 0.938. On whether the firm had enhanced business-to-business collaborations, majority of the respondents had a neutral view with a mean of 3.976 and a standard deviation of 0.860. Lastly, most respondents also had a neutral opinion that their firm had empowered their employees, indicating a mean of 3.892 and a standard deviation

of 0.973. An aggregate mean of 3.986. The study findings align with Ghauri et al. (2013). Their findings demonstrated that environmental, economic, and social sustainability contributed to the general firm's sustainability to some extent.

Inferential Statistics

Linear regression model was used to examine the relationship between knowledge processing capability and sustainability of mobile telecommunication firms in Kenya. This was because the study only used one independent variable.

The tested model was presented as;

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where; Y represents the dependent variable (sustainability of mobile telecommunication firms in Kenya). X_1 =independent variable (Knowledge Processing Capability). B_1 = Beta coefficient, B_0 = Constant and ε is the error term.

Table 4: Model Summary for Sustainability of the Firm

Model	R	R Square	Adjusted R Square
1	0.795[a]	0.632	0.626

a. Predictors: (Constant), Knowledge Processing Capability
b. Dependent Variable: Firm Sustainability

Table 4 reveals that Adjusted R=squared = 0.626, which implied that 62.6% of the variation in the sustainability of the firm was associated with knowledge process processing capability. However, 37.4% of the variation in the firm's sustainability was due to other factors that were not considered by the study.

Table 5: ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60.015	4	15.004	106.058	0.000[b]
	Residual	34.942	247	0.141		
	Total	94.957	251			

a. Dependent Variable: SF-Sustainable of Firm
b. Predictors: (Constant), KP-Knowledge Processing Capability
Source: Study Data (2021)

ANOVA findings in *table 5* indicated F=106.058 and P=0.000, revealing that the null hypotheses were accepted (P<0.05). This implies a significant relationship between the Knowledge Processing Capability and the firm's sustainability. Knowledge Processing Capability influenced the sustainability of firms in the mobile telecommunication industry.

Examination of the moderating effect of firm size on the relationship between the knowledge processing capability and sustainability of the firm.

The study examined the moderating effect of firm size on the relationship knowledge processing capability and sustainability of mobile telecommunication firms. The model consisted of knowledge processing capability, firm size, and interaction between knowledge processing capability and firm size (knowledge processing capability *firm size) on the firm's sustainability.

Table 6: Model Summary on Moderating Effect

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.851[a]	0.725	0.721	0.32470

a. Predictors: (Constant), KPC_FS-Interaction between, Knowledge Processing Capability and Firm Size, KPC- Knowledge Processing Capability, FS-Firm Size
b. Dependent Variable: SF-Sustainability of the Firm
Source: Study Data (2021)

Table 6 indicated that 72.5% of the variation in a firm's sustainability was due to Knowledge

Processing Capability, firm size, and the interaction term. Therefore, 27.5% of the variation in the sustainability of the firm was due to other factors.

Table 7: ANOVA Results for Moderating Effect

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	68.811	3	22.937	217.561	.000[b]
	Residual	26.146	248	.105		
	Total	94.957	251			

a. Dependent Variable: SF-Sustainability of the Firm

b. Predictors: (Constant), KPC_FS-Interaction between, Knowledge Processing Capability and Firm Size, KPC- Knowledge Processing Capability, FS-Firm Size

Source: Study Data (2021)

Table 7 reveals the relationship between the variable. According to the results, there exists a significant relationship between the sustainability of the firm and the predictors with F value = 217.561, p=0.000 <0.05.

Table 8: Regression Coefficients Results for Moderating Effect

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.572	0.556		1.029	0.304
	KPC	0.613	0.199	0.487	3.077	0.002
	FS	0.524	0.148	0.759	3.546	0.000
	KMS_FS	-0.048	0.047	-0.348	-1.025	0.306

a. Dependent Variable: SF-Sustainability of the Firm

Key: KMS_FS-Interaction between, Knowledge Processing Capability and Firm Size, KPC-Knowledge Processing Capability, FS-Firm Size

Source: Study Data (2021)

The model was presented in *Table 8*.

Sustainability of the Firm = 0.572 +0.613 (Knowledge Processing Capability) + 0.524(Firm Size) -0.048 (KPC*FS) + ε

According to the model, firm size is an explanatory variable that has a considerable positive impact on the mobile communications firm's sustainability in Kenya. However, since the interaction was negligible in the link between the knowledge management system and the firm's sustainability, it had no moderating impact.

Therefore, the null hypothesis (P=0.306>0.05) was accepted. As a result, there was no significant moderating influence of company size on the connection between knowledge management system capacity and mobile telecommunications business sustainability in Kenya. Firm size, on the other hand, was an explanatory variable in the sustainability of Kenyan mobile telecommunications enterprises.

CONCLUSION AND RECOMMENDATIONS OF THE STUDY

The study aimed to assess the influence of knowledge processing capability on the sustainability of mobile telecommunication firms in Kenya. From the regression analysis, it was established that knowledge processing capability had a positive significant influence on the sustainability of mobile telecommunication firms. Thus, the study rejected the null hypothesis and adopted the alternative hypothesis. Further, the study established that firm size had no moderating effect on the relationship between m Knowledge Processing Capability and sustainability of the mobile telecommunication companies.

The study concluded that new knowledge was acquired through educational activities in the firms. Telecommunication firms that leveraged adopting new technologies, research and development activities, and regular surveys, including customer feedback, had better profitability and sustainability. This is because acquiring new knowledge enhances understanding of customer needs and develops the competitive product. The study recommended that mobile telecommunication firms adopt effective knowledge management systems for better performance and sustainability. This will ensure that the firms develop better products once they have understood the customers' needs. The management of the mobile telecommunication companies should also adopt new advanced and innovative technologies to ensure that they get timely customer feedback.

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