



# **Knowledge Management for Competitive Advantage in Kenya: A Comparative Study of Two Telecommunication Companies**

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## **ABSTRACT**

The two organizations in this study were chosen to investigate the relation between knowledge management and competitive advantage. Safaricom has knowledge management systems while organization B has no knowledge management systems but has a task force which has a wealth of experience since the organization was one of the first telecommunication companies to be established in Kenya. These two organizations were compared all factors held constant to find out if knowledge management can lead to competitive advantage. Secondary data was also used which determined that safaricom had a competitive edge over Organization B and the purpose of this study was to establish if knowledge management is a contributor of this fact. The target population was all the employees in the two organizations. Since the population was all the employees in the organization stratified random sampling was used to get the sample size the strata were the two organizations and a sample of employees was randomly selected in each organization. Quantitative research technique was applied and instruments such as questionnaires were used to collect data. The Statistical Package for the Social Sciences was also used to process and analyze data. The key findings proved that knowledge management is key in maintaining competitive advantage.

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**Key words: Competitive Advantage, Comparative study, Knowledge Management, Telecommunications**

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## **1. Background of the Study**

Knowledge management refers to the process of capturing, developing, storing or sharing wisdom for effective use in organizations. There is a difference between knowledge and information. On one hand information is raw data or facts and it forms the basis of knowledge but on the other hand knowledge is concise and appropriate use of information using analysis and experience to derive meaning from it (Koenig, 2012). The key is learning how to create, store and utilize knowledge and not just acquire and store information.

Knowledge management is not a new field of study. In fact, it is a field that began in the early 1980s. However, research in this field experienced a drastic decline from 30% overall academic research publications from the year 2002 to only 10% by the year 2009 (Serenko, Bontis, Booker, Sadeddin, & Hardie, 2010). Knowledge management has two main aspects, tangible knowledge and explicit. Tangible knowledge is the skills that people possess which is hard to be stored and are innate while explicit knowledge is the knowledge that can be stored in data banks. Knowledge Management has become popular especially with scholars such as Drucker (1999), arguing that knowledge has replaced tangible assets as the principle driver of economic growth. The knowledge economy explains that knowledge is the most valuable organizational resource capable of creating sustainable competitive advantage (Grant, 2013).

Globally there is a paradigm shift towards Knowledge management because it seeks to produce a capability which improves organizations performance: defined by processes and infrastructure (Gold, Malhotra, & Segars, 2001). In the past such knowledge was passed down from generation to generation through formal apprenticeship especially for professions such as law. Information was also stored in corporate libraries and knowledge repositories but these were just hubs of information which lay dormant and sometimes would not be accessed in year. This is not knowledge management but rather information storing. In order for organizations to profit of the knowledge they have they must access it and make it work for them. This is the core value of having functional knowledge management systems.

In Africa, knowledge has been passed down from generation to generation using multiple methods which include oral literature, apprenticeship among others. However, with the introduction of formal education some of these practices have been lost. Knowledge management can be seen as an avenue to unite both the traditional African way of passing Knowledge from one generation to the next as well as the modern way which incorporates technological systems to make the process fast and more efficient hence avoiding reinventing the wheel (Masolo, 2003). Numerous authors contend that there are dissimilarities in the way people, especially those from different cultural backgrounds, interpret or accept knowledge sharing. Ribiere and Sitar (2002),

argue that, as a result of their educational systems, western cultures do not encourage a social exemplar of knowledge sharing. Yeh and Ma (2005) concur, arguing that western cultures are more likely to embrace values of self-determination, independence and the attainment of personal interest.

In contrast, Nadene, Neels and Jaco,(2007) argues that Asian cultures nurture a sharing and teamwork environment or approach to activities. Very little is mentioned in literature about knowledge sharing in African cultures and/or African organizations. Specifically, not much is known regarding knowledge sharing in settings where the roles of dominance of one culture over another are reversed or neutralized, either by force or law, or by natural progression. With this in mind this study is critical in addressing this matter.

In Kenya the case is no different. This study focuses on the telecommunication sector in Kenya more so organization which handles mobile services, fixed line and broadband services. The telecommunication sector in Kenya is a fast growing and ever expanding sector which makes competitive advantage key to be successful in this sector. For this reason, this sector makes a great population for a study in knowledge management. This study focused on comparing two telecommunication organizations namely, Safaricom and Telecom Organization B. The objectives of the study were: To investigate if knowledge management generation leads to competitive advantage between Safaricom and Organization B in Kenya; To analyze if access to knowledge management tools results in competitive advantage between Safaricom and Organization B in Kenya; To find out whether embedding in knowledge management leads to competitive advantage between Safaricom and Organization B in Kenya.

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## 2. Literature Review

### Theoretical Literature review

The theoretical approaches discussed include the contingency theory, the actor network theory and organizational learning theory.

#### Vroom and Yetton's decision participation contingency theory

The central focus of this theory is to assess how the nature of a group, leader, and situation determine the degree to which the group is to be included in the decision-making process. This is accomplished by a flowchart-style decision making procedure that arrives at a style of decision-making. These styles are autocratic, consultative, and group. The autocratic essentially is a dictator, taking her or his cue from Transactional Leadership methods, which, in essence say that the leader tells the group, "obey". The consultative approach has the leader going to the group for suggestions on how to carry out tasks. The "group" method of decision making is the most democratic, where the group ultimately makes the decision (Vroom, Yetton, & Jago, 1988).

The theory states that there can be many styles of leadership and no one type fits all situations, thus making this a Contingency Theory. A leader sizes up a situation, assesses the situation facing the group, determines how much support the group will give to the effort, and then effect a style of leading. There is a mechanical process to do this involving seven questions and decision points. The underlying assumption of the Vroom-Yetton-Jago Decision Models is that no one leadership style or decision making process fits all situations. By analyzing the situation and evaluating the problem based on time, team buy-in, and decision quality, a conclusion about which style best fits the situation can be made. The model defines a very logical approach to which style to adopt and is useful for managers and leaders who are trying to balance the benefits of participative management with the need to make decisions effectively which leads to competitive advantage (Vroom, Yetton, & Jago, 1988).

This theory is the main theory featured in this research paper especially to come up with the five assumptions expounded on in this chapter. According to this model, the effectiveness of a decision procedure depends upon a number of aspects of the situation which include the importance of the decision quality and acceptance, the amount of relevant information possessed by the leader and subordinates, the likelihood that subordinates will accept an autocratic decision or cooperate in trying to make a good decision if allowed to participate, the amount of disagreement among subordinates with respect to their preferred alternatives (Grany, 2014). This theory works well with knowledge management since the decision making process is determined by the available knowledge possess by the leader as well as the subordinates and proper use of that knowledge can lead to competitive advantage.

#### Knowledge Management System Modelling Matrix

Proper Knowledge management falls into one of the four domains of this knowledge matrix which is a collection of various theories as suggested by Aboubakr and Woodman, (2007). These domains include: Personal KMS models (Epistemology-Actor) focus on knowledge of the individual, in particular tacit knowledge. In this domain modelers attempt at representing KMS as cognitive maps of each individual's knowledge – who knows what? There is no particular technology that is used for this domain, but it is rather based on cognition; Social KMS models (Ontology-Actor), for example Wenger (1998), focus on knowledge of the group as a society, in particular knowledge flow and relationships. In this domain modelers merely refer to communities of practice as the representation of KMS. IT has limited use in this domain and the main technique used for KM is story telling; Codified KMS models (Epistemology-Analytical) e.g. Nonaka and Takeuchi (1995), focus on knowledge of the individual, in particular explicit knowledge or knowledge that could be codified. In this domain modelers attempt at representing KMS as expert systems. IT has a wide usage in this domain especially artificial intelligence; Taxonomy KMS models (Ontology-Analytical) e.g. Wiig (1997), focus on knowledge of the Group as a hierarchy, in particular knowledge taxonomies. In this domain modelers refer to Intranets as an adequate representation of KMS. IT has a wide usage in this domain such as with neural networks.

**Table 1: KMS Modelling Matrix.**

	Personal	Social
<b>Actor</b>	Tacit Knowledge	Relationships
	Cognitive Maps	Communities of Practice
	Cognition	Story Telling
<b>Analytical</b>	<b>Codified</b>	<b>Hierarchical</b>
	Explicit Knowledge	Taxonomy
	Expert System	Intranet
	AI	Neural Networks

Source: Electronic Journal of Knowledge Management (2007)

### Organizational Learning Theory

**Organizational learning** (OL), according to Argyris & Schon (1996) is a product of organizational inquiry. This means that whenever expected outcome differs from actual outcome, an individual (or group) will engage in inquiry to understand and, if necessary, solve this inconsistency. In the process of organizational inquiry, the individual will interact with other members of the organization and learning will take place. Learning is therefore a direct product of this interaction.

Argyris and Schon emphasize that this interaction often goes well beyond defined organizational rules and procedures. Their approach to organizational learning theory is based on the understanding of two (often conflicting) modes of operation:

**Espoused theory:** This refers to the formalized part of the organization. Every firm will tend to have various instructions regarding the way employees should conduct themselves in order to carry out their jobs (like problem solving). These instructions are often specific and narrow in focus, confining the individual to a set path. An example of espoused theory might be "if the computer does not work, try rebooting it and then contact the IT department."

**Organizational Theory:** This is the actual way things are done. Individuals will rarely follow espoused theory and will rely on interaction and brainstorming to solve a problem. Theory in use refers to the loose, flowing, and social way that employees solve problems and learn. An example of this might be the way someone actually solves a problem with their computer by troubleshooting solutions, researching on forums, asking co-workers for opinions, among other.

The fact that there is a mismatch between these two approaches is potentially problematic if the company enforces its espoused theory. In order to create an environment conducive to learning, firms are encouraged to accept theory in use, and make it easy for the individual to interact with his working environment in an undefined and unstructured way. Essentially they should provide the right environment for organizational inquiry to take place, unconstrained by formal procedures (Argyris & Schon, 1996).

Levitt and James (1996) expand further on the dynamics of organizational learning theory. Their view presents the organization's routine-based, history dependent, and target oriented. While lessons from history are stored in the organizational memory, the event itself is often lost. They note that past lessons are captured by routines "in a way that makes the lessons, but not the history, accessible to organizations and organizational members." The problem most organizations face is that it is usually better to have the event rather than the interpretation. However, this is often too costly (both financially and time-wise) to be feasible. OL is transmitted through socialization, education, imitation and so on, and can change over time as a result of interpretations of history (Levitt & James, 1996). Argyris and Schon (1996) identify three levels of learning which may be present in the organization.

**Single loop learning:** Consists of one feedback loop when strategy is modified in response to an unexpected result (error correction). E.g. when sales are down, marketing managers inquire into the cause, and tweak the strategy to try to bring sales back on track. **Double loop learning:** Learning that results in a change in theory-in-use. The values, strategies, and assumptions that govern action are changed to create a more efficient environment. In the above example, managers might rethink the entire marketing or sales process so that there will be no (or fewer) such fluctuations in the future.

**Deuterolearning:** Learning about improving the learning system itself. This is composed of structural and behavioral components which determine how learning takes place. Essentially deuterolearning is therefore learning how to learn. Effective learning must therefore include all three, continuously improving the organization at all levels. However, while any organization will employ single loop learning, double loop and particularly deuterolearning are a far greater challenge.

Knowledge management grows capability (Grant, 2013) is grounded in organizational learning (OL) theory where Knowledge Management can be considered a change initiative designed to increase the organizational knowledge base (OKB) (Massingham & Diment, 2009). Knowledge Management can improve organization learning and, therefore, increase the OKB. If people are learning, their knowledge is increasing. The OKB is the stock of knowledge, which means its intangible assets, and increases should be reflected in higher market capitalization which leads to competitive advantage.

## Empirical Literature Review

For this theory to be applied five general assumptions concerning efficient knowledge management were identified. These theoretical assumptions are based on the notion of knowledge sharing as a core element of knowledge management (Magnusson & Nilsson, 2011).

### Knowledge Generation for competitive advantage

The notion of trust has long been a studied phenomenon with regards to its role in the context of business. As early as 1964, Simmel in (McAllister, 1995) argued that trust is necessary if there is neither total knowledge nor total ignorance, and researchers have long sought an omnipotent and universal definition of the term (Hwang & Burgers, 1997). Regardless of the fact that a number of researchers argue that the concept of trust and its effects on business have not received the attention that it deserves (Porter, Lawler, & Hackman, 1975), there is a multitude of definitions and taxonomies covering the subjects. On a general level the majority of definitions differentiate the content of trust to two diametrically divided sub-categories, namely competence and goodwill (Hwang & Burgers, 1997).

These two aspects of trust reflect the complexity in the activity of trusting as encompassing an assessment of not only the ability of the receiver of trust to fulfil his or her obligations, but also the willingness to achieve said obligations. These two dimensions of trust are further complemented by a differentiation based on between what actor's trust exists, namely inter-personal or inter-organizational (Rosseau, 1985) and in some cases even inter-cultural or inter-national (Buckley & Casson, 1998). "Where there is trust there is the feeling that others will not take advantage of me" (Porter, Lawler & Hackman, 1975, p.497).

As the quote above points out, the notion of trust is also closely related to the concept of opportunism by being an inhibitor of opportunistic behavior. According to Barney (1999), opportunism can be defined as "...when a party to an exchange takes unfair advantage of other parties to that exchange". (p.3) and argues that in order for opportunism to be held at bay, a new form of governance needs to be applied. This new form of governance (intermediate, network or relational (Poppo & Zenger, 2002) governance) uncouples the traditional rigidity of organizational boundaries and opens up for the governance of exchanges between organizations. In order for this form of governance to be successful, the level of opportunism needs to be controlled mainly through the use of contracts and elaborate governance mechanisms (Barney, 1999). If elaborate contracts and governance mechanisms was all that was needed to hinder opportunistic behavior in inter-firm collaborations all would be well. However, researchers such as Poppo & Zenger(2002), stipulate a somewhat more complex relationship between the existence of opportunistic behavior and the use of contracts. The same researchers state that contracts do not merely have the positive effect of making commitment explicit and provide customized approaches to handling exchanges, but they also have a side-effect in acting as a motor for opportunistic behavior (Poppo & Zenger, 2002).

A number of researchers have dealt with the relationship between trust and complex contracts, and a split can be found between those that regard them as substitutes and those that regard them as complementary (Poppo & Zenger, 2002). This research acknowledges the fact that contracts can function both as structural constraints and affordances, but disagree with the notion that the two constructs exist on a single scale. The concept of trust would most likely be irrelevant for further research if there was not a direct link between level of trust existing in a collaboration and the performance or outcome of the collaboration which lead to competitive advantage. Poppo & Zenger (2002), Barney (1999) and Hansen (1995) argue that the level of trust in a collaboration has direct effect on the competitive advantage of the collaboration and hence also the participating firms. This can partly be attributed to the learning-effect that the network collaboration can foster (Chetty & Erikson, 2002).

When it comes to the link between trust and knowledge sharing, recently investigated the element of trust in virtual communities of practice (Ardichvilli, Page, & Wentling, 2003). According to their findings various different kinds of trust need to be present for efficient knowledge sharing to be possible. This is also supported by Politis in a more general study of knowledge transfer and its prerequisites and concerning the role of trust in KM and team performance (Politis, 2003).

### Access to Knowledge for competitive advantage

This assumption is better explained using the actor network theory (ANT). ANT is a theory concerned with the production of facts or knowledge (Callon, 2001). In particular, this methodology highlights the networks giving raise to, and sustaining, various forms of knowledge. No one has ever observed a fact, theory or machine that could survive outside the networks that gave birth to them (Latour, 1997, p.248). From this perspective networks comprise of interconnections between human and non-human act ants – that is, 'documents devices and people' (Latour, 1997). This simplifies the view of actors acting in networks into a set of example descriptions of roles involved in knowledge sharing.

Process knowledge refers to knowledge of business processes. Knowledge Management Systems (KMS) support knowledge management activities by integrating information and communication technologies. As an effective process management tool, workflow management systems (WfMS) allows a business to analyze, stimulate, design, enact, control and monitor general business processes (Leamann & Altenhauber, 1994). In practice, workflow participants possess different needs and types of authority when obtaining information about business processes, they represent different roles. The definition of roles and the delivery of relevant and necessary documents to workers in order for them to complete their tasks in a workflow environment have been addressed (Abecker, Bernardi, Maus, Sintek, & Wendel, 2000).

The role of Artificial Intelligence (AI) in knowledge management is by Tsui, Gardner and Staab (2000) states in their editorial of Knowledge based Systems. There is a general consensus that Knowledge Engineering has a far more technical focus on knowledge, its representation, organization and reasoning. KM is more aligned towards capturing, sharing and reusing knowledge in or among organizations. There is still no system that can converse

with a human, should one nevertheless try to tackle the even larger problems in KM"? The answer to this question is that most commercial KM tools available already comprise of some sort of AI technology, Bayesian reasoning, ontologies, data mining, intelligent agents.

Turner and Keegan (2000) described operational control processes in project based organizations. The project organization creates an interface between its projects and its clients and noted two roles, broker and steward. They found these roles in almost all project based organizations and argue for their respective importance regardless of project. The roles may be described as follows: The broker shall maintain the relationship with the client. This entails the identification and attraction of new clients, a bid for and win work, a liaison with the client during the work and the delivery of the product. Furthermore, he should ensure the satisfaction of the client and should win follow-up businesses. The role combines ambassador for the firm and resource investigator for the client. The steward puts together the network of resources to deliver the project, ensuring the right people at the right time to ensure that the right thing happens. It is the project manager's role to manage the process. The role of the Steward is almost abstract, but an essential one, complementing the complementing the Broker and Manager in the core three (Turner & Keegan, 2000).

### **Knowledge embedding for competitive advantage**

One of the main influential factors on the successful knowledge sharing within organization is the existence of an organizational culture that supports the effective sharing of knowledge (Magnusson & Nilsson, 2011). According to major studies on Knowledge Management or Organizational Learning, culture is a key barrier to success in related initiatives. (The conference Board, 2000). According to Schein (Schein, 1992) organizational culture is defined as "a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (p. 12). One aspect of an organizational culture is the knowledge culture. Knowledge culture is the totality of values and norms in an organization that have been developed over time, are accepted by the organizational members and have an influence on the creation, sharing and usage of knowledge (Schein, 1992).

In the epoch of the knowledge society which is characterized by a tremendous increase in the amount of available knowledge and information sources and very short knowledge-lifecycles, the willingness of the organizational members to share knowledge becomes one of the most important aspects of organizational culture (Schultze & Boland, 2000). Based on the findings of empirical studies it can be said, that the willingness to share knowledge, is positively related to profitability and productivity and negatively to labor costs. Smith and MacKeen (2000) characterize a knowledge sharing culture by the openness of the organizational members to share knowledge, to teach and to mentor colleagues by using a variety of different media like conversations, meetings, data bases (Smith & McKeen, 2002).

Especially in knowledge based organizations the existence of a culture that encourages and values knowledge and knowledge sharing is of central importance. The organizational culture defines the range of autonomy, trust and values which have a strong impact on the communication, the sharing of knowledge and the innovativeness of an organization (Zyngier, 2006). Panhans (2004) states in her article about the way to a culture for cooperative learning and working that lots of knowledge management initiatives fail due to the existing organizational culture. Knowledge sharing is directly related to individual learning and co-operative working. The cultural prerequisites for co-operative learning are trust, open communication, self-confidence, consciousness, the ability and possibility to think critically, leadership, the ability to solve conflicts, the ability to make decisions and the feeling of togetherness (Panhans, 2004).

In the white paper on knowledge management by Koskineemi (1998) it is stated that knowledge management is as much cultural as it is technological and that a culture that does not foster and reward sharing of knowledge cannot expect technology to solve its knowledge challenges. Successful knowledge management depends very much on the commitment of top-management. Koskineemi (1998) of Buckman Labs says that Ninety percent of moving an organization to success in knowledge sharing or learning is in having the right culture. If your people are not confident that they can or should communicate freely, then all the best technology will be unable to pry knowledge out of them, or help them absorb knowledge. (The Conference Board 2000, p. 47). The American Productivity and Quality Centre (APQC) found in an empirical study conducted in 2000 out that however strong commitment and approach to knowledge management are, the culture is stronger. Companies successful in promoting a strong knowledge-sharing culture do not try to change their culture to fit their knowledge management approach. They build their knowledge management approach to fit their culture (The Conference Board, 2000).

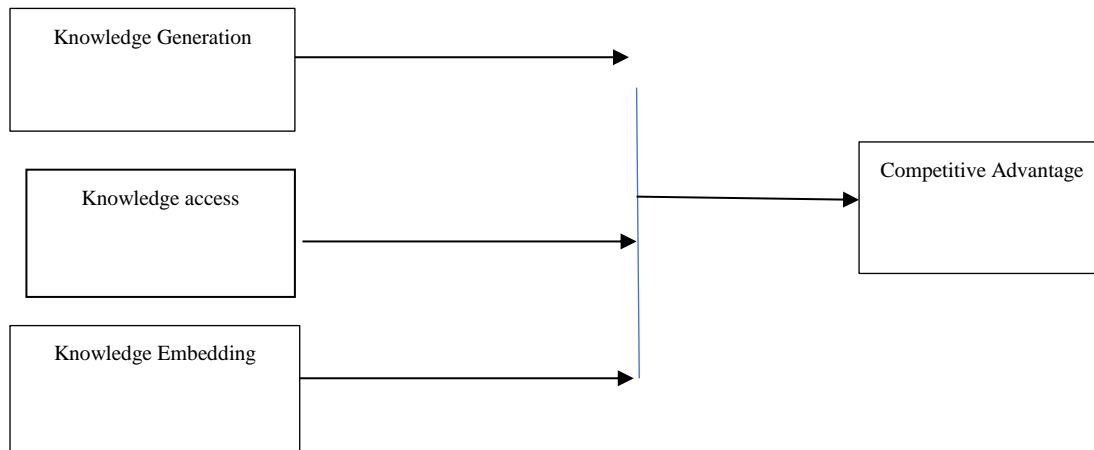
Knowledge sharing is tightly linked to a pre-existing core value of the organization. The organization introduces the approach, tools, and structures to support knowledge sharing in a way that matches the overall style of the organization. Knowledge-sharing activities build on existing networks people use in their daily work. Peers and immediate supervisors of those actively involved in sharing knowledge support, even exert, pressure to share. There is an appropriate level of senior management support and involvement. (McDermott & O'Dell, 2000). Davenport (1998) identifies several factors of an organizational culture that inhibit the successful transfer of knowledge within an organization. Deficits in trust, differences in cultures and language habits, lack of time and meeting-opportunities, incentives for knowledge carriers, lack of capacity to absorb new knowledge, not invented here syndrome and the intolerance towards mistakes and the need for help. Those deficiencies have to be identified and reduced by appropriate measures (Davenport & Prusak, 1998).

### **Conceptual framework**

Conceptual framework should demonstrate an understanding of what variable influences what.

**Independent variable**

**Dependent variable**



**Figure 1: Conceptual Framework showing the relationship between the variables**

Knowledge is a source of competitive advantage. This is grounded in the knowledge-based view of the firm's (KBV) proposition that knowledge is the firm's most valuable resource (Grant, 2013). The KBV argues that knowledge is more important than the traditional sources of economic power (Storey & Barnett, 2000), mainly because knowledge is embedded in products and services and this makes it difficult for competitors to copy. Knowledge meets the criteria for competitive advantage found by the resource-based view of the firm (RBV), e.g. scarcity, durability (Grant, 2013). There is not one right way to get people to share, but many different ways depending on the values and style of the organization. Organizations with a culture that supports sharing knowledge have a visible link between sharing knowledge and solving practical business problems.

### 3. RESEARCH METHODOLOGY

The study applied ex post facto casual-comparative design. As explained by Gall, Borg, and Gall (2006), in this design, the researcher does not manipulate the variables under study but instead, examines the variables in their existing condition (Olsen & George, 2004). Therefore, the researcher conducted the study within the existing staff in the telecommunication organizations and the impact of knowledge management on the three aspects of competitive advantage.

The telecommunication sector in Kenya has 13 companies however since this is a comparative study only two organizations were considered: the competitive leader and another organization that does not have as much competitive advantage in the field. In these organizations all departments were sampled but only employees working in the headquarters in Nairobi were sampled due to the researcher's discretion. The target number of respondents was 100 and 116 from the institutions namely Safaricom and Organization B respectively which was a total of 216 respondents.

Orodho and Kombo (2002) describe a sample as a finite and representative number of individuals of objects in the population to be studied. Since the target population is diverse stratified random sampling was used. The strata were the two organizations of which 100 participants were randomly selected in each floor of their organizations buildings. The companies this study focused on include Organization B and Safaricom who both deal with mobile services, fixed line and broadband services. The headquarters of these organizations are based in Nairobi although most of them are national and multinational organizations.

Data was collected from both primary and secondary sources. Questionnaires were used to collect the primary data that focused on knowledge management and the five aspects of knowledge management discussed in empirical literature review. Secondary data on competitive advantage of the two organizations was collected from organizations portfolios and other researches.

Regression analysis was used to identify which aspects of knowledge management influence competitive advantage and to what extent. This data was presented in the form of tables in chapter four. These finding also highlighted key demographic issues such as age, gender, educational background and employment history this data was presented as graphs in chapter four. Also correlation analysis was conducted to identify which was the most important aspect of each of the five aspects of knowledge management namely knowledge generation, access, embedding, facilitation and transfer.

### 4. RESEARCH FINDINGS AND DISCUSSIONS

#### Knowledge Management for competitive Advantage

For both organizations a summary of the knowledge management aspects shows how each organization performed on each aspect on table 1.0.

**Table 2.0: Summary of the five aspects of Knowledge Management**

Group Statistics					
	Organization	N	Mean	Std. Deviation	Std. Error Mean
KMGen	Safaricom	30	2.2000	.66436	.12130
	Organization B	30	2.7833	.71539	.13061
KMAccess	Safaricom	30	2.2000	.66436	.12130
	Organization B	30	3.3667	1.06620	.19466
KMEmbedding	Safaricom	30	3.6000	.81368	.14856
	Organization B	30	2.1000	.71197	.12999

In a scale of one to five (5 – strongly disagree and 1- strongly agree), it is clear from the table above that Safaricom (2.20) was slightly better at knowledge generation than Organization B (2.78). This means that most of Safaricom's respondents believed that the organization was good at generation knowledge while the respondents at Organization B did not strongly believe so but were almost neutral about it.

It is also clear from the table above that Safaricom (2.20) is better when it came to access of Knowledge in fact they incorporate the latest technology and have knowledge management systems as compared to Organization B (3.37) respondents who disagree and believe they do not have access to knowledge.

It was interesting to note that Organization B (2.10) respondents feel that their organization encouraged them to continue with their education and they received multiple training opportunities. On the other hand, Safaricom (3.60) respondents did not feel that they were given opportunities to train and they were too busy to further their education. Although this is what the data showed it was interesting to note that Safaricom respondents had higher levels of education than that of Organization B respondents. This was a key factor in the research since it showed that Organization B has quite exposed staff who attend multiple trainings but since they do not have systems in place to share, store and access this knowledge at a later date this knowledge is never properly managed and when a staff leaves they leave with all the knowledge they had.

### Knowledge generation

When all the questions testing knowledge generation were analyzed using linear regression analysis it was found that how the both organizations generated knowledge within the Safaricom's well as with their business partner had the most impact on knowledge generation. This is shown in table 2.0. These two had the strongest variance as shown in the histogram below as figure 1.0.

Table 2.0: Knowledge Generation linear regression analysis

Coefficients										
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B			Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Tolerance
(Constant)	1.130E-015	.000		.000	1.000.000	.000				
KM generation(Ext)	1.810E-014	.000	.000	.000	1.000.000	.000	.863	.000	.000.012	82.013
KM generation(Bus)	.500	.000	.711	32192170.798.000	.500	.500	.889	1.000	.124.030	33.092
KM generation(Int)	.500	.000	.491	157241110.210.000	.500	.500	.749	1.000	.060.015	66.226
KM generation(Exp)	-1.377E-014	.000	.000	.000	1.000.000	.000	.669	.000	.000.102	9.809
KM generation(Oral)	2.432E-014	.000	.000	.000	1.000.000	.000	.743	.000	.000.014	73.811
KM generation(Org)	-3.682E-014	.000	.000	.000	1.000.000	.000	.873	.000	.000.007	147.653

## a. Dependent Variable: KMGen

It can therefore be concluded that since most respondents had a positive response to Knowledge generation it is key to competitive advantage especially since without proper knowledge generation there can be no knowledge management.

**Knowledge access**

It is also clear from the table 6 that for the strongest factor affecting knowledge access according to regression analysis conducted on SPSS was the overall usage of IT to store or access knowledge.

**Table 3: Knowledge Access linear regression**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations		Collinearity Statistics		
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	.095	.104		.915	.364	-.113	.303					
KM IT usage	.949	.034	.964	27.638	.000	.880	1.017	.964	.964	.964	1.000	1.000
2 (Constant)	-.436	.110		-3.958	.000	-.657	-.216					
KM IT usage	.725	.042	.737	17.365	.000	.641	.808	.964	.917	.454	.379	2.635
KM supplier info	.364	.053	.289	6.810	.000	.257	.471	.869	.670	.178	.379	2.635
3 (Constant)	-.405	.104		-3.895	.000	-.614	-.197					
KM IT usage	.590	.060	.600	9.762	.000	.469	.711	.964	.794	.240	.160	6.262
KM supplier info	.321	.052	.254	6.122	.000	.216	.426	.869	.633	.150	.349	2.865
KM updated	.180	.062	.180	2.929	.005	.057	.304	.926	.364	.072	.159	6.294
4 (Constant)	-.366	.101		-3.631	.001	-.569	-.164					
KM IT usage	.762	.091	.774	8.399	.000	.580	.944	.964	.750	.197	.065	15.364
KM supplier info	.303	.051	.240	5.983	.000	.202	.405	.869	.628	.141	.342	2.923
KM updated	.263	.068	.263	3.873	.000	.127	.398	.926	.463	.091	.120	8.317
KM IT sharing	-.246	.100	-.247	-2.459	.017	-.446	-.045	.925	-.315	-.058	.055	18.304



### Knowledge embedding

It was interesting to note that from the table 4 only the aspect of pursuing higher education as an aspect of embedding knowledge was considered important enough to affect embedding of Knowledge according to regression analysis done on SPSS.

This data is consistent with the empirical literature review studies.

**Table 4: Knowledge Embedding Coefficient**

Coefficients													
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics		
	B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
(Constant)	.000	.000	.	.	.000	.000							
1 KM embedding Higher Edu	1.000	.000	1.000	.	.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

a. Dependent Variable: KMEmbedding

## 5. CONCLUSION AND RECOMMENDATIONS

### Conclusion

Knowledge management is clearly key to organizations as this study has proved and can lead to competitive advantage however each organization must scrutinize itself and find out how best it can generate, access, embed, facilitate and transfer knowledge and which knowledge management tools are suitable to help achieve its organizational goals and maximize on the knowledge and skills in that organization. The study of Knowledge Management is largely a new concepts and not many studies have been done especially in Africa. This means that this in an area that requires intensive study and research. However, the researcher recommends the following research areas.

Research needs to be done on effective types of knowledge management that can be applies too tacit, explicit or even both tacit and explicit knowledge. The two organizations in this study were chosen to investigate the relation between knowledge management and competitive advantage. Safaricom has knowledge management systems while organization B has no knowledge management systems but has a task force which has a wealth of experience since the organization was one of the first telecommunication companies to be established in Kenya. These two organizations were compared all factors held constant to find out if knowledge management can lead to competitive advantage. Secondary data was also used which determined that safaricom had a competitive edge over Organization B and the purpose of this study was to establish if knowledge management is a contributor of this fact

### Recommendations

Organizations should come up with knowledge management policies that clearly stipulate how knowledge is generated, accessed, embedded, facilitated and transferred. Every employee that undergoes training should also be trained on how to store that knowledge for further refer and easy access for others seeking that knowledge. Knowledge management systems should also be evaluated to know if they are just used as dustbins when knowledge is stored never to be accessed again or if they are interactive and adequately used by employees in an organization to bring about competitive advantage. Forums should also be organized where staff can interact and share their experiences every so often especially between the young and the older employees and mentorship initiatives taken to ensure flow of knowledge.

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